



**City of La Habra**

Final

# 2010 Urban Water Management Plan

May 2011



**MALCOLM  
PIRNIE**

 **ARCADIS**

*The Water Division of* **ARCADIS**



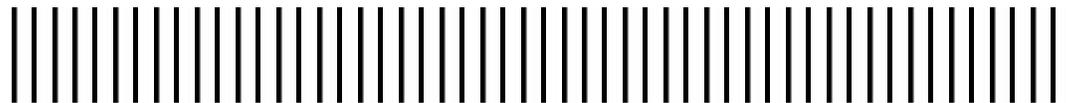
**City of La Habra**

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# 2010 Urban Water Management Plan

May 2011



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Contents

<b>Executive Summary</b>	<b>1</b>
<b>1. Introduction</b>	<b>1-1</b>
1.1. Urban Water Management Plan Requirements.....	1-1
1.2. Agency Overview .....	1-4
1.3. Service Area and Facilities .....	1-5
1.3.1. La Habra’s Service Area .....	1-5
1.3.2. La Habra’s Water Facilities .....	1-7
<b>2. Water Demand</b>	<b>2-1</b>
2.1. Overview .....	2-1
2.2. Factors Affecting Demand .....	2-1
2.2.1. Climate Characteristics .....	2-1
2.2.2. Demographics .....	2-3
2.2.3. Land Use .....	2-3
2.3. Water Use by Customer Type.....	2-4
2.3.1. Overview.....	2-5
2.3.2. Residential.....	2-6
2.3.3. Non-Residential.....	2-6
2.3.4. Other Water Uses.....	2-6
2.3.4.1. Sales to Other Agencies .....	2-6
2.3.4.2. Non-Revenue Water .....	2-6
2.4. SBx7-7 Requirements.....	2-7
2.4.1. Overview.....	2-7
2.4.2. SBx7-7 Compliance Options .....	2-7
2.4.3. Regional Alliance.....	2-8
2.4.4. Baseline Water Use.....	2-8
2.4.5. SBx7-7 Water Use Targets .....	2-9
2.4.6. Water Use Reduction Plan .....	2-10
2.5. Demand Projections.....	2-12
2.5.1. 25 Year Projections .....	2-12
2.5.2. Low Income Household Projections.....	2-13
<b>3. Water Sources and Supply Reliability</b>	<b>3-1</b>
3.1. Overview .....	3-1
3.2. Imported Water .....	3-2
3.2.1. Imported Groundwater Supply (CDWC).....	3-2
3.2.2. Imported Supply (MWDOC) .....	3-5
3.2.3. Metropolitan’s 2010 Regional Urban Water Management Plan.....	3-6
3.2.4. La Habra’s Imported Water Supply Projections .....	3-11
3.3. Groundwater .....	3-11
3.3.1. Local Groundwater Supply (La Habra Basin).....	3-11
3.3.2. Historical Groundwater Production .....	3-13
3.3.3. Projections of Groundwater Production .....	3-14
3.4. Recycled Water.....	3-14

3.5. Supply Reliability.....	3-14
3.5.1. Overview.....	3-14
3.5.2. Factors Impacting Reliability .....	3-15
3.5.2.1. Water Quality .....	3-17
3.5.3. Normal-Year Reliability Comparison.....	3-18
3.5.4. Single Dry-Year Reliability Comparison .....	3-18
3.5.5. Multiple Dry-Year Reliability Comparison.....	3-18
<b>4. Demand Management Measures</b> .....	<b>4-1</b>
4.1. Overview .....	4-1
4.2. Water Use Efficiency Programs.....	4-1
4.2.1. DMM 1: Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers .....	4-2
4.2.2. DMM 2: Residential Plumbing Retrofit .....	4-3
4.2.3. DMM 3: System Water Audits, Leak Detection and Repair .....	4-4
4.2.4. DMM 4: Metering with Commodity Rates.....	4-5
4.2.5. DMM 5: Large Landscape Conservation Programs and Incentives .....	4-5
4.2.6. DMM 6: High-Efficiency Washing Machine Rebate Programs.....	4-6
4.2.7. DMM 7: Public Information Programs .....	4-6
4.2.8. DMM 8: School Education Programs.....	4-8
4.2.9. DMM 9: Conservation Programs for Commercial, Industrial and Institutional Accounts.....	4-9
4.2.10. DMM 10: Wholesale Agency Programs .....	4-12
4.2.11. DMM 11: Conservation Pricing .....	4-12
4.2.12. DMM 12: Water Conservation Coordinator.....	4-12
4.2.13. DMM 13: Water Waste Prohibition.....	4-12
4.2.14. DMM 14: Residential Ultra-Low-Flush Toilet Replacement Programs .....	4-13
<b>5. Water Supplies Contingency Plan</b> .....	<b>5-1</b>
5.1. Overview .....	5-1
5.2. Shortage Actions.....	5-1
5.3. Three-Year Minimum Water Supply .....	5-5
5.4. Catastrophic Supply Interruption .....	5-8
5.4.1. Metropolitan.....	5-9
5.4.2. Water Emergency Response Organization of Orange County .....	5-9
5.4.3. City of La Habra .....	5-9
5.5. Prohibitions, Penalties and Consumption Reduction Methods.....	5-11
5.6. Impacts to Revenue .....	5-16
5.7. Reduction Measuring Mechanism.....	5-17
<b>6. Recycled Water</b> .....	<b>6-1</b>
6.1. Agency Coordination.....	6-1
6.2. Wastewater Description and Disposal .....	6-3
6.3. Current Recycled Water Uses .....	6-4
6.4. Potential Recycled Water Uses .....	6-4
6.4.1. Direct Non-Potable Reuse.....	6-5
6.4.2. Indirect Potable Reuse .....	6-5
6.5. Optimization Plan.....	6-5

<b>7. Future Water Supply Projects and Programs</b>	<b>7-1</b>
7.1. Water Management Tools.....	7-1
7.2. Transfer or Exchange Opportunities.....	7-1
7.3. Planned Water Supply Projects and Programs .....	7-1
7.4. Desalination Opportunities.....	7-3
7.4.1. Groundwater.....	7-4
7.4.2. Ocean Water .....	7-4
<b>8. UWMP Adoption Process</b>	<b>8-1</b>
8.1. Overview .....	8-1
8.2. Public Participation .....	8-2
8.3. Agency Coordination.....	8-2
8.4. UWMP Submittal.....	8-3
8.4.1. Review of Implementation of 2005 UWMP .....	8-3
8.4.2. Filing of 2010 UWMP .....	8-4

## List of Tables

Table 2-1: Climate Characteristics .....	2-2
Table 2-2: Population – Current and Projected.....	2-3
Table 2-3: Past, Current and Projected Service Accounts by Water Use Sector .....	2-5
Table 2-4: Past, Current and Projected Water Demand by Water Use Sector .....	2-5
Table 2-5: Additional Water Uses and Losses (AFY).....	2-6
Table 2-6: Base Daily per Capita Water Use – 10-year range.....	2-9
Table 2-7: Base Daily per Capita Water Use – 5-year range.....	2-9
Table 2-8: Preferred Compliance Option and Water Use Targets .....	2-10
Table 2-9: Current and Projected Water Demands (AFY).....	2-13
Table 2-10: La Habra’s Demand Projections Provided to Wholesale Suppliers (AFY).....	2-13
Table 2-11: Projected Water Demands for Housing Needed for Low Income Households (AFY) .....	2-15
Table 3-1: Metropolitan Average Year Projected Supply Capability and Demands for 2015 to 2035.....	3-8
Table 3-2: Metropolitan Single-Dry Year Projected Supply Capability and Demands for 2015 to 2035.....	3-9
Table 3-3: Metropolitan Multiple-Dry Year Projected Supply Capability and Demands for 2015 to 2035.....	3-10
Table 3-4: Wholesaler Identified & Quantified Existing and Planned Sources of Water (AFY) .	3-11
Table 3-5: Maximum Safe Groundwater Yield (AFY) .....	3-13
Table 3-6: Amount of Groundwater Pumped in the Past 5 Years (AFY).....	3-13
Table 3-7: Amount of Groundwater Projected to be Pumped (AFY).....	3-14
Table 3-8: Wholesaler Supply Reliability - % of Normal AFY.....	3-15
Table 3-9: Basis of Water Year Data.....	3-15
Table 3-10: Factors Resulting in Inconsistency of Supply .....	3-16
Table 3-11: Water Quality – Current and Projected Water Supply Impacts (AFY) .....	3-17
Table 3-12: Projected Normal Water Supply and Demand (AFY).....	3-18
Table 3-13: Projected Single-Dry Year Water Supply and Demand (AFY).....	3-18
Table 3-14: Projected Multiple Dry Year Period Supply and Demand (AFY).....	3-19
Table 4-1: Urban Supplier’s Demand Management Measures Overview .....	4-2

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Table 4-2: System Water Audits, Leak Detection and Repair DMM .....	4-4
Table 4-3: Retrofit Devices and Rebate Amounts Available Under Save Water Save a Buck Program .....	4-10
Table 5-1: Water Supply Shortage Stages and Conditions – Rationing Stages .....	5-5
Table 5-2: Metropolitan Shortage Conditions .....	5-7
Table 5-3: Three-Year Estimated Minimum Water Supply (AFY) .....	5-8
Table 5-4: Preparation Actions for Catastrophe .....	5-11
Table 5-5: Mandatory Prohibitions.....	5-12
Table 5-6: Penalties and Charges .....	5-15
Table 5-7: Consumption Reduction Methods .....	5-16
Table 5-8: Proposed Measures to Overcome Revenue Impacts .....	5-17
Table 5-9: Proposed Measures to Overcome Expenditure Impacts .....	5-17
Table 5-10: Water Use Monitoring Mechanisms .....	5-17
Table 6-1: Participating Agencies.....	6-2
Table 6-2: Wastewater Collection and Treatment (AFY) .....	6-3
Table 6-3: Disposal of Wastewater (Non-Recycled) (AFY).....	6-4
Table 6-4: Recycled Water Uses – 2005 Projections compared with 2010 Actual (AFY).....	6-4
Table 7-1: Specific Planned Water Supply Projects and Programs .....	7-3
Table 7-2: Opportunities for Desalinated Water .....	7-4
Table 8-1: External Coordination and Outreach.....	8-1
Table 8-2: Coordination with Appropriate Agencies .....	8-3

## List of Figures

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Figure 1-1: Regional Location of Urban Water Supplier .....	1-3
Figure 1-2: City of La Habra’s Service Area .....	1-6
Figure 2-1: City of La Habra Land Uses .....	2-4
Figure 3-1: Current and Projected Water Supplies (AFY) .....	3-2

## Appendices

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- A. Urban Water Management Plan Checklist
- B. Calculation for Dry Year Demands
- C. Ordinance No. 1703
- D. 60 Day Notification Letters
- E. Public Hearing Notice
- F. Copy of Plan Adoption

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## Acronyms Used in the Report

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20x2020	20% reduction by 2020
Act	Urban Water Management Planning Act
AFY	acre-feet per year
BDCP	Bay Delta Conservation Plan
BMP	Best Management Practice
Board	Metropolitan's Board of Directors
CDR	Center for Demographic Research
CDWC	California Domestic Water Company
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CII	Commercial/Industrial/Institutional
CIMIS	California Irrigation Management Information System
City	City of La Habra
CRA	Colorado River Aqueduct
CUP	Conjunctive Use Program
CUWCC	California Urban Water Conservation Council
DMM	Demand Management Measure
DWR	Department of Water Resources
EIR	Environmental Impact Report
EOCF #2	East Orange County Feeder #2
ETo	Evapotranspiration
FY	Fiscal Year
FYE	Fiscal Year Ending
GAP	Green Acres Project
GPCD	gallons per capita per day
gpm	gallons per minute
GWRS	Groundwater Replenishment System
H2O2	hydrogen peroxide
HECW	High Efficiency Clothes Washer
HET	high efficiency toilet
HOA	Homeowners Association
IRP	Integrated Water Resources Plan
IWA	International Water Association
LOI	Letter of Intent
LPCP	Landscape Performance Certification Program
MBR	Membrane Biological Reactor
MCL	Maximum Contaminant Level
Metropolitan	Metropolitan Water District of Southern California
MF	Microfiltration

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MG	million gallons
MGD	million gallons per day
MWDOC	Municipal Water District of Orange County
NDMA	N-nitrosodimethylamine
NOAA	National Oceanic and Atmospheric Administration
OCSD	Orange County Sanitation District
OCWD	Orange County Water District
Poseidon	Poseidon Resources LLC
PPCP	Pharmaceuticals and Personal Care Product
QSA	Quantification Settlement Agreement
RHNA	Regional Housing Needs Assessment
RO	Reverse Osmosis
RUWMP	Regional Urban Water Management Plan
SBx7-7	Senate Bill 7 as part of the Seventh Extraordinary Session
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SDCWA	San Diego County Water Authority
SWP	State Water Project
TDS	Total Dissolved Solids
TVMWD	Three Valleys Municipal Water District
ULFT	ultra-low-flush toilet
UV	ultraviolet
UWMP	Urban Water Management Plan
WEROC	Water Emergency Response Organization of Orange County
WOCWBF #2	West Orange County Water Board Feeder #2
WSAP	Water Supply Allocation Plan
WSDM	Water Surplus and Drought Management Plan

# Executive Summary

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This report serves as the 2010 update of the City of La Habra's (City) Urban Water Management Plan (UWMP). The UWMP has been prepared consistent with the requirements under Water Code Sections 10610 through 10656 of the Urban Water Management Planning Act (Act), which were added by Statute 1983, Chapter 1009, and became effective on January 1, 1984. The Act requires "every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually" to prepare, adopt, and file an UWMP with the California Department of Water Resources (DWR) every five years. 2010 UWMP updates are due to DWR by August 1, 2011.

Since its passage in 1983, several amendments have been added to the Act. The most recent changes affecting the 2010 UWMP include Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7) and SB 1087. Water Conservation Act of 2009 or SBx7-7 enacted in 2009 is the water conservation component of the Delta package. It stemmed from the Governor's goal to achieve a 20% statewide reduction in per capita water use by 2020 (20x2020). SBx7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015.

## Service Area and Facilities

The City provides water to a population of 63,118 throughout its 7.3 square mile service area. The City receives its water from three main sources, the La Habra Basin, the Main San Gabriel Basin, which is managed by California Domestic Water Company (CDWC), and imported water from the Municipal Water District of Orange County (MWDOC). Groundwater is pumped from one active well located within the City, and imported water from CDWC and Metropolitan through MWDOC.

## Water Demand

Currently, the total water demand for retail customers served by the City is approximately 9,803 acre-feet annually consisting of 1,942 acre-feet of MWDOC imported water, and 5,570 acre-feet of CDWC imported groundwater and 2,291 acre-feet of local groundwater. The City is projecting a 2% increase in demand in the next 25 years accompanying a projected 9% population growth.

With MWDOC's assistance, the City has selected to comply with **Option 3** of the SBx7-7 compliance options. The City is a member of the Orange County 20x2020 Regional Alliance formed by MWDOC. This regional alliance consists of 29 retail agencies in

Orange County. Under Compliance Option 3, the City's 2015 interim water use target is 150.4 GPCD and the 2020 final water use target is **141.6 GPCD**.

### **Water Sources and Supply Reliability**

The City's main sources of water supply are groundwater from the La Habra Groundwater Basin and imported water from CDWC and Metropolitan through MWDOC. Today, the City relies on 57% imported groundwater, 20% imported water and 23% local groundwater. It is projected that by 2015, the City will increase imported CDWC supply to 6,440 AFY (65%). The sources of imported water supplies include the Colorado River and the State Water Project (SWP). Metropolitan's 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands (non-interruptible agricultural and replenishment supplies) at the retail level under all foreseeable hydrologic conditions from 2015 through 2035.

It is required that every urban water supplier assess the reliability to provide water service to its customers under normal, dry, and multiple dry water years. Metropolitan's 2010 RUWMP finds that Metropolitan is able to meet full service demands of its member agencies with existing supplies from 2015 through 2035 during normal years, single dry year, and multiple dry years. The City is therefore capable of meeting the water demands of its customers in normal, single dry, and multiple dry years between 2015 and 2035, as illustrated in Table 3-12, Table 3-13, and Table 3-14, respectively.

### **Future Water Supply Projects**

The City is planning well improvements that will increase the City's local production from approximately 1,200 AFY to 2,500 AFY. The planned capacity improvements will require increasing the size of the underground concrete retention reservoir to utilize the full capacity of the deep well. The increased water flow and retention reservoir size will allow the booster pump to remain on rather than cycling on and off until the retention reservoir refills. Additional improvements include covering, repacking, and miscellaneous repairs and/or upgrades to the air stripper. Stabilization of the air stripper's blower fan-housing pad will also be completed. The well upgrade also includes a diesel powered back-up generation system that will increase the City's ability to provide uninterrupted local water deliveries.

The City recently obtained additional water shares within the CDWC and has future plans to acquire Water Property Rights within the San Gabriel Water Basin. Unocal (Chevron) previously owned 720 water shares within the CDWC. They have offered the City 360 of these excess water shares within CDWC, due to a development project being under taken. The City has purchased and now owns these 360 CDWC water shares. The City was offered and purchased the other 360 shares. In addition to the City's current water shares

and two existing groundwater well supplies, the City's objective is to obtain an additional 1,760 AF of the surplus water rights. This will increase the City's overall water supply reliability, including the La Habra Water Basin to over 71%. The remaining water supply would be supplied by MWDOC, and Leased and/or Replenishment Water in San Gabriel Water Basin.

The City along with MWDOC has conducted a study to determine the feasibility of a recycled water system in North Orange County. The potential customers include local and regional users; such as La Habra, Buena Park and Fullerton. The potential average annual recycled water demand is 1,347 AFY to be used for landscape irrigation at parks, schools, and golf courses. The project would include a 2 MGD treatment plant located near the intersection of Idaho Street and Lambert Road using Membrane Biological Reactor (MBR) as the proposed treatment process. The distribution system would include a 1.23 MGD steel reservoir as well as a Booster Pumping Station at the plant. Next steps will be a detailed investigation and pursuit of project funding as well as pursuing additional recycled water users.

In Orange County, there are three proposed ocean desalination projects that could serve MWDOC and its member agencies with additional water supply. These are the Huntington Beach Seawater Desalination Project, the South Orange Coastal Desalination Project, and the Camp Pendleton Seawater Desalination Project.

# 1. Introduction

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## 1.1. Urban Water Management Plan Requirements

Water Code Sections 10610 through 10656 of the Urban Water Management Planning Act (Act) require “every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually” to prepare, adopt, and file an UWMP with the California Department of Water Resources (DWR) every five years. 2010 UWMP updates are due to DWR by August 1, 2011.

This UWMP provides DWR with information on the present and future water resources and demands and provides an assessment of the City’s water resource needs. Specifically, this document will provide water supply planning for a 25-year planning period in 5-year increments. The plan will also identify water supplies for existing and future demands, quantify water demands during normal year, single-dry year, and multiple-dry years, and identify supply reliability under the three hydrologic conditions. The City’s 2010 UWMP update revises the 2005 UWMP. This document has been prepared in compliance with the requirements of the Act as amended in 2009, and includes the following discussions:

- Water Service Area and Facilities
- Water Sources and Supplies
- Water Use by Customer Type
- Demand Management Measures
- Water Supply Reliability
- Planned Water Supply Projects and Programs
- Water Shortage Contingency Plan
- Recycled Water

Since its passage in 1983, several amendments have been added to the Act. The most recent changes affecting the 2010 UWMP include Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7) and SB 1087. Water Conservation Act of 2009 or SBx7-7 enacted in 2009 is the water conservation component of the historic Delta package. It stemmed from the Governor’s goal to achieve a 20% statewide reduction in per capita water use by 2020 (20x2020). SBx7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and the interim 10% goal by 2015. Each urban retail water supplier must include in its 2010 UWMPs the following information from its target-setting process:

- Baseline daily per capita water use
- 2020 Urban water use target
- 2015 Interim water use target
- Compliance method being used along with calculation method and support data

Wholesale water suppliers are required to include an assessment of present and proposed future measures, programs, and policies that would help achieve the 20 by 2020 goal.

The other recent amendment made to the UWMP Act to be included in the 2010 UWMP is set forth by SB 1087, Water and Sewer Service Priority for Housing Affordable to Low-Income Households. SB 1087 requires water and sewer providers to grant priority for service allocations to proposed developments that include low income housing. SB 1087 also requires UWMPs to include projected water use for single- and multi-family housing needed for low-income households.

The sections in this UWMP 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 UWMP Checklist has been completed, which identifies the location of Act requirements in this Plan and is included as Appendix A.



**Figure 1-1: Regional Location of Urban Water Supplier**

## 1.2. Agency Overview

The history of the water service area provides a basis for understanding present conditions, limitations on the water supply sources, and a background of present policies and practices. Data and conditions that exist throughout much of the Lower Santa Ana Basin are not applicable to the City, which overlays a separate small non–adjudicated water basin. It is for this reason that a brief history of water development within the City’s service area is included in this plan.

Within the current City, Coyote Creek and the La Mirada Channel were the only surface water sources that were available to the early settlers. The fact that the surface water was not a reliable supply and only provided small quantities of water were probably the primary reasons that no record has been found of any permanent Native American settlement within the area that is now the City. Since these small streams were not large enough or dependable enough to provide irrigation water through dry periods or on a year round basis, the early settlers attempted to save run–off water. However, due to limited rainfall this effort resulted in water used primarily for domestic and livestock use, rather than agriculture irrigation.

The first water wells within the City were hand dug, shallow, generally near the creek beds, and insufficient in quantities of water produced to provide for agricultural irrigation. One settler constructed a 100,000 gallon reservoir, supplied by several small wells. Additionally, attempts to transport water from a spring in a neighboring area to supply water to the reservoir were unsuccessful. The largest early source of water supplied was a pit located on the Little Coyote Creek which supplied sufficient water for pumping water through a mile–long four inch line to the above mentioned reservoir. This system, the first in the City, was sufficient to supply the owner’s ranch and provide a small amount of water for sale to a few neighbors. Only a few wells of sufficient production quantity for irrigation purposes were developed within the City’s service area.

In 1889, the East Whittier Land and Water Company was formed and financed the purchase of water bearing lands in the Basset area on the west side of the San Gabriel River and the construction of water transportation facilities from the well field to the East Whittier area (the westerly boundary of the historic La Habra Valley and water basin). Construction was completed in 1891 with a flow of 400 miner’s inches (approximately 5,730 acre feet annually or 1.86 billion gallons). In 1898 the well was deepened. The Basset area is within the Upper San Gabriel Water Basin, in what is now the easterly portion of the City of El Monte and the extreme westerly portion of the City of Industry.

The La Habra Water Company was incorporated in October 1902 for the purpose of constructing facilities for farmers living in the area now within the boundaries of the City. At the same time, the California Domestic Water Company was incorporated and simultaneously purchased the facilities of the East Whittier Land and Water Company.

The La Habra Water Company originally owned fifty percent of the California Domestic Water Company stock. Ultimately, the surviving company was California Domestic Water Company. The facilities to supply the La Habra Water Company were completed and water flowed to the service area in August 1903. With the California Domestic/La Habra Water Company facilities, the City became the first community in Orange County to import water from sources outside the County, a practice that continues to this date.

In 1913 the La Habra Domestic Water Company was formed, with the basic distribution lines constructed soon thereafter. Meters were installed in 1916. The company was sold by the original founders in 1928 to other investors and then sold to the City in 1933.

The residents of the City are represented by a five-member City Council. The members of the City Council are elected on an at-large basis to four-year terms. The current City Council members are:

- James Gomez, Mayor
- Tim Shaw, Mayor Pro Tem
- Rose Espinoza, Council Member
- Tom Beamish, Council Member
- Michael Blazey, Council Member

The City receives its water from three main sources, the La Habra Basin, the Main San Gabriel Basin, which is managed by California Domestic Water Company (CDWC), and imported water from the Municipal Water District of Orange County (MWDOC). MWDOC is Orange County's wholesale supplier and is a member agency of the Metropolitan Water District of Southern California (Metropolitan).

### **1.3. Service Area and Facilities**

#### **1.3.1. La Habra's Service Area**

The City is located in the most northern part of Orange County. The City borders Los Angeles County on the north and west, City of Brea on the east, and City of Fullerton on the south and southeast. The City manages and operates its domestic water system. The City's water system serves a population of 63,000 through approximately 136 miles of pipelines within City boundaries. The City serves potable water to a 7.3 square mile area within the City limits. The City's service area is shown in Figure 1-2.



### **1.3.2. La Habra's Water Facilities**

The City has three existing storage reservoirs within City limits as well as one groundwater well, five booster pumping stations, and 57 pressure regulating stations. The pressure regulating stations divide the distribution system into 21 different pressure zones. The City also has interconnections with Metropolitan, CDWC, and emergency interconnections with Suburban Water Systems, City of Fullerton, and City of Brea.

The City obtains domestic water from groundwater and from imported water supplies. Groundwater is supplied from a City owned well. This well pumps water from the La Habra Groundwater Basin into the City's Zone 1 pressure zone. Currently, approximately 23 percent of the City's water production comes from this well.

Imported water accounts for the remaining 77 percent of the City's total production. Water imported into the City comes from two sources, the CDWC and Metropolitan through MWDOC.

## 2. Water Demand

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### 2.1. Overview

Currently, the total water demand for retail customers served by the City is approximately 9,803 acre-feet annually consisting of 1,942 acre-feet of MWDOC imported water, and 5,570 acre-feet of CDWC imported groundwater and 2,291 acre-feet of local groundwater. In the last five years, the City's water demand has decreased by about 5%. With its diligence in the promotion of water conservation as well as financial incentives to customers to retrofit their homes and businesses with water efficient devices and appliances, the City is projecting a 2% increase in demand in the next 25 years accompanying a projected 9% population growth.

The passage of SBx7-7 will increase efforts to reduce the use of potable supplies in the future. This new law requires all of California's retail urban water suppliers serving more than 3,000 AFY or 3,000 service connections to achieve a 20 percent reduction in potable water demands (from a historical baseline) by 2020. Due to great water conservation efforts in the past decade, the City is on its way to meeting this requirement on its own. Moreover, the City has elected to join the Orange County 20x2020 Regional Alliance. The City together with other 28 retail agencies in Orange County are committed to reduce the region's water demand by 2020 through the leadership of the Municipal Water District of Orange County (MWDOC), the region's wholesale provider.

This section will explore in detail the City's current water demands by customer type and the factors which influence those demands as well as providing a perspective of its expected future water demands for the next 25 years. In addition, to satisfy SBx7-7 requirements, this section will provide details of the City's SBx7-7 compliance method selection, baseline water use calculation, and its 2015 and 2020 water use targets.

### 2.2. Factors Affecting Demand

Water consumption is influenced by many factors from climate characteristics of that hydrologic region, to demographics, land use characteristics, and economics. The key factors affecting water demand in the City's service area are discussed below.

#### 2.2.1. Climate Characteristics

The City is located in an area known as the South Coast Air Basin (SCAB). The SCAB climate is characterized by southern California's "Mediterranean" climate: a semi-arid environment with mild winters, warm summers and moderate rainfall. The general region lies in the semi-permanent, high pressure zone of the eastern Pacific. As a result, the

climate is mild, tempered by cool sea breezes. The usually mild climatologically pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The City’s average temperature ranges from 58 degrees Fahrenheit in January to 74 degrees Fahrenheit in August with an average annual temperature of 65 degrees Fahrenheit. Annual precipitation averages approximately 14 inches, occurring mostly between November and March (Table 2-1). The average evapotranspiration (ET) is almost 50 inches per year, which is four times the annual average rainfall. This translates to a high demand for landscape irrigation for homes, commercial properties, parks, and golf courses. Moreover, a region with low rainfall like Southern California is also more prone to droughts.

**Table 2-1: Climate Characteristics**

	<b>Standard Monthly Average ETo (inches) [1]</b>	<b>Annual Rainfall (inches) [2]</b>	<b>Average Temperature (°F) [3]</b>
Jan	2.18	3.18	58.0
Feb	2.49	3.05	59.1
Mar	3.67	2.78	60.2
Apr	4.71	0.67	63.0
May	5.18	0.25	65.7
Jun	5.87	0.11	69.3
Jul	6.29	0.02	72.9
Aug	6.17	0.12	74.3
Sep	4.57	0.34	73.2
Oct	3.66	0.36	68.9
Nov	2.59	1.17	62.4
Dec	2.25	1.79	57.9
<b>Annual</b>	<b>49.63</b>	<b>13.84</b>	<b>65.4</b>

[1] CIMIS Station #75, Irvine, California from October 1987 to Present

[2] NOAA, Santa Ana Fire Station, California 1971 to 2000, Mean Precipitation Total

[3] NOAA, Santa Ana Fire Station, California 1971 to 2000, Mean Temperature

The source of the City’s imported water supplies, the State Water Project and Colorado River Project, is influenced by weather conditions in Northern California and along the Colorado River. Both regions have recently been suffering from previous multi-year drought conditions and record low rainfalls, which directly impact demands and supplies to Southern California.

**2.2.2. Demographics**

The City serves an estimated population of 63,118. The City is almost built-out, with over 99.9% of the City’s land area either developed or under development. There is a broad range of housing types and styles; a range of shopping, professional and commercial services; and light industrial areas. The City can best be described as a "bedroom community" meaning that the labor force is larger than the job market and most residents are employed elsewhere within the region. Population growth for the City’s service area is projected to be a modest 9% increase between 2010 and 2035 which equates to an average growth of 0.36% per year (Table 2-2).

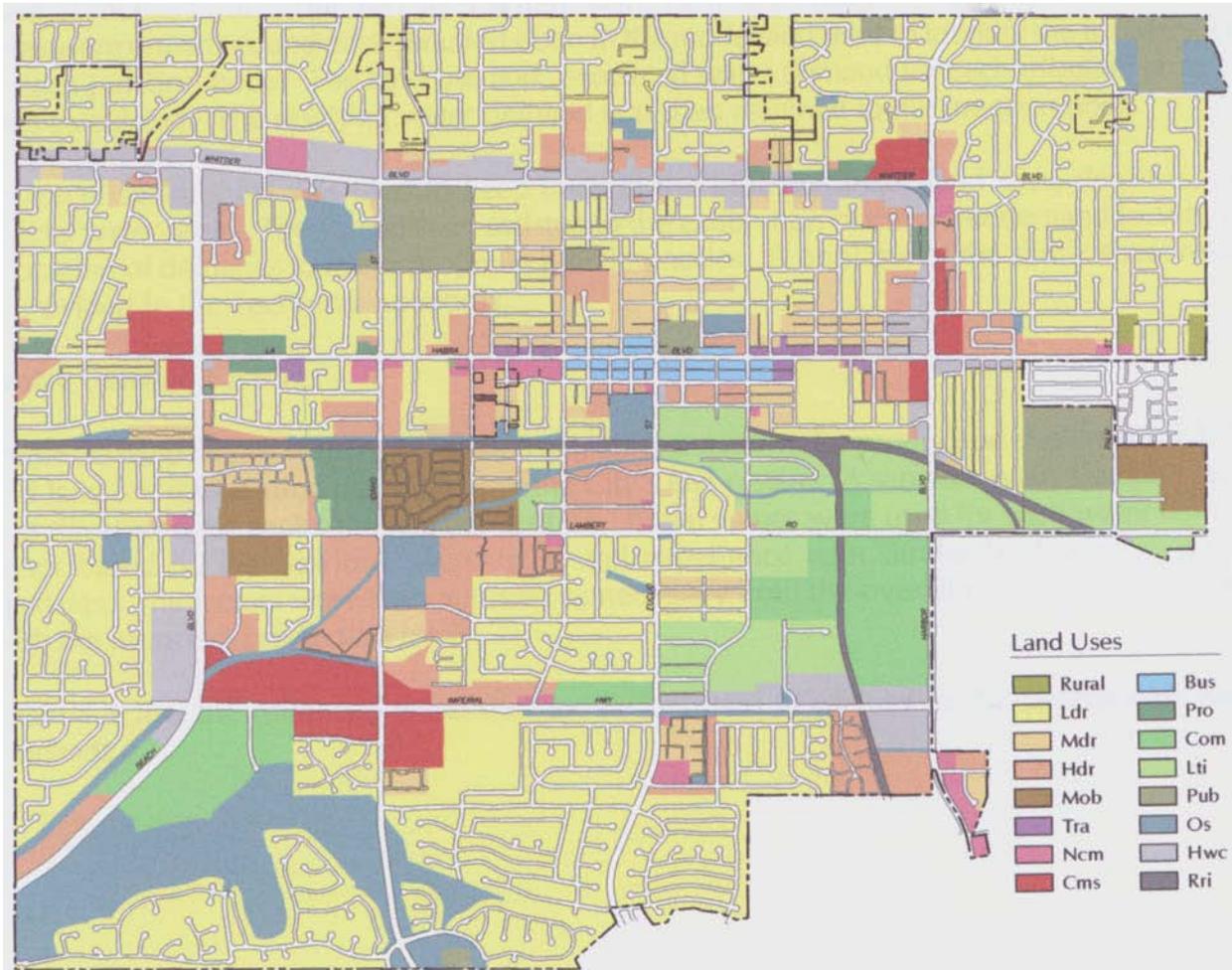
**Table 2-2: Population – Current and Projected**

	2010	2015	2020	2025	2030	2035-opt
Service Area Population [1]	63,118	64,264	65,415	66,564	67,712	68,861

[1] Center for Demographic Research, California State University, Fullerton 2010

**2.2.3. Land Use**

Land use is a big factor affecting water management since demands vary depending upon the type and density of users. Figure 2-1 depicts the City’s land uses which provide insight into the water management needs of the City. The majority of the City is low density residential area scattered with pockets of medium density residential areas. The southeastern corner is zoned for commercial industry and light industry representing only about 10% of the City’s land area. Other commercial uses represent a small area of the City. Only minimal changes in land use are anticipated over the next 25 years.



**Figure 2-1: City of La Habra Land Uses**

### 2.3. Water Use by Customer Type

The knowledge of an agency’s water consumption by type of use or by customer class is key to developing that agency’s water use profile which identifies when, where, how, and how much water is used, and by whom within the agency’s service area. A comprehensive water use profile is critical to the assessment of impacts of prior conservation efforts as well as to the development of future conservation programs.

This section provides an overview of the City’s water consumption by customer type in 2005 and 2010, as well as projections for 2015 to 2035. The customer classes are categorized as follows: single-family residential, multi-family residential, commercial/industrial/institutional (CII), dedicated landscape, and agriculture. Other water uses including sales to other agencies and non-revenue water are also discussed in this section.

### 2.3.1. Overview

The City has approximately 12,545 customer connections to its water distribution system. The City is expected to add about 50 more connections by 2015 and remain stable thereafter. All connections in the City’s service area are metered.

Seventy five percent of the City’s water demand is residential. CII including dedicated landscape consume the other 25% of the City’s water supply. The City does not provide sales to agriculture.

Tables 2-3 and 2-4 provide a summary of past, current, and projected water use by customer class and the number of water service customers by sector in five-year increments from 2005 through to 2035. The number of connections is expected to remain relatively stable and so is water demand through to 2035 because the City’ service area is mainly built out.

**Table 2-3: Past, Current and Projected Service Accounts by Water Use Sector**

Fiscal Year Ending	Number of Accounts by Water Use Sector					
	Single Family	Multi-Family	Commercial	Institutional /Gov	Landscape	Total Accounts
2005	10,882	565	1,085			12,532
2010	10,855	560	862	114	154	12,545
2015	10,900	560	871	114	155	12,600
2020	10,900	560	871	114	155	12,600
2025	10,900	560	871	114	155	12,600
2030	10,900	560	871	114	155	12,600
2035	10,900	560	871	114	155	12,600

**Table 2-4: Past, Current and Projected Water Demand by Water Use Sector**

Fiscal Year Ending	Water Demand by Water Use Sectors (AFY)					
	Single Family	Multi-Family	Commercial	Institutional /Gov	Landscape	Total Demand
2005	6,004	1,716	1,566	301	852	10,439
2010	5,664	1,655	1,420	290	775	9,803
2015	5,702	1,609	1,471	276	782	9,840
2020	5,731	1,618	1,479	277	786	9,890
2025	5,760	1,626	1,486	279	790	9,940
2030	5,789	1,634	1,494	280	794	9,990
2035	5,818	1,642	1,501	281	798	10,040

### 2.3.2. Residential

Residential water use accounts for the majority of the City’s water demands. The single family residential sector accounts for 58% and multi-family residential accounts for 17% of the total water demand. Water consumption by the residential sector is projected to remain at about 75% through the 25-year planning horizon.

### 2.3.3. Non-Residential

Non-residential demand is 25% of the overall demand and is expected to remain so through 2035. The City has a mix of commercial uses (markets, restaurants, etc.), public entities (such as schools, fire stations and government offices), office complexes, light industrial, warehouses and facilities serving the public. CII uses (excluding large landscape) represent a combined 17% of the City’s total demand. Demands from large landscapes such as parks and golf courses are expected to remain at around 8% of the City’s total water demands for the next 25 years.

### 2.3.4. Other Water Uses

#### 2.3.4.1. Sales to Other Agencies

The City does not sell water to other agencies except in case of emergencies.

#### 2.3.4.2. Non-Revenue Water

Non-revenue water is defined by the International Water Association (IWA) as the difference between distribution systems input volume (i.e. production) and billed authorized consumption. Non-revenue water consists of three components: unbilled authorized consumption (e.g. hydrant flushing, fire fighting, and blow-off water from well start-ups), real losses (e.g. leakage in mains and service lines), and apparent losses (unauthorized consumption and metering inaccuracies).

The City’s non-revenue water accounts for approximately 6% of the City’s total water use and is expected to remain the same (Table 2-5).

**Table 2-5: Additional Water Uses and Losses (AFY)**

Water Use	Fiscal Year Ending						
	2005	2010	2015	2020	2025	2030	2035
Saline Barriers	-	-	-	-	-	-	-
Groundwater Recharge	-	-	-	-	-	-	-
Conjunctive Use	-	-	-	-	-	-	-
Raw Water	-	-	-	-	-	-	-
Recycled Water	-	-	-	-	-	-	-
Unaccounted-for System Losses	626	588	590	593	596	599	602
<b>Total</b>	<b>626</b>	<b>588</b>	<b>590</b>	<b>593</b>	<b>596</b>	<b>599</b>	<b>602</b>

## 2.4. SBx7-7 Requirements

### 2.4.1. Overview

SBx7-7, which became effective on February 3, 2010, is the water conservation component to the Delta legislative package. It seeks to implement Governor Schwarzenegger's 2008 water use reduction goals to achieve a 20% statewide reduction in urban per capita water use by December 31, 2020. As discussed above, the bill requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015. The bill establishes methods for urban retail water suppliers to determine targets to help achieve water reduction targets. The retail water supplier must select one of the four target-setting methods (compliance options). The retail agency may choose to comply to SBx7-7 as an individual or as a region in collaboration with other water suppliers. Under the regional compliance option, the retail water supplier still has to report the water use target for its individual service area. The bill also includes reporting requirements in the 2010, 2015, and 2020 UWMPs. An agency that does not comply with SBx7-7 requirement will not be eligible for water related grant, or loan, from the state on and after July 16, 2016. However, if an agency that is not in compliance documents a plan and obtains funding approval to come into compliance then could become eligible for grants or loans.

### 2.4.2. SBx7-7 Compliance Options

DWR has established four compliance options for urban retail water suppliers to choose from. Each supplier is required to adopt one of the four options to comply with SBx7-7 requirements. The four options include:

- *Option 1* requires a simple 20% reduction from the baseline by 2020 and 10% by 2015.
- *Option 2* employs a budget-based approach by requiring an agency to achieve a performance standard based on three metrics
  - Residential indoor water use of 55 GPCD
  - Landscape water use commiserate with Model Landscape Ordinance
  - 10% reduction in baseline CII water use
- *Option 3* is to achieve 95% of the applicable state hydrologic region target as set forth in the State's 20x2020 Water Conservation Plan.
- *Option 4* requires the subtraction of Total Savings from the Base GPCD:
  - Total Savings includes indoor residential savings, meter savings, CII savings, and landscape and water loss savings.

### La Habra's Compliance Option Selection

With MWDOC's assistance in the calculation of the City's base daily per capita use and water use targets, the City has selected to comply with **Option 3**.

While each retail agency is required to choose a compliance option in 2010, DWR allows for the agency to change its compliance option in 2015. This will allow the City to determine its water use targets for Compliance Option 2 and 4 as it anticipates more data to be available for targets calculation in the future.

### **2.4.3. Regional Alliance**

Retail agencies can choose to meet the SBx7-7 targets on its own or several retail agencies may form a regional alliance and meet the water use targets as a region. The benefit for an agency that joins a regional alliance is that it has multiple means of meeting compliance.

The City is a member of the Orange County 20x2020 Regional Alliance formed by MWDOC. This regional alliance consists of 29 retail agencies in Orange County as described in MWDOC's 2010 RUWMP. The Regional Alliance Weighted 2015 target is 174.1 GPCD and 2020 target is 156.5 GPCD.

### **2.4.4. Baseline Water Use**

The first step to calculating an agency's water use targets is to determine its base daily per capita water use (baseline water use). This baseline water use is essentially the agency's gross water use divided by its service area population, reported in gallons per capita per day (GPCD). The baseline water use is calculated as a continuous 10-year average during a period, which ends no earlier than December 31, 2004 and no later than December 31, 2010. Agencies that recycled water made up 10% or more of 2008 retail water delivery can use up to a 15-year average for the calculation.

Recycled water use was less than 10% of the City's retail delivery in 2008; therefore, a 10-year instead of a 15-year rolling average was calculated. The City's baseline water use is **159.3 GPCD** which was obtained from the 10-year period July 1, 1995 to June 30, 2005.

Tables 2-6 and 2-7 provide the base period ranges used to calculate the baseline water use for the City as well as the service area population and annual water use data which the base daily per capita water use was derived. Data provided in Table 2-6 was used to calculate the continuous 10-year average baseline GPCD. Moreover, regardless of the compliance option adopted by the City, it will need to meet a minimum water use target of 5% reduction from a five-year baseline as calculated in Table 2-7.

The City's targets were calculated for each of the compliance methods and the most achievable option was selected, which must also meet the 5-year base period minimum water use reduction. The minimum water use reduction calculation is used to determine whether the City's 2015 and 2020 per capita water use targets meet the legislation's minimum water use reduction requirement. If the City's preferred Method 2020 target is

greater than the minimum reduction 2020 target, the 2020 target is reduced to match the minimum water use reduction per capita water use target. In the City’s case, the minimum target does not apply and the preferred Method 2020 target does not need to be reduced to match the minimum target.

**Table 2-6: Base Daily per Capita Water Use – 10-year range**

Highest Available Baseline [1]		Beginning	Ending
10 Year Avg		July 1, 1995	June 30, 2005

Fiscal Year Ending	Service Area Population	Gross Water Use (gallons per day)	Daily Per Capita Water Use
1996	54,824	9,006,522	164
1997	55,788	9,362,190	168
1998	56,837	8,503,461	150
1999	57,884	8,959,206	155
2000	59,307	9,995,234	169
2001	60,296	9,466,641	157
2002	61,082	10,007,286	164
2003	61,526	9,634,745	157
2004	61,743	9,876,231	160
2005	61,801	9,319,339	151
Base Daily Per Capita Water Use:			159.3

[1] The most recent year in base period must end no earlier than December 31, 2004, and no later than December 31, 2010. The base period cannot exceed 10 years unless at least 10 percent of 2008 retail deliveries were met with recycled water.

**Table 2-7: Base Daily per Capita Water Use – 5-year range**

Highest Available Baseline [2]		Beginning	Ending
5 Year Avg		July 1, 2003	June 30, 2008

Fiscal Year Ending	Service Area Population	Gross Water Use (gallons per day)	Daily Per Capita Water Use
2004	61,743	9,876,231	160
2005	61,801	9,319,339	151
2006	61,927	9,241,402	149
2007	61,908	9,690,898	157
2008	62,238	9,222,387	148
Base Daily Per Capita Water Use:			152.9

[2] The base period must end no earlier than December 31, 2007, and no later than December 31, 2010.

### 2.4.5. SBx7-7 Water Use Targets

Under Compliance Option 3, to achieve 95% of the South Coast hydrologic region target as set forth in the State’s 20x2020 Water Conservation Plan, the City’s 2015 interim

water use target is 150.4 GPCD and the 2020 final water use target is **141.6 GPCD** as summarized in Table 2-8.

**Table 2-8: Preferred Compliance Option and Water Use Targets**

	Baseline	2015 Target	2020 Target
Option 3 - Regional Target	159.3	150.4	141.6

#### **2.4.6. Water Use Reduction Plan**

The City is a member agency of MWDOC and a member of the Orange County 20x2020 Regional Alliance comprising 29 retail urban water suppliers in Orange County. The Orange County 20x2020 Regional Alliance was created to allow local water suppliers to meet their 20% by 2020 reduction targets under SBx7-7 on a regional basis through the successful implementation of region-wide programs.

The Orange County 20x2020 Regional Alliance will achieve its water use reduction by building on the existing collaboration between Metropolitan, MWDOC and the local agencies in Orange County. MWDOC as a regional wholesale water provider implements many of the urban water conservation Best Management Practices (BMPs) on behalf its member agencies. MWDOC’s conservation measures are detailed in MWDOC’s RUWMP Section 4, and Metropolitan’s conservation measures detailed in Metropolitan’s 2010 RUWMP Section 3.4.

Additionally, Metropolitan in collaboration with MWDOC and other Metropolitan member agencies is in the process of developing a Long Term Conservation Plan,<sup>1</sup> which seeks an aggressive water use efficiency target in order to achieve a 20% reduction in per capita water use by 2020 for the entire Metropolitan service area.

#### **Metropolitan Long Term Conservation Plan**

Metropolitan’s Long Term Conservation Plan will build on Metropolitan’s traditional programs of incentives, education and broad outreach while developing a new vision of water use efficiency by altering the public’s perspective on water through market transformation. The overarching goals of the Long Term Conservation Plan are as follows:

- Achieve the 2010 IRP conservation target – The target for new water savings through conservation is a regional per capita use of 159 gallons per day in 2015 and 141 gallons per day in 2020.
- Pursue innovation that will advance water conservation

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<sup>1</sup> Metropolitan Water District of Southern California Long Term Conservation Plan Working Draft Version 6 (November 30, 2010)

- Transform the public’s value of water within this region – A higher value on water within this region can lead to a conservation ethic that results in permanent change in water use behavior, earlier adoption of new water saving technologies, and transition towards climate-appropriate landscapes.

Achieving these goals requires the use of integrated strategies that leverage the opportunities within this region. It requires regional collaboration and sustained support for a comprehensive, multi-year program. It requires a commitment to pursue behavioral changes and innovation in technologies that evolve the market for water efficient devices and services. It requires strategic, focused implementation approaches that build from broad-based traditional programs. It requires that research be conducted to provide the basis for decisions. Lastly, it requires the support of local leaders to communicate a new value standard for water within this region. Metropolitan and its member agencies will implement the five strategies through a traditional program, a market acceleration program, and legislation and regulation. The five strategies include:

- **Use catalysts for market transformation.** Metropolitan and member agencies will pursue market transformation to affect the market and consumer choices for water efficient devices and services.
- **Encourage action through outreach and education.** Metropolitan and member agencies will provide outreach, educational workshops, and training classes through a range of media and formats which are essential to changing public perceptions of the value of water.
- **Develop regional technical capability.** Metropolitan and member agencies will conduct research, facilitate information sharing, and/or provide technical assistance to member agencies and retail agencies to develop technical capabilities within the region for water budgeting, advanced metering infrastructure, ordinances, retail rate structures, and other conservation measures.
- **Build strategic alliances.** Metropolitan and member agencies will form strategic alliances with partners to leverage resources, opportunities and existing momentum that support market transformation.
- **Advance water efficiency standards.** Metropolitan and member agencies will work to advance water efficiency codes and standards to increase efficiency and reduce water waste.

Successful market transformation requires the integrated use of all five strategies. It is implemented through three complementary programs: traditional and market acceleration programs, and legislation and regulation. When used together, these approaches can be catalytic and transform markets.

**Traditional Program:** A traditional program of incentives, outreach, education, and training will be used to provide a foundation of water savings, establish baseline

conditions, provide market data, and help determine devices and services that are primed for market acceleration. Implementation may include regional incentive programs, pilot programs, regional outreach, and research for a variety of devices and services.

**Market Acceleration Program:** A portion of Metropolitan’s resources will be used for market acceleration of devices and services that have potential for market change. Metropolitan will use a strategic focus for a specified time period to affect the market for a particular device or service. Tactics may include strategic outreach to manufacturers, retailers, contractors, and consumers; enhanced incentives; and collaboration on implementation.

**Legislation and Regulation:** Are important tools and often the primary means for ensuring future water savings from devices and services. Regulation, ordinances and codes establish conditions that will ensure a minimum level of water efficiency for a particular device or service in the future. Markets are dynamic, and the influences on manufactures, retailers, and consumers are constantly changing. Progress made on changing consumer preferences a market share of efficient products is protected through legislation and regulations requiring a minimum efficiency standard. This benefits both water agencies and manufactures who invest in bringing water-efficiency technologies to the market. Legislation and regulation are also effective exit strategies to discontinue traditional incentive programs so that resources can be redirected to new technologies and approaches.

Implementation of the combined programs, Traditional - Market Acceleration – Legislation and Regulation, will be closely coordinated between Metropolitan, member agencies and sub-agencies to maximize synergies. An adaptive management approach will be employed using research, implementation and evaluation to guide decisions on program activities and intensity.

## **Periodic Review**

A periodic review of conservation actions to measure progress towards the water savings goals will be an integral component of the effort. The review will include work that is completed or in progress. It will consider factors that have affected the results as well as the opportunities to improve cost effectiveness and water savings.

## **2.5. Demand Projections**

### **2.5.1. 25 Year Projections**

One of the main objectives of this UWMP is to provide an insight into the City’s future water demand outlook. As discussed above, currently, the City’s total water demand is 9,803 acre-feet comprising of 80% local and imported groundwater and 20% imported

water. As illustrated in Table 2-9, the City’s water demand is expected to increase to 10,040 acre-feet by 2035.

**Table 2-9: Current and Projected Water Demands (AFY)**

Water Supply Sources	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035-opt
MWDOC (Imported Treated Full Service (non-int.))	1,942	900	900	900	900	900
La Habra Basin	2,291	2,500	2,500	2,500	2,500	2,500
Cal Domestic	5,570	6,440	6,490	6,540	6,590	6,640
<b>Total</b>	<b>9,803</b>	<b>9,840</b>	<b>9,890</b>	<b>9,940</b>	<b>9,990</b>	<b>10,040</b>

The City’s 25-year demand projections for imported water shown in Table 2-10 are based on the projections provided by the City to MWDOC and CDWC. As the regional wholesale supplier of Orange County, MWDOC works in collaboration with each of its member agencies as well as with Metropolitan, its wholesaler, to develop demand projections for imported water (and also with the Orange County Water District (OCWD) to develop demand projections for local groundwater).

**Table 2-10: La Habra’s Demand Projections Provided to Wholesale Suppliers (AFY)**

Wholesales	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
MWDOC	900	900	900	900	900
CDWC	6,440	6,490	6,540	6,590	6,640

### 2.5.2. Low Income Household Projections

One significant change to the UWMP Act since 2005 is the requirement for retail water suppliers to include water use projections for single-family and multifamily residential housing needed for lower income and affordable households. This requirement is to assist the retail suppliers in complying with the requirement under Section 65589.7 of the Government Code that suppliers grant a priority for the provision of service to housing units affordable to lower income households. A lower income household is defined as a household earning 80% of the County of Orange’s median income or less.

In order to identify the planned lower income housing projects within its service area, DWR<sup>2</sup> recommends that retail suppliers may rely on Regional Housing Needs Assessment (RHNA) or Regional Housing Needs Plan information developed by the local council of governments, the California Department of Housing and Community Development.

The RHNA is an assessment process performed periodically as part of Housing Element and General Plan updates at the local level. Regional Council of Governments in California are required by the State Housing Element Law enacted in 1980 to determine the existing and projected regional housing needs for persons at all income levels. The RHNA quantifies the need for housing by income group within each jurisdiction during specific planning periods. The RHNA is used in land use planning, to prioritize local resource allocation and to help decide how to address existing and future housing needs. The RHNA consists of two measurements: 1) existing need for housing, and 2) future need for housing.

The current RHNA planning period is January 1, 2006 to June 30, 2014 completed by the Southern California Association of Governments (SCAG) in 2007. The next RHNA which will cover the planning period of January 1, 2011 to September 30, 2021 is not expected to be completed until fall of 2012; therefore, the 2007 RHNA will be used for the purpose of this 2010 UWMP.

Based on the 2007 Final Regional Housing Need Allocation Plan<sup>3</sup>, the projected housing need for low and very low income households (hereafter referred to as low-income) in the City of La Habra are 17.2% and 20.7%, respectively or 37.9% combined.

Therefore, from inference, it is estimated that approximately 37.9% of the projected water demands within the City's service area will be for housing needed for low income households. Table 2-11 provides a breakdown of the projected water needs for low income single family and multifamily units. The projected water demands shown here represent 37.9% of the projected water demand by customer type for single-family and multifamily categories provided in Table 2-4 above. For example, the total single family residential demand is projected to be 5,702 AFY in 2015 and 5,818 AFY in 2035. The projected water demands for housing needed for single family low income households are 2,161 and 2,205AFY for 2015 and 2035, respectively.

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<sup>2</sup> California Department of Water Resources, Guidebook to Assist Urban Water Suppliers to Prepare a 2010 UWMP, Final (March 2011)

<sup>3</sup> Southern California Association Governments, Final Regional Housing Need Allocation Plan for Jurisdictions within the Six County SCAG Region (July 2007)

**Table 2-11: Projected Water Demands for Housing Needed for Low Income Households (AFY)**

Water Use Sector	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Retail Demand	9,840	9,890	9,940	9,990	10,040
Total Residential Demand	7,311	7,348	7,414	7,422	7,460
<b><i>Total Low Income Households Demand</i></b>	<b><i>2,771</i></b>	<b><i>2,785</i></b>	<b><i>2,810</i></b>	<b><i>2,813</i></b>	<b><i>2,827</i></b>
SF Residential Demand - Total	5,702	5,731	5,789	5,789	5,818
<b><i>SF Residential Demand - Low Income Households</i></b>	<b><i>2,161</i></b>	<b><i>2,172</i></b>	<b><i>2,194</i></b>	<b><i>2,194</i></b>	<b><i>2,205</i></b>
MF Residential Demand - Total	1,609	1,618	1,626	1,634	1,642
<b><i>MF Residential Demand - Low Income Households</i></b>	<b><i>610</i></b>	<b><i>613</i></b>	<b><i>616</i></b>	<b><i>619</i></b>	<b><i>622</i></b>

## 3. Water Sources and Supply Reliability

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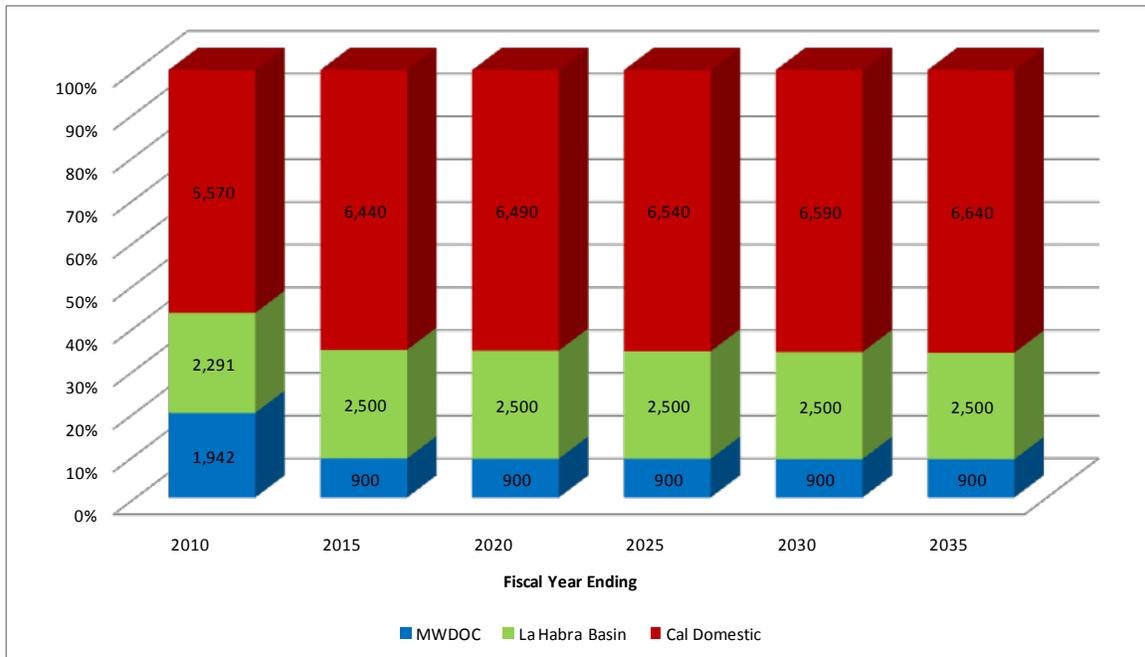
### 3.1. Overview

The City has three primary sources of water supply: imported groundwater from the Main San Gabriel Basin through CDWC, local groundwater from the La Habra Basin, and imported water from Metropolitan through MWDOC.

Imported groundwater represents 57 percent of the City's supply portfolio. It is purchased from CDWC, a mutual water company and wholesaler which provides groundwater from the Main San Gabriel Basin to each of its member agencies who own and/or lease stock in the company. The Main San Gabriel Basin is an adjudicated groundwater basin managed by the Main San Gabriel Basin Watermaster. The Main San Gabriel Basin Watermaster establishes the Basin Operating Safe Yield, the amount of groundwater that can be safely extracted annually. The Operating Safe Yield is then allocated to each groundwater producer proportionally to water rights or the number of shares owned.

The City also owns a groundwater well (Idaho Street Well) which produces groundwater supply locally from the La Habra Basin. Local groundwater represents 23 percent of the City's supply portfolio. The remainder of the water supply required to meet The City's demands is imported from Metropolitan via MWDOC. Imported water supply from Metropolitan makes up 20 percent of total supply. Metropolitan imported water delivered to the City comes from the Robert B. Diemer Filtration Plant located north of Yorba Linda. Typically, the Diemer Filtration Plant receives a blend of Colorado River water from Lake Mathews through the Metropolitan Lower Feeder and State Water Project (SWP) water through the Yorba Linda Feeder. The City's imported supply is non-interruptible water which is treated firm supply that is available year round.

The City is committed to reducing dependency on water imported from Metropolitan by implementing improvements to the Idaho Street Well and the CDWC supply system. The City projects that by 2015, the City will increase imported CDWC supply to 6,440 AFY (65 percent). The Idaho Street Well along with a second well in La Habra basin will increase production to 2,500 AFY (25 percent). This will decrease the City's dependence on the more expensive Metropolitan supply down to 900 AFY (9 percent). Figure 3-1 provides a projection of the City's water supply sources for the next 25 years. The imported water supply numbers shown here represent only the amount of supplies projected to meet demands and not the full supply capacity.



**Figure 3-1: Current and Projected Water Supplies (AFY)**

The following sections provide a detailed discussion of the City’s water sources as well as projections of the City’s future water supply portfolio for the next 25 years. Moreover, this section compares projected supply and demand under various hydrological conditions to determine the City’s supply reliability for the 25 year planning horizon. This section satisfies the requirements of § 10631 (b) and (c), and 10635 of the Water Code.

## 3.2. Imported Water

### 3.2.1. Imported Groundwater Supply (CDWC)

Imported groundwater supply meets over 50 percent of the City’s demands. The City obtains imported groundwater supply from CDWC, a mutual water company. The CDWC provides groundwater from the Main San Gabriel Basin to each of its member agencies who own and/or lease stock in the company. The City currently owns 2,329.25 shares of CDWC stock (approximately 3,377 AF), and typically leases additional water rights on an annual basis. The City recently purchased 360 shares previously owned by Unocal (Chevron) to increase its water reliability and has future plans to obtain an additional 760 AFY in water rights in the Main San Gabriel Basin. However, the City’s maximum available intake from CDWC is 7,200 AFY due to the constraints of the CDWC water system.

## **Main San Gabriel Basin**

The Main San Gabriel Basin lies in eastern Los Angeles County. The hydrologic basin or watershed coincides with a portion of the upper San Gabriel River watershed, and the aquifer or groundwater basin underlies most of the San Gabriel Valley.

Surface area of the groundwater basin is approximately 167 square miles and has a fresh water storage capacity of the basin is estimated to be about 8.6 million acre-feet.

The physical groundwater basin is divided into two main parts, the Main Basin and the Puente Subbasin. The Puente Subbasin, lying in the southeast portion is hydraulically connected to the Main Basin. However, it is not the legal jurisdiction of the Main San Gabriel Basin Watermaster, and is thus considered a separate entity for management purposes.

## **Main San Gabriel Basin Judgment**

Rapid urbanization in the San Gabriel Valley in the 1940s caused an increased demand for groundwater drawn from the Main San Gabriel Basin from the Upper Area users. This resulted in the decrease in available water supply for the Lower Area and downstream users. In 1968, at the request of producers, the Upper San Gabriel Municipal Water District filed a complaint that would adjudicate water rights in the Basin and would bring all Basin producers under control of one governing body. The final result was the entry of the Main San Gabriel Basin Judgment in 1973.

The Judgment defined the water rights of 190 original parties to the legal action. It created a new governing body, the Main San Gabriel Basin Watermaster, and described a program for management of water in the Basin. The Main San Gabriel Basin Watermaster manages and controls the withdrawal and replenishment of water supplies in the Basin. It determines annually the Operating Safe Yield (the amount of groundwater that can safely be extracted) for the succeeding fiscal year, and notifies the pumpers of their shares thereof.<sup>4</sup>

Under the terms of the Main San Gabriel Basin Judgment all rights to the diversion of surface water and production of groundwater within the Main Basin and its Relevant Watershed were adjudicated. The Main Basin Judgment does not restrict the quantity of water which Parties may extract from the Main Basin. Rather, it provides a means for replacing with Supplemental Water all annual extractions in excess of a Party's annual right to extract water. The Main Basin Watermaster annually establishes an Operating Safe Yield for the Main Basin which is then used to allocate to each Party its portion of

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<sup>4</sup> <http://www.watermaster.org/projects.html>

the Operating Safe Yield which can be produced free of a Replacement Water Assessment. If a producer extracts water in excess of his right under the annual Operating Safe Yield, it must pay an assessment for Replacement Water, which is sufficient to purchase one acre-foot of Supplemental Water to be spread in the basin for each acre-foot of excess production. All water production is metered and is reported quarterly to the Main Basin Watermaster.

In addition to Replacement Water Assessments, the Main Basin Watermaster levies an Administration Assessment to fund the administration of the Main Basin management program under the Main Basin Judgment and a Make-up Obligation Assessment in order to fulfill the requirements for any make-up Obligation under the Long Beach Judgment and to supply fifty percent of the administration costs of the River Watermaster service. The Main Basin Watermaster levies an In-lieu Assessment and may levy special Administration Assessments.

Water rights under the Main Basin Judgment are transferable by lease or purchase so long as such transfers meet the requirements of the Judgment. There is also provision for Cyclic Storage Agreements by which Parties and non-parties may store imported supplemental water in the Main Basin under such agreements with the Main Basin Watermaster pursuant to uniform rules and conditions and Court approval.

The Main Basin Watermaster has entered into a Cyclic Storage Agreement with each of the three municipal water districts. One is with Metropolitan and the USGVMWD, which permits Metropolitan to deliver and store imported water in the Main Basin in an amount not to exceed 100,000 acre-feet for future Replacement Water use. The second Cyclic Storage Agreement is with Three Valleys Municipal Water District (TVMWD) and permits Metropolitan to deliver and store 40,000 acre-feet for future Replacement Water use. The third is with SGVMWD and contains generally the same conditions as the agreement with Metropolitan except that the stored quantity is not to exceed 40,000 acre-feet. CDWC has a Cyclic Storage account and is allowed to store a maximum of 15,000 acre-feet at any given time. As of June 30, 2004 CDWC had 1,133.61 acre-feet in its Cyclic Storage account.

### **Projected Imported Supplies from CDWC**

Implementation of CDWC's Capital Improvement Program was completed two years ago which increased CDWC capacity to deliver Main San Gabriel Basin water from 20,000 to 32,000 AFY. The project increased the availability of additional water supply to the City, Brea, and the Southwest Suburban Water Company.

Unocal (Chevron) previously owned a portion of CDWC water shares, and has recently offered the City a portion of these excess water shares within CDWC, due to a

development project being under taken. The City has purchased and now own these CDWC water shares.

Within the San Gabriel Water Basin, there is 200,000 AF of production water rights. Of that amount, there is nearly 12,000 AF of leased water rights that are being used. The City's objective is to acquire an additional 760 AF of the leased water rights. In doing this, the City's overall water supply reliability, including the La Habra Water Basin will increase to over 71%. The remaining water supply would be supplied by MWDOC and Leased and/or Replenishment Water in San Gabriel Water Basin.

### **3.2.2. Imported Supply (MWDOC)**

The City relies on 1,942 AFY of imported water wholesaled by Metropolitan through MWDOC to supplement local and imported groundwater. Imported water represents approximately 20% of the City's total water supply and is anticipated to reduce to 9% in future years. Metropolitan's principal sources of water originate from two sources - the Colorado River via the Colorado Aqueduct and the Lake Oroville watershed in Northern California through the State Water Project (SWP). This water is treated at the Robert B. Diemer Filtration Plant located north of Yorba Linda. Typically, the Diemer Filtration Plant receives a blend of Colorado River water from Lake Mathews through the Metropolitan Lower Feeder and SWP water through the Yorba Linda Feeder.

In the 1920's, three cities in Orange County (Anaheim, Fullerton, and Santa Ana), along with ten cities in Los Angeles County (Los Angeles, Long Beach, Santa Monica, Burbank, Glendale, Pasadena, San Fernando, Compton, Beverly Hills, and Torrance) formed the Metropolitan Water District of Southern California (Metropolitan).

In 1951 MWDOC was formed by Orange County voters for the purpose of annexing to Metropolitan in order to acquire supplemental water supplies. The acquisition of additional water supplies was necessary for the continued economic growth of these cities. Subsequent annexations to MWDOC have brought the total population within the agency to approximately 82 percent of the County's total population.

Thirty member agencies purchase water from MWDOC for municipal, industrial, agricultural, and groundwater replenishment purposes.

In 1954 the City, together with the City of Brea, constructed a twenty inch water transmission line from Metropolitan's Orange County Feeder (just south of the Orange County Reservoir) with a maximum capacity of 5,500 gallons per minute (GPM). This connection was designated Orange County-4 (OC-4). The City is the primary stakeholder for this line; however, the City of Brea and the Collier Chemical Company have capacity rights. In 1955, the City constructed its second facility for taking Metropolitan water on the Lower Feeder; this connection is designated as Orange County-45 (OC-45) with a capacity of 5,400 GPM. A second turnout on the Lower

Feeder was also provided but it was relinquished to the La Habra Heights County Water District.

### **Projected Supplies from Metropolitan/MWDOC**

MWDOC as the regional wholesale supplier of Orange County works in collaboration with each of its member agencies as well as with Metropolitan, its wholesaler to develop demand projections for imported water. The 25-year demand projections for imported water shown in Table 3-4 are based on the projections provided by the City to MWDOC. In 2010, MWDOC supplies 1,942 AF to the City. The projections of 900 AFY are based on the plan to expand local groundwater production and purchase more groundwater from CDWC.

#### **3.2.3. Metropolitan's 2010 Regional Urban Water Management Plan**

Metropolitan's 2010 Regional Urban Water Management Plan (RUWMP) reports on its water reliability and identifies projected supplies to meet the long-term demand within its service area. It presents Metropolitan's supply capacities from 2015 through 2035 under the three hydrologic conditions specified in the Act: single dry-year, multiple dry-years, and average year.

#### **Colorado River Supplies**

Colorado River Aqueduct supplies include supplies that would result from existing and committed programs and from implementation of the Quantification Settlement Agreement (QSA) and related agreements to transfer water from agricultural agencies to urban uses. Colorado River transactions are potentially available to supply additional water up to the CRA capacity of 1.25 MAF on an as-needed basis.

#### **State Water Project Supplies**

Metropolitan's State Water Project (SWP) supplies have been impacted in recent years by restrictions on SWP operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fishery Service issued on December 15, 2008 and June 4, 2009, respectively. In dry, below-normal conditions, Metropolitan has increased the supplies received from the California Aqueduct by developing flexible Central Valley/SWP storage and transfer programs. The goal of the storage/transfer programs is to develop additional dry-year supplies that can be conveyed through the available Banks pumping capacity to maximize deliveries through the California Aqueduct during dry hydrologic conditions and regulatory restrictions.

In June 2007, Metropolitan's Board approved a Delta Action Plan that provides a framework for staff to pursue actions with other agencies and stakeholders to build a sustainable Delta and reduce conflicts between water supply conveyance and the

environment. The Delta action plan aims to prioritize immediate short-term actions to stabilize the Delta while an ultimate solution is selected, and mid-term steps to maintain the Bay-Delta while the long-term solution is implemented.

State and federal resource agencies and various environmental and water user entities are currently engaged in the development of the Bay Delta Conservation Plan (BDCP), which is aimed at addressing the basic elements that include the Delta ecosystem restoration, water supply conveyance, and flood control protection and storage development. In evaluating the supply capabilities for the 2010 RUWMP, Metropolitan assumed a new Delta conveyance is fully operational by 2022 that would return supply reliability similar to 2005 condition, prior to supply restrictions imposed due to the Biological Opinions.

### **Storage**

Storage is a major component of Metropolitan's dry year resource management strategy. Metropolitan's likelihood of having adequate supply capability to meet projected demands, without implementing its Water Supply Allocation Plan (WSAP), is dependent on its storage resources. In developing the supply capabilities for the 2010 RUWMP, Metropolitan assumed a simulated median storage level going into each of five-year increments based on the balances of supplies and demands.

### **Supply Reliability**

Metropolitan evaluated supply reliability by projecting supply and demand conditions for the single- and multi-year drought cases based on conditions affecting the SWP (Metropolitan's largest and most variable supply). For this supply source, the single driest-year was 1977 and the three-year dry period was 1990-1992. Metropolitan's analyses are illustrated in Tables 3-1, 3-2, and 3-3 which correspond to Metropolitan's 2010 RUWMP's Tables 2-11, 2-9 and 2-10, respectively. These tables show that the region can provide reliable water supplies not only under normal conditions but also under both the single driest year and the multiple dry year hydrologies.

**Table 3-1: Metropolitan Average Year Projected Supply Capability and Demands for 2015 to 2035**

Forecast Year	2015	2020	2025	2030	2035
<b>Average Year Supply Capability<sup>1</sup> and Projected Demands Average of 1922-2004 Hydrologies (acre-feet per year)</b>					
<b>Current Programs</b>					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct <sup>2</sup>	1,550,000	1,629,000	1,763,000	1,733,000	1,734,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	1,507,000	1,529,000	1,472,000	1,432,000	1,429,000
Aqueduct Capacity Limit <sup>4</sup>	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
<b>Capability of Current Programs</b>	<b>3,485,000</b>	<b>3,810,000</b>	<b>4,089,000</b>	<b>3,947,000</b>	<b>3,814,000</b>
<b>Demands</b>					
Firm Demands of Metropolitan	1,826,000	1,660,000	1,705,000	1,769,000	1,826,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
<b>Total Demands on Metropolitan<sup>5</sup></b>	<b>2,006,000</b>	<b>1,933,000</b>	<b>1,985,000</b>	<b>2,049,000</b>	<b>2,106,000</b>
<b>Surplus</b>	<b>1,479,000</b>	<b>1,877,000</b>	<b>2,104,000</b>	<b>1,898,000</b>	<b>1,708,000</b>
<b>Programs Under Development</b>					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	382,000	383,000	715,000	715,000	715,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit <sup>4</sup>	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
<b>Capability of Proposed Programs</b>	<b>588,000</b>	<b>689,000</b>	<b>1,051,000</b>	<b>1,051,000</b>	<b>1,051,000</b>
<b>Potential Surplus</b>	<b>2,067,000</b>	<b>2,566,000</b>	<b>3,155,000</b>	<b>2,949,000</b>	<b>2,759,000</b>

<sup>1</sup> Represents Supply Capability for resource programs under listed year type.

<sup>2</sup> California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

<sup>3</sup> Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

<sup>4</sup> Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

<sup>5</sup> Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

**Table 3-2: Metropolitan Single-Dry Year Projected Supply Capability and Demands for 2015 to 2035**

**Single Dry-Year  
Supply Capability<sup>1</sup> and Projected Demands  
Repeat of 1977 Hydrology  
(acre-feet per year)**

Forecast Year	2015	2020	2025	2030	2035
<b>Current Programs</b>					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct <sup>2</sup>	522,000	601,000	651,000	609,000	610,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	1,416,000	1,824,000	1,669,000	1,419,000	1,419,000
Aqueduct Capacity Limit <sup>4</sup>	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
<b>Capability of Current Programs</b>	<b>2,457,000</b>	<b>2,782,000</b>	<b>2,977,000</b>	<b>2,823,000</b>	<b>2,690,000</b>
<b>Demands</b>					
Firm Demands of Metropolitan	1,991,000	1,889,000	1,921,000	1,974,000	2,039,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
<b>Total Demands on Metropolitan<sup>5</sup></b>	<b>2,171,000</b>	<b>2,162,000</b>	<b>2,201,000</b>	<b>2,254,000</b>	<b>2,319,000</b>
<b>Surplus</b>	<b>286,000</b>	<b>620,000</b>	<b>776,000</b>	<b>569,000</b>	<b>371,000</b>
<b>Programs Under Development</b>					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	556,000	556,000	700,000	700,000	700,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit <sup>4</sup>	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
<b>Capability of Proposed Programs</b>	<b>762,000</b>	<b>862,000</b>	<b>1,036,000</b>	<b>1,036,000</b>	<b>1,036,000</b>
<b>Potential Surplus</b>	<b>1,048,000</b>	<b>1,482,000</b>	<b>1,812,000</b>	<b>1,605,000</b>	<b>1,407,000</b>

<sup>1</sup> Represents Supply Capability for resource programs under listed year type.

<sup>2</sup> California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

<sup>3</sup> Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

<sup>4</sup> Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

<sup>5</sup> Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

**Table 3-3: Metropolitan Multiple-Dry Year Projected Supply Capability and Demands for 2015 to 2035**

**Multiple Dry-Year  
Supply Capability<sup>1</sup> and Projected Demands  
Repeat of 1990-1992 Hydrology  
(acre-feet per year)**

Forecast Year	2015	2020	2025	2030	2035
<b>Current Programs</b>					
In-Region Storage and Programs	246,000	373,000	435,000	398,000	353,000
California Aqueduct <sup>2</sup>	752,000	794,000	835,000	811,000	812,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	1,318,000	1,600,000	1,417,000	1,416,000	1,416,000
Aqueduct Capacity Limit <sup>4</sup>	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
<b>Capability of Current Programs</b>	<b>2,248,000</b>	<b>2,417,000</b>	<b>2,520,000</b>	<b>2,459,000</b>	<b>2,415,000</b>
<b>Demands</b>					
Firm Demands of Metropolitan	2,056,000	1,947,000	2,003,000	2,059,000	2,119,000
IID-SDCWA Transfers and Canal Linings	180,000	241,000	280,000	280,000	280,000
<b>Total Demands on Metropolitan<sup>5</sup></b>	<b>2,236,000</b>	<b>2,188,000</b>	<b>2,283,000</b>	<b>2,339,000</b>	<b>2,399,000</b>
<b>Surplus</b>	<b>12,000</b>	<b>229,000</b>	<b>237,000</b>	<b>120,000</b>	<b>16,000</b>
<b>Programs Under Development</b>					
In-Region Storage and Programs	162,000	280,000	314,000	336,000	336,000
California Aqueduct	242,000	273,000	419,000	419,000	419,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit <sup>4</sup>	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
<b>Capability of Proposed Programs</b>	<b>404,000</b>	<b>553,000</b>	<b>733,000</b>	<b>755,000</b>	<b>755,000</b>
<b>Potential Surplus</b>	<b>416,000</b>	<b>782,000</b>	<b>970,000</b>	<b>875,000</b>	<b>771,000</b>

<sup>1</sup> Represents Supply Capability for resource programs under listed year type.

<sup>2</sup> California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

<sup>3</sup> Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

<sup>4</sup> Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

<sup>5</sup> Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

### 3.2.4. La Habra’s Imported Water Supply Projections

Based on Metropolitan’s supply projections that it will be able to meet full service demands under all three hydrologic scenarios, the City projects that it would also be able to meet its customers’ demands under these conditions.

California Water Code section 10631 (k) requires the wholesale agency to provide information to the urban retail water supplier for inclusion in its UWMP that identifies and quantifies the existing and planned sources of water available from the wholesale agency. Table 3-4 indicates the wholesaler’s water availability projections by source for the next 25 years as provided to the City by CDWC and MWDOC. The water supply projections shown in Table 3-4 represent the amount of supplies projected to meet demands. They do not represent the full supply capacity.

**Table 3-4: Wholesaler Identified & Quantified Existing and Planned Sources of Water (AFY)**

Wholesaler Sources	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
MWDOC	900	900	900	900	900
CDWC	6,440	6,490	6,540	6,590	6,640

## 3.3. Groundwater

### 3.3.1. Local Groundwater Supply (La Habra Basin)

The City extracts water from the non–adjudicated La Habra Basin. The estimated long–term extraction supply is 4,500 AFY; however, the historical City extraction rate is approximately 1,100 AFY (averaged over the past 15 years) and the present extraction rate is approximately 2,290 AFY (averaged over the past 2 years), are both considerably less than the potential yield. Thus, the La Habra Basin has not been identified to be in overdraft. In fact, the City has increased groundwater supply by increasing the capacity of the existing Idaho Street Well in recent years and has plans to add a well in the basin to increase local groundwater production.

The La Habra Basin does not currently have a Groundwater Management Plan. However, numerous basin studies have been conducted, including the following:

- City of La Habra, Summary Report and Evaluation of Exploratory Drilling in the La Habra Ground Water Basin, July 1971
- Preliminary Well Report (Drilling & Testing), July 1981
- Present and Future Water Supplies for the City of La Habra, California, April 1991
- La Habra Water System Master Plan, October 2002

This section describes the groundwater basin's geology, the City's historical production and projected production from the La Habra Basin.

### **La Habra Groundwater Basin Geology**

From a structural geology standpoint, the La Habra Basin area is dominated by the northwest trending La Habra Syncline (a U-shaped down-fold) which is bounded on the north by the Puente Hills and on the south by the Coyote Hills. The fold is a naturally occurring trough, or valley, where significant quantities of groundwater have accumulated over the past 150,000 years. The La Habra Groundwater Basin consists of four major formations, which include bearing zones or aquifer units. These are the Alluvium, the La Habra Formation, the Coyote Hills Formation, and the San Pedro Formation.

The Alluvium is found along the surface stream courses and is composed of unconsolidated silt, clay, sand, and gravel. Alluvium thickness ranges from a few feet to over 100 feet. The La Habra Formation lies below the Alluvium, but it can be seen where it is uplifted and exposed in both the Coyote Hills and in the Puente Hills. The La Habra Formation consists of mudstone, siltstone, sandstone, and conglomerate. It ranges in thickness from 300 to nearly 1,200 feet. Water levels of wells in the La Habra Formation have been measured between 100 and 200 feet below ground surface across the La Habra Basin area.

Immediately underneath the La Habra Formation lies the Coyote Hills Formation. The Coyote Hills Formation is made up of mudstone interbedded with sandstone and pebbly conglomerate, which are 300 to 1,200 feet thick. Water levels in wells of the Coyote Hills Formation have been measured at about 120 feet below the ground surface.

The deepest water bearing unit is the San Pedro formation. The San Pedro formation is comprised of cemented and non-cemented sands, silty sandstone, sandy conglomerate, and pebbly conglomerates. The San Pedro Formation ranges between 200 and 400 feet in thickness and produces the best quality groundwater of all the water bearing zones. Pressure levels of confined groundwater in wells of the San Pedro aquifer zone range from about 100 to 200 feet below ground surface.

### **Extraction Rate, Groundwater Recharge, and Expected Yield**

From 1922 to the early 1940's water levels in the La Habra Basin declined markedly because of increased water extraction and deficient rainfall. Water levels rose in the mid 1940's and then declined again in the late 1940's reaching the lowest recorded levels in the middle to late 1950's. From 1960 to 1977, water levels increased in elevation because of a significant decrease in water extraction. Based upon recorded stream runoff yields, it is estimated that approximately 2,100 acre-feet of water would percolate during the

average year. For direct percolation of rainfall and resulting runoff within the valley itself, it is estimated that an average of 1,600 AFY would percolate. Thus, the groundwater recharge is estimated at approximately 3,700 AFY. Subsurface flow estimates are about 5,500 AFY. Therefore, it is estimated that the average long-term supply that can be extracted without severe or sustained changes in the amount of groundwater in storage, is approximately 4,500 AFY (an average of the two values).

**Table 3-5: Maximum Safe Groundwater Yield (AFY)**

Basin Name	Maximum Safe Yield (AFY)
La Habra Basin	4,500

### 3.3.2. Historical Groundwater Production

In 1977 the City commenced an exploration program for local groundwater production, in which three test wells were drilled. Only one test well was considered satisfactory to complete implementation of production facilities. This well was placed into service in 1984 and continued service until it collapsed in January of 1997. In August that same year, the Department of Health Services, Drinking Water Field Operation Branch, Santa Ana District approved the well construction plans for the Idaho Street Well, which is located 30 feet southwest of the original well. The Idaho Street Well is currently the only production of potable domestic water within the boundaries of the City. Additionally, in December of 1994 the City Council authorized the drilling of two new wells, (one test well and one production well). Initial water quality tests indicated that the water produced by these wells was not suitable for potable usage because it contained high sodium and total dissolved solids (TDS). As a result, the City gave consideration to treatment and blending for potable use and/or blending for irrigation purposes. After analysis, these alternatives were not considered cost-effective.

Current groundwater production by the City at the Idaho Street Well generates approximately 2,291 AFY in 2010, which is only about 51 percent of the basin’s potential yield. In the past five years, local groundwater production ranged from 1,181 AFY in 2006 to 2,296 AFY in 2009 as summarized in Table 3-6.

**Table 3-6: Amount of Groundwater Pumped in the Past 5 Years (AFY)**

Basin Name(s)	Fiscal Year Ending				
	2005	2006	2007	2008	2009
La Habra Basin	1,222	1,181	1,268	1,609	2,296
<b>% of Total Water Supply</b>	<b>12%</b>	<b>11%</b>	<b>12%</b>	<b>15%</b>	<b>21%</b>

### 3.3.3. Projections of Groundwater Production

Additional development of groundwater resources could significantly increase the available water supply for the City. Full development of the La Habra Basin could eventually supply up to 40 percent of the City’s current water demands.

Recently the City has increased the production capacity for the Idaho Street Well and added an additional well at La Bonita Park which has increased total production in the La Habra Basin from 1,200 to 2,500 AFY. This will increase the City’s reliance on local sources from 11 to 25 percent of total demands starting in 2015. The amount of groundwater projected to be pumped from the La Habra Basin is shown in Table 3-7. Details on the Idaho Street Well improvements are provided in Section 7.

**Table 3-7: Amount of Groundwater Projected to be Pumped (AFY)**

Basin Name(s)	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035-opt
La Habra Basin	2,291	2,500	2,500	2,500	2,500	2,500
<b>% of Total Water Supply</b>	<b>23%</b>	<b>23%</b>	<b>23%</b>	<b>23%</b>	<b>23%</b>	<b>23%</b>

### 3.4. Recycled Water

The City does not currently have recycled water; however, a Recycled Water Study is underway to investigate the feasibility of using recycled water in the service area. A more detailed description of this study can be found in Section 6.

### 3.5. Supply Reliability

#### 3.5.1. Overview

It is required that every urban water supplier assess the reliability to provide water service to its customers under normal, dry, and multiple dry water years. The City depends on a combination of imported and local supplies to meet its water demands and has taken numerous steps to ensure it has adequate supplies. Development of local and imported groundwater, future recycled water system, and desalination opportunities augment the reliability of the imported water system. There are various factors that may impact reliability of supplies such as legal, environmental, water quality and climatic which are discussed below. The water supplies are projected to meet full-service demands; Metropolitan’s 2010 RUWMP finds that Metropolitan is able to meet with existing supplies, full-service demands of its member agencies starting 2015 through 2035 during normal years, single dry year, and multiple dry years.

Metropolitan’s 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands at the retail level

under all foreseeable hydrologic conditions from 2015 through 2035. The foundation of Metropolitan’s resource strategy for achieving regional water supply reliability has been to develop and implement water resources programs and activities through its IRP preferred resource mix. This preferred resource mix includes conservation, local resources such as water recycling and groundwater recovery, Colorado River supplies and transfers, SWP supplies and transfers, in-region surface reservoir storage, in-region groundwater storage, out-of-region banking, treatment, conveyance and infrastructure improvements. MWDOC is reliant on Metropolitan for all of its imported water. With the addition of planned supplies under development, Metropolitan’s 2010 RUWMP finds that Metropolitan will be able to meet full-service demands from 2015 through 2035, even under a repeat of the worst drought. Table 3-8 shows the reliability of the wholesaler’s supply for single dry year and multiple dry year scenarios.

**Table 3-8: Wholesaler Supply Reliability - % of Normal AFY**

Wholesaler Sources	Single Dry	Multiple Dry Water Years		
		Year 1	Year 2	Year 3
MWDOC	100%	100%	100%	100%

In addition to meeting full-service demands from 2015 through 2035, Metropolitan projects reserve and replenishment supplies to refill system storage. MWDOC’s 2010 RUWMP states that it will meet full-service demands to its customers from 2015 through 2035. Table 3-9 shows the basis of water year data used to predict drought supply availability.

**Table 3-9: Basis of Water Year Data**

Water Year Type	Base Year	Base Year	Base Year
Normal Water Year	Average 1922-2004		
Single-Dry Water Year	1977		
Multiple-Dry Water Years	1990	1991	1992

### 3.5.2. Factors Impacting Reliability

The Act requires a description of the reliability of the water supply and vulnerability to seasonal or climatic shortage. The City relies on import supplies provided by Metropolitan through MWDOC. The following are some of the factors identified by Metropolitan that may have an impact on the reliability of Metropolitan supplies.

**Environment** – Endangered species protection needs in the Sacramento-San Joaquin River Delta have resulted in operational constraints to the SWP system. The Bay-Delta’s declining ecosystem caused by agricultural runoff, operation of water pumps and other

factors has led to historical restrictions in SWP supply deliveries. SWP delivery restrictions due to the biological opinions resulted in the loss of about one-third of the available SWP supplies in 2008.

**Legal** – Listings of additional species under the Endangered Species Act and new regulatory requirements could impact SWP operations by requiring additional export reductions, releases of additional water from storage or other operational changes impacting water supply operations. Additionally, the Quantification Settlement Agreement has been challenged in courts and may have impacts on the Imperial Irrigation District and San Diego County Water Authority transfer. If there are negative impacts, San Diego could become more dependent on the Metropolitan supplies.

**Water Quality** –Water imported from the Colorado River Aqueduct (CRA) contains high level of salts. The operational constraint is that this water needs to be blended with SWP supplies to meet the target salinity of 500 mg/L of total dissolved solids (TDS). Another water quality concern is related to the quagga mussel. Controlling the spread and impacts of quagga mussels within the Colorado River Aqueduct requires extensive maintenance and results in reduced operational flexibility.

**Climate Change** – Changing climate patterns are expected to shift precipitation patterns and affect water supply. Unpredictable weather patterns will make water supply planning even more challenging. The areas of concern for California include the reduction in Sierra Nevada snowpack, increased intensity and frequency of extreme weather events, and rising sea levels causing increased risk of levee failure.

Legal, environmental, and water quality issues may have impacts on Metropolitan supplies. It is felt, however, that climatic factors would have more of an impact than the others. Climatic conditions have been projected based on historical patterns; however severe pattern changes may occur in the future. Table 3-10 shows the factors resulting in inconsistency of supply.

**Table 3-10: Factors Resulting in Inconsistency of Supply**

Name of Supply	Legal	Environmental	Water Quality	Climatic
State Water Project	X	X		
Colorado River			X	X

These and other factors are addressed in greater detail in Metropolitan’s 2010 RUWMP.

**3.5.2.1. Water Quality**

**Imported Water** - Metropolitan is responsible for providing water of a high quality throughout its service area. The water that Metropolitan delivers is tested both for currently regulated contaminants and for additional contaminants of concern as over 300,000 water quality tests are conducted each year to regulate the safety of its waters. Metropolitan’s supplies originate primarily from the Colorado River Aqueduct (CRA) and from the State Water Project (SWP). A blend of these two sources, proportional to each year’s availability of the source, is then delivered throughout Metropolitan’s service area.

Metropolitan’s primary sources face individual water quality issues of concern. The CRA water source contains a higher level of total dissolved solids (TDS) and a lower level of organic material while the SWP contains a lower TDS level while its level of organic materials is much higher, lending to the formation of disinfection byproducts. To remediate the CRA’s high level of salinity and the SWP’s high level of organic materials, Metropolitan has been blending CRA water with SWP supplies as well as implementing updated treatment processes to decrease the disinfection byproducts. In addition, Metropolitan has been engaged in efforts to protect its Colorado River supplies from threats of uranium, perchlorate, and chromium VI while also investigating the potential water quality impact of emerging contaminants, N-nitrosodimethylamine (NDMA) and pharmaceuticals and personal care products (PPCPs). Metropolitan has assured its ability to overcome the above mentioned water quality concerns through its protection of source waters, implementation of renovated treatment processes, and blending of its two sources. While unforeseeable water quality issues could alter reliability, Metropolitan’s current strategies ensure the deliverability of high quality water.

**Groundwater** - The local groundwater basin is impaired with total dissolved solids, hydrogen sulfide, iron, and manganese that is treated to improve water quality and comply with State Health Standards.

Table 3-11 shows the impact in acre-feet per year that water quality would have on supply.

**Table 3-11: Water Quality – Current and Projected Water Supply Impacts (AFY)**

Water Source	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035-opt
Imported	0	0	0	0	0	0
Local	0	0	0	0	0	0

### 3.5.3. Normal-Year Reliability Comparison

The City has entitlements and/or written contracts to receive imported water from Metropolitan via the regional distribution system. Although pipeline capacity rights do not guarantee the availability of water, per se, they do guarantee the ability to convey water when it is available to the Metropolitan distribution system. All imported water supplies assumed in this section are available to the City from existing water transmission facilities. Table 3-12 shows supply and demand under normal year conditions. Water supplies are projected to be available from Metropolitan; however, it is not included here since projected supplies meet projected demands.

**Table 3-12: Projected Normal Water Supply and Demand (AFY)**

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
<b>Total Demand</b>	<b>9,840</b>	<b>9,890</b>	<b>9,940</b>	<b>9,990</b>	<b>10,040</b>
La Habra Basin	2,500	2,500	2,500	2,500	2,500
Cal Domestic	6,440	6,490	6,540	6,590	6,640
Imported	900	900	900	900	900
<b>Total Supply</b>	<b>9,840</b>	<b>9,890</b>	<b>9,940</b>	<b>9,990</b>	<b>10,040</b>

### 3.5.4. Single Dry-Year Reliability Comparison

The City has documented that it is 100% reliable for single dry year demands from 2015 through 2035 with a demand increase of 6.8% using FY 2001-02 as the base year. Table 3-13 compiles supply and demand projections for a single dry water year. The available imported supply is greater than shown; however, it is not included because all demands are met.

**Table 3-13: Projected Single-Dry Year Water Supply and Demand (AFY)**

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
<b>Total Demand</b>	<b>10,509</b>	<b>10,563</b>	<b>10,616</b>	<b>10,669</b>	<b>10,723</b>
La Habra Basin	2,500	2,500	2,500	2,500	2,500
Cal Domestic	6,980	7,050	7,100	7,150	7,200
Imported	1,029	1,013	1,016	1,019	1,023
<b>Total Supply</b>	<b>10,509</b>	<b>10,563</b>	<b>10,616</b>	<b>10,669</b>	<b>10,723</b>

### 3.5.5. Multiple Dry-Year Reliability Comparison

The City is capable of providing their customers all their demands with significant reserves in multiple dry years from 2015 through 2035 with a demand increase of 6.8% using FY 2001-02 as the base years. This is true even if the demand projections were to

be increased by a large margin. Table 3-14 shows supply and demand projections under multiple dry year conditions.

**Table 3-14: Projected Multiple Dry Year Period Supply and Demand (AFY)**

		Fiscal Year Ending				
		2015	2020	2025	2030	2035
<b>First Year Supply</b>	<b>Total Demand</b>	<b>10,509</b>	<b>10,563</b>	<b>10,616</b>	<b>10,669</b>	<b>10,723</b>
	La Habra Basin	2,500	2,500	2,500	2,500	2,500
	Cal Domestic	6,980	7,050	7,100	7,150	7,200
	Imported	1,029	1,013	1,016	1,019	1,023
	<b>Total Supply</b>	<b>10,509</b>	<b>10,563</b>	<b>10,616</b>	<b>10,669</b>	<b>10,723</b>
<b>Second Year Supply</b>	<b>Total Demand</b>	<b>10,509</b>	<b>10,563</b>	<b>10,616</b>	<b>10,669</b>	<b>10,723</b>
	La Habra Basin	2,500	2,500	2,500	2,500	2,500
	Cal Domestic	6,980	7,050	7,100	7,150	7,200
	Imported	1,029	1,013	1,016	1,019	1,023
	<b>Total Supply</b>	<b>10,509</b>	<b>10,563</b>	<b>10,616</b>	<b>10,669</b>	<b>10,723</b>
<b>Third Year Supply</b>	<b>Total Demand</b>	<b>10,509</b>	<b>10,563</b>	<b>10,616</b>	<b>10,669</b>	<b>10,723</b>
	La Habra Basin	2,500	2,500	2,500	2,500	2,500
	Cal Domestic	6,980	7,050	7,100	7,150	7,200
	Imported	1,029	1,013	1,016	1,019	1,023
	<b>Total Supply</b>	<b>10,509</b>	<b>10,563</b>	<b>10,616</b>	<b>10,669</b>	<b>10,723</b>

## 4. Demand Management Measures

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### 4.1. Overview

Water conservation, often called demand-side management, can be defined as practices, techniques, and technologies that improve the efficiency of water use. Such practices are referred to as demand management measures (DMM). Increased efficiency expands the use of the water resource, freeing up water supplies for other uses, such as population growth, new industry, and environmental conservation.

The increasing efforts in water conservation are spurred by a number of factors: growing competition for limited supplies, increasing costs and difficulties in developing new supplies, optimization of existing facilities, delay of capital investments in capacity expansion, and growing public support for the conservation of limited natural resources and adequate water supplies to preserve environmental integrity.

The City recognizes the importance of water conservation and has made water use efficiency an integral part of water use planning. The City is not a CUWCC signatory; however, it is currently implementing all 14 DMMs described in the Act. DMMs as defined by the Act correspond to the CUWCC's Best Management Practices (BMPs).

This section of the UWMP satisfies the requirements of § 10631 (f) & (j). It describes how each DMM is being implemented by the City and how the City evaluates the effectiveness of the DMMs implemented. This section also provides an estimate of existing conservation savings where information is available.

### 4.2. Water Use Efficiency Programs

The City has implemented and is actively participating in many water conservation activities. The City Council adopted Ordinance 1703 to establish and implement La Habra Water Conservation and Water Supply Shortage Program under Municipal Code 13.40.070 in September 2008. Additionally, as a member agency of MWDOC, the City actively participates in various Metropolitan residential and CII rebate programs, as well as school and public education and outreach programs, and other programs administered by MWDOC. MWDOC implements many of the urban water conservation BMPs on behalf of its member agencies. MWDOC's 2010 RUWMP should be referred to for a detailed discussion of each regional BMP program. The City works cooperatively with MWDOC for technical and financial support needed to implement the DMMs. MWDOC's current Water Use Efficiency Program, detailed in their 2010 RUWMP, implemented on behalf of its member agencies following three basic focuses:

1. Regional Program Development – MWDOC develops, obtains funding for, and implements regional BMP programs on behalf of all retail water agencies in Orange County.
2. Local Program Assistance - MWDOC assists retail agencies to develop and implement local programs within their individual service areas.
3. Research and Evaluation – MWDOC conducts research programs which allow an agency to measure the water savings benefits of a specific program and then compare those benefits to the costs of implementing the program in order to evaluate the economic feasibility of the program.

Table 4-1 provides an overview of City’s DMM program status.

**Table 4-1: Urban Supplier’s Demand Management Measures Overview**

Demand Management Measure (DMM)	DMM Status		
	Past	Current	Future
Residential Water Surveys		√	
Residential Plumbing Retrofits		√	
System Water Audits, Leak Detection and Repair		√	
Metering with Commodity Rates		√	
Large Landscape Conservation Programs		√	
High-Efficiency Washing Machine Rebates		√	
Public Information Programs		√	
School Education Programs		√	
Commercial, Industrial and Institutional Programs		√	
Wholesale Agency Assistance		N/A	
Conservation Pricing		√	
Conservation Coordinator		√	
Water Waste Prohibition		√	
Residential ULFT Replacement Programs	√		

**4.2.1. DMM 1: Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers**

*Residential Survey Program* - In the past, the City in collaboration with MWDOC implemented a formal program which required a qualified surveyor to check water-using devices within single and multi-family homes to evaluate landscape and irrigation programs. This program ceased in the fiscal year ending in June of 2002. While the City does not plan on conducting residential surveys in the near future, it will promote public

outreach and additional DMMs to reduce single- and multi-family water demands at City events through targeted outreach in the water billing system.

As an alternative to residential survey program, the City of La Habra is implementing various regional landscape programs aimed at helping residential and commercial customers to be more water efficient. These regional programs include Smart Timer Rebate Program, Rotating Nozzle Rebate Program, and the California Friendly Landscape Program as described below.

***Smart Timer Rebate Program*** - The Smart Timer Rebate Program started in FY 2004/05. Under this regional program, residential and commercial properties, including HOA common areas, are eligible for a rebate when they purchase and install a weather-based irrigation controller which has the potential to save 41 gallons per day per residence and reduce runoff and pollution by 49%. Once residents are enrolled in the rebate program, a detailed residential outdoor water survey is conducted to inspect the irrigation system, distribution uniformity, and irrigated area. Water savings from the program can be estimated from information obtained from the water surveys pre- and post-installation of the Smart Timer. To date, 8 rebates have been given out to residential customers and 22 rebates to small commercial customers which translate to a water savings of approximately 29 acre-feet, collectively. As part of the MWDOC Grant for the smart timers, a site audit and inspection is required and provided by contract through MWDOC.

***Rotating Nozzle Rebate Program*** – This rebate program started in 2007 and is offered to both residential and commercial customers. Through this program, site owners will purchase and install rotary nozzles in existing irrigation systems. Following the submittal of a rebate application, water bill, and original purchase receipt, MWDOC will direct a third party installation verification contractor to perform installation verifications on up to 100% of the sites that installed devices. To date 24 rotating nozzles have been installed on residential properties and another 808 and 900 on small and large commercial properties, respectively, translating to a combined savings of 107 acre-feet since the beginning of the program.

***California Friendly Landscape Training (Residential)*** - The California Friendly Landscape Training provides education to residential homeowners and professional landscape contractors on a variety of landscape water efficiency practices they can employ. These classes are hosted by MWDOC and/or the retail agencies to encourage participation across the county. The residential training program consists of either a half-day Mini Class or individual, topic-specific, four-hour classes.

#### **4.2.2. DMM 2: Residential Plumbing Retrofit**

The City participated in MWDOC's regional showerhead distribution program which began in 1991. Through this program a total of 6,669 low flow showerheads were

installed in the City by 2004. As a benchmark, the numbers of pre-1992 single-family and multi-family accounts were 9,116 and 479, respectively.

To determine whether the 75% saturation requirement was achieved within Orange County, a saturation study was conducted by MWDOC and Metropolitan and completed in 2001. Data was obtained through telephone surveys and on-site inspections. Using the saturation findings of the study, MWDOC estimates that today low flow showerhead saturation is at nearly 100% for single-family homes and at 94% for multi-family homes.

The City has achieved the goal of 75 percent saturation of low-flow showerhead use, and has since discontinued promotion of the program. However, upon request, the City will accommodate its customers.

Additionally, the City participated in MWDOC’s regional ultra low flow toilet (ULFT) rebate program which ended in 2009. A total of 6,782 ULFTs were distributed under this program to single-family and multi-family homes in the City’s service area representing a cumulative water savings of 2,508 acre-feet. The high efficiency toilet (HET) rebate program has since replaced the ULFT program as discussed under DMM 14.

**4.2.3. DMM 3: System Water Audits, Leak Detection and Repair**

The City began the Water System Audit and Leak Detection Program in 1986. Since the City’s average unaccounted for water losses are approximately 5%, the need for a complete water system audit has not been required. The last complete audit of this program was conducted in 1986. Due to the City’s commitment to repairing detected leaks on a timely basis; it is projected that the average unaccounted for water will remain around 5-6% throughout the future. If the value for unaccounted for water losses falls out of range, the City will look into implementing a formal water audit leak detection and repair program.

Table 4-2 provides a summary of the City’s water audits and leak detection and repair program. Approximately 2 miles of pipelines are replaced or repaired each year saving the City \$20,000 annually.

**Table 4-2: System Water Audits, Leak Detection and Repair DMM**

Actual	2006	2007	2008	2009	2010
% of Unaccounted Water	5%	5%	5%	5%	5%
Miles of Mains Surveyed	5-6%	5-6%	5-6%	5-6%	5-6%
Miles of Lines Replaced	2	2	2	2	2
Actual Expenditures (\$)	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Actual Water Savings (\$)	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000

Actual	2011	2012	2013	2014	2015
% of Unaccounted Water	5%	5%	5%	5%	5%
Miles of Mains Surveyed	5-6%	5-6%	5-6%	5-6%	5-6%
Miles of Lines Replaced	2	2	2	2	2
Actual Expenditures (\$)	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Actual Water Savings (\$)	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000

The City has not developed a formal methodology to estimate the water savings attributable to this DMM. There are, however, real water savings as a result of the proactive pre-screening leak detections and repair program which maintains an acceptable non-revenue water of 5%.

**4.2.4. DMM 4: Metering with Commodity Rates**

Metering with commodity rates by wholesale and retail agencies has been an industry standard throughout Orange County for many years including the City. The City began metering with commodity rates in 1950, with the inception of the water system. All utility water accounts are metered and billed monthly based on commodity rates. Meters are required for all new connections. The utility billing rate structure contains a fixed rate and a commodity charge based on the volume of water used. Description of the City’s current rate structure is provided under DMM 11.

The City has not developed a formal methodology to determine the efficacy of this DMM. However, the City believes that metering with commodity rates leads to more efficient water use as customers receive a bill for the specific amount of water they use.

**4.2.5. DMM 5: Large Landscape Conservation Programs and Incentives**

The City collaborates with its wholesaler, MWDOC on several large landscape water use efficiency programs. Many of MWDOC’s landscape water use efficiency programs target both residential and commercial customers as described under DMM 1. MWDOC also offers programs in Orange County which specifically assist large landscape customers as follows:

***Landscape Performance Certification Program (LPCP)*** – This is a MWDOC-administered program which started in 2004. The LPCP program is a free water management training program sponsored by MWDOC and Metropolitan and offered to CII customers with dedicated irrigation meters. The program also helps create site specific water budgets and track monthly water use for each participating site. As of FY 2010-11, a total of 22 landscape meters are participating in this program. To date, the

overall water savings is 37.6 acre-feet. As a benchmark, the City currently has 1,710 CCI accounts and 775 dedicated irrigation accounts.

***California Friendly Landscape Training (Professional)*** – The California Friendly Landscape Training provides education to residential homeowners and professional landscape contractors on a variety of landscape water efficiency practices they can employ. These classes are hosted by MWDOC and/or the member agencies to encourage participation across the county. The Professional Training Program course consists of four consecutive classes in landscape water management, each building upon principles presented in the preceding class. Each participant receives a bound handbook containing educational materials for each class. These classes are offered throughout the year and taught in both English and Spanish languages.

In addition, the City takes advantage of regional and local efforts which target and market to large landscape properties including bill inserts, direct marketing efforts, ads in various publications, educational seminars/symposiums for property owners, and presentations at Homeowners Associations (HOAs) board meetings.

#### **4.2.6. DMM 6: High-Efficiency Washing Machine Rebate Programs**

The City participates in the SoCal Water Smart residential rebate program offered by Metropolitan. This program offers financial incentives to single-family and multi-family residential customers through the form of a rebate for various devices including clothes washers as described below.

Orange County residents are eligible to receive an \$85 rebate when they purchase a new High Efficiency Clothes Washer (HECW). This program began in 2001 and is sponsored by MWDOC, Metropolitan, and local retail water agencies. Rebates are available on a first-come, first-served basis, while funds last. Metropolitan recently ended this program in 2011. Applications must have been postmarked by December 6, 2010 to qualify for a rebate. Participants must be willing to allow an inspection of the installed machine for verification of program compliance. To qualify for a rebate, the HECW must have a water factor of 4.0 or less. An HECW with a water factor of 4 will use approximately 15 gallons of water per load compared to a conventional top-loading clothes washer which can use 40 gallons or more per load. Depending on use, these machines can save 10,000 gallons of water per year. Participants are encouraged to contact their local gas and/or electric utility as additional rebates may be available. As of FY 2010-11, the City has given out 631 high-efficiency washing machine rebates to its customers. This equates to a water savings of 77.9 acre-feet.

#### **4.2.7. DMM 7: Public Information Programs**

The City began participation in MWDOC's Public Information Programs in 1985. MWDOC's water use efficiency public information programs are built around

communication, coordination, and partnerships with member agencies and cities, Metropolitan, and other local, state, and federal legislative and regulatory bodies. The City's information programs are carried out on behalf of and in coordination with MWDOC's member agencies, including the City. The goal is to help the member agencies and the public understand current issues and the challenges, opportunities, and costs involved in securing a reliable supply of high quality water.

MWDOC assists the City to reach the public with accurate information regarding present and future water supplies, the demands for a suitable quantity and quality of water, and the importance of implementing water efficient techniques and behaviors. MWDOC also offers assistance to its member agencies in publicizing the availability of water use efficiency programs and technology throughout Orange County. A description of the public information programs is provided below.

***Water Facility Inspection Trip Program*** - The inspection trip program is sponsored by MWDOC and Metropolitan. Each year, Orange County elected officials, residents, business owners, and community leaders are invited to attend educational inspection trips to tour key water facilities throughout the state of California. The goal is to educate members of our community about planning, procurement and management of southern California's water supply and the issues surrounding delivery and management of this vital resource.

***O.C. Water Hero Program*** - The goal of this program is to engage children in water use efficiency activities while facilitating discussion with friends and family members about how to save water. Any Orange County child can become a Water Hero by pledging to save 20 gallons of water per day. In exchange for their pledge, they receive a free Water Hero kit, which includes a variety of fun, water-saving items like a 5-minute shower timer and "fix-it" ticket pad for busting water wasters. To become a Superhero, a student must get their parents to also pledge to save 20 gallons of water per day. To date, more than 13,000 children in Orange County have become Water Heroes and more than 4,000 have become Superheroes.

***eCurrents*** - This monthly electronic newsletter is designed to keep MWDOC's 28 member agencies, residents and businesses, stakeholder groups, opinion leaders, and others apprised of MWDOC news, programs, events, and activities. The publication also serves to keep readers informed about regional, state, and federal issues affecting water supply, water management, water quality, and water policy and regulation.

***Water Advisory Committee of Orange County (WACO)*** - WACO was formed in 1983 to facilitate the introduction, discussion, and debate of current and emerging water issues among Orange County policymakers and water professionals. The committee's membership has evolved to include elected officials and management staff from Orange

County cities and water districts, engineers, attorneys, consultants, and other industry professionals. Monthly meetings are open to the public and are typically held on the first Friday of each month at 7:30 a.m.

#### **4.2.8. DMM 8: School Education Programs**

MWDOC on behalf of its member agencies has implemented this BMP aggressively. MWDOC's regional water education program began in 1973 and provides water education to Orange County students in grades kindergarten through high school. The program teaches students about the water cycle, the importance and value of water and water conservation. While it is not feasible for the City to evaluate the water savings of this DMM, the City will continue to consider this DMM as vital and necessary.

***MWDOC's Water Education School Program*** - One of the most successful and well-recognized water education curriculums in Southern California is MWDOC's Water Education School Program. For more than 30 years, School Program mascot "Ricki the Rambunctious Raindrop" has been educating students in grades K-5 about the water cycle, the importance and value of water, and the personal responsibility we all have as environmental stewards.

The School Program features assembly-style presentations that are grade-specific and performed on-site at the schools. The program curriculum is aligned with the science content standards established by the State of California. Since its inception in 1973, nearly three million Orange County students have been educated through the School Program.

In 2004, MWDOC formed an exciting partnership with Discovery Science Center that has allowed both organizations to reach more Orange County students each year and provide them with even greater educational experiences in the areas of water and science. Discovery Science Center currently serves as the School Program administrator, handling all of the program marketing, bookings, and program implementation. During the 2010-11 school year, more than 70,000 Orange County students will be educated through the program.

***Water Education Poster & Slogan Contest*** - Each year, MWDOC holds a Water Education Poster and Slogan Contest to increase water awareness. To participate, children in grades K-6 develop posters and slogans that reflect a water awareness message. The goal is to get children thinking about how they can use water wisely and to facilitate discussion about water between children and their friend, parents, and teachers. Each year, more than 1,500 poster and slogan entries are received through the contest.

During a special judging event, approximately 16 posters and 10 slogans are selected as the winners. All of the winners – and their parents, teachers, and principals – are invited

to attend a special awards ceremony with Ricki Raindrop at Discovery Science Center. At the awards ceremony, the winners are presented with their framed artwork as well as a custom t-shirt featuring their poster or slogan, a trophy, a certificate, and other fun water-saving prizes.

***Orange County Children’s Water Education Festival*** - The largest water education festival of its kind is the annual Children’s Water Education Festival (Festival). The Festival is presented by OCWD, the National Water Research Institute, Disneyland Resort, and MWDOC. Each year, more than 5,000 students participate in the Festival over the course of this two-day event. The Festival is currently held at the Richard Nixon Library and Birthplace in Yorba Linda, California.

The Festival presents a unique opportunity to educate students in grades four through six about local water issues and help them understand how they can protect our water resources and the environment. Students attend the Festival with their teacher and classmates, visiting a variety of booths focused on different water-related topics throughout the day. Participating organizations (presenters) engage the students through interactive educational presentations that are aligned with the science content standards established by the State of California.

#### **4.2.9. DMM 9: Conservation Programs for Commercial, Industrial and Institutional Accounts**

The City offers financial incentives under the Save Water Save A Buck Rebate Program which offers rebates for various water efficient devices to CII customers as described below.

***Save Water Save a Buck*** – This program began in 2002 and offers rebates to assist commercial, industrial, and institutional customers in replacing high-flow plumbing fixtures with low-flow fixtures. Facilities where low-flow devices are installed must be located in Orange County. Rebates are available only on those devices listed in Table 4-3 below and must replace higher water use devices. Installation of devices is the responsibility of each participant. Participants may purchase and install as many of the water saving devices as is applicable to their site.

**Table 4-3: Retrofit Devices and Rebate Amounts Available Under Save Water Save a Buck Program**

Retrofit Device	Rebate Amount
High Efficiency Toilet	\$50
Ultra-Low-Water or Zero Water Urinal	\$200
Connectionless Food Steamers	\$485 per compartment
Air-Cooled Ice Machines (Tier III)	\$300
Cooling Tower Conductivity Controller	\$625
pH / Conductivity Controller	\$1,750
Dry Vacuum Pumps	\$125 per HP
Water Pressurized Broom	\$110

As of FY 2010/11, the City’s CII customers have installed a total 539 water-saving fixtures representing a water savings of 250 acre-feet. The City will continue to educate CII customers to meet the DMM requirements.

The City has not developed a formal method to evaluate effectiveness of this DMM. However, the City receives information from MWDOC annually regarding the number of CII accounts which have been the recipients of plumbing retrofits. City staff keeps records of this information to determine the appropriate levels of action when higher-than average water use is reflected during billing.

Additionally, MWDOC has created regional water use efficiency programs targeting CII customers in Orange County. These programs are available to MWDOC’s member agencies as described below.

***Water Smart Hotel Program*** – In 2008 and 2009, MWDOC received grants from DWR and the US Bureau of Reclamation to conduct the Water Smart Hotel Program, a program designed to provide Orange County hotels and motels with commercial and landscape water saving surveys, incentives for retrofits and customer follow-up and support. The goal of the program is to implement water use efficiency changes in hotels to achieve an anticipated water savings of 7,078 acre feet over 10 years.

The Program is offered to hotels in MWDOC’s service area as identified by retail water agencies. It is anticipated that detailed survey of the indoor and outdoor water using aspects of up to 105 participating hotels will be performed. Participating hotels will receive survey reports that recommend indoor and outdoor retrofits, upgrades, and other

changes that should, based on the survey, result in significant water savings. Quantities of each device and associated fixture and installation costs, water savings and payback information (based on rebate amount Incentives offered through the Save Water Save A Buck Rebate Program will be augmented using DWR and USBR Water Use Efficiency grant funds to bridge the gap between existing incentives and the actual costs of Hotel Water Survey recommendations. To date, over 24 surveys have been performed county-wide, and over 9,500 water-saving devices have been installed through the program. These devices are saving 351 acre feet per year or 3,510 acre feet over the ten year device life.

***Industrial Process Water Use Reduction Program*** - The IPWURP provides engineering surveys to identify water saving process improvements in the Orange County industrial customer base. Additionally it provides Engineering Assistance and Financial incentives to help implement the recommendations from those surveys. This is done with funding from DWR, USBR, Metropolitan and MWDOC.

Focused on industrial process water only, the program targets, but is not limited to, the highest water use customers in the following sectors Textile, Metals, Electronics, Laundries, Food Processing, and Pharmaceuticals. The program offers two levels of surveys:

- A preliminary Focused Survey to ascertain the magnitude of water savings possible.
- A Comprehensive Survey which is a more detailed study of the customer's process and includes customized retrofit recommendations, estimated costs, savings in water and sewer discharge, and a simple ROI

Incentives are calculated via a "Pay for Performance" model based on water savings (monitored for 1 year). Qualified participants will receive the lesser of:

- \$4.37 per 1,000 gallons of water saved, or
- Fifty (50) percent of the total amount of retrofit cost

The incentives are paid in two payments:

- The first payment after verification of equipment installation and startup
- The second payment after a one-year monitoring period to measure water savings

Types of projects have included treating and reusing water in manufacturing process or for cooling towers and new wash equipment with upgraded washers, nozzles and automated control systems.

To date the program has identified a water savings potential of 450 million gallons per year within Orange County. The program water savings goal is 80 million gallons per year or 245 acre feet per year.

#### **4.2.10. DMM 10: Wholesale Agency Programs**

This DMM pertains to wholesale agency programs which are not applicable to the City, a retail supplier. The City is a member agency of MWDOC, the region's wholesaler that is responsible for the implementation and reporting requirements of this DMM.

#### **4.2.11. DMM 11: Conservation Pricing**

The City provides water and sewer service. Residential rates are charged based on a minimum monthly fixed charge based upon the size of the meter and usage charge of \$2.49 per 100 cubic feet for the first 170 hundred cubic feet (ccf). All water used above 170 ccf per month during the period from May 1 to September 30, results in an additional charge of \$0.21 per ccf of water. This tiered pricing is designed to promote water conservation. The sewer fee is charged based on a minimum monthly fixed charge based upon the size of the meter and a usage charge of \$0.16 per 100 cubic feet. This pricing structure applies to all accounts and account types even though the City now has a method for performing individual meter billings by customer class.

The City has not conducted an evaluation of the water savings attributable to this DMM, however, the City will continue to make customers aware of the rate structure and use it as a tool to affect water conservation.

#### **4.2.12. DMM 12: Water Conservation Coordinator**

The City employs a Water/Sewer Manager and a Management Analyst that take an active role in promoting conservation and are responsible for coordinating all conservation program activities and act as a liaison with MWDOC, Metropolitan, CUWCC, and others. Approximately, 5% of the Water/Sewer Manager's time and 25% of the Management Analyst's time is devoted to water conservation coordination work. Additionally, MWDOC employs Water Conservation Coordinators to direct conservation for all of its member agencies.

#### **4.2.13. DMM 13: Water Waste Prohibition**

The City passed Ordinance Number 1384 on May 1, 1990, entitled "Emergency Water Management Program". This ordinance identifies water waste prohibitions, as well as stages of action to conserve water and penalties for non-compliance. More recently in September 2008, the City adopted a Water Conservation and Water Supply Shortage Program Ordinance (Ordinance no.1703) under the City Municipal Code 13.40.070. This ordinance establishes permanent water conservation standards intended to alter behavior related to water use efficiency for non shortage conditions and further establishes four stages of water supply shortage response actions to be implemented during times of

declared water shortage or declared water shortage emergency with increasing restrictions on water use in response to worsening drought or emergency conditions and decreasing supplies. This Ordinance is included in Appendix C.

Permanent water conservation requirements established by the ordinance which are effective at all times include:

1. Limits on watering hours
2. Limits on water duration
3. Installation of low water using landscapes and energy efficient irrigation systems where appropriate
4. Pool and spa covers
5. No excessive water flow or runoff
6. Retrofit indoor plumbing fixtures with low-flow devices as appropriate
7. Obligation to fix leaks, breaks, or malfunctions
8. Re-circulating water required for water fountains and decorative water features
9. Limits on washing vehicles
10. Drinking water served upon request only

#### **4.2.14. DMM 14: Residential Ultra-Low-Flush Toilet Replacement Programs**

Over the past 19 years, the City has continuously implemented a regional ULFT Rebate and/or Distribution Program targeting single- and multi-family homes in Orange County. Since the end of distribution program in 2004, MWDOC's program has focused solely on providing rebate incentives for retrofitting non-efficient devices with either ULFTs or High Efficiency Toilets (HETS) – toilets using 1.28 gallons per flush or less. The ULFT portion of this program concluded in June 2009, and over 360,000 ULFTs were replaced in single family and multi-family homes, with an overall program to date savings of approximately 138,457 acre feet of water. The HET rebate program, which concluded in 2010, has incentivized over 26,000 devices, with an overall program to date savings of approximately 3,419 acre-feet.

The City has participated in this program from the beginning. To date 6,782 ULFTs and 367 HETs have been installed representing a combined water savings of 2,553 acre-feet. The City currently has 9,116 Single-Family and 479 Multi-Family accounts that were opened prior to 1992. The City does not have a toilet retrofit on resale ordinance in effect within the service area, but (currently uses the 2010 California Plumbing Code which is enforced on all remodels).

MWDOC develops, prints, and provides marketing materials such as water bill inserts, direct mailers, or brochures for the City to advertise, promote, and/or distribute to their customers. All funding for both programs was made available by MWDOC; therefore, the City did not incur any expenditures for this program.

## 5. Water Supplies Contingency Plan

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### 5.1. Overview

Recent water supply challenges throughout the American Southwest and the State of California have resulted in the development of a number of policy actions that water agencies would implement in the event of a water shortage. In southern California, the development of such policies has occurred at both the wholesale and retail level. This section describes how new and existing policies that Metropolitan, MWDOC and the City have in place to respond to water supply shortages, including a catastrophic interruption and up to a 50 percent reduction in water supply.

### 5.2. Shortage Actions

#### Metropolitan

As an importer of water from multiple sources, including both the Colorado River and Sierra Nevada, a number of water supply challenges have impacted the reliability of Metropolitan's imported supplies. In response to these challenges, Metropolitan has implemented existing policies as well as developed new ones.

The first action that Metropolitan implements in the event of a water shortage is the suspension and/or reduction of its interruptible supplies, which are supplies sold at a discount in return for the buyers agreeing to be the first to be cutback in the event of a shortage. Metropolitan currently has two interruptible programs for agricultural users and groundwater replenishment, under which supplies were either suspended or reduced in 2007.

In addition, in preparation for the possibility of being unable to meet "firm demands" (non-interruptible supplies) of its member agencies, in February 2008, the Metropolitan's Board of Directors (Board) adopted the Water Supply Allocation Plan (WSAP), which was subsequently updated in June 2009.

Metropolitan's plan includes the specific formula for calculating member agency supply allocations and the key implementation elements needed for administering an allocation. Metropolitan's WSAP is the foundation for the urban water shortage contingency analysis required under Water Code Section 10632 and is part of Metropolitan's 2010 RUWMP.

Metropolitan's WSAP was developed in consideration of the principles and guidelines described in Metropolitan's 1999 Water Surplus and Drought Management Plan

(WSDM), with the objective of creating an equitable needs-based allocation. The plan's formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of Metropolitan supplies of up to 50 percent. The formula takes into account: impact on retail customers and the economy; growth and population; changes in supply conditions; investments in local resources; demand hardening aspects of non-potable recycled water use; implementation of conservation savings program; participation in Metropolitan's interruptible programs; and investments in facilities.

The formula is calculated in three steps: based period calculations, allocation year calculations, and supply allocation calculations. The first two steps involve standard computations, while the third section contains specific methodology developed for the WSAP.

***Step 1: Base Period Calculations*** – The first step in calculating a water supply allocation is to estimate water supply and demand using a historical based period with established water supply and delivery data. The base period for each of the different categories of demand and supply is calculated using data from the three most recent non-shortage years, 2004-2006.

***Step 2: Allocation Year Calculations*** – The next step in calculating the water supply allocation is estimating water needs in the allocation year. This is done by adjusting the base period estimates of retail demand for population or economic growth and changes in local supplies.

***Step 3: Supply Allocation Calculations*** – The final step is calculating the water supply allocation for each member agency based on the allocation year water needs identified in Step 2. Each element and its application in the allocation formula are discussed in detail in Metropolitan's WSAP.

In order to implement the WSAP, the Metropolitan Board makes a determination on the level of the regional shortage, based on specific criteria, in April each year. If it is determined allocations are necessary, they go into effect in July for that year and remain for a 12-month period, although the schedule is at the discretion of Metropolitan's Board.

Metropolitan's 2010 RUWMP forecasts that Metropolitan will be able to meet projected firm demands throughout the forecast period from 2015 to 2035. However, these projections do not mean that Metropolitan would not implement its WSAP during this period.

## MWDOC

To prepare for the potential allocation of imported water supplies from Metropolitan, MWDOC worked collaboratively with its 28 client agencies to develop its own Water Supply Allocation Plan (MWDOC WSAP), adopted January 2009, to allocate imported water supplies at the retail level. The MWDOC WSAP lays out the essential components of how MWDOC will determine and implement each client agency's allocation during a time of shortage.

The MWDOC WSAP uses a similar method and approach, when reasonable, as that of the Metropolitan's WSAP. However, MWDOC's plan remains flexible to use an alternative approach when Metropolitan's method produces a significant unintended result for the client agencies. The MWDOC WSAP model follows five (5) basic steps to determine a retail agency's imported supply allocation.

***Step 1: Determine Baseline Information*** – The first step in calculating a water supply allocation is to estimate water supply and demand using a historical based period with established water supply and delivery data. The base period for each of the different categories of demand and supply is calculated using data from the last three non-shortage years – calendar years, 2004, 2005, and 2006.

***Step 2: Establish Allocation Year Information*** – In this step, the model adjusts for each member agency's water need in the allocation year. This is done by adjusting the base period estimates for increased retail water demand based on growth and changes in local supplies.

***Step 3: Calculate Initial Minimum Allocation Based on Metropolitan's Declared Shortage Level*** – This step sets the initial water supply allocation for each client agency. After a regional shortage level is established, MWDOC will calculate the initial allocation as a percentage of adjusted Base Period Imported water needs within the model for each client agency.

***Step 4: Apply Allocation Adjustments and Credits in the Areas of Retail Impacts, Conservation, and the Interim Agriculture Water Program*** – In this step, the model assigns additional water to address disparate impacts at the retail level caused by an across-the-board cut of imported supplies. It also applies a conservation credit given to those agencies that have achieved additional water savings at the retail level as a result of successful implementation of water conservation devices, programs and rate structures.

***Step 5: Sum Total Allocations and Determine Retail Reliability*** – This is the final step in calculating a retail agency's total allocation for imported supplies. The model sums an agency's total imported allocation with all of the adjustments and credits and then calculates each agency's retail reliability compared to its Allocation Year Retail Demand.

The MWDOC WSAP includes additional measures for plan implementation, including the following:

- **Appeal Process** – An appeals process to provide client agencies the opportunity to request a change to their allocation based on new or corrected information. MWDOC anticipates that under most circumstances, a client agency’s appeal will be the basis for an appeal to Metropolitan by MWDOC.
- **Melded Penalty Rate Structure** – At the end of the allocation year, MWDOC would only charge a penalty to each client agency that exceeded their allocation if MWDOC exceeds its total allocation and is required to pay a penalty to Metropolitan. Metropolitan enforces allocations to member agencies through a tiered penalty rate structure: penalty rates to a member agency that exceeds its total annual allocation at the end of the twelve-month allocation period, according to a specified rate structure. MWDOC’s penalty would be assessed according to the client agency’s prorated share (acre-feet over usage) of MWDOC penalty amount with Metropolitan. Penalty funds collected by Metropolitan will be invested in water conservation and local resource development.
- **Tracking and Reporting Water Usage** – MWDOC will provide each client agency with water use monthly reports that will compare each client agency’s current cumulative retail usage to their allocation baseline. MWDOC will also provide quarterly reports on its cumulative retail usage versus its allocation baseline.
- **Timeline and Option to Revisit the Plan** – The allocation period will cover 12 consecutive months and the Regional Shortage Level will be set for the entire allocation period. MWDOC only anticipates calling for allocation when Metropolitan declares a shortage; and no later than 30 days from Metropolitan’s declaration will MWDOC announce allocation to its client agencies.

Due to the complexity of calculating allocations and the potential for unforeseen circumstances that may occur during an allocation year, after one year of implementation, MWDOC staff and client agencies have the opportunity to make recommendations to the MWDOC Board that will improve the method, calculation, and approach of the MWDOC WSAP.

### **City of La Habra**

The City Council adopted Water Conservation Program Ordinance No. 1703 on August 4<sup>th</sup>, 2009. Ordinance No. 1703 establishes a comprehensive staged water conservation program will encourage reduced water consumption within the City through conservation, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, and maximize the efficient use of water within the City. Along with permanent water conservation requirements, the City’s Water Conservation Program consists of the following four stages found in Table 5-1 to respond

to a reduction in potable water available to the City for distribution to its customers with year round conservation requirements in effect at all times unless a mandatory conservation stage has been implemented by the City Council.

**Table 5-1: Water Supply Shortage Stages and Conditions – Rationing Stages**

Stage No.	Water Supply Conditions	% Shortage
Stage 1 Water Supply Shortage	The City notifies its water users that due to drought or other supply reductions, a consumer demand reduction of up to 10% is necessary to make more efficient use of water and respond to existing conditions.	0-10%
Stage 2 Water Supply Shortage	The City notifies its water users that due to drought or other supply reductions, a consumer demand reduction of up to 20% is necessary to make more efficient use of water and respond to existing conditions.	0-20%
Stage 3 Water Supply Shortage	The City notifies its water users that due to drought or other supply reductions, a consumer demand reduction of up to 30% is necessary to make more efficient use of water and respond to existing conditions.	0-30%
Stage 4 Water Supply Shortage – Emergency Condition	The City declares a shortage emergency condition pursuant to California Water Code Section 350 and notifies its residents and businesses that up to 40% or more consumer demand reduction is required to ensure sufficient supplies for human consumption, sanitation, and fire protection.	0-40% or more

### 5.3. Three-Year Minimum Water Supply

As a matter of practice, Metropolitan does not provide annual estimates of the minimum supplies available to its member agencies. As such, Metropolitan member agencies must develop their own estimates for the purposes of meeting the requirements of the Act.

Section 135 of the Metropolitan Water District Act declares that a member agency has the right to invoke its “preferential right” to water, which grants each member agency a preferential right to purchase a percentage of Metropolitan’s available supplies based on

specified, cumulative financial contributions to Metropolitan. Each year, Metropolitan calculates and distributes each member agency's percentage of preferential rights. However, since Metropolitan's creation in 1927, no member agency has ever invoked these rights as a means of acquiring limited supplies from Metropolitan.

As an alternative to preferential rights, Metropolitan adopted the Water Shortage Allocation Plan (WSAP) in February 2008. Under the WSAP, member agencies are allowed to purchase a specified level of supplies without the imposition of penalty rates. The WSAP uses a combination of estimated total retail demands and historical local supply production within the member agency service area to estimate the firm demands on Metropolitan from each member agency in a given year. Based on a number of factors, including storage and supply conditions, Metropolitan then determines whether it has the ability to meet these firm demands or will need to allocate its limited supplies among its member agencies. Thus, implicit in Metropolitan's decision not to implement an allocation of its supplies is that at a minimum Metropolitan will be able to meet the firm demands identified for each of the member agencies.

In order to estimate the minimum available supplies from Metropolitan for the period 2011-2013, an analysis was performed to assess the likelihood that Metropolitan would re-implement mandatory water use restrictions in the event of a 1990-92 hydrologic conditions over this period. Specific water management actions during times of water shortage are governed by Metropolitan's Water Shortage and Drought Management Plan (WSDM Plan). Adopted by the Metropolitan Board in 1999, the WSDM Plan provides a general framework for potential storage actions during shortages, but recognizes that storage withdrawals are not isolated actions but part of a set of resource management actions along with water transfers and conservation. As such, there is no specific criterion for which water management actions are to be taken at specific levels of storage. The implementation of mandatory restrictions is solely at the discretion of the Metropolitan Board and there are no set criteria that require the Board to implement restrictions. Given these conditions, the analysis relies upon a review of recent water operations and transactions that Metropolitan has implemented during recent drought.

The first step in the analysis was a review of projected SWP allocations to Metropolitan, based on historical hydrologies. As with the recent drought, potential impacts to SWP supplies from further drought and the recently implemented biological opinions are anticipated to be the biggest challenges facing Metropolitan in the coming three years.

A review of projected SWP allocations from the DWR's State Water Project Delivery Reliability Report 2009 (2009 SWP Reliability Report) was made to estimate a range of conservative supply assumptions regarding the availability of SWP supplies. The 2009 SWP Reliability Report provides estimates of the current (2009) and future (2029) SWP delivery reliability and incorporates regulatory requirements for SWP and CVP

operations in accordance with USFWS and NMFS biological opinions. Estimates of future reliability also reflect potential impacts of climate change and sea level rise.

The analysis assumes a maximum SWP allocation available to Metropolitan of 2,011,500 AF and a Metropolitan storage level of 1,700,000 AF at 2010 year-end. The analysis also assumes a stable water supply from the Colorado River in the amount of 1,150,000 AF through 2015. Although the Colorado River watershed has also experienced drought in recent years, Metropolitan has implemented a number of supply programs that should ensure that supplies from this source are relatively steady for the next three years. Based on estimated “firm” demands on Metropolitan of 2.12 MAF, the annual surplus or deficit was calculated for each year of the three-year period.

A review of recent Metropolitan water management actions under shortage conditions was then undertaken to estimate the level of storage withdrawals and water transfers that Metropolitan may exercise under the 1990-92 hydrologic conditions were identified. For this analysis, it was assumed that, if Metropolitan storage levels were greater than 2 MAF at the beginning of any year, Metropolitan would be willing to take up to 600 TAF out of storage in that year. Where Metropolitan storage supplies were between 1.2 MAF and 2 MAF at the beginning of the year, it was assumed that Metropolitan would be willing to take up to 400 TAF in that year. At storage levels below 1.2 MAF, it was assumed that Metropolitan would take up to 200 TAF in a given year.

It was also assumed that Metropolitan would be willing to purchase up to 300 TAF of water transfer in any given year. For years where demands still exceeded supplies after accounting for storage withdrawals, transfer purchases were estimated and compared against the 300 TAF limit.

**Table 5-2: Metropolitan Shortage Conditions**

Study Year	Actual Year	SWP Allocation (%)	SWP (AF)	CRA (AF)	Total (AF)	Demand (AF)	Surplus/ Shortage (AF)	Storage at YE (AF)	Transfers (AF)
2011	1990	30%	603,450	1,108,000	1,711,450	2,124,000	(400,000)	1,300,000	(12,550)
2012	1991	27%	542,820	1,108,000	1,650,820	2,123,000	(200,000)	1,100,000	(272,180)
2013	1992	26%	522,990	1,108,000	1,630,990	2,123,000	(200,000)	900,000	(292,010)

Based on the analysis above, Metropolitan would be able to meet firm demands under the driest three-year hydrologic scenario using the recent water management actions described above without re-implementing mandatory water use restrictions on its member agencies. Given the assumed absence of mandatory restrictions, the estimated minimum imported water supplies available to MWDOC from Metropolitan is assumed to be equal to Metropolitan’s estimate of demand for firm supplies for MWDOC, which Metropolitan

uses when considering whether to impose mandatory restrictions. Thus, the estimate of the minimum imported supplies available to MWDOC is 261,577 AF<sup>5</sup>.

MWDOC has also adopted a shortage allocation plan and accompanying allocation model that estimates firm demands on MWDOC. Assuming MWDOC would not be imposing mandatory restrictions if Metropolitan is not, the estimate of firms demands in MWDOC’s latest allocation model has been used to estimate the minimum imported supplies available to each of MWDOC’s customer agencies for 2011-13. Thus, the estimate of the minimum imported supplies available to the City is 2,642 AF<sup>6</sup>.

As captured in its 2010 RUWMP, Metropolitan believes that the water supply and demand management actions it is undertaking will increase its reliability throughout the 25-year period addressed in its plan. Thus for purposes of this estimate, it is assumed that Metropolitan and MWDOC will be able to maintain the identified supply amounts throughout the three-year period.

Metropolitan projects reliability for full service demands through the year 2035. Additionally, local supplies are projected to be maintained at demand levels. Based on the MWDOC Water Supply Allocation Plan, the City is expected to fully meet demands for the next three years assuming Metropolitan and MWDOC are not in shortage, a Basin Production Percentage of 62% for Local Supplies and zero allocations are imposed for Imported Supplies. The Three Year Estimated Minimum Water Supply is listed in Table 5-3.

**Table 5-3: Three-Year Estimated Minimum Water Supply (AFY)**

Source	Year 1	Year 2	Year 3
	2010-11	2011-12	2012-13
Local Water	8,239	8,239	8,239
Imported Water	2,642	2,642	2,642
<i>Total</i>	<i>10,881</i>	<i>10,881</i>	<i>10,881</i>

## 5.4. Catastrophic Supply Interruption

Given the great distances that imported supplies travel to reach Orange County, the region is vulnerable to interruptions along hundreds of miles aqueducts, pipelines and other facilities associated with delivering the supplies to the region. Additionally, this

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<sup>5</sup> Metropolitan 2010/11 Water Shortage Allocation Plan model (March 2011)

<sup>6</sup> MWDOC Water Shortage Allocation model (August 2010)

water is distributed to customers through an intricate network of pipes and water mains that are susceptible to damage from earthquakes and other disasters.

#### **5.4.1. Metropolitan**

Metropolitan has comprehensive plans for stages of actions it would undertake to address a catastrophic interruption in water supplies through its WSDM and WSAP Plans. Metropolitan also developed an Emergency Storage Requirement to mitigate against potential interruption in water supplies resulting from catastrophic occurrences within the southern California region, including seismic events along the San Andreas Fault. In addition, Metropolitan is working with the State to implement a comprehensive improvement plan to address catastrophic occurrences that could occur outside of the Southern California region, such as a maximum probable seismic event in the Delta that would cause levee failure and disruption of SWP deliveries. For greater detail on Metropolitan's planned responses to catastrophic interruption, please refer to Metropolitan's RUWMP.

#### **5.4.2. Water Emergency Response Organization of Orange County**

In 1983, the Orange County water community identified a need to develop a plan on how agencies would respond effectively to disasters impacting the regional water distribution system. The collective efforts of these agencies resulted in the formation of the Water Emergency Response Organization of Orange County (WEROC) to coordinate emergency response on behalf of all Orange County water and wastewater agencies, develop an emergency plan to respond to disasters, and conduct disaster training exercises for the Orange County water community. WEROC was established with the creation of an indemnification agreement between its member agencies to protect each other against civil liabilities and to facilitate the exchange of resources. WEROC is unique in its ability to provide a single point of contact for representation of all water and wastewater utilities in Orange County during a disaster. This representation is to the county, state, and federal disaster coordination agencies. Within the Orange County Operational Area, WEROC is the recognized contact for emergency response for the water community.

#### **5.4.3. City of La Habra**

As a California jurisdiction, the City could experience a catastrophic interruption in the water supply as a result of a regional power outage, earthquake, terrorism, or other event. A successful recovery plan is dependent upon an in depth understanding of the vulnerability of each source of supply, delivery system, and distribution system to potential catastrophes. Possible catastrophes and preparation actions being taken to reduce the severity of each event are listed in Table 5-4 and are discussed below.

## **Regional Power Outage**

As part of the proposed Idaho Street Well Capacity Improvements, the City is planning to install a diesel generator that will allow the well to continue pumping during a regional power outage. The City's water system has one back-up generator at one of its five booster pump stations. The City plans to include back-up generators to the remaining booster pump stations in future capital improvement projects. Thus, during a regional power outage it is anticipated that there will be problems distributing water supplies to the City's northern hills, as well as a portion of a neighborhood in the City's southern area. To address this concern, the City plans to contact bottled water suppliers and tank trucks that can assist in providing water to the affected areas.

## **Earthquake**

A seismic retrofit of the Puente Hills Reservoir was performed in 2003, which included an automatic seismic control valve installation. In the event of a major earthquake, the valve will actuate and close the outlet piping ensuring that the reservoir does not release large amounts of water.

In addition, the Westridge Reservoir utilizes a DYK manufactured tank. DYK tanks are pre-stressed concrete tanks designed with consideration of both vertical and horizontal accelerations, sloshing of water, and overturning moments. DYK tanks utilize cables that control the lateral seismic forces, while allowing free movement of the tank wall under normal tank loads. These concrete storage tanks have an inherent ability to withstand earthquakes and have displayed a track record of success.

The City has developed a comprehensive Emergency Response Plan to address the specific responses to earthquakes, damage assessments, evacuations, and major line breaks. The Emergency Response Plan also identifies agency and mutual aid contacts to help restore the City's critical water system infrastructure.

## **Terrorism**

Per the requirements of the Bioterrorism Act of 2002, the City completed a Security Vulnerability Assessment to identify and propose mitigation solutions to prevent deliberately induced events. The planning scenarios included contamination, bomb threats, security breaches, and vandalism, all of which were analyzed in detail and documented in a confidential report.

The Security Vulnerability Assessment precipitated security enhancement recommendations that the City is currently implementing. Registered key locks were installed, which provide access only to the City Water Maintenance personnel.

Additionally, a reinforced reservoir ladder and a new access hatch have been installed to prevent security breaches.

In addition to these improvements, City staff conducts reservoir inspections twice daily, and has increased security awareness as part of the public works operations policy. Perimeter fencing is in the process of installation at a City Reservoir, and a SCADA system upgrade is currently in progress.

**Table 5-4: Preparation Actions for Catastrophe**

Possible Catastrophe	Preparation Actions
Regional Power Outage	Backup generators for booster pump stations, plans to contact bottled water suppliers and tank trucks that can assist in providing water to affected areas.
Earthquake	Seismic retrofit of the Puente Hills Reservoir, utilization of a DYK manufactured concrete earthquake resistant storage tank, comprehensive Emergency Response Plan
Terrorist Act which Interrupts Service	Security Vulnerability Assessment to identify and propose mitigation solutions to prevent deliberately induced events, implementation of security enhancements, twice daily reservoir inspections and increased security awareness, perimeter fencing at La Habra Reservoir, and a SCADA system upgrade.

## 5.5. Prohibitions, Penalties and Consumption Reduction Methods

### Prohibitions

The Water Conservation Ordinance No. 1703 lists water conservation requirements which shall take effect upon implementation by the City Council. These prohibitions shall promote the efficient use of water, reduce or eliminate water waste, complement the City’s Water Quality regulations and urban runoff reduction efforts, and enable implementation of the City’s Water Shortage Contingency Measures. Prohibitions include, but are not limited to, restrictions on outdoor watering, washing of vehicles, food preparation establishments, repairing of leaks and other malfunctions, swimming pools, decorative water features, construction activities, and water service provisions which can be found in Table 5-5.

**Table 5-5: Mandatory Prohibitions**

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Watering or irrigation of vegetated areas is prohibited between 10:00 am and 4:00 pm except by use of a hand held device, hose equipped with an automatic shutoff device, or for adjusting or repairing an irrigation system for short periods of time.	Year Round
Watering or irrigation with a device that is not continuously attended to is limited to fifteen (15) minutes per day. Low flow drip type systems, efficient stream rotor systems, and sensor/weather controlled systems are exempt.	Year Round
Watering vegetated areas in a manner that causes excessive water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter, or ditch is prohibited.	Year Round
Washing hard or paved surfaces is prohibited except to alleviate safety or sanitary hazards using a hand held container, hose with an automatic shut off device, or a low-volume high pressure cleaning machine that recycles used water.	Year Round
Leaks, breaks, and malfunctions in the water user's plumbing or distribution system are prohibited for any period of time after such water waste should have been reasonably discovered and corrected and must be corrected in no more than five (5) days of City notification.	Year Round
All decorative water features must recirculate water or users must secure a waiver from the City.	Year Round
Washing or hosing down vehicles is prohibited except by use of a hand held container, hose with an automatic shut off device, or at a commercial car wash.	Year Round
Public places where food and/or beverages are sold may only serve drinking water on request.	Year Round
Commercial lodging establishments must provide an option for guests to not have their used towels and linens laundered.	Year Round
Installation of single pass cooling systems is prohibited in buildings requesting new water service	Year Round
Installation of non-re-circulating water systems is prohibited in new commercial conveyor car wash	Year Round

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
and new commercial laundry systems.	
Food preparation establishments, such as restaurants or cafes, are prohibited from using non-water conserving dish wash spray valves.	Year Round
Watering or irrigation of vegetated areas is limited to three (3) days per week from April – October and one (1) day per week from November – March and is prohibited between 10:00 am and 4:00 pm except by use of a hand held device, hose equipped with an automatic shutoff device, low flow irrigation systems, sensor/weather controlled irrigation systems, or for the express purpose of adjusting or repairing an irrigation system.	Stage 1
Leaks, breaks, and malfunctions in the water user’s plumbing or distribution system are prohibited for any period of time after such water waste should have been reasonably discovered and corrected and must be corrected in no more than three (3) days of City notification.	Stage 1
<p>The City will establish a water allocation for property served by the City using a method that does not penalize persons for the implementation of conservation methods or the installation of water saving devices. The City must provide notice of the allocation by including it in the regular billing statement for the fee or charge or by any other mailing to the address to which the City customarily mails the billing statement for fees or charges for on-going water service. A water allocation will be effective on the fifth (5) day following the date of mailing or at such later date as specified in the notice.</p> <p>Following the effective date of the water allocation as established by the City, any person that uses water in excess of the allocation will be subject to a penalty in the amount of \$5.00 for each billing unit of water in excess of the allocation. The penalty for excess water usage will be cumulative to any other remedy or penalty that may be imposed for violation of this ordinance.</p>	Stage 2
Watering or irrigation of vegetated areas is limited to two (2) days per week from April – October and one (1) day per week from November – March and	Stage 2

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
is prohibited between 10:00 am and 4:00 pm except by use of a hand held device, hose equipped with an automatic shutoff device, low flow irrigation systems, sensor/weather controlled irrigation systems, or for the express purpose of adjusting or repairing an irrigation system.	
Leaks, breaks, and malfunctions in the water user's plumbing or distribution system are prohibited for any period of time after such water waste should have been reasonably discovered and corrected and must be corrected in no more than two (2) days of City notification.	Stage 2
Filling or refilling ornamental lakes and ponds is prohibited. Ornamental lakes and ponds that sustain aquatic life of significant value and were actively managed prior to the storage declaration are exempt.	Stage 2
Washing or hosing down vehicles is prohibited except at a commercial car wash that recycles its water.	Stage 2
Refilling of more than one (1) foot and initial filling of residential swimming pools or outdoor spas is prohibited.	Stage 2
Watering or irrigating of vegetated areas with potable water is prohibited except as approved by the City.	Stage 3
Leaks, breaks, and malfunctions in the water user's plumbing or distribution system are prohibited for any period of time after such water waste should have been reasonably discovered and corrected and must be corrected in no more than one (1) day of City notification.	Stage 3
No new potable water service, meters, or will-serve letters will be provided except under one or more of the following: <ul style="list-style-type: none"> <li>a. Projects necessary to protect public health, safety, and/or well being.</li> <li>b. Projects with a valid unexpired building permit.</li> <li>c. Projects with applicants who can provide substantial evidence of an enforceable commitment that water demands will be offset prior to the provision of new water meters to the satisfaction of the City.</li> </ul>	Stage 3

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
The City may discontinue service to consumers who willfully violate provisions of Stage 3 Prohibitions	Stage 3
The City may shut off all non essential water uses.	Stage 4

## Penalties

Any customer who violates provisions of the Water Conservation Ordinance by either excess use of water or by specific violation of one or more of the applicable water use restrictions for a particular mandatory conservation stage may be cited by the City and may be subject to written notices, surcharges, fines, flow restrictions, service disconnection, and/or service termination which are detailed in Table 5-6.

**Table 5-6: Penalties and Charges**

Penalties or Charges	Stage When Penalty Takes Effect
Written Warning	First Violation
Fine not to exceed one hundred dollars (\$100).	Second Violation
Fine not to exceed two hundred and fifty dollars (\$250).	Third Violation
Fine not to exceed five hundred dollars (\$500). Possible installation of water flow restrictor device and/or termination of service. The person or entity who violates this ordinance is responsible for payment of the City's charges for disconnecting and/or reconnecting service.	Fourth and Subsequent Violations

## Consumption Reduction Methods

Methods to reduce the use of potable water exist in all Water Shortage Levels. These methods are expected to reduce consumption up to 40 percent or more.

**Table 5-7: Consumption Reduction Methods**

Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)
Limits on Watering Days	Stage 1	0-10%
Obligation to Fix Leaks, Breaks, or Malfunctions.		
Other Prohibited Uses		
Water Allocations	Stage 2	0-20%
Watering Days		
Obligation to Fix Leaks, Breaks, or Malfunctions.		
Limits on Filling Ornamental Lakes or Ponds		
Limits on Washing Vehicles		
Limits on filling Residential Swimming Pools and Spas	Stage 3	0-30%
Potable Water Restrictions		
Obligation to Fix Leaks, Breaks, or Malfunctions		
No New Potable Water Service		
Discontinuation of Service for Willful Violators	Stage 4	0-40% or more
Water Allocations		

## 5.6. Impacts to Revenue

### Revenue Impact Analysis

In the event that a decrease in water supply occurs for an extended period of time, the City could face a potential loss requiring the Water Enterprise to draw from any reserves and also re-examine the revenue stream in order to balance the budget. It is thus important to consider possible measures to overcome revenue and expenditure impacts.

**1. Rate Adjustment** – Should the City experience a significant decrease in water supplies for an extended period of time, the City Council would consider a water rate increase or water fee surcharge to cover any revenue shortfall due to water shortages or conservation measures.

**2. Water Fund Balance** – The City maintains a Water Fund Balance that can be drawn upon for minor revenue shortfalls that need to be addressed immediately from decreased water supplies. The City Council would consider a rate increase to restore this fund for future unexpected emergency situations. Should the time period of the decreased water supplies be significant enough to exhaust the Water Fund Balance, then the City Council would consider a water rate increase or water fee surcharge as described above.

**Table 5-8: Proposed Measures to Overcome Revenue Impacts**

Name of Measures
Rate Adjustment
Water Fund Balance

## Expenditure Impact Analysis

**1. Allocate Water Purchases** – The City is committed to purchasing a larger fraction of water from CDWC, which supplies water to the City at a less expensive rate than MWDOC.

**Table 5-9: Proposed Measures to Overcome Expenditure Impacts**

Name of Measures
Allocate Water Purchases

## 5.7. Reduction Measuring Mechanism

### Reduction Monitoring Procedure

As part of the mandatory conservation phase implementation, the City will monitor the projected supply and demand for water by its customers on a daily basis. The City Manager shall determine the extent of the conservation 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. Thereafter, the City Manager may order that the appropriate stage of water conservation be implemented or terminated in accordance with the applicable provision of the Ordinance.

### Production Meter Readings

An analysis of the daily production meter readings will provide values for actual reductions in water use.

**Table 5-10: Water Use Monitoring Mechanisms**

Mechanisms for Determining Actual Reductions	Type of Data Expected
Production Meter Readings	Total Gallons Per Day

## 6. Recycled Water

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### 6.1. Agency Coordination

The City does not own or operate wastewater treatment facilities and sends all collected wastewater to OCSD for treatment and disposal. The City relies on imported and local groundwater for the majority of its water supply. OCWD and OCSD have jointly constructed two water recycling projects, described below:

#### OCWD Green Acres Project

The Green Acres Project (GAP) is a water recycling effort that provides recycled water for landscape irrigation at parks, schools and golf courses as well as for industrial uses, such as carpet dyeing.

GAP provides an alternate source of water to the cities of Fountain Valley, Huntington Beach, Newport Beach, Santa Ana, and Mesa Consolidated Water District. Current water users include Mile Square Park in Fountain Valley, Costa Mesa Golf Course, Home Ranch bean field and Chroma Systems carpet dyeing. Due to a growing demand for water in Orange County, it is sensible that recycled water be used whenever possible for irrigation and industrial uses to supplement groundwater. The use of GAP water will diminish to approximately 3 MGD upon completion of OCSD's P1-102 (Fountain Valley Wastewater Secondary Treatment Expansion) project in the fall of 2011.

#### OCWD Groundwater Replenishment System

The Groundwater Replenishment System (GWRS), which has been operational since January 2008, takes highly treated sewer water and purifies it to levels that meet state and federal drinking water standards. It uses a three-step process that includes reverse osmosis, microfiltration, and ultraviolet light and hydrogen peroxide advanced oxidation treatment. The treated water is then injected into the seawater barrier to help prevent seawater intrusion into the groundwater basin and is percolated into deep aquifers where it eventually becomes part of Orange County's drinking water supply.

The design and construction of the GWRS was a project jointly-funded by OCWD and OCSD. These two public agencies have worked together for more than 30 years. They are leading the way in water recycling and providing a locally-controlled, drought-proof and reliable supply of high-quality water in an environmentally sensitive and economical manner.

The first step, Microfiltration (MF), is a separation process that uses polypropylene hollow fibers, similar to straws, with tiny holes in the sides that are 0.2 micron in diameter. By drawing water through the holes into the center of the fibers, suspended solids, protozoa, bacteria and some viruses are filtered out of the water.

In the second step, Reverse osmosis (RO), membranes are made of semi-permeable polyamide polymer (plastic). During the RO process, water is forced through the molecular structure of the membranes under high pressure, removing dissolved chemicals, viruses and pharmaceuticals in the water. The end result is near-distilled-quality water so pure that minerals have to be added back in to stabilize the water. RO has been successfully used by OCWD since the mid-1970s to purify highly-treated wastewater for its seawater intrusion barrier at its Water Factory 21 (WF-21) from 1975-2004.

In the third step, water is exposed to high-intensity ultraviolet (UV) light with hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) to disinfect and destroy any trace organic compounds that may have passed through the reverse osmosis membranes. Examples of these trace organic compounds are N-Nitrosodimethylamine (NDMA) and 1-4 Dioxane, which have to be removed to the parts-per-trillion level. UV with H<sub>2</sub>O<sub>2</sub> is an effective disinfection/advanced oxidation process that keeps these compounds from reaching drinking water supplies.

The GWRS has a current production capacity of 70 MGD, and a total production of 23.5 billion gallons per year. Once the water has been treated with the three-step process at the GWRS as described above, approximately 35 MGD of GWRS water is pumped into injection wells where it serves as a seawater intrusion barrier. Another 35 MGD is pumped to recharge basins in the City of Anaheim, where GWRS water filters through sand and gravel to replenish the deep aquifers of north and central Orange County's groundwater basin. At this time, OCWD has designed Phase 2 of the expansion, which will recycle approximately another 28 MGD of effluent. Investments beyond Phase 2 have not been approved by OCWD and would require further review before proceeding. If the further envisioned phase of the project is approved and developed, it is projected that up to 118 MGD of water will be produced.

**Table 6-1: Participating Agencies**

Participating Agencies	Participated
Water Agencies	La Habra
Wastewater Agencies	OCSD
Groundwater Agencies	CDWC
Planning Agencies	

## 6.2. Wastewater Description and Disposal

Wastewater is collected and treated by the Orange County Sanitation District and made available to agencies that are capable of utilizing recycled water for beneficial uses. Treatment and final disposal is handled by the Orange County Sanitation District. It is impractical to construct a City-owned and operated wastewater treatment facility. The City is a member agency of OCSD.

The City’s sewer collection system is made up of a network of gravity sewers. The gravity system consists of approximately 125 miles of pipe and 2,680 manholes and cleanouts. There are approximately 13,505 laterals connected to the system. The sewers are primarily constructed of vitrified clay pipe with sizes ranging from 6-inches to 24-inches in diameter. Approximately 85 percent of the pipes are 8-inches in diameter.

Water collected within the City is treated by the Orange County District (with the exception of a small amount treated by the Los Angeles County Sanitation District). The Orange County Sanitation District 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.

Table 6-2 summarizes the past, current, and projected wastewater volumes collected and treated, and the quantity of wastewater treated to recycled water standards for treatment plants within OCSD’s service area. Table 6-3 summarizes the disposal method, and treatment level of discharge volumes.

**Table 6-2: Wastewater Collection and Treatment (AFY)**

Type of Wastewater	Fiscal Year Ending						
	2005	2010	2015	2020	2025	2030	2035-opt
Wastewater Collected & Treated in Service Area	273,017	232,348	302,400	312,704	321,104	329,392	333,536
Volume that Meets Recycled Water Standards	12,156	75,000	105,000	105,000	105,000	105,000	105,000

**Table 6-3: Disposal of Wastewater (Non-Recycled) (AFY)**

Method of Disposal	Treatment Level	Fiscal Year Ending					
		2010	2015	2020	2025	2030	2035-opt
Ocean Outfall	Secondary	157,348	197,400	207,704	216,104	224,392	228,536

### 6.3. Current Recycled Water Uses

There are currently no recycled water uses within the City’s service area.

### 6.4. Potential Recycled Water Uses

#### North OC Recycled Water Feasibility Study

The City along with MWDOC has conducted a study to determine the feasibility of a recycled water system in North Orange County. The potential customers include local and regional users; such as La Habra, Buena Park and Fullerton. The potential average annual recycled water demand is 1,347 AFY to be used for landscape irrigation at parks, schools, and golf courses. The project would include a 2 MGD treatment plant located near the intersection of Idaho Street and Lambert Road using Membrane Biological Reactor (MBR) as the proposed treatment process. The distribution system would include a 1.23 MGD steel reservoir as well as a Booster Pumping Station at the plant. Next steps will be a detailed investigation and pursuit of project funding as well as pursuing additional recycled water users.

Table 6-4 compares the recycled water use projections from the City’s 2005 UWMP with actual 2010 recycled water use.

**Table 6-4: Recycled Water Uses – 2005 Projections compared with 2010 Actual (AFY)**

User Type	2005 Projection for 2010	2010 Actual Use
Agriculture	0	0
Landscape	0	0
Wildlife Habitat	0	0
Wetlands	0	0
Industrial	0	0
Groundwater Recharge	0	0
<b>Total</b>	<b>0</b>	<b>0</b>

#### **6.4.1. Direct Non-Potable Reuse**

The City currently does have the potential for direct non-potable reuse within their service area and has recently conducted a Recycled Water Feasibility Study to investigate the opportunities for a water recycling facility.

#### **6.4.2. Indirect Potable Reuse**

The City does not have the potential for indirect potable reuse within their service area.

### **6.5. Optimization Plan**

Because the City is not using recycled water at this time, it is not practicable to provide a recycled water optimization plan. The City has positioned itself to receive recycled water if it becomes available to serve some of the large development areas.

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

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

The City along with MWDOC has currently conducted a Recycled Water Study to determine the feasibility of a recycled water system in the City to serve North Orange County.

## 7. Future Water Supply Projects and Programs

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### 7.1. Water Management Tools

Resource optimization such as desalination to minimize the needs for imported water is led by the regional agencies in collaboration with local agencies.

With the eventual replacement of older wells with new more efficient wells, increasing the capacity of existing booster stations, and continued efforts in reducing water waste, the City can meet projected demands with existing facilities and distribution system.

### 7.2. Transfer or Exchange Opportunities

The City continues to seek additional entitlement to the CDWC supply. In the past, La Habra Heights County Water District, Lowell Unified School District, and other shareholders of CDWC have leased their annual water year entitlement to the City.

MWDOC will continue to help its member agencies in developing these opportunities and ensuring their success. In fulfilling this role, MWDOC will look to help its member agencies navigate the operational and administrative issues of wheeling water through the Metropolitan water distribution system.

The City relies on the efforts of Metropolitan as well as MWDOC to pursue transfer or exchange opportunities. At this time, the City is not currently involved in any transfer or exchange opportunities.

### 7.3. Planned Water Supply Projects and Programs

#### Idaho Street Well Capacity Improvement Project

The City operates one groundwater production well (Idaho Street Well), which produces approximately 23 percent of the total demand. Water is drawn from the deep well through a vertical turbine pump and electric motor and directed to an air stripper. The design capacity of this well is approximately 2,000 GPM; however, it is currently regulated to produce approximately 1,500 GPM.

Sodium hexametaphosphate is injected into the deep well to retard the precipitation of iron and calcium in the air stripper, and within the City's distribution system. The air stripper is used for the removal of ammonia and hydrogen sulfide. Water flows down through the air stripper and into an underground concrete retention reservoir.

Sodium hypochlorite is injected at the inlet to the retention reservoir. A vertical turbine pump and electric motor (together referred to as a booster pump) are used to boost the water from the retention reservoir into the distribution system. The capacity of this pump is approximately 1,500 GPM. However, the booster pump is cycled on and off to avoid emptying the reservoir. The booster pump turns on when the reservoir is full and the water has had the appropriate contact time. There is no back-up power installed at this site. In the event of a power outage, local water production is interrupted, requiring the City to rely on Metropolitan and CDWC supplies to meet demands.

The planned well improvements will increase the City's local production from approximately 1,200 AFY to 2,500 AFY. The planned capacity improvements will require increasing the size of the underground concrete retention reservoir to utilize the full capacity of the deep well. The increased water flow and retention reservoir size will allow the booster pump to remain on rather than cycling on and off until the retention reservoir refills. Additional improvements include covering, repacking, and miscellaneous repairs and/or upgrades to the air stripper. Stabilization of the air stripper's blower fan-housing pad will also be completed. The well upgrade also includes a diesel powered back-up generation system that will increase the City's ability to provide uninterrupted local water deliveries.

### **California Domestic Water Company Increased Water Reliability**

The City currently owns 2,329.25 water shares within the California Domestic Water Company (CDWC). The City recently obtained additional water shares within the CDWC and has future plans to acquire Water Property Rights within the San Gabriel Water Basin.

Unocal (Chevron) previously owned 720 water shares within the CDWC. They have offered the City 360 of these excess water shares within CDWC, due to a development project being under taken. The City has purchased and now owns these 360 CDWC water shares. The City was offered and purchased the other 360 shares.

Within the San Gabriel Water Basin, there are approximately 22 water rights owners holding over 200,000 AF of production water rights. Of that amount, there is nearly 12,000 AF of surplus water rights that are leased water rights. In addition to the City's current water shares and two existing groundwater well supplies, the City's objective is to obtain an additional 1,760 AF of the surplus water rights. This will increase the City's overall water supply reliability, including the La Habra Water Basin to over 71%. The remaining water supply would be supplied by MWDOC, and Leased and/or Replenishment Water in San Gabriel Water Basin.

## North OC Recycled Water Feasibility Study

The City along with MWDOC is conducting a study to determine the feasibility of a recycled water system in La Habra. The potential customers include local and regional users; such as Buena Park and Fullerton. More info on this study is found in Section 6.

**Table 7-1: Specific Planned Water Supply Projects and Programs**

Project Name	Projected Start Date	Projected Completion Date	Normal-Year Supply to Agency (AF)	Single-Dry Year Yield (AF)	Multiple-Dry-Year 1 Yield (AF)	Multiple-Dry-Year 2 Yield (AF)	Multiple-Dry-Year 3 Yield (AF)
Idaho Well Improvement Project			2,500	2,500	2,500	2,500	2,500
Cal Domestic Increased Water Reliability			1,800	1,800	1,800	1,800	1,800

## 7.4. Desalination Opportunities

Until recently, seawater desalination had been considered uneconomical to be included in the water supply mix. However, recent breakthroughs in membrane technology and plant siting strategies have helped reduce desalination costs, warranting consideration among alternative resource options.

MWDOC has been in the process of studying the feasibility of ocean desalination on behalf of its member agencies, but implementation of large-scale seawater desalination plants faces considerable challenges. These challenges include high capital and operation costs for power and membrane replacement, availability of funding measures and grants, addressing environmental issues and addressing the requirements of permitting organizations such as the Coastal Commission. These issues require additional research and investigation. MWDOC is reviewing and assessing treatment technologies, pretreatment alternatives, and brine disposal issues. Identifying and evaluating resource issues such as permitting and the regulatory approvals (including CEQA) associated with the delivery of desalinated seawater to regional and local distribution systems also present considerable challenges.

MWDOC is also assisting its member agencies in joint development of legislative strategies to seek funding in the form of grants and/or loans, and to inform decision-makers of the role of seawater desalination in the region's future water supplies. Strategies and outcomes of other agency programs (such as Tampa Bay, Florida) are being observed to gain insights into seawater desalination implementation and cost issues.

The City has not, on its own, attempted to investigate seawater desalination due to economic and physical impediments.

In Orange County, there are three proposed ocean desalination projects that could serve MWDOC and its member agencies with additional water supply. These are the Huntington Beach Seawater Desalination Project, the South Orange Coastal Desalination Project, and the Camp Pendleton Seawater Desalination Project.

**Table 7-2: Opportunities for Desalinated Water**

Sources of Water	Check if Yes
Ocean Water	X
Brackish Ocean Water	X
Brackish Groundwater	

**7.4.1. Groundwater**

There are currently no brackish groundwater opportunities within the City’s service area.

**7.4.2. Ocean Water**

***Huntington Beach Seawater Desalination Project*** – Poseidon Resources LLC (Poseidon), a private company, has proposed development of the Huntington Beach Seawater Desalination Project to be located adjacent to the AES Generation Power Plant in the City of Huntington Beach along Pacific Coast Highway and Newland Street. The proposed project would produce up to 50 MGD (56,000 AFY) of drinking water and will distribute water to coastal and south Orange County to provide approximately 8% of Orange County’s water supply needs. The project supplies would be distributed to participating agencies through a combination of (1) direct deliveries through facilities including the East Orange County Feeder #2 (EOCF #2), the City of Huntington Beach’s distribution system, and the West Orange County Water Board Feeder #2 (WOCWBF #2), and (2) water supply exchanges with agencies with no direct connection to facilities associated with the Project.

Poseidon had received non-binding Letters of Intent (LOI) from the Municipal Water District of Orange County and 17 retail water agencies to purchase a total of approximately 72 MGD (88,000 AFY) of Project supplies.

The Project has received specific approvals from the Huntington Beach City Council, including the Coastal Development Permit, Tentative Parcel Map, Subsequent Environmental Impact Report (EIR) and Conditional Use Permit, which collectively provided for the long-term operation of the desalination facility.

In addition to final agreements with the participating agencies, the Project still needs approvals from the State Lands Commission and the California Coastal Commission before Poseidon can commence construction of the desalination facility in Huntington Beach. A public hearing on the Project before the State Lands Commission is expected as early as this October. If project receives all required permits by 2011, it could be producing drinking water for Orange County by as soon as 2013.

***South Orange Coastal Desalination Project*** – MWDOC is proposing a desalination project in joint with Laguna Beach County Water District, Moulton Niguel Water District, City of San Clemente, City of San Juan Capistrano, South Coast Water District, and Metropolitan. The project is to be located adjacent to the San Juan Creek in Dana Point just east of the transition road from PCH to the I-5. The project will provide 15 MGD (16,000 AFY) of drinking water and will provide up to 30% of its potable water supply to the participating agencies.

Phase 1 consists of drilling 4 test borings and installing monitoring wells. Phase 2 consists of drilling, constructing and pumping a test slant well. Phase 3 consists of constructing a Pilot Test Facility to collect and assess water quality. Phases 1 and 2 have been completed and Phase 3 commenced in June 2010 and will last 18 months.

If pumping results are favorable after testing, a full-scale project description and EIR will be developed. If EIR is adopted and necessary permits are approved, project could be operational by 2016.

***Camp Pendleton Seawater Desalination Project***– San Diego County Water Authority (SDCWA) is proposing a desalination project in joint with Metropolitan to be located at Camp Pendleton Marine Corps Base adjacent to the Santa Margarita River. The initial project would be a 50 or 100 MGD plant with expansions in 50 MGD increments up to a max of 150 MGD making this the largest proposed desalination plant in the US.

The project is currently in the study feasibility stage and is conducting geological surveys to study the effect on ocean life and examining routes to bring desalination to SDCWA's delivery system. MWDOC and south Orange County agencies are maintaining a potential interest in the project, but at this time is only doing some limited fact finding and monitoring of the project.

## 8. UWMP Adoption Process

### 8.1. Overview

Recognizing that close coordination among other relevant public agencies is the key to the success of its UWMP, the City worked closely with other entities such as MWDOC to develop and update this planning document. The City also encouraged public involvement through the holding of a public hearing during which participants learned and asked questions about their water supply.

This section provides the information required in Article 3 of the Water Code related to adoption and implementation of the UWMP. Table 8-1 summarizes external coordination and outreach activities carried out by the City and their corresponding dates. The UWMP checklist to confirm compliance with the Water Code is provided in Appendix A.

**Table 8-1: External Coordination and Outreach**

<b>External Coordination and Outreach</b>	<b>Date</b>	<b>Reference</b>
Encouraged public involvement (Public Hearing)	May 2, 2011 & May 9, 2011	Appendix E
Notified city or county within supplier's service area that water supplier is preparing an updated UWMP (at least 60 days prior to public hearing)	March 7, 2011	Appendix D
Held public hearing	May 16, 2011	Appendix E
Adopted UWMP	May 16, 2011	Appendix F
Submitted UWMP to DWR (no later than 30 days after adoption)	June 16, 2011	
Submitted UWMP to the California State Library and city or county within the supplier's service area (no later than 30 days after adoption)	June 16, 2011	
Made UWMP available for public review (no later than 30 days after filing with DWR)	July 16, 2011	

This UWMP was adopted by the City Council on May 16, 2011. A copy of the adopted resolution is provided in Appendix F.

A change from the 2004 legislative session to the 2009 legislative session required the City to notify any city or county within its service area at least 60 days prior to the public

hearing. The City sent a Letter of Notification to the County of Orange on March 7, 2011 that it is in the process of preparing an updated UWMP (Appendix D).

## **8.2. Public Participation**

The City encouraged community and public interest involvement in the plan update through a public hearing and inspection of the draft document. Public hearing notifications were published in local newspapers. A copy of the published Notice of Public Hearing is included in Appendix E. The hearing provided an opportunity for all residents and employees in the service area to learn and ask questions about their water supply in addition to the City's plans for providing a reliable, safe, high-quality water supply. Copies of the draft plan were made available for public inspection at the City Clerk's and Utilities Department offices.

## **8.3. Agency Coordination**

All of the City's water supply planning relates to the policies, rules, and regulations of its regional and local water providers. The City is dependent on imported water from Metropolitan through MWDOC, its regional wholesaler. The City is also dependent on imported groundwater from the Main San Gabriel Basin purchased through CDWC, a mutual water company which owns rights to and supplies water from the Main San Gabriel Basin, an adjudicated basin.

As part of the planning and coordination for the UWMP, the City coordinated with neighboring cities and water agencies to ensure accurate projections. A list of agencies and their various levels of contribution to the development of the City's 2010 UWMP is summarized in Table 8-2.

**Table 8-2: Coordination with Appropriate Agencies**

	Participated in Plan Development	Commented on Draft	Attended Public Meetings	Contacted for Assistance	Sent Copy of Draft Plan	Sent Notice of Intention to Adopt	Not Involved/No Information
City of La Habra		X		X	X	X	
La Habra Public Works	X	X		X	X		
Metropolitan Water District						X	
CDWC				X		X	
MWDOC	X			X		X	
City of Fullerton						X	
City of Brea						X	
Suburban Water Systems						X	

As a member agency of MWDOC, MWDOC provided assistance to the City’s 2010 UWMP development by providing much of the data and analysis such as, population projections, demand projections, and SBx7-7 modeling. The City’s UWMP was developed in collaboration with MWDOC’s 2010 RUWMP to ensure consistency between the two documents as well as Metropolitan’s 2010 Regional UWMP and 2010 Integrated Water Resources Plan.

The City coordinated with CDWC, its imported groundwater wholesale provider to obtain information to develop supply projections and to confirm the currency of relevant information.

## **8.4. UWMP Submittal**

### **8.4.1. Review of Implementation of 2005 UWMP**

As required by California Water Code, the City summarizes the implementation of the Water Conservation to date, and compares the implementation to those as planned in its 2005 UWMP.

## **Comparison of 2005 Planned Water Conservation Programs with 2010 Actual Programs**

The City recognizes the importance of water conservation and has made water use efficiency an integral part of water use planning. The City is not a California Urban Water Conservation Council (CUWCC) signatory; however, it is currently implementing all 14 DMMs described in the Act. DMMs as defined by the Act correspond to the CUWCC's Best Management Practices (BMPs). For the City's specific achievements in the area of conservation, please see Section 4 of this Plan.

### **8.4.2. Filing of 2010 UWMP**

The City Council reviewed the Final Draft Plan on May 16, 2011. The five-member City Council approved the 2010 UWMP on May 16, 2011. See Appendix F for the resolution approving the Plan.

By June 16, 2011, the City's Adopted 2010 UWMP was filed with DWR, California State Library, County of Orange, and cities within its service area. The City will make the plan available for public review no later than 30 days after filing with DWR.

## Appendices

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- A. Urban Water Management Plan Checklist
- B. Calculation for Dry Year Demands
- C. Ordinance No. 1703
- D. 60 Day Notification Letters
- E. Public Hearing Notice
- F. Copy of Plan Adoption

## Appendix A

### Urban Water Management Plan Checklist

**Urban Water Management Plan checklist, organized by subject**

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
<b>PLAN PREPARATION</b>				
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		Section 8.3
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		Appendix D
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		Section 8.4
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		Section 8.4
55	Provide supporting documentation that the water supplier has encouraged 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.	10642		Section 8.2
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Appendix E
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Appendix F
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Section 8.4

No.	UWMP requirement a	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		Section 8.4
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		Section 8.4
<b>SYSTEM DESCRIPTION</b>				
8	Describe the water supplier service area.	10631(a)		Section 1.3.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Section 2.2.1
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M	Section 2.2.2
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 2.2.2
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Section 2.2.3
<b>SYSTEM DEMANDS</b>				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		Section 2.4.4 Section 2.4.5
2	Wholesalers: Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. Retailers: Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	Appendix E Section 2.4.6

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		Not applicable
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (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, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Section 2.3
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Section 2.5
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Section 2.5.2
<b>SYSTEM SUPPLIES</b>				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	Section 3.1
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Section 3.3
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		Not applicable
16	Describe the groundwater basin.	10631(b)(2)		Section 3.3.1
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		Not applicable

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Not applicable
19	For groundwater basins that are not adjudicated, provide information as to whether DWR 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. If the basin is adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Section 3.3
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		Section 3.3.2
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Section 3.3.3
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Section 7.2
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		Section 7.3
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Section 7.4
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		Section 6.1
45	Describe 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.	10633(a)		Section 6.2

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		Section 6.2
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		Section 6.3
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		Section 6.4
49	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.	10633(e)		Section 6.4
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		Section 6.5
51	Provide 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.	10633(g)		Section 6.5
<b>WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING <sup>b</sup></b>				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		Section 3
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		Section 3.5.1
23	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.	10631(c)(2)		Section 3.5.2
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		Section 5.2

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		Section 5.3
37	Identify 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.	10632(c)		Section 5.4
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		Section 5.5
39	Specify 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.	10632(e)		Section 5.5
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Section 5.5
41	Provide 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.	10632(g)		Section 5.6
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Appendix C
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Section 5.7
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	Four years 2010, 2015, 2020, 2025, and 2030	Section 3.5.2.1

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing 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. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Section 3.5.3 Section 3.5.4 Section 3.5.5
<b>DEMAND MANAGEMENT MEASURES</b>				
26	Describe how each water demand management measure is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Section 4
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Section 4
28	Provide 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 ability to further reduce demand.	10631(f)(4)		Section 4
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	Not applicable
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	Not applicable

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review

## Appendix B

### Calculation of Dry Year Demands

## Demand “Bump” Factors for 2010 UWMP

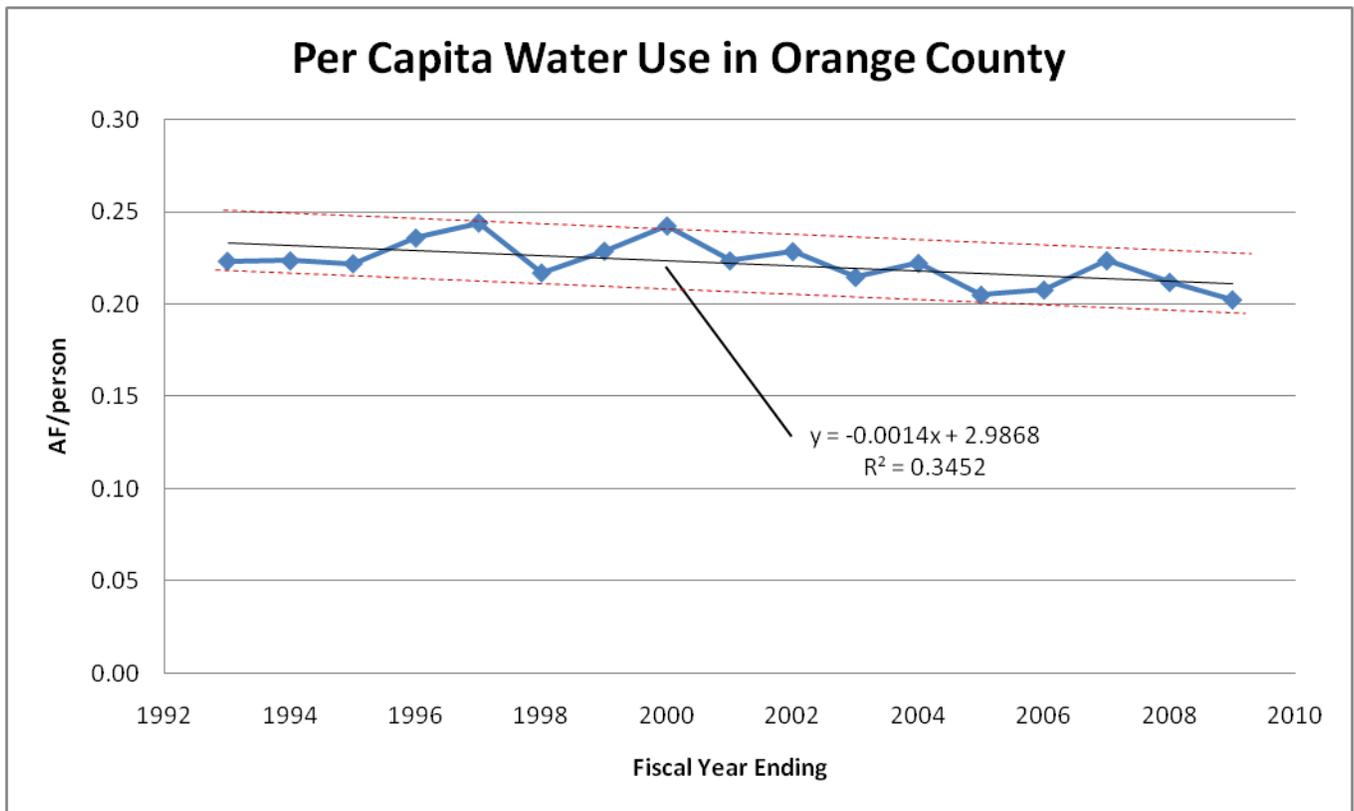
### Description of Methodology

Water agencies must develop estimates of the impacts of single dry years (Single-Dry) and multiple consecutive dry years (Multiple-Dry) on both supplies and demands in future years. In these cases, demands increase somewhat above the normal or average level. The increase can be expressed as a percent “bump” up from the normal level. For example, if dry year demand was 105 percent of normal, this would be a 5% “bump”. As the methodology to estimate the Single-Dry and Multiple-Dry “bumps” was developed, several issues needed to be decided, as follows:

1. The methodology used existing data from MWDOC records for each agency, to allow the estimates to reflect the characteristics and differences of demands relative to the makeup of each retail entity. The overall MWDOC estimate was developed from a weighted sum of all of OC’s agencies.
2. Total potable demands, including agricultural demands, were used to derive the “bumps” because Orange County agencies have opted to have water that is used for agricultural uses be considered as full service demands. Non-potable demands are included; these demands will be met with non-potable supplies.
3. The methodology focused on per-capita usage (in units of AF/capita) because this removes the influence of growth from the analysis. Overall population growth in Orange County has been about 1% per year over the past two decades, creating about a 20% increase in demand over two decades. Some of the agencies have had even higher growth.
4. The period that was used for the analysis was limited to FY 1992-93 thru FY 2008-09 because fiscal years 1991-92 and 2009-10 were years of extraordinary conservation-- pricing disincentives for using over the allocated amounts were implemented in order to curtail demands-- and so these years were not considered. The Orange County total per-capita water usage in the period FY 1992-93 thru FY 2008-09 is plotted in Figure 1. Per-capita water use in Orange County has been on a decreasing trend in recent years as shown by the trend line in Figure 1. The downward trend is likely due to water use efficiency efforts, principally the plumbing codes since 1992 that have required low-flush toilets in all new construction and prohibited the sale of high-flush toilets for replacement purposes. Because of this drop in per-capita usage over time, the more recent data is a better predictor of future usage than the earlier data. Therefore, we narrowed the focus to the period FY 2001-02 thru FY 2008-09.
5. **Single-Dry “Bump” Methodology:** Per-capita usage for each participant agency from FY 2001-02 thru FY 2008-09 is shown in Table 1. The Single-Dry Bump for each agency was derived using the highest per-capita usage in the period, divided by average per-capita usage for that period. Because of suspect data for Fountain Valley and Santa Ana, the highest year data was eliminated and the second-highest usage in the period was used (when data was suspect, it was also removed from the average for the agency). The resulting Single-Dry “bumps” are shown in Table 2. The OC-average Single-Dry “bump” came to 6.6%
6. **Multiple-Dry “Bump” Methodology:** DWR guidelines recommend that “multiple” years is three years. There are various methods that can be used to derive demand “bumps” for those three years. The same “bump” can be used for all three years, or different “bumps” can be assumed for each of the three years. A pattern can be selected based on historical demand data or on historical water supply data or on another basis. MWDOC selected a Multiple-Dry Bump as the same as the Single-Dry Bump for each agency. This means having three highest-demand years in a row. This is conservative because it would be extremely unlikely for three driest years to occur in a row. However, it should be noted that future demand in any particular year depends on other factors in addition to rainfall, such as the economic situation, and cloudiness, windiness, etc. The OC-average Multiple-Dry “bump” came to 6.6%.

**Figure 1**  
**Per-Capita Water Use in Orange County (AF/person)**

FY Ending	OC Actual AF/person	Least Sq AF/person	approx high	approx "bump"
1993	0.223327	0.233	0.250	7%
1994	0.223528	0.232		
1995	0.221986	0.230		
1996	0.235919	0.229		
1997	0.244071	0.228		
1998	0.217014	0.226		
1999	0.228797	0.225		
2000	0.242408	0.224		
2001	0.223537	0.222		
2002	0.228534	0.221		
2003	0.214602	0.219		
2004	0.222155	0.218		
2005	0.204941	0.217		
2006	0.207720	0.215		
2007	0.223599	0.214		
2008	0.211873	0.212		
2009	0.202396	0.211	0.225	7%



**Table 1. Per-Capita Retail Water Usage by Retail Water Agency [1] [2]**

Fiscal Year ->	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
	<b>Per Capita Retail Water Usage (AF/person)</b>							
La Habra	0.18352	0.17541	0.17917	0.16891	0.16716	0.17534	0.16598	0.15924

[1] Retail water usage (includes recycled water and Agricultural usage) divided by population.

[2] Population is for Jan. 1 of each fiscal year ending. Source: Center for Demographic Research, CSU Fullerton.

**Table 2**  
**Demand Increase "Bump" Factors for Single Dry Years and Multiple Dry Years**  
 for OC Water Agencies participating in MWDOC's 2010 UWMP group effort

	Single	Multiple	
La Habra	6.8%	6.8%	
OC Average	6.6%	6.6%	weighted average of all OC water agencies

Appendix C  
Ordinance No. 1703

ORDINANCE NO 1703

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF LA HABRA REPEALING SECTION 13 40 OF THE LA HABRA MUNICIPAL CODE AND ESTABLISHING THE LA HABRA WATER CONSERVATION AND WATER SUPPLY SHORTAGE PROGRAM

The City Council of the City of La Habra does hereby ordain as follows

Section 1 Chapter 13 40 of the La Habra Municipal Code is hereby repealed and replaced in its entirety with the following

Section 2 Title

This chapter will be known as Chapter 13 40 Water Conservation and Water Supply Shortage Program

Section 3 Findings

- A A reliable minimum supply of potable water is essential to the public health safety and welfare of the people and economy of the southern California region
- B Southern California is a semi arid region and is largely dependent upon imported water supplies A growing population climate environmental concerns and other factors in other parts of the State and western United States make the region highly susceptible to water supply reliability issues
- C Careful water management that includes active water conservation measures not only in times of drought but at all times is essential to ensure a reliable minimum supply of water to meet current and future water supply needs
- D Article XI Section 7 of the California Constitution declares that a city or county may make and enforce within its limits all local police sanitary and other ordinances and regulations not in conflict with general laws
- E Article X Section 2 of the California Constitution declares that the general welfare requires that water resources be put to beneficial use waste or unreasonable use or unreasonable method of use of water be prevented and conservation of water be fully exercised with a view to the reasonable and beneficial use thereof
- F California Water Code section 375 authorizes water suppliers to adopt and enforce a comprehensive water conservation program to reduce water consumption and conserve supplies
- G The adoption and enforcement of a water conservation and supply shortage program is necessary to manage the City s potable water supply in the short and long term and to avoid or minimize the effects of drought and shortage within the City Such program is essential to ensure a reliable and sustainable minimum supply of water for the public health safety and welfare

Section 4 Declaration of Purpose and Intent

- A The purpose of this chapter is to establish a water conservation and supply shortage program that will reduce water consumption within the City through conservation enable effective water supply planning assure reasonable and beneficial use of water prevent waste of water and maximize the efficient use of water within the City to avoid and minimize the effect and hardship of water shortage to the greatest extent possible
- B This chapter establishes permanent water conservation standards intended to alter behavior related to water use efficiency for non shortage conditions and further establishes four stages of water supply shortage response actions to be implemented during times of declared water shortage or declared water shortage emergency with increasing restrictions on water use in response to worsening drought or emergency conditions and decreasing supplies

Section 5 Definitions

- A The following words and phrases whenever used in this chapter have the meaning defined in this section
  - 1 City means the City of La Habra
  - 2 Person means any natural person or persons corporation public or private entity governmental agency or institution or any other user of water provided by the City
  - 3 Landscape Irrigation System means an irrigation system with pipes hoses spray heads or sprinkling devices that are operated by hand or through an automated system
  - 4 Large Landscape Areas means a lawn landscape or other vegetated area or combination thereof equal to more than one (1) acre of irrigable land
  - 5 Single Pass Cooling Systems means equipment where water is circulated only once to cool equipment before being disposed
  - 6 Potable Water means water which is suitable for drinking
  - 7 Recycled Water' means the reclamation and reuse of non potable water for beneficial use
  - 8 Billing Unit means the unit of water used to apply water rates for purposes of calculating water charges for a person s water usage and equals seven hundred forty eight (748) gallons of water

Section 6 Application

- A The provisions of this chapter apply to any person in the use of any potable water provided by the City
- B The provisions of this chapter do not apply to uses of water necessary to protect public health and safety or for essential government services such as police fire and other similar emergency services
- C The provisions of this chapter do not apply to the use of recycled water with the exception of Section 8 (a)
- D The provisions of this chapter do not apply to the use of water by commercial nurseries and commercial growers to sustain plants trees shrubs crops or other vegetation intended for commercial sale
- E This chapter is intended solely to further the conservation of water It is not intended to implement any provision of federal State or local statutes ordinances or regulations relating to protection of water quality or control of drainage or runoff Refer to the local jurisdiction or Regional Water Quality Control Board for information on any stormwater ordinances and stormwater management plans

Section 7 Permanent Water Conservation Requirements – Prohibition Against Waste

- - - - - The following water conservation requirements are effective at all times and are permanent Violations of this section will be considered waste and an unreasonable use of water
  - A Limits on Watering Hours Watering or irrigating of lawn landscape or other vegetated area with potable water is prohibited between the hours of 10 a m and 4 p m Pacific Standard Time on any day except by use of a hand held bucket or similar container a hand held hose equipped with a positive self closing water shut off nozzle or device or for very short periods of time for the express purpose of adjusting or repairing an irrigation system
  - B Limit on Watering Duration Watering or irrigating of lawn landscape or other vegetated area with potable water using a landscape irrigation system or a watering device that is not continuously attended is limited to no more than fifteen (15) minutes watering per day per station This subsection does not apply to landscape irrigation systems that exclusively use very low flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour and weather based controllers or stream rotor sprinklers that meet a 70% efficiency standard
  - C No Excessive Water Flow or Runoff Watering or irrigating of any lawn landscape or other vegetated area in a manner that causes or allows excessive water flow or runoff onto an adjoining sidewalk driveway street alley gutter or ditch is prohibited

- D **No Washing Down Hard or Paved Surfaces** Washing down hard or paved surfaces including but not limited to sidewalks walkways driveways parking areas tennis courts patios or alleys is prohibited except when necessary to alleviate safety or sanitary hazards and then only by use of a hand held bucket or similar container a hand held hose equipped with a positive self-closing water shut-off device or a low volume high pressure cleaning machine equipped to recycle any water used
- E **Obligation to Fix Leaks Breaks or Malfunctions** Excessive use loss or escape of water through breaks leaks or other malfunctions in the water user s plumbing or distribution system for any period of time after such escape of water should have reasonably been discovered and corrected and in no event more than 5 days of receiving notice from the City is prohibited
- F **Re circulating Water Required for Water Fountains and Decorative Water Features** Operating a water fountain or other decorative water feature that does not use re circulated water is prohibited unless a waiver has been obtained
- G **Limits on Washing Vehicles** Using water to wash or clean a vehicle including but not limited to any automobile truck van bus motorcycle boat or trailer whether motorized or not is prohibited except by use of a hand held bucket or similar container or a hand held hose equipped with a positive self closing water shut off nozzle or device This subsection does not apply to any commercial car washing facility
- H **Drinking Water Served Upon Request Only** Eating or drinking establishments including but not limited to a restaurant hotel cafe cafeteria bar club or other public place where food or drinks are sold served or offered for sale are prohibited from providing drinking water to any person unless expressly requested
- I **Commercial Lodging Establishments Must Provide Option to Not Launder Linen Daily** Hotels motels and other commercial lodging establishments must provide customers the option of not having towels and linen laundered daily Commercial lodging establishments must prominently display notice of this option in each bathroom using clear and easily understood language
- J **No Installation of Single Pass Cooling Systems** Installation of single pass cooling systems is prohibited in buildings requesting new water service
- K **Re-circulating Water Systems Required in Commercial Car Wash and Laundry Systems** Installation of non re circulating water systems is prohibited in new commercial conveyor car wash and new commercial laundry systems
- L **Restaurants Required to Use Water Conserving Dish Wash Spray Valves** Food preparation establishments such as restaurants or cafes are prohibited from using non water conserving dish wash spray valves

Section 8 Stage 1 Water Supply Shortage

- A A Stage 1 Water Supply Shortage condition exists when the City notifies its water users that due to drought or other supply reductions a consumer demand reduction of up to 10% is necessary to make more efficient use of water and respond to existing water conditions Upon the declaration of a Stage 1 Water Supply Shortage condition the City shall implement the mandatory Stage 1 conservation measures identified in this ordinance The type of event that may prompt the City to declare a Stage 1 Water Supply Shortage may include among other factors a finding that its wholesale water provider calls for extraordinary water conservation
- B Additional Water Conservation Measures In addition to the prohibited uses of water identified in Section 7 the following water conservation requirements apply during a declared Stage 1 Water Supply Shortage
- 1 Limits on Watering Days Watering or irrigating of lawn landscape or other vegetated area with potable water is limited to three days per week on a schedule established and posted by the City During the months of November through March watering or irrigating of lawn landscape or other vegetated area with potable water is limited to no more than one day per week on a schedule established and posted by the City This provision does not apply to landscape irrigation zones that exclusively use very low flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour This provision also does not apply to watering or irrigating by use of a hand held bucket or similar container a hand-held hose equipped with a positive self closing water shut off nozzle or device or for very short periods of time for the express purpose of adjusting or repairing an irrigation system
  - 2 Obligation to Fix Leaks Breaks or Malfunctions All leaks breaks or other malfunctions in the water user s plumbing or distribution system must be repaired promptly upon discovery by the owner or within seventy two (72) hours of notification by the City unless other arrangements are made with the City
  - 3 Other Prohibited Uses The City may implement other prohibited water uses as determined by the City after notice to customers as set forth in Section 12

Section 9 Stage 2 Water Supply Shortage

- A A Stage 2 Water Supply Shortage condition exists when the City notifies its water users that due to drought or other supply reductions a consumer demand reduction of up to 20% is necessary to make more efficient use of water and respond to existing water conditions Upon declaration of a Stage 2 Water Supply Shortage condition the City shall implement the mandatory Stage 2 conservation measures identified in this ordinance

**B Additional Conservation Measures** In addition to the prohibited uses of water identified in Section 7 and 8 the following additional water conservation requirements apply during a declared Stage 2 Water Supply Shortage

- 1 **Water Allocations** The City will establish a water allocation for property served by the City using a method that does not penalize persons for the implementation of conservation methods or the installation of water saving devices The City must provide notice of the allocation by including it in the regular billing statement for the fee or charge or by any other mailing to the address to which the City customarily mails the billing statement for fees or charges for on going water service A water allocation will be effective on the fifth (5) day following the date of mailing or at such later date as specified in the notice

Following the effective date of the water allocation as established by the City any person that uses water in excess of the allocation will be subject to a penalty in the amount of \$5 00 for each billing unit of water in excess of the allocation The penalty for excess water usage will be cumulative to any other remedy or penalty that may be imposed for violation of this ordinance

- 2 **Watering Days** Watering or irrigating of lawn landscape or other vegetated area with potable water is limited to two days per week on a schedule established and posted by the City During the months of November through March watering or irrigating of lawn landscape or other vegetated area with potable water is limited to no more than one day per week on a schedule established and posted by the City This provision does not apply to landscape irrigation zones that exclusively use very low flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour This provision also does not apply to watering or irrigating by use of a hand held bucket or similar container a hand held hose equipped with a positive self closing water shut off nozzle or device or for very short periods of time for the express purpose of adjusting or repairing an irrigation system
- 3 **Obligation to Fix Leaks Breaks or Malfunctions** All leaks breaks or other malfunctions in the water user s plumbing or distribution system must be repaired promptly upon discovery by the owner or within forty eight (48) hours of notification by the City unless other arrangements are made with the City
- 4 **Limits on Filling Ornamental Lakes or Ponds** Filling or re filling ornamental lakes or ponds is prohibited except to the extent needed to sustain aquatic life provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a supply shortage stage under this ordinance
- 5 **Limits on Washing Vehicles** Using water to wash or clean a vehicle including but not limited to any automobile truck van bus motorcycle boat or trailer whether motorized or not is prohibited except by use of a hand held bucket

or similar container a hand held hose equipped with a positive self closing water shut off nozzle or device by high pressure/low volume wash systems or at a commercial car washing facility that utilizes a re circulating water system to capture or reuse water

- 6 Limits on filling Residential Swimming Pools and Spas Re filling of more than one foot and initial filling of residential swimming pools or outdoor spas with potable water is prohibited
- 7 Other Prohibited Uses The City may implement other prohibitions on water uses as determined by the City after notice to customers as set forth in Section 12

Section 10 Stage 3 Water Supply Shortage

A A Stage 3 Water Supply Shortage Emergency exists when the City declares a water shortage emergency condition pursuant to California Water Code section 350 and notifies its residents and businesses that up to 30% consumer demand reduction is required to ensure sufficient supplies for human consumption sanitation and fire protection The City must declare a Water Supply Shortage Emergency in the manner and on the grounds provided in California Water Code Section 350

B Additional Conservation Measures In addition to the prohibited uses of water identified in Sections 7 8 and 9 the following water conservation requirements apply during a declared Stage 3 Water Supply Shortage Emergency

- 1 No Watering or Irrigating Watering or irrigating of lawn landscape or other vegetated area with potable water is prohibited except as approved by the City
- 2 Obligation to Fix Leaks Breaks or Malfunctions All leaks breaks or other malfunctions in the water user s plumbing or distribution system must be repaired promptly upon discovery by the owner or within twenty four (24) hours of notification by the City unless other arrangements are made with the City
- 3 No New Potable Water Service Upon declaration of a Stage 3 Water Supply Shortage Emergency condition no new potable water service will be provided no new temporary meters or permanent meters will be provided and no statements of immediate ability to serve or provide potable water service (such as will serve letters certificates or letters of availability) will be issued except under the following circumstances
  - a A valid unexpired building permit has been issued for the project or
  - b The project is necessary to protect public health safety and welfare or

- c The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the City

This provision does not preclude the resetting or turn on of meters to provide continuation of water service or the restoration of service that has been interrupted for a period of one year or less

- 4 Discontinue Service The City in its sole discretion may discontinue service to consumers who willfully violate provisions of this section
- 5 Other Prohibited Uses The City may implement other prohibited water uses as determined by the City after notice to customers as set forth in Section 12

Section 11 Stage 4 Water Supply Shortage – Emergency Condition

- A A Stage 4 Water Supply Shortage Emergency exists when the City declares a water shortage emergency condition pursuant to California Water Code section 350 and notifies its residents and businesses that up to 40% or more consumer demand reduction is required to ensure sufficient supplies for human consumption sanitation and fire protection The City must declare a Water Supply Shortage Emergency in the manner and on the grounds provided in California Water Code Section 350
- B Additional Conservation Measures In addition to the prohibited uses of water identified in Sections 7 8 9 and 10 the following water conservation requirements apply during a declared Stage 4 Water Supply Shortage Emergency
  - 1 The City may reduce water allocations in all categories to meet the available water supply
  - 2 The City may shut off all non essential water uses
  - 3 Other Prohibited Uses The City may implement other prohibited water uses as determined by the City after notice to customers as set forth in Section 12

Section 12 Procedures for Determination/Notification of Water Supply Shortage

- A Declaration and Notification of Stage 1 and 2 Water Supply Shortage The existence of Stage 1 and Stage 2 Water Supply Shortage conditions may be declared by resolution of the City adopted at a regular or special public meeting held in accordance with State law The mandatory conservation requirements applicable to Stage 1 or Stage 2 conditions will take effect on the tenth (10) day after the date the shortage stage is declared Within five (5) days following the declaration of the shortage stage the City must publish a copy of the resolution in a newspaper used for publication of official notices If the City establishes a water allocation it must provide notice of the allocation by including it in the regular billing statement or by

any other mailing to the address to which the City customarily mails the billing statement for fees or charges for on-going water service. A water allocation will be effective on the fifth (5) day following the date of mailing or at such later date as specified in the notice.

- B Declaration and Notification of Stage 3 Water Supply Shortage** The existence of a Stage 3 Water Supply Shortage Emergency condition may be declared in accordance with the procedures specified in Water code Sections 351 and 352. The mandatory conservation requirements applicable to the Stage 3 conditions will take effect on the tenth (10) day after the date the shortage stage is declared. Within five (5) days following the declaration of the shortage stage, the City must publish a copy of the resolution in a newspaper used for the publication of official notices. If the City establishes a water allocation, it will provide notice of the allocation by including it in the regular billing statement or by any other mailing to the address to which the City customarily mails the billing statement for fees or charges for on going water service. A water allocation will be effective on the fifth (5) day following the date of mailing or at such later date as specified in the notice.
- C Declaration and Notification of Stage 4 Water Supply Shortage** The existence of a Stage 4 Water Supply Shortage Emergency condition may be declared in accordance with the procedures specified in Water code Sections 351 and 352. The mandatory conservation requirements applicable to the Stage 4 conditions will take effect on the tenth (10) day after the date the shortage stage is declared. Within five (5) days following the declaration of the shortage stage, the City must publish a copy of the resolution in a newspaper used for the publication of official notices. If the City establishes a water allocation, it will provide notice of the allocation by including it in the regular billing statement or by any other mailing to the address to which the City customarily mails the billing statement for fees or charges for on going water service. A water allocation will be effective on the fifth (5) day following the date of mailing or at such later date as specified in the notice.

Section 13 Other Provisions

- A Limits on Building Permits** the City may limit or withhold the issuance of building permits which require new or expanded water service, except to protect the public health, safety and welfare, or in cases which meet the City's adopted conservation offset requirements.
- B Customer Water Conservation Reports** The City may, by written request, require all commercial, residential and industrial customers using twenty five thousand (25,000) or more billing units per year to submit a water conservation plan and to submit quarterly progress reports on such plan. The conservation plan must include recommendations for increased water savings, separation of uses including increased water recycling based on feasibility, and the reports must include progress to date on implementation of such recommendations.
- C Reporting Mechanism – Hotline** The City may establish a water waste hotline for residents to report violations of this chapter.

Section 14 Hardship Waiver

- A Undue and Disproportionate Hardship If due to unique circumstances a specific requirement of this chapter would result in undue hardship to a person using water or to property upon which water is used that is disproportionate to the impacts to water users generally or to similar property of classes of water users then the person may apply for a waiver to the requirements as provided in this section
- B Written Finding The waiver may be granted or conditionally granted only upon a written finding of the existence of facts demonstrating an undue hardship to a person using water or to property upon which water is used that is disproportionate to the impacts to water users generally or to similar property or classes of water use due to specific and unique circumstances of the user or the user s property
- 1 Application Application for a waiver must be on a form prescribed by the City and accompanied by a non refundable processing fee in an amount set by City Council resolution
  - 2 Supporting Documentation The waiver application must be accompanied by photographs maps drawings and other information including a written statement of the applicant
  - 3 Required Findings for Waiver An application for a waiver will be denied unless the City Manager finds based on the information provided in the application supporting documents or such additional information as may be requested by the City and on water use information for the property as shown by the records of the City or its Agent all of the following
    - a That the waiver does not constitute a grant of special privilege inconsistent with the limitations upon other residents and businesses
    - b That because of special circumstances applicable to the property or its use the strict application of this chapter would have a disproportionate impact on the property of use that exceeds the impacts to residents and businesses generally
    - c That the grant of such waiver will not be of substantial detriment to adjacent properties and will not materially affect the ability of the City to effectuate the purpose of this chapter and will not be detrimental to the public interest and
    - d That the condition or situation of the subject property of the intended use of the property for which the waiver is sought is not common recurrent or general in nature
  - 4 Approval Authority The City Manager or designee must act upon any completed application no later than ten (10) days after submittal and may

approve conditionally approve or deny the waiver. The applicant requesting the waiver must be promptly notified in writing of any action taken. Unless specified otherwise at the time a waiver is approved, the waiver will apply to the subject property during the period of the mandatory water supply shortage condition. The decision of the City Manager will be final.

Section 15 Penalties and Violations

- A Misdemeanor Any violation of this chapter may be prosecuted as a misdemeanor punishable by imprisonment in the county jail for not more than thirty (30) days or by a fine not exceeding one thousand dollars (\$1 000) or by both
- B Civil Penalties Civil penalties for failure to comply with any provisions of the ordinance are as follows
- 1 First Violation The City will issue a written warning and deliver a copy of this ordinance by mail
  - 2 Second Violation A second violation within the preceding twelve (12) calendar months is punishable by a fine not to exceed one hundred dollars (\$100)
  - 3 Third Violation A third violation within the preceding twelve (12) calendar months is punishable by a fine not to exceed two hundred and fifty (\$250)
  - 4 Fourth and Subsequent Violations A fourth and any subsequent violation is punishable by a fine not to exceed five hundred (\$500)
    - a Water Flow Restrictor Device In addition to any fines, the City may require the installation of a water flow restrictor device of approximately one gallon per minute
    - b Termination of Service In addition to any fines, the City may disconnect and/or terminate a customer's water service
- C Cost of Installing Flow Restrictor or Disconnecting Service A person or entity that violates this ordinance is responsible for payment of the City's charges for disconnecting and/or reconnecting service per the City's schedule of charges then in effect. Nonpayment will be subject to the same remedies as nonpayment of basic water rates
- D Separate Offenses Each day that a violation of this ordinance occurs is a separate offense
- E Notice and Hearing
- 1 The City will issue Notice of Violations pursuant to Chapter 1 20. A customer may appeal the Notice of Violation by complying with the requirements set forth in Chapter 1 20.

- 2 Pending receipt of a written appeal or pending a hearing pursuant to an appeal the City may take appropriate steps to prevent the unauthorized use of water as appropriate to the nature and extent of the violations and the current declared water stage condition

Section 16 Severability

If any section subsection sentence clause or phrase in this Ordinance is for any reason held invalid the validity of the remainder of the Ordinance will not be affected The City Council hereby declares it would have passed this chapter and each section subsection sentence clause or phrase thereof irrespective of the fact that one or more sections subsections sentences clauses or phrases or is declared invalid

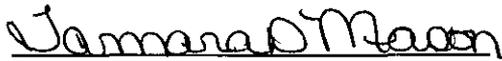
Section 17 The City Clerk shall certify to the passage and adoption of this ordinance and shall cause the same to be published in the manner required by law This ordinance shall become effective thirty (30) days from and after its passage

PASSED APPROVED AND ADOPTED this 3<sup>rd</sup> day of August 2009



Tom Beamish Mayor

Attest



Tamara D. Mason CMC City Clerk

STATE OF CALIFORNIA )  
COUNTY OF ORANGE ) SS  
CITY OF LA HABRA )

I Tamara D Mason City Clerk of the City of La Habra do hereby certify that the above and foregoing is a true and correct copy of Ordinance No 1703 introduced at a regular meeting of the City Council of the City of La Habra held on the 20th day of July 2009 and was thereafter adopted at a regular meeting held on the 3rd day of August 2009 by the following vote

AYES	COUNCILMEMBERS	GOMEZ BEAMISH SHAW ESPINOZA SIMONIAN
NOES	COUNCILMEMBERS	NONE
ABSENT	COUNCILMEMBERS	NONE
ABSTAIN	COUNCILMEMBERS	NONE

Said ordinance has been published or posted pursuant to law

Witness my hand and the official seal of the City of La Habra this 4th day of August 2009

  
\_\_\_\_\_  
Tamara D Mason, CMC City Clerk

Appendix D

60 Day Notification Letters



621 W. Lambert Road  
Post Office Box 337  
La Habra, CA 90633-0337  
Office: (562) 905-9792  
Fax: (562) 691-1626

March 7, 2011

County of Orange  
Clerk-Recorder  
12 Civic Center Plaza, Room 101  
Santa Ana, CA 92701

Attention: Tom Daly, Clerk Recorder and Alisa Drakodaidis, Deputy CEO, OC Infrastructure

Re: The City of La Habra 2010 Urban Water Management Plan Update

Dear Mr. Daly,

The City of La Habra (the City) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

A public hearing on the City's 2010 UWMP is scheduled for May 16, 2011. The draft plan will be available for review beginning April 16, 2011 at the Public Works Office located at 621 W. Lambert Road, La Habra, CA. The deadline for adopting the UWMP is July 1, 2011. A copy of the 2010 UWMP will be provided to the County of Orange no later than 30 days after its adoption.

If you would like more information or have any questions, please contact Jeff Henderson at (562) 905-9792 or via email at [JeffH@lahabracity.com](mailto:JeffH@lahabracity.com).

Sincerely

Thom Coughran, P.E.  
Director of Public Works

Appendix E  
Public Hearing Notice



Appendix F  
Copy of Plan Adoption

**RESOLUTION NO. 5461**

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LA HABRA ADOPTING, DIRECTING, FILING AND IMPLEMENTING THE 2010 URBAN WATER MANAGEMENT PLAN UPDATE**

The City Council of the City of La Habra does hereby resolve as follows:

**SECTION 1:**

**WHEREAS**, the California legislature enacted Assembly Bill 797 during the 1983-84 Regular Session of the California Legislature (Water Code Section 10610 et. Seq.), known as the Urban Water Management Planning Act (AB 797), which mandates that every urban supplier of water providing water for municipal purposes to more than 10,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan, the primary object of which is to plan for the conservation, drought and efficient use of water and,

**WHEREAS**, AB 797 requires that said plan be adopted by August 31, 2011, after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

**WHEREAS**, the City of La Habra did prepare and file said plan with the California Department of Water Resources in August 2011; updated in 1990, 1995, 2000, 2005 and May 2011; and

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

**WHEREAS**, the City of La Habra is an urban supplier of water in excess of 10,000 customers and or supplier of more than 3,000 acre feet annually, and has therefore, prepared for public review a Draft Urban Water Management Plan Update, in compliance with the requirements of AB 797, and properly noticed a public hearing regarding the Draft Plan Update that was held by the La Habra Utility Authority of the City of La Habra on May 2, 2011 and continued to May 16, 2011.

**SECTION II:**

NOW, THEREFORE, BE IT RESOLVED by the La Habra Utility Authority of City of La Habra as follows:

1. The 2010 Urban Water Management Plan Update is hereby adopted and ordered filed by the City Clerk;
2. The Director of Public Works is hereby authorized and directed to file the 2010 Urban Water Management Plan Update with the California Department of Water Resources in accordance with AB 797;

PASSED, APPROVED AND ADOPTED THIS 16<sup>th</sup> day of May, 2011.



Timothy Shaw, Mayor Pro Tem

ATTEST:



TAMARA D. MASON, MMC, CITY CLERK

STATE OF CALIFORNIA     )  
COUNTY OF ORANGE     )     ss  
CITY OF LA HABRA     )

I, Tamara D. Mason, City Clerk for the City of La Habra, do hereby certify that the above and foregoing is a true and correct copy of Resolution No. 5461 introduced and adopted at a regular meeting of the City Council of the City of La Habra held on the 16<sup>th</sup> day of May, 2011 by the following vote:

AYES:            Council members: ESPINOZA, BEAMISH, BLAZEY, SHAW  
NOES:            Council members: NONE  
ABSENT:         Council members: GOMEZ  
ABSTAIN:        Council members: NONE

Witness my hand and the official seal of the City of La Habra this 16th day of May, 2011.

  
\_\_\_\_\_  
TAMARA D. MASON, MMC, CITY CLERK



8001 Irvine Center Drive, Suite 1100  
Irvine, CA 92618  
949.450.9901 Fax 949.450..9902

**MALCOLM  
PIRNIE**

 **ARCADIS**

*The Water Division of ARCADIS*