# Urban WATER Management Plan

November 21, 2005


**City of Huntington Beach**

*Class 1 Water System*

# 2005

PSOMAS

# URBAN WATER MANAGEMENT PLAN 2005


City of Huntington Beach

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PSOMAS

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## ACRONYMS and ABBREVIATIONS

| | |
|---|---|
| AB | Assembly Bill |
| AF | Acre Feet |
| AFY | Acre Feet per Year |
| AWPF | Advanced Water Purification Facilities |
| BMP | Best Management Practices |
| BPP | Basin Pumping Percentage |
| CALSIM | California Water Allocation and Reservoir Operations Model |
| CCF | Hundred Cubic Feet |
| CEQA | California Environmental Quality Act |
| CPTP | Coastal Pumping Transfer Program |
| 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 |
| DWR | Department of Water Resources |
| EOC | Emergency Operations Center |
| EPA | Environmental Protection Agency |
| GPCD | Gallons Per Capita Per Day |
| GPM | Gallons Per Minute |
| GWMP | Groundwater Management Plan |
| GWRS | Groundwater Replenishment System |
| IAWP | Interim Agricultural Water Program |
| IID | Imperial Irrigation District |
| In | Inches |
| IRP | Integrated Resources Plan |
| IRWM | Integrated Regional Water Management |
| LRP | Local Resources Program |
| LTFP | Long Term Facilities Plan |
| M&I | Municipal and Industrial |
| MAF | Million Acre Feet |
| MGD | Million Gallons per Day |
| Mg/L | Milligrams Per Liter |
| MOU | Memorandum of Understanding |
| MPR | Master Plan Report |
| MTBE | Methyl Tertiary Butyl Ether |
| MWD | Metropolitan Water District of Southern California |
| MWDOC | Municipal Water District of Orange County |
| NDMA | N-nitrosodimethylamine |
| NPDES | National Pollutant Discharge Elimination System |
| OC | Orange County |
| OCSD | Orange County Sanitation District |
| OCWA | Orange County Water Association |
| OCWD | Orange County Water District |
| PEIR | Program Environmental Impact Report |
| PVID | Palo Verde Irrigation District |

| | |
|---|---|
| QSA | Quantification Settlement Agreement |
| RA | Replenishment Assessment |
| RWQCB | Regional Water Quality Control Board |
| 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 |
| SDWA | Safe Drinking Water Act |
| SOCWRS | South Orange County Water Reliability Study |
| SWP | State Water Project |
| SWRCB | State Water Resources Control Board |
| TAF | Thousand Acre Feet |
| TDS | Total Dissolved Solids |
| THM | Trihalomethanes |
| TIN | Total Inorganic Nitrogen |
| ULFT | Ultra Low Flush Toilet |
| USBR | U.S. Bureau of Reclamation |
| UWMP | Urban Water Management Plan |
| VOC | Volatile Organic Compounds |
| WEROC | Water Emergency Response Organization of Orange County |
| WMP | Water Master Plan |
| WOC | Water Operations Center |
| 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 Huntington Beach (City) 2005 UWMP has been prepared in compliance with the requirements of the Act, as amended to 2005[1] (Appendix A), and includes the following:

- Utilities Division Service Area
- Utilities 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 UWMP UPDATE PREPARATION

The City's 2005 UWMP revises the 2000 UWMP prepared by the City and incorporates changes enacted by recent legislation including SB 610 (2001), 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 *Memorandum of*

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

*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 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 Huntington Beach City Council on November 21, 2005 following a public hearing. The Plan was submitted to the California Department of Water Resources and the State Library within 30 days of Council approval. Copies of the Notice of Public Hearing and the Resolution of Plan Adoption are included in Appendix C. Draft 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 Huntington Beach Utilities Division staff, in coordination with other departments of the City including the City Administrator's Office, Public Works Department, Community Development Department, Economic Development Department, and City Clerk's Office.

The City 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 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 Huntington Beach Utilities 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.

[2]The *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 Huntington Beach adopted the MOU on August 21, 2000.

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 HUNTINGTON BEACH WATER SERVICE AREA

### *Location*

The City of Huntington Beach is located 35 miles southeast of Los Angeles and 90 miles northwest of San Diego along the Southern California coast of Orange County as shown in Figure 1.1-1. Huntington Beach has a land area of 28 square miles and a water area of 26 square miles. The City is generally flat, with elevations ranging from a low of about 5 feet below to 120 feet above sea level. The City is predominately residential, although it also has nearly 500 major industrial businesses, 56 parks, and 8 ½ miles of beaches. The City also supplies water to Sunset Beach, which is approximately 68 acres of unincorporated land located off Pacific Coast Highway near Huntington Harbor.

### *Climate Characteristics*

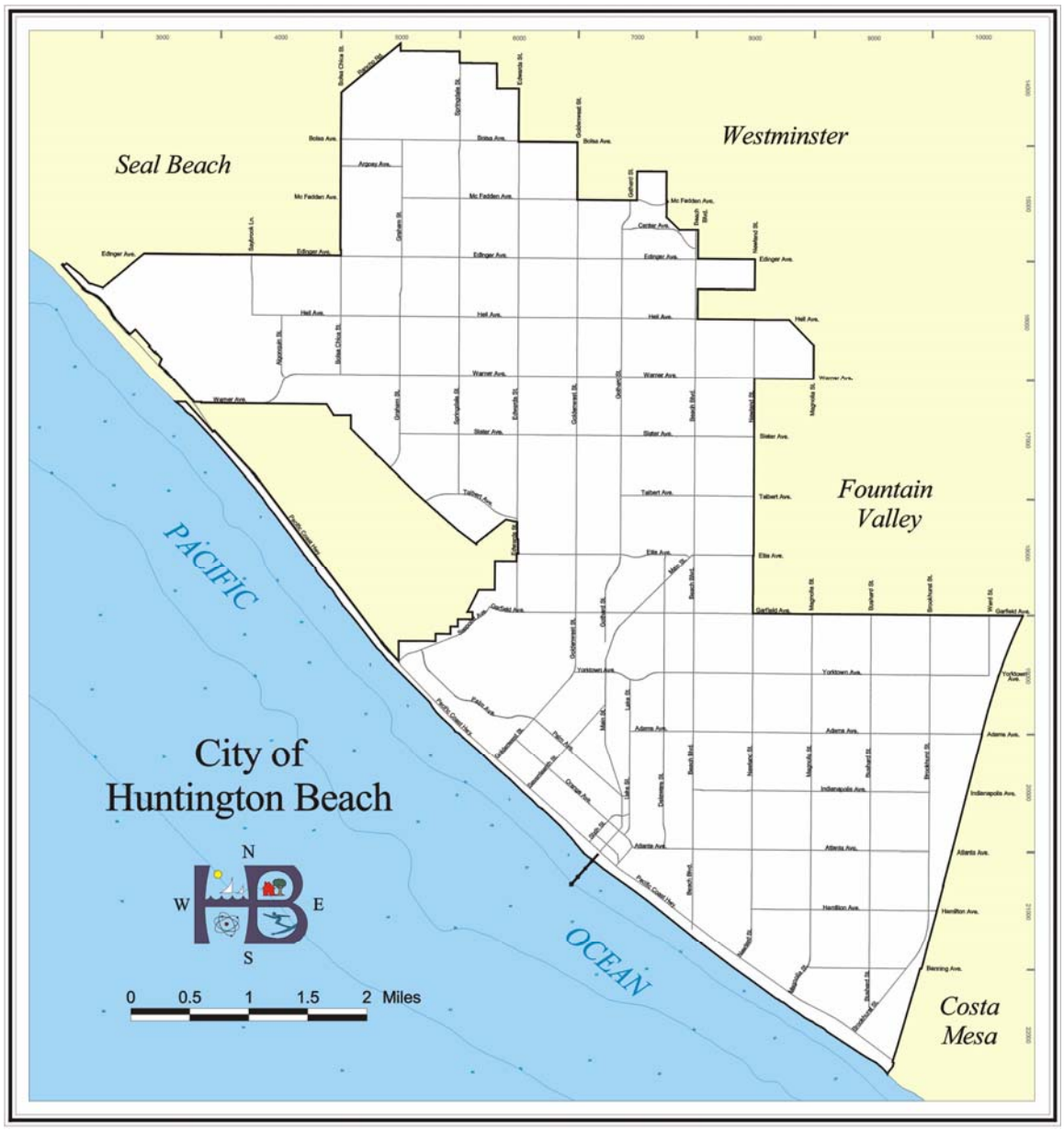
The City of Huntington Beach is located in an area known as the South Coast Air Basin (SCAB). The SCAB climate is characterized by what is known as Southern California's Mediterranean" climate: a semi-arid environment with mild winters, warm summers and moderate rainfall. The climate for the City is 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 varies throughout the Basin, averaging 62 degrees Fahrenheit at the coast where the city is located. January is usually the coldest month while July and August are usually the hottest months of the year. Annual average relative humidity is 64.7 percent. Precipitation is typically 10 to 12 inches, occurring mostly between November and April.

### *Demographics*

The population of the City is currently estimated at nearly 202,000, and is growing slowly, as there is very little remaining vacant land. The City provides water to over 52,000 service connections. The Huntington Beach water service area is predominantly residential with over 90 percent of water service connections serving single-family and multi-family residences. Approximately 65 percent of Huntington Beach residents live in single-family homes. The City also serves the Sunset Beach area of unincorporated Orange County.

**Figure 1.1**
**City of Huntington Beach Location Area**



The population per household was estimated at 2.56 by the Center for Demographic Research (CDR) at California State University Fullerton in 2004, which compares with 3.07 and 2.87 in Orange County and California, respectively. Data presented by the CDR projects an 11.1% increase in the City's population over the next 25 years. According to the CDR, the number of dwelling units in the city increased by 2,425 (75,852 to 78,277) between 2000 and 2005; however, this rate of growth is expected to decrease in future years as the city approaches build-out. Table 1.3-1 shows population projections in five-year increments to the year 2030.

**Table 1.3-1**
**City of Huntington Beach**
**Population Projections***

| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|
| **Huntington Beach Population** | 201,692 | 212,893 | 217,957 | 220,759 | 222,274 | 223,992 |
| **Annual % Increase** | - | 1.11% | 0.47% | 0.26% | 0.15% | 0.15% |

Source: The Center for Demographic Research, California State University Fullerton
* Excludes Sunset Beach population of 1,255 (2000 U.S. Census for Tract 995.06)

## 1.4 HUNTINGTON BEACH UTILITIES DIVISION AND FACILITIES

### *Utilities Division*

Huntington Beach was incorporated as a city in 1909, is one of the oldest cities in Orange County, and is the third largest city in the County. It is a charter city, administered by a council/administrator government. From 1936 to 1964, the water system serving Huntington Beach was owned and operated by the Southern California Water Company. In 1964, the City purchased the private system and the City's Water Division was established as a Division of the Public Works Department. In 2003, the Public Works Sewer Section was incorporated into the Water Division to form the Utilities Division. The Utilities Division is the principal water retailer within the City boundaries and the Sunset Beach area of unincorporated Orange County.

The Utilities 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 and billing. The Utilities 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.

The City of Huntington Beach is 56.1 percent owner and acts as General Manager/Engineer for the West Orange County Water Board. The West Orange County

Water Board is a joint powers agreement between the cities of Huntington Beach, Garden Grove, Westminster and Seal Beach for the ownership and operation of two large capacity imported water transmission lines (OC-9 and OC-35). The Utilities Division performs operation and maintenance of the lines.

The Utilities Division establishes an annual operation budget managed through the Water Fund. Water Fund revenues are received from monthly water use and connection fees billed to water customers. By ordinance, revenues and expenditures for the Water Fund must balance, and the annual Water Fund budget is developed consistent with this premise. The annual budget includes programs for Engineering, Administration, Water Quality, Water Production, Water Maintenance, Water Meters, and Water Billing. Personnel, operating and capital outlay / equipment replacement costs are determined for each program. In addition, a capital projects budget is designed to address primarily replacements and upgrades of various water facilities and pipelines.

In 1995, the City Council adopted a Water Master Plan (WMP) and an accompanying Financial Plan. To fund improvements recommended in the WMP, a surcharge was established for water customers in December 1995. In addition, a capital facilities charge was instituted on all new residential development. Revenues from these charges are placed into the WMP Fund and used for capital improvements. The City is currently developing a 2005 WMP Update, which will address water needs for the current and future growth the City has experienced.

### *Service Area*

The Utilities Division supplies customers throughout the City of Huntington Beach and the Sunset Beach area of unincorporated Orange County. Figure 1.2 shows the City limits and service areas, as well as the location of key water supply facilities, as described below.

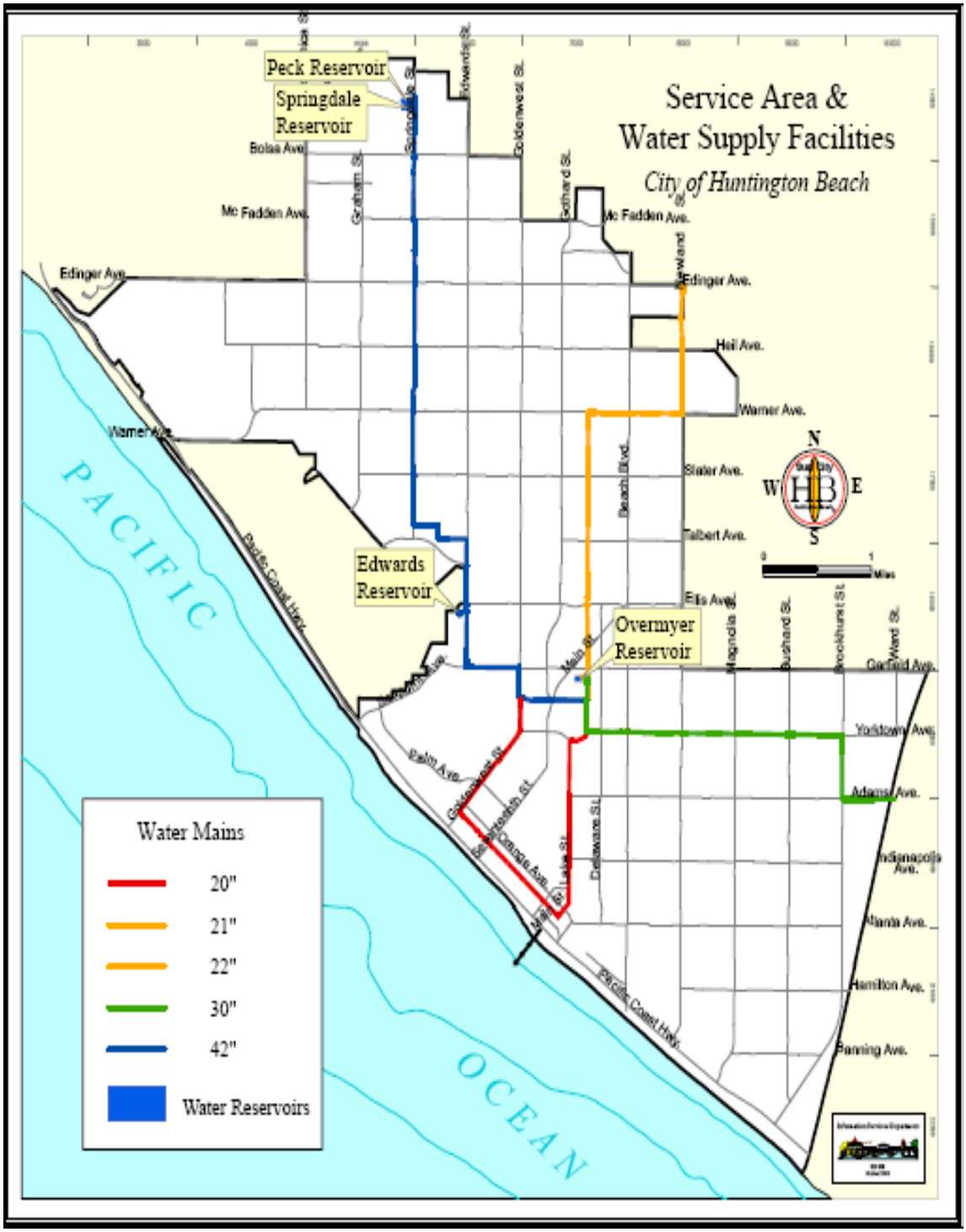
### *Water System Facilities*

Groundwater is pumped from 10 active wells located throughout the City. The age, depth, design flow and production data for the active wells, wells not in use, and abandoned wells are summarized in Section 2.

MWDOC wholesales imported water to the City from Metropolitan. Metropolitan treats water supplied to the City at the Robert B. Diemer Filtration Plant in northern Orange County and the Joseph Jensen Filtration Plant in Granada Hills. The City's water distribution system is connected to Metropolitan transmission mains at OC-9, OC-35 and OC-44 located respectively along the northeast, northwest, and southeast sides of the City.

The City also operates four storage and distribution reservoirs with a combined capacity of 55 million gallons. The storage system is supported with four booster stations located at the reservoir sites. The booster pumps have a total capacity of 58,690 gallons per minute, which is adequate to keep the system pressurized under peak flow conditions.

**Figure 1.2**
**Water Service Area and Supply Facilities**



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# 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 Water District of Southern California (Metropolitan), the Municipal Water District of Orange County (MWDOC) and the Orange County Water District (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 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 Santa Ana 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.[3] It is through MWDOC that the City purchases imported water from Metropolitan.

[3] 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.[4] 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.*[5] 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 and basin equity assessments 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.[6]

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 Orange County groundwater basin (basin) serving a population of approximately 2.8 million.[7] 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 groundwater basin to desired levels to meet required demands.

### *West Orange County Water Board (WOCWB)*

As discussed earlier, the WOCWB is a Joint Powers Agency between four participating agencies. The members include the City of Huntington Beach, the City of Garden Grove, the City of Westminster, and the City of 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 CFS and 45 CFS. Each of the member agencies has paid for the capacity of the feeder pipelines and directly pays MWDOC for the use of water.

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[4] Orange County Water District Act.
[5] Orange County Water District Act, Section 77.
[6] Orange County Water District Act, Sections 23 and 31.5.
[7] 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 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. For example, in 2003/04, the City's water supply was 66 percent imported water and 34 percent groundwater. 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 Huntington Beach**
**Current and Planned Water Supplies**
(AFY)

| Water Supply Sources | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|
| MWDOC – Import | 11,772 | 13,620 | 13,320 | 14,170 | 13,470 | 12,780 |
| Groundwater Production | 22,183 | 24,300 | 24,540 | 24,790 | 25,040 | 25,260 |
| **Total Water Supply** | **33,955** | **37,920** | **37,860** | **38,960** | **38,510** | **38,040** |

Source: 2005 data from MWDOC; future projections are from Section 4.2 of this UWMP

### *Imported Water*

Approximately 36 percent of the City's water supply comes from import water wholesaled by MWDOC through Metropolitan. Imported water is delivered from northern California via the State Water Project and from the Colorado River, and is treated at the Robert B. Diemer and Joseph Jensen Filtration Plant before the water is delivered to the City.

The City maintains three imported water connections to the Metropolitan system. The characteristics of these connections are shown in Table 2.2-2. OC-9 is located at the intersection of Dale and Katella Streets in the City of Stanton, and enters the city at the intersection of Newland and Edinger Streets. OC-35 is located at the same intersection and enters Huntington Beach at the intersection of Springdale and Glenwood Streets. OC-9 and OC-35 are under the jurisdiction of the West Orange County Water Board. OC-44 is a meter located at the East Orange County Feeder #2, and flow is delivered to the City's service area through a 24- to 42-inch transmission main jointly owned with the City and Mesa Consolidated Water District. A secondary metering station, jointly owned, is located on Adams Avenue at the Santa Ana River.

**Table 2.2-2**
**Imported Water Connections**

| Designation | Capacity | Zone Supply |
|---|---|---|
| OC-9 | 6,750 gpm | Zone 1 |
| OC-35 | 11,250 gpm | Zone 1 |
| OC-44 | 7,000 gpm | Zone 1 |
| **Total Capacity** | **25,000 gpm** | |

Source: Huntington Beach Water System Master Plan, 1995

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 groundwater 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 Orange County groundwater basin. This In-lieu Program indirectly replenishes the basin by avoiding pumping. In the In-lieu Program, OCWD requests the City to limit pumping to defined volumes 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 Replenishment Assessment (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 maintains four potable water storage reservoirs (Overmyer, Peck, Springdale, and Edwards Hill) with a total capacity of 55 million gallons. Pumps draw water from the reservoirs and pressurize it into the water system during high demand periods.

## *Groundwater*

### *Orange County Groundwater Basin*

The Orange County groundwater 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 Orange County groundwater 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 that overlies the Orange County Groundwater Basin. This amount can be adjusted as needed based on groundwater 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.[8] The groundwater 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 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 Orange County groundwater 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 Orange County groundwater 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 Orange County groundwater basin. The Orange County groundwater 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 acre-feet.[9]

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 groundwater 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. With an accumulated overdraft of 200,000 AF, the basin is considered 99.5 percent full with 40 MAF of groundwater in storage.

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

[8]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

[9]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

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, yearly measurement of groundwater levels, water quality monitoring, and prevention of sea water intrusion.

### *Basin Pumping Percentage*

One of the methods OCWD uses to manage the amount of production from the Orange County groundwater basin is the establishment of a Basin Production Percentage (BPP). OCWD recommends a BPP each water year which is calculated by dividing a producer's groundwater production by their total 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 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 Basin Equity Assessment (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.

When Metropolitan has an abundance of water, they may choose to activate their In-Lieu Program, where imported water is purchased in-lieu of pumping groundwater. This is a special program supported by OCWD, MWDOC and Metropolitan, which allows some agencies to pump above the BPP without penalty of the BEA.

### *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 recharged to the basin.

Artificial recharge occurs through 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.

**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 on average. OCWD also imports between 35,000 and 60,000 AF of replenishment water 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 mgd into the groundwater 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 Wells***

Within the City, groundwater for potable use is produced from nine operating wells currently in use that vary in depth from 204 feet to 996 feet, with production varying from 350 gallons per minute (gpm) to 3,400 gpm, with a total system capacity of approximately 20,690 gpm as shown in Table 2.2-4.

Two other City wells are used only for irrigation: Goldenwest No 4 and Meadowlark No. 2. Goldenwest Well No. 4 is currently used to irrigate Huntington Central Park and the Meadowlark Golf Course. Goldenwest Well No. 4 will be destroyed after Well No 8 is put online in 2006, while Meadowlark Well No. 2 will continued to be used to irrigated Meadowlark Golf Course.

**Table 2.2-4**
**City of Huntington Beach Active and Planned Wells**

| Well | Year Drilled | Well Depth (feet) | Capacity (gpm) | Normal Supply (gpm) |
|---|---|---|---|---|
| HB1[(a)] | 1962 | 306 | 750 | 350 |
| HB3A | 1994 | 716 | 2,500 | 1,750 |
| HB4 | 1967 | 804 | 500 | 450 |
| HB5 | 1969 | 820 | 3,000 | 3,000 |
| HB6 | 1973 | 810 | 3,000 | 2,500 |
| HB7 | 1975 | 891 | 3,400 | 3,400 |
| HB9 | 1981 | 996 | 3,000 | 1,750 |
| HB10 | 1981 | 960 | 3,400 | 2,700 |
| HB12[(b)] | 1995 | 800 | 3,000 | 3,000 |
| HB13 | 2001 | 800 | 2,500 | 2,500 |
| Total (gpm) | | | 25,050 | 21,400 |

(a) To be re-drilled with capacity increased to 750 gpm; schedule still to be determined.
(b) Scheduled start-up: 2005/06 at an estimated capacity of 3,000 gpm.

Table 2.2-5 summarizes the amount of groundwater pumped by the City for the last five years. Table 2.2-6 shows the amount of water that is projected to be pumped from each well in the future.

**Table 2.2-5**
**Amount of Groundwater Pumped**
(AFY)

| Well No. | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|
| Goldenwest No. 4 | 100.5 | 114.0 | 45.0 | 96.5 | 86.8 |
| Meadowlark No. 2 | 225.5 | 240.2 | 248.2 | 232.4 | 224.9 |
| HB1 | 595.0 | 647.8 | 295.1 | 408.8 | 567.2 |
| HB3A | 33.7 | 2,593.8 | 1,509.8 | 1,581.2 | 1,798.7 |
| HB4 | 1,962.0 | 942.3 | 275.5 | 281.4 | 247.8 |
| HB5 | 0.0 | 4,002.5 | 3,035.7 | 2,147.1 | 2301.0 |
| HB6 | 3,474.7 | 3,050.8 | 1666.0 | 1721.7 | 2,054.5 |
| HB7 | 5,011.3 | 4,164.5 | 2,045.4 | 1,905.6 | 2304.0 |
| HB8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HB9 | 2,363.4 | 2,440.2 | 726.8 | 809.2 | 1,086.9 |
| HB10 | 4,476.6 | 4,558.7 | 2,104.7 | 2,221.1 | 2,620 |
| HB12 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HB13 | 0.0 | 1,825.8 | 2,166.0 | 1,783.3 | 1,653.4 |
| **Total** | **18,242.7** | **24,580.6** | **14,118.2** | **13,188.3** | **14,945.2** |

Note: Totals are based on a fiscal year of June 30 to July 1. For example, production shown for 2001 is for groundwater pumped from 7/1/00 to 6/30/01.

**Table 2.2-6**
**Amount of Groundwater Projected to be Pumped**
(AFY)

| Basin | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|
| **Santa Ana Groundwater Basin** | 24,300 | 24,540 | 24,790 | 25,040 | 25,260 |

Note: Groundwater demand is estimated to comprise 70% of the total demand based on a normal water year and a BPP of 70%.

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# SECTION 3
# WATER QUALITY

## 3.1 WATER QUALITY OF EXISTING SOURCES

As required by the Safe Drinking Water Act (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.[10] As mentioned earlier, the City's source of water is from 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 SWP and the Colorado River Aqueduct. 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 and the Joseph Jensen Filtration Plant located in Granada Hills, 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 public 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.[11] Metropolitan also has one of the most advanced laboratories in the county where water quality staff performs tests, collects data, reviews results, prepares reports, and researches other treatment technologies. Although not required, Metropolitan monitors and samples elements 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

[10] City of Huntington Beach, 2005 Water Quality Report.
[11] Metropolitan's website, www.mwdh2o.com/mwdh2o/pages/yourwater/2005_report/protect_02.html

water could directly impact the amount of 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 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 Colorado River Aqueduct has the highest level of salinity of all Metropolitan's sources of supply, averaging 650 mg/L during normal water years.[12] 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 Environmental Protection Agency.

In contrast, water from the SWP is significantly lower in total dissolved solids, 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.

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

[12] The Metropolitan Water District of Southern California, Regional Urban Water Management Plan, 2005

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.
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 known to have adverse effects on the thyroid. 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 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 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 impurities that can form Disinfection Byproducts (DBP). DBPs in turn can result in the formation of Trihalomethanes (THMs), Haloacetic Acids (HAAs) and other DBPs. 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 disinfection byproducts 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. As a result, Metropolitan's board authorized the use of ozone as the primary disinfectant at all five Metropolitan treatment plants in July 2003. 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 disinfection byproducts 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 Department of Health Services has adopted a primary maximum contaminant level (MCL) of 13 ug/L for MTBE. 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 pCi/L whereas the California drinking water standard is 20 pCi/L.[13]

### *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

[13] The Metropolitan Water District of Southern California, Regional Urban Water Management Plan, 2005

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 parts per billion (ug/L).[14] 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:
  1. A feasibility study on water quality improvement in the California Aqueduct.
  2. The conclusion of feasibility studies and demonstration projects under the Southern California-San Joaquin Regional Water Quality Exchange Project.[15] This exchange project was discussed earlier as a mean to convey higher quality water to Metropolitan.
  3. 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 total dissolved solids and bromide concentrations in water from the Delta.

- 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.[16]

[14] Arizona Department of Health Services, Topock Groundwater Study Evaluation of Chromium in Groundwater Wells, September 7, 2005.
[15] The Metropolitan Water District of Southern California, Regional Urban Water Management Plan, 2005
[16] The Metropolitan Water District of Southern California, Regional Urban Water Management Plan, 2005

## GROUNDWATER

OCWD manages the City's groundwater 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.[17]

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 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 OCWD to address current issues and develop strategies to anticipated 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 Orange County groundwater basin has a number of constituents that are water quality concerns. The early agricultural practices with OCWD contributed to the high concentrations of nitrates in the shallow groundwater. Although nitrates are present throughout the basin, only a small number of areas exceed the MCL. Nitrate management goals include remediating groundwater contaminated by nitrate, attaining the Regional Water Quality Control Board's 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 percent of the MCL. The two nitrate removal projects within Orange County include the Garden Grove Nitrate Removal Project and the Tustin Main Street Treatment Plant.

### *Total Dissolved Solids (TDS)*

Another water quality concern is total dissolved solids (TDS). OCWD has been proactive to combat the increase in salinity within the basin; however, many wells within OCWD, with the exception of any in the City of Huntington Beach, exceed the RWQCB's water quality objective of 500 mg/L. TDS concentrations range from 223 to over 600 mg/L and

[17] Orange County Water District, *Groundwater Management Plan,* March 2004.

averages 461 mg/L within the basin.[18] The average TDS concentration of untreated groundwater pumped from the City is 336 mg/L.

The TDS levels within the recharge waters are higher than the average TDS concentrations within the groundwaters, as a result the TDS concentration within the groundwater continues 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 proposes the Groundwater Replenishment System.[19]

One of the major challenges for OCWD is the contamination of fresh 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 aid OCWD to track the extent and movement of saline waters throughout the basin.

### *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. Several drinking water wells have been taken out of service, although not within the City. OCWD implemented the Irvine Desalter Project to address the VOC's and high TDS concentrations in the groundwater 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 methyl tertiary-butyl ether, more commonly known as 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.[20] The health effects of MTBE are uncertain. The U.S. Environmental Protection Agency currently classifies MTBE as a possible human carcinogen.

Unfortunately there are hundreds of identified 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

[18] 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.
[19] Orange County Water District, *Groundwater Management Plan*, March 2004
[20] Orange County Water District, 2001-2002 Annual Report

petroleum-related companies. The suit seeks funding from the responsible parties to pay for the investigation, monitoring, and removal of oxygenates from the basin.[21] 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 groundwater basin from surface contamination of MTBE.

### *N-nitrosodimethylamine (NDMA)*

In the year 2000, OCWD discovered NDMA, a known carcinogen, in the injection water used to prevent seawater intrusion at the Talbert Barrier. OCWD adjusted the operation of Water Factory 21, where recycled water is treated for injection, for NDMA treatment. Ultraviolet light treatment was added to the process to reduce the occurrence of NDMA in injection waters.

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 Action 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 action 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 wide spread use among the population and their impact on human health because of exposure 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 million acre-feet. 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, including the City's Well No. 8. However, this well is inactive at this time and will be used to irrigate Central Park in 2006. 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.

### *Water Quality Programs*

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

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

- Source Water Protection – Similar to Metropolitan, OCWD has completed a drinking water source assessment for the existing drinking supply wells. The source water assessment develops management strategies to prevent or reduce the risks to groundwater from pollution such as:

    1) delineates the time-of-travel aquifer capture zone of the source and identifies land area to be protected
    2) identifies and locates potential sources of contamination to the well
    3) manage land use and planning for future development
    4) requires development to comply with the County's Municipal Stormwater Water Quality Management Plan to protect groundwater replenishment water

- Surface Water Monitoring – OCWD also conducts routine monitoring of the Santa Ana River and other surface waterways in the upper watershed. OCWD is conducting 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 Wetland 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 comprise of 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 groundwater 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)
    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 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 dry cleaners, electrical/electronic manufacturing, gas stations, known contaminant plumes, metal plating/finishing/fabricating, military installations, and plastics/synthetic producers.[22] The City continues to monitor its groundwater wells for the first indication of problems as part of their water management strategy.

In April of 2004, the City delivered highly fluoridated water that exceeded the MCL. The MCL for fluoride is 2 mg/L. The City estimates that over a period of 24 hours, residential and commercial customers were served with water with fluoride levels up to 33 mg/L. The City isolated the affected area and notified DHS as well as the Orange County Health Care Agency. The City flushed the water system and notification letters were delivered to impacted customers.

Except for the occurrence of fluoride, 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 disinfection byproducts 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.

[22] City of Huntington Beach, 2005 Water Quality Report.

# SECTION 4
# WATER RELIABILITY PLANNING

## 4.1 RELIABILITY OF WATER SUPPLIES

The City of Huntington Beach and all of the 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 have resulted in reduced supplies of imported water. Continued population and economic growth in Orange County will increase water demand within the region and put 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 MWDOC.

MWDOC and OCWD are implementing water supply alternative strategies for the region and on behalf of their member agencies to ensure available water in the future. Strategies are identified in the MWDOC 2005 Regional UWMP, the OCWD Long Term Facilities Plan (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 groundwater 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 groundwater 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, their 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 recently completed 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.[23]

***Colorado River Aqueduct (CRA)***

Pursuant to the 1964 U.S. Supreme Court decree, Metropolitan's dependable supply of Colorado River water was limited to 550,000 acre-feet per year assuming no surplus or unused Arizona and Nevada entitlement was available and California agricultural agencies use all of their contractual entitlement. Historically, Metropolitan has also possessed a priority for an additional 662,000 AFY depending upon availability of surplus water. In addition, Metropolitan maintains agreements for storage, exchanges and transfers within the service area of Imperial Irrigation District that provide water to Metropolitan.[24]

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 million acre-feet (MAF) basic annual apportionment of Colorado River water plus any available surplus. To keep California at 4.4 MAF, Metropolitan reduced its level of diversions in years when no surplus is available.

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.

The U.S. Bureau of Reclamation implemented Interim Surplus Guidelines to assist California's transition to the Plan. Seven priorities for use of the waters of the Colorado River within the State of California were established. Metropolitan would only be able to exercise its fourth priority right to 550,000 AF annually, instead of the maximum aqueduct capacity of 1.3 MAF. Priorities 1 through 3 cannot exceed 3.85 MAF annually. Together, Priorities 1 through 4 total California's 4.4 MAF apportionment.

In October 2003, the Quantification Settlement Agreement (QSA), a critical component of the California's Colorado River Water Use Plan and for purposes of Section 5(B) of the Interim Surplus Guidelines, was authorized defining Colorado River water deliveries, delivery of Priority 3(a) and 6(a) Colorado River water, and transfer and other water delivery commitments, thus facilitating the transfer of water from agricultural agencies to urban uses. The 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.

[23] The Metropolitan Water District of Southern California, Regional Urban Water Management Plan, 2005
[24] Metropolitan Water District of Southern California. Integrated Water Resources Plan. 2003 Update. May 2004.

Metropolitan's Integrated Water Resources Plan 2003 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.[25] 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 its full Table A Amount; currently at 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. 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 1, 2005, SWP supplies are projected to meet 60 percent of most SWP contractor's Table A Amounts. This allocation was increased to 70 percent on April 1, 2005. However, the allocation was again revised with the May 25, 2005 Notice to State Water Project Contractors. The Notice informed that DWR is preparing an update to the SWP Reliability Report issued in 2003, which is expected to be complete by the end of 2005. 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 6 and 7 since they contain the most current information for assumed demands. The results of studies 6 and 7 show average deliveries of 69 percent of full Table A under current conditions and 77 percent under future conditions. The more recent studies also show a minimum delivery of 4 and 5 percent, current and future years respectively, compared to 20 percent for the 2003 report. These amounts are shown in Table 4.1.1-1 on the following page compared to the earlier CALSIM modeling as discussed below.

[25] Department of Water Resources, State Water Project Delivery Reliability Report. 2002.

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 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 shows the results, which demonstrate that SWP deliveries, on average, can meet 75 percent of the maximum Table A Amount.

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, 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.

**Table 4.1-1**
**SWP Table A Deliveries from the Delta**
**Percent of Total Table A Amount of 4.133 MAF**
**(MAF)**

| Study | Average | Maximum | Minimum |
|---|---|---|---|
| 2001 Study | 2.962 (72%) | 3.845 (93%) | 0.804 (19%) |
| 2021 Study A[1] | 3.083 (75%) | 4.133 (100%) | 0.830 (20%) |
| 2021 Study B[2] | 3.130 (76%) | 4.133 (100%) | 0.830 (20%) |
| Revised-Demand Today[3] | 2.818 (69%) | 3.848 (94%) | 0.159 (4%) |
| Revised-Demand Future[4] | 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

[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.

***Report on Metropolitan's Water Supplies: 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 Colorado River Aqueduct 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 which 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."[26] 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.[27]

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.

In addition to the *Report on Metropolitan's Water Supplies, A Blueprint for Water Reliability*, MWD'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.[28]

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 accomplish this, Metropolitan continues to approve new and innovative projects and programs to ensure reliability. For example, in August 2001, Metropolitan took action to move forward initiatives to bolster future supplies by supporting seawater

[26] Metropolitan Water District of Southern California. Report on Metropolitan Water Supplies, A Blueprint for Water Reliability, p. 9. March 25, 2003.
[27] Metropolitan Water District of Southern California. Report on Metropolitan Water Supplies, A Blueprint for Water Reliability, p. 24-25. March 25, 2003.
[28] Tables II-7, 8 and 9 of MWD's September 2005 Draft Regional Urban Water Management Plan

desalination projects, increased commercial conservation efforts, improve water quality by decreasing salinity in supplies from the State Water Project and the Colorado River, increased underground storage and retrieval facilities, adopted principles for establishing cooperative programs, and endorsed 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 implementation of revised Metropolitan water management programs through the year 2005.

The IRP 2003 Update was approved and released 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 details the Local Resources Program (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 acre feet of local supply in 2002.[29]

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.

[29] Metropolitan Water District of Southern California. Integrated Water Resources Plan, 2003 Update. May 2004.

Metropolitan continues to encourage development of local water resource projects through 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.

### *Municipal Water District of Orange County (MWDOC)*

MWDOC represents its members at a regional, state and federal level, and advocates for the development and protection of imported water supplies and planning along with coordinating the water needs for its service area.[30] 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.[31]

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.[32]

[30] [On-Line]. Municipal Water District of Orange County. Available: http://www.mwdoc.com. 2002.
[31] MWDOC. Regional Urban Water Management Plan, p. 1-7. 2000.
[32] MWDOC. Regional Urban Water Management Plan. 2005.

### *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 (IRWM) Group.

### *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:[33]

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 Orange County Water District plans and groundwater basin operations studies.

[33] MWDOC. South Orange County Water Reliability Study: Phase 2 System Reliability Plan. June 2004.

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.

### *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.[34] 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.

Furthermore, OCWD has invested in seawater intrusion control (injection barriers), recharge facilities, laboratories, and basin monitoring to effectively manage the basin. Consequently, although the basin is defined to be in an "overdraft" condition, it is actually managed to allow utilization of up to 500,000 AF of storage capacity of the basin during dry periods, acting as an underground reservoir and buffer against drought.[35] OCWD also operates the basin to keep the target dewatered basin storage at 200,000 AF as an appropriate accumulated overdraft.[36] If the basin is too full, artesian conditions can occur along the coastal area, causing rising water and water logging, an adverse condition.

Since the formation of OCWD 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.

[34] OCWD Groundwater Management Plan, 2004.
[35] Orange County Water District, *Groundwater Management Plan*, 2004.
[36] 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.

### *OCWD Long Term Facilities Plan*

OCWD is preparing the Long Term Facilities Plan (LTFP) and will 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; and
- Estimate impacts to potential future Replenishment Assessment and Basin Production Percentage rates.

A program environmental impact report (PEIR), 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 by the City of Anaheim and Irvine Ranch Water District. In the PEIR, 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: 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 Groundwater Replenishment System (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.[37] 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 million gallons of wastewater.[38] Effluent from Reclamation Plant No. 1 is either routed to the ocean disposal system or is sent to the OCWD facility, Green Acres Project, for advanced treatment and recycling. The Green Acres Project 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.[39] 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:

- 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 provide additional groundwater production in the coastal zone.

## *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

[37] Orange County Sanitation District Facts and Key Statistics. www.ocsd.com. January 2005
[38] MWDOC 2005 Regional Urban Water Management Plan
[39] Orange County Water District, Draft Long-Term Facilities Plan Review Draft, August 2005.

quality, the beneficial uses of the region's ground and surface waters, and local water quality conditions and problems.[40]

In 1975, the Santa Ana Regional Water Quality Control Board (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 and policies, including the California Water Code (Porter-Cologne Water Quality Control Act) and the Clean Water Act.[41]

### *Key Regional Issues*

Water quality degradation due to high concentrations of nitrogen and total dissolved solids (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

[40] Santa Ana Regional Water Quality Control Board. Region 8 Water Quality Control Plan (Santa Ana River Basin). January 1995.
[41] Santa Ana Regional Water Quality Control Board. Region 8 Water Quality Control Plan (Santa Ana River Basin). January 1995.

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.[42]

***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.

## 4.2 DEMAND AND SUPPLIES RELIABILITY COMPARISON

***Metropolitan Water District Supplies and Demands***

As previously discussed, the City is a member agency of the MWDOC, which is a member agency of Metropolitan. In its September 2005 Draft Regional UWMP, Metropolitan has chosen 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

[42] Santa Ana Regional Water Quality Control Board. Watershed Management Initiative. Revised May 2004.

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 4.2-2 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)[43] compared with a 20.9 percent increase in population over the same period of (18,233,700 to 22,053,200).[44] In other words, Metropolitan's projected increase in demand roughly parallels its projected increase in population.

[43] Table A.1-5 from Metropolitan Water District of Southern California, September 2005 Draft RUWMP
[44] Table A.1-2 from Metropolitan Water District of Southern California, September 2005 Draft RUWMP

**Table 4.2-1**
**Metropolitan Regional Imported Water Supply Reliability Projections for Average and Single Dry Years[45]**
**(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 MWD's 1.25 MAF allotment to Colorado River Water; data obtained from MWD September 2005 Draft RUWMP supply/demand projections

[45] Metropolitan Water District of Southern California, Draft Regional UWMP September 2005

**Table 4.2-2**
**Metropolitan Regional Imported Water Supply Reliability Projections for Average and Multiple Dry Years[46]**
**(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 MWD's 1.25 MAF allotment to Colorado River Water; data obtained from MWD August 18, 2005 final draft RUWMP supply/demand projections

[2] MWD only projects demands for year 3 of a multiple dry year period

[46] Metropolitan Water District of Southern California, Draft Regional UWMP September 2005

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 though 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.

Tables 4.2-3 through 4.2-9 compare current and projected water supplies and demands in normal, single dry year and multiple dry year scenarios. The results displayed in these tables indicate that Metropolitan can meet all of the City's demands in average, single dry, and multiple dry years through 2030.

**Table 4.2-3**
**City of Huntington Beach**
**Projected Water Supply and Demand**

**Normal Water Year**
(AFY – All projections rounded to nearest ten AF)

| 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] | 13,620 | 13,320 | 14,170 | 13,470 | 12,780 |
| Local (Groundwater)[3] | 24,300 | 24,540 | 24,790 | 25,040 | 25,260 |
| **Total Supply** | **37,920** | **37,860** | **38,960** | **38,510** | **38,040** |
| % of Normal Year[4] | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| **Demand** | | | | | |
| Imported[2] | 10,410 | 10,520 | 10,620 | 10,730 | 10,830 |
| Local (Groundwater)[3] | 24,300 | 24,540 | 24,790 | 25,040 | 25,260 |
| **Total Demand**[5] | **34,710** | **35,060** | **35,410** | **35,770** | **36,090** |
| % of Year 2005 Demand (33,941 AF) | 102.3 | 103.3 | 104.3 | 105.4 | 106.3 |
| **Supply/ Demand Difference** | **3,210** | **2,800** | **3,550** | **2,740** | **1,950** |
| **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 (MWD Projected Supply Available During an Average Year as a % of Demand During an Average Year (from Table 4.2-1, Row I); Imported demand = 30% of total demand based on a BPP of 70%
[3] Groundwater demand is estimated to comprise 70% of the total 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] Total water demand figures are based on the City's projections provided to MWDOC and included in MWDOC's July 2005 draft supply/demand projections.

## Table 4.2-4
## City of Huntington Beach
## 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** | | | | |
| MWD Projected Supply Available During an **Average Year** as a % of Demand During a Single Dry Year[1] | 116.3 | 113.0 | 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] | 12,900 | 13,870 | 14,260 | 13,480 | 12,920 |
| Local (Groundwater)[4] | 25,630 | 25,890 | 26,150 | 26,420 | 26,650 |
| **Total Supply** | **38,530** | **39,760** | **40,410** | **39,900** | **39,570** |
| Normal Year Supply[5] | 37,920 | 37,860 | 38,960 | 38,510 | 38,040 |
| % of Normal Year | 101.6 | 105.0 | 103.7 | 103.6 | 104.0 |
| **Demand** | | | | | |
| Imported[3] | 10.990 | 11,100 | 11,210 | 11,320 | 11,420 |
| Local (Groundwater)[4] | 25,630 | 25,890 | 26,150 | 26,420 | 26,650 |
| **Total Demand**[6] | **36,620** | **36,990** | **37,360** | **37,740** | **38,070** |
| Normal Year Demand[5] | 34,710 | 35,060 | 35,410 | 35,770 | 36,090 |
| % of normal year demand | 105.5 | 105.5 | 105.5 | 105.5 | 105.5 |
| % of Year 2005 Demand (33,941 AF) | 107.9 | 109.0 | 110.1 | 111.2 | 112.2 |
| **Supply/ Demand Difference** | **1,910** | **2,770** | **3,050** | **2,160** | **1,500** |
| **Difference as % of Supply** | **5.0** | **7.0** | **7.5** | **5.4** | **3.8** |
| **Difference as % of Demand** | **5.2** | **7.5** | **8.2** | **5.7** | **3.9** |

[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 MWD's September 2005 Final Draft RUWMP projected available supplies including surplus supplies = (normal year import) x (MWD projected supply as a % of the single dry year demand); Imported demand = (normal year demand) x (105.5% single dry year demand developed by MWDOC based on hydrologic analysis of 1922-2004 period and applicable to entire Orange County region) x (0.3 based on BPP=70%)
[4] Groundwater demand is estimated to comprise 70% of the total demand during a single dry year based on a BPP of 70%; groundwater supply is estimated to equal demand
[5] Normal year supplies and demands taken from Table 4.2-3
[6] Total Demand = (normal year demand) x (105.5% single dry year demand developed by MWDOC based on hydrologic analysis of 1922-2004 period and applicable to entire Orange County region)

**Table 4.2-5**
**City of Huntington Beach**
**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** | | |
| MWD Projected Supply During a **Multiple Dry Year** as a % of Average Supply[1] | | | 98.2 | 98.2 | 98.2 |
| Imported[2] | 12,920 | 13,100 | 13,080 | 13,230 | 13,370 |
| Local (Groundwater)[3] | 22,980 | 23,300 | 25,690 | 25,090 | 25,630 |
| **Total Supply** | **35,900** | **36,400** | **38,770** | **38,320** | **39,000** |
| Normal Year Supply[4] | 35,900 | 36,400 | 36,900 | 37,400 | 37,920 |
| % of Normal Year | 100.0 | 100.0 | 105.1 | 102.5 | 102.4 |
| **Demand** | | | | | |
| MWD Projected Multiple Dry Year Demand as % of Normal Year[5] | | | 116.5 | 116.5 | 116.5 |
| Imported[2] | 12,270 | 12,330 | 11,010 | 10,750 | 10,990 |
| Local (Groundwater)[3] | 21,820 | 21,920 | 25,690 | 25,090 | 25,630 |
| **Total Demand** | **34,090** | **34,250** | **36,700** | **35,840** | **36,620** |
| Normal Year Demand[6] | 34,090 | 34,250 | 34,400 | 34,560 | 34,710 |
| % of Normal Year | 100.0 | 100.0 | 106.7 | 103.7 | 105.5 |
| % of Year 2005 Demand (33,941 AF) | 99.6 | 100.9 | 108.1 | 105.6 | 107.9 |
| **Supply/ Demand Difference** | **1,810** | **2,150** | **2,070** | **2,480** | **2,380** |
| **Difference as % of Supply** | **5.0** | **5.9** | **5.3** | **6.5** | **6.1** |
| **Difference as % of Demand** | **5.3** | **6.3** | **5.6** | **6.9** | **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 developed by MWDOC based on hydrologic analysis of 1922-2004 period and applicable to entire Orange County region) x (0.3 based on BPP=70%); 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 demand during a multiple dry year based with a BPP of 70%; groundwater supply is estimated to equal demand (except for 2006 and 2007 when the BPP is assumed to be 64%; all other years the BPP is assumed to be 70%)
[4] Interpolated from Table 4.2-4
[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 116.5%
[6] Interpolated from Table 4.2-4

## Table 4.2-6
## City of Huntington Beach
## 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** | | |
| MWD Projected Supply During a Multiple Dry Year as a % of Average Supply[1] | | | 106.8 | 106.8 | 106.8 |
| Imported[2] | 13,560 | 13,500 | 14,350 | 14,290 | 14,230 |
| Local (Groundwater)[3] | 24,350 | 24,400 | 26,080 | 25,400 | 25,890 |
| **Total Supply** | **37,910** | **37,900** | **40,430** | **39,660** | **40,120** |
| Normal Year Supply[4] | 37,910 | 37,900 | 38,880 | 38,870 | 37,860 |
| % of Normal Year | 100.0 | 100.0 | 104.0 | 102.1 | 106.0 |
| **Demand** | | | | | |
| MWD Projected Multiple Dry Year Demand as % of Normal Year[5] | | | 116.4 | 116.4 | 116.4 |
| Imported[2] | 10,430 | 10,450 | 11,180 | 10,880 | 11,100 |
| Local (Groundwater)[3] | 24,350 | 24,400 | 26,080 | 25,400 | 25,890 |
| **Total Demand** | **34,780** | **34,850** | **37,260** | **36,280** | **36,990** |
| Normal Year Demand[6] | 34,780 | 34,850 | 34,920 | 34,990 | 35,060 |
| % of Normal Year | 100.0 | 100.0 | 106.7 | 103.7 | 105.5 |
| % of Year 2005 Demand (33,941 AF) | 102.5 | 102.7 | 109.8 | 106.9 | 109.0 |
| **Supply/ Demand Difference** | **3,130** | **3,050** | **3,170** | **3,410** | **3,130** |
| **Difference as % of Supply** | **8.3** | **8.0** | **7.8** | **8.6** | **7.8** |
| **Difference as % of Demand** | **9.0** | **8.8** | **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 developed by MWDOC based on hydrologic analysis of 1922-2004 period and applicable to entire Orange County region) x (0.3 based on BPP=70%); 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 demand during a multiple dry year based with a BPP of 70%; groundwater supply is estimated to equal demand

[4] Interpolated from Table 4.2-4

[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., 2015 multiple dry year demand is 105.5% as opposed to 116.4%

[6] Interpolated from Table 4.2-4

**Table 4.2-7**
**City of Huntington Beach**
**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** | | |
| MWD Projected Supply During a Multiple Dry Year as a % of Average Supply[1] | | | 103.3 | 103.3 | 103.3 |
| Imported[2] | 13,490 | 13,660 | 14,460 | 14,420 | 14,640 |
| Local (Groundwater)[3] | 24,590 | 24,640 | 26,340 | 25,560 | 26,150 |
| **Total Supply** | **38,080** | **38,300** | **40,800** | **39,980** | **40,790** |
| Normal Year Supply[4] | 38,080 | 38,300 | 38,520 | 38,740 | 38,960 |
| % of Normal Year | 100.0 | 100.0 | 105.9 | 103.2 | 104.7 |
| **Demand** | | | | | |
| MWD Projected Multiple Dry Year Demand as % of Normal Year[5] | | | 116.5 | 116.5 | 116.5 |
| Imported[2] | 10,540 | 10,560 | 11,290 | 10,950 | 11,210 |
| Local (Groundwater)[3] | 24,590 | 24,640 | 26,340 | 25,560 | 26,150 |
| **Total Demand** | **35,130** | **35,200** | **37,630** | **36,510** | **37,360** |
| Normal Year Demand[6] | 35,130 | 35,200 | 35,270 | 35,340 | 35,410 |
| % of Normal Year | 100.0 | 100.0 | 106.7 | 103.7 | 105.5 |
| % of Year 2005 Demand (33,941 AF) | 103.5 | 103.7 | 110.9 | 107.6 | 110.1 |
| **Supply/ Demand Difference** | **2,950** | **3,100** | **3,170** | **3,470** | **3,430** |
| **Difference as % of Supply** | **7.7** | **8.1** | **7.7** | **8.7** | **8.4** |
| **Difference as % of Demand** | **8.4** | **8.8** | **8.4** | **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 developed by MWDOC based on hydrologic analysis of 1922-2004 period and applicable to entire Orange County region) x (0.3 based on BPP=70%); 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 demand during a multiple dry year based with a BPP of 70%; groundwater supply is estimated to equal demand
[4] Interpolated from Table 4.2-4
[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 116.5%
[6] Interpolated from Table 4.2-4

**Table 4.2-8**
**City of Huntington Beach**
**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** | | |
| MWD Projected Supply During a Multiple Dry Year as a % of Average Supply[1] | | | 102.4 | 102.4 | 102.4 |
| Imported[2] | 14,030 | 13,890 | 13,510 | 13,650 | 13,790 |
| Local (Groundwater)[3] | 24,840 | 24,890 | 26,610 | 25,910 | 26,420 |
| **Total Supply** | **38,870** | **38,780** | **40,130** | **39,560** | **40,210** |
| Normal Year Supply[4] | 38,870 | 38,780 | 38,690 | 38,600 | 38,510 |
| % of Normal Year | 100.0 | 100.0 | 103.7 | 102.5 | 104.4 |
| **Demand** | | | | | |
| MWD Projected Multiple Dry Year Demand as % of Normal Year[5] | | | 116.0 | 116.0 | 116.0 |
| Imported[2] | 10,640 | 10,660 | 11,410 | 11,110 | 11,320 |
| Local (Groundwater)[3] | 24,840 | 24,890 | 26,610 | 25,910 | 26,420 |
| **Total Demand** | **35,480** | **35,550** | **38,020** | **37,020** | **37,740** |
| Normal Year Demand[5] | 35,480 | 35,550 | 35,630 | 35,700 | 35,770 |
| % of Normal Year | 100.0 | 100.0 | 106.7 | 103.7 | 105.5 |
| % of Year 2005 Demand (33,941 AF) | 104.5 | 104.7 | 112.0 | 109.1 | 111.2 |
| **Supply/ Demand Difference** | **3,390** | **3,230** | **2,100** | **2,540** | **2,470** |
| **Difference as % of Supply** | **8.7** | **8.3** | **5.2** | **6.4** | **6.1** |
| **Difference as % of Demand** | **9.6** | **9.1** | **5.5** | **6.9** | **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 developed by MWDOC based on hydrologic analysis of 1922-2004 period and applicable to entire Orange County region) x (0.3 based on BPP=70%); 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 demand during a multiple dry year based with a BPP of 70%; groundwater supply is estimated to equal demand
[4] Interpolated from Table 4.2-4
[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 4.2-9**
**City of Huntington Beach**
**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** | | |
| MWD Projected Supply During a Multiple Dry Year as a % of Average Supply[1] | | | 102.4 | 102.4 | 102.4 |
| Imported[2] | 13,340 | 13,190 | 13,370 | 13,230 | 13,090 |
| Local (Groundwater)[3] | 25,080 | 25,130 | 26,860 | 26,150 | 26,650 |
| **Total Supply** | **38,420** | **38,320** | **40,230** | **39,380** | **39,740** |
| Normal Year Supply[4] | 38,420 | 38,320 | 38,230 | 38,130 | 38,040 |
| % of Normal Year | 100.0 | 100.0 | 105.2 | 103.3 | 104.5 |
| **Demand** | | | | | |
| MWD Projected Multiple Dry Year Demand as % of Normal Year[5] | | | 115.0 | 115.0 | 115.0 |
| Imported[2] | 10,750 | 10,770 | 11,510 | 11,210 | 11,420 |
| Local (Groundwater)[3] | 25,080 | 25,130 | 26,860 | 26,150 | 26,650 |
| **Total Demand** | **35,830** | **35,900** | **38,370** | **37,360** | **38,070** |
| Normal Year Demand[6] | 35,830 | 35,900 | 35,960 | 36,030 | 36,090 |
| % of Normal Year | 100.0 | 100.0 | 106.7 | 103.7 | 105.5 |
| % of Year 2005 Demand (33,941 AF) | 105.6 | 105.8 | 113.0 | 110.1 | 112.2 |
| **Supply/ Demand Difference** | **2,590** | **2,420** | **1,860** | **2,020** | **1,670** |
| **Difference as % of Supply** | **6.7** | **6.3** | **4.6** | **5.1** | **4.2** |
| **Difference as % of Demand** | **7.2** | **6.7** | **4.8** | **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 developed by MWDOC based on hydrologic analysis of 1922-2004 period and applicable to entire Orange County region) x (0.3 based on BPP=70%); 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 demand during a multiple dry year based with a BPP of 70%; groundwater supply is estimated to equal demand
[4] Interpolated from Table 4.2-4.
[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 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 62 degrees Fahrenheit. Precipitation is typically 10-12 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 DWR. These rivers flow into the San Francisco Bay Delta and are the source of water for the State Water Project.

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.

As a result, the City is vulnerable to water shortages due to its climatic environment and seasonally hot summer months. While the data shown in Tables 4.2.1.-1 through 4.2.1-8 identifies water availability during single and multiple dry year scenarios, response to a future drought would follow the water use efficiency mandates of MWDOC and its support of the Metropolitan Water Surplus and Drought Management (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 Huntington Beach Projects

The City continually reviews practices that will provide its customers with adequate and reliable supplies. Trained staff continues to ensure the water quality is safe and the water supply will meet present and future needs in an environmentally and economically responsible manner. The City consistently 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. Water use efficiency measures described in Section 6 of this Plan have the potential to reduce

overall demand. Any new water supply sources will be developed primarily to better manage the Santa Ana Groundwater Basin resource 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 facilities 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 the following:

- Well 1 – Scheduled to be redrilled with a capacity of 750 gpm sometime in the future. The existing well has a capacity of 500 gpm.
- Well 8 – Will be removed from stand-by mode and be used to irrigate Central Park.
- Well 12 – Has been drilled and is expected to yield 3,000 gpm in November 2005.

Although Wells 1, 8, and 12 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 State Water Project and the Colorado River through Metropolitan's member agency MWDOC, the projects implemented by Metropolitan and MWDOC to secure their water supplies have an indirect 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 (Metropolitan)***

Metropolitan is implementing water supply alternative strategies for the region and on behalf of their member agencies to insure 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 State Water Project 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. 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 4.4-1.

**Table 4.4-1**
**Metropolitan Integrated Resource Plan Update Resources Status**

| Target | Programs and Status |
|---|---|
| • **Conservation** | **Current**<br>- Conservation Credits Program<br>- Residential; Non-residential Landscape Water Use Efficiency;, Commercial, Industrial, and Institutional Programs<br>- Grant Programs<br>**In Development or Identified**<br>- Innovative Conservation Program |
| • **Recycling**<br>• **GW Recovery**<br>• **Desalination** | **Current**<br>- LRP Program<br>**In Development or Identified**<br>- Additional LRP Requests for Proposals<br>- Seawater Desalination Program<br>- Innovative Supply Program |
| • **In Region Dry-Year Surface Water Storage** | **Current**<br>- Diamond Valley Reservoir, Lake Mathews, Lake Skinner<br>- SWP Terminal Reservoirs (Monterey Agreement) |
| • **In Region Groundwater Conjunctive Use** | **Current**<br>- North Las Posas (Eastern Ventura County)<br>- Cyclic Storage<br>- Replenishment Deliveries<br>- Proposition 13 Programs (short listed)<br>**In Development or Identified**<br>- Raymond Basin GSP<br>- Proposition 13 Programs (wait listed)<br>- Expanding existing programs<br>- New groundwater storage programs |
| • **SWP** | **Current**<br>- SWP Deliveries<br>- San Luis Carryover Storage (Monterey Agreement)<br>- SWP Call Back with DWCV Table A transfer<br>**In Development or Identified**<br>- Sacramento Valley Water Management Agreement<br>- CALFED Delta Improvement Program (Phase 8 Agreement) |
| • **Colorado River Aqueduct** | **Current**<br>- Base Apportionment<br>- IID/Metropolitan Conservation Program<br>- Coachella and All American Canal Lining Programs<br>- PVID Land Management Program |

| Target | Programs and Status |
|---|---|
| | **In Development or Identified**<br>- Lower Coachella Storage Program<br>- Hayfield Storage Program<br>- Chuckwalla Storage Program<br>- Storage in Lake Mead |
| • **CVP/SWP Storage and Transfers**<br>• **Spot Transfers and Options** | **Current**<br>- Arvin Edison Program<br>- Semitropic Program<br>- San Bernardino Valley MWD Program<br>- Kern Delta Program<br>**In Development or Identified**<br>- Mojave Storage Program<br>- 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*.

***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.[47] 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 Local Resources Program: 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.

[47] Metropolitan Water District of Southern California, Regional UWMP, Draft September 2005

According to Metropolitan's 2005 UWMP, 13 projects were selected in 2004 for implementation under the Competitive Local Resources Program. None of the projects are within the City's service area, however two projects are proposed under MWDOC. The projects include the Groundwater Replenishment System and a recycled water upgrade within Irvine Ranch Water District's service area. The Groundwater Replenishment System 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.
- 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 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 it's 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 Project Target***

Metropolitan also receives imported water from the Colorado River Aqueduct. Metropolitan, Imperial Irrigation District (IID) and Coachella Valley Water District executed the Quantification Settlement Agreement (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 Colorado River Aqueduct. 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 tern 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 Central Valley Project 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 acre-feet 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 Urban Water Management Plan discusses a number of water supply opportunities in Orange County, including the Groundwater Replenishment System, to protect and maximize the yield of the basin.

### *Orange County Groundwater Conjunctive Use Program*

As discussed above, the Orange County Groundwater Conjunctive Use Program was selected by Metropolitan in June 2003, funded by Proposition 13, to construct groundwater conjunctive use projects that would store imported water in wet years for use in dry years. This is a 25-year project between MWDOC, OCWD, and Metropolitan to store up to 60,000 AF of imported water in the Orange County groundwater basin for this purpose, extracting up to 20,000 AF of water during dry periods from 7-10 strategically sited wells. Although the City was not selected to participate in this program, the additional wells would reduce the region's dependence on imported water during dry periods and would provide greater reliability.

### *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 (OCSD)*

As mentioned earlier, OCSD supplies treated wastewater to OCWD for further treatment. OCWD relies on recycled water from OCSD's treatment facilities to protect the Basin through seawater intrusion barriers and landscape irrigation. OCSD in conjunction with OCWD have implemented the GWRS, beginning in October 2002 with OCWD and OCSD 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.[48] 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 three connections to the Metropolitan system and four emergency inter-city connections with surrounding communities. In aggregate, these connections

[48] 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

have the ability to transfer well over 25,000 gpm into the City distribution system. The Metropolitan connections are typically operating as constant flow sources.

The City is 56.1 percent owner and acts as General Manager/Engineer and performs operations and maintenance for the West Orange County Water Board. The WOCWB is a joint powers agreement between the cities of Huntington Beach, Garden Grove, Westminster and Seal Beach for the ownership and operation of two large capacity import water transmission lines (OC-9 and OC-35). The City is joint owner of a water transmission main operated by the Mesa Consolidated Water District system via OC-44. OCWD has proposed the West Orange County Wellfield Project, which would shift pumping away from the coastal areas where seawater intrusion, colored water and low well levels are ongoing concerns. If developed, the project proposes to use WOCWB lines to transmit groundwater produced in the Cypress/Stanton area of Orange County to coastal cities.

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 City projects 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 (2002) 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.[49] The task force comprised of 27 organizations and in October 2003 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 Update that includes a target of 150,000 AFY for seawater desalination projects to meet future demands. A call for proposals,

[49] DWR, California Water Plan Update 2005, Volume 2 – Resource Management Strategies

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 technologies, pretreatment alternatives, and brine disposal, permitting, and regulatory approvals associated with delivery of desalinated seawater to the local distribution system.[50] 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. Proposition 50, the Water Quality, Supply and Safe Drinking Water Projects, Coastal Wetlands Purchase and Protection Act was passed by voters in 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 institution 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 43 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 the OCWD and MWDOC

[50] Metropolitan Water District of Southern California, Regional Urban Water Management Plan, September 2005 Draft

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.

The implementation of an ocean water desalination plant can reduce groundwater pumping levels in coastal OCWD and assist in refilling the groundwater 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 denied certification of the Environmental Impact Report (EIR). A Recirculated EIR was subsequently prepared. The project is currently in the environmental review and permitting phase and 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.[51]

[51] MWDOC 2005 Regional Urban Water Management Plan.

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# SECTION 5
# WATER USE PROVISIONS

## 5.1 PAST, CURRENT AND PROJECTED WATER USE AMONG SECTORS

Since 1990, new connections are being added at a rate of approximately one percent per year. Due to new plumbing efficiency standards, landscape guidelines, and other water use efficiency programs, water demand is projected to increase at a rate of less than one percent per year. 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 Billing Classification**
(AF)

| City Billing Class | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|
| Residential | 23,707 | 24,474 | 25,029 | 25,281 | 25,533 | 25,793 | 26,024 |
| Commercial/Industrial | 6,019 | 6,213 | 6,355 | 6,419 | 6,483 | 6,549 | 6,607 |
| Municipal/Irrigation | 3,151 | 3,254 | 3,326 | 3,360 | 3,394 | 3,428 | 3,459 |
| **Subtotal** | **32,877** | **33,941** | **34,710** | **35,060** | **35,410** | **35,770** | **36,090** |
| Unaccounted for System Losses[1] | 2,248 | 2,172 | 2,221 | 2,244 | 2,266 | 2,289 | 2,310 |
| **Total Water Use** | **35,125** | **36,113** | **36,931** | **37,304** | **37,676** | **38,059** | **38,400** |

Source: Year 2000 data from City of Huntington Beach. Draft Water Master Plan. August 2005; Year 2005 data from MWDOC; all future total demands from Table 4.2-3; future projections are equivalent to the percentages reflected in the year 2000 data.
[1] 2000 is based on actual data; all other years based on an estimated average loss of 6.4%.

Unaccounted-for water was 9.9% in 1995/96, but has averaged 6.4% since 1996/97. The decrease in unaccounted-for water can be in part attributed to a leak detection survey conducted for the City in 1996/97. A total of 498 miles of pipeline was surveyed, with a water loss of approximately 67,000 gpd quantified from 17 identified leaks. The annual water loss from these leaks was quantified as approximately 24.4 million gallons. The City repaired all of the leaks identified in the survey and the City has since implemented an on-going leak investigation and repair program as a measure to keep water losses to a minimum while facilitating cost savings.[52]

Unaccounted-for water is the difference between water production and water consumption and represents "lost" water. Unaccounted-for water occurs for a number of reasons:

- Water lost from system leaking, i.e., from pipes, valves, pumps, and other water system appurtenances.

[52] City of Huntington Beach, Draft Water Master Plan. August 2005

- The City Fire Department performs hydrant testing to monitor the level of fire protection available throughout the City. The City Utilities Division performs hydrant flushing to eliminate settled sediment and ensure better water quality. Hydrant testing and flushing is not metered. However, this quantity of water is estimated and taken into consideration when calculating unaccounted-for water.
- Water used by the Fire Department to fight fires. This water is also not metered.
- Customer meter inaccuracies. Meters have an inherent accuracy for a specified flow range. However, flow above or below this range is usually registered at a lower rate. Meters become less accurate with time due to wear.

## 5.2 WATER SERVICE CONNECTIONS BY SECTOR

Table 5.1-2 shows the current and projected number of water service customers by sector from 2000 through 2030. Connections include 478 in the Sunset Beach area[53], which is represented by 91 percent residential.

**Table 5.1-2**
**Number of Water Service Connections by Billing Classification**

| City Billing Class | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|
| Residential | 42,714 | 43,887 | 44,880 | 45,330 | 45,780 | 46,250 | 46,660 |
| Multi-family | 4,120 | 4,173 | 4,270 | 4,310 | 4,350 | 4,390 | 4,430 |
| Commercial | 2,359 | 2,337 | 2,390 | 2,410 | 2,430 | 2,450 | 2,470 |
| Municipal | 538 | 591 | 600 | 610 | 620 | 630 | 640 |
| Irrigation | 738 | 873 | 890 | 900 | 910 | 920 | 930 |
| Industrial | 338 | 307 | 310 | 310 | 310 | 310 | 310 |
| **Total Connections** | **50,807** | **52,168** | **53,340** | **53,870** | **54,400** | **54,950** | **55,440** |

Note: Future projections are based on percentages proportionate to 2005 actual data.

## 5.3 PER CAPITAL MUNICIPAL AND INDUSTRIAL WATER DEMAND

Average daily per capita municipal and industrial (Per Capita M&I) water demand has been used by the water industry to measure and compare mean urban water demand. Per Capita M&I water demand includes the municipal, industrial, commercial, residential water demand, and unaccounted-for water associated with each person in the population. It also includes recycled water demand but excludes some water usage (such as agricultural usage and replenishment of groundwater storage) which are not directly associated with the population.

[53] Single Family Residential – 255; Multi-Family Residential – 179; Commercial – 40; Industrial – 3; and Municipal - 1.

Historical Per Capita M&I water demand for the City in comparison with the Orange County as a whole is shown in Table 5.3-1.

**Table 5.3-1**
**Historical Per Capita M&I Water Demands (1992/93 – 1999/00)**

| Water Demand | 92/93 | 93/94 | 94/95 | 95/96 | 96/97 | 97/98 | 98/99 | 99/00 | Avg |
|---|---|---|---|---|---|---|---|---|---|
| **Huntington Beach** | | | | | | | | | |
| **Total Demand[(a)] (af)** | 33,595 | 33,515 | 34,064 | 35,099 | 36,286 | 34,057 | 36,143 | 35,397 | 34,769 |
| **Population (1,000)** | 183.5 | 184.3 | 185.2 | 186.0 | 186.8 | 187.6 | 188.4 | 189.2 | 186.4 |
| **Total Per Capita[(b)] (gpcd)** | 163 | 162 | 164 | 169 | 173 | 162 | 171 | 167 | 167 |
| **Rainfall[(c)] (in)** | 23.4 | 11.1 | 25.6 | 11.2 | 14.8 | 31.0 | 7.93 | 8.1 | 16.7 |
| **Orange County Total Per Capita[(d)] (gpcd)** | 194 | 198 | 197 | 202 | 211 | 203 | 197 | 206 | 201 |

a) Total water production including non-potable water well production.
b) Total City water production/City population.
c) Rainfall at Santa Ana Fire Station (ANA).
d) From MWDOC 2000 Regional UWMP. Orange County water production including recycled water but not including agricultural usage or replenishment of groundwater storage/Orange County population.

As shown, Per Capita M&I water demand has averaged 167 gpcd for the City compared with 201 gpcd for Orange County for the 8 year period 1992/93 through 1999/00. The lower water demand for Huntington Beach is due in part to a milder coastal climate compared with the warmer inland climates associated with other parts of Orange County.

Although Per Capita M&I water demand is still a useful measure for evaluating urban water demand, the various demand components evaluated separately can offer a more complete perspective. Historical City water demands are shown in Table 5.3-2 for three user types: 1) residential per capita, 2) commercial/industrial, and 3) municipal/irrigation.

**Table 5.3-2**
**Historical City Water Demands Per Billing Classification (1996/97 – 2003/04)[a]**

| Demands Per City Billing Class[(b)] | 96/97 | 97/98 | 98/99 | 99/00 | 00/01 | 01/02 | 02/03 | 03/04 | Avg |
|---|---|---|---|---|---|---|---|---|---|
| **Residential (af)** | 24,106 | 22,752 | 23,352 | 23,707 | 22,968 | 23,429 | 23,312 | 23,194 | 23,353 |
| **Population (1,000)** | 186.8 | 187.6 | 188.4 | 189.2 | 190.8 | 193.4 | 195.7 | 197.5 | 191.2 |
| **Residential Per Capita (gpcd)** | 115 | 108 | 111 | 112 | 107 | 108 | 106 | 105 | 109 |
| **Commercial/Industrial (af)** | 6,601 | 6,131 | 6,350 | 6,019 | 5,934 | 5,683 | 5,496 | 5,334 | 5,944 |
| **Municipal/Irrigation (af)** | 2,503 | 2,421 | 2,812 | 3,151 | 2,931 | 3,059 | 2,994 | 3,264 | 2,892 |
| **Rainfall[(c)] (in)** | 14.8 | 31.0 | 7.9 | 8.1 | 14.2 | 3.5 | 14.3 | 7.4 | 12.6 |

a) All years shown are water years (Jun – Jul) except 2003/04, which is a fiscal year (Oct – Sep). 2003/04 is shown as a fiscal year so that Sep 2003, which is overstated as a result of the City switching to monthly meter readings starting in that month, can be omitted.
b) Does not include unaccounted for water.
c) Rainfall at Santa Ana Fire Station (ANA)

## 5.4 CITY OF HUNTINGTON BEACH LAND USE

The majority of the City of Huntington Beach is zoned for residential use. Commercial uses are generally scattered throughout the City, partially in strip areas and partially in concentrated specific centers. Several hundred industrial uses are located in Huntington Beach, included with some of the largest: Boeing Space and Defense Systems, AES Power Plant and Calarum. An additional significant use category is open space, which primarily consists of public school properties. Currently, vacant area within the City is quite limited. Projected population increases are not related to the redevelopment of any specific area, but is instead indicative of a general density increase.

There are 17,231 acres of land within the City boundaries. Of existing land, only 3 percent of the City remains as vacant land (520 acres). Of this vacant land, approximately 25 percent is zoned residential, 24 percent is zoned industrial, and 18 percent is zoned open space parks. It is assumed that all of this land will be developed ultimately with the exceptions of land to be left vacant per City Specific Plans and vacant land in the open space conservation category, which is assumed to remain open space, i.e. no future water demands.[54]

Housing density data for the City, as determined by the Center for Demographics Research California State University Fullerton, is shown in Table 5.4-1. The largest land use in the City is residential at 7,904 acres (approximately 46 percent of the total). Approximately 72 percent of the residential land use is low density residential (3 to 7 dwelling units (DU) per acre). [55]

**Table 5.4-1**
**Existing Water System Service Area Housing Density**

| Category | Description | Dwelling Units (DU) | DU per Acre |
|---|---|---|---|
| Low Density Residential | Single family residences | 49,074 | 6.75 |
| High Density Residential | Multi-family units | 31,244 | 11.11 |

Source: Center for Demographic Research California State University Fullerton.

[54] City of Huntington Beach Water Master Plan Update, 2005
[55] City of Huntington Beach Water Master Plan Update, 2005

# SECTION 6
# WATER DEMAND MANAGEMENT MEASURES

## 6.1 INTRODUCTION

On August 21, 2000, the City Council of Huntington Beach elected to become Signatory to the Memorandum of Understanding (MOU) Regarding Best Management Practices (BMPs) for Urban Water Conservation with the California Urban Water Conservation Council (CUWCC). The City was officially voted in as a member of the CUWCC at the September 21, 2000 plenary session of CUWCC.

MWDOC implements many of the urban water conservation BMPs on behalf of its member agencies, including the City of Huntington Beach. MWDOC's 2005 Regional Urban Water Management Plan 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 a good faith effort in implementing the 14 cost-effective BMPs. "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 BMPs as described in the MOU. A BMP as defined in the MOU is a "practice for which sufficient data are available from existing water conservation practices to indicate that significant conservation or conservation related benefits can be achieved; that the practice is technically and economically reasonable and not environmentally or socially unacceptable; and that the practice is not otherwise unreasonable for most water agencies to carry out."

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, United States Bureau of Reclamation, 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. Defining when a drought begins is a function of drought impacts to water users. Drought is a gradual phenomenon. 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, the City of Huntington Beach will implement its own water shortage policy based upon Chapter 14.18 of the City's Municipal Water Code. In addition, the City's Water Efficient Landscape Requirements, included in Chapter 14.52 of the City's Municipal Code, sets forth standards for landscape irrigation during drought and non-drought times, and acknowledges the constant need to establish long-term water efficiency. Chapter 14.16 of the Municipal Code also establishes overall Water Use Regulations, including regulations for water meters. Provisions of the City's Municipal Code will be implemented in congruence with the policy of MWDOC and OCWD's water shortage/drought activities. MWDOC's policy will be based Metropolitan's adopted Water Surplus and Drought Management Plan (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 Huntington Beach Water Shortage Response*

In the event of a water shortage, the City's Director of Public Works and the City Administrator, or their designated representative, are authorized and directed by City Council to implement provisions of the Water Management Program. All actions taken will be confirmed at the earliest practicable time by the City Council.

The Director of Public Works 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 Council directs the City Administrator to order the appropriate stage of water conservation. However, in case of local emergencies, the City Administrator has the authority to order the implementation of the appropriate stage of water conservation subject to ratification by the City Council within seven days thereafter.

As defined in Chapter 14.18 (included in Appendix F) of the City's Municipal Water Code, a water shortage is declared based on one or more of the following conditions:

a) A general water supply shortage due to increased demand or limited supplies.
b) A major failure of the supply, storage and distribution facilities of the Metropolitan Water District of Southern California or of the City occurs.
c) A local or regional disaster, which limits the water, supply.

The City's Water Management Program includes the following stages of water shortage actions, which take effect upon declaration. The Water Management Program, defined in Chapter 14.18 of the Huntington Beach Municipal Code, includes mandatory conservation phase implementation. The Director of Public Works shall determine the extent of the conservation required through implementation and/or termination of particular conservation stages in order for the City to plan for and supply water to its customers, including consumption reduction up to 50%. As a MWDOC member agency, the City will follow the stages of action set forth by Metropolitan, as detailed below, which accomplish and ensure 100% reliability.

## Rationing Stages and Reduction Goals

In order to meet short-term water demand deficiencies, and short- or long-term drought requirements, Huntington Beach 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 Water Surplus and Drought Management 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 Interim Agricultural Water Program 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 64 percent 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 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 are. The following 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 City of Huntington Beach 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. Preservation of health and safety will be 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. 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 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 Years | | |
|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2006 | 2007 | 2008 |
| Local Supplies | 22,980 | 23,300 | 23,620 | 24,140 | 24,470 | 25,690 |
| Imported Supply | 12,920 | 13,100 | 13,280 | 13,580 | 13,770 | 13,080 |
| **Total** | 35,900 | 36,400 | 36,900 | 37,720 | 38,240 | 38,770 |

Source: Projections are interpolated from data in Tables 4.2-3 and 4.2-5; BPP is assumed to be 64% 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 of Huntington Beach.

## 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 Utilities Division of the Public Works Department is responsible for water operations and the maintenance of the Water & Utilities section of the City of Huntington Beach 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 Utilities 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 Utilities Division's control, the Water 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. The representative sent to the EOC is called the *Water Tactical Officer.*

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 Utilities Manager (located in the WOC) and the *Water Tactical Officer* (located in the EOC) under the direction of the *Public Works Chief* (located in the EOC).

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

### *Water Emergency Response Organization of Orange County (WEROC)*

The City of Huntington Beach Utilities Division actively participates in the Water Emergency Response Organization of Orange County (WEROC). WEROC performs coordination of information and mutual-aid requests among 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 Huntington Beach in the State of California include the Master Mutual Aid Agreement, 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. The California Water Agencies Response Network (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 part of the City's Water Management Program, water use regulations are set forth in Chapter 14.16 of the City's Municipal Code, as included in Appendix F. Some of the regulations included apply to fires (fire hydrants), waste (improper fixtures), meters (use and location), violations, drawing into steam boilers, water sales outside of city, and cross-connections protection. Refer to Appendix F for the complete ordinance.

Any violation of the City's Water Management Program, including waste of water and excessive use, is a misdemeanor. In addition to any other remedies that the City may have for enforcement, service of water would be discontinued or appropriately limited to any customer who willfully uses water in violation of any provision of the ordinance.

The City of Huntington Beach will 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, as appropriate, to enforce consumption reduction up to 50% reduction in water supply. The City would correspondingly impose surcharges or penalties in accordance with its ordinance on excessive use of water.

## 7.6 REVENUE AND EXPENDITURE IMPACTS AND MEASURES TO OVERCOME THOSE IMPACTS

The City receives water revenue from a commodity charge, a fixed customer charge and a capital surcharge. 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 Utilities Division would reexamine its water rate structure and monitor projected expenditures. In the event of a 50% reduction in water supply, the City will take action in congruence with MWDOC to ensure adequate consumption reduction methods.

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 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 $0.4 to $3 billion. Employment losses were estimated at 3,000 to 23,000 over the 10—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 1 to 3 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 year-long 5% drought in the Basin. (20% reduction in imported supply assuming a 70% 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.

The study provides extensive insight into the City's water reliability and water shortage contingency plan for planning for the future. The study also 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

In 1991, the City of Huntington Beach adopted by ordinance a comprehensive Water Management Program based upon the need to conserve water supplies and to avoid or minimize the effects of future shortage. A copy of the City's Water Management Program Ordinance, Chapter 14.18 of the City Municipal Code, is included as Appendix F. Chapter 14.16 of the Municipal Code also establishes overall Water Use Regulations, including regulations for water meters. In addition, the City's Water Efficient Landscaping Ordinance, Chapter 14.52 of the City's Municipal Code. Both are also included in Appendix F.

## 7.8 MECHANISMS 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 Huntington Beach 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 the City to be aware of import water 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 (1.1 million AFY) of treated wastewater to the ocean each day. This is considered a reliable and drought-proof water source and could greatly reduce the areas' and the City'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 strong drought potential and as technology continues to improve, demand continues to increase for its use.

## 8.2 COORDINATION OF RECYCLED WATER IN THE CITY 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 Orange County Sanitation District's (OCSD) 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 IN THE CITY SERVICE AREA

Wastewater from the City's water service area is collected and treated by OCSD. The City operates and maintains the localized sewer branches that feed into OCSD's trunk system from the City. The City of Huntington Beach sewer system includes 385 miles of sewer lines, 10,000 manholes and 28 lift stations. OCSD 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.

## 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 secondary treatment water to OCWD which further treats and distributes the water for various uses, including irrigation, groundwater recharge, and operation of 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 million gallons per day (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.[56] The City provides 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 | 24,145 |
| 2005 | 106 | 23,900 |
| 2010 | 109 | 25,950 |
| 2015 | 112 | 27,290 |
| 2020 | 115 | 28,385 |
| 2025 | 115 | 28,580 |
| 2030 | 115 | 28,800 |

[1] The OCSD Interim Strategic Plan Update, September 2002. Years 2025 and 2030 were assumed to be the same as 2020.

## 8.4 REGIONAL RECYCLED WATER

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.[57] 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 Green Acres Project (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.

[56] MWDOC 2005 Regional Urban Water Management Plan.
[57] OCWD, 2003-2004 Engineer's Report, February 2005.

### Water Factory 21

Although currently offline due to the construction of the GWRS, Water Factory 21 had been used by OCWD since 1976 to produced recycled water for injection into the groundwater 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 U.S. Bureau of Reclamation (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 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 groundwater basin recharge. To supplement regional water recycling projects such as the Green Acres Project, 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.[58] 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,

[58] Orange County Water District, Long Term Facilities Plan, Draft October 2005.

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 (AWPF) 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.

## 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, beginning development in the 1950's. 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 Projected and Potential Uses of Recycled Water

The City's 2000 UWMP projected that by 2005 the City recycled water from OCWD's Green Acres Project would be available to the City of Huntington Beach for irrigation use. The City had projected 400 AFY of recycled water through the year 2020. Some infrastructure was and is currently in place in anticipation of the expansion of the project into the City. However, the expansion did not occur and recycled water was unavailable to the City. The City does not project any recycled water use for subsequent years, and 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 reaches the public, including those in the City, 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 six City schools reaching over 1,900 students. One school is expected to participate between September 2005 and June 2006 with over 1,900 students in attendance.

#### *Financial Incentives*

The implementation of recycled water projects involves a substantial upfront capital investment for planning studies, environmental impact reports, 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 Local Resources Program. 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 create such projects very expensive to pursue.

To optimize the use of recycled water, cost/benefit analysis must be conducted for each potential project. Once again, 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, analysis has shown capital costs exceed the short-term expense of purchasing additional imported water supplies from Metropolitan. Except for some limited irrigation expansion, it is not anticipated that direct reuse projects will be pursued by the City.

The City will continue to conduct cost/benefit analysis when feasible for recycled water projects, and seek creative solutions and a balance to recycled water use, in coordination with 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***

# 2005 Urban Water Management Plan "Review for Completeness" Form

## For DWR Review Staff Use

**Coordination with Appropriate Agencies** — **(Water Code § 10620 (d)(1)(2))**

Yes

[X] Participated in area, regional, watershed or basin wide plan — Sec 1, p.1-2 Reference & Page Number

Name of plan 2005 UWMP Lead Agency City of Huntington Beach — Sec 1, p.1-2 Reference & Page Number

[X] Describe the coordination of the plan preparation and anticipated benefits. — Sec 1, p.1-2 Reference & Page Number

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

| Check at least one box on each row | Participated in developing the plan | Commented on the draft | Attended public meetings | Was contacted for assistance | Was sent a copy of the draft plan | Was sent a notice of intention to adopt | Not Involved / No Information |
|---|---|---|---|---|---|---|---|
| **Public Works Dept.** | X | X | X | X | X | X | |
| **City Departments** | X | | X | X | X | X | |
| **Municipal Water District of Orange County** | X | | | X | | X | |
| **Orange County Water District** | X | | | X | | X | |
| **Orange County Sanitation District** | X | | | X | | X | |
| **Metropolitan Water District of Southern California** | X | | | X | | X | |
| **County of Orange** | | | | | | X | X |

**Describe resource maximization / import minimization plan** — **(Water Code §10620 (f))**

[X] Describe how water management tools / options maximize resources & minimize need to import water — Sec 2, p.2-3 Reference & Page Number

**Plan Updated in Years Ending in Five and Zero** — **(Water Code § 10621(a))**

[X] Date updated and adopted plan received _____ (enter date) — Sec 1, p.1-2 Reference & Page Number

**City and County Notification and Participation** — **(Water Code § 10621(b))**

[X] Notify any city or county within service area of UWMP of plan review & revision — Sec 1, p.1-2 Reference & Page Number

[X] Consult and obtain comments from cities and counties within service area — Sec 1, p.1-2 Reference & Page Number

| Service Area Information | | Water Code § 10631 (a)) |
|---|---|---|
| X | Include current and projected population | Sec 1, p.1-5 Reference & Page Number |
| X | 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** | 201,692 | 212,893 | 217,957 | 220,759 | 222,274 | 223,992 |

| | | |
|---|---|---|
| X | Describe climate characteristics that affect water management | Sec 1, p.1-3 Reference & Page Number |
| X | 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** | | | | | | |
| **Average Rainfall** | 2 | 2 | 2 | 2 | -- | -- |
| **Average Temperature** | | | | | | |

**Table 3 (continued)**
**Climate**

| | July | August | September | October | November | December | Annual |
|---|---|---|---|---|---|---|---|
| **Average ETo** | | | | | | | 0 |
| **Average Rainfall** | -- | -- | -- | -- | 2 | 2 | **10-12 inches** |
| **Average Temperature** | | | | | | | **62 $^{o}$F** |

| Water Sources | | (Water Code § 10631 (b)) |
|---|---|---|
| X | Identify existing and planned water supply sources | Sec 2, p.2-1 Reference & Page Number |
| X | Provide current water supply quantities | Sec 2, p.2-3 Reference & Page Number |
| X | 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** | 11,772 | 13,620 | 13,320 | 14,170 | 13,470 | 12,780 |
| **Orange County Water District- Groundwater** | 22,183 | 24,300 | 24,540 | 24,790 | 25,040 | 25,260 |
| **Total** | **33,955** | **37,920** | **37,860** | **38,960** | **38,510** | **38,040** |

| If Groundwater identified as existing or planned source | | (Water Code §10631 (b)(1-4)) |
|---|---|---|
| | Has management plan | Reference & Page Number |
| | Attached management plan (b)(1) | Reference & Page Number |
| X | Description of basin(s) (b)(2) | Sec 2, p.2-4 Reference & Page Number |
| | Basin is adjudicated | Reference & Page Number |
| | If adjudicated, attached order or decree (b)(2) | Reference & Page Number |
| | 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 (Coastal Plain of Orange County)** | Managed Basin |
| **Total** | 0 |

| | | |
|---|---|---|
| X | DWR identified, or projected to be, in overdraft (b)(2) | Sec 2, p.2-5 Reference & Page Number |
| X | Plan to eliminate overdraft (b)(2) | Sec 2, p.2-5 Reference & Page Number |
| X | Analysis of location, amount & sufficiency, last five years (b)(3) | Sec 2, p.2-9 Reference & Page Number |
| X | Analysis of location & amount projected, 20 years (b)(4) | Sec 2, p.2-9 Reference & Page Number |

| Table 6<br>Amount of Groundwater pumped - AFY | | | | | |
|---|---|---|---|---|---|
| **Basin Name (s)** | **2000** | **2001** | **2002** | **2003** | **2004** |
| **Orange County Groundwater Basin (Coastal Plain of Orange County)** | | 18,242.70 | 24,580.60 | 14,118.20 | 13,188.20 |
| **% of Total Water Supply** | | 49.0% | 68.0% | 39.0% | 37.0% |

| Table 7<br>Amount of Groundwater projected to be pumped - AFY | | | | | |
|---|---|---|---|---|---|
| **Basin Name(s)** | **2010** | **2015** | **2020** | **2025** | **2030 - opt** |
| **Orange County Groundwater Basin (Coastal Plain of Orange County)** | 24,300 | 24,540 | 24,790 | 25,040 | 25,260 |
| **% of Total Water Supply** | 64.1% | 64.8% | 63.6% | 65.0% | 66.4% |

**Reliability of Supply** **(Water Code §10631 (c) (1-3)**

[X] Describes the reliability of the water supply and vulnerability to seasonal or climatic shortage Sec 4,4-1,26 Reference & Page Number

| Table 8<br>Supply Reliability - AF Year | | | | | |
|---|---|---|---|---|---|
| | | **Multiple Dry Water Years** | | | |
| **Average / Normal Water Year (2006)** | **Single Dry Water Year** | **Year 1** | **Year 2** | **Year 3** | **Year 4** |
| 35,900 | 36,400 | 35,900 | 36,400 | 36,900 | |
| 35,900 | 36,400 | 36,900 | 37,400 | 37,920 | |
| % of Normal | 100.0% | 102.8% | 102.7% | 102.8% | 0.0% |

| Table 9<br>Basis of Water Year Data | | | | |
|---|---|---|---|---|
| **Water Year Type** | Year | Source name | Source name | |
| **Average Water Year** | 1922-2004 | MWD of SC | | Sec 4, p.4-15 Reference & Page Number |
| **Single-Dry Water Year** | 1997 | MWD of SC | | Sec 4, p.4-15 Reference & Page Number |
| **Multiple-Dry Water Years** | 1990-92 | MWD of SC | | Sec 4, p.4-15 Reference & Page Number |

**Water Sources Not Available on a Consistent Basis** **(Water Code §10631 (c))**

| | | |
|---|---|---|
| X | Describe the reliability of the water supply due to seasonal or climatic shortages | Sec 4, p.4-26 Reference & Page Number |
| X | Describe the vulnerability of the water supply to seasonal or climatic shortages | Sec 4, p.4-26 Reference & Page Number |
| X | No unreliable sources | Sec 4, p.4-26 Reference & Page Number |

| Table 10<br>Factors resulting in inconsistency of supply | | | | |
|---|---|---|---|---|
| **Name of supply** | **Legal** | **Environ-mental** | **Water Quality** | **Climatic** |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| | | |
|---|---|---|
| | Describe plans to supplement or replace inconsistent sources with alternative sources or DMMs | Reference & Page Number |
| X | No inconsistent sources | Sec 4, p.4-1 Reference & Page Number |

**Transfer or Exchange Opportunities** **(Water Code §10631 (d))**

| | | | |
|---|---|---|---|
| X | Describe short term and long term exchange or transfer opportunities | Sec 4, p.4-34 | Reference & Page Number |
| | No transfer opportunities | | 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))**

| | | | |
|---|---|---|---|
| X | Quantify past water use by sector | Sec 5, p.5-1 | Reference & Page Number |
| X | Quantify current water use by sector | Sec 5, p.5-1 | Reference & Page Number |
| X | Project future water use by sector | Sec 5, p.5-1 | Reference & Page Number |

TABLE 12 - Past, Current and Projected Water Deliveries

| | 2000 | | 2005 | | 2010 | |
|---|---|---|---|---|---|---|
| | metered | | metered | | metered | |
| **Water Use Sectors** | # of accounts | Deliveries AFY | # of accounts | Deliveries AFY | # of accounts | Deliveries AFY |
| **Accts=SFR; Residential=AFY** | 42,714 | 23,707 | 43,887 | 24,474 | 44,880 | 25,029 |
| **Multi-family** | 4,120 | 0 | 4,173 | 0 | 4,270 | 0 |
| **Commercial/Industrial** | 2,697 | 6,019 | 2,644 | 6,213 | 2,700 | 6,355 |
| **Municipal/Irrigation** | 1,276 | 3,151 | 1,464 | 3,254 | 1,490 | 3,326 |
| **Total** | 50,807 | 32,877 | 52,168 | 33,941 | 53,340 | 34,710 |

TABLE12 (continued) - Past, Current and Projected Water Deliveries

| | 2015 | | 2020 | | 2025 | | 2030 |
|---|---|---|---|---|---|---|---|
| | metered | | metered | | metered | | met |
| **Water Use Sectors** | # of accounts | Deliveries AFY | # of accounts | Deliveries AFY | # of accounts | Deliveries AFY | # of accounts |
| **Accts=SFR; Residential=AFY** | 45,330 | 25,281 | 45,780 | 25,533 | 46,250 | 25,793 | 46,660 |
| **Multi-family** | 4,310 | 0 | 4,350 | 0 | 4,390 | 0 | 4,430 |
| **Commercial/Industrial** | 2,720 | 6,419 | 2,740 | 6,483 | 2,760 | 6,549 | 2,780 |
| **Municipal/Irrigation** | 1,510 | 3,360 | 1,530 | 3,394 | 1,550 | 3,428 | 1,570 |
| **Total** | 53,870 | 35,060 | 54,400 | 35,410 | 54,950 | 35,770 | 55,440 |

| | | | |
|---|---|---|---|
| ☐ | Identify and quantify sales to other agencies | | Reference & Page Number |
| X | No sales to other agencies | Sec 5, p. 5-1 | Reference & Page Number |

**Table 13**
**Sales to Other Agencies - AF Year**

| Water Distributed | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|---|
| **name of agency** | 0 | 0 | 0 | 0 | 0 | 0 |
| **name of agency** | | | | | | |
| **name of agency** | | | | | | |
| **Total** | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | |
|---|---|---|---|
| X | Identify and quantify additional water uses | Sec 5, p.5-1 | Reference & Page Number |

**Table 14**
**Additional Water Uses and Losses - AF Year**

| Water Use | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|---|
| | | | | | | |
| **Total** | 0 | 0 | 0 | 0 | 0 | 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 |
|---|---|---|---|---|---|---|
| **Total of Tables 12, 13, 14** | 32,877 | 33,941 | 34,710 | 35,060 | 35,410 | 35,770 |

**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))**

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

| Table 16<br>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 | | |
| X | Detailed description of expected future supply projects & programs | Sec 4, p.4-26 | Reference & Page Number |
| X | Timeline for each proposed project | Sec 4,p.4-26+ | Reference & Page Number |
| ☐ | Quantification of each projects normal yield (AFY) | | 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<br>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** |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Opportunities for development of desalinated water** **(Water Code §10631 (i))**

| | | | |
|---|---|---|---|
| X | Describes opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply | Sec 4, p.4-35 | Reference & Page Number |
| ☐ | No opportunities for development of desalinated water | | Reference & Page Number |

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

**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.

| | | |
|---|---|---|
| X | Agency is a CUWCC member | Sec 6, p.6-1 Reference & Page Number |
| X | 2003-04 annual updates are attached to plan | Sec 6, p.6-1 Reference & Page Number |
| X | 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 | | |
|---|---|---|
| X | Agency receives, or projects receiving, wholesale water | Sec 2, p.2-1 Reference & Page Number |
| X | Agency provided written demand projections to wholesaler, 20 years | Sec 4, p.4-19 Reference & Page Number |

| Table 19<br>Agency demand projections provided to wholesale suppliers - AFY | | | | | |
|---|---|---|---|---|---|
| **Wholesaler** | **2010** | **2015** | **2020** | **2025** | **2030 - opt** |
| Municipal Water District of Orange County | 10,410 | 10,520 | 10,620 | 10,730 | 10,830 |
| (name 2) | | | | | |
| (name 3) | | | | | |

| | | |
|---|---|---|
| X | Wholesaler provided written water availability projections, by source, to agency, 20 years | Sec 4, p.4-19 Reference & Page Number |
| | (if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler) | |

| Table 20<br>Wholesaler identified & quantified the existing and planned sources of water- AFY | | | | | |
|---|---|---|---|---|---|
| **Wholesaler sources** | **2010** | **2015** | **2020** | **2025** | **2030 - opt** |
| Metropolitan WD of So Calif | 13,620 | 13,320 | 14,170 | 13,470 | 12,780 |
| (source 2) | | | | | |
| (source 3) | | | | | |

[X] Reliability of wholesale supply provided in writing by wholesale agency — Sec. 4,4-16,17 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**

| | Multiple Dry Water Years(MDY) (MWD Projected Year 3 of MDY) | | | | |
|---|---|---|---|---|---|
| **Wholesaler sources** | **Single Dry 2010** | **2010** | **2015** | **2020** | **2025** |
| Metropolitan WD of So Calif | 106.5% | 98.2% | 106.8% | 103.3% | 102.4% |
| (source 2) | | | | | |
| (source 3) | | | | | |

**Table 22**
**Factors resulting in inconsistency of wholesaler's supply**

| Name of supply | Legal | Environment | Water Quality | Climatic |
|---|---|---|---|---|
| | | | | |
| | | | | |

**Water Shortage Contingency Plan Section** — **(Water Code § 10632)**
**Stages of Action** — **(Water Code § 10632 (a))**

[X] Provide stages of action — Sec 7, p.7-1 Reference & Page Number
[X] Provide the water supply conditions for each stage — Sec 7, p.7-2 Reference & Page Number
[X] Includes plan for 50 percent supply shortage — Sec 7, p.7-2 Reference & Page Number

**Table 23**
**Water Supply Shortage Stages and Conditions**
**RATIONING STAGES**

| Stage No. | Water Supply Conditions | % Shortage |
|---|---|---|
| Shortage Stage 1 | General water supply shortage due to increased demand or limited supplies | |
| Shortage Stage 2 | Major failure of Metroolitan or City supply, storage and distribution facilties | |
| Shortage Stage 3 | Local or regional disaster, which limits the water supply | |
| | | |
| | | |
| | | |
| | | |

## Three-Year Minimum Water Supply (Water Code §10632 (b))

| | | | |
|---|---|---|---|
| X | Identifies driest 3-year period | Sec 4, p.4-14 | Reference & Page Number |
| X | Minimum water supply available by source for the next three years | Sec 7, p.7-7 | Reference & Page Number |

**Table 24**
**Three-Year Estimated Minimum Water Supply - AF Year**

| source** | 2006 | 2007 | 2008 | |
|---|---|---|---|---|
| Local Supplies | 24,140 | 24,470 | 25,690 | |
| Imported Supply | 13,580 | 13,770 | 13,080 | |
| **Total** | 37,720 | 38,240 | 38,770 | 0 |

*Note: If reporting after 2005, please change the column headers (Year 1, 2, & 3) to the appropriate years

## Preparation for catastrophic water supply interruption (Water Code §10632 (c))

| | | | |
|---|---|---|---|
| X | Provided catastrophic supply interruption plan | Sec 7, p.7-8 | Reference & Page Number |

**Table 25**
**Preparation Actions for a Catastrophe**

| Possible Catastrophe | Check if Discussed |
|---|---|
| Regional power outage | X |
| Earthquake | X |
| Water Repairs | X |

## Prohibitions (Water Code § 10632 (d))

| | | | |
|---|---|---|---|
| X | List the mandatory prohibitions against specific water use practices during water shortages | Sec 7, p.7-9<br>Appendix F | Reference & Page Number |

**Table 26**
**Mandatory Prohibitions**

| Examples of Prohibitions | Stage When Prohibition Becomes Mandatory |
|---|---|
| **Use of fire hydrants** | Wtr shortage |
| **Imporoper fixtures which lead to waste water** | Wtr shortage |
| **Use of meters** | Wtr shortage |
| **Drawing into steam boilers** | Wtr shortage |
| **Water sales outside of City** | Wtr shortage |
| **Cross-connections protection** | Wtr shortage |

## Consumption Reduction Methods (Water Code § 10632 (e))

X 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.7-9 Reference & Page Number
Appendix F

**Table 27**
**Consumption Reduction Methods**

| Consumption Reduction Methods | Stage When Method Takes Effect | Projected Reduction (%) |
|---|---|---|
| **Water Management Program** | | 50 |

## Penalties (Water Code § 10632 (f))

X List excessive use penalties or charges for excessive use

Sec 7, p.7-9 Reference & Page Number

**Table 28**
**Penalties and Charges**

| Penalties or Charges | Stage When Penalty Takes Effect |
|---|---|
| Misdemeanor | Violation of Water Management Program |
| Discontinuation of water | Violation of Ordinance |

## Revenue and Expenditure Impacts (Water Code § 10632 (g))

X Describe how actions and conditions impact revenues
Sec 7, p.7-10 Reference & Page Number

X Describe how actions and conditions impact expenditures
Sec 7, p.7-10 Reference & Page Number

X Describe measures to overcome the revenue and expenditure impacts
Sec 7, p.7-10 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<br>Proposed measures to overcome expenditure impacts | |
|---|---|
| **Names of measures** | **Check if Discussed** |
| **Monitor projected expenditures** | X |

**Water Shortage Contingency Ordinance/Resolution** **(Water Code § 10632 (h))**

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

Sec. 7,7-12 Reference & Page Number
Appendix F

**Reduction Measuring Mechanism** **(Water Code § 10632 (i))**

X Provided mechanisms for determining actual reductions

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

| Table 31<br>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**

X Describe the coordination of the recycling plan preparation information to the extent available

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

| Table 32<br>Participating agencies | |
|---|---|
| | **participated** |
| **Water agencies** | |
| **Wastewater agencies** | OCSD |
| **Groundwater agencies** | OCWD |
| **Planning Agencies** | |

| Wastewater System Description | (Water Code § 10633 (a)) | |
|---|---|---|
| X | Describe the wastewater collection and treatment systems in the supplier's service area | Sec 8, p.8-1 Reference & Page Number |
| X | Quantify the volume of wastewater collected and treated | Sec 8, p.8-2 Reference & Page Number |

**Table 33**
**Wastewater Collection and Treatment - AF Year**

| Type of Wastewater | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|---|
| **Wastewater collected & treated in service area** | 24,145 | 23,900 | 25,950 | 27,290 | 28,385 | 28,580 |
| **Volume that meets recycled water standard** | All of RP-1 and 33% of RP-2 | | | | | |

| Wastewater Disposal and Recycled Water Uses | (Water Code § 10633 (a - d)) | |
|---|---|---|
| X | Describes methods of wastewater disposal | Sec 8, p.8-1 Reference & Page Number |
| X | Describe the current type, place and use of recycled water | Sec 8, p.8-3 Reference & Page Number |
| | None | Reference & Page Number |
| X | Describe and quantify potential uses of recycled water | Sec 8, p.8-5 Reference & Page Number |

**Table 34**
**Disposal of wastewater in OCSD Service Area (non-recycled) AF Year**

| Method of disposal | Treatment Level | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|---|
| OCSD ocean discharge | Secondary Treatment | 249,678 | 197,055 | 217,209 | 200,414 | 200,414 |
| | | | | | | |
| | **Total** | 249,678 | 197,055 | 217,209 | 200,414 | 200,414 |

**Table 35**
**Recycled Water Uses - Actual and Potential (AFY)**

| User type | Treatment Level | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|---|
| **Agriculture** | | | | | | |
| **Landscape** | | | | | | |
| **Wildlife Habitat** | | | | | | |
| **Wetlands** | | | | | | |
| **Industrial** | | | | | | |
| **Groundwater Recharge** | | | | | | |
| **Other (user type)** | | | | | | |
| **Other (user type)** | | | | | | |
| **Total** | | 0 | 0 | 0 | 0 | 0 |

| | | | |
|---|---|---|---|
| X | Determination of technical and economic feasibility of serving the potential uses | Sec 8,p.8-5/7 | Reference & Page Number |

**Projected Uses of Recycled Water** **(Water Code § 10633 (e))**

| | | | |
|---|---|---|---|
| X | Projected use of recycled water, 20 years | Sec 8,p. 8-5 | 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** | 0 | 0 | 0 | 0 | 0 |

| | | | |
|---|---|---|---|
| X | Compare UWMP 2000 projections with UWMP 2005 actual (§ 10633 (e)) | Sec 8, p.8-5 | Reference & Page Number |
| X | None | Sec 8, p.8-5 | 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))**

| | | | |
|---|---|---|---|
| X | 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 | | Reference & Page Number |

| Table 38<br>Methods to Encourage Recycled Water Use | | | | | |
|---|---|---|---|---|---|
| Actions | AF of use projected to result from this action | | | | |
| | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| **Financial incentives** | | | | | |
| **Public Education** | | | | | |
| **Total** | 0 | 0 | 0 | 0 | 0 |

[X] 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.8-6 Reference & Page Number

**Water quality impacts on availability of supply** **(Water Code §10634)**

[X] Discusses water quality impacts (by source) upon water management strategies and supply reliability Sec 3 , p.3-9 Reference & Page Number

[ ] No water quality impacts projected

| Table 39<br>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))**

[X] Compare the projected normal water supply to projected normal water use over the next 20 years, in 5-year increments. Sec 4, p.4-21 Reference & Page Number

| Table 40<br>Projected Normal Water Supply - AF Year | | | | | |
|---|---|---|---|---|---|
| (from table 4) | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| **Supply** | 37,920 | 37,860 | 38,960 | 38,510 | 38,040 |
| % of year 2005 | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

| Table 41<br>Projected Normal Water Demand - AF Year | | | | | |
|---|---|---|---|---|---|
| (from table 15) | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| **Demand** | 34,710 | 35,060 | 35,410 | 35,770 | 36,090 |
| % of year 2005 | 102.3% | 103.3% | 104.3% | 105.4% | 106.3% |

| Table 42<br>Projected Supply and Demand Comparison - AF Year | | | | | |
|---|---|---|---|---|---|
| | **2010** | **2015** | **2020** | **2025** | **2030 - opt** |
| **Supply totals** | 37,920 | 37,860 | 38,960 | 38,510 | 38,040 |
| **Demand totals** | 34,710 | 35,060 | 35,410 | 35,770 | 36,090 |
| **Difference** | 3,210 | 2,800 | 3,550 | 2,740 | 1,950 |
| 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))**

[X] 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.4-20 Reference & Page Number

| Table 43<br>Projected single dry year Water Supply - AF Year | | | | | |
|---|---|---|---|---|---|
| | **2010** | **2015** | **2020** | **2025** | **2030 - opt** |
| **Supply** | 38,530 | 39,760 | 40,410 | 39,900 | 39,570 |
| % of projected normal | 101.6% | 105.0% | 103.7% | 103.6% | 104.0% |

| Table 44<br>Projected single dry year Water Demand - AF Year | | | | | |
|---|---|---|---|---|---|
| | **2010** | **2015** | **2020** | **2025** | **2030 - opt** |
| **Demand** | 36,620 | 36,990 | 37,360 | 37,740 | 38,070 |
| % of projected normal | 105.5% | 105.5% | 105.5% | 105.5% | 105.5% |

| Table 45<br>Projected single dry year Supply and Demand Comparison - AF Year | | | | | |
|---|---|---|---|---|---|
| | **2010** | **2015** | **2020** | **2025** | **2030 - opt** |
| **Supply totals** | 38,530 | 39,760 | 40,410 | 39,900 | 39,570 |
| **Demand totals** | 36,620 | 36,990 | 37,360 | 37,740 | 38,070 |
| **Difference** | 1,910 | 2,770 | 3,050 | 2,160 | 1,500 |
| Difference as % of Supply | 5.0% | 7.0% | 7.5% | 5.4% | 3.8% |
| Difference as % of Demand | 5.2% | 7.5% | 8.2% | 5.7% | 3.9% |

**Supply and Demand Comparison: Multiple-dry Year Scenario** **(Water Code § 10635 (a))**

[X] 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.4-21 Reference & Page Number

**Table 46**
**Projected supply during multiple dry year period ending in 2010 - AF Year**

| | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| **Supply** | 35,900.0 | 36,400.0 | 38,770.0 | 38,320.0 | 39,000.0 |
| % of projected normal | 100.0% | 100.0% | 105.1% | 102.5% | 102.4% |

**Table 47**
**Projected demand multiple dry year period ending in 2010 - AFY**

| | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| **Demand** | 34,090 | 34,250 | 36,700 | 35,840 | 36,620 |
| % of projected normal | 100.0% | 100.0% | 106.7% | 103.7% | 105.5% |

**Table 48**
**Projected Supply and Demand Comparison during multiple dry year period ending in 2010- AF Year**

| | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| **Supply totals** | 35,900 | 36,400 | 38,770 | 38,320 | 39,000 |
| **Demand totals** | 34,090 | 34,250 | 36,700 | 35,840 | 36,620 |
| **Difference** | 1,810 | 2,150 | 2,070 | 2,480 | 2,380 |
| **Difference as % of Supply** | 5.0% | 5.9% | 5.3% | 6.5% | 6.1% |
| **Difference as % of Demand** | 5.3% | 6.3% | 5.6% | 6.9% | 6.5% |

[X] 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.4-22 Reference & Page Number

**Table 49**
**Projected supply during multiple dry year period ending in 2015 - AF Year**

| | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| **Supply** | 37,910 | 37,900 | 40,430 | 39,660 | 40,120 |
| % of projected normal | 100.0% | 100.0% | 104.0% | 102.1% | 106.0% |

| Table 50<br>Projected demand multiple dry year period ending in 2015 - AFY | | | | | |
|---|---|---|---|---|---|
| | 2011 | 2012 | 2013 | 2014 | 2015 |
| **Demand** | 34,780 | 34,850 | 37,260 | 36,280 | 36,990 |
| % of projected normal | 102.5% | 102.7% | 109.8% | 106.9% | 109.0% |

| Table 51<br>Projected Supply and Demand Comparison during multiple dry year period ending in 2015- AF Year | | | | | |
|---|---|---|---|---|---|
| | 2011 | 2012 | 2013 | 2014 | 2015 |
| **Supply totals** | 37,910 | 37,900 | 40,430 | 39,660 | 40,120 |
| **Demand totals** | 34,780 | 34,850 | 37,260 | 36,280 | 36,990 |
| **Difference** | 3,130 | 3,050 | 3,170 | 3,380 | 3,130 |
| **Difference as % of Supply** | 8.3% | 8.0% | 7.8% | 8.5% | 7.8% |
| **Difference as % of Demand** | 9.0% | 8.8% | 8.5% | 9.3% | 8.5% |

[X] Project a multiple-dry year period (as identified in Table 9) occurring between 2016-2020 and compare projected supply and demand during those years

Sec 4, p.4-23 Reference & Page Number

| Table 52<br>Projected supply during multiple dry year period ending in 2020 - AF Year | | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| **Supply** | 38,080 | 38,300 | 40,800 | 39,980 | 40,790 |
| % of projected normal | 100.0% | 100.0% | 105.9% | 103.2% | 104.7% |

| Table 53<br>Projected demand multiple dry year period ending in 2020 - AFY | | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| **Demand** | 35,130 | 35,200 | 37,630 | 36,510 | 37,360 |
| % of projected normal | 103.5% | 103.7% | 110.9% | 107.6% | 110.1% |

| Table 54<br>Projected Supply and Demand Comparison during multiple dry year period ending in 2020- AF Year | | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| **Supply totals** | 38,080 | 38,300 | 40,800 | 39,980 | 40,790 |
| **Demand totals** | 35,130 | 35,200 | 37,630 | 36,510 | 37,360 |
| **Difference** | 2,950 | 3,100 | 3,170 | 3,470 | 3,430 |
| **Difference as % of Supply** | 7.7% | 8.1% | 7.8% | 8.7% | 8.4% |
| **Difference as % of Demand** | 8.4% | 8.8% | 8.4% | 9.5% | 9.2% |

[X] Project a multiple-dry year period (as identified in Table 9) occurring between 2021-2025 and compare projected supply and demand during those years — Sec 4, p.4-24 Reference & Page Number

| Table 55<br>Projected supply during multiple dry year period ending in 2025 - AF Year | | | | | |
|---|---|---|---|---|---|
| | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Supply** | 38,870 | 38,780 | 40,130 | 39,560 | 40,210 |
| % of projected normal | 100.0% | 100.0% | 103.7% | 102.5% | 104.4% |

| Table 56<br>Projected demand multiple dry year period ending in 2025 - AFY | | | | | |
|---|---|---|---|---|---|
| | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Demand** | 35,480 | 35,550 | 38,020 | 37,020 | 37,740 |
| % of projected normal | 100.0% | 100.0% | 106.7% | 103.7% | 105.5% |

| Table 57<br>Projected Supply and Demand Comparison during multiple dry year period ending in 2025- AF Year | | | | | |
|---|---|---|---|---|---|
| | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Supply totals** | 38,870 | 38,780 | 40,130 | 39,560 | 40,210 |
| **Demand totals** | 35,480 | 35,550 | 38,020 | 37,020 | 37,740 |
| **Difference** | 3,390 | 3,230 | 2,110 | 2,540 | 2,470 |
| **Difference as % of Supply** | 8.7% | 8.3% | 5.3% | 6.4% | 6.1% |
| **Difference as % of Demand** | 9.6% | 9.1% | 5.5% | 6.9% | 6.5% |

| Provision of Water Service Reliability section to cities/counties within service area | | | (Water Code § 10635(b)) |
|---|---|---|---|
| X | 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) |
|---|---|---|---|---|
| X | Attach a copy of adoption resolution | Sec 1, p.1-2 | Appendix C | Reference & Page Number |
| X | Encourage involvement of social, cultural & economic community groups | | Sec 1, p.1-2 | Reference & Page Number |
| X | Plan available for public inspection | | Sec 1, p.1-2 | Reference & Page Number |
| X | Provide proof of public hearing | Sec 1, p.1-2 | Appendix C | Reference & Page Number |
| X | Provided meeting notice to local governments | | Sec 1, p.1-2 | Reference & Page Number |

| Review of implementation of 2000 UWMP | | | (Water Code § 10643) |
|---|---|---|---|
| X | Reviewed implementation plan and schedule of 2000 UWMP | Sec 1, p.1-3 | Reference & Page Number |
| X | Implemented in accordance with the schedule set forth in plan | Sec 1, p.1-3 | Reference & Page Number |
| | 2000 UWMP not required | | Reference & Page Number |

| Provision of 2005 UWMP to local governments | | | (Water Code § 10644 (a)) |
|---|---|---|---|
| X | 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) |
|---|---|---|---|
| X | Does UWMP or correspondence accompanying it show where it is available for public review | Sec 1, p.1-2, Back Cover | Reference & Page Number |

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APPENDIX C

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

# PROOF OF PUBLICATION

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE )

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 party to or interested in the below entitled matter. I am a principal clerk of the HUNTINGTON BEACH INDEPENDENT, a newspaper of general circulation, printed and published in the City of Huntington Beach, County of Orange, State of California, and that attached Notice is a true and complete copy as was printed and published in the Huntington Beach issue of said newspaper to wit the Issue(s) of:

OCTOBER 27,2005

I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on OCTOBER 27,2005
at Costa Mesa, California.

Signature

**City of Huntington Beach - Notice of Public Hearing on consideration to adopt an Urban Water Management Plan**

Notice is hereby given that a public hearing will be held by the City Council of the City of Huntington Beach, in the Council Chambers of the Civic Center, Huntington Beach located at 2000 Main Street, at the hour of 6:00 PM, or as soon as possible thereafter on Monday, the 21st of November, 2005 for the purpose of considering the adoption of the City's 2005 Urban Water Management Plan.

The 2005 Urban Water Management Plan is submitted to the State Department of Water Resources every five years pursuant to the Urban Water Management Planning Act of 1983. The Plan is a general information document and complements the plan of the Municipal Water District of Orange County and the Southern California Metropolitan Water District. The purpose of Huntington Beach's plan is to provide a local perspective and analysis of the current and alternative water conservation activities of the City.

Draft copies of the plan will be made available for public review beginning November 8, 2005 at the Office of the City Clerk. All interested persons are invited to attend the hearing on the 2005 Urban Water Management Plan, to express their opinions for, or against, with written or oral comments. Written communications to the City Council also may be mailed to the City Clerk. Further information may be obtained from the Office of the City Clerk, 2000 Main Street Huntington Beach, CA 92648 Phone # (714) 536-5227.

The City of Huntington Beach endeavors to accommodate persons of handicapped status in the admission or access to, or treatment or employment in, City programs or activities. The City of Huntington Beach is an equal opportunity employer.

City of Huntington Beach
By: Joan Flynn, City Clerk
2000 Main Street
Huntington Beach, CA 92648
Telephone: (714) 536-5227
Published Huntington Beach Independent October 27, 2005 104-487

PROOF OF PUBLICATION

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE )

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 party to or interested in the below entitled matter. I am a principal clerk of the HUNTINGTON BEACH INDEPENDENT, a newspaper of general circulation, printed and published in the City of Huntington Beach, County of Orange, State of California, and that attached Notice is a true and complete copy as was printed and published in the Huntington Beach issue of said newspaper to wit the Issue(s) of:

OCTOBER 27,2005
NOVEMBER 3,2005

I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on NOVEMBER 3,2005
at Costa Mesa, California.

Rita Newell
Signature

## City of Huntington Beach - Notice of Public Hearing on consideration to adopt an Urban Water Management Plan

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The City of Huntington Beach endeavors to accommodate persons of handicapped status in the admission or access to, or treatment or employment in, City programs or activities. The City of Huntington Beach is an equal opportunity employer.

City of Huntington Beach
By: Joan Flynn, City Clerk
2000 Main Street
Huntington Beach, CA 92648
Telephone: (714) 536-5227.

RESOLUTION NO. 2005-73

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF HUNTINGTON BEACH ADOPTING THE URBAN WATER MANAGEMENT PLAN PURSUANT TO AB 797 AND SB 1011

WHEREAS, Resolution No. 2000-117 adopted the City of Huntington Beach Urban Water Management Plan in 2000; and

Under state regulations, an Urban Water Management Plan is required to be adopted every five years; and

In the semi-arid coastal plain of Southern California, it is imperative that every reasonable measure be taken to manage precious local and imported water supplies; and

A current Urban Water Management Plan ("Plan") has been completed, and is attached hereto as Exhibit "A" and incorporated by this reference as though fully set forth herein, pursuant to the requirements of the Urban Water Management Planning Act of 1983; and

The Plan is a general information document and compliments the plan of the Municipal Water District of Orange County (MWDOC) and the Regional Plan of the Southern California Metropolitan Water District; and

The purpose of Huntington Beach's Plan is to provide a local perspective and analysis of the current and alternative water conservation activities of Huntington Beach; and

Huntington Beach's Plan also addresses the effects of water shortages within the City's boundaries and suggests a framework for developing a mechanism, in concert with neighboring cities, to cope with short term as well as chronic water supply deficiencies; and

Huntington Beach's Plan will be periodically updated to reflect changes in water supply trends and conservation policies within the boundaries of Huntington Beach,

NOW, THEREFORE, THE City Council of the City of Huntington Beach does hereby resolve as follows:

1. That the City Council of the City of Huntington Beach hereby acknowledges the essential nature of water conservation within its boundaries as described herein; and

2. That the City's Urban Water Management Plan, as shown on the attached Exhibit "A," is hereby approved and adopted, and the City will implement the Plan as discussed therein.

3. Resolution No. 2000-117 is hereby repealed.

PASSED AND ADOPTED by the City Council of the City of Huntington Beach at a regular meeting thereof held on the 21st day of November, 2005.

Mayor

REVIEWED AND APPROVED:

City Administrator

APPROVED AS TO FORM:

City Attorney

INITIATED AND APPROVED:

Director of Public Works

**Res. No. 2005-73**

**STATE OF CALIFORNIA**
**COUNTY OF ORANGE ) ss:**
**CITY OF HUNTINGTON BEACH )**

I, JOAN L. FLYNN the duly elected, qualified City Clerk of the City of Huntington Beach, and ex-officio Clerk of the City Council of said City, do hereby certify that the whole number of members of the City Council of the City of Huntington Beach is seven; that the foregoing resolution was passed and adopted by the affirmative vote of at least a majority of all the members of said City Council at an **regular** meeting thereof held on the **21st day of November, 2005** by the following vote:

**AYES:** Coerper, Sullivan, Hardy, Bohr, Cook
**NOES:** None
**ABSENT:** Hansen, Green
**ABSTAIN:** None

Joan L. Flynn

City Clerk and ex-officio Clerk of the
City Council of the City of
Huntington Beach, California

APPENDIX D

***REFERENCES***

**City of Huntington Beach**

**2005 Urban Water Management Plan**

# REFERENCES


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 Huntington Beach, *2005 Water Quality Report,* 2005

City of Huntington Beach, *Draft Water Master Plan,* August 2005

City of Huntington Beach, *Future Projections of Water Demand by Supply Source and Water Type,* 2005-2030

City of Huntington Beach Department of Public Works- Water Division, *2005 Consumer Confidence Report.* April 2005

City of Huntington Beach, *Best Management Practices Activity Reports,* 2001-2004.

City of Huntington Beach, *Best Management Practices Coverage Reports,* 2001-2004.

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

Department of Water Resources, *California Water Plan Update 2005, Volume 2 – Resource Management Strategies,* 2005

Metropolitan Water District of Southern California, *Annual Water Quality Report for 2005,* 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, *Report on Metropolitan Water Supplies, A Blueprint for Water Reliability, p. 9, 24-25,* March 2003

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, *Municipal Water District of Orange County 2000 Regional Urban Water Management Plan,* 2000

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, *South Orange County Water Reliability Study: Phase 2 System Reliability Plan,* June 2004

Municipal Water District of Orange County, [On-line] http://www.mwdoc.com. 2002

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,* February 2002

Orange County Water District, *2001-2002 Annual Report,* 2001-2002

Orange County Water District, *2020 Water Master Plan,* April 1999

Orange County Water District, *Orange County Facts and Figures,* 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

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 ACTIVITY REPORTS, ANNUAL REPORTS AND COVERAGE REPORTS FOR WATER CONSERVATION BEST MANAGEMENT PRACTICES*

## Water Supply & Reuse

Reporting Unit:
**City of Huntington Beach**

Year:
**2004**

**Water Supply Source Information**

| Supply Source Name | Quantity (AF) Supplied | Supply Type |
|---|---|---|
| OCWD | 12716 | Groundwater |
| MWDOC | 21444 | Imported |

**Total AF: 34160**

## Accounts & Water Use

Reporting Unit Name:
**City of Huntington Beach**

Submitted to CUWCC
**11/17/2004**

Year:
**2004**

**A. Service Area Population Information:**

1. Total service area population 206000

**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 | 43819 | 15900 | 0 | 0 |
| 2. Multi-Family | 4147 | 7290 | 0 | 0 |
| 3. Commercial | 2321 | 4649 | 0 | 0 |
| 4. Industrial | 307 | 683 | 0 | 0 |
| 5. Institutional | 601 | 1112 | 0 | 0 |
| 6. Dedicated Irrigation | 853 | 2152 | 0 | 0 |
| 7. Recycled Water | 1 | 0 | 0 | 0 |
| 8. Other | 0 | 20 | 0 | 0 |
| 9. Unaccounted | NA | 2354 | NA | 0 |
| **Total** | 52049 | 34160 | 0 | 0 |

**Metered** **Unmetered**

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

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2004** |

**A. Implementation**

| | |
|---|---|
| 1. Based on your signed MOU date, 08/23/2000, your Agency STRATEGY DUE DATE is: | 08/23/2002 |
| 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? | 6/1/2000 |
| 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 | 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) | Odometer | Wheel |
| 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? 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**

See 2003 comments

## BMP 02: Residential Plumbing Retrofit

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2004** |

**A. Implementation**

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? yes

3. Estimated percent of single-family households with low-flow showerheads: 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.
   See the comments for 2003. These apply for 2004.

**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? 6/1/2000

   b. Describe your targeting/ marketing strategy.
   See 2003 comments.

| **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? yes

   a. If YES, in what format are low-flow devices tracked? Database

   b. If yes, describe your tracking and distribution system :
   When the program was running, the costs were tracked by the vendor.

**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**

See BMP #1

## BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2004** |

**A. Implementation**

| | |
|---|---|
| 1. Has your agency completed a pre-screening system audit for this reporting year? | no |
| 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production: | |
| a. Determine metered sales (AF) | 31786 |
| b. Determine other system verifiable uses (AF) | 20 |
| c. Determine total supply into the system (AF) | 34160 |
| d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. | 0.93 |
| 3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? | yes |
| 4. Did your agency complete a full-scale audit during this report year? | no |
| 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | yes |
| 6. Does your agency operate a system leak detection program? | no |
| a. If yes, describe the leak detection program: | |

**B. Survey Data**

| | |
|---|---|
| 1. Total number of miles of distribution system line. | 520 |
| 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**

Unaccounted water loss does not warrant a leak survey.

# BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2004** |

**A. Implementation**

| | |
|---|---|
| 1. Does your agency require meters for all new connections and bill by volume-of-use? | yes |
| 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? | no |
| a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? | |
| b. Describe the program: | |
| 3. Number of previously unmetered accounts fitted with meters during report year. | 0 |

**B. Feasibility Study**

| | |
|---|---|
| 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | no |
| a. If YES, when was the feasibility study conducted? (mm/dd/yy) | |
| b. Describe the feasibility study: | |
| 2. Number of CII accounts with mixed-use meters. | 0 |
| 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. | 0 |

**C. Meter Retrofit Program Expenditures**

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

**D. "At Least As Effective As"**

| | |
|---|---|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

**E. Comments**

The City has no unmetered connections. Information on mixed used meters is not kept, but dedicated irrigation meters are required on new commercial developments.

## BMP 05: Large Landscape Conservation Programs and Incentives

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2004** |

**A. Water Use Budgets**

| | |
|---|---|
| 1. Number of Dedicated Irrigation Meter Accounts: | 1428 |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 0 |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | no |

**B. Landscape Surveys**

| | |
|---|---|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | no |
| a. If YES, when did your agency begin implementing this strategy? | 0 |
| 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? | yes |

| Type of Financial Incentive: | Budget (Dollars/ Year) | Number Awarded to Customers | Total Amount Awarded |
|---|---|---|---|
| a. Rebates | 0 | 0 | 0 |
| b. Loans | 0 | 0 | 0 |
| c. Grants | 0 | 0 | 0 |

| | |
|---|---|
| 5. Do you provide landscape water use efficiency information to new customers and customers changing services? | No |
| a. If YES, describe below: | |
| 6. Do you have irrigated landscaping at your facilities? | yes |
| a. If yes, is it water-efficient? | yes |
| b. If yes, does it have dedicated irrigation metering? | yes |
| 7. Do you provide customer notices at the start of the irrigation season? | 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 | 35000 |
| 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**

Please see comments from 2003.

## BMP 06: High-Efficiency Washing Machine Rebate Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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, PG&E and SDG&E offer rebates. | |
| 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. | 857 |

**B. Rebate Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 1100 | 1100 |
| 2. Actual Expenditures | 1100 | |

**C. "At Least As Effective As"**

| | |
|---|---|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | no |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

**D. Comments**

## BMP 07: Public Information Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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.
The City offers a number of brochures and informational pamphlets at various facilities. A Water Conservation page is included in the City's web site. It offers information and links to a number of sites, including CUWCC.

2. Indicate which and how many of the following activities are included in your public information program.

| Public Information Program Activity | Yes/No | Number of Events |
|---|---|---|
| a. Paid Advertising | no | 0 |
| b. Public Service Announcement | yes | 12 |
| c. Bill Inserts / Newsletters / Brochures | yes | 3 |
| d. Bill showing water usage in comparison to previous year's usage | no | |
| e. Demonstration Gardens | no | 0 |
| f. Special Events, Media Events | no | 0 |
| g. Speaker's Bureau | no | 0 |
| 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 | 9000 | 9000 |
| 2. Actual Expenditures | 5737 | |

**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**

A monthly water consumption report is now provided to the City Council and is published in various local media. A conservation message was added to the municipal services bill during the summer months for a total of 3 billing cycles (approx. 90 days); this is shown as 1 event under 2c. Other inserts included rebate and other information.

## BMP 08: School Education Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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 | 20 | 1253 | 5 |
| Grades 4th-6th | yes | 10 | 634 | 0 |
| Grades 7th-8th | yes | 0 | 0 | 0 |
| High School | yes | 0 | 0 | 0 |

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

4. When did your Agency begin implementing this program? 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**

The City participates in a program run by MWDOC.

## BMP 09: Conservation Programs for CII Accounts

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2004** |

**A. Implementation**

| | |
|---|---|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | No |
| 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? | Yes |

| 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 | 105 | 19470 |
| 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. | 1.55 |
| 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 13.94 |

**B. Conservation Program Expenditures for CII Accounts**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 22176 | |

**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 09a: CII ULFT Water Savings

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2004** |

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

**A. Targeting and Marketing**

| | |
|---|---|
| 1. What basis does your agency use to target customers for participation in this program? Check all that apply. | CII ULFT Study subsector targeting<br>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.

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<br>Direct letter<br>Newsletter<br>Web page<br>Trade publications<br>Newspapers<br>Other print media<br>Trade shows and events<br>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 ? | 1 |

| CII Subsector | Number of Toilets Replaced | | | |
|---|---|---|---|---|
| 4. | **Standard Gravity Tank** | **Air Assisted** | **Valve Floor Mount** | **Valve Wall Mount** |
| a. Offices | 0 | 0 | 0 | 0 |
| b. Retail / Wholesale | 0 | 0 | 0 | 0 |
| c. Hotels | 0 | 0 | 0 | 0 |
| d. Health | 0 | 0 | 0 | 0 |
| e. Industrial | 0 | 0 | 0 | 0 |
| f. Schools: K to 12 | 0 | 0 | 0 | 0 |
| g. Eating | 0 | 0 | 0 | 0 |
| h. Government | 0 | 0 | 0 | 0 |
| i. Churches | 0 | 0 | 0 | 0 |
| j. Other | 2 | 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 amounts 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 | 120 |
| b. State agency contribution | 0 |
| c. Federal agency contribution | 0 |
| d. Other contribution | 0 |
| e. Total | 120 |

**D. Comments**

See MWD of SC program for details.

## BMP 11: Conservation Pricing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2004** |

**A. Implementation**

**Rate Structure Data Volumetric Rates for Water Service by Customer Class**

| | |
|---|---|
| **1. Residential** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Non-volumetric Flat Rate |
| c. Total Revenue from Volumetric Rates | $13341269 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $12847839 |
| **2. Commercial** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Non-volumetric Flat Rate |
| c. Total Revenue from Volumetric Rates | $2674786 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $1956414 |
| **3. Industrial** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Non-volumetric Flat Rate |
| c. Total Revenue from Volumetric Rates | $393120 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $286056 |
| **4. Institutional / Government** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $639678 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $428736 |
| **5. Irrigation** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $1237789 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $444354 |
| **6. Other** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $0 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |

**B. Conservation Pricing Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 77755 |
| 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**

The City is currently undergoing a rate study. The funds were encumbered in 2004, but are shown as next year, as this study has only recently started.

## BMP 12: Conservation Coordinator

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2004** |

**A. Implementation**

| | |
|---|---|
| 1. Does your Agency have a conservation coordinator? | yes |
| 2. Is this a full-time position? | no |
| 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? | yes |
| 4. Partner agency's name: | Municipal Water District of Orange County |
| 5. If your agency supplies the conservation coordinator: | |
| a. What percent is this conservation coordinator's position? | 10% |
| b. Coordinator's Name | Kenneth J. Dills |
| c. Coordinator's Title | Senior Administrative Analyst |
| d. Coordinator's Experience and Number of Years | Level I Water Conservation Practitioner - 5 years |
| e. Date Coordinator's position was created (mm/dd/yyyy) | 3/1/1999 |
| 6. Number of conservation staff, including Conservation Coordinator. | 1 |

**B. Conservation Staff Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 7700 | 7900 |
| 2. Actual Expenditures | 7700 | |

**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: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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:
   14.16.020 of the Huntington Beach Municipal Code states that no person shall waste water or allow it to be wasted from improper fixtures.

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:

| | |
|---|---|
| N/A | N/A |

**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 | no |
| d. Non-recirculating systems in all new commercial laundry systems | no |
| e. Non-recirculating systems in all new decorative fountains | no |
| f. Other, please name | no |

2. Describe measures that prohibit water uses listed above:
   Visual inspections and citations where warranted

**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. | yes |
| 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. | yes |
| ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. | yes |
| 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. | yes |
| 4. Does your agency include water softener checks in home water audit programs? | yes |
| 5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? | no |

**C. Water Waste Prohibition Program Expenditures**

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

**D. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**E. Comments**

Any expenditures are not tracked separately.

# BMP 14: Residential ULFT Replacement Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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 | 1243 | 501 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 0 | 0 |
| **Total** | **1243** | **501** |

6. Describe your agency's ULFT program for single-family residences.

Huntington Beach participates in a region wide ULFT rebate program for both SF and 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 free distribution of ULFTs to our customers.

7. Describe your agency's ULFT program for multi-family residences.

see #6

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 | 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**

## Water Supply & Reuse

Reporting Unit:
**City of Huntington Beach**

Year:
**2003**

**Water Supply Source Information**

| Supply Source Name | Quantity (AF) Supplied | Supply Type |
|---|---|---|
| OCWD | 14289 | Groundwater |
| MWDOC | 19454 | Imported |

**Total AF: 33743**

## Accounts & Water Use

Reporting Unit Name:
**City of Huntington Beach**

Submitted to CUWCC
**11/17/2004**

Year:
**2003**

**A. Service Area Population Information:**

1. Total service area population 206000

**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 | 43679 | 16035 | 0 | 0 |
| 2. Multi-Family | 4126 | 7483 | 0 | 0 |
| 3. Commercial | 2273 | 5255 | 0 | 0 |
| 4. Industrial | 305 | 721 | 0 | 0 |
| 5. Institutional | 561 | 860 | 0 | 0 |
| 6. Dedicated Irrigation | 824 | 1983 | 0 | 0 |
| 7. Recycled Water | 1 | 0 | 0 | 0 |
| 8. Other | 0 | 275 | 0 | 0 |
| 9. Unaccounted | NA | 2217 | NA | 0 |
| **Total** | 51769 | 34829 | 0 | 0 |

**Metered** **Unmetered**

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

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2003** |

**A. Implementation**

| | |
|---|---|
| 1. Based on your signed MOU date, 08/23/2000, your Agency STRATEGY DUE DATE is: | 08/23/2002 |
| 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? | 6/1/2000 |
| 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 | 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) | Odometer Wheel | |
| 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? | 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**

The City participated in a region wide program through MWDOC in 2001 and 2002. This program was discontinued and surveys were done on an informal, as requested basis in 2003 and 2004.

## BMP 02: Residential Plumbing Retrofit

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2003** |

**A. Implementation**

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? yes

3. Estimated percent of single-family households with low-flow showerheads: 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 Survey and found countywide low flow showerhead saturation rates of 66.9% in single-family and 59.8% in multi-family dwelling units. Saturation rates provided above represent linear extrapolations of saturation survey results for 2003

**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? 6/1/2000

   b. Describe your targeting/ marketing strategy.
   The program was done as part of the residential survey program noted in BMP #1, which was suspended for this reporting period.

| **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? yes

   a. If YES, in what format are low-flow devices tracked? Database

   b. If yes, describe your tracking and distribution system :
   When the program is running, the costs were tracked by the vendor.

**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**

See BMP #1

## BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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) | 32337 |
| b. Determine other system verifiable uses (AF) | 275 |
| c. Determine total supply into the system (AF) | 33743 |
| d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. | 0.97 |
| 3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? | yes |
| 4. Did your agency complete a full-scale audit during this report year? | no |
| 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | yes |
| 6. Does your agency operate a system leak detection program? | no |
| a. If yes, describe the leak detection program: | |

**B. Survey Data**

| | |
|---|---|
| 1. Total number of miles of distribution system line. | 520 |
| 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**

Unaccounted water loss does not warrant a leak survey.

## BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2003** |

**A. Implementation**

| | |
|---|---|
| 1. Does your agency require meters for all new connections and bill by volume-of-use? | yes |
| 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? | no |
| a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? | |
| b. Describe the program: | |
| 3. Number of previously unmetered accounts fitted with meters during report year. | 0 |

**B. Feasibility Study**

| | |
|---|---|
| 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | no |
| a. If YES, when was the feasibility study conducted? (mm/dd/yy) | |
| b. Describe the feasibility study: | |
| 2. Number of CII accounts with mixed-use meters. | 0 |
| 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. | 0 |

**C. Meter Retrofit Program Expenditures**

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

**D. "At Least As Effective As"**

| | |
|---|---|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

**E. Comments**

The City has no unmetered connections. Information on mixed used meters is not kept, but dedicated irrigation meters are required on new commercial developments.

## BMP 05: Large Landscape Conservation Programs and Incentives

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2003** |

**A. Water Use Budgets**

| | |
|---|---|
| 1. Number of Dedicated Irrigation Meter Accounts: | 1399 |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 0 |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | no |

**B. Landscape Surveys**

| | |
|---|---|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | no |
| a. If YES, when did your agency begin implementing this strategy? | 0 |
| 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? | yes |

| Type of Financial Incentive: | Budget (Dollars/ Year) | Number Awarded to Customers | Total Amount Awarded |
|---|---|---|---|
| a. Rebates | 0 | 0 | 0 |
| b. Loans | 0 | 0 | 0 |
| c. Grants | 0 | 0 | 0 |

| | |
|---|---|
| 5. Do you provide landscape water use efficiency information to new customers and customers changing services? | No |
| a. If YES, describe below: | |
| 6. Do you have irrigated landscaping at your facilities? | yes |
| a. If yes, is it water-efficient? | yes |
| b. If yes, does it have dedicated irrigation metering? | yes |
| 7. Do you provide customer notices at the start of the irrigation season? | 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 City recently began participation in MWDOC's Landscape Certification Program. Included in this program is an informal survey process. Since it is informal, under B above #2 and #3 are listed as zero, while the components of the informal process are marked as yes in #4. Also, please note that 575 meters listed as "institutional" under "Accounts and Water Use" are dedicated landscape meters owned and operated by the City.

## BMP 06: High-Efficiency Washing Machine Rebate Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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, PG&E and SDG&E offer rebates. | |
| 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. | 486 |

**B. Rebate Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 1100 | 1100 |
| 2. Actual Expenditures | 1100 | |

**C. "At Least As Effective As"**

| | |
|---|---|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | no |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

**D. Comments**

## BMP 07: Public Information Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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.
The City offers a number of brochures and informational pamphlets at various facilities. A Water Conservation page is included in the City's web site. It offers information and links to a number of sites, including CUWCC.

2. Indicate which and how many of the following activities are included in your public information program.

| Public Information Program Activity | Yes/No | Number of Events |
|---|---|---|
| a. Paid Advertising | no | 0 |
| b. Public Service Announcement | yes | 0 |
| c. Bill Inserts / Newsletters / Brochures | yes | 1 |
| d. Bill showing water usage in comparison to previous year's usage | no | |
| e. Demonstration Gardens | no | 0 |
| f. Special Events, Media Events | yes | 1 |
| g. Speaker's Bureau | no | 0 |
| 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 | 9000 | 9000 |
| 2. Actual Expenditures | 3840 | |

**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**

The new billing system noted in the last reporting period was not implemented until 2003-2004.

## BMP 08: School Education Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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 | 30 | 2447 | 5 |
| Grades 4th-6th | yes | 16 | 1265 | 0 |
| Grades 7th-8th | yes | 1 | 70 | 0 |
| High School | yes | 0 | 0 | 0 |

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

4. When did your Agency begin implementing this program? 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**

The City participates in a program run by MWDOC.

## BMP 09: Conservation Programs for CII Accounts

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2003** |

**A. Implementation**

| | |
|---|---|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | yes |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | yes |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | yes |

**Option A: CII Water Use Survey and Customer Incentives Program**

| | |
|---|---|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | no |

| CII Surveys | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| a. Number of New Surveys Offered | 0 | 0 | 0 |
| b. Number of New Surveys Completed | 0 | 0 | 0 |
| c. Number of Site Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |
| d. Number of Phone Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |

| CII Survey Components | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| e. Site Visit | no | no | no |
| f. Evaluation of all water-using apparatus and processes | no | no | no |
| g. Customer report identifying recommended efficiency measures, paybacks and agency incentives | no | no | no |

| Agency CII Customer Incentives | Budget ($/Year) | No. Awarded to Customers | Total $ Amount Awarded |
|---|---|---|---|
| h. Rebates | 0 | 63 | 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 |

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**

The City participates in a Metropolitan Water District of Southern California (MWD)program. The number of rebates, but no the dollar amount is shown. MWD tracks this.

## BMP 09a: CII ULFT Water Savings

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2003** |

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

**A. Targeting and Marketing**

| | |
|---|---|
| 1. What basis does your agency use to target customers for participation in this program? Check all that apply. | CII ULFT Study subsector targeting<br>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.

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<br>Direct letter<br>Newsletter<br>Web page<br>Newspapers<br>Trade publications<br>Other print media<br>Trade shows and events<br>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 ? | 1 |

| CII Subsector | Number of Toilets Replaced | | | |
|---|---|---|---|---|
| 4. | **Standard Gravity Tank** | **Air Assisted** | **Valve Floor Mount** | **Valve Wall Mount** |
| a. Offices | 0 | 0 | 0 | 0 |
| b. Retail / Wholesale | 0 | 0 | 0 | 0 |
| c. Hotels | 0 | 0 | 0 | 0 |
| d. Health | 0 | 0 | 0 | 0 |
| e. Industrial | 0 | 0 | 0 | 0 |
| f. Schools: K to 12 | 0 | 0 | 0 | 0 |
| g. Eating | 0 | 0 | 0 | 0 |
| h. Government | 0 | 0 | 0 | 0 |
| i. Churches | 1 | 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<br>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 amounts 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 | 60 |
| b. State agency contribution | 0 |
| c. Federal agency contribution | 0 |
| d. Other contribution | 0 |
| e. Total | 60 |

**D. Comments**

See MWD of SC program for details.

## BMP 11: Conservation Pricing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2003** |

**A. Implementation**

**Rate Structure Data Volumetric Rates for Water Service by Customer Class**

| | |
|---|---|
| **1. Residential** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Non-volumetric Flat Rate |
| c. Total Revenue from Volumetric Rates | $12507582 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $12847839 |
| **2. Commercial** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Non-volumetric Flat Rate |
| c. Total Revenue from Volumetric Rates | $2794790 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $1956414 |
| **3. Industrial** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Non-volumetric Flat Rate |
| c. Total Revenue from Volumetric Rates | $383363 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $276984 |
| **4. Institutional / Government** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $457286 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $421911 |
| **5. Irrigation** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $1054648 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $437207 |
| **6. Other** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $0 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |

**B. Conservation Pricing Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 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 12: Conservation Coordinator

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2003** |

**A. Implementation**

| | |
|---|---|
| 1. Does your Agency have a conservation coordinator? | yes |
| 2. Is this a full-time position? | no |
| 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? | yes |
| 4. Partner agency's name: | Municipal Water District of Orange County |
| 5. If your agency supplies the conservation coordinator: | |
| a. What percent is this conservation coordinator's position? | 10% |
| b. Coordinator's Name | Kenneth J. Dills |
| c. Coordinator's Title | Senior Administrative Analyst |
| d. Coordinator's Experience and Number of Years | Level I Water Conservation Practitioner - 4 years |
| e. Date Coordinator's position was created (mm/dd/yyyy) | 3/1/1999 |
| 6. Number of conservation staff, including Conservation Coordinator. | 1 |

**B. Conservation Staff Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 7700 | 7700 |
| 2. Actual Expenditures | 7700 | |

**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: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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:
   14.16.020 of the Huntington Beach Municipal Code states that no person shall waste water or allow it to be wasted from improper fixtures

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:

   N/A N/A

**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 no

   d. Non-recirculating systems in all new commercial laundry systems no

   e. Non-recirculating systems in all new decorative fountains no

   f. Other, please name no

2. Describe measures that prohibit water uses listed above:
   Visual inspections and citations where warranted

**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. yes

   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. yes

      ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. yes

   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. yes

4. Does your agency include water softener checks in home water audit programs? yes

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

**C. Water Waste Prohibition Program Expenditures**

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

**D. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**E. Comments**

Any expenditures are not tracked separately.

# BMP 14: Residential ULFT Replacement Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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 | 2620 | 1132 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 0 | 0 |
| **Total** | **2620** | **1132** |

6. Describe your agency's ULFT program for single-family residences.

Huntington Beach participates in a region wide ULFT rebate program for both SF and 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 free distribution of ULFTs to our customers.

7. Describe your agency's ULFT program for multi-family residences.

see #6

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:

| | |
|---|---|
| N/A | N/A |

**B. Residential ULFT Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 1100 | 0 |
| 2. Actual Expenditures | 1100 | |

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

## Water Supply & Reuse

Reporting Unit:
**City of Huntington Beach**

Year:
**2002**

**Water Supply Source Information**

| Supply Source Name | Quantity (AF) Supplied | Supply Type |
|---|---|---|
| OCWD | 24581 | Groundwater |
| MWDOC | 10458 | Imported |

**Total AF: 35039**

## Accounts & Water Use

Reporting Unit Name:
**City of Huntington Beach**

Submitted to CUWCC
**11/18/2002**

Year:
**2002**

**A. Service Area Population Information:**

1. Total service area population 192000

**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 | 43295 | 15810 | 0 | 0 |
| 2. Multi-Family | 4120 | 7615 | 0 | 0 |
| 3. Commercial | 2267 | 4891 | 0 | 0 |
| 4. Industrial | 305 | 791 | 0 | 0 |
| 5. Institutional | 550 | 116 | 0 | 0 |
| 6. Dedicated Irrigation | 807 | 2928 | 0 | 0 |
| 7. Recycled Water | 1 | 0 | 0 | 0 |
| 8. Other | 0 | 97 | 0 | 0 |
| 9. Unaccounted | NA | 2792 | NA | 0 |
| **Total** | 51345 | 35040 | 0 | 0 |

| | Metered | Unmetered |
|---|---|---|

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

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2002** |

**A. Implementation**

| | |
|---|---|
| 1. Based on your signed MOU date, 08/23/2000, your Agency STRATEGY DUE DATE is: | 08/23/2002 |
| 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? | 6/1/2000 |
| 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: | 17070 | 0 |
| 2. Number of surveys completed: | 350 | 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) | Odometer Wheel | |
| 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.
The program is managed by the Municipal Water District of Orange County.

**C. Water Survey Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 20000 | 40000 |
| 2. Actual Expenditures | 19110 | |

**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**

Residential surveys were previously done informally and not tracked. In 2001 and 2002 we began a 300 survey/year pilot program to determine cost effectiveness.

## BMP 02: Residential Plumbing Retrofit

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2002** |

**A. Implementation**

| | |
|---|---|
| 1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? | no |
| a. If YES, list local jurisdictions in your service area and code or ordinance in each: | |
| 2. Has your agency satisfied the 75% saturation requirement for single-family housing units? | 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? | 6/1/2000 |
| b. Describe your targeting/ marketing strategy.<br>The program is done as part of the residential survey program noted in BMP #1. | |

| **Low-Flow Devices Distributed/ Installed** | **SF Accounts** | **MF Units** |
|---|---|---|
| 2. Number of low-flow showerheads distributed: | 143 | 0 |
| 3. Number of toilet-displacement devices distributed: | 37 | 0 |
| 4. Number of toilet flappers distributed: | 40 | 0 |
| 5. Number of faucet aerators distributed: | 440 | 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 :<br>The cost and distribution were tracked through a formal survey program. Showerhead cost was 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**

Expenditures are included in the residential survey program shown in BMP #1.

## BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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) | 32167 |
| b. Determine other system verifiable uses (AF) | 96.7 |
| c. Determine total supply into the system (AF) | 34679.6 |
| d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. | 0.93 |
| 3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? | yes |
| 4. Did your agency complete a full-scale audit during this report year? | no |
| 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | yes |
| 6. Does your agency operate a system leak detection program? | no |
| a. If yes, describe the leak detection program: | |

**B. Survey Data**

| | |
|---|---|
| 1. Total number of miles of distribution system line. | 520 |
| 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 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2002** |

**A. Implementation**

| | |
|---|---|
| 1. Does your agency require meters for all new connections and bill by volume-of-use? | yes |
| 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? | no |
| a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? | |
| b. Describe the program: | |
| 3. Number of previously unmetered accounts fitted with meters during report year. | 0 |

**B. Feasibility Study**

| | |
|---|---|
| 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | no |
| a. If YES, when was the feasibility study conducted? (mm/dd/yy) | |
| b. Describe the feasibility study: | |
| 2. Number of CII accounts with mixed-use meters. | 0 |
| 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. | 0 |

**C. Meter Retrofit Program Expenditures**

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

**D. "At Least As Effective As"**

| | |
|---|---|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

**E. Comments**

The City has no unmetered connections.

## BMP 05: Large Landscape Conservation Programs and Incentives

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2002** |

**A. Water Use Budgets**

| | |
|---|---|
| 1. Number of Dedicated Irrigation Meter Accounts: | 1025 |
| 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 | 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? | yes |
| a. If yes, is it water-efficient? | yes |
| b. If yes, does it have dedicated irrigation metering? | yes |
| 7. Do you provide customer notices at the start of the irrigation season? | 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 City recently began participation in MWDOC's Landscape Certification Program. Included in this program is an informal survey process. Since it is informal, under B above #2 and #3 are listed as zero, while the components of the informal process are marked as yes in #4.

## BMP 06: High-Efficiency Washing Machine Rebate Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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, PG&E and SDG&E offer rebates | |
| 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. | 114 |

**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**

The rebate program is offered by the City's wholesaler, MWDOC.

## BMP 07: Public Information Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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.
The City offers a number of brochures and informational pamphlets at various facilities. A Water Conservation page is included in the City's web site. It offers information and links to a number of sites, including CUWCC.

2. Indicate which and how many of the following activities are included in your public information program.

| Public Information Program Activity | Yes/No | Number of Events |
|---|---|---|
| a. Paid Advertising | no | 0 |
| b. Public Service Announcement | yes | 0 |
| c. Bill Inserts / Newsletters / Brochures | yes | 0 |
| d. Bill showing water usage in comparison to previous year's usage | no | |
| e. Demonstration Gardens | no | 0 |
| f. Special Events, Media Events | yes | 0 |
| g. Speaker's Bureau | no | |
| 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 | 11000 | 11000 |
| 2. Actual Expenditures | 4765 | |

**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**

"Number of events" was not tracked. The City will begin tracking for the next reporting period. A new billing system is being implemented that will allow for messages on bills, including consumption history.

## BMP 08: School Education Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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 | 34 | 2750 | 0 |
| Grades 4th-6th | yes | 20 | 2069 | 0 |
| Grades 7th-8th | yes | 4 | 622 | 0 |
| High School | yes | 0 | 0 | 0 |

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

4. When did your Agency begin implementing this program? 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**

The City participates in a program run by MWDOC.

## BMP 09: Conservation Programs for CII Accounts

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2002** |

**A. Implementation**

| | |
|---|---|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | no |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | no |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | no |

**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 | 1 | 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 |

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**

The City participates in a Metropolitan Water District of Southern California (MWD)program. The number of rebates, but no the dollar amount is shown. MWD tracks this.

## BMP 09a: CII ULFT Water Savings

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2002** |

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

**A. Targeting and Marketing**

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

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.

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.)

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?

3. What is the total number of customer accounts participating in the program during the last year ?

| CII Subsector | Number of Toilets Replaced | | | |
|---|---|---|---|---|
| 4. | **Standard Gravity Tank** | **Air Assisted** | **Valve Floor Mount** | **Valve Wall Mount** |
| a. Offices | | | | |
| b. Retail / Wholesale | | | | |
| c. Hotels | | | | |
| d. Health | | | | |
| e. Industrial | | | | |
| f. Schools: K to 12 | | | | |
| g. Eating | | | | |
| h. Government | | | | |
| i. Churches | | | | |
| j. Other | | | | |

5. Program design.

6. Does your agency use outside services to implement this program?

a. If yes, check all that apply. t

7. Participant tracking and follow-up. it

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

b. Inadequate payback

c. Inadequate ULFT performance

d. Lack of funding

e. American's with Disabilities Act

f. Permitting

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 amounts 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 | | |
| b. Materials | | |
| c. Marketing & Advertising | | |
| d. Administration & Overhead | | |
| e. Outside Services | | |
| f. Total | 0 | 0 |

2. CII ULFT Program: Annual Cost Sharing

| | |
|---|---|
| a. Wholesale agency contribution | |
| b. State agency contribution | |
| c. Federal agency contribution | |
| d. Other contribution | |
| e. Total | 0 |

**D. Comments**

## BMP 11: Conservation Pricing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2002** |

**A. Implementation**

**Rate Structure Data Volumetric Rates for Water Service by Customer Class**

**1. Residential**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Non-volumetric Flat Rate |
| c. Total Revenue from Volumetric Rates | $11187308 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $11560023 |

**2. Commercial**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Non-volumetric Flat Rate |
| c. Total Revenue from Volumetric Rates | $2328359 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $928943 |

**3. Industrial**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Non-volumetric Flat Rate |
| c. Total Revenue from Volumetric Rates | $375419 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $217394 |

**4. Institutional / Government**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $55106 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $351473 |

**5. Irrigation**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $1387523 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $400229 |

**6. Other**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $45947 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |

**B. Conservation Pricing Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 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**

A sewer charge was instituted in 2002.

## BMP 12: Conservation Coordinator

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2002** |

**A. Implementation**

| | |
|---|---|
| 1. Does your Agency have a conservation coordinator? | yes |
| 2. Is this a full-time position? | no |
| 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? | yes |
| 4. Partner agency's name: | Municipal Water District of Orange County |
| 5. If your agency supplies the conservation coordinator: | |
| a. What percent is this conservation coordinator's position? | 10% |
| b. Coordinator's Name | Kenneth J. Dills |
| c. Coordinator's Title | Senior Administrative Analyst |
| d. Coordinator's Experience and Number of Years | Level I Water Conservation Practitioner - 3 years |
| e. Date Coordinator's position was created (mm/dd/yyyy) | 3/1/1999 |
| 6. Number of conservation staff, including Conservation Coordinator. | 1 |

**B. Conservation Staff Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 7500 | 7725 |
| 2. Actual Expenditures | 7500 | |

**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: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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:
   14.16.020 of the Huntington Beach Municipal Code states that no person shall waste water or allow it to be wasted from improper fixtures.

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:

| | |
|---|---|
| N/A | N/A |

**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 | no |
| d. Non-recirculating systems in all new commercial laundry systems | no |
| e. Non-recirculating systems in all new decorative fountains | no |
| f. Other, please name | no |

2. Describe measures that prohibit water uses listed above:
   Visual inspections and citations where warranted

**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. | yes |
| 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. | yes |
| ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. | yes |
| 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. | yes |

4. Does your agency include water softener checks in home water audit programs? yes

| | |
|---|---|
| 5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? | no |

**C. Water Waste Prohibition Program Expenditures**

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

**D. "At Least As Effective As"**

| | |
|---|---|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | no |

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**E. Comments**

Any expenditures are not tracked separately.

# BMP 14: Residential ULFT Replacement Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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 | 390 | 138 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 1649 | 521 |
| **Total** | **2039** | **659** |

6. Describe your agency's ULFT program for single-family residences.

Huntington Beach participates in a region wide ULFT rebate program for both SF and 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 free distribution of ULFTs to our customers.

7. Describe your agency's ULFT program for multi-family residences.

see # 6

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:

| | |
|---|---|
| n/a | n/a |

**B. Residential ULFT 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**

## Water Supply & Reuse

Reporting Unit:
**City of Huntington Beach**

Year:
**2001**

**Water Supply Source Information**

| Supply Source Name | Quantity (AF) Supplied | Supply Type |
|---|---|---|
| OCWD | 18243 | Groundwater |
| MWDOC | 16756 | Imported |

**Total AF: 34999**

## Accounts & Water Use

Reporting Unit Name:
**City of Huntington Beach**

Submitted to CUWCC
**11/18/2002**

Year:
**2001**

**A. Service Area Population Information:**

1. Total service area population 192000

**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 | 42915 | 15252 | 0 | 0 |
| 2. Multi-Family | 4118 | 7713 | 0 | 0 |
| 3. Commercial | 2369 | 4907 | 0 | 0 |
| 4. Industrial | 339 | 1026 | 0 | 0 |
| 5. Institutional | 546 | 128 | 0 | 0 |
| 6. Dedicated Irrigation | 753 | 3203 | 0 | 0 |
| 7. Recycled Water | 1 | 0 | 0 | 0 |
| 8. Other | 0 | 119 | 0 | 0 |
| 9. Unaccounted | NA | 2977 | NA | 0 |
| **Total** | 51041 | 35325 | 0 | 0 |

| | Metered | Unmetered |
|---|---|---|

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

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2001** |

**A. Implementation**

| | |
|---|---|
| 1. Based on your signed MOU date, 08/23/2000, your Agency STRATEGY DUE DATE is: | 08/23/2002 |
| 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? | 6/1/2000 |
| 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: | 17070 | 0 |
| 2. Number of surveys completed: | 243 | 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) | Odometer Wheel | |
| 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.
The program is managed by the Municipal Water District of Orange County, our water wholesaler.

**C. Water Survey Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 20000 | 20000 |
| 2. Actual Expenditures | 19500 | |

**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**

Residential surveys were previously done informally and not tracked. In 2001 and 2002 we began a 300 survey/year pilot program to determine cost effectiveness.

## BMP 02: Residential Plumbing Retrofit

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2001** |

**A. Implementation**

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? 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? 6/1/2000

   b. Describe your targeting/ marketing strategy.
   The program is done in conjunction with our Residential Survey Program implemented through MWDOC and noted in BMP #1.

| **Low-Flow Devices Distributed/ Installed** | **SF Accounts** | **MF Units** |
|---|---|---|
| 2. Number of low-flow showerheads distributed: | 94 | 0 |
| 3. Number of toilet-displacement devices distributed: | 25 | 0 |
| 4. Number of toilet flappers distributed: | 17 | 0 |
| 5. Number of faucet aerators distributed: | 203 | 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 cost was 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**

The expenditures for the program are included in the residential survey expenditures shown in BMP #1.

# BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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) | 32229 |
| b. Determine other system verifiable uses (AF) | 119 |
| c. Determine total supply into the system (AF) | 35325 |
| d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. | 0.92 |
| 3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? | yes |
| 4. Did your agency complete a full-scale audit during this report year? | no |
| 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | yes |
| 6. Does your agency operate a system leak detection program? | no |
| a. If yes, describe the leak detection program: | |

**B. Survey Data**

| | |
|---|---|
| 1. Total number of miles of distribution system line. | 520 |
| 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**

A full scale leak detection was performed in 1998. After repairs, the City has maintained an water loss of less than 9%.

# BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2001** |

**A. Implementation**

| | |
|---|---|
| 1. Does your agency require meters for all new connections and bill by volume-of-use? | yes |
| 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? | no |
| a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? | |
| b. Describe the program: | |
| 3. Number of previously unmetered accounts fitted with meters during report year. | 0 |

**B. Feasibility Study**

| | |
|---|---|
| 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | no |
| a. If YES, when was the feasibility study conducted? (mm/dd/yy) | |
| b. Describe the feasibility study: | |
| 2. Number of CII accounts with mixed-use meters. | 0 |
| 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. | 0 |

**C. Meter Retrofit Program Expenditures**

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

**D. "At Least As Effective As"**

| | |
|---|---|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

**E. Comments**

The City has no unmetered connections.

## BMP 05: Large Landscape Conservation Programs and Incentives

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2001** |

**A. Water Use Budgets**

| | |
|---|---|
| 1. Number of Dedicated Irrigation Meter Accounts: | 1025 |
| 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 | 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? | yes |
| a. If yes, is it water-efficient? | yes |
| b. If yes, does it have dedicated irrigation metering? | yes |
| 7. Do you provide customer notices at the start of the irrigation season? | 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 City recently began participation in MWDOC's Landscape Certification Program. The metering at City facilities varies. Some have dedicated irrigation meters some do not.

## BMP 06: High-Efficiency Washing Machine Rebate Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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, PG&E and SDG&E offer rebates

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**

The program started in January 2002.

## BMP 07: Public Information Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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.
The City offers a number of brochures and informational pamphlets at various facilities. A Water Conservation page is included in the City's web site. It offers information and links to a number of sites, including CUWCC

2. Indicate which and how many of the following activities are included in your public information program.

| Public Information Program Activity | Yes/No | Number of Events |
|---|---|---|
| a. Paid Advertising | no | 0 |
| b. Public Service Announcement | yes | 0 |
| c. Bill Inserts / Newsletters / Brochures | yes | 0 |
| d. Bill showing water usage in comparison to previous year's usage | no | |
| e. Demonstration Gardens | no | 0 |
| f. Special Events, Media Events | yes | 0 |
| g. Speaker's Bureau | no | 0 |
| 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 | 11000 | 11000 |
| 2. Actual Expenditures | 3500 | |

**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**

"Number of events" was not tracked.

## BMP 08: School Education Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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 | 25 | 2204 | 0 |
| Grades 4th-6th | yes | 11 | 1491 | 0 |
| Grades 7th-8th | yes | 2 | 700 | 0 |
| High School | yes | 0 | 0 | 0 |

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

4. When did your Agency begin implementing this program? 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**

The City participates in a program run by MWDOC.

## BMP 09: Conservation Programs for CII Accounts

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2001** |

**A. Implementation**

| | |
|---|---|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | no |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | no |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | no |

**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 | 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

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**

The City participates in a Metropolitan Water District of Southern California (MWD)program. The number of rebates, but no the dollar amount is shown. MWD tracks this.

## BMP 09a: CII ULFT Water Savings

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2001** |

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

**A. Targeting and Marketing**

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

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.

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.)

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?

3. What is the total number of customer accounts participating in the program during the last year ?

## BMP 11: Conservation Pricing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2001** |

**A. Implementation**

**Rate Structure Data Volumetric Rates for Water Service by Customer Class**

| | |
|---|---|
| **1. Residential** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $10144474 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $10590171 |
| **2. Commercial** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $2163416 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $964281 |
| **3. Industrial** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $451236 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $247248 |
| **4. Institutional / Government** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $56188 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $358852 |
| **5. Irrigation** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $1257501 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $400351 |
| **6. Other** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $49962 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |

**B. Conservation Pricing Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 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 12: Conservation Coordinator

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **2001** |

**A. Implementation**

| | |
|---|---|
| 1. Does your Agency have a conservation coordinator? | yes |
| 2. Is this a full-time position? | no |
| 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? | yes |
| 4. Partner agency's name: | Municipal Water District of Orange County |
| 5. If your agency supplies the conservation coordinator: | |
| a. What percent is this conservation coordinator's position? | 10% |
| b. Coordinator's Name | Kenneth J. Dills |
| c. Coordinator's Title | Senior Administrative Analyst |
| d. Coordinator's Experience and Number of Years | Level I Conservation Practitioner - 2 years |
| e. Date Coordinator's position was created (mm/dd/yyyy) | 3/1/1999 |
| 6. Number of conservation staff, including Conservation Coordinator. | 1 |

**B. Conservation Staff Program Expenditures**

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 7281 | 7500 |
| 2. Actual Expenditures | 7281 | |

**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: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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:
   14.16.020 of the Huntington Beach Municipal Code states that no person shall waste water or allow it to be wasted from improper fixtures.

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:

| | |
|---|---|
| N/A | N/A |

**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 | no |
| d. Non-recirculating systems in all new commercial laundry systems | no |
| e. Non-recirculating systems in all new decorative fountains | no |
| f. Other, please name | no |

2. Describe measures that prohibit water uses listed above:
   Visual inspections and citations where warranted.

**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. | yes |
| 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. | yes |
| ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. | yes |
| 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. | yes |

4. Does your agency include water softener checks in home water audit programs? yes

| | |
|---|---|
| 5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? | no |

**C. Water Waste Prohibition Program Expenditures**

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

**D. "At Least As Effective As"**

| | |
|---|---|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | no |

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**E. Comments**

Any expenditures are not tracked separately.

# BMP 14: Residential ULFT Replacement Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **City of Huntington Beach** | **100% Complete** | **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 | 329 | 521 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 2111 | 320 |
| **Total** | **2440** | **841** |

6. Describe your agency's ULFT program for single-family residences.

Huntington Beach participates in a region wide ULFT rebate program for both SF and 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 free distribution of ULFTs to our customers.

7. Describe your agency's ULFT program for multi-family residences.

see # 6

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:

| | |
|---|---|
| n/a | n/a |

**B. Residential ULFT 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 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
**City of Huntington Beach**

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**

| | | Single-Family | Multi-Family |
|---|---|---|---|
| City of Huntington Beach to Implement Targeting/Marketing Program by: | | 2002 | |
| Year City of Huntington Beach Reported Implementing Targeting/Marketing Program: | | 1676 | |
| City of Huntington Beach Met Targeting/Marketing Coverage Requirement: | | NO | NO |

**Test for Condition 2**

| | | | Single-Family | Multi-Family |
|---|---|---|---|---|
| Survey Program to Start by: | 2001 | Residential Survey Offers (%) | | |
| Reporting Period: | 03-04 | Survey Offers $\geq$ 20% | NO | NO |

**Test for Condition 3**

| | Completed Residential Surveys | |
|---|---|---|
| | Single Family | Multi-Family |
| Total Completed Surveys 1999 - 2004: | 593 | |
| Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database): | | |
| Total + Credit | 593 | |
| Residential Accounts in Base Year | 42,449 | 32,311 |
| City of Huntington Beach Survey Coverage as % of Base Year Residential Accounts | 1.40% | |
| Coverage Requirement by Year 4 of Implementation per Exhibit 1 | 3.60% | 3.60% |
| City of Huntington Beach on Schedule to Meet 10-Year Coverage Requirement | NO | 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 Huntington Beach**

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

| | | Single-Family | | Multi-Family | |
|---|---|---|---|---|---|
| Report Year | Report Period | Reported Saturation | Saturation ≥ 75%? | Reported Saturation | Saturation ≥ 75%? |
| 1999 | 99-00 | | | | |
| 2000 | 99-00 | | | | |
| 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

| Report Year | Report Period | City of Huntington Beach has ordinance requiring showerhead retrofit? |
|---|---|---|
| 1999 | 99-00 | |
| 2000 | 99-00 | |
| 2001 | 01-02 | NO |
| 2002 | 01-02 | NO |
| 2003 | 03-04 | NO |
| 2004 | 03-04 | NO |

## Test for Condition 3

Reporting Period: 03-04

| 1992 SF Accounts | Num. Showerheads Distributed to SF Accounts | Single-Family Coverage Ratio | SF Coverage Ratio > 10% |
|---|---|---|---|
| 41,283 | | | NO |

| 1992 MF Accounts | Num. Showerheads Distributed to MF Accounts | Multi-Family Coverage Ratio | MF Coverage Ratio > 10% |
|---|---|---|---|
| 25,785 | | | 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 Huntington Beach**

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

| Report Year | Report Period | Pre-Screen Completed | Pre-Screen Result | Full Audit Indicated | Full Audit Completed |
|---|---|---|---|---|---|
| 1999 | 99-00 | | | | |
| 2000 | 99-00 | | | | |
| 2001 | 01-02 | NO | 91.6% | No | NO |
| 2002 | 01-02 | NO | 93.0% | No | NO |
| 2003 | 03-04 | NO | 96.6% | No | NO |
| 2004 | 03-04 | NO | 93.1% | 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 Huntington Beach**

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 3 of Implementation per Exhibit 1 | 16.5% |
| 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 Huntington Beach**

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

| Year | Report Period | BMP 5 Implementation Year | No. of Irrigation Meter Accounts | No. of Irrigation Accounts with Budgets | Budget Coverage Ratio | 90% Coverage Met by Year 4 |
|---|---|---|---|---|---|---|
| 1999 | 99-00 | -2 | | | | NA |
| 2000 | 99-00 | -1 | | | | NA |
| 2001 | 01-02 | | 1,025 | | | NA |
| 2002 | 01-02 | 1 | 1,025 | | | NA |
| 2003 | 03-04 | 2 | 1,399 | | | NA |
| 2004 | 03-04 | 3 | 1,428 | | | NA |

### 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 | 3,229 |
| RU Survey Coverage as a % of Base Year CII Accounts | |
| Coverage Requirement by Year of Implementation per Exhibit 1 | 2.5% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO |

**Test for Condition 2b (mixed use budget or meter retrofit program)**

| Report Year | Report Period | BMP 5 Implementation Year | Agency has mix-use budget program | No. of mixed-use budgets |
|---|---|---|---|---|
| 1999 | 99-00 | -2 | | |
| 2000 | 99-00 | -1 | | |
| 2001 | 01-02 | | NO | |
| 2002 | 01-02 | 1 | NO | |
| 2003 | 03-04 | 2 | NO | |
| 2004 | 03-04 | 3 | NO | |

| Report Year | Report Period | BMP 4 Implementation Year | No. of mixed use CII accounts | No. of mixed use CII accounts fitted with irrig. meters |
|---|---|---|---|---|
| 1999 | 99-00 | -2 | | |
| 2000 | 99-00 | -1 | | |
| 2001 | 01-02 | | | |
| 2002 | 01-02 | 1 | | |
| 2003 | 03-04 | 2 | | |
| 2004 | 03-04 | 3 | | |

**Test for Condition 3**

| Report Year | Report Period | BMP 5 Implementation Year | RU offers financial incentives? | No. of Loans | Total Amt. Loans |
|---|---|---|---|---|---|
| 1999 | 99-00 | -2 | | | |
| 2000 | 99-00 | -1 | | | |
| 2001 | 01-02 | | NO | | |
| 2002 | 01-02 | 1 | NO | | |
| 2003 | 03-04 | 2 | YES | | |
| 2004 | 03-04 | 3 | YES | | |

| Report Year | Report Period | No. of Grants | Total Amt. Grants | No. of rebates | Total Amt. Rebates |
|---|---|---|---|---|---|
| 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 Huntington Beach**

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

| Year | Report Period | BMP 6 Implementation Year | Rebate Offered by ESP? | Rebate Offered by RU? | Rebate Amount |
|---|---|---|---|---|---|
| 1999 | 99-00 | -2 | | | |
| 2000 | 99-00 | -1 | | | |
| 2001 | 01-02 | | YES | NO | |
| 2002 | 01-02 | 1 | YES | YES | 100.00 |
| 2003 | 03-04 | 2 | YES | YES | 100.00 |
| 2004 | 03-04 | 3 | YES | YES | 100.00 |

| Year | Report Period | BMP 6 Implementation Year | No. Rebates Awarded | Coverage Met? |
|---|---|---|---|---|
| 1999 | 99-00 | -2 | | |
| 2000 | 99-00 | -1 | | |
| 2001 | 01-02 | | | NO |
| 2002 | 01-02 | 1 | 114 | YES |
| 2003 | 03-04 | 2 | 486 | YES |
| 2004 | 03-04 | 3 | 857 | 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 Huntington Beach**

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

| Year | Report Period | BMP 7 Implementation Year | RU Has Public Information Program? |
|---|---|---|---|
| 1999 | 99-00 | -1 | |
| 2000 | 99-00 | | |
| 2001 | 01-02 | 1 | YES |
| 2002 | 01-02 | 2 | YES |
| 2003 | 03-04 | 3 | YES |
| 2004 | 03-04 | 4 | 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 Huntington Beach**

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

| Year | Report Period | BMP 8 Implementation Year | RU Has School Education Program? |
|---|---|---|---|
| 1999 | 99-00 | -1 | |
| 2000 | 99-00 | | |
| 2001 | 01-02 | 1 | YES |
| 2002 | 01-02 | 2 | YES |
| 2003 | 03-04 | 3 | YES |
| 2004 | 03-04 | 4 | 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 Huntington Beach**

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

| Year | Report Period | BMP 9 Implementation Year | Ranked Com. Use | Ranked Ind. Use | Ranked Inst. Use |
|---|---|---|---|---|---|
| 1999 | 99-00 | -2 | | | |
| 2000 | 99-00 | -1 | | | |
| 2001 | 01-02 | | NO | NO | NO |
| 2002 | 01-02 | 1 | NO | NO | NO |
| 2003 | 03-04 | 2 | YES | YES | YES |
| 2004 | 03-04 | 3 | NO | 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 | | | |
| Total + Credit | | | |
| CII Accounts in Base Year | 2,365 | 338 | 526 |
| RU Survey Coverage as % of Base Year CII Accounts | | | |
| Coverage Requirement by Year 3 of Implementation per Exhibit 1 | 1.7% | 1.7% | 1.7% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO | NO | NO |

**Test for Condition 2a**

| Year | Report Period | BMP 9 Implementation Year | Performance Target Savings (AF/yr) | Performance Target Savings Coverage | Performance Target Savings Coverage Requirement | Coverage Requirement Met |
|---|---|---|---|---|---|---|
| 1999 | 99-00 | -2 | | | | YES |
| 2000 | 99-00 | -1 | | | | YES |
| 2001 | 01-02 | | | | | YES |
| 2002 | 01-02 | 1 | | | 0.5% | NO |
| 2003 | 03-04 | 2 | | | 1.0% | NO |
| 2004 | 03-04 | 3 | 5 | 0.1% | 1.7% | NO |

**Test for Condition 2c**

| | |
|---|---|
| Total BMP 9 Surveys + Credit | |
| BMP 9 Survey Coverage | |
| BMP 9 Performance Target Coverage | 0.1% |
| BMP 9 Survey + Performance Target Coverage | 0.1% |
| 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 Huntington Beach**

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

| Year | Report Period | RU Employed Non Conserving Rate Structure | RU Meets BMP 11 Coverage Requirement |
|---|---|---|---|
| 1999 | 99-00 | NO | YES |
| 2000 | 99-00 | NO | YES |
| 2001 | 01-02 | NO | YES |
| 2002 | 01-02 | YES | NO |
| 2003 | 03-04 | YES | NO |
| 2004 | 03-04 | YES | NO |

**BMP 11 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 12 Coverage: Conservation Coordinator

Reporting Unit: **City of Huntington Beach**

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**

| Report Year | Report Period | Conservation Coordinator Position Staffed? | Total Staff on Team (incl. CC) |
|---|---|---|---|
| 1999 | 99-00 | | |
| 2000 | 99-00 | | |
| 2001 | 01-02 | YES | 1 |
| 2002 | 01-02 | YES | 1 |
| 2003 | 03-04 | YES | 1 |
| 2004 | 03-04 | YES | 1 |

**BMP 12 COVERAGE STATUS SUMMARY:**
**Water supplier is meeting coverage requirements for this BMP.**

# BMP 13 Coverage: Water Waste Prohibition

Reporting Unit: **City of Huntington Beach**

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:**

| Year | Gutter Flooding | Single-Pass Cooling Systems | Single-Pass Car Wash | Single-Pass Laundry | Single-Pass Fountains | Other | RU has ordinance that meets coverage requirement |
|---|---|---|---|---|---|---|---|
| 1999 | | | | | | | |
| 2000 | | | | | | | |
| 2001 | yes | no | no | no | no | no | NO |
| 2002 | yes | no | no | no | no | no | NO |
| 2003 | yes | no | no | no | no | no | NO |
| 2004 | yes | no | no | no | no | no | 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 Huntington Beach**

## 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**

| Coverage Year | BMP 14 Data Submitted to CUWCC | Exemption Filed with CUWCC | ROR Ordinance in Effect | Exhibit 6 Coverage Req'mt (AF) | Toilet Replacement Program Water Savings* (AF) |
|---|---|---|---|---|---|
| 2001 | Yes | No | No | 121.31 | 1984.77 |
| 2002 | Yes | No | No | 348.39 | 2463.34 |
| 2003 | Yes | No | No | 667.25 | 3046.66 |
| 2004 | Yes | No | No | 1065.36 | 3663.69 |
| 2005 | No | No | No | 1531.47 | |
| 2006 | No | No | No | 2055.50 | |
| 2007 | No | No | No | 2628.43 | |
| 2008 | No | No | No | 3242.21 | |
| 2009 | No | No | No | 3889.63 | |
| 2010 | No | No | No | 4564.29 | |

*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 Huntington Beach**

### 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 remining stock)** | 005 | .005 |
| **Estimated Housing Units with 3.5+ gpf Toilets in 1997** | 29830.80 | 18632.05 |
| **Average resale rate** | 0578 | .0333 |
| **Average persons per unit** | | |
| **Average toilets per unit** | | |
| **Average savings per home (gpd; from Exhibit 6)** | 47 2 | 51 6 |

### 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) |
|---|---|---|---|---|---|---|---|---|---|
| 2001 | 26996.56 | 1715.60 | 27966 04 | 1715 60 | | 1118 64 | 755 22 | 668 16 | 87 06 |
| 2002 | 24431.60 | 1707.02 | 27826.21 | 1552 60 | 154 42 | 1012 36 | 890 81 | 728 42 | 162 39 |
| 2003 | 22110 34 | 1698 49 | 27687.08 | 1405 09 | 293 40 | 916.17 | 1013 52 | 786 29 | 227 23 |
| 2004 | 20009 62 | 1689 99 | 27548 65 | 1271.59 | 418 41 | 829.13 | 1124 57 | 841 85 | 282.72 |
| 2005 | 18108 50 | 1681 54 | 27410 90 | 1150.77 | 530 77 | 750.35 | 1225 07 | 895 20 | 329.87 |
| 2006 | 16388 00 | 1673 14 | 27273 85 | 1041 44 | 631 70 | 679 06 | 1316 02 | 946 43 | 369 59 |
| 2007 | 14830 97 | 1664 77 | 27137 48 | 942 49 | 722 28 | 614 54 | 1398 33 | 995 62 | 402 71 |
| 2008 | 13421 87 | 1656 45 | 27001 79 | 852 94 | 803.50 | 556 15 | 1472 82 | 1042.85 | 429 97 |
| 2009 | 12146.65 | 1648.16 | 26866 78 | 771 91 | 876.26 | 503 31 | 1540.23 | 1088.20 | 452 03 |
| 2010 | 10992.59 | 1639.92 | 26732.45 | 698 57 | 941.36 | 455 49 | 1601.24 | 1131.75 | 469 49 |

### 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) |
|---|---|---|---|---|---|---|---|---|---|
| 2001 | 17297 85 | 617 35 | 17921 55 | 617 35 | | 716 86 | 490 48 | 456 23 | 34.25 |
| 2002 | 16059.18 | 614 26 | 17831 94 | 573 14 | 41 12 | 665 53 | 562 06 | 497 38 | 64.68 |
| 2003 | 14909.21 | 611.19 | 17742.78 | 532 10 | 79.09 | 617 87 | 628 52 | 536 89 | 91 63 |
| 2004 | 13841.59 | 608.13 | 17654.07 | 493 99 | 114.14 | 573 63 | 690 22 | 574 83 | 115 39 |
| 2005 | 12850 42 | 605.09 | 17565.80 | 458.62 | 146 47 | 532 55 | 747.50 | 611 26 | 136 24 |
| 2006 | 11930 23 | 602 07 | 17477 97 | 425.78 | 176 29 | 494.42 | 800 68 | 646 24 | 154 44 |
| 2007 | 11075 92 | 599 05 | 17390 58 | 395 29 | 203 76 | 459.01 | 850 05 | 679 82 | 170 22 |
| 2008 | 10282 80 | 596 06 | 17303 63 | 366 98 | 229 08 | 426.14 | 895 88 | 712 07 | 183 81 |
| 2009 | 9546 46 | 593 08 | 17217 11 | 340 71 | 252 37 | 395.63 | 938 44 | 743 04 | 195 40 |
| 2010 | 8862 86 | 590.11 | 17131 02 | 316 31 | 273 81 | 367 30 | 977 94 | 772.78 | 205 17 |

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

Reporting Unit:
**City of Huntington Beach**

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 Huntington Beach to Implement Targeting/Marketing Program by: | 2002 | |
| | **Single-Family** | **Multi-Family** |
| Year City of Huntington Beach Reported Implementing Targeting/Marketing Program: | | |
| City of Huntington Beach Met Targeting/Marketing Coverage Requirement: | NO | NO |

**Test for Condition 2**

| | | | **Single-Family** | **Multi-Family** |
|---|---|---|---|---|
| Survey Program to Start by: | 2001 | Residential Survey Offers (%) | 80.43% | |
| Reporting Period: | 01-02 | Survey Offers $\geq$ 20% | YES | NO |

**Test for Condition 3**

| | Completed Residential Surveys | |
|---|---|---|
| | Single Family | Multi-Family |
| Total Completed Surveys 1999 - 2002: | 593 | |
| Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database): | | |
| Total + Credit | 593 | |
| Residential Accounts in Base Year | 42,449 | 32,311 |
| City of Huntington Beach Survey Coverage as % of Base Year Residential Accounts | 1.40% | |
| Coverage Requirement by Year 2 of Implementation per Exhibit 1 | 1.50% | 1.50% |
| City of Huntington Beach on Schedule to Meet 10-Year Coverage Requirement | NO | 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 Huntington Beach**

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

| | | Single-Family | | Multi-Family | |
|---|---|---|---|---|---|
| Report Year | Report Period | Reported Saturation | Saturation ≥ 75%? | Reported Saturation | Saturation ≥ 75%? |
| 1999 | 99-00 | | | | |
| 2000 | 99-00 | | | | |
| 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

| Report Year | Report Period | City of Huntington Beach has ordinance requiring showerhead retrofit? |
|---|---|---|
| 1999 | 99-00 | |
| 2000 | 99-00 | |
| 2001 | 01-02 | NO |
| 2002 | 01-02 | NO |
| 2003 | 03-04 | NO |
| 2004 | 03-04 | NO |

## Test for Condition 3

Reporting Period: 01-02

| 1992 SF Accounts | Num. Showerheads Distributed to SF Accounts | Single-Family Coverage Ratio | SF Coverage Ratio > 10% |
|---|---|---|---|
| 41,283 | 237 | 0.6% | NO |

| 1992 MF Accounts | Num. Showerheads Distributed to MF Accounts | Multi-Family Coverage Ratio | MF Coverage Ratio > 10% |
|---|---|---|---|
| 25,785 | | | 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 Huntington Beach**

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

| Report Year | Report Period | Pre-Screen Completed | Pre-Screen Result | Full Audit Indicated | Full Audit Completed |
|---|---|---|---|---|---|
| 1999 | 99-00 | | | | |
| 2000 | 99-00 | | | | |
| 2001 | 01-02 | NO | 91.6% | No | NO |
| 2002 | 01-02 | NO | 93.0% | No | NO |
| 2003 | 03-04 | NO | 96.6% | No | NO |
| 2004 | 03-04 | NO | 93.1% | 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 Huntington Beach**

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 1 of Implementation per Exhibit 1 | 4.5% |
| 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 Huntington Beach**

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

| Year | Report Period | BMP 5 Implementation Year | No. of Irrigation Meter Accounts | No. of Irrigation Accounts with Budgets | Budget Coverage Ratio | 90% Coverage Met by Year 4 |
|---|---|---|---|---|---|---|
| 1999 | 99-00 | -2 | | | | NA |
| 2000 | 99-00 | -1 | | | | NA |
| 2001 | 01-02 | | 1,025 | | | NA |
| 2002 | 01-02 | 1 | 1,025 | | | NA |
| 2003 | 03-04 | 2 | 1,399 | | | NA |
| 2004 | 03-04 | 3 | 1,428 | | | NA |

### 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 | 3,229 |

| | |
|---|---|
| RU Survey Coverage as a % of Base Year CII Accounts | |
| Coverage Requirement by Year of Implementation per Exhibit 1 | 0.7% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO |

**Test for Condition 2b (mixed use budget or meter retrofit program)**

| Report Year | Report Period | BMP 5 Implementation Year | Agency has mix-use budget program | No. of mixed-use budgets |
|---|---|---|---|---|
| 1999 | 99-00 | -2 | | |
| 2000 | 99-00 | -1 | | |
| 2001 | 01-02 | | NO | |
| 2002 | 01-02 | 1 | NO | |
| 2003 | 03-04 | 2 | NO | |
| 2004 | 03-04 | 3 | NO | |

| Report Year | Report Period | BMP 4 Implementation Year | No. of mixed use CII accounts | No. of mixed use CII accounts fitted with irrig. meters |
|---|---|---|---|---|
| 1999 | 99-00 | -2 | | |
| 2000 | 99-00 | -1 | | |
| 2001 | 01-02 | | | |
| 2002 | 01-02 | 1 | | |
| 2003 | 03-04 | 2 | | |
| 2004 | 03-04 | 3 | | |

**Test for Condition 3**

| Report Year | Report Period | BMP 5 Implementation Year | RU offers financial incentives? | No. of Loans | Total Amt. Loans |
|---|---|---|---|---|---|
| 1999 | 99-00 | -2 | | | |
| 2000 | 99-00 | -1 | | | |
| 2001 | 01-02 | | NO | | |
| 2002 | 01-02 | 1 | NO | | |
| 2003 | 03-04 | 2 | YES | | |
| 2004 | 03-04 | 3 | YES | | |

| Report Year | Report Period | No. of Grants | Total Amt. Grants | No. of rebates | Total Amt. Rebates |
|---|---|---|---|---|---|
| 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 Huntington Beach**

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

| Year | Report Period | BMP 6 Implementation Year | Rebate Offered by ESP? | Rebate Offered by RU? | Rebate Amount |
|---|---|---|---|---|---|
| 1999 | 99-00 | -2 | | | |
| 2000 | 99-00 | -1 | | | |
| 2001 | 01-02 | | YES | NO | |
| 2002 | 01-02 | 1 | YES | YES | 100.00 |
| 2003 | 03-04 | 2 | YES | YES | 100.00 |
| 2004 | 03-04 | 3 | YES | YES | 100.00 |

| Year | Report Period | BMP 6 Implementation Year | No. Rebates Awarded | Coverage Met? |
|---|---|---|---|---|
| 1999 | 99-00 | -2 | | |
| 2000 | 99-00 | -1 | | |
| 2001 | 01-02 | | | NO |
| 2002 | 01-02 | 1 | 114 | YES |
| 2003 | 03-04 | 2 | 486 | YES |
| 2004 | 03-04 | 3 | 857 | 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 Huntington Beach**

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

| Year | Report Period | BMP 7 Implementation Year | RU Has Public Information Program? |
|---|---|---|---|
| 1999 | 99-00 | -1 | |
| 2000 | 99-00 | | |
| 2001 | 01-02 | 1 | YES |
| 2002 | 01-02 | 2 | YES |
| 2003 | 03-04 | 3 | YES |
| 2004 | 03-04 | 4 | 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 Huntington Beach**

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

| Year | Report Period | BMP 8 Implementation Year | RU Has School Education Program? |
|---|---|---|---|
| 1999 | 99-00 | -1 | |
| 2000 | 99-00 | | |
| 2001 | 01-02 | 1 | YES |
| 2002 | 01-02 | 2 | YES |
| 2003 | 03-04 | 3 | YES |
| 2004 | 03-04 | 4 | 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 Huntington Beach**

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

| Year | Report Period | BMP 9 Implementation Year | Ranked Com. Use | Ranked Ind. Use | Ranked Inst. Use |
|---|---|---|---|---|---|
| 1999 | 99-00 | -2 | | | |
| 2000 | 99-00 | -1 | | | |
| 2001 | 01-02 | | NO | NO | NO |
| 2002 | 01-02 | 1 | NO | NO | NO |
| 2003 | 03-04 | 2 | YES | YES | YES |
| 2004 | 03-04 | 3 | NO | 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 | | | |
| Total + Credit | | | |
| CII Accounts in Base Year | 2,365 | 338 | 526 |
| RU Survey Coverage as % of Base Year CII Accounts | | | |
| Coverage Requirement by Year 1 of Implementation per Exhibit 1 | 0.5% | 0.5% | 0.5% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO | NO | NO |

**Test for Condition 2a**

| Year | Report Period | BMP 9 Implementation Year | Performance Target Savings (AF/yr) | Performance Target Savings Coverage | Performance Target Savings Coverage Requirement | Coverage Requirement Met |
|---|---|---|---|---|---|---|
| 1999 | 99-00 | -2 | | | | YES |
| 2000 | 99-00 | -1 | | | | YES |
| 2001 | 01-02 | | | | | YES |
| 2002 | 01-02 | 1 | | | 0.5% | NO |
| 2003 | 03-04 | 2 | | | 1.0% | NO |
| 2004 | 03-04 | 3 | 5 | 0.1% | 1.7% | NO |

**Test for Condition 2c**

| | |
|---|---|
| Total BMP 9 Surveys + Credit | |
| BMP 9 Survey Coverage | |
| BMP 9 Performance Target Coverage | |
| BMP 9 Survey + Performance Target Coverage | |
| 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 Huntington Beach**

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

| Year | Report Period | RU Employed Non Conserving Rate Structure | RU Meets BMP 11 Coverage Requirement |
|---|---|---|---|
| 1999 | 99-00 | NO | YES |
| 2000 | 99-00 | NO | YES |
| 2001 | 01-02 | NO | YES |
| 2002 | 01-02 | YES | NO |
| 2003 | 03-04 | YES | NO |
| 2004 | 03-04 | YES | NO |

**BMP 11 COVERAGE STATUS SUMMARY:**
**Water supplier is meeting coverage requirements for this BMP.**

# BMP 12 Coverage: Conservation Coordinator

Reporting Unit: **City of Huntington Beach**

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**

| Report Year | Report Period | Conservation Coordinator Position Staffed? | Total Staff on Team (incl. CC) |
|---|---|---|---|
| 1999 | 99-00 | | |
| 2000 | 99-00 | | |
| 2001 | 01-02 | YES | 1 |
| 2002 | 01-02 | YES | 1 |
| 2003 | 03-04 | YES | 1 |
| 2004 | 03-04 | YES | 1 |

**BMP 12 COVERAGE STATUS SUMMARY:**
**Water supplier is meeting coverage requirements for this BMP.**

# BMP 13 Coverage: Water Waste Prohibition

Reporting Unit: **City of Huntington Beach**

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:**

| Year | Gutter Flooding | Single-Pass Cooling Systems | Single-Pass Car Wash | Single-Pass Laundry | Single-Pass Fountains | Other | RU has ordinance that meets coverage requirement |
|---|---|---|---|---|---|---|---|
| 1999 | | | | | | | |
| 2000 | | | | | | | |
| 2001 | yes | no | no | no | no | no | NO |
| 2002 | yes | no | no | no | no | no | NO |
| 2003 | yes | no | no | no | no | no | NO |
| 2004 | yes | no | no | no | no | no | 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 Huntington Beach**

## 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**

| Coverage Year | BMP 14 Data Submitted to CUWCC | Exemption Filed with CUWCC | ROR Ordinance in Effect | Exhibit 6 Coverage Req'mt (AF) | Toilet Replacement Program Water Savings* (AF) |
|---|---|---|---|---|---|
| 2001 | Yes | No | No | 121.31 | 1984.77 |
| 2002 | Yes | No | No | 348.39 | 2463.34 |
| 2003 | Yes | No | No | 667.25 | 3046.66 |
| 2004 | Yes | No | No | 1065.36 | 3663.69 |
| 2005 | No | No | No | 1531.47 | |
| 2006 | No | No | No | 2055.50 | |
| 2007 | No | No | No | 2628.43 | |
| 2008 | No | No | No | 3242.21 | |
| 2009 | No | No | No | 3889.63 | |
| 2010 | No | No | No | 4564.29 | |

*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 Huntington Beach**

## 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 remining stock)** | .005 | .005 |
| **Estimated Housing Units with 3.5+ gpf Toilets in 1997** | 29830.80 | 18632 05 |
| **Average resale rate** | .0578 | .0333 |
| **Average persons per unit** | | |
| **Average toilets per unit** | | |
| **Average savings per home (gpd; from Exhibit 6)** | 47 2 | 51 6 |

## 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) |
|---|---|---|---|---|---|---|---|---|---|
| 2001 | 26996 56 | 1715 60 | 27966.04 | 1715 60 | | 1118 64 | 755 22 | 668.16 | 87 06 |
| 2002 | 24431 60 | 1707 02 | 27826.21 | 1552 60 | 154 42 | 1012 36 | 890 81 | 728 42 | 162 39 |
| 2003 | 22110 34 | 1698.49 | 27687 08 | 1405 09 | 293 40 | 916 17 | 1013 52 | 786 29 | 227 23 |
| 2004 | 20009 62 | 1689.99 | 27548.65 | 1271.59 | 418 41 | 829 13 | 1124 57 | 841 85 | 282 72 |
| 2005 | 18108 50 | 1681.54 | 27410.90 | 1150.77 | 530 77 | 750 35 | 1225 07 | 895 20 | 329 87 |
| 2006 | 16388 00 | 1673.14 | 27273 85 | 1041.44 | 631 70 | 679 06 | 1316 02 | 946 43 | 369 59 |
| 2007 | 14830.97 | 1664.77 | 27137 48 | 942.49 | 722 28 | 614 54 | 1398 33 | 995 62 | 402 71 |
| 2008 | 13421 87 | 1656.45 | 27001 79 | 852 94 | 803 50 | 556 15 | 1472 82 | 1042 85 | 429 97 |
| 2009 | 12146.65 | 1648 16 | 26866 78 | 771.91 | 876 26 | 503 31 | 1540 23 | 1088 20 | 452 03 |
| 2010 | 10992 59 | 1639 92 | 26732 45 | 698 57 | 941 36 | 455 49 | 1601 24 | 1131 75 | 469 49 |

## 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) |
|---|---|---|---|---|---|---|---|---|---|
| 2001 | 17297 85 | 617 35 | 17921 55 | 617 35 | | 716 86 | 490 48 | 456 23 | 34 25 |
| 2002 | 16059 18 | 614 26 | 17831 94 | 573 14 | 41.12 | 665 53 | 562 06 | 497 38 | 64 68 |
| 2003 | 14909 21 | 611 19 | 17742 78 | 532 10 | 79 09 | 617 87 | 628 52 | 536 89 | 91 63 |
| 2004 | 13841 59 | 608 13 | 17654 07 | 493 99 | 114 14 | 573 63 | 690 22 | 574 83 | 115 39 |
| 2005 | 12850 42 | 605 09 | 17565 80 | 458 62 | 146 47 | 532 55 | 747 50 | 611 26 | 136 24 |
| 2006 | 11930 23 | 602 07 | 17477 97 | 425 78 | 176 29 | 494.42 | 800 68 | 646 24 | 154 44 |
| 2007 | 11075 92 | 599 05 | 17390 58 | 395 29 | 203 76 | 459 01 | 850 05 | 679 82 | 170 22 |
| 2008 | 10282 80 | 596 06 | 17303 63 | 366 98 | 229 08 | 426.14 | 895.88 | 712 07 | 183 81 |
| 2009 | 9546 46 | 593 08 | 17217 11 | 340 71 | 252 37 | 395.63 | 938.44 | 743 04 | 195 40 |
| 2010 | 8862 86 | 590 11 | 17131 02 | 316 31 | 273 81 | 367 30 | 977.94 | 772 78 | 205.17 |

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APPENDIX F

# *CITY OF HUNTINGTON BEACH WATER MANAGEMENT PROGRAM ORDINANCE - CH. 14.16 WATER USE REGULATIONS; CH. 14.18 WATER MANAGEMENT PROGRAM; CH. 14.52 WATER EFFICIENT LANDSCAPE REQUIREMENTS*

# Chapter 14.16

## WATER USE REGULATIONS

(674-12/57, 1996-8/75, 2404-1/80, 2966-11/88)

**Sections:**



**14.16.010 During fire.** No person shall use any water for irrigation or any steady flow during the progress of any fire in the city unless for protection of property, and all irrigation and sprinkling shall immediately be stopped when an alarm of fire is sounded in any part of the city, and shall not be begun until the fire is extinguished. (674-12/57)

**14.16.020 Waste from improper fixtures.** No person shall waste water or allow it to be wasted by imperfect or leaking stops, valves, pipes, closets, faucets or other fixtures, or use water closets without self-closing valves, or use the water for purposes other than those named in the application upon which rates for water are based, or use it in violation of any of the provisions of any ordinance of this city, provided further that no person shall drain or permit water to drain upon any public street or alley, or over any private property not owned by such person. (674-12/57)

**14.16.030 Meters--Property of city.** All water service and water meters installed or required to be installed by the City Water Department shall remain at all times the property of the city and shall be maintained, repaired and renewed by the City Water Department when rendered unserviceable by normal wear and tear. (674-12/57)

**14.16.040 Meters--Replacement or repair.** Where replacements, repairs or adjustments of any meter are rendered necessary by an act resulting from malice, carelessness or neglect of the consumer or any member of his family, or any one employed by him, and any damage which may result from hot water, or steam from water heater, boiler or otherwise, shall be charged to and paid for by such consumer to the Water Department on presentation of a bill therefor; and in case such bill is not paid, the water shall be shut off from such premises and shall not be turned on again until all charges are paid. No person shall interfere with or remove from any service any water meter which has been so attached. (674-12/57)

**14.16.050 Meters--Accuracy tests.** Where the accuracy of record of a water meter is questioned, it shall be removed at the consumer's request and shall in his presence be tested in the shops of the Water Department by means of the apparatus there provided, and a report thereon duly made. Both parties to the test must accept the findings so made. If the test discloses an error against the consumer of more than 3 percent of the meter's registry, the excess of the consumption on the 3 percent readings shall be credited to the consumer's meter account,

and the Water Department will bear the entire expenses of the test, and the deposit required as hereinafter prescribed shall be returned. On the other hand, where no such error is found, the person who has requested the test shall pay the charge fixed for such test. (674-12/57)

**14.16.060 Meters--Test deposit.** Before making a test of any meter, the person requesting such a test shall, at the time of filing his request, make a deposit with the Water Department of the amount charged for such a test, subject to the conditions herein stated, which charges are fixed as follows:

| | |
|---|---|
| for testing 5/8 inch meters | $10 |
| for testing I inch meters | $10 |
| for testing 1 1/2 inch meters | $20 |
| for testing 2 inch meters | $20 |
| for testing 3 inch meters | $80 |
| for testing 4 inch meters | $105 |

No meter shall be removed, or in any way disturbed, nor the seal broken except in the presence of or under the direction of the Superintendent. (674-12/57, 1996-8/75)

**14.16.070 Meters--Placement.** All meters of the Water Department shall be placed at the curb line of the street or near the property line in alleys, whenever and wherever practicable, and be protected and maintained as a part of the operation of the department. (674-12/57)

**14.16.080 Meters--Inside premises.** Where a water meter is placed inside the premises of a consumer, for the convenience of the consumer, provisions shall be made for convenient meter reading and repairing by representatives of the department. Failure to make such provisions by the consumer shall be sufficient cause for removal of such meter at the option of the Superintendent of the department and the withholding of service until installation is made at the curb line as herein provided. (674-12/57)

**14.16.090 Consumer's responsibility.** The city shall in no way whatsoever be responsible for any damage to person or property because of any leakage, breakage or seepage from, or accident or damage to any meter or pipe situated within any private premises, and the city shall not be responsible for any leakage, breakage or seepage for any pipe situated between any meter properly installed at the curb and the private premises served thereby nor shall the city be responsible for or on account of any damage, injury or loss occasioned directly or indirectly by the existence of any meter or pipe situated upon private property. (674-12/57)

**14.16.100 Fire hydrants--Maintenance.** Public fire hydrants shall be placed, maintained and repaired by the Water Department. Any damage thereto by persons or agency other than representatives of the Fire and Water Departments, shall be a claim against the person or agency committing such damage, and the Superintendent shall take such action as may be necessary to collect the same. (674-12/57)

**14.16.110 Fire hydrants--Use.** Fire hydrants are provided for the sole purpose of extinguishing fires and shall be used otherwise only as herein provided for, and shall be opened and used only by the Water and Fire Departments or such persons as may be authorized to do so by the Chief of the Fire Department, or the Superintendent of the Water Department as herein provided. (674-12/57)

**14.16.120 Fire hydrants--Permits for special use.** All persons desiring to use water through fire hydrants, or other hydrants, owned or controlled by the city, shall be required to obtain a permit first from the Chief of the Fire Department; second, from the Superintendent of the Water Department, who shall issue no such permit to any person who has violated any of the provisions of this title or whose indebtedness to the city of water used or damage to hydrants or equipment is delinquent. All such persons having permit for use of water from the fire hydrants must provide hydrant wrenches for the operation of such fire hydrants. (674-12/57)
11/88

**14.16.130 Fire hydrant--Use permit cancellation.** Permit for the use of water through the fire hydrants of the city may be cancelled at the will of the Superintendent on evidence that the holder thereof is or has violated the privileges conveyed thereunder. Such notice of cancellation shall be in writing delivered or mailed to the persons to be notified and shall be immediately effective and enforced. (674-12/57)

**14.16.140 Fire hydrants--Obstructing access.** No person shall obstruct the access to any fire hydrant by placing around or thereon any stone, brick, lumber, dirt or other material or wilfully or carelessly injure the same, or open or operate any fire hydrant, or draw or attempt to draw water therefrom, except as provided in section 14.16.120. (674-12/57)

**14.16.150 Pressure maintenance or shutoff.** The Water Department shall not accept any responsibility for the maintenance of pressure and it reserves the right to shut off the water from any premises, or from any part of the distributing system, as long as necessary without notice to consumers, at any time of emergency, but in all cases of extensions or connections, the department shall notify occupants of the premises of the necessity of shutting off water and the probable length of time the water shall be so shut off before taking such action. (647-12/57)

**14.16.160 Drawing water into steam boilers.** No stationary steam boiler shall be connected directly with the water distribution system of the city, but in each and every case a suitable tank of storage capacity sufficient for a twelve (12) hour supply for said boiler shall be provided and the service pipe supplying the tank shall discharge directly into the top of the tank. (674-12/57)

**14.16.170 Violations reported.** It shall be the duty of the employees of the Police, fire and street departments to give vigilant aid to the Superintendent in the enforcement of the provisions of this chapter and to this end they shall report all violations thereof which come to their knowledge to the Water Department, and it shall be the duty of the Chief of the Fire Department to report immediately to the Superintendent, in case of fire in premises having metered service for fire protection purposes, that fire has occurred there. (674-12/57)

**14.16.180 Sale of water outside city.** It is unlawful for the City Water Department to sell water to consumers outside the city, or to allow any consumer outside the city to use any water furnished by the city system unless the City Council shall by resolution determine and declare a surplus of water exists in excess of that required by the inhabitants of the city. (674-12/57)

**14.16.190 Protecting cross connections.** The city shall maintain a Cross-Connection Control Program throughout the Huntington Beach Water System service area. Such program shall be established by the City Council pursuant to Resolution No. 5921, titled "A Resolution of the City Council of the City of Huntington Beach Establishing a Cross-Connection Control Program for the Huntington Beach Water System." (674-12/57, 2404-1/80, 2966-11/88)

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# Chapter 14.18

## WATER MANAGEMENT PROGRAM

(3104-4/91)

**Sections:**



**14.18.010 Declaration of policy.** California Water Code Section 375 et seq. permit public entities which supply water at retail to adopt and enforce a Water Management Program to reduce the quantity of water used by the people therein for the purpose of conserving the water supplies of such public entity. The City Council hereby establishes a comprehensive Water Management Program pursuant to California Water Code Section 375 et seq., based upon the need to conserve water supplies and to avoid or minimize the effects of any future shortage. (3104-4/91)

**14.18.020 Findings.** The City Council finds and determines that a water shortage could exist based upon the occurrence of one or more of the following conditions:

(a) A general water supply shortage due to increased demand or limited supplies. (3104-4/91)

(b) A major failure of the supply, storage and distribution facilities of the Metropolitan Water District of Southern California, or of the City occurs. (3104-4/91)

(c) A local or regional disaster which limits the water supply. (3104-4/91)

The City Council also finds and determines that the conditions prevailing in the Huntington Beach area require that the water resources available be put to maximum beneficial use to the extent to which they are capable, and that the waste or unreasonable use, or unreasonable method of use, of water be prevented and that the conservation of such water encourage 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. (3104-4/91)

**14.18.030 CEQA exemption.** The City finds that this chapter and actions taken hereafter pursuant to this chapter are exempt from the California Environmental Quality Act as specific actions necessary to prevent or mitigate an emergency pursuant to Public Resources Code Section 21080 (b)(4) and the California Environmental Quality Act Guidelines Section 15269(c). The City Administrator of the City is hereby authorized and directed to file a Notice of Exemption as soon as possible following adoption of this chapter. (3104-4/91)

**14.18.040 Application.** The provisions of this chapter shall apply to all persons, customers, and property served by the City. (3104-4/91)

**14.18.050 Authorization.** The City's Director of Public Works and the City Administrator, or their designated representative, are hereby authorized and directed by the City Council to implement the provisions of this chapter as specifically set forth in the Water Management Program; provided however that, any actions taken by them pursuant herewith shall be confirmed at the earliest practicable time by the City Council. (3104-4/91)

**14.18.060 Mandatory conservation phase implementation.** The City shall monitor the projected supply and demand for water by its customers. The Director of Public Works shall determine the extent of the conservation required through the implementation and/or terminat of particular conservation stages in order for the City to prudently plan for and supply water t its customers. The City Council shall direct the City Administrator to order that the appropria stage of water conservation be implemented or terminated at any time it determines appropria in accordance with the applicable provision of this chapter. However, in case of local emergencies as defined under the Huntington Beach Municipal Code, the City Administrator shall have the authority to order the implementation of the appropriate stage of water conservation subject to ratification by the City Council within seven (7) days thereafter or suc order of the Director of Public Works shall have no further force or effect. (3104-4/91)

**14.18.070 Penalty.** Any violation of this chapter is a misdemeanor. In addition to any other remedies which the City may have for the enforcement of this Ordinance, service of water sha be discontinued or appropriately limited to any customer who willfully uses water in violation any provision hereof. (3104-4/91)

# Chapter 14.52

## WATER EFFICIENT LANDSCAPE REQUIREMENTS

(3183-2/93)

**Sections:**



**14.52.010 Purpose and intent.** The purpose of this chapter is to: (3183-2/93)

(a) Promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible; (3183-2/93)

(b) Establish a structure of designing, installing, and maintaining water efficient landscapes in new projects; (3183-2/93)

(c) Establish provisions for water management practices and water waste prevention for established landscapes; (3183-2/93)

(d) Establish a long range goal of water efficiency through proper planning and design, the use of technologically current equipment with proper installation, continued maintenance and monitoring of water use through the designed systems; (3183-2/93)

(e) When used in conjunction with the "Arboricultural and Landscape Standards and Specifications" Resolution Number 4545, to give the Landscape Architect and/or owner the tools to provide an individualized landscape improvement to suit the needs of the owner and the requirements of the city; and (3183-2/93)

(f) To provide standards for a finished landscape that is physically attractive, conserves water and is easy to maintain. (3183-2/93)

**14.52.020 Definitions.** The words used in this chapter shall have the meaning set forth below: (3183-2/93)

(a) "anti-drain valve" or "check valve" means a valve located under a sprinkler head to hold water in the system so it minimizes drainage from the lower elevation sprinkler heads. (3183-2/93)

(b) "application rate" means the depth of water applied to a given area, usually measured in inches per hour. (3183-2/93)

(c) "applied water" means the portion of water supplied by the irrigation system to the landscape. (3183-2/93)

(d) "automatic controller" means a mechanical or solid state timer, capable of operating valve stations to set the days and length of time of a water application. (3183-2/93)

(e) "backflow prevention device" means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system. (3183-2/93)

(f) "conversion factor (0.62)" means a number that converts the maximum applied water allowance from acre-inches per acre per year to gallons per square foot per year. The conversion factor is calculated as follows: (3183-2/93)

| | | |
|---|---|---|
| (325,850 gallons/43,560 square feet)/12 inches | = | (0.62) |
| 325,850 gallons | = | one acre foot |
| 43,560 square feet | = | one acre |
| 12 inches | = | one foot |

To convert gallons per year to 100-cubic feet per year, the city's billing unit for water, divide gallons per year by 748. (748 gallons = 100 cubic feet.) (3183-2/93)

(g) "drought tolerant" means plant material which, when established in the landscape, is able to grow and survive on little or no additional water than is provided by rainfall. (3183-2/93)

(h) "ecological restoration project" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem. (3183-2/93)

(i) "effective precipitation" or "usable rainfall" means the portion of total precipitation that is used by the plants. (3183-2/93)

(j) "emitter" means drip irrigation fittings or devices that deliver water slowly from the system to the soil. (3183-2/93)

(k) "established landscape" means the point at which plants in the landscape have developed roots into the soil adjacent to the root ball. (3183-2/93)

(l) "establishment period" means the first year after installing the plant in the landscape. (3183-2/93)

(m)"estimated applied water use" means the portion of the estimated total water use that is derived from applied water. The estimated applied water use shall not exceed the maximum applied water allowance. The estimated applied water use may be the sum of the water recommended through the irrigation schedule, as referenced in this chapter. (3183-2/93)

(n) "estimated total water use" means the annual total amount of water estimated to be needed to keep the plants in the landscaped area healthy. It is based upon such factors as the local evapotranspiration rate, the size of the landscaped area, the types of plants and the efficiency of the irrigation system, as described in this chapter. (3183-2/93)

(o) "ET adjustment factor" means a factor of 0.8, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two (2) major influences upon the amount of water that needs to be applied to the landscape. (3183-2/93)

This ET adjustment factor of 0.8 is an average. It is determined by combining the total plant palate mix of a project to determine the plant factor, in this case an average of 0.5, and dividing this by the irrigation efficiency, in this case the minimum of 0.625. (3183-2/93)

Therefore, the ET adjustment factor (0.8) = plant factor average (0.5)/irrigation efficiency minimum (0.625). (3183-2/93)

(p) "evapotranspiration" ET means the quantity of water evaporated from adjacent soil surfaces and transpired by plants during a specific time. (The City of Huntington Beach reference evapotranspiration is approximately forty-three (43) inches per year.) (3183-2/93)

(q) "flow rate" means the rate at which water flows through pipes and valves (gallons per minute or cubic feet per second). (3183-2/93)

(r) "hydrozone" means a portion of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule. A hydrozone may be irrigated or non-irrigated. For example, a naturalized area planted with native vegetation that will not need supplemental irrigation once established is a non-irrigated hydrozone. (3183-2/93)

(s) "infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (inches per hour). (3183-2/93)

(t) "irrigation efficiency" means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum irrigation efficiency for purposes of this ordinance is 0.625. Greater irrigation efficiency can be expected from well designed and maintained systems. (3183-2/93)

(u) "landscape irrigation audit" means a process to perform site inspection, evaluate irrigation systems, and develop efficient irrigation schedules. (3183-2/93)

(v) "landscaped area" means the entire parcel less the building footprint, driveways, non-irrigated portions of parking lots, hardscapes such as decks and patios, and other non-porous areas. Water features are included in the calculation of the landscaped area. Areas dedicated to edible plants, such as orchards or vegetable gardens are not included. (3183-2/93)

(w) "lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve. (3183-2/93)

(x) "main line" means the pressurized pipeline that delivers water from the water source to the valve or outlet. (3183-2/93)

(y) "maximum applied water allowance" means, for design purposes, the upper limit of annual applied water for the established landscaped area as specified in this chapter. It is based upon the areas reference evapotranspiration, the ET adjustment factor, and the size of the landscaped area. The estimated applied water use shall not exceed the maximum applied water allowance. (3183-2/93)

(z) "mined-land reclamation projects" means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975. (3183-2/93)

(aa) "mulch" means any material such as sawdust, bark or other materials left loose and applied to the soil surface to reduce evaporation. (3183-2/93)

(bb) "operating pressure" means the pressure at which a system of sprinklers is designed to operate, usually referenced to the base of a sprinkler. (3183-2/93)

(cc) "overspray" means the water which is delivered beyond the landscaped area, wetting pavements, walks, structures, or other non-landscaped areas. (3183-2/93)

(dd) "plant factor" means a factor that when multiplied by reference evapotranspiration, estimates the amount of water used by plants. For purposes of this ordinance, the average plant factor of low water using plants ranges from 0 to 0.3, for average water using plants the range is 0.4 to 0.6, and for high water using plants the range is 0.7 to 1.0. (3183-2/93)

(ee) "rain sensing device" means a system which automatically shuts off the irrigation system when it rains. (3183-2/93)

(ff) "reclaimed water,""recycled water," or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for nonpotable uses such as landscape irrigation; not intended for human consumption. (3183-2/93)

(gg) "record drawing" or "as-builts" means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor. (3183-2/93)

(hh) "recreational area" means areas of active play or recreation such as sports fields, school yards, picnic grounds, or other areas with intense foot traffic. (3183-2/93)

(ii) "reference evapotranspiration" or "ETo" means a standard measurement of environmental parameters which affect the water use of plants. ETo is given in inches per day, month, or year as represented in this chapter and is an estimate of the evapotranspiration of a large field of four (4)- to seven (7)-inch tall, cool-season grass that is well watered. Reference evapotranspiration is used as the basis of determining the maximum applied water allowance so that regional differences in climate can be accommodated. (3183-2/93)

(jj) "rehabilitated landscape" means any relandscaping project public or private that requires city processing, or is a condition of approval for a specific project. (3183-2/93)

(kk) "run off" means water which is not absorbed by the soil or landscape to which it is applied and flows from the area. For example, run off may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a severe slope. (3183-2/93)

(ll) "soil moisture sensing device" means a device that measures the amount of water in the soil. (3183-2/93)

(mm) "soil texture" means the classification of soil based on the percentage of sand, silt, and clay in the soil. (3183-2/93)

(nn) "sprinkler head" means a device which sprays water through a nozzle. (3183-2/93)

(oo) "static water supply pressure" means static water supply pressure when water is not flowing. (3183-2/93)

(pp) "station" means an area served by one valve or by a set of valves that operate simultaneously. (3183-2/93)

(qq) "turf" means a surface layer of earth containing mowed grass with its roots. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermuda grass, Kikuyugrass, Seashore paspalum, St. Augustine grass, Zoysiagrass, and Buffalo grass are warm-season grasses. (3183-2/93)

(rr) "valve" means a device used to control the flow of water in the irrigation system. (3183-2/93)

(ss) "water conservation concept statement" means a checklist and a narrative summary of the project as depicted in Section 14.52.100(a). (3183-2/93)

(tt) "water efficient" means a combination of landscape features and watering techniques that in the aggregate reduce the demand for and consumption of water. Water efficient also means the result of selecting plant materials that require low amounts of water as opposed to plant materials which require tropical amounts of water. (3183-2/93)

(uu) "Xeriscape," a registered trademark of the National Xeriscape Council, Inc., means plantings which require little or no additional water than is provided by normal rainfall. (3183-2/93)

**14.52.030 Amendments.** As technology, situations, products and procedures change, the Director of Public Works may recommend adjustments or modifications to the Water Efficient Landscape requirements and the City Standard Plans. (3183-2/93)

**14.52.040 Applicability.** The provisions of this Chapter shall apply to all new and rehabilitated landscaping for public agency projects and private development projects. These provisions are in addition to entitlement conditions of approval for specific projects, unless exempt by approval of the governing body or specified elsewhere in the ordinance code. (3183-2/93)

**14.52.050 Exceptions.** Except as noted otherwise by special circumstances or by public hearing, the provisions of this chapter shall not apply to: (3183-2/93)

(a) Interior remodels, tenant improvements, demolitions and changes of use; (3183-2/93)

(b) Cemeteries; (3183-2/93)

(c) Registered historical sites; (3183-2/93)

(d) Ecological restoration projects that do not require a permanent irrigation system; (3183-2/93)

(e) Mined-land reclamation projects that do not require a permanent irrigation system; (3183-2/93)

(f) Any project with a landscaped area less than 2500 square feet; or (3183-2/93)

(g) Replacement or repair of existing plant material or irrigation systems in conjunction with routine maintenance. (3183-2/93)

**14.52.060 Plan submittal requirements.** (3183-2/93)

(a) "Conceptual Landscape Plan." All projects that are designated by the Community Development Department as applicable to the provisions of this ordinance will require a submittal of a conceptual landscape plan. This plan will be reviewed by the Community Development and Public Works Departments to ascertain if the design complies with this chapter of the ordinance. The conceptual landscape plan shall be prepared by a California licensed Landscape Architect and shall indicate the design intent. It shall show and quantify the areas to be hydrozoned, indicate the proposed plant palate as it relates to each separate hydrozone area, provide an area estimate in square feet for each hydrozone and the percentage of each as it relates to the total landscaped area. (3183-2/93)

Other information relating to the compliance of the project to this chapter shall be submitted with the conceptual landscape plan, including but not limited to a water conservation statement and the type of irrigation system proposed for each hydrozone. (3183-2/93)

(b) "Working Drawings" or "Landscape Documentation Package" shall include, but not be limited to, a landscape design plan which incorporates the following elements: (3183-2/93)

(1) The landscaped design plan shall be drawn on 24" x 36" sized project base sheets at an approved scale that accurately and clearly identifies the proposed work to be done, including a north arrow, indication of scale, and any off-site design influencing features; (3183-2/93)

(2) Designation of all separate hydrozones; (3183-2/93)

(3) Type, location and quantity of all species of plant materials utilized such as trees, shrubs, groundcover, turf and other vegetation. Planting symbols shall be clearly drawn and plants labeled by botanical name, common name, container size spacing and quantities of each group of plants indicated. If abbreviations or symbols are utilized for call outs, a legend shall be provided on each page of the planting plans; (3183-2/93)

(4) A calculation of the total turf area and its percentage of the total landscaped area; (3183-2/93)

(5) The location, percentage of the total landscaped area and types of mulch utilized; (3183-2/93)

(6) A plant materials legend that contains both scientific and common names, quantity size, descriptive remarks and the percentage of low water use plants; (3183-2/93)

(7) Planting notes, tree staking, plant installation and soil preparation details, specifications and the provision for agricultural soil tests to determine soil amendments for both surface areas and plant backfill; (3183-2/93)

(8) A calculation of the total landscaped area; (3183-2/93)

(9) Natural features, including but not limited to, rock outcroppings, existing trees, shrubs that will remain; (3183-2/93)

(10) Those items listed in the Arboricultural and Landscape Standards/Specifications; (3183-2/93)

(11) Designation of recreational area; (3183-2/93)

(12) Property lines and street names; (3183-2/93)

(13) Streets, driveways, walkways, and other paved areas; (3183-2/93)

(14) Pools, ponds, water features, fences, and retaining walls; (3183-2/93)

(15) Existing and proposed buildings and structures including finish floor elevations and pad elevations if applicable. (3183-2/93)

(c) The "Irrigation Design Plan" shall be drawn on project base sheets. It shall conform to Arboricultural and Landscape Standards and Specifications. It shall be separate from, but use the same format as, the landscape design plan. The scale shall be the same as that used for the landscape design plan, and the irrigation design plan shall accurately and clearly identify all of the following items: (3183-2/93)

(1) Location and size of separate water meters for the landscape; (3183-2/93)

(2) Irrigation systems shall be designed to be consistent with hydrozones; (3183-2/93)

(3) Irrigation plans indicating the layout of each system with the location, type and size of all components of the irrigation system including automatic controllers, main and lateral lines, points of connection, data on valve sizes, gallons per minute (G.P.M.), valve locations, the size and location of sleeves, all moisture sensing devices, flow controls, rain sensing devices, quick couplers, backflow prevention equipment, filters, pressure regulators, spray heads, drip heads, bubblers, etc., for both conventional and drip or microspray systems; (3183-2/93)

(4) Static water pressure at the point of connection to the public water supply. (3183-2/93)

(5) Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (PSI) for each station; (3183-2/93)

(6) Reclaimed water irrigation system as specified in this chapter; (3183-2/93)

(7) An irrigation legend indicating all utilized equipment including adaptors, nozzle sizes, G.P.M., P.S.I., radius and other specific information; (3183-2/93)

(8) Irrigation notes, contruction details of all assemblies and components and specifications; (3183-2/93)

(9) A recommended irrigation schedule and maintenance schedule; (3183-2/93)

(10) Grading design plan. (3183-2/93)

(d) "Water Conservation Concept Statement." Each landscape documentation package shall include on the cover sheet a "Water Conservation Concept Statement," as depicted in Section 14.52.100(a). In addition, a copy of the calculations clearly identifying all elements of the formula shall be submitted concurrently for maximum applied water allowance, estimated applied water use, and estimated total water use. (3183-2/93)

**14.52.070 Water efficient design guidelines.** (3183-2/93)

(a) The Maximum Applied Water Allowance. (3183-2/93)

(1) A project's Maximum Applied Water Allowance shall be calculated using the following formula: (3183-2/93)

| | |
|---|---|
| MAWA = | (ETo) (0.8) (LA) (0.62) where: |
| MAWA = | Maximum Applied Water Allowance (gallons per year) |
| ETo = | Reference Evapotranspiration (inches per year) (43 inches per year in Huntington Beach) |
| 0.8 = | ET adjustment factor |
| LA = | Landscaped Area (square feet) |
| 0.62 = | Conversion factor (to gallons per square foot) |

(2) An example for calculations of the Maximum Applied Water Allowance is: (3183-2/93)

| | |
|---|---|
| Project Site: | Landscaped area of 50,000 sq. ft. in Huntington Beach. |
| MAWA = | (ETo) (.8) (LA) (.62) |
| | (43 inches) (.8) (50,000 sq. ft.) (.62) |

Maximum Applied Water Allowance (for this example) = 1,066,400 gallons per year (or 1,426 hundred-cubic-feet per year: 1,066,400 divided by 748 = 1425.7).

2/93

(3) Portions of landscaped areas in public and private projects such as parks, playgrounds, sports fields, golf courses, or school yards where turf provides a playing surface or serves other recreational purposes may require water in addition to the Maximum Applied Water Allowance. A statement shall be included with the landscape design plan, designating areas to be used for such purposes and specifying any needed amount of additional water above the Maximum Applied Water Allowance. (3183-2/93)

(b) Estimated Applied Water Use. (3183-2/93)

(1) The Estimated Applied Water Use shall not exceed the Maximum Applied Water Allowance. (3183-2/93)

(2) A calculation of the Estimated Applied Water Use shall be submitted with the Landscape Documentation Package. It may be calculated by summing the amount of water recommended in the irrigation schedule. (3183-2/93)

(c) Estimated Total Water Use. (3183-2/93)

(1) A calculation of the Estimated Total Water Use shall be submitted with the Landscape Documentation Package. The Estimated Total Water Use may be calculated by summing the amount of water recommended in the irrigation schedule and adding any amount of water expected from effective precipitation (not to exceed 25 percent of the local annual mean precipitation) or may be calculated from a formula such as the following: (3183-2/93)

The Estimated Total Water Use for the entire landscaped area equals the sum of the Estimated Water Use of all hydrozones in that landscaped area. (3183-2/93)

| | |
|---|---|
| EWU (hydrozone) = | $\frac{(ETo)\ (PF)\ (HA)\ (.62)}{(IE)}$ |
| EWU (hydrozone) = | Estimated Water Use (gallons per year) |
| ETo = | Reference Evapotranspiration (inches per year) |
| PF = | Plant Factor |
| HA = | Hydrozone Area (square feet) |
| (.62) = | Conversion Factor |
| IE = (0.625) | Irrigation Efficiency (0.625 as a minimum) |

(2) If the Estimated Total Water Use is greater than the Estimated Applied Water Use due to the precipitation being included as a source of water, an Effective Precipitation Disclosure Statement, as depicted in Section 14.52.100(b), shall be included in the Landscape Documentation Package. (3183-2/93)

(d) Landscape Design Plan. A landscape design plan meeting the following requirements shall be submitted as part of the landscape documentation package. (3183-2/93)

(1) Plant Selection and Grouping. Any plants may be used in the landscape, providing the Estimated Applied Water Use recommended does not exceed the Maximum Applied Water Allowance and that the plants meet the specifications set forth in the following three paragraphs and the Arboricultural and Landscape Standards and Specifications; (3183-2/93)

Plants having similar water use shall be grouped together in distinct hydrozones; (3183-2/93)

Plants shall be selected appropriately based upon their adaptability to the climatic, geologic, and topographic conditions of the site. Protection and preservation of native species and natural areas is encouraged. The planting of trees is encouraged wherever it is consistent with the other provisions of this ordinance; (3183-2/93)

Fire prevention needs shall be addressed in areas that are fire prone. Information about fire prone areas and appropriate landscaping for fire safety is available from the Fire Department. (3183-2/93)

(2) Water Features. Recirculating water shall be used for decorative water features; pool and spa covers are encouraged. (3183-2/93)

(e) Irrigation Design Plan. An irrigation design plan meeting the following conditions shall be submitted as part of the Landscape Documentation Package. (3183-2/93)

(1) Irrigation Design Criteria. (3183-2/93)

(a) Runoff and Overspray. Soil types and infiltration rate shall be considered when designing irrigation systems. All irrigation systems shall be designed to avoid runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, or structures. Proper irrigation equipment and schedules, including features such as repeat cycles, shall be used to closely match application rates to infiltration rates therefore minimizing runoff. (3183-2/93)

Special attention shall be given to avoid runoff on slopes and to avoid overspray in plant areas with a width less than ten (10) feet and in median strips. (3183-2/93)

(b) Irrigation Efficiency. For the purpose of determining the maximum water allowance, irrigation efficiency is assumed to be 0.625. Irrigation systems shall be designed, maintained, and managed to meet or exceed 0.625 efficiency. (3183-2/93)

(c) Water Meters. Separate landscape water meters shall be installed for all projects except for single family homes. However, single family homes with reclaimed water systems require a separate meter and additional preventative safety measures. (3183-2/93)

(d) Controllers. Automatic control systems shall be required for all irrigation systems and must be able to accommodate all aspects of the design, including dual programs and/or multiple repeat features. (3183-2/93)

(e) Valves. Plants which require different amounts of water shall be irrigated by separate valves. If one valve is used for a given area, only plants with similar water use shall be used in that area. Anti-drain (check) valves shall be installed in strategic points to minimize or prevent low-head drainage. (3183-2/93)

(f) Sprinkler Heads. Heads and emitters shall have consistent application rates within each control valve circuit. Sprinkler heads shall be selected for proper area coverage, application rate, operating pressure, adjustment capability, and ease of maintenance. (3183-2/93)

(g) Rain Sensing Override Devices. Rain sensing override devices shall be required on all irrigation systems. An irrigation system with functional soil moisture sensing devices on each control valve is not required to have a rain sensing override device. (3183-2/93)

(h) Soil Moisture Sensing Devices. Soil moisture sensing devices are required to be used in lawn areas for projects with a total of 5,000 square feet and greater of total landscaped area. A minimum of one (1) moisture sensing device shall be utilized per turf area. Soil moisture sensing devices shall be considered where appropriate for shrub areas. (3183-2/93)

(i) Flow Control Sensing Devices. Projects with 10,000 square feet or more of landscaped area are required to have one (1) flow control valve per point of connection. (3183-2/93)

(2) Reclaimed Water. The installation of reclaimed water irrigation systems (dual distribution systems) shall be required to allow for the current and future use of reclaimed water, unless a written exemption has been granted by the Public Works Water Division, stating that reclaimed water meeting all health standards is not available and will not be available in the foreseeable future. (3183-2/93)

The reclaimed water irrigation system shall be designed and operated in accordance with all codes, and shall include but not be limited to the use of purple pipe and fittings for the total reclaimed water system. Refer to the "Rules and Regulations for the Use of Reclaimed Water" (available at the Water Department) for more information. (3183-2/93)

For single family residential lots with reclaimed water, there shall be no hose bibbs, loose key or otherwise and no quick couplers installed on the reclaimed system. (3183-2/93)

(f) Irrigation Schedules. Irrigation schedules satisfying the following conditions shall be submitted as part of the Landscape Documentation package. (3183-2/93)

(1) An annual irrigation program with monthly irrigation schedules shall be required for the plan establishment period, for the established landscape, and for any temporarily irrigated areas. (3183-2/93)

(2) The irrigation schedule shall: (3183-2/93)

(a) include run time (in minutes per cycle), suggested number of cycles per day, and frequency of irrigation for each station, and; (3183-2/93)

(b) indicate the amount of applied water (in hundred cubic feet, or gallons) recommended on a monthly and annual basis. (3183-2/93)

(3) The total amount of water for the project shall include water designated in the estimated total water use calculation plus water needed for any water features, which shall be considered as a high water using hydrozone. (3183-2/93)

(4) Recreational areas designated in the landscape design plan shall be highlighted and the irrigation schedule shall indicate if any additional water is needed above the maximum applied water allowance because of high plant factors (but not due to irrigation inefficiency). (3183-2/93)

(5) Irrigation scheduling shall incorporate the use of evapotranspiration data as available, such as those from the California Irrigation Management Information System (CIMIS) weather stations to apply the appropriate levels of water for different climates. (3183-2/93)

(6) Landscape irrigation shall be primarily scheduled between 2:00 a.m. and 10:00 a.m. to avoid irrigating during times of high wind or high temperature. (3183-2/93)

(g) Maintenance Schedules. A regular maintenance schedule satisfying the following conditions shall be submitted as part of the Landscape Documentation Package: (3183-2/93)

(1) Landscapes shall be maintained to ensure water efficiency. A regular maintenance schedule shall include but not be limited to checking, adjusting, and repairing irrigation equipment; resetting the automatic controller; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning, and weeding in all landscaped areas. (3183-2/93)

(2) Whenever possible, repair of irrigation equipment shall be done with the originally specified materials or their equivalents. (3183-2/93)

(h) Landscape Irrigation Audit Schedules. A schedule of landscape irrigation audits, for all projects with a landscaped area of 10,000 square feet and larger, satisfying the following conditions shall be submitted to the city as part of the Landscape Documentation Package. (3183-2/93)

(1) Refer to (k) Certification. (3183-2/93)

(2) At a minimum, audits shall be in accordance with the State of California Landscape Water Management Program as described in the Landscape Irrigation Auditor Handbook, the entire document, which is hereby incorporated by reference. (See Landscape Irrigation Auditor Handbook (June 1990) version 5.5 (formerly Master Auditor Training.) (3183-2/93)

(3) It is recommended that landscape irrigation audits be conducted by certified landscape irrigation auditors at least once every five years. (3183-2/93)

(i) Grading Design Plan. Grading design plans satisfying the following conditions shall be submitted as part of the Landscape Documentation Package. (3183-2/93)

(1) A grading design plan shall be drawn on project base sheets. It may be separate from but use the same format as the landscape design plan. (3183-2/93)

(2) The grading design plan shall indicate finished configurations and elevations of the landscaped area, including the height of graded slopes, drainage patterns, pad elevations, and finish grade. (3183-2/93)

(j) Soils. (3183-2/93)

(1) A soil analysis satisfying the following conditions shall be included as a part of the specifications that requires a soil test after the grading operation and the recommendations from said test be followed for the soil preparation. (3183-2/93)

(a) Determination of soil texture, indicating the percentage of organic matter. (3183-2/93)

(b) An approximate soil infiltration rate (either measured or derived from soil texture/infiltration rate tables). A range of infiltration rates should be noted where appropriate. (3183-2/93)

(c) A soil fertility and an agricultural suitability analysis shall be provided which includes but is not limited to a description analysis for half saturation percentage, ph, salinity, nitrate, nitrogen, ammonium nitrogen, phosphate phosphorus, potassium, calcium, magnesium, salinity boron and sodium absorption ratio. A descriptive narrative shall indicate procedures and provide soil recommendations for both general soil preparation; and backfill mixes, and continuing maintenance fertilizer applications. (3183-2/93)

(2) A mulch of at least three (3) inches shall be applied to all planting areas except turf and living ground coverings. (3183-2/93)

(k) Certification. Certification of Landscape planting and irrigation installations as described herein, shall be required for approval and acceptance. (3183-2/93)

(1) Upon completing the installation of the landscaping and the irrigation system, on project landscape installations totaling 10,000 square feet or greater, an irrigation audit shall be conducted by a certified landscape irrigation auditor prior to the final field inspection and acceptance. (See Landscape Irrigation Auditor Handbook as referenced in this section, paragraph 8.) (3183-2/93)

(2) A licensed landscape architect and, if applicable, a certified/licensed irrigation designer, shall conduct a final field observation and shall provide a certificate of substantial completion of the entire landscaped area (per city approved plans) to the city prior to acceptance. The certificate shall specifically indicate that plants were installed as specified, that the irrigation system was installed as designed, and that an irrigation audit (if project size warrants it) has been performed, along with a list of any observed deficiencies. (3183-2/93)

(3) Certification shall be accomplished by completing the Certificate of Substantial Completion as depicted in Section 14.52.100(c) and delivering it to the City Public Works Department, Park, Tree and Landscape Division and to the Owner of Record. (3183-2/93)

(l) Public Education. Signs shall be used to identify all model home complexes as an example of a water efficient landscape and featuring elements such as hydrozones, irrigation equipment and others which contribute to the overall water efficient theme. Information shall be provided about designing, installing, and maintaining water efficient landscapes. (3183-2/93)

**14.52.080 Statutory authority in case of conflicting provisions.** Nothing in this chapter shall be deemed to affect, annul or abrogate any other laws or ordinances pertaining or applicable to the properties and areas affected by this chapter. (3183-2/93)

**14.52.090 Effective precipitation.** If effective precipitation is included in the calculation of the Estimated Total Water Use, the Effective Precipitation Disclosure Statement, as depicted in section 14.52.100(b) shall be completed, signed, and submitted with the Landscape Documentation Package. No more than twenty-five (25) percent of the local annual mean precipitation shall be considered effective precipitation in the calculation of the Estimated Total Water Use. (3183-2/93)

**14.52.100 Required forms.**

(a)

## *LANDSCAPE WATER CONSERVATION CONCEPT STATEMENT*

**Project:** _____ **Planning Entitlement Number:** _____
**Project Location:** _____
**Tentative Tract Number:** _____
**Landscape Architect/Irrigation Designer/Contractor:**

_____
_____
_____
_____

**Included in this project submittal package are:**
(Check to indicate completion and circle descriptive amount)

- ❑ 1. Maximum Applied Water Allowance:
  _____ gallons or cubic feet/year
- ❑ 2. Estimated Applied Water Use:
  _____ gallons or cubic feet/year
- ❑ 2.(a) Estimated Amount of Water Expected from Effective Precipitation:
  _____ gallons or cubic feet/year
- ❑ 3. Estimated Total Water Use:
  _____ gallons or cubic feet/year

**Note:** If the design assumes that a part of the Estimated Total Water Use will be provided by precipitation, the Effective Precipitation Disclosure Statement Exhibit "B" shall be completed and submitted. The Estimated Amount of Water Expected from Effective Precipitation shall not exceed twenty-five (25) percent of the local annual mean precipitation (average rainfall).

- ❑ 4. Landscape Design Plan
- ❑ 5. Irrigation Design Plan
- ❑ 6. Irrigation Schedules
- ❑ 7. Maintenance Schedule
- ❑ 8. Landscape Irrigation Audit Schedule
- ❑ 9. Grading Design Plan
- ❑ 10. Soil Analysis

**Description of Project**
(Briefly describe the planning and design actions that are intended to achieve conservation and efficiency in water use.)

_____
_____
_____
_____

Prepared by: _____
Title: _____
CA License No.: _____

Date: _____

2/93

(b)

## *EFFECTIVE PRECIPITATION DISCLOSURE STATEMENT*

Project: _____ Planning Entitlement Number: _____

Project Location: _____

Tentative Tract Number: _____

I certify that I have informed the project owner and developer that this project depends on ___ (gallons or cubic feet) of effective precipitation per year. This represents _____ percent of the local mean precipitation of _____ inches per year.

I have based my assumptions about the amount of precipitation that is effective upon: _____

_____
_____
_____

I certify that I have informed the project owner and developer that in times of drought, there may not be enough water available to keep the entire landscape alive.

_____
Licensed Landscape Architect/Irrigation Designer License No. Date

I certify that I have been informed by the licensed or certified landscape professional that this project depends upon ____ (gallons or cubic feet) of effective precipitation per year. This represents ____ percent of the local mean precipitation of ____ inches per year.

I certify that I have been informed that in times of drought, there may not be enough water available to keep the entire landscape alive.

_____ _____
Owner Developer

_____
Title

Date: _____

2/93

(c)

## *CERTIFICATE OF SUBSTANTIAL COMPLETION* (page 1 of 2)

**Project Site:** _____ **Planning Entitlement No.:** _____
**Project Location:** _____
**Tentative Tract No.:** _____
**Total Project Landscaped Area in Square Feet:** _____
**Preliminary project Documentation Submitted:** (check indicating submittal)

- ❑ 1. Maximum Applied Water Allowance:
  ___ gallons or cubic feet/year
  ___ percent of the local annual mean precipitation
- ❑ 2. Estimated Applied Water Use:
  ___ gallons or cubic feet/year
- ❑ 2.(a) Estimated Amount of Water Expected from Effective Precipitation:
  ___ gallons or cubic feet/year
- ❑ 3. Estimated Total Water Use:
  ___ gallons or cubic feet/year

**Note:** If the design assumes that a part of the Estimated Total Water Use will be provided by precipitation, the Effective Precipitation Disclosure Statement, Exhibit "B", shall be completed and submitted. The Estimated Amount of Water Expected from Effective Precipitation shall not exceed twenty-five (25) percent of the local annual mean precipitation (average rainfall).

- ❑ 4. Landscape Design Plan
- ❑ 5. Irrigation Design Plan
- ❑ 6. Irrigation Schedules
- ❑ 7. Maintenance Schedule
- ❑ 8. Landscape Irrigation Audit Schedule
- ❑ 9. Grading Design Plan
- ❑ 10. Soil Analysis

**Post-Installation Inspection:** (Check indicating substantial completion)

- ❑ A. Plants installed as specified
- ❑ B. Irrigation system installed as designed
  - ❑ dual distribution system for recycled water
  - ❑ minimal run off or overspray
- ❑ C. Landscape Irrigation Audit performed

- ❑ Project submittal package and a copy of this certification has been provided to owner/manager and local water agency.

**Comments:**

_____

I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the Water Efficient Landscape Ordinance and that the landscape planting and irrigation installation substantially conform with the city approved plans and specifications.

_____

Landscape Architect Signature Date State License No.

2/93

## *CERTIFICATE OF SUBSTANTIAL COMPLETION* (page 2 of 2)

I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the Water Efficient Landscape Ordinance and that the landscape irrigation installation substantially conforms with the city approved plans and specifications.

| Irrigation Design/Consultant | Signature | Date | State License No. |
|---|---|---|---|

I/we certify that I/we have received all of the contract documents and that it is our responsibility to see that the project is maintained in accordance with the contract documents and the City of Huntington Beach Arboricultural and Landscape Standards, Specifications and the Water Efficient Landscape Ordinance.

| Owner/Developer | Signature | Date | Title |
|---|---|---|---|

**City of Huntington Beach**

Public Works, Utilities Division, 19001 Huntington Street, Huntington Beach, CA 92648
(714) 375-5055