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FINAL
City of Port Hueneme
Urban Water
Management Plan

August 2011

Prepared for

City of Port Hueneme
250 North Ventura Road
Port Hueneme, CA 93041

K/J Project No. 1089019*00

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Section 1: Introduction

1.1 Overview

This volume presents the Urban Water Management Plan for the City of Port Hueneme (City). This chapter describes the general purpose of the 2010 Urban Water Management Plan, discusses implementation, and provides general information about the City's service area characteristics. A list of acronyms and abbreviations is also provided at the end of this chapter.

1.2 Purpose

An Urban Water Management Plan (UWMP) is a planning tool that generally guides the actions of water management agencies. It provides managers and the public with a broad perspective on a number of water supply issues. It is not a substitute for project-specific planning documents, nor was it intended to be when mandated by the State Legislature. For example, the Legislature mandated that a plan include a section which "describes the opportunities for exchanges or water transfers on a short-term or long-term basis." (California Urban Water Management Planning Act, Article 2, Section 10630[d]). The identification of such opportunities, and the inclusion of those opportunities in a general water service reliability analysis, neither commits a water management agency to pursue a particular water exchange/transfer opportunity, nor precludes a water management agency from exploring exchange/transfer opportunities not identified in the plan. When specific projects are chosen to be implemented, detailed project plans are developed, environmental analysis, if required, is prepared, and financial and operational plans are detailed.

This Plan is a management tool, providing a framework for action, but not functioning as a detailed project development or action. It is important that this Plan be viewed as a long-term, general planning document, rather than as an exact blueprint for supply and demand management. Water management in California is not a matter of certainty, and planning projections may change in response to a number of factors. From this perspective, it is appropriate to look at the Plan as a general planning framework, not a specific action plan. It is an effort to generally answer a series of planning questions including:

- What are the potential sources of supply and what is the reasonable probable yield from them?
- What is the probable demand, given a reasonable set of assumptions about growth and implementation of good water management practices?
- How well do supply and demand figures match up, assuming that the various probable supplies will be pursued by the implementing agency?

Using these "framework" questions and resulting answers, the implementing agency will pursue feasible and cost-effective options and opportunities to meet demands. The City will explore enhancing basic supplies from traditional sources as well as other options. These include groundwater extraction, water exchanges, recycling, desalination, and water banking/conjunctive use. Specific planning efforts will be undertaken in regard to each option, involving detailed evaluations of how each option would fit into the overall supply/demand

framework, how each option would impact the environment, and how each option would affect customers. The objective of these more detailed evaluations would be to find the optimum mix of conservation and supply programs that ensure that the needs of the customers are met.

The California Urban Water Management Planning Act (Act) requires preparation of a Plan that:

- Accomplishes water supply planning over a 20-year period in five year increments (this plan utilizes a 25-year planning period).

- Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single-dry, and multiple-dry years.

Additionally, newly passed State legislation, Senate Bill 7 of Special Extended Session 7 (SBX7-7), was signed into law in November 2009, which calls for progress towards a 20 percent reduction in per capita water use by 2020. As a result, the legislation now mandates each urban retail supplier to develop and report a water use target in the retailer's 2010 UWMP. The legislation further requires that retailers report an interim 2015 water use target, their baseline daily per capita use, compliance daily per capita use along with the basis for determining those estimates.

SBX7-7 provides four possible methods for an urban retail water supplier to use to calculate its water use target. DWR has developed methodologies for calculating base daily per capita water use, baseline commercial, industrial and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use and landscape area water use.

Also of importance is Assembly Bill (AB) 1420. AB 1420, passed in 2007 and in effect as of January 2009, changes the funding eligibility requirements of Section 10631 of the Water Code. For any urban water supplier to be eligible for grant or loan funding administered by DWR, the State Water Resources Control Board (SWRCB), or the Bay-Delta Authority (such as Propositions 50 and 84), the supplier must show implementation of water use efficiency demand management measures/best management practices (DMMS/BMPs) listed and described in the Act and the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding, or show the schedule by which the supplier will begin implementing the DMMs/BMPs. Any supplier, not implementing the measures based on cost-effectiveness, must submit proof showing why the measures are not cost-effective.

A checklist to ensure compliance of this Plan with the Act requirements is provided in Appendix A. Tables ensuring compliance with AB 1420 are provided in Appendix B.

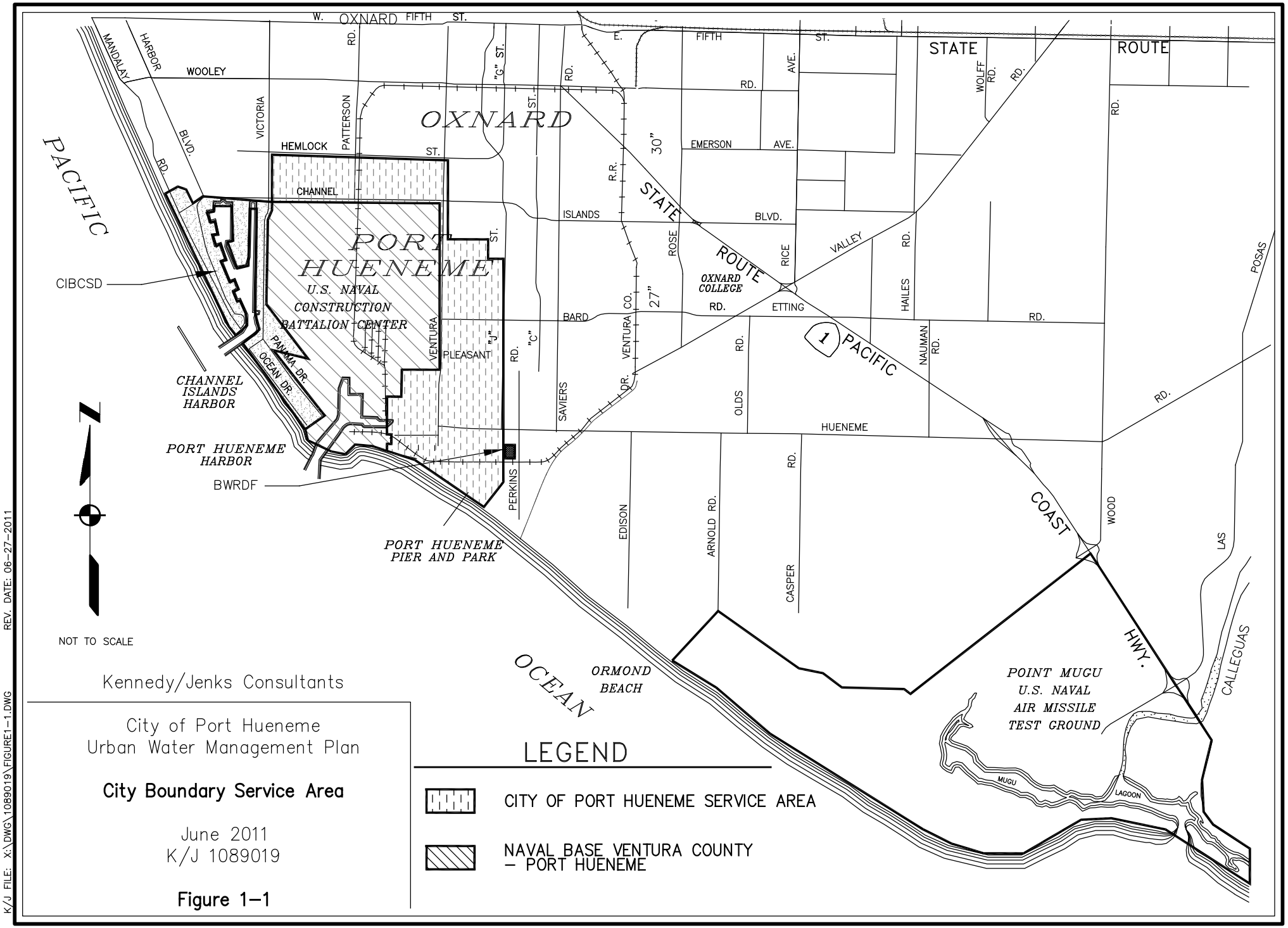
It is the stated goal of the City and its wholesaler, Port Hueneme Water Agency (PHWA) to manage water resources to meet future demands while maintaining independence during periods of water shortages. Based on conservative water supply and demand assumptions over the next 25 years, in combination with conservation of non-essential demand during certain dry years, the Plan successfully achieves this goal.

1.3 Implementation of the Plan

Water Code Section 10617 defines an urban water supplier as any supplier that provides water to more than 3,000 service connections or supplies more than 3,000 acre-feet (AF) of water annually. Currently, the City delivers water to approximately 6,500 connections (as of 2010), therefore requiring the preparation and adoption of a UWMP.

The City's service area covers approximately 4.7 square miles and provides water to a population of nearly 22,000 within the City limits. Since 2001 the City has purchased all of its potable supply from PHWA, which in turn purchases water from Calleguas Municipal Water District (CMWD) and United Water Conservation District (UWCD).

The service area for the City is shown on Figure 1-1.



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City of Port Hueneme
Urban Water Management Plan

City Boundary Service Area

June 2011
K/J 1089019

Figure 1–1

LEGEND

- CITY OF PORT HUENEME SERVICE AREA
- NAVAL BASE VENTURA COUNTY – PORT HUENEME

K/J FILE: X:\DWG\1089019\FIGURE1-1.DWG REV. DATE: 06-27-2011

1.3.1 Plan Preparation and Agency Coordination

The City's first UWMP was adopted by the City Council in 1990 and updates have been adopted in 1997, 2002, and 2005. This plan was prepared in conjunction with efforts of other agencies within Ventura County. Table 1-1 provides a summary of the Agency Coordination for this Plan.

TABLE 1-1
AGENCY COORDINATION

	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt
Port Hueneme Water Agency	X	X	X	X	X	X
United Water Conservation District				X	X	
Calleguas Municipal Water District				X	X	
City of Oxnard				X	X	X
County of Ventura				X	X	X

Note: To be updated for Final.

1.3.2 Public Outreach

The City has encouraged community participation in its urban water management planning efforts since the first plan was developed in 1990. For the current UWMP, notice of a public meeting, held _____, was posted in the City Hall lobby and other City facilities. A copy of the public notice is included in Appendix B.

On _____, the City mailed letters (see Appendix B) to the agencies listed in Table 1-1 informing them of the 2010 update to the City's UWMP.

The Urban Water Management Planning Act requires that the UWMP be made available to the public for review and that a public hearing be held before adopting the Plan. The City Council set a public hearing and provided notice of the meeting in the local newspaper (see Appendix B). The plan was adopted following the public hearing at the Council meeting held on _____.

1.4 City of Port Hueneme

The City, incorporated in 1948, is located midway between the cities of Santa Barbara and Los Angeles, on the Pacific Coast in western Ventura County. Figure 1-2 provides a vicinity map indicating the location of the City relative to other cities within the County. The City encompasses an incorporated area of 4.7 square miles.

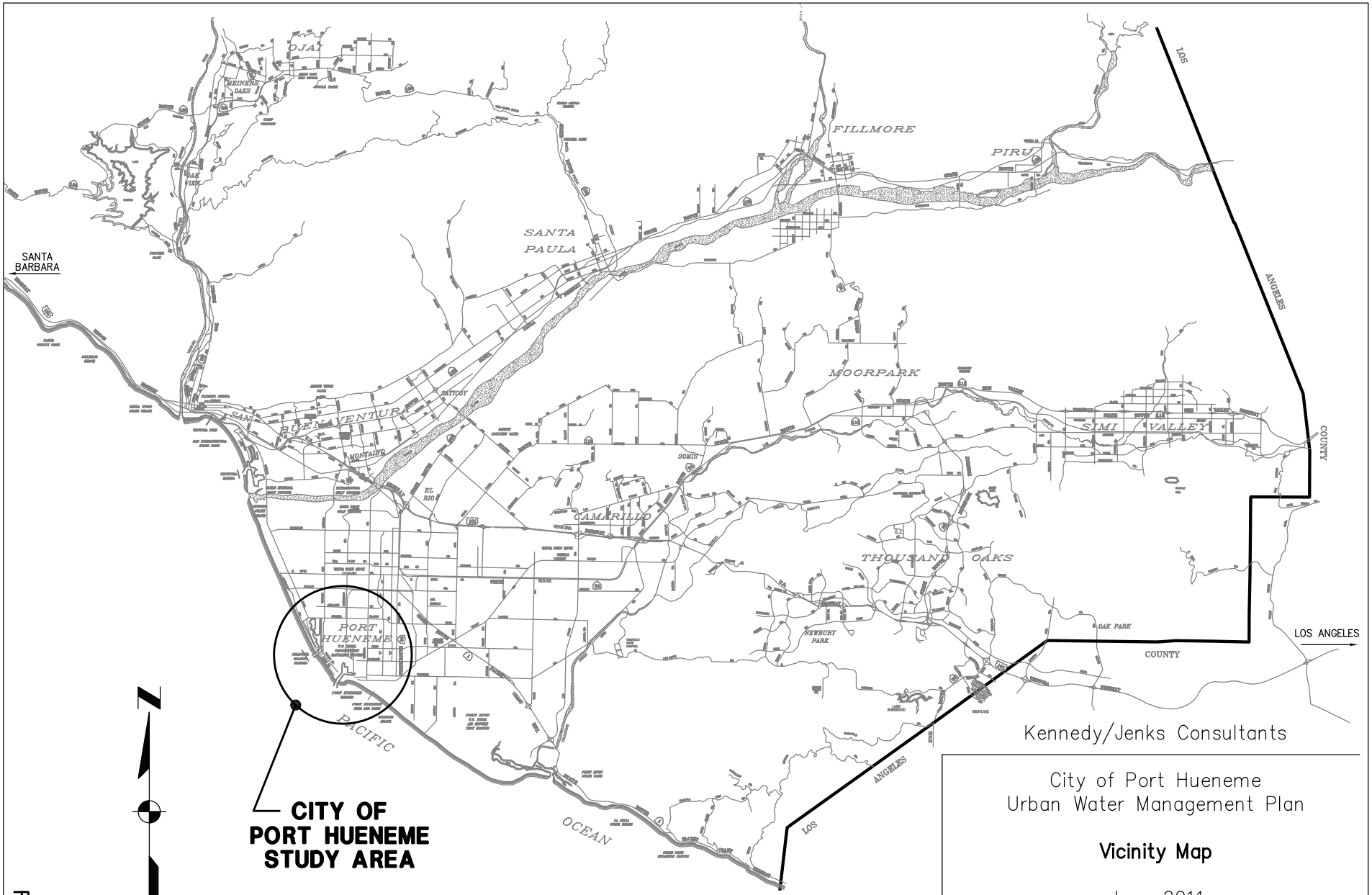

Figure 2

K/J FILE: X:\DWG\1089019\FIGURE1-2.DWG REV. DATE: 06-27-2011

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City of Port Hueneme
Urban Water Management Plan

Vicinity Map

June 2011
K/J 1089019

Figure 1-2

The local economy is composed of varied commercial interests. Major employers include the Port of Hueneme, retail stores, light manufacturing, restaurants, educational institutions, and the military. Cargo through the Port of Hueneme has increased to record levels that prompted the federal government to designate it as a Port of Entry and Foreign Trade Zone. A number of business and industrial parks generate extensive commercial activity. Attractive beaches and harbors draw significant tourism to the area. Median household income was $42,246 according to the 2000 US Census.

During the last 50 years, the City has experienced moderate growth in population. However, over the past decade United States Census data for 2010 indicated a population of approximately 21,555, which represents a two percent decrease since 2000. The City also experiences a moderate seasonal population increase during the summer months due to tourism and agriculture. According to the Ventura Council of Governments (VCOG, 2000), the City population per dwelling unit ratio is approximately 2.8 to 1, and is not expected to change appreciably in the next 20 years.

Historically, the City relied solely on Ventura County groundwater supplies through a combination of wells owned and operated by the City and the UWCD. Seawater intrusion in the Oxnard Plain aquifer systems rendered many wells unusable for drinking water purposes. Currently, the City purchases all potable water supplies from the PHWA and CMWD.

1.5 Climate

The climate in the City and Channel Islands Harbor area is characterized by mild temperatures year round with dry, warm summers and wet, cool winters. Average maximum day temperature varies between 65 and 75 degrees, although an extreme low of 28 degrees in January 1962 and an extreme high of 103 degrees in September 1978 (most recent) have been recorded. Most of the average rainfall of 14.8 inches occurs between November and March (Table 1-2).

TABLE 1-2
CLIMATE

	Jan	Feb	Mar	Apr	May	Jun
Standard Monthly Average ETo (inches)	1.98	2.28	3.33	4.59	4.91	4.94
Average Rainfall (inches)	3.15	3.33	2.45	1.06	0.16	0.06
Average Max Temperature (^{o}F)	65.5	66.0	66.5	68.0	69.2	71.2
Average Min Temperature (^{o}F)	43.5	44.5	45.7	47.8	50.9	53.8

	Jul	Aug	Sept	Oct	Nov	Dec	Annual
Standard Monthly Average ETo (inches)	4.92	5.03	3.67	3.16	2.49	2.16	43.46
Average Rainfall (inches)	0.02	0.04	0.20	0.38	1.51	2.47	14.82
Average Max Temperature (^{o}F)	74.0	74.7	74.8	73.9	71.1	66.5	70.1
Average Min Temperature (^{o}F)	56.7	57.5	56.0	52.2	47.2	44.2	50.0

Source: CIMIS data for the Port Hueneme Station No. 97 and the Western Regional Climate Center data for the Oxnard Station No. 046569.

1.6 List of Acronyms

2009 Reliability Report	State Water Project Delivery Reliability Report 2009
Act	California Urban Water Management Planning Act
AF	acre-feet
AFY	acre-feet per year
AWPF	Advanced Water Purification Facility
BMPs	Best Management Practices
BWRDF	Brackish Water Demonstration Reclamation Facility
Cal/EPA	California Environmental Protection Agency
CARB	California Air Resources Board
CAT	Climate Action Team
cfs	cubic feet of water per second
CIBCSD	Channel Islands Beach Community Services District
City	City of Port Hueneme
CMWD	Calleguas Municipal Water District
CPUC	California Public Utilities Commission
CUWCC	California Urban Water Conservation Council
Delta	Sacramento-San Joaquin River Delta
DHS	California State Department of Human Services
DMMs	Demand Management Measures
DMMS/BMPs	demand management measures/best management practices
DWR	Department of Water Resources
Energy Commission	California Energy Commission
ETo	Evapotranspiration coefficient
FCGMA	Fox Canyon Groundwater Management Agency
gpcd	gallons per capita per day
gpd/ft^2	gallons per day per square foot
gpm	gallons per minute
GREAT	Groundwater Recovery Enhancement and Treatment
IRP	Integrated Resource Plan
LAS	Lower Aquifer System
M&I	Municipal & Industrial

MGD	million gallons per day
MWD	Metropolitan Water District of Southern California
NF	nanofiltration
^{o}F	Degrees Fahrenheit
O-H	Oxnard-Hueneme
PHWA	Port Hueneme Water Agency
Plan	Urban Water Management Plan 2010
ppm	parts per million
RO	reverse osmosis
RUWMP	Regional Urban Water Management Plan
SCAG	Southern California Association of Governments
SWP	State Water Project
SWRCB	State Water Resources Control Board
taf	thousand acre-feet
TDS	total dissolved solids
UAS	Upper Aquifer System
USNAWS	United States Naval Air Weapons Station-Point Mugu
USNBVC	United States Naval Base Ventura County
USNCBC	United States Naval Construction Battalion Center
UWCD	United Water Conservation District
UWMP	Urban Water Management Plan
VCOG	Ventura Council of Governments

Section 2: Water Use

2.1 Overview

This chapter describes historic and current water use and the methodology used to project future demands within the City's service area. Water use is divided into sectors such as residential, industrial, institutional, landscape, agricultural, and other purposes. To undertake this evaluation, existing land use data and new housing construction information were compiled from the City's building permit records. This information was then compared to historical trends for new water service connections and customer water use information. In addition, weather and water conservation effects on historical water use were factored into the evaluation.

2.2 Population

Actual population data for 2000 through 2010 was obtained from 2010 U.S. Census. Population growth trends for the City of Port Hueneme are presented in Table 2-1.

TABLE 2-1
CURRENT AND PROJECTED POPULATION ESTIMATES –
CITY OF PORT HUENEME

	2000	2005	2010	2015	2020	2025	2030	2035	Annual % Change 2005-2035
City of Port Hueneme	21,845	21,906	21,555	21,658	21,762	21,866	21,971	22,077	0.48

Note:
Projection populations obtained from SCAG, and verified by Census Bureau 2010.

The City's population growth is small in comparison to the level of growth experienced by neighboring cities and Ventura County as a whole. The slower growth in Port Hueneme was largely reflective of the limited land available for residential development in the City and its limited potential for expansion. The City has no remaining land of considerable size for residential uses (City of Port Hueneme Community Development Department, 2009). Due to the lack of potential for development within the City, an annual growth rate of 0.48 percent has been used to project growth through 2035, as shown in Table 2-1.

2.3 Historical Water Use

The City has approximately 5,700 accounts in its service area; Table 2-2 presents the number of accounts in each sector. Water demand has decreased over the last few years as a result of the population decrease and dry weather conditions experienced. Table 2-2 summarizes the change in water demand from 2005 to 2010. The demand decreased by approximately 700 acre-feet per year (AFY) from 2005 to 2010, this can be attributed to the population decrease and the drought conditions of 2008 through 2010 (customer responses to drought conditions and requests for conservation).

TABLE 2-2
CURRENT AND PROJECTED WATER DELIVERIES BY SECTOR –
CITY OF PORT HUENEME

Year	Water Use Sectors	Single Family Residential	Multi-Family Residential	Commercial/Industrial	Irrigation	Total
	No. of accounts	4,813	50	173	164	5,200
2005	Deliveries (AF)	1,751	843	158	76	2,828
	No. of accounts	4,989	292	255	176	5,712
2010	Deliveries (AF)	1,324	638	258	56	2,276
	No. of accounts	5,110	299	261	180	5,850
2015	Deliveries (AF)	1,416	682	276	60	2,434
	No. of accounts	5,233	306	267	185	5,991
2020	Deliveries (AF)	1,508	726	294	64	2,592
	No. of accounts	5,360	314	274	189	6,137
2025	Deliveries (AF)	1,602	771	312	68	2,753
	No. of accounts	5,489	321	281	194	6,285
2030	Deliveries (AF)	1,696	816	330	72	2,914
	No. of accounts	5,489	321	281	194	6,285
2035	Deliveries (AF)	1,696	816	330	72	2,914

Notes:
(a) Demand and account projections based on population growth rate of 0.48% and assumption that all sectors will grow at same rate. Build out will occur in 2030, no additional growth after 2030.
(b) Residential sector includes an additional 3.85 AF per year to account for additional development to the year 2030, according to City's 2015 General Plan.
(c) Comm./Industrial sector includes an additional 16.65 AF per year to account for additional development to the year 2030, according to City's 2015 General Plan.

2.4 Existing and Targeted Per Capita Water Use in City's Service Area

2.4.1 Base Daily per Capita Water Use for SBX7-7 Reduction

The requirements of SBX7-7 apply to retail water suppliers with the intent to increase water use efficiency. SBX7-7 sets a goal of 20 percent per capita reduction in urban water use statewide by 2020.

Consistent with SBX7-7, a retail water supplier's 2010 UWMPs must provide an estimate of Base Daily Per Capita Water Use. This estimate utilizes information on population as well as base gross water use. For the purposes of this UWMP, population was estimated as described in the previous section. Base gross water use is defined as the total volume of water, treated or untreated, entering the distribution system of the City, excluding: recycled water; net volume of water placed into long-term storage; and water conveyed to another urban water supplier. This calculation of Base Daily Per Capita Water Use is limited to the City's retail water service area (as described in Chapter 1).

SBX7-7 allows urban water retailers to evaluate their base daily per capita water use using either a 10 or 15-year period. A 15-year base period within the range 1 January 1990 to

31 December 2010 is allowed if recycled water made up 10 percent or more of the 2008 retail water delivery. If recycled water did not make up 10 percent or more of the 2008 retail water delivery, then a retailer must use a 10-year base period within the range 1 January 1995 to 31 December 2010. Recycled water did not make up 10 percent of the 2008 delivery to the City's retail area, therefore, Base Daily Per Capita Water Use has been based on a 10-year period.

Urban retailers are also required to report daily per capita water use for a five year period within the range 1 January 2003 to 31 December 2010. This 5-year base period is compared to the Target Base Daily Per Capita Water Use to determine the minimum water use reduction requirement (this is described in more detail in the following sections).

Table 2-3 reports the data used to calculate the Base Daily Per Capita Water Use in gallons per capita per day (gpcd), and the 10-year and 5-year base periods.

TABLE 2-3
BASE DAILY PER CAPITA WATER USE

Base Period Year						
Sequence Year	Calendar Year	Distribution System Population	Annual System Gross Water Use (AFY)	Annual Daily Per Capita Water Use (gpcd)	10-Year Average (gpcd)	5-Year Average (gpcd)
1	2000	21,874	3,012	141		
2	2001	21,036	3,177	128		
3	2002	22,115	3,022	128		
4	2003	21,940	2,818	123		
5	2004	21,961	2,828	115		
6	2005	21,906	2,591	115		
7	2006	21,429	3,040	108		
8	2007	21,354	2,891	127		118
9	2008	21,390	2,626	121		117
10	2009	21,555	3,012	109	120	116
				Period Selected		**118**

Note:
Shaded cells show calendar years used in selected 5-year baseline per capita water use average for determining the minimum water use reduction requirement. 0.95 x 118 = 112 gpdc is the minimum water use reduction for the City.

2.4.2 Urban Water Use Targets for SBX7-7 Reduction

In addition to calculating base gross water use, SBX7-7 requires that the City identify its demand reduction targets for year 2015 and 2020 by utilizing one of four options:

- Option 1. 80 percent of baseline gpcd water use (i.e., a 20 percent reduction).
- Option 2. The sum of the following performance standards: indoor residential use (provisional standard set at 55 gpcd); plus landscape use, including dedicated and residential meters or connections equivalent to the State Model Landscape Ordinance (80 percent ETo existing landscapes, 70 percent of ETo for future landscapes); plus 10 percent reduction in baseline commercial, industrial institutional use by 2020.

- Option 3. 95 percent of the applicable state hydrologic region target as set in the DWR "20x2020 Water Conservation Plan" (February, 2010) (20x2020 Plan).

- Option 4. Savings by Water Sector: this provisional method, developed by DWR, identifies water savings obtained through identified practices and subtracts them from the base daily per capita water use value identified for the water supplier.

The City's service area is within the South Coast Hydrologic Region (#4) as defined by DWR. This hydrologic region has been assigned a 2020 water use target of 149 gpcd per the DWR 20x2020 Plan (DWR 2009). The City's base daily per capita water use of 120 gpcd for the 10-year base period is below 95 percent of the hydrologic region target (which is 95 percent of 149 gpcd; or 142 gpcd). Therefore, to comply with SBX7-7, the City selected Option 3 to reduce its Base Daily Per Capita Water Use by the minimum five percent required by SBX7-7. This results in a 2020 gpcd target for the City of 112 gpcd, as shown in Table 2-4.

TABLE 2-4
COMPONENTS OF TARGET DAILY PER CAPITA WATER USE

10-year period selected for baseline gpcd	2000 - 2009
5-year period selected for maximum allowable gpcd	2003 - 2007
Hydrologic Region #4	149 gpcd
95% of Hydrologic Region	142 gpcd
Highest 10-year Average	120 gpcd
Highest 5-year Average	118 gpcd
Compliance Water Use Target (20% Reduction on 10yr)	97 gpcd
Maximum Allowable Water Use Target (5% Reduction 5yr)	112 gpcd
2020 Target	112 gpcd
2015 Interim Target	115 gpcd
Methodology Used	Option 3/Hydrologic Region Target

The calculated target under Option 3 is greater than the maximum allowable water use target; in order to meet the water use targets prescribed by SBX7-7, the City will have to reduce current water use by approximately 2.5 percent by 2015 and by 5 percent by 2020. The programs which the City intends to use to achieve these reduction goals are described in Section 7.

2.5 Projected Water Use

2.5.1 Water Use Data Collection

Estimating future water demand is a function of several factors. Water usage is influenced by geographic location, topography, land use, demography, and water system characteristics (i.e., system pressures, water quality, and metering of connections). Therefore, water demand characteristics within the City will differ from water demands of other areas in southern California according to each of these factors. Historical and current water use data were collected and broken out by water use sector to allow for detailed analysis and for making different assumptions about each type of water use for future years (Table 2-5).

TABLE 2-5
HISTORIC WATER DELIVERIES (AFY)

	2005	2006	2007	2008	2009	2010
Residential	2,594	2,376	2,788	2,652	2,408	1,962
Comm./Industrial	158	145	170	162	147	258
Irrigation	76	70	82	78	71	56
Total	**2,828**	**2,591**	**3,040**	**2,891**	**2,626**	**2,276**

The City's projected 2015 water demand is approximately 2,434 AF. The City's population is anticipated to remain relatively stable from 2010 to 2035 due to the fact that there is limited land available for development. The City's 2015 General Plan (Land Use Element) indicates that there are approximately 198 potential new medium density residential dwelling units, 38 potential new high density residential dwelling units, and 81 potential new mixed use residential dwelling units. Development of these 317 residential properties may result in additional future water demand of approximately 77 AFY. In addition, there are approximately 1,311,000 square feet of commercial (326,000 square feet) and industrial (985,000 square feet) property that can be developed. Development of these commercial and industrial properties may result in additional future water demand of approximately 313 AFY. Therefore, it is anticipated that additional future water demands may be approximately 390 AFY if all potential developments were constructed.

2.5.2 Residential Sector

The residential sector includes single family residences and multi-family units. Projections for the residential sector growth were based on the population expected growth rate. The residential sector is expected to grow at the same rate as the population growth rate. The population growth rate is small due to the fact that there is limited available land for development for this sector.

2.5.3 Commercial Sector

The commercial, industrial, institutional, and governmental sector water demand account for seven percent of the total demand. Projections for the commercial sector growth were based on the population expected growth rate; it is expected that the sector will only grow as population increases. There are no large projects that are planned for the City that will increase the demand beyond what is projected.

2.5.4 Irrigation

This category refers to irrigation of both City property and non-city owned properties and accounts for three percent of the total demand. Demand in the category is projected to remain steady and only increase by the population's growth rate.

2.5.5 Projected Water Demand

An estimate of projected water demand can be made by projecting the average total demand for the previous six years by the City growth rate of 0.48 percent obtained from Southern California

Association of Governments (SCAG). The average total demand from 2005 – 2010, includes both dry and wet years within the six year period, is 2,684. It is projected out at the assumed annual growth rate and based on those assumptions, the City's total demand in 2030 (assuming build out reached in 2030) would be approximately 3,057 AFY (Table 2-6). All sectors are assumed to grow at the same annual growth rate.

The breakdown of total water demand by water sector was determined using the percentages from the City's General Plan EIR Water uses were broken into three categories, best aligned with the City's customer sectors, and assumptions were made about each for projections going forward in order to be as accurate as possible. Table 2-6 includes an alternative estimate based on implementation of demand management measures as discussed in Section 7 and achieving a five percent reduction in demand by 2020. This estimate, also based on future development, indicated a 2030 demand of 2,805.

TABLE 2-6
PROJECTED WATER DEMANDS (AFY)

	2015	2020	2025	2030	2035
Residential[(a)]	2,098	2,235	2,373	2,512	2512
Comm./Industrial[(b)]	276	294	312	330	330
Irrigation	60	64	68	72	72
Total Demand w/o Conservation	**2,434**	**2,592**	**2,753**	**2,914**	**2,914**
Total Demand w/ Conservation	**2,373**	**2,463**	**2,615**	**2,769**	**2,769**

Notes:
(a) Residential sector includes an additional 3.85 AF per year to account for additional development to the year 2030, according to City's 2015 General Plan.
(b) Comm./Industrial sector includes an additional 16.65 AF per year to account for additional development to the year 2030, according to City's 2015 General Plan.

In 2005, the City began the installation of 5,200 new water meters with "radio-read" and data logging capabilities. This program includes both the installation of meters on 3,660 unmetered accounts and replacement of 1,540 aging existing conventional meters. This program enables the City to determine a more accurate assessment of water demand by water sector. The program was completed in 2009 and the City began volumetric billing in August 2009.

2.5.6 Water Use Projections for Lower Income Households

Senate Bill 1087 requires that water use projections of a UWMP include the projected water use for single-family and multi-family residential housing for lower income households as identified in the housing element of any city, county, or city and county general plan in the service area of the supplier.

Housing elements rely on the Regional Housing Needs Allocation (RHNA) generated by the State Department of Housing and Community Development (HCD) to allocate the regional need for housing to the regional Council of Governments (COG) (or a HCD for cities and counties not covered by a COG) for incorporation into housing element updates. Before the housing element is due, the HCD determines the total regional housing need for the next planning period for each region in the state and allocates that need. The COGs then allocate to each local jurisdiction its "fair share" of the RHNA, broken down by income categories; very low, low, moderate, and above moderate, over the housing element's planning period.

Jurisdictions located within the region covered by the Southern California Association of Governments (SCAG), including the County of Ventura, were required to submit their adopted Housing Elements to the State Department of Housing and Community Development by July 1, 2008.

The City of Port Hueneme and the County last updated their housing elements in 2008, and it covers the planning period 2008-2014. These elements incorporate the formally transmitted Ventura County housing allocation that was incorporated into the Final RHNA approved by the SCAG Regional Council on July 12, 2007[1]. The allocation for very low and low income classes as defined by the California Health and Safety Code were the following for the City of Port Hueneme:

- Very Low –20.0%
- Low –17.2%

Neither the SCAG RHNA nor the City of Port Hueneme and County housing elements further classify the allocation of low income households into single-family and multi-family residential housing units. For this reason, it is not possible to project water use for lower income households by this specific land use category. However, to remain consistent with the intent of the SB1087 legislation and also to comply with the UWMP Planning Act, an attempt has been made to identify the water use projections for very low- and low- residential income households based on the income category, classification percentage, and calculated demand projections as shown in Table 2-7.

The current planning period for the RHNA is January 1, 2006 to June 30, 2014. The next RHNA planning cycle will cover January 1, 2011 to September 30, 2021. Thus, the 2015 UWMP update will need to be updated with the next RHNA planning cycle and allocation low income category percentages.

City of Port Hueneme will not deny or condition approval of water services, or reduce the amount of services applied for by a proposed development that includes housing units affordable to lower income households unless one of the following occurs:

- City of Port Hueneme specifically finds that it does not have sufficient water supply,
- City of Port Hueneme is subject to a compliance order issued by the State Department of Health Services that prohibits new water connections, and
- The applicant has failed to agree to reasonable terms and conditions relating to the provision of services.

[1] Final Regional Housing Need Allocation Plan - Planning Period (January 1, 2006 - June 30, 2014) for Jurisdictions within the Six-County SCAG Region (approved by the SCAG Regional Council on July 12, 2007); http://www.scag.ca.gov/housing/pdfs/rhna/RHNA_FinalAllocationPlan071207.pdf

TABLE 2-7
LOW INCOME DEMANDS[a][b]

	2015	2020	2025	2030	2035
City of Port Hueneme[c]	**2,434**	**2,592**	**2,753**	**2,914**	**2,914**
Very Low Income[b]	487	518	551	583	583
Low Income[b]	419	446	473	501	501
Sub-total City[a]	**906**	**964**	**1,024**	**1,084**	**1,084**

Notes:
(a) Demands already included within purveyor projections
(b) 2007 Adopted SCAG RHNA; allocation for very low income (20.0%), low income (17.2%)
(c) City Total water use (from Table 2-2)

2.6 Other Factors Affecting Water Use

California faces the prospect of significant water management challenges due to a variety of issues including population growth, regulatory restrictions and climate change.

2.6.1 Weather Effects on Historical Water Usage

Two major factors that affect water use are weather and water conservation. Historically, when the weather is hot and dry, water use increases. The amount of increase varies according to the number of consecutive years of hot dry weather and the conservation activities imposed. During cool-wet years, historical water use has decreased to reflect less water use for external landscaping. Water conservation measures employed within the Port Hueneme service area have a direct long-term effect on water use.

Since 2000, the City's water usage has fluctuated from 109 to 131 gpcd. While typically this variation can be attributed primarily to seasonal weather variations, with the effects of conservation and the effects of the 2006 SWRCB Order WR 2006-0001, the weather may not be the only impact on the drop in per capita usage.

2.6.2 Conservation Effects on Water Usage

In recent years, water conservation has become an increasingly important factor in water supply planning in California. Since the 2005 UWMP there have been a number of regulatory changes related to conservation including new standards for plumbing fixtures, a new landscape ordinance, a state universal retrofit ordinance, new Green Building standards, demand reduction goals and more.

In recent years, water conservation has become an increasingly important factor in water supply planning in California. The California plumbing code has instituted requirements for new construction that mandate the installation of ultra low-flow toilets and low-flow showerheads.

During the 1987 to 1992 drought period, overall water requirements due to the effects of hot, dry weather were projected to increase by approximately 10 percent. As a result of extraordinary conservation measures enacted during the period, the overall water requirements actually decreased by more than 10 percent.

Residential, commercial, and industrial usage can be expected to decrease as a result of the implementation of more aggressive water conservation practices. In southern California, the greatest opportunity for conservation is in developing greater efficiency and reduction in landscape irrigation. The irrigation demand can typically represent as much as 70 percent of the water demand for residential customers depending on lot size and amount of irrigated turf and plants. Conservation efforts will increasingly target this component of water demand.

2.6.3 Climate Change

California faces the prospect of significant water management challenges due to a variety of issues including climate change. Climate change is of special concern because of the range of possibilities and their potential impacts on essential operations, particularly operations of the SWP. The most likely scenarios involve increased temperatures, which will reduce the Sierra Nevada snowpack and shift more runoff to winter months, and accelerated sea level rise. These changes can cause major problems for the maintenance of the present water export system since water supplies are conveyed through the fragile levee system of the Sacramento-San Joaquin Delta. The other much-discussed climate scenario or impact is an increase in precipitation variability, with more extreme drought and flood events posing additional challenges to water managers[2].

In June 2005, Governor Arnold Schwarzenegger issued Executive Order S-3-05, which requires biennial reports on climate change impacts in several areas, including water resources. The Climate Action Team (CAT) was formed in response to executive order S-3-05. To help unify analysis across topic areas, the CAT worked with scientists from the California Applications Program's California Climate Change Center to select a set of future climate projections to be used for analysis. For the 2008-2009 assessment of climate change impacts, the CAT selected six different global climate change models, assuming two different greenhouse gas emission levels (a high end and a low end), for a total of 12 scenarios. The results of the study indicated that climate change has already been observed, in that in the last 100 years, air temperatures have risen about one degree Fahrenheit, and there has been a documented greater variance in precipitation, with greater extremes both in terms of heavy flooding and severe droughts.

The 2009 California Water Plan Update identifies the following probable impacts due to changes in temperature and precipitation:

- Decrease in snowpack, which is a major part of annual water storage, due to increasing winter temperatures
- More winter runoff and less spring/summer runoff due to warmer temperatures
- Greater extremes in flooding and droughts
- Greater water demand for irrigation and landscape water due to increased temperatures and their impacts on plant water needs
- Increased sea level rise, further endangering the functions of the SWP, which depends on movement of water through the low-lying channels of the low-lying Sacramento-San Joaquin Delta. Sea level rise could also require the SWP to release additional storage water to avoid sea water intrusion into the Delta.

[2] Final California Water Plan Update 2009 Integrated Water Management: Bulletin 160.

Even without population changes, water demand could increase. Precipitation and temperature influence water demand for outdoor landscaping and irrigated agriculture. Outdoor water use is a large component of southern California water demands. Lower spring rainfall increases the need to apply irrigation water. Further, warmer temperatures increase evapotranspiration, which increases water demand.

These changing hydrological conditions could affect future planning efforts, which are typically based on historic conditions. These changes would impact the City's water supply by changing how much water is available, when it is available, how it can be captured, and how it is used. Anticipated impacts to the State Water Project (SWP) imported water supply include pumping less water south of the Delta due to reduced supply, and thus increased pumping of local groundwater to augment reductions in surface water supplies.

Section 3: Water Resources

3.1 Overview

This section describes the water resources available to the City through PHWA for the 25-year period addressed by the Plan. These are summarized in Table 3-1 and discussed in more detail below.

TABLE 3-1
SUMMARY OF CURRENT AND PLANNED WATER SUPPLIES AND BANKING PROGRAMS[(a)]

Water Supply Sources	2010	2015	2020	2025	2030	2035
UWCD, Groundwater	2,317	2,317	2,317	2,317	2,317	2,317
CMWD, State Water Project	999	999	999	999	999	999
Total	**3,316**	**3,316**	**3,316**	**3,316**	**3,316**	**3,316**

The City and the Channel Islands Beach Community Services District (CIBCSD) formed the PHWA in July 1994, as a means to better manage the sub-regional urban water supplies for their customers. Two neighboring Naval Bases also became participants in the PHWA, namely the United States Naval Base Ventura County - Point Mugu (NBVC-PM) and Naval Base Ventura County – Port Hueneme (NBVC-PH). Since then, NBVC-PM and NBVC-PH have been combined to form the United States Naval Base Ventura County (USNBVC). The PHWA Board of Directors is composed of three council members from the City and two directors from the CIBCSD.

The City purchases all water from the PHWA, which in turn receives water from the UWCD and CMWD. It is a cost-effective conjunctive use water supply arrangement which reduces historical sea water intrusion along the coast, enhances fire protection, improves water quality, encourages wastewater reclamation, and complies with Fox Canyon Groundwater Management Agency (FCGMA) county-wide extraction reduction schedule.

The PHWA annexed to the state water system and was successful in arranging the exchange and transfer of state water entitlement water on a long-term basis and securing its use in the future. The imported state water from the Metropolitan Water District of Southern California (MWD) and the CMWD will help to ensure long-term reliability of quantity and quality for the PHWA customers.

PHWA negotiated a 40-year agreement with the UWCD to improve water quality through desalination treatment of UWCD supplied water. Even though UWCD groundwater is considered potable, it has elevated total dissolved solids (TDS) (approximately 1,000 parts per million [ppm]) and hardness (500 ppm). The PHWA established a water quality improvement goal of 370 ppm TDS and 150 ppm hardness which will help ensure compliance with future federal and state water quality standards.

PHWA's 4.0 million gallon per day (MGD) desalination water treatment facility, known as the Brackish Water Reclamation Demonstration Facility (BWRDF), was partially funded by the

United States Bureau of Reclamation. The BWRDF is located along Perkins Road, immediately to the north of the City of Oxnard Wastewater Treatment Plant. The BWRDF uses reverse osmosis (RO) and nanofiltration (NF) for brackish water desalination.

In addition to being an active full-scale potable water treatment plant, the BWRDF also conducts research regarding brackish water treatment and membrane separation. The research is intended to assist water suppliers worldwide in selecting an appropriate desalination process to treat water supplies that have heretofore been unacceptable for use due to the expense and operational complexity of inefficient water treatment technologies.

The term "dry" is used throughout this chapter in reference to water resources and reliability as a measure of supply availability. Dry years are those when supplies are the lowest, which primarily occurs when annual precipitation is lower than the long-term average precipitation. The impact of low precipitation in a given year on a particular supply may differ based on how low the precipitation is, or whether the year follows a high-precipitation year or another low-precipitation year.

For the SWP, a low-precipitation year may or may not affect supplies, depending on how much water is in SWP storage at the beginning of the year. Also, dry conditions can differ geographically. For example, a dry year can be local to the area affecting local groundwater replenishment and production; local to northern California affecting SWP water deliveries; or statewide affecting both local groundwater and the SWP. When the term "dry" is used in this Plan, statewide drought conditions are assumed, affecting both local groundwater and SWP supplies at the same time.

3.2 Imported Water Supplies

The PHWA annexed to the state water system and was successful in arranging the exchange and transfer of state water entitlement water on a long-term basis and securing its use in the future. The imported state water from the MWD and the CMWD will help to ensure long-term reliability of quantity and quality for the PHWA customers.

PHWA negotiated a new 40-year supply agreement with the UWCD and improves the quality of the water supplied by treatment at the BWRDF, a PHWA operated membrane filtration facility. The BWRDF has a capacity of 4.0 MGD of finished potable water.

3.2.1 State Water Project

The SWP is the largest state-built, multi-purpose water project in the country. It was authorized by the California State Legislature in 1959, with the construction of most initial facilities completed by 1973. Today, the SWP includes 34 storage facilities, reservoirs and lakes, 20 pumping plants, and four pumping-generating plants, five hydro-electric plants and approximately 700 miles of aqueducts and pipelines. The primary water source for the SWP is the Feather River, a tributary of the Sacramento River. Storage released from Oroville Dam on the Feather River flows down natural river channels to the Sacramento-San Joaquin River Delta (Delta). While some SWP supplies are pumped from the northern Delta into the North Bay Aqueduct, the vast majority of SWP supplies are pumped from the southern Delta into the 444-mile-long California Aqueduct. The California Aqueduct conveys water along the west side

of the San Joaquin Valley to Edmonston Pumping Plant, where water is pumped over the Tehachapi Mountains and the aqueduct then divides into the East and West Branches.

Each SWP contractor's SWP Water Supply Contract includes a "Table A," which lists the maximum amount of water an agency may request each year throughout the life of the contract. This Table A maximum amount is used in determining each contractor's proportionate share, or "allocation," of the total SWP water supply DWR determines to be available each year. While the contract identifies the maximum annual amount of water an SWP contractor may request, the amount of SWP water actually available and allocated to SWP contractors each year is dependent on a number of factors and can vary significantly from year to year.

The PHWA purchases imported surface water from CMWD, which in turn purchases SWP water from MWD. Water is filtered and disinfected at MWD's Joseph Jensen Filtration Facility in Granada Hills. CMWD receives the treated water via MWD's West Valley Feeder and CMWD's mile-long tunnel in the Santa Susana Mountains. CMWD either stores the treated water in Lake Bard or feeds the water directly to the CMWD Springville Reservoir near Camarillo.

CMWD currently wholesales water to 23 local agencies, including PHWA, and private companies, which in turn deliver water to approximately 550,000 customers. CMWD supplies approximately 75 percent of the total demand within its service area, which is roughly 375 square miles in southern Ventura County. CMWD has served the needs of its members, without fail, except for a few days following the 1994 Northridge earthquake.

Similarly, MWD has the same obligation to provide available water to its member agencies based on its existing statute, governing regulations, and agreements. MWD provides water to a service area of nearly 5,200 square miles currently composed of 26 member agencies, including cities, municipal water districts, and one county water authority. Those member agencies in turn, serve water to residents in more than 145 cities and 94 unincorporated communities. Both MWD and CMWD are undertaking a variety of programs to increase the reliability of imported water deliveries. Both CMWD and MWD have, and will continue, to provide a reliable source of water to the PHWA.

3.3 Imported Water Reliability

The amount of the SWP water supply delivered to the state water contractors in a given year depends on a number of factors, including the demand for the supply, amount of rainfall, snowpack, runoff, water in storage, pumping capacity from the Delta, and legal/regulatory constraints on SWP operation. Water delivery reliability depends on three general factors: the availability of water at the source, the ability to convey water from the source to the desired point of delivery, and the magnitude of demand for the water. Urban SWP contractors' requests for SWP water, which were low in the early years of the SWP, have been steadily increasing over time, which increases the competition for limited SWP dry-year supplies. Regulatory constraints also change over time and have become more restrictive over time.

In an effort to assess the impacts of these varying conditions on SWP supply reliability, DWR issued the "State Water Project Delivery Reliability Report 2009" (2009 Reliability Report) in August 2010. The report assists SWP contractors in assessing the reliability of the SWP component of their overall supplies. The 2009 Reliability Report updates DWR's estimate of the current (2009) and future (2029) water delivery reliability of the SWP. The updated analysis

shows that the primary component of the annual SWP deliveries (referred to as Table A deliveries) will be less under current and future conditions, when compared to the preceding reports (State Water Project Delivery Reliability Reports 2005 and 2007). The report discusses areas of significant uncertainty to SWP delivery reliability:

- Restrictions on SWP operations due to the State and federal biological opinions to protect endangered fish such as delta smelt and spring-run salmon.
- Climate change and sea level rise, which is altering the hydrologic conditions in the State.
- The vulnerability of Delta levees to failure due to floods and earthquakes.

In the 2009 Reliability Report, DWR provided a recommended set of analyses for SWP contractors to use in preparing their 2010 UWMPs. Potential deliveries under current conditions are estimated at the 2009 level and assume current methods of conveying water across the Delta and the current operational rules contained in the federal biological opinions. Potential deliveries under future conditions are estimated at the 2029 level and are also based on the assumptions that no changes will be made in either the way water is conveyed across the Delta or in the operational rules (Table 3-2).

The updated analysis in the 2009 Reliability Report shows greater reductions in water deliveries, on average when compared to the 2007 report using existing facilities operated under current regulatory and operational constraints. The 2007 report shows current SWP annual Table A deliveries averaging 63 percent of the maximum contract amount of 4,133 thousand acre-feet (taf) per year (or 2,595 taf), on a long-term average basis. The 2009 report shows a corresponding value of 60 percent (2,485 taf). The 2007 report projects an annual average of 66 percent to 69 percent (2,725 - 2,850 taf) for the future condition, whereas the updated 2009 report projects an annual average of 60 percent. Based on the estimates of updated SWP deliveries under current (2009) conditions during dry periods, the four-year drought of 1931 –1934 is estimated to provide 34 percent of maximum SWP Table A. These most recent analyses for the current (2009) condition also project that during wet periods, 67 to 71 percent of full Table A amounts would be available.

TABLE 3-2
CURRENT AND PLANNED WHOLESALE WATER SUPPLIES AVAILABLE (LONG-TERM AVERAGE)

Wholesaler (Supply Source)	2010	2015	2020	2025	2030	2035[(a)]
California State Water Project (SWP)						
% of Table A Amount Available	60%	60%	60%	60%	60%	60%
Anticipated Deliveries (AFY)	600	600	600	600	600	600

Note:
(a) The 2009 Reliability Report projects SWP supplies to 2029. This 2010 UWMP covers the period from 2010 to 2035. Therefore, the available supplies from 2030 to 2035 are assumed to be the same as in 2029.

3.3.1 Wholesaler Projected Demand and Reliability

Table 3-3 provides a summary of wholesale demand projections provided to PHWA and UWCD for the City. These projections are equivalent to the Water Sales Contract between PHWA and the City.

TABLE 3-3
WHOLESALE DEMAND PROJECTIONS PROVIDED TO PHWA

	2010	2015	2020	2025	2030
UWCD	2,317	2,317	2,317	2,317	2,317
CMWD	999	999	999	999	999
Total	**3,316**	**3,316**	**3,316**	**3,316**	**3,316**
Percent of Total Supply	100	100	100	100	100

Due to the nature of the agreements, no change in delivery is anticipated in a single or multi-dry year. PHWA expects to satisfy 75 percent of its member's water demands (4,769 AF) with the treated UWCD supply and the remaining 25 percent (1,850 AF) from the treated CMWD water.

3.4 UWCD Source Water and Facilities

Starting in late 1998, the City began receiving UWCD through the PHWA. Since that time, UWCD has been able to provide a continuous supply of municipal water to meet the water demands of the City and other water purveyors without any curtailment of supply.

UWCD diverts Santa Clara River water at the Vern Freeman Diversion Dam, northwest of Saticoy, and delivers a portion of the water to the El Rio Spreading Grounds via a pipeline. UWCD's El Rio Spreading Grounds is located in the northeast portion of the Oxnard Plain. Water is used to recharge the underlying Montalvo Groundwater Basin/forebay. The El Rio Wellfield, located at the Spreading Grounds, has a total of twelve wells with an active pumping capacity of 53.0 cubic feet of water per second (cfs). Of the twelve wells in the El Rio Wellfield, nine wells extract water from the Oxnard Aquifer, also known as the Upper Aquifer System (UAS), and three wells extract water from the Fox Canyon Aquifer, also known as the Lower Aquifer System (LAS).

The Oxnard Aquifer is composed of fine to coarse-grained sand, gravel, and boulder deposits. Within the area, the aquifer is a single unit of high permeability with no prominent silt or clay lens interruptions and has an average and maximum thickness of about 91 and 150 feet, respectively, at an average depth of 100 to 180 feet below grade. Permeability of this aquifer ranges from 1,700 to 2,000 gallons per day per square foot (gpd/ft^2). Transmissivity of this aquifer typically ranges from 100,000 to over 400,000 gpd/ft^2.

The Fox Canyon Aquifer is composed of fine to coarse-grained sand with gravel stringers and interbedded silt and clay. With a maximum thickness of approximately 550 feet in the Oxnard Basin, permeability of this water-bearing zone range from 200 to 400 gpd/ft^2.

Water extracted by wells in these aquifers is delivered to the UWCD El Rio Booster Pumping Station, chloraminated, and pumped directly through UWCD's Oxnard-Hueneme (O-H) Pipeline to PHWA, City of Oxnard, and small mutual water companies. UWCD built the O-H system in 1954 to move municipal groundwater extraction away from the coastal areas subject to seawater intrusion. The O-H Delivery System consists of 12 miles of distribution pipeline. With a diameter of 24 to 42 inches, the O-H Pipeline was designed to deliver 50 cfs or 22,450 gallons per minute (gpm), and occasionally operates at capacity.

3.5 CMWD SWP Surface Source Water and Facilities

The PHWA purchases imported surface water from CMWD, who in turn purchases SWP water from MWD. Imported water supply originates in Northern California and is conveyed over 500 miles to Southern California through the SWP system of reservoirs, aqueducts and pump stations. Water is filtered and disinfected at MWD's Joseph Jensen Filtration Facility in Granada Hills. CMWD receives the treated water via MWD's West Valley Feeder and CMWD's mile-long tunnel in the Santa Susana Mountains. CMWD either stores the treated water in Lake Bard or feeds the water directly to the CMWD Springville Reservoir near Camarillo.

CMWD currently wholesales water to 23 local agencies and private companies, which in turn deliver water to approximately 550,000 people (residents, businesses, and agriculture). CMWD supplies approximately 75 percent of the total demand within its service area, which is roughly 375 square miles in southern Ventura County. CMWD has served the needs of its members, without fail, except for a few days following the 1994 Northridge earthquake. Table 3-4 summarizes the City's water entitlement.

TABLE 3-4
CITY WATER ENTITLEMENTS

Period	Extraction Reduction Percentage[a]	Gross Groundwater Allocation (AF)	Groundwater Allocation Transferred to CMWD (AF)[b]	Net Groundwater Allocation (AF)	CMWD Surface Water Entitlement (AF)[c]	Total Entitlements (AF)
Historical[d]	-	3,593.18	0	3,593.18	0	3,593.18
1990-1991	100	3,593.18	0	3,593.18	0	3,593.18
1992-1994	95	3,413.52	0	3,413.52	0	3,413.52
1995-1999	90	3,233.86	378	2,855.86	999	3,854.86
2000-2004	85	3,054.20	378	2,676.20	999	3,675.20
2005-2009	80	2,874.54	378	2,496.54	999	3,495.54
2010-2035	75	2,694.88	378	2,316.88	999	3,315.88

Notes:
(a) As required by Fox Canyon Groundwater Management Agency, Ordinance No. 1 – 5.9.
(b) City's fraction (54 percent) of PHWA FCGMA allocations transferred to CMWD via agreement.
(c) City's fraction (54 percent) of PHWA surface water entitlement received via agreement.
(d) Based on the average extractions (3,593.18 AF) for the 5-year period 1985 to 1989.

3.6 Transfers, Exchanges, and Groundwater Banking Programs

Currently, the City of Port Hueneme is participating in transfers, exchanges and groundwater banking programs. From 1997-2002, the City transferred its prorated share of the 700 AFY (PHWA Board Approved) transfers to CMWD. Then, beginning in 2003, as a result of the Three Party Agreement between CMWD, PHWA and the City of Oxnard, the transfers were routed to the City of Oxnard.

3.7 Planned Water Supply Projects and Programs

As previously described, the City has access to three sources of supply including City wells, UWCD groundwater, and CMWD imported surface water. Availability of future supplies is bound by FCGMA pumping restrictions imposed on the UWCD extractions, capacity of CMWD's distribution system, and the reliability of State Water Project deliveries.

The City and PHWA have established diverse approaches to meeting future water demands including facility improvements, securing deliveries of local groundwater via long term agreement with UWCD, securing deliveries of imported water via long term agreement with CMWD, considering recycled water as it is developed, and supporting water demand management programs. Implemented over time, these programs are expected to provide the City with sufficient supplies to meet water demands.

3.8 Development of Desalination

Although the City itself as no plans for future desalination projects, it currently receives desalinated water from PHWA's Brackish Water Reclamation Demonstration Facility. As previously mentioned, BWRDF currently treats UWCD brackish groundwater. Additional desalination facilities have been considered by the City of Oxnard and CMWD. CMWD has several proposed desalination projects in progress, including the Calleguas Creek Brineline Project.

Section 4: Recycled Water

4.1 Overview

This section describes the City's wastewater facilities, current and future wastewater generation demands, and summarizes future recycled water programs.

4.2 Wastewater Treatment Facilities

Wastewater collection within the City is provided by the Public Works Wastewater Division. The City's wastewater system includes over 45 miles of sewer pipelines and 11 wastewater-pumping stations. The City has 3.7 MGD capacity entitlement of the 22.6 MGD total capacity at the Oxnard OWTP. Current wastewater flows are estimated to be 2,300,000 gallons per day. The City's entire wastewater flow is pumped to the Oxnard OWTP (Table 4-1).

TABLE 4-1
RECYCLED WATER-WASTEWATER COLLECTION AND TREATMENT

Year	2015	2020	2025	2030	2035
Wastewater collected (MGD)	2.5	2.7	3.0	3.3	3.7
Wastewater treated in service area (MGD)	0	0	0	0	0

4.3 Current Water Recycling Uses

Currently, there is no City-operated water recycling program (Table 4-2).

TABLE 4-2
ESTIMATES OF RECYCLED WATER DEMAND

Year	2015	2020	2025	2030	2035
Projected Recycled Water Production	0	0	0	0	0
Projected Recycled Water Demand	0	0	0	0	0

4.4 Regional Recycled Water Master Plan

Following recommendations included in the 1997 report titled *Oxnard Water Reclamation Project Initial Implementation Elements of the Water Reclamation Master Plan* (Oxnard, 1997), a series of meetings to discuss regional water supply issues was conducted with the City, PHWA, CMWD, UWCD, and FCGMA.

The result of those meetings was the 1999 launching of the Groundwater Recovery Enhancement and Treatment (GREAT) Program. The cornerstone of the GREAT Program is the regional Advanced Water Purification Facility (AWPF) designed to treat wastewater flows and produce a useable non-potable resource. Construction of the AWPF is scheduled to begin in late 2011. The AWPF will be owned and operated by the City of Oxnard. The AWPF will

include tertiary treatment and demineralization of the high TDS recycled water to meet regulatory requirements for aquifer recharge during winter months.

Water produced by the AWPF is planned to be used for regional non-potable uses, including landscape irrigation, industrial processes, agricultural irrigation, and as a seawater intrusion barrier to protect the Fox Canyon aquifer. The new resource will provide a locally controlled, drought-proof source of water that meets all drinking water quality standards.

The project is funded through federal, state, and local funding. A Federal Grant of $20 million was secured from the Department of Interior's Bureau of Reclamation, Title XVI Program. Another $15 million was garnered from a Metropolitan Water District of Southern California Local Resources Program Grant.

When complete, City wastewater currently treated at the Oxnard WWTP and discharged through an ocean outfall will be diverted to the AWPF for treatment and reclamation.

The recycled water component of the GREAT Program would include the development of a recycled water delivery system. The delivery system would include construction of approximately 22,600 feet of distribution pipe and a booster pump station. Size, specific capacity, and location of the booster pump station are the subject of an ongoing study.

Through the direct and indirect (injection-extraction) deliveries of recycled water, groundwater extractions would be significantly reduced. The FCGMA would be requested to transfer the associated groundwater extraction credits to the project sponsors. Because these credits would be utilized by UWCD for groundwater extractions, groundwater pumping impacts in the Pleasant Valley area would be reduced and a reduction of the recharge mound would allow increased recharge capacity.

Section 5: Water Quality

5.1 Overview

Water supplied by PHWA meets all DHS primary maximum contaminant levels (MCL) requirements. The City did not experience regulatory violations of treatment, monitoring, or reporting requirements during 2005-2010. The City anticipates receiving high quality potable water from the PHWA that meets all California State Department of Human Services (DHS) standards for the foreseeable future. There are currently no water quality issues that impact reliability of supply (Table 5-1).

TABLE 5-1
CURRENT AND PROJECTED WATER SUPPLY CHANGES DUE TO WATER QUALITY-PERCENTAGE CHANGE

Water Source	2010	2015	2020	2025	2030	2035
Groundwater	0%	0%	0%	0%	0%	0%
Imported	0%	0%	0%	0%	0%	0%

5.2 Imported Water Quality

The City receives 100 percent of its water from PHWA that originates from two sources: UWCD groundwater treated at the PHWA membrane filtration plant (80%) and SWP surface water through MWD (20%).

5.3 City of Port Hueneme Consumer Confidence Report

The City of Port Hueneme produces an annual report showing where its water supplies come from, quality of the water, and any other issues that affect its water supplies. The Annual Water Quality Report (also known as the "Consumer Confidence Report") summarizes the 2009 water quality test results performed by PHWA and Calleguas Municipal Water District. It also includes details about where the water comes from, what it contains, and how it compares to State Standards. Water constituents are listed under the appropriate water quality standard and include the maximum contaminant level, federal maximum contaminant level goal or the California public health goal, and the range of results. Water testing is routinely performed for bacteria and protozoan, disinfectant residuals, minerals, radioactivity, inorganic and organic chemicals, and other water quality parameters.

PHWA groundwater supply is provided by the UWCD. UWCD groundwater is pumped from shallow wells, located in the El Rio area of Ventura County, drilled into the Oxnard and Fox Canyon aquifers. The Santa Clara River drainage basin that recharges these aquifers receives water from various sources such as rivers, streams, wastewater treatment plants, and agricultural runoff. These two aquifers are naturally high in minerals. The water is pumped from shallow wells drilled into the Oxnard and Fox Canyon aquifers. These two aquifers are naturally high in minerals. In October 2002, UWCD completed a source water assessment survey for their water sources. This assessment provides a survey of potential sources of contamination

of the groundwater that supplies the wells. Identified activities that constitute the highest risk are petroleum storage tanks, fueling operations, septic systems, and abandoned animal feedlots. The wells are vulnerable to contamination by MTBE; however, no MTBE has been detected in the wells.

SWP water imported by the MWD is also treated at the PHWA plant. MWD water comes from the Sierra Nevada Mountains in northern California and is conveyed through the State Water Project's network of reservoirs, aqueducts, and pump stations. The SWP water is filtered and disinfected by MWD surface water treatment plants and brought into Ventura County by CMWD. CMWD delivers the SWP to the PHWA treatment plant where it is blended with the treated UWCD water.

In December 2002, MWD completed its source water assessment of its State Water Project supplies. State Water Project supplies are considered to be most vulnerable to urban/storm water runoff, wildlife, agriculture, recreation, and wastewater.

PHWA's membrane treatment plant uses reverse osmosis and nanofiltration membrane technologies to treat the UWCD water. Both processes operate side-by-side and each one produces between 1 and 1.5 MG of drinking water every day. The treatment process softens the water, lowering the mineral content and minimizes the corrosiveness of the water through the addition of sodium hydroxide. In addition, the water is disinfected using chloramines.

Section 6: Reliability Planning

6.1 Overview

Water suppliers are required to assess water supply reliability comparing total projected water use with expected water supply over the next twenty years in five year increments. Also required is an assessment for a single and multiple dry years. This section presents the reliability assessment for PHWA's service area and the water available to the City of Port Hueneme.

UWCD holds a pumping sub-allocation for users of the O-H Pipeline and FCGMA manages groundwater extractions within the Oxnard Plain Basin. FCGMA has implemented a series of cutbacks to reduce overall groundwater extractions to 75 percent of the 1985 - 1989 level by the year 2010 (Table 6-1). Additional information related to FCGMA is provided in Section 3.

TABLE 6-1
EXISTING CITY WATER ENTITLEMENTS

Period	Extraction Reduction Percentage[(a)]	Gross Groundwater Allocation (AF)	Groundwater Allocation Transferred to CMWD (AF)[(b)]	Net Groundwater Allocation (AF)	CMWD Surface Water Entitlement (AF)[(c)]	Total Entitlements (AF)
Historical[(d)]	-	3,593.18	0	3,593.18	0	3,593.18
1990-1991	100	3,593.18	0	3,593.18	0	3,593.18
1992-1994	95	3,413.52	0	3,413.52	0	3,413.52
1995-1999	90	3,233.86	378	2,855.86	999	3,854.86
2000-2004	85	3,054.20	378	2,676.20	999	3,675.20
2005-2009	80	2,874.54	378	2,496.54	999	3,495.54
2010	75	2,694.88	378	2,316.88	999	3,315.88

Notes:
(a) As required by Fox Canyon Groundwater Management Agency, Ordinance No. 1 – 5.9.
(b) City's fraction (54 percent) of PHWA FCGMA allocations transferred to CMWD via agreement.
(c) City's fraction (54 percent) of PHWA surface water entitlement received via agreement.
(d) Based on the average extractions (3,593.18 AF) for the 5-year period 1985 to 1989.

PHWA maintains a 40-year contract with UWCD on behalf of the City. UWCD holds a groundwater sub-allocation (entitlement) on behalf of the City that totaled 3,593.18 AF in 1990. The City's current allocation is 2,874.88 AF due to the FCGMA extraction reduction of 20 percent. As the result of additional FCGMA required extraction reductions, future allocations will only amount to 2,694.88 AF.

Extraction credits are earned when the City water demand in AFY is less than the City's FCGMA groundwater allocation established during the baseline period of 1985-1989. Subcredits held by UWCD on behalf of the City can be used in future years if additional water supplies are needed without incurring a FCGMA monetary penalty. A monetary penalty is charged by the FCGMA if water demand exceeds the annual amount allowed by the FCGMA reduction schedule. The City borrowed approximately 500 additional credits in the year 2000 due to the shift of 378 credits (54 percent of 700 credits) to the CMWD as a condition of annexation to their system.

6.1.1.1 Reliability of Water Supplies

In any given year, the variability in weather patterns around the state may affect the availability of supplies to the City's service area differently. For example, from 2000 through 2002, southern California experienced dry conditions in all three years. During the same period, northern California experienced one dry year and two normal years. As is typical for southern California water management the City uses local groundwater supplies to a greater extent when imported supplies are less available, and larger amounts of imported water supplies are used when available. To supplement these local groundwater supplies, PHWA contracted with CMWD for delivery of SWP water, providing an imported water supply to the City. However, the variability in SWP supplies has the largest effect on overall supply reliability.

Except for periods of regional water shortages, which can affect the entire southern California area, CMWD and UWCD have met the City's purchased water demands. However, variability of State Water Project deliveries and hydrologic conditions can affect the ability of the City to reliably meet water demand estimates. In response to these reliability questions, the City has established diverse approaches to meeting a potential water shortage including long term contracts for groundwater deliveries, long term contracts for imported water deliveries, evaluation of recycled water, and supporting water demand management programs. Implemented over time, these programs are expected to provide the City with increased reliability.

In order to determine the City's water supply reliability, an assessment was developed that includes a comparison of the total projected water demand with the supply available for the following conditions: (1) normal/average water year, (2) single dry water year, and (3) five-year dry cycle. Results for the assessment for each of these three conditions are described below.

6.2 Normal, Single-Dry, and Multiple-Dry Year Planning

Both of the City's SWP and groundwater supplies purchased from PHWA are available to meet demands during normal, single-dry, and multiple-dry years. The following sections elaborate on the different supplies available to PHWA including groundwater and imported water supplies.

6.2.1 Normal/Average Water Year Assessment

The City's current and future water demands were discussed in Section 2 and current and future water supplies were described in Section 3. Conservative assumptions were utilized concerning availability of supplies. Values for calendar year 2006 were used for the average/normal year assessment. For the average/normal year reliability assessment, City demands were approximately 2,591 AF. Total water entitlements in 2009 were 3,316 AF (2,695-378+ 999) via the City's agreement with PHWA (Table 6-1). Results for this assessment indicate that available water will exceeded demands for the period 2010-2035 (Table 6-2). As per agreement with PHWA, surplus City entitlements will banked by PHWA for the benefit of PHWA members.

TABLE 6-2
WATER SUPPLY AND DEMAND COMPARISON FOR AN AVERAGE WATER YEAR

	2015	2020	2025	2030	2035
Existing and Planned Water Supplies					
PHWA[(a)]					
UWCD Groundwater (AF)	2,317	2,317	2,317	2,317	2,317
CMWD Imported Water (AF)	999	999	999	999	999
Total Supply	**3,316**	**3,316**	**3,316**	**3,316**	**3,316**
Demand (w/out conservation) (AF)	2,434	2,592	2,753	2,914	2,914
Difference (supply minus demand) (AF)	882	724	563	402	402
Difference as % of Supply	27	22	17	12	12
Difference as % of Demand	36	28	20	14	14

Note: (a) City entitlements for groundwater and surface water.

6.2.2 Single Dry Year Water Assessment

A single dry year condition (based on 1977, the driest year on record) is not anticipated to result in a supply decrease by PHWA due to future supply and reliability programs. As stated in CMWD's 2010 UWMP, it is projected that CMWD will be able to meet all of its purveyor demands during a single dry year. The UWCD and CMWD have met PHWA water demands without curtailment during each of the prior years. In future single dry years, the PHWA should have an adequate water supply from the UWCD and CMWD to meet customer demands. Therefore, the City's supplies are not anticipated to be reduced. As indicated in Table 6-3, the single dry-year assessment resulted in a sufficient water supply to meet water demand through 2035.

TABLE 6-3
WATER SUPPLY AND DEMAND COMPARISON FOR A SINGLE DRY WATER YEAR

	2015	2020	2025	2030	2035
Existing and Planned Water Supplies					
PHWA[(a)]					
UWCD Groundwater (AF)	2,317	2,317	2,317	2,317	2,317
CMWD Imported Water (AF)	999	999	999	999	999
Total Supply	**3,316**	**3,316**	**3,316**	**3,316**	**3,316**
Demand (w/out conservation) (AF) [(b)]	2,556	2,722	2,891	3,060	3,060
Difference (supply minus demand) (AF)	760	594	425	256	256
Difference as % of Supply	23	18	13	8	8
Difference as % of Demand	30	22	15	8	8

Notes:
(a) City entitlements for groundwater and surface water.
(b) Demand is projected to increase by 5% during a dry year.

6.2.3 Multiple Dry-Year Water Assessment

Multiple consecutive dry years (based on 1931-34, a the driest four year dry period on record) are not anticipated to result in a supply decrease by PHWA due to future supply and reliability programs. The UWCD and CMWD have met PHWA water demands without curtailment during each of the prior years. In future droughts, the PHWA should have an adequate water supply from the UWCD and CMWD to meet customer demands. Therefore, the City's supplies are not

anticipated to be reduced during a multiple dry-year period. As shown in Table 6-4, the multiple dry-year assessment resulted in sufficient water supply to meet water demands through 2035.

TABLE 6-4
WATER SUPPLY AND DEMAND COMPARISON FOR A MULTIPLE DRY WATER YEAR

	2015	2020	2025	2030	2035
Existing and Planned Water Supplies					
PHWA[(a)]					
UWCD Groundwater (AF)	2,317	2,317	2,317	2,317	2,317
CMWD Imported Water (AF)	999	999	999	999	999
Total Supply	**3,316**	**3,316**	**3,316**	**3,316**	**3,316**
Demand (w/out conservation) (AF) [(b)]	2,556	2,722	2,891	3,060	3,060
Difference (supply minus demand) (AF)	760	594	425	256	256
Difference as % of Supply	23	18	13	8	8
Difference as % of Demand	30	22	15	8	8

Notes:
(a) City entitlements for groundwater and surface water.
(b) Demand is projected to increase by 5% during a dry year.

Section 7: Water Demand Management Measures

This section describes the water Demand Management Measures (DMMs) implemented by the City of Port Hueneme Water District (City).

7.1 Conservation Program Background

The City recognizes that conserving water is an integral part of a responsible water strategy and is partnering with PHWA, CMWD and the MWD to implement conservation plans.

The City's conservation efforts began in response to a severe drought in 1975 to 1977 and another water shortage situation during the statewide drought in the late 1980's through early 1990's. The City implemented water conservation policies in 1977 which included preparing public education materials for customers regarding simple water conservation practices and a water metering policy.

In 1983 the City began participation in the Ventura County Water Conservation Management Program (County Conservation Program). The County's Conservation Program began in 1982 with the primary objective to eliminate wasteful or unnecessary use of water within urban and agricultural sectors. The urban program encouraged agencies to implement public education, fixture replacement programs, school education, landscape water efficiency, regulations, and water audits that support water efficiency. The City was an active participant in the County Conservation Program though 1995. The City also participated in the Ventura County Drought Action Update in the early 1990's. Objectives of this program were to identify possible programs and solutions aimed at alleviating problems caused by reduced water supplies resulting from the severe statewide drought of the late 1980's through early 1990's.

In November 1995, the PHWA adopted the Water Efficiency Guidelines for Annexation No. 32 to the CMWD and the MWD. The guidelines describe the arrangements between the agencies relative to receiving State water including: (1) Annual Water Usage, (2) Calleguas Water Management Peak Water Usage, (3) Lake Bard, (4) Seasonal Storage, (5) High and Low Flow Penalties, (6) Local Area Management, (7) Water Conservation, (8) Use of Reclaimed Water, (9) Water Delivery Curtailment, (10) Capital Construction Charge, (11) Urban Conservation Best Management Practices, (12) Water Use Efficiency Guidelines, and (13) Compliance.

Since 2005, the City's main conservation focus has been on replacing all of the meters with an AMR system and moving to volumetric billing. Meter installation was completed in 2009 at a cost of $5 million. At that time, the City began implementing a series of changes to their rate schedule to begin volumetric billing and progressively increase the percentage of the rates that are assessed volumetrically. To date, 770 AF of water savings have been measured. The City is continuing to shift rates to achieve DMM objectives for volumetric pricing and further incentivize conservation. It also continues to evaluate the full water usage database obtained through metering in order to plan and implement the next stages of its conservation efforts.

7.2 Implementation of DMMs

The City is subject to the Urban Water Management Planning Act, AB1420 and SBX7-7 requirements. The DMMs specified in the UWMP are the same as the California Urban Water

Conservation Council's (CUWCC) Best Management Practices (BMPs). Although the City is not a signatory to the CUWCC's Memorandum of Understanding (MOU), the UWMP requires compliance with the DMMs.

The MOU and BMPs were revised by the CUWCC in 2008. The revised BMPs now contain a category of "Foundational BMPs" that signatories are expected to implement as a matter of their regular course of business. These include Utility Operations (metering, water loss control, pricing, conservation coordinator, wholesale agency assistance programs, and water waste ordinances) and Public Education (public outreach and school education programs). The remaining "Programmatic" BMPs have been placed into three categories: Residential, Large Landscape, and Commercial, Industrial, Institutional Programs. These revisions are reflected in the 2010 UWMP's DMM compliance requirements.

The City is working toward implementing all of the Foundational BMPs required in the revised MOU and UWMP Act. The Programmatic BMPs are being implemented through a Flex Track approach. The SBX7-7 and DMM goals and implementation plans are discussed further in Section 7.5. The following sections describe the various programs and conservation activities implemented by the City.

7.3 Foundational BMPs

7.3.1 Utility Operations

7.3.1.1 Conservation Coordinator

The City employs a part-time conservation coordinator. The coordinator manages water conservation outreach, implementation, and planning activities for the City.

7.3.1.2 Water Waste Prohibition

On 1 March 2010, the City Council authorized Ordinance No. 698 (Appendix C), the City of Port Hueneme Conservation and Water Supply Shortage Program and Regulation. The purpose of the ordinance was stated as, "…to establish a water conservation and supply shortage program that will reduce water consumption within the City of Port Hueneme 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 of Port Hueneme to avoid and minimize the effect and hardship of water shortage to the greatest extent possible." The ordinance established permanent water conservation standards, including the following:

- Limits on watering hours
- Limit on water duration
- No excessive water flow or duration
- No washing down hard or paved surfaces
- Obligation to fix leaks, breaks or malfunctions
- Re-circulating water required for water fountains and decorative water features

- Limits on washing vehicles
- Drinking water served on request only
- Commercial lodging establishments must provide guest option to decline daily linen service
- No installation of non-re-circulating commercial car wash and laundry systems
- Restaurants required to use water conserving dish wash spray valves
- Commercial car wash system requirements

The ordinance also defined three levels of water supply shortage response actions to be implemented during times of declared water shortage or declared water shortage emergency.

Prior to the ordinance, water conservation was stipulated by the City Municipal Code, Section 7109. This section, titled "Wasting Water," prohibits various wasteful water practices and imposes a series of surcharges and water service restrictions that could be levied on those who continue to use water in a wasteful manner. Wasteful water practices identified in the Municipal Code include: "No watering of lawns, gardens or shrubbery shall be done with open hose unless the same is held or immediately attended by the person using it." In addition, the Code states, "It is unlawful for any person or persons willfully or negligently to waste water in any manner whatever…" Penalties that could be imposed as a result of violations of the Municipal Code include warning notices, surcharges, water service restrictions, and water shut-off.

7.3.1.3 Water Loss Control

Leak Detection is an ongoing program at the City. This program includes the use of specialized equipment to detect underground leaks in the City's water distribution mains. This program has helped pinpoint leaks in distribution mains before they increase in size and potentially cause extensive street damage. Information gained from the Leak Detection Program is used to assist staff in rating and ranking competing main replacement projects. Further, the information is useful in ascertaining total unaccounted-for water losses throughout the system.

Water Main Repair is another ongoing program that reduces the likelihood of water losses and costly street repairs through unexpected water main breaks. Other preventative maintenance activities include checking distribution system valves and flushing distribution lines as needed.

The City is currently developing a Water Master Plan that will include an approach for water loss and leak control and will identify priority needs. The plan is scheduled for release in 2011. Following release of the plan, the City will implement AWWA's Standard Water Audit Approach per M36 manual in order to develop a water balance for fiscal year 2011. The approach consists of a component analysis of leaks into "revenue" and "non-revenue" categories, among others, allowing the City to quantify the economic value of recoverable losses.

7.3.1.4 Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

Meter installation and the associated transition to volumetric billing has been the City's primary focus. In the last UWMP cycle over 70 percent of accounts were not yet metered, and only

6 percent of accounts were billed volumetrically. The meter program started in 2006 and since that time about 5,200 meters have been installed. As of August 2009, all of the City's 5,700 customers are metered through an automated meter reading (AMR) system and billed volumetrically on a bi-monthly basis. The City anticipates a water savings of approximately 0.15 AFY per meter replaced; this translates to an estimated savings of 770 AFY to date. Most of the meter installations occurred over the past five years.

7.3.1.5 Retail Conservation Pricing

Following completion of the system-wide upgrade to AMR, the City is in now the process of realigning its rate structure to provide conservation pricing by decreasing the percentage of revenues that come from fixed charges. Prior to the AMR installation, the community had not been metered and was charged at a flat rate. Now that volumetric billing is feasible, the City is introducing the new rates gradually. At first, about 90 percent of revenue was from fixed charges. PHWA has been adjusting the rates annually and the current proportion is about 70 percent fixed. A 2009 rate study planned for a 50/50 split of fixed and volumetric rates in 2012 and the City is on track to meeting that goal (Table 7-1). In 2014 a new rate planning process will be initiated, and the City will incorporate the DMM requirements for 70 percent of revenue from volumetric charges into the process.

TABLE 7-1
CONSERVATION PRICING

Calendar Year	Fixed Rate (%)	Volumetric Rate (%)
2009	80	20
2010	70	30
2011	60	40
2012	50	50

7.3.2 Education

7.3.2.1 Public Information

The City provides conservation tips on their website, along with links to additional resources and rebates on the MWD bewaterwise.org website. News and information on water conservation activities is also presented in Hueneme Magazine, an annual publication produced by the City and mailed to all residents. Also, the bill format is being revised to show a comparison with past usage. Another component of the City's outreach is participation in the annual Port Hueneme Beach Festival, which distributes materials on conservation obtained from MWD.

In 2009, the City Council directed staff to create an interpretive Water Conservation Demonstration Site at City Hall. The garden is used to educate residents about use of drought-tolerant plants and drip irrigation to save water and money.

7.3.2.2 School Education

The City offers speakers on conservation-related topics for schools, upon request; representatives spoke twice in 2006-2007. The City will work with PHWA in 2011 to identify additional opportunities for school education.

7.4 Programmatic BMPs

Programs being implemented in the City's service area are described in the following section. The cost-effectiveness analyses use CUWCC assumptions and calculation methodology. The cost of saved water is compared with the City's cost of $572 per AF.

7.4.1 Residential Programs

The majority of the City's customers are residential users. In 2010, single family and multi-family residences used 1,317 and 634 AFY, respectively, for a combined total of 92 percent of water deliveries.

7.4.1.1 Residential Survey and Retrofit Programs and Landscape Water Survey

Residential water surveys are available to City customers upon request. To meet DMM compliance requirements, the City would need to provide an average of 56 surveys per year over ten years.

Based on a cost-effectiveness analysis, the City has opted to file an exemption from the residential water audit program. The analysis combines both the indoor audit and the landscape audit because, for all practical purposes, the two would be combined. The analysis is summarized in Table 7-2. The assumptions are based on CUWCC estimates from Research and Evaluation Committee Report (8/13/09) which identify a savings per unit of 0.045 AFY and a decay rate of 10 percent. Administrative costs of 25 percent are assumed and include customer contact, inspection scheduling, marketing materials and follow up.

TABLE 7-2
COST-EFFECTIVENESS OF RESIDENTIAL SURVEY PROGRAM

DWR DMM Review Table	
Cost Effectiveness Summary	
Total Costs	$14,171
Total Benefits	$7,149
Benefit/Cost	0.50
Discount Rate	2.9%
Time Horizon	25 years
Cost of Water	$940
Water Savings (AFY)	15

7.4.1.2 High-Efficiency Clothes Washing Machine Incentives

The City has offered high-efficiency clothes washing machine (HECW) rebates since 2001. Between 2006 and 2008, the City provided rebates directly to customers in the amount of $130 for each qualifying washing machine replacement. Starting in 2009, rebates were instead offered through a partnership with MWD and the SoCal WaterSmart Program. HECW rebates issued to City customers to date are summarized in Table 7-3.

TABLE 7-3
HECW REBATES

	2006	2007	2008	2009	2010
Rebates	2	2	3	8	29

The City needs to target 14 rebates per year over ten years to meet the DMM goal. However, an evaluation of cost-effectiveness shows a benefit to cost ratio of only 0.8, as summarized in Table 7-4. As a result, the City is filing a cost-effectiveness exemption for the HECW rebate program. The assumptions are based on CUWCC estimates from Research and Evaluation Committee Report (8/13/09) which identify a savings per unit of 0.031 AFY and a decay rate of 8 percent. Administrative costs of 25 percent are assumed and include customer contact, inspection scheduling, marketing materials and follow up.

TABLE 7-4
COST-EFFECTIVENESS OF HECW REBATE PROGRAM

DWR DMM Review Table Cost Effectiveness Summary	
Total Costs	$2,537
Total Benefits	$2,152
Benefit/Cost	0.8
Discount Rate	2.9%
Time Horizon	25 years
Water Savings (AFY)	5

7.4.1.3 WaterSense Specification Toilets

Since 2001, the City has offered high-efficiency toilet (HET) rebates. Between 2006 and 2008, the City provided rebates of $60 for each qualifying HET replacement directly to customers. Starting in 2009, rebates were instead offered through a partnership with MWD and the SoCal WaterSmart Program. A summary of HET rebates issued to City customers to date is shown in Table 7-5, to meet the DMM requirements, the City needs to target 11 SF and 9 MF HET rebates per year over the ten-year period, for a total water savings of 25 AF by 2020. The City expects to meet this goal through a Flex Track approach (7.5.1).

TABLE 7-5
HET REBATES

	2006	2007	2008	2009	2010
Rebates	6	12	not available	4	6

Beginning on 1 January 2014, installation of water-conserving plumbing fixtures (including toilets, faucets, and showerheads) will be accelerated by compliance with SB407. This regulation requires all residential, multi-family and commercial customers with pre-1994, non-compliant fixtures to replace them with water-conserving fixtures when making certain improvements or alterations to a building. By 2017, all single-family homes must replace non-

compliant plumbing fixtures, and by 2019, all multifamily and commercial buildings must have compliant water-conserving plumbing fixtures in place.

7.4.2 Commercial, Industrial and Institutional (CII)

CII accounts used about 7 percent of the water delivered to the City in 2010. The City distributes information on conservation to restaurants and hotels in the area; materials are obtained from MWD. CII customers are eligible for rebates through MWD's Save Water, Save a Buck Program. Rebates are offered for HETs, urinals, WBICs, and additional industry-specific products, show in Table 7-6.

TABLE 7-6
CII REBATES

Rebate	2006	2007	2008	2009	2010
CII HETs					
CII urinals					
CII WBICs					

Continued implementation of CII outreach activities in partnership with MWD will enable the City to meet their objective for a 10 percent water use reduction from the 2008 baseline over 10 years, equal to 1.6 AF savings per year. The City expects to meet its CII goal through a Flex Track approach (7.5.1).

7.4.3 Landscape Programs

Dedicated irrigation accounts use about 3 percent of the City's water consumption. The City would need to develop water budgets for 9 percent of their dedicated irrigation accounts or 21 budgets per year.

City customers continue to be eligible for the SoCal WaterSmart rebate program for weather-based irrigation controllers (WBICs) and rotating nozzles. The City is currently in the process of evaluating landscape water usage data that is now being obtained from the new meters. Results of this evaluation will help to identify conservation opportunities that the City can effectively pursue, such as developing water budgets for landscapes with WBICs and providing assistance to users that exceed their water budget. The new meters will also make it possible to provide bills that show current use in comparison with water use budgets. The City expects to meet its landscape goals through a Flex Track approach (7.5.1).

7.5 AB 1420 and SBX7-7 Implementation Plan

The SBX7-7 targets for the City are summarized in Table 7-7. Note that the MOU compliance option, which requires a dataset for gpcd from 1997 to 2006, could not be calculated because the City's dataset begins in 2000. Prior to that time, the City's service area boundaries were different; therefore data for water deliveries would not be comparable.

TABLE 7-7
COMPLIANCE TARGETS (GPCD)

		Target		
	Baseline	**2015**	**2018**	**2020**
MOU/AB 1420			N/A	
SBx7-7	120	115		112

N/A – could not be calculated because data are not available for 1997-1999.

7.5.1 Compliance Approach

The City and PHWA would like to continue to build on conservation programs established to date in order to meet future requirements. Because the City recently completed a major investment in their AMR program which has already led to significant savings, they plan to continue focusing on conservation approaches associated with best uses of that system. This includes:

1. Rapid identification and resolution of excess water usage and leaks.

2. Conservation incentives created in the transition to volumetric rates.

3. Improved customer tracking, including rebate and audit program participation and correlation with water usage.

Compliance with the cost-effective DMMs is estimated to result in about 65 AF savings by 2020. The City estimates that conservation savings that can be achieved through these efforts will be equal to or greater than savings associated with full DMM compliance. To date, 770 AF of water savings have been measured and per capita use has dropped by about 11 percent. Accordingly, the City's focus on its metering program combined with supporting activities and continuation of eligibility for regional rebate programs is expected to satisfy the requirements for CUWCC's Flex-Track approach.

7.5.2 Implementation Tracking

Tracking can bring new accountability to existing programs and provides tools for continuous improvement. The new AMR system installed by the City will yield a significant new database showing usage patterns and customer response to new incentive programs. The City will use this to measure program success and progress towards goals.

7.5.3 Impacts of Conservation

It is not expected that, at this time, the conservation programs currently being implemented or scheduled for implementation will have any significant negative effect on water use within the City's service area or affect the City's ability to further reduce demand.

Section 8: Water Shortage Contingency Planning

8.1 Overview

Water supplies may be interrupted or reduced significantly in a number of ways, such as a drought which limits supplies, an earthquake which damages water delivery or storage facilities, a regional power outage, or a hazardous spill that impacts water quality.

The frequency, magnitude, and cause of water supply deficiencies can vary significantly. Each water supply source has different capacity, availability, and curtailment limitations. It is difficult to establish a plan to address all potential scenarios. Some scenarios like fire, system failures, and quality contamination may result in a minimal water shortage. An earthquake may result in a six month shortage, or a drought may result in a multi-year shortage.

This chapter of the Plan describes how the City plans to respond to such emergencies so that emergency needs are met promptly and equitably. It establishes rationing stages and triggering mechanisms based on water supply reductions, identifies impacts on the City's budget, and provides preparation for City Council water shortage implementation actions.

To date, both a Water Shortage Contingency Plan and a Drought Emergency Water Sharing Agreement have been prepared by the City. Prohibitions, penalties and financial impacts of shortages have been developed and are summarized in this chapter.

8.2 Emergency Preparedness

Emergency preparedness throughout Ventura County has been critically tested during the last ten years. Most public agencies have addressed their specific emergency response and recovery needs by preparing written plans, training personnel, and coordinating emergency operations and mutual aid needs with their neighbors. The Standardized Emergency Management System adopted by the State and used by all public agencies provides the framework for agencies to work together and request assistance in an orderly and efficient manner. In the event of an emergency, those leaders have the ability to make and issue rules and regulations on matters reasonably related to the protection of life and property, as affected by the emergency.

8.3 Actions to Prepare for Catastrophic Interruption

City's supplies could be interrupted by a regional power outage, earthquake or other disaster. This section describes PHWA's plans for such an interruption.

The California Division of Mines and Geology has stated two of the aqueduct systems that import water to southern California (including the California Aqueduct) could be ruptured by displacement on the San Andreas Fault, and supply may not be restored for a three to six-week period. The situation would be further complicated by physical damage to pumping equipment and local loss of electrical power. The MWD and CMWD service areas lie at the end of the West Branch of the California Aqueduct and west of the San Andreas Fault. A major

earthquake along the southern portion of the San Andreas Fault therefore has the potential to affect the water supply to MWD, CMWD and PHWA.

DWR has a contingency aqueduct outage plan for restoring the California Aqueduct to service should a major break occur, which it estimates would take approximately four months to repair.

In addition to earthquakes, the SWP could experience other emergency outage scenarios. Past examples include slippage of aqueduct side panels into the California Aqueduct near Patterson in the mid-1990s, the Arroyo Pasajero flood event in 1995 (which also destroyed part of Interstate 5 near Los Banos), and various subsidence repairs needed along the East Branch of the Aqueduct since the 1980s. All these outages were short-term in nature (on the order of weeks), and DWR's Operations and Maintenance Division worked diligently to devise methods to keep the Aqueduct in operation while repairs were made. Thus, the SWP contractors experienced no interruption in deliveries.

One of the SWP's important design engineering features is the ability to isolate parts of the system. The Aqueduct is divided into "pools." Thus, if one reservoir or portion of the California Aqueduct is damaged in some way, other portions of the system can still remain in operation.

Other events could result in significant outages and potential interruption of service. Examples of possible nature-caused events include a levee breach in the Delta near the Harvey O. Banks Pumping Plant, a flood or earthquake event that severely damaged the Aqueduct along its San Joaquin Valley traverse, or an earthquake event along either the West or East Branches. Such events could impact some or all SWP contractors south of the Delta.

The response of DWR and SWP contractors to such events would be dependent on the type and location of any such event. Under typical SWP operations, water flowing through the Delta is diverted at the SWP's main pumping facility, located in the southern Delta, and is pumped into the California Aqueduct. During the relatively heavier runoff period in the winter and early spring, Delta diversions generally exceed SWP contractor demands, and the excess is stored in San Luis Reservoir. Storage in SWP aqueduct terminal reservoirs, such as Pyramid and Castaic Lakes, is also refilled during this period. During the summer and fall, when diversions from the Delta are generally more limited and less than contractor demands, releases from San Luis Reservoir are used to make up the difference in deliveries to contractors.

In addition to SWP storage south of the Delta in San Luis and the terminal reservoirs, MWD has stored water in groundwater banking programs in the San Joaquin Valley, and many of its member agencies and their subagencies (such as PHWA) also have surface and groundwater storage within their own service areas.

The PHWA has the ability to offset water supply curtailment by conjunctive use of SWP water and treatment of the UWCD supply. The current supply capacity from both sources can be increased, in the future, to meet PHWA demand. PHWA is responsible for the purchase of a minimum of 1,850 AF from CMWD and 3,467 AF from UWCD. If SWP water were curtailed, the response by PHWA would be to increase the UWCD production. The PHWA treatment plant could meet demands by operating at the higher production level and increasing a blend of UWCD bypass water, thereby, reducing treated quality from 350 ppm TDS to approximately 500 ppm TDS. This contingency measure would provide an economical means to supplement the curtailment of SWP water and meet water demand. In addition, PHWA would utilize reserve funds to overcome economic impacts to water-related expenditures and revenues.

Of PHWA's retail customers, the City of Port Hueneme does have standby wells available. However, the standby wells can be operated for no more than five days per year and are not available for daily long-term use. The California Department of Health Services requires disinfection and well water treatment for the removal of iron and manganese. The city's wells are only available for emergency use due to catastrophic or unplanned event Water Supply Availability.

The UWCD diverts water from the Santa Clara River and delivers it primarily for agricultural use, reducing extractions by the farmers, and pumps groundwater from the upper and lower aquifers and delivers that water primarily for Municipal & Industrial (M&I) use. The UWCD has met all PHWA demands without curtailment during previous dry years. In future droughts, the PHWA should have an adequate water supply from the UWCD and CMWD to meet customer demands. However, a curtailment of PHWA supply by UWCD might occur due to quality contamination of the recharge operations caused by water quality problems in the Santa Clara River. If recharge capacity is reduced, then the overall UWCD groundwater supply may also be reduced.

The CMWD water supply is protected from water quality problems since there are adequate water treatment facilities in place. Water quality contamination of the State supply is a concern but has not caused water shortages in the past. During the winter of 1996-1997, flooding throughout the Sacramento Valley and Bay Delta did not result in contamination of the State water supply. Curtailment of water supplies by CMWD may occur due to drought and earthquake; however, this is unlikely due to supply augmentations and reliability improvements. The quantity of water in the State water system is contingent on the ability of the State aqueduct, pipelines, and tunnels to deliver large amounts of water to southern California from various reservoirs throughout the state refilled by winter runoff. Environmental regulations to protect minimum flows in rivers and streams may result in future reductions in State water supply for municipal users and an increase in cost of State water.

The PHWA has the ability to offset water supply curtailment by conjunctive use of SWP water and treatment of the UWCD supply. The current supply capacity from both sources can be increased in the future to meet PHWA demand. PHWA is responsible for the purchase of a minimum of 1,850 AF and 3,467 AF from CMWD and UWCD, respectively. If State water were curtailed, the response by PHWA would be to increase the UWCD production. The PHWA treatment plant could meet demands by operating at the higher production level and increasing a blend of UWCD bypass water. This drought contingency measure would provide an economical means to supplement the curtailment of SWP water and meet water demand. In addition, the City would utilize reserve funds to overcome economic impacts to water-related expenditures and revenues.

The City standby wells can be operated for no more than five days per year and are not available for daily long-term use. The California Department of Health Services requires disinfection and well water treatment for the removal of iron and manganese. The City wells are only available for emergency use due to catastrophic or unplanned event.

8.4 Three-Year Minimum Supply

The City's three-year minimum water supply is provided in Table 8-1. The three-year minimum supply was determined to occur for the base years 2011, 2012 and 2013, as stated in CMWD's

2010 UWMP, it is projected that CMWD will be able to meet all of its purveyor demands during a multiple dry year period. Furthermore, the reduction in overall water demand from the implementation of the DMMs discussed in Section 6 would yet to have reached its maximum.

TABLE 8-1
THREE-YEAR MINIMUM WATER SUPPLY (AF)

Source	2011	2012	2013
PHWA			
UWCD Groundwater (AF)	2,317	2,317	2,317
CMWD Imported Water (AF)	999	999	999
Total Supply	**3,316**	**3,316**	**3,316**

8.5 Rationing Stages and Triggering Mechanisms

8.5.1 Stage 1 – 15 Percent Voluntary Reduction

- Communicate to the customers through press releases, brochures, mail-outs, water bills, and Hueneme Magazine, the need to voluntarily conserve water and the many ways possible to conserve without affecting their overall life-styles.
- Distribute conservation notices to water wasters as needed.
- Monitor City parks and median watering and install soil moisture sensors that can override automatic irrigation timers.
- Monitor water usage of all City and Housing Authority facilities and assess the feasibility of installing water conserving fixtures.
- Perform residential and commercial water audits on high consumption users to identify applicable water conservation measures.
- Require ultra-low flow toilets and water conserving fixtures for all new construction and specified redevelopment programs. Require drought tolerant or low consumption landscape for residential and commercial development.
- Fiscal Impacts: Additional expenses for water conservation measures may be needed. Include additional budget in City's fiscal budget for additional expenditures.

8.5.2 Stage 2 – 15 Percent Mandatory Reduction
Trigger: 15 Percent Reduction from CMWD and/or UWCD

- Establish and maintain a "Zero Net" water use retrofit rebate program for new construction.
- Assess a 15 percent water allocation reduction based on a yearly average for metered services. Install meters for all known high volume users. For those users who exceed their allocation, impose a 25 percent penalty for the excess volume. As an incentive, also establish a yearly allocation for those offenders that remain within their yearly allocation so that monthly penalties can be refunded. Charge a $25 fee and install a flow restrictor for repeat offenses of excessive use.

- Enforce water wasting per City Water Waste Ordinance and assess a $25 fee to offenders. Consider updating the Ordinance, as needed.
- Perform an evaluation of the City's Stage 1 water conservation measures and ensure that they are being maintained appropriately.
- Implement a Water Hot-Line for those individuals with questions concerning conservation, available City programs, and billing questions.
- Evaluate long-term implications of the water shortage. Document the implementation of all water conservation measures. Provide status reports to City Council regarding the administration of Stage 2 measures and implement additional direction, as required.
- Appoint a Water Conservation Coordinator.
- Budget and organize the disbursement of a water conservation kit to residential customers during Stage 3. The kit might include: low flow shower heads, toilet tank leak dye tablets, garden hose trigger spray nozzles, and water conservation public information.
- Consider installing water meters on all residential services.
- Prohibit watering landscape between 10 A.M. to 4 P.M.
- Fiscal Impacts: Ensure that "Zero Net" Retrofit Program has adequate funds. There could be an increase in plumbing retrofit requests from residential customers. Utilize additional revenues received from excessive use and repeat offenders to partially fund retrofit program. Establish an appropriation for overtime resulting from additional workloads due to administration of water conservation measures. Establish an appropriation for a telephone "Water Hot-Line" including two additional temporary personnel.

8.5.3 Stage 3 – 20 Percent Mandatory Reduction
Trigger: 20 Percent Reduction from CMWD and/or UWCD

- Implement 15 percent lower water allocations for metered water services and charge a $50 fee for repeat offenders.
- Establish a moratorium on new construction.
- Perform an evaluation of Stage 2 water conservation measures and implement those not completed. Continue to maintain Stage 1 and 2 measures. Report to City Council as appropriate.
- Disburse water conservation kits to residential customers.
- Prohibit watering landscape between 9 A.M. to 5 P.M.
- Fiscal Impacts: Continue to provide appropriations for established measures and programs. Establish an appropriation for residential water conservation kits.

8.6 Reduction Measuring Mechanisms

Each stage would be implemented, as needed, based on actual or anticipated reductions in the City's water supplies. It would be the responsibility of the City's Utility Services Director to

monitor water supplies and demands on a daily basis. This would allow the City to determine the effects of reductions on water production within the system. If evidence of a shortage exists, the Utility Services Director would determine the extent of the severity and recommend the applicable stage. The Utility Services Director would notify the City Council of the water supply situation, and the Council would be responsible for ratifying the proposed measures. Once the City achieves 100 percent metered accounts, actual water use reductions will be determined by monitoring water demands via the electronic data produced by the new meters.

8.7 New Demand

During any declared water shortage emergency requiring mandatory rationing, the City building department continues to process applications for grading and building permits, but not issue the actual permits until mandatory rationing is rescinded. In Stages 3 and 4, it may be necessary to discontinue all use of grading water, even if permits have been issued, and consider banning all use of water for non-essential uses, such as new landscaping and pools.

8.8 Penalties for Excessive Use

The City will obtain approval from the California Public Utilities Commission (CPUC) prior to implementing an excess use penalty per 100 cubic feet of water used in excess of the applicable allocation during each billing period. The City may, after one written warning, install a flow-restricting device on the service line of any customer observed by City personnel to be using water for any nonessential or unauthorized water use. If, despite installation of flow-restricting device, nonessential or unauthorized water use continues, The City may discontinue water service to such customer.

8.9 Appeal Procedure

Any customer may seek a variance from any of the provisions of the water rationing plan by notifying the City in writing, setting forth the grounds for a variance in detail. Any customer not satisfied with the City's response may file an appeal with the CPUC.

Appendix A

Checklist to Ensure Compliance of this Plan with the Act

Appendix A Urban Water Management Plan checklist, organized by legislation number

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
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)	System Demands		Sections 2.3 and 2.4
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)	System Demands	Retailer and wholesalers have slightly different requirements	Section 7.2
3	Report progress in meeting urban water use targets using the standardized form.	10608.40	Not applicable	Standardized form not yet available	NA
4	Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)	Plan Preparation		Section 1.3
5	An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.	10620(f)	Water Supply Reliability . . .		Section 3
6	Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.	10621(b)	Plan Preparation		Section 1.3
7	The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).	10621(c)	Plan Preparation		NA

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
8	Describe the service area of the supplier	10631(a)	System Description		Section 1.5
9	(Describe the service area) climate	10631(a)	System Description		Section 1.6
10	(Describe the service area) current and projected population . . . The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier . . .	10631(a)	System Description	Provide the most recent population data possible. Use the method described in “Baseline Daily Per Capita Water Use.” See Section M.	NA
11	. . . (population projections) shall be in five-year increments to 20 years or as far as data is available.	10631(a)	System Description	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	NA
12	Describe . . . other demographic factors affecting the supplier's water management planning	10631(a)	System Description		NA
13	Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).	10631(b)	System Supplies	The ‘existing’ water sources should be for the same year as the “current population” in line 10. 2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 3.2
14	(Is) groundwater . . . identified as an existing or planned source of water available to the supplier . . .?	10631(b)	System Supplies	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Section 3.3

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
15	(Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management. 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)	System Supplies		NA
16	(Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater.	10631(b)(2)	System Supplies		NA
17	For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board	10631(b)(2)	System Supplies		NA
18	(Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.	10631(b)(2)	System Supplies		NA
19	For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.	10631(b)(2)	System Supplies		NA
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. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	10631(b)(3)	System Supplies		NA
21	(Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	10631(b)(4)	System Supplies	Provide projections for 2015, 2020, 2025, and 2030.	NA

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) An average water year, (B) A single dry water year, (C) Multiple dry water years.	10631(c)(1)	Water Supply Reliability . . .		Section 6.2
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)	Water Supply Reliability . . .		NA
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)	System Supplies		Section 3.4
25	Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof;(I) Agricultural.	10631(e)(1)	System Demands	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.	Sections 2.2 and 2.3

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
26	(Describe and provide a schedule of implementation for) each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (A) Water survey programs for single-family residential and multifamily residential customers; (B) Residential plumbing retrofit; (C) System water audits, leak detection, and repair; (D) Metering with commodity rates for all new connections and retrofit of existing connections; (E) Large landscape conservation programs and incentives; (F) High-efficiency washing machine rebate programs; (G) Public information programs; (H) School education programs; (I) Conservation programs for commercial, industrial, and institutional accounts; (J) Wholesale agency programs; (K) Conservation pricing; (L) Water conservation coordinator; (M) Water waste prohibition;(N) Residential ultra-low-flush toilet replacement programs.	10631(f)(1)	DMMs	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Section 7.2
27	A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.	10631(f)(3)	DMMs		NA
28	An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.	10631(f)(4)	DMMs		NA

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
29	An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.	10631(g)	DMMs	See 10631(g) for additional wording.	Section 7
30	(Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.	10631(h)	System Supplies		Section 3.5
31	Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.	10631(i)	System Supplies		Section 3.6

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
32	Include the annual reports submitted to meet the Section 6.2 requirement (of the MOU), if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	DMMs	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	NA
33	Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).	10631(k)	System Demands	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Section 6.3
34	The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)	System Demands		Section 2.3.2
35	Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.	10632(a)	Water Supply Reliability . . .		Section 8
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)	Water Supply Reliability . . .		Section 8.4
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)	Water Supply Reliability . . .		Section 8.3

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
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)	Water Supply Reliability . . .		Section 8.4
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)	Water Supply Reliability . . .		NA
40	(Indicated) penalties or charges for excessive use, where applicable.	10632(f)	Water Supply Reliability . . .		NA
41	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)	Water Supply Reliability . . .		NA
42	(Provide) a draft water shortage contingency resolution or ordinance.	10632(h)	Water Supply Reliability . . .		NA
43	(Indicate) a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)	Water Supply Reliability . . .		NA
44	Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area	10633	System Supplies		Section 4.4
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)	System Supplies		Section 4.2
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)	System Supplies		NA

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
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)	System Supplies		Section 4.4
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)	System Supplies		Section 4.5
49	(Describe) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.	10633(e)	System Supplies		NA
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)	System Supplies		Section 4.5
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)	System Supplies		Section 4.4
52	The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.	10634	Water Supply Reliability . . .	For years 2010, 2015, 2020, 2025, and 2030	NA

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
53	Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)	Water Supply Reliability . . .		Section 6.3
54	The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.	10635(b)	Plan Preparation		Section 1.3
55	Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642	Plan Preparation		Section 1.3
56	Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.	10642	Plan Preparation		Section 1.3
57	After the hearing, the plan shall be adopted as prepared or as modified after the hearing.	10642	Plan Preparation		Section 1.3
58	An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.	10643	Plan Preparation		Section 1.3

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
59	An urban water supplier shall submit to the department, 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. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.	10644(a)	Plan Preparation		Section 1.3
60	Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.	10645	Plan Preparation		Section 1.3

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

Adoption Resolution by City Council; Copy of the Public Notice;
Tables Ensuring Compliance with AB 1420

Appendix C

City's Water Conservation Ordinance No. 698