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FINAL
Port Hueneme Water Agency
2015 Urban Water
Management Plan

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Prepared for
Port Hueneme Water Agency
250 North Ventura Road
Port Hueneme, CA 93041

Project No. WC-024

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Section 1: Introduction

1.1 Overview

This volume presents the Urban Water Management Plan for the Port Hueneme Water Agency (PHWA). This section describes the general purpose of the 2015 Urban Water Management Plan, discusses implementation, and provides general information about the PHWA's service area characteristics. A list of acronyms and abbreviations is also provided at the end of this section.

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 preclude 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.

The California Urban Water Planning Act requires urban water suppliers to describe and evaluate sources of water supply, efficient uses of water, demand management measures, implementation strategy and schedule and other relevant information. UWMPs are required to be submitted to the California Department of Water Resources (DWR) every five years. In accordance with Water Code §10631.5, a UWMP is required in order for a water supplier to be eligible for the DWR-administered state grants and loans and drought assistance.

In short, 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 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. PHWA and the retail water purveyors will explore enhancing basic supplies from traditional sources such as the State Water Project (SWP) 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 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.
- Implements conservation and efficient use of urban water supplies.

Additionally, newly passed State legislation, Senate Bill 7 of Special Extended Session 7 (SBX7-7), was signed into law in November 2009. As described in Senate Bill 7, it is the intent of the California legislature to increase water use efficiency and the legislature has set a goal of a 20 percent per capita reduction in urban water use statewide by 2020. Only retail agencies supplying more than 3,000 connections or 3,000 acre-feet per year (AFY) are subject to SBX7-7’s requirements. Urban wholesale water suppliers are not required to comply with the target-setting and reporting requirements of SBX7-7. PHWA is thus subject to regulatory requirements only in its role as a wholesaler.

According to Water Code §10608.36, wholesale agencies are required to include in their UWMPs an assessment of present and proposed future measures, programs, and policies that would help the retailers within their service area achieve the water use reductions required under SBX7-7. PHWA will encourage the participation of the retailers in existing conservation programs and welcome the introduction of creative ideas for new and collaborative efforts that will lead to the successful achievement of each entity’s conservation goals.

Sections 4 and 7 of this UWMP provide additional information on the types of plans and programs that PHWA may implement or assist with, to support water demand reduction goals.

A checklist to ensure compliance of this Plan with the Act requirements is provided in Appendix A.

Since the 2010 UWMP was prepared, there have been several additions to the UWMP requirements. These additions include reporting consistency of demand management measures and water loss and the use of standardized forms. In addition, the submittal date has been modified and voluntary reporting of passive savings, energy intensity, and decreased reliance on the Delta have been added.

It is the stated goal of PHWA to manage its 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.

Section 2: Plan Preparation

2.1 Overview

This section describes the legal authority to prepare the plan and the coordination and outreach efforts utilized during its preparation.

2.2 Basis for Preparing a 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. PHWA acts as a Primarily Wholesale Urban Water Supplier. Currently, PHWA delivers approximately 4,000 acre-feet per year (as of 2015) to its retail customers, therefore requiring the preparation and adoption of a UWMP every five years. Urban wholesale water suppliers are not required to comply with the target-setting and reporting requirements of SBX7-7. PHWA is thus subject to regulatory requirements only in its role as a wholesaler.

This UWMP was prepared in compliance with the California Urban Water Management Planning Act and in conformance with the Department of Water Resources' Guidebook for Urban Water Supplies for 2015 UWMPs.

2.2.1 Public Water Systems

The PHWA's water system is a Public Water System (PWS) as it supplies drinking water for human consumption. As a PWS, Annual Reports for the system are filed with the State Water Resources Control Board (SWRCB) through the Drinking Water Program (eARDWP). Data included in this UWMP is consistent with the data filed in the 2015 Annual Report to the SWRCB.

Table 2-1 from the California Department of Water Resources (DWR) Guidebook for Urban Water Suppliers (Guidebook) applies to Retail suppliers and is not applicable to PHWA.

2.3 Regional Planning

The 2015 UWMP for PHWA has been prepared on an individual reporting plan that only covers PHWA's service area.

2.4 Individual or Regional Planning and Compliance

As indicated in Table 2-2, this document was prepared as an Individual UWMP and addresses all the requirements of the CWC. Coordination of this UWMP with other agencies and constituents is described in Section 2.7 of this document.

2.4.1 Regional UWMP

This document was not prepared as part of a Regional UWMP.

2.4.2 Regional Alliance

This section applies to retail water agencies and is not applicable to this UWMP.

Table 2-2: Plan Identification	
<input checked="" type="checkbox"/>	Individual UWMP
<input type="checkbox"/>	Regional UWMP (RUWMP) <i>(checking this triggers the next line to appear)</i>
	Choose One:
<input type="checkbox"/>	RUWMP includes a Regional Alliance
<input type="checkbox"/>	RUWMP does not include a Regional Alliance
NOTES:	

2.5 Fiscal or Calendar Year and Units of Measure

As indicated in Table 2-3, PHWA is a wholesaler and its UWMP presents the required information as described below.

2.5.1 Fiscal or Calendar Year

The PHWA’s 2015 UWMP has been prepared on a calendar year basis.

2.5.2 Reporting Complete 2015 Data

This 2015 UWMP includes complete water use and planning data for calendar year 2015.

2.5.3 Units of Measure

Volumes reported in this UWMP are in acre-feet and are consistent throughout the UWMP.

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
<input checked="" type="checkbox"/>	Agency is a wholesaler
<input type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year (select one)	
<input checked="" type="checkbox"/>	UWMP Tables Are in Calendar Years
<input type="checkbox"/>	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Day that the Fiscal Year Begins	
<i>Day</i>	<i>Month</i>
Units of Measure Used in UWMP (select one)	
<input checked="" type="checkbox"/>	Acre Feet (AF)
<input type="checkbox"/>	Million Gallons (MG)
<input type="checkbox"/>	Hundred Cubic Feet (CCF)
NOTES:	

2.6 Coordination and Outreach

2.6.1 Wholesale and Retail Coordination

As a water wholesale agency, PHWA has coordinated water supply and demand projections with their retail water suppliers including the City of Port Hueneme, Channel Islands Beach Community Services District, and Naval Base Ventura County. Coordination has also occurred with PHWA’s wholesale suppliers including United Water Conservation District and Calleguas Municipal Water District. The preparation of Sections 4 and 6 has taken into account the data received from these agencies. PHWA has provided these agencies with the water supplies projected to be available in increments of five years, from 2015 through 2040 for average, single-dry, and multiple-dry years.

Table 2-4 Wholesale: Water Supplier	
<input type="checkbox"/>	Supplier has informed more than 10 other water suppliers of water supplies available in accordance with CWC 10631. Do not complete the table below. Include a list of the water suppliers that were informed. Location of this list in the UWMP: _____
<input checked="" type="checkbox"/>	Supplier has informed 10 or fewer other water suppliers of water supplies available in accordance with CWC 10631. Complete the table below.
Water Supplier Name	
City of Port Hueneme	
Channel Islands Beach Community Services District	
Naval Base Ventura County	
NOTES:	

2.6.2 Coordination with Other Agencies and the Community

PHWA has encouraged community participation in water planning. For the current Plan, a public workshop session was held to solicit input on the Draft Plan before its adoption. Interested groups were informed about the development of the Plan along with the schedule of public activities. Notices of public meetings were published in the local press and at the water purveyor websites. Copies of the Draft Plan were made available at the water purveyors’ offices and websites, local public libraries and sent to the City of Port Hueneme (City) and the County of Ventura, as well as to interested parties as identified in Table 2-4. Water purveyors also convened meetings with various interests to gather data concerning planned development and the probable implementation of approved development. Such informed data gathering on important issues is a means of checking the short-term “reality” of official projections and understanding the concerns of various groups.

PHWA notified the cities and counties within its service area of the opportunity to provide input regarding the Plan. A copy of the public outreach materials, including paid advertisements, newsletter covers, website postings and invitation letters are attached in Appendix B.

The components of public participation include:

- Local Media
- Community-Based Outreach
- Water Purveyors Public Participation
- City/County Outreach
- Public Availability of Documents

Section 3: System Description

3.1 Overview

This section provides a brief overview of PHWA and its retail water customers. Climatological data are also summarized.

3.2 Port Hueneme Water Agency

The PHWA was formed in July 1994 as a means to better manage sub-regional urban water supplies for their customers. Along with the City of Port Hueneme, two neighboring Naval Bases became participants in the PHWA: 1) United States Naval Construction Battalion Center (USNCBC) and 2) the United States Naval Air Weapons Station (USNAWS). Since then, the USNCBC and USNAWS have been combined to form the Naval Base Ventura County (NBVC), and are served by PHWA.

The PHWA Board of Directors is composed of three City Council members from the City of Port Hueneme and two directors from the Channel Islands Beach Community Services District (CIBCSD). PHWA operates as a cost-effective conjunctive use water supply entity, which provides a means to reduce historical sea water intrusion along the coast, enhances fire protection, improves water quality, encourages wastewater reclamation, and complies with the county-wide extraction reduction schedule.

The PHWA annexed to the Calleguas Municipal Water District (CMWD) and was successful in arranging the exchange and transfer of State Water Project (SWP) supplies on a long-term basis and securing its use in the future. The imported SWP supplies through Metropolitan Water District of Southern California (MWD) and CMWD helps to ensure long-term reliability of quantity and quality for PHWA customers.

3.3 PHWA Retail Water Purveyors

3.3.1 City of Port Hueneme

The City of Port Hueneme is located midway between the cities of Santa Barbara and Los Angeles, on the Pacific Coast in western Ventura County and encompasses an incorporated area of 4.7 square miles.

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 US Navy. Cargo through the Port of Hueneme has increased to record levels prompting the federal designation 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.

During the last 50 years, the City has experienced a moderate growth in population. 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, 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.

Prior to 1994, the City relied solely on groundwater supplies through a combination of wells owned and operated by the City and 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.

3.3.2 Channel Islands Beach Community Services District (CIBCSD)

The Channel Islands Beach Community was formed in 1924 when the Hollywood Beach subdivision was initiated in unincorporated Ventura County. The communities of Silverstrand and Hollywood by the Sea were mapped in 1925 and 1926, respectively. Small water districts were formed to serve the needs of those communities, but were subsequently consolidated into the Channel Islands County Water District, serving the water and sewer needs of the entire beach and harbor area. The Channel Islands Beach community has a long history of actively identifying community needs and organizing to pursue common goals. A Beach Chamber of Commerce and Homeowners Association were formed in 1947 and were active until the CIBCSD was created.

Other organizations were formed in the late 1970s to prevent the annexation of the beach community by adjacent cities and to focus on common concerns. As a result, through action of the County of Ventura Board of Supervisors and beach community citizens, the CIBCSD was created in December 1982. Its creation was a result of the demand of the citizens of the beach community for an independent governmental entity to provide services including, but not limited to, water, sewer, and trash services.

3.3.3 Naval Base Ventura County

In the 1990s, two (2) US Naval facilities, Naval Construction Battalion Center - Port Hueneme, and the Naval Air Weapons Station-Point Mugu (located southeast of Port Hueneme), became participants in PHWA following its initial formation. The bases have since been combined to form the Naval Base Ventura County (NBVC). These Federal facilities are exempt from the UWMP Act.

3.4 Service Area Boundary Maps

The PHWA's service area is shown on Figure 3-1.

Figure 3-1
Port Hueneme Water Agency Service Area

COPH Service Area

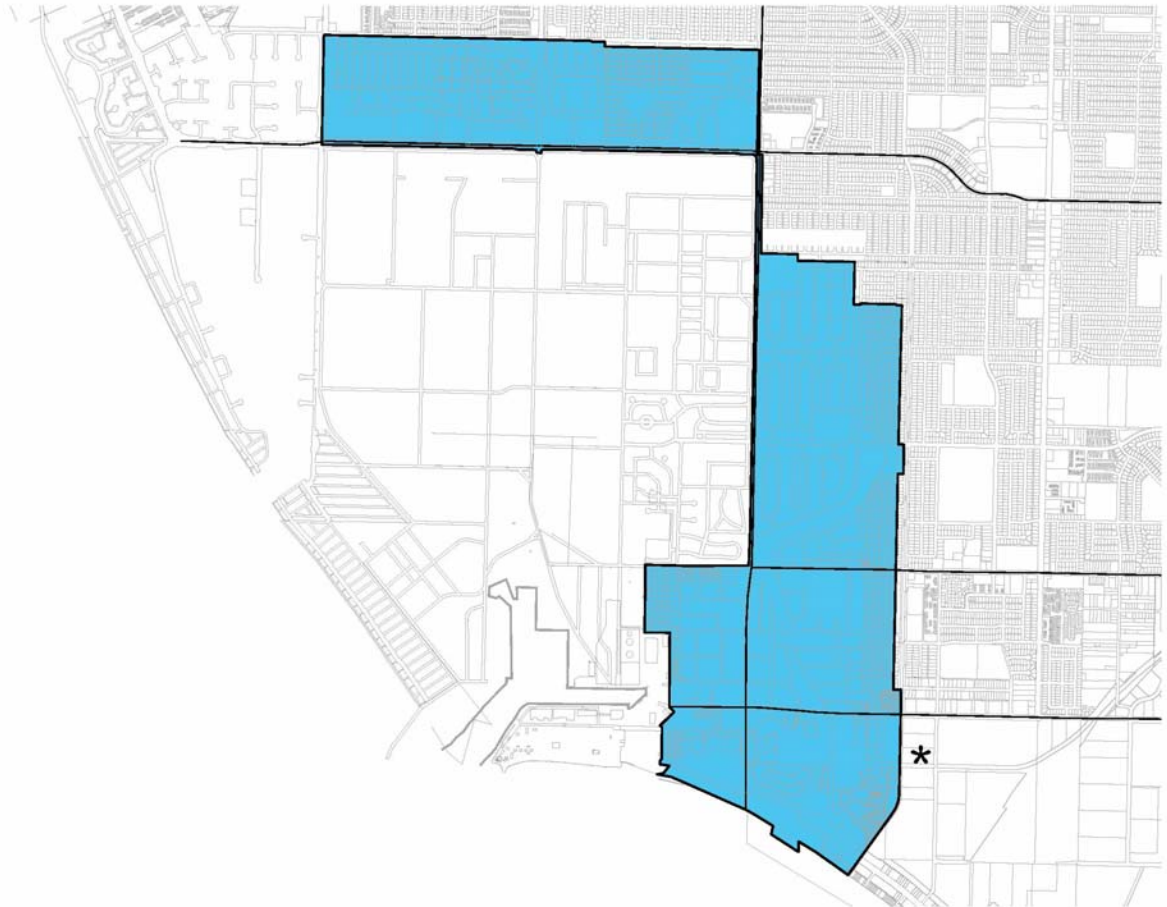
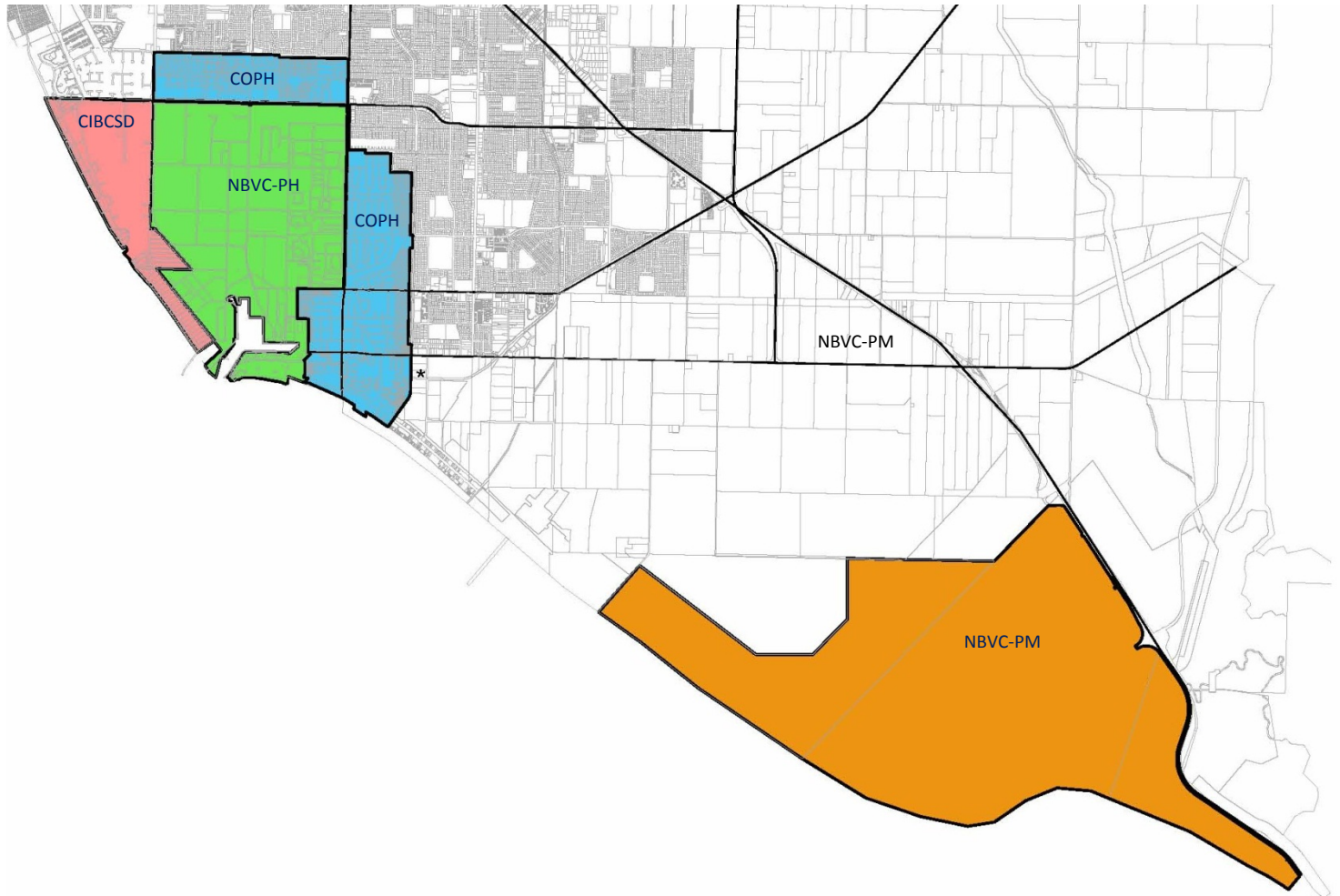


Figure 3-1
Port Hueneme Water Agency Service Area

PHWA



3.5 Climate

The climate in the Port Hueneme/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 Fahrenheit (°F). The region’s low and high temperature extremes are 28°F and 103°F. The average regional rainfall is 14.8 inches, most of which occurs between November and March. Table 3-0 summarizes the climatologic data.

Table 3-0: Monthly Average Climate Data Summary				
Month	Standard Monthly Average ETo (inches)	Average Total Rainfall (inches)	Average Temperature (degrees Fahrenheit)	
			Max	Min
January	2.3	3.43	66	46
February	2.67	3.9	66	47
March	3.8	3.03	65	48
April	4.45	0.71	67	50
May	5.13	0.2	68	53
June	4.85	0.04	70	56
July	5.16	0.04	73	59
August	4.98	0.08	74	60
September	4.11	0.35	74	59
October	3.22	0.35	73	55
November	2.45	1.38	70	49
December	1.97	2.13	66	45

Note:
 Evaporation Data obtained from California Irrigation Management Information System (CIMIS):
<http://www.cimis.water.ca.gov>
 Temperature and Rainfall data obtained from U.S. Climate Data:
<http://www.usclimatedata.com/climate/oxnard/california/united-states/usca0819>

3.6 Service Area Population and Demographics

Current and estimated population projections for the service area through the year 2040 are provided in Table 3-1. Population estimates were obtained from the City of Port Hueneme, Channel Islands Beach Community Services District and NBVC.

Table 3-1 Wholesale: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040
	31,705	32,224	32,316	32,409	32,501	32,744

Notes:

1. For the City of Port Hueneme, projected population obtained from SCAG Draft RTP/SCS Growth Forecast for 2020,2035 and 2040 and linear interpolations for 2015, 2025 and 2030.

2. Based on review of historical census data, the CIBCS D service area is subject to population fluctuations due to it's unique make up as a beach community and serving the Channel Islands Harbor, a vacation destination with transient boat slip occupancy and short term rental populations. Recent trends indicate a significant portion of available housing within the beach communities being utilized as 2nd home, vacation rental or Air B&B use, thus decreasing the reported full time occupancy/population in census data. 2000 census data represented a fulltime population of 9500 , the most current 2010 census data indicates a full time population of 6000. Projected values based on a 0.24% growth rate of the service area

3. NBVC (resident population excluding Camarillo and San Nicolas Island)

3.6.1 Other Demographic Factors

PHWA has a fixed allocation of capacity in UWCD's Oxnard-Hueneme Pipeline system (O-H System) which has been established by the Water Supply Agreement for Delivery of Water through the Oxnard/Hueneme Pipeline. This agreement currently has an expiration date of 2035. UWCD has a fixed allocation of groundwater it may draw from its wells to supply the O-H System, which is determined by the FCGMA. Changes in population or other demographic features do not alter the capacity allocation and do not directly affect water management and planning for the O-H System.

Section 4: System Water Use

4.1 Overview

This section describes historic and current water usage and the methodology used to project future demands within PHWA's service area. PHWA provides service to three purveyors of water: City of Port Hueneme, Channel Islands Beach Community Services District, and Naval Base Ventura County.

4.2 Recycled versus Potable and Raw Water Demand

To provide clarity between potable and recycled water sources, potable and recycled water sources are discussed in separate sections of this document. A breakdown of potable and raw water demands is provided in Table 4-1 of Section 4.3. A detailed description of recycled water is provided in Section 6.6. A summary of both potable and recycled water demands is provided in Table 4-3 of Section 4.3.

4.3 Water Uses by Sector

Current and projected system demands are summarized, by sector, in Table 4-1. Each of the three retail water purveyors provided projected water demands based on the projects that are under evaluation, are in the planning process, or the result of its own water planning efforts for its service area. The purveyors maintain historical data, as well as work closely with property owners and developers in their service areas, to ensure they have an adequate water supply and the necessary infrastructure to provide water service. Since there are only three purveyors in the service area, there is close coordination and exchange of data. As indicated in Table 4-1, only a small portion of the total demand, less than 1%, sold as retail. The total water demand, including potable, raw, and recycled water, is summarized in Table 4-2.

Table 4-1 Wholesale: Demands for Potable and Raw Water - Actual			
Use Type <i>(Add additional rows as needed)</i>	2015 Actual		
<i>Use Drop down list May select each use multiple times These are the only use types that will be recognized by the WUE data online submittal tool</i>	Additional Description <i>(as needed)</i>	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Sales to other agencies		Drinking Water	3313.69
Retail demand for use by agencies that are primarily wholesalers with a small volume of retail sales	Ventura County Game Preserve; Agromin	Drinking Water	18.74
Losses		Drinking Water	17.95
Other	Desalination Concentrate	Raw Water	351.44
TOTAL			3,701.82
NOTES:			

Table 4-2 Wholesale: Demands for Potable and Raw Water - Projected						
Use Type <i>(Add additional rows as needed)</i>	Additional Description <i>(as needed)</i>	Projected Water Use <i>Report To the Extent that Records are Available</i>				
<i>Drop down list</i> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool.</i>		2020	2025	2030	2035	2040 (opt)
Sales to other agencies		3,932	3,933	3,934	3,935	3,936
Retail demand for use by agencies that are primarily wholesalers with a small volume of retail sales		20	20	20	20	20
Losses		18	18	18	18	18
Other	Desalination Concentrate	645	645	645	645	645
TOTAL		4,615	4,616	4,617	4,618	4,619
NOTES:						

Table 4-3 Wholesale: Total Water Demands						
	2015	2020	2025	2030	2035	2040(opt)
Potable and Raw Water <i>From Tables 4-1 and 4-2</i>	3,702	4,615	4,616	4,617	4,618	4,619
Recycled Water Demand* <i>From Table 6-4</i>	0	0	0	0	0	0
TOTAL WATER DEMAND	3,702	4,615	4,616	4,617	4,618	4,619
<i>*Recycled water demand fields will be blank until Table 6-4 is complete.</i>						
NOTES:						

4.4 Distribution System Water Losses

System water losses occur as a result of leaks and ruptures in the existing distribution network, system flushing and cleaning, and pump pressure relief at wells. The estimated losses for calendar year 2015 are provided in Table 4-4.

Table 4-4 Wholesale: Water Loss Summary Most Recent 12 Month Period Available <i>(as calculated in Appendix L worksheet)</i>	
Reporting Period Start Date (Month/Year)	Loss
Jan-Dec 2015	18

4.5 Estimating Future Water Savings

This section applies to retail water agencies and is not applicable to PHWA.

4.6 Water Use for Lower Income Households

This section applies to retail water agencies and is not applicable to PHWA.

Section 5: Baselines and Targets

5.1 Overview

This section describes the service area and water use characteristics that form the basis for establishing baselines and targets for per capita water use.

5.2 Guidance for Wholesale Water Agencies

Wholesale agencies are guided by the California Water Code, CWC 10608.36, to document the programs and means by which they support retail agencies and the State in meeting water use reduction targets. PHWA assists local retail agencies in meeting their demand reduction goals through public outreach and education programs that include:

- Hosting guided tours of PHWA facilities
- Presentations to local, state and national organizations
- School educational programs at elementary, middle school and high school levels

5.3 Updating Calculations from 2010 UWMP

This section is not applicable to wholesale agencies.

5.3.1 Target Method

This section is not applicable to wholesale agencies.

5.3.2 Required Use of 2010 Census Data

This section is not applicable to wholesale agencies.

5.3.3 SBX7-7 Verification Form (Appendix E)

This section is not applicable to wholesale agencies.

5.4 Baseline Periods

This section is not applicable to wholesale agencies.

5.5 Service Area Population

This section is not applicable to wholesale agencies.

5.6 Gross Water Use

As described in Senate Bill 7 of Special Extended Session 7 (SBX7-7), it is the intent of the California legislature to increase water use efficiency and the legislature has set a goal of a 20 percent per capita reduction in urban water use statewide by 2020. Only retail agencies supplying more than 3,000 connections or 3,000 acre-feet per year (AFY) are subject to SBX7-7's requirements. Urban wholesale water suppliers are not required to comply with the target-setting and reporting requirements of SBX7-7. PHWA is thus subject to regulatory requirements only in its role as a wholesaler.

According to Water Code §10608.36, wholesale agencies are required to include in their UWMPs an assessment of present and proposed future measures, programs, and policies that would help the retailers within their service area achieve the water use reductions required under SBX7-7. PHWA will encourage the participation of the retailers in existing conservation programs and welcome the introduction of creative ideas for new and collaborative efforts that will lead to the successful achievement of each entity's conservation goals.

Sections 4 and 7 of this UWMP provide additional information on the types of plans and programs that PHWA may implement or assist with, to support water demand reduction goals.

5.7 Baseline Daily per Capita Water Use

This section is not applicable to wholesale agencies.

5.8 2015 and 2020 Targets

This section is not applicable to wholesale agencies.

5.9 2015 Compliance Daily per Capita Water Use

This section is not applicable to wholesale agencies.

5.10 Regional Alliance

This section is not applicable to wholesale agencies.

Section 6: System Supplies

6.1 Overview

This section describes the water resources available to PHWA for the 25-year period addressed by the Plan.

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.

6.2 Purchased or Imported Water

A lower percentage of PHWA water (approximately 20 percent) originates with water delivered through agreement with MWD and CMWD.

6.2.1 CMWD State Project Water Supply

The PHWA purchases imported SWP water from CMWD, which in turn purchases it from MWD. Imported surface water originates in Northern California and is conveyed 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 through the Santa Susana Mountains. CMWD either stores the treated water in Lake Bard or sends the water directly to its CMWD Springville Reservoir near Camarillo.

CMWD currently wholesales water to 23 local public 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.

6.2.2 CMWD Facilities

Facilities of CMWD include an open reservoir, water treatment plant, transmission lines, closed reservoirs, and pump stations. Water enters Ventura County and the CMWD system through the Santa Susana Tunnel via MWD's West Valley Feeders. Upon entering the CMWD system, the water flows by gravity to Lake Bard, located between the cities of Simi Valley and Thousand Oaks, for storage or is distributed throughout the system. Lake Bard has a total storage capacity of 10,500 acre-feet (AF) and is used for peaking and emergency use only. In 1995, CMWD completed the 50 million gallon per day (MGD) Lake Bard Water Filtration Plant. Water from Lake Bard serves mainly the lower pressure zones (i.e., Moorpark, Camarillo, and Oxnard) but can be pumped to the higher zones during emergencies.

The CMWD distribution system consists of more than 130 miles of pipelines and seven reservoirs ranging in size from 2 to 18 million gallons (MG). Ranging in size from 35 to 39 inches, the Oxnard-Santa Rosa Feeder delivers water to Camarillo and Oxnard. The 18 MG Springville Reservoir, located on the west end of the Camarillo Hills at the terminus of the Oxnard-Santa Rosa Feeder, is the largest CMWD reservoir. This reservoir serves the PHWA and City of Oxnard by gravity through the Oxnard Conduit.

6.2.3 CMWD Reliability of Supply

CMWD operates several facilities that increase the reliability of the CMWD's supply to its purveyors. These facilities are discussed below.

1. **Las Posas Aquifer Storage and Recovery**

As shown on Figure 2-1, CMWD and MWD have banked a significant amount of water in the Las Posas groundwater basin. This water can be extracted during times when imported supplies are curtailed.

2. **Lake Bard and Lake Bard Water Treatment Plant**

Lake Bard is located in the center of the CMWD service area and can store approximately 8,000 AF of water. CMWD operates the Lake Bard WTP, which is adjacent to the lake and has a treatment capacity of 100 cfs. Supplies stored in Lake Bard can be used during times when imported supplies are curtailed.

3. **Salinity Management Project**

As described in Chapter 2, the SMP will facilitate treatment of local groundwater that is currently too saline for potable use. These desalters will improve overall regional supply reliability.

4. **Transfer Opportunities**

Water transfer agreements between agricultural and municipal water users are another method for increasing supply reliability. As a member agency to MWD, CMWD benefits from transfer agreements made through MWD. Therefore, CMWD does not currently pursue independent transfer agreements.

As part of its rate program, CMWD has a two-tier rate system. Tier 1 rates apply to allocations for each CMWD purveyor in a take-or-pay arrangement. The amount of Tier 1 allocation is based on using 90 percent of the maximum deliveries from fiscal years 1989/90 to 2000/01. Tier 2 rates apply to imported water purchases that exceed the Tier 1 allocation. Tier 2 water is priced at a higher rate than Tier 1 water. These rates do not impact PHWA due to the long-term agreement previously established.

Although there are no guarantees that Tier 1 or Tier 2 water will be available, it is assumed for this analysis that the Tier 1 allocation is reliable under both average and drought conditions. This is consistent with MWD's and CMWD's 2010 Regional UWMPs. These documents project that MWD is capable of meeting 100 percent of its member agencies' projected supplemental demands (consumptive and replenishment needs) over the next 20 years in average and wet years and meet 100 percent of its member agencies' supplemental demands over the next 10 years in single dry years. Under drought conditions, it is assumed that Tier 2 water availability may be subject to cutbacks, potentially to the extent of not being available. These conservative assumptions acknowledge that both CMWD and MWD have undertaken a number of steps to provide increased water supply reliability, but that availability of the supplies, under the most dire circumstances, is not guaranteed.

Due to the ongoing drought, CMWD adopted Resolution No. 1865 which implemented MWD's Water Supply Allocation Plan (WSAP) which provided a reduced imported water allocation to CMWD commensurate with a WSAP level 3. CMWD, in turn, developed water allocations to its member agencies. Exceedance of these target allocations may result in significant financial penalties. These penalties would be imposed in the event that CMWD is assessed penalties by MWD. Because PHWA and Oxnard share water delivery facilities for CMWD water, PHWA's allocation is combine with Oxnard's. The combined target allocation for FY 15-16 is 13,633.6 AFY.

6.3 Groundwater

The majority (approximately 80%) of PHWA water supply is provided by groundwater through agreement with UCWD. In 1996 PHWA negotiated a new 40-year supply agreement with the UWCD and improves the quality of the water supplied by treatment at the Brackish Water Demonstration Reclamation Facility (BWRDF), a PHWA operated membrane filtration facility. The BWRDF has a capacity of 4.0 MGD of finished potable water.

Much of Ventura County's groundwater supplies are located in the Oxnard Plain area and are subject to the regulations of the Fox Canyon Groundwater Management Agency. The FCGMA was formed by the California State legislative in 1982, is governed by a five-member Board of Directors, and operates currently under Ordinance 8.3. All local groundwater supplies are coordinated and managed in accordance with the FCGMA.

6.3.1 Groundwater Basin Description

Groundwater for the O-H Pipeline is extracted from the Oxnard Plain Groundwater Basin, a subbasin of the Santa Clara River Valley Groundwater Basin (Groundwater Basin Number 4-4.02). The Oxnard Plain Groundwater Basin contains a collection of interconnected aquifers that are separated by layers of clay strata. The Basin is generally categorized into three parts: the Oxnard Forebay, the Upper Aquifer System (UAS), also known as the Oxnard Aquifer, and the

Lower Aquifer System (LAS), also known as the Fox Canyon Aquifer. A more detailed description of the Basin is contained in UWCD's 2015 UWMP.

6.3.2 Groundwater Management

The Fox Canyon Groundwater Management Agency (FCGMA) was established in Ventura County by State Assembly Bill No. 2995 of the State Legislature in 1982 to control groundwater overdraft and minimize the threat of seawater intrusion in the Upper and Lower Aquifer Systems of the Oxnard Plain. After completing the FCGMA Planning Study that analyzed the condition of the LAS and UAS, the FCGMA adopted a plan of management of the LAS and UAS within the FCGMA boundaries in 1985. The objective of that plan and other policies adopted by the FCGMA is to eliminate overdraft in its service area, which includes the East and West Las Posas Basins, and bring these basins to a "safe yield" condition by 2010. A "safe yield" condition is achieved when groundwater extraction from a basin are approximately equal to annual replenishments of water into the groundwater basin. The safe yield estimate for the FCGMA area is approximately 120,000 AFY. Allowing for changes in annual rainfall, the reductions in groundwater allocations imposed by the FCGMA have significantly reduced groundwater extractions.

Major elements of the UAS Plan include:

- Ventura County Ordinance No. 3739 - This existing County ordinance prohibits the construction, repair or modification of UAS wells in areas where increased extractions would increase the overdraft and the rate of seawater intrusion in the Oxnard Plain.
- Completion of the Seawater Intrusion Abatement Project through improvement of the Vern Freeman Diversion and operating the new project under criteria developed to ensure proper water allocation.
- Annual monitoring to determine the effectiveness of the project.

Major elements of the LAS Plan include:

1. Monitoring for seawater intrusion in the LAS near the coastline by constructing four new monitoring wells.
2. Development of Contingency Plans in the event seawater intrudes the LAS. These plans call for conservation and reclamation efforts, increased monitoring and pumping restrictions.
3. Implementation of pumping restrictions in the North Las Posas Basin would prohibit expansion of all types of water above the LAS outcrop or to other non-water-bearing areas. This outcrop more or less parallels the south flank of South Mountain. The restriction would regulate the drilling of new LAS water wells and use of groundwater in the North Las Posas Basin to ensure that adopted FCGMA groundwater pumping projections are not exceeded.
4. Pumpage will be accurately monitored throughout the FCGMA by requiring semiannual reporting of metered extractions. Results will be used to verify water use rates and to limit groundwater extractions in basins where adopted FCGMA extractions are exceeded after adjustment of the date to account for wet and dry years.

6.3.2.1 FCGMA Ordinance No. 8

On 26 June 2002, the FCGMA adopted Ordinance No. 8 which can be found at [http://fcgma.org/images/ordinances_legislation/Ordinance No. 8.0.pdf](http://fcgma.org/images/ordinances_legislation/Ordinance_No.8.0.pdf) . This ordinance combines each of the active individual ordinances (Ordinances Nos. 1.3, 3.2, 4.3, and 5.9) into a single comprehensive ordinance. One of the key elements of FCGMA Ordinance No. 8 is the gradual reduction in groundwater extractions by all municipal pumpers except those with baseline extraction allocations or annual efficiency extraction allocations. FCGMA assigned allocations to each groundwater pumper. The reduction schedule is based on the average "historical extraction" using the five calendar years of reported extractions from 1985 to 1989. (While groundwater rights in the Las Posas Basin have not been definitively adjudicated by a court, the extraction allocations reflect the prior production of groundwater by each pumper, which is one of the key considerations in determining groundwater rights).

Groundwater extraction allocations for each well are set according to the following formula:

- 1992-1994 extraction allocation = 95 percent of historical extraction, as adjusted.
- 1995-1999 extraction allocation = 90 percent of historical extraction, as adjusted.
- 2000-2004 extraction allocation = 85 percent of historical extraction, as adjusted.
- 2005-2009 extraction allocation = 80 percent of historical extraction, as adjusted.
- After 2009 extraction allocation = 75 percent of historical extraction, as adjusted.

Baseline allocations are not subject to the incremental reductions. Pursuant to its Ordinance No. 8, FCGMA also has the authority to grant an "annual efficiency allocation" to those agricultural users whose operations have demonstrated a certain level of efficiency and conservation in their water usage. Thus, although an efficiency allocation may be different than the extraction allocation; such efficiency allocations further the goal of bringing the basin to safe yield by encouraging water conservation.

6.3.2.2 Groundwater Management Plan

In May 2007, FCGMA, together with UWCD and CMWD, issued a Groundwater Management Plan which was an update to the 1985 plan and incorporates the studies conducted since the original plan was prepared. The goal of the plan is to address a variety of ongoing basin issues, in addition to the original goal to contain saline intrusion. The plan concludes that the annual yield of the basin must be reduced from 120,000 acre-feet per year (AFY) to 100,000 AFY to achieve the basin management objectives. The plan presents and evaluates the strategies currently under development as well as future strategies to achieve the basin management objectives.

6.3.2.3 FCGMA Emergency Ordinance E and Resolution 2013-03

In response to the ongoing drought, FCGMA adopted Emergency Ordinance E on April 11, 2014, which requires groundwater users to reduce their extractions or pay significant financial penalties. The tiered financial penalties are prescribed in Resolution 2013-03. Municipal and industrial well operators must reduce pumping by 10 percent from the average pumping between 2003 and 2012. The mandated reduction increased to 20 percent on July 1, 2015.

Emergency Ordinance E will be reviewed every eighteen months, unless superseded or rescinded by Board action, or a finding by the Board that the drought no longer exists.

Emergency Ordinance E found at the FCGMA website at:

http://www.fcgma.org/images/ordinances_legislation/Emergency_Ordinance_E_-_Orig._Signed_optimized.pdf.

6.3.3 Overdraft Conditions

Localized saline intrusion was observed in the 1930s and 1940s along the coast near Port Hueneme as groundwater pumping reduced groundwater levels induced intrusion and increased chloride levels. Within 20 years, saline intrusion had extended 3 miles inland. In some affected wells, chloride concentrations reached 20,000 mg/L. By the late 1950s, groundwater levels in the Lower Aquifer System dropped below sea level. Saline intrusion primarily occurred at the Hueneme Submarine Canyon and Mugu Submarine Canyon. A more detailed description of the saline intrusion is presented in UWCD's 2015 UWMP.

The 2007 Groundwater Management Plan establishes the need for the annual yield of the basin to be no more than 100,000 AFY. The average extraction between 2003 and 2012 was 124,586 AFY. Accordingly, FCGMA adopted Emergency Ordinance E to achieve the necessary reduction in groundwater extractions. FCGMA, as the designated groundwater sustainability agency, will be preparing a groundwater sustainability plan to achieve the established basin management objectives.

6.3.4 Historical Groundwater Pumping

UWCD's primary strategy for groundwater recharge is to recharge diverted surface water from the Santa Clara River at United's Saticoy and El Rio Spreading Grounds, as well as the Noble Pit, a former gravel pit in the Oxnard Forebay. Another element of the strategy is to deliver surface water to farms in the southeastern Oxnard Plain and Pleasant Valley basins. These deliveries reduce groundwater pumping in critical areas of the Oxnard Plain.

The groundwater extracted by UWCD for the O-H Pipeline is primarily recharged by the El Rio Spreading Grounds. All of the shallow wells except Well No. 11 are located immediately adjacent to the El Rio Spreading Grounds which are not directly part of the O-H Pipeline system. UWCD diverts surface water from the Santa Clara River at the Freeman Diversions and conveys the water to the groundwater at the spreading grounds. The spreading operations have a significant effect on the quality of the water delivered through the O-H Pipeline. During spreading operations, the water quality of the groundwater is similar to the water quality of the Santa Clara River which is generally higher than that of the ambient groundwater. After spreading operations have ceased for several months, water quality can deteriorate, particularly if the deep wells are utilized as a source of water. This water quality effect is apparent during the ongoing drought and has resulted in elevated manganese levels in the O-H Pipeline water supply.

Because PHWA receives its groundwater supply from UWCD, it does not directly pump groundwater. This is shown in Table 6-1.

Table 6-1 Wholesale: Groundwater Volume Pumped						
<input checked="" type="checkbox"/>	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type <i>Drop Down List</i> <i>May use each category multiple times</i>	Location or Basin Name	2011	2012	2013	2014	2015
	TOTAL					
NOTES:						

6.3.5 UWCD Local Groundwater Supply and Facilities

Starting in late 1998, PHWA began providing its purveyors with water from UWCD (80 percent of supply). Since that time, UWCD has been able to provide a continuous supply of municipal water to meet the water demands without any curtailment of supply.

UWCD diverts water from the Santa Clara River at the Vern Freeman Diversion Dam, northwest of Saticoy, and delivers a portion of the water to the El Rio Spreading Grounds. UWCD’s El Rio Spreading Grounds are 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 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).

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.

6.3.6 UWCD Groundwater Availability and Reliability

UWCD holds a pumping sub-allocation for users of the O-H Pipeline. The Fox Canyon Groundwater Management Agency (FCGMA) manages groundwater extractions within the Oxnard Plain Basin. PHWA maintains a 40-year contract with UWCD on behalf of its purveyors. This agreement expires in 2036. The current annual allocation for PHWA purveyors is

3,531.549 AFY. However, while Emergency Ordinance E is in effect, PHWA's sub-allocation for CY 2016 is 3,471.249 AFY.

6.4 Surface Water

PHWA does not capture surface water for water supply. However, as discussed previously, it receives groundwater from UWCD which diverts surface water from the Santa Clara River and delivers the water to the El Rio Spreading Grounds where the El Rio Wellfield is located.

6.5 Stormwater

PHWA does not capture or utilize stormwater for water supply.

6.6 Wastewater and Recycled Water

Wastewater generated within the PHWA service area is treated at the wastewater treatment facility owned and operated by the City of Oxnard (Oxnard), which provides secondary treatment. Oxnard completed an Advanced Water Purification Facility (AWPF) in 2009, which has a current capacity to produce approximately 7,000 AFY of recycled water.

6.6.1 Recycled Water Coordination

In response to recommendations included in the 1997 progress report titled, "Oxnard Water Reclamation Project Initial Implementation Elements of the Water Reclamation Master Plan," and with input from CMWD, UWCD, and FCGMA, the City of Oxnard developed a water recycling program – 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 began in 2011. The AWPF is 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.

The new resource will provide a locally controlled, drought-proof source of water that meets all drinking water quality standards. In an effort to identify a project that could take advantage of the water reclamation potential from the Oxnard Wastewater Treatment Plant, the City of Oxnard is completing a Public Works Integrated Master Plan which includes an update to its prior recycled water planning efforts.

When complete, wastewater generated by PHWA customers, and currently treated at the regional WWTP in the City of Oxnard and discharged through an ocean outfall will be diverted to the AWPF for treatment and reclamation. PHWA's retailer purveyors could at some future time be served by the system.

6.6.2 Wastewater Collection, Treatment and Disposal

This section is not applicable to wholesale agencies.

6.6.2.1 Wastewater Collected Within Service Area

Table 6-2 is not applicable to PHWA.

6.6.2.2 Wastewater Treatment and Discharge Within the Service Area

PHWA does not provide wastewater treatment and discharge within its service area. Table 6-3 from the DWR Guidebook applies to suppliers that provide wastewater treatment and is not applicable to PHWA.

Table 6-3 Wholesale: Wastewater Treatment and Discharge Within Service Area in 2015										
<input checked="" type="checkbox"/>	Wholesale supplier does not provide supplemental treatment to recycled water it distributes. The supplier will not complete the table below.									
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional)	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service	Treatment Level <i>Drop down list</i>	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
<i>Add additional rows as needed</i>										
Total										
NOTES:										

6.6.3 Recycled Water Beneficial Uses

Recycled water is not utilized within the PHWA service area. Accordingly, Tables 6-4 and 6-5 indicate the lack of current use. Table 6-6 does not apply to wholesale agencies.

Table 6-4 Wholesale: Current and Projected Retailers Provided Recycled Water Within Service Area

<input checked="" type="checkbox"/>	Recycled water is not directly treated or distributed by the supplier. The supplier will not complete the table below.						
Name of Receiving Supplier or Direct Use by Wholesaler	Level of Treatment <i>Drop down list</i>	2015	2020	2025	2030	2035	2040 (opt)
<i>Add additional rows as needed</i>							
Total		0	0	0	0	0	0
NOTES:							

Table 6-5 Wholesale: 2010 UWMP Recycled Water Use Projection Compared to

<input checked="" type="checkbox"/>	Recycled water was not used or distributed by the supplier in 2010, nor projected for use or distribution in 2015. The wholesale supplier will not complete the table below.	
Name of Receiving Supplier or Direct Use by Wholesaler	2010 Projection for 2015	2015 actual use
<i>Add additional rows as needed</i>		
Total		0
NOTES:		

6.7 Desalinated Water Opportunities

Even though UWCD groundwater is considered potable, it has elevated total dissolved solids (TDS) (approximately 1,300 ppm) and hardness (650 parts per million [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. To meet these goals, PHWA constructed and operates the BWRDF to treat brackish water supplied by UWCD.

The PHWA completed construction of the BWRDF and pipeline network between PHWA members to receive SWP water and the treated water from the desalination facility. Cost for the new PHWA facilities was approximately \$12.7 million. The 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 site. The BWRDF was originally designed to desalinate 3.0 MGD of brackish groundwater and has been expanded to 4.0 MGD. The BWRDF uses two different brackish water desalination technologies: 1) reverse osmosis (RO) and 2) nanofiltration (NF) in parallel.

The facility blends the treated UWCD supply with a parallel stream of untreated UWCD supply to provide the desired level of water quality. Additional PHWA demand that may exceed the capacity of the facility (or in the event of a system shutdown) is served by CMWD supply.

In addition, a feasibility study for development of a desalination facility was completed by UWCD in August 2014. The study indicated a reverse osmosis (RO) desalination facility could be constructed on the South Oxnard Plain and supply water for agricultural use at a cost competitive with imported State Project water with superior quality. While providing a regional source of agricultural supply, this system would not contribute to the supply of the O-H Pipeline system.

CMWD is also conducting a feasibility study of seawater desalination in Ventura County. This feasibility study is currently in development but could significantly increase the reliability of CMWD water supplies to PHWA.

6.8 Exchanges or Transfers

Currently, PHWA is participating in transfers, exchanges or groundwater banking programs. From 1997-2002 PHWA transferred 700 AF to CMWD and since 2003, PHWA began to annually transfer 700 AF to the City of Oxnard. However, since the adoption of Emergency Ordinance E, FCGMA has not processed the requested transfers.

PHWA will continue efforts to identify and evaluate additional opportunities as they arise.

6.9 Future Water Projects

Availability of future supplies is bound by FCGMA pumping restrictions imposed on the UWCD extractions, the capacity of CMWD's distribution system, and the reliability of SWP water deliveries. These limitations are incorporated into Table 6-7. However, PHWA is an active participant in the future water supply projects of UWCD and CMWD.

PHWA has 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, and supporting demand management measures. Implemented over time, these programs are expected to provide PHWA with sufficient supplies to meet water demands of its retail customers.

Table 6-7 Wholesale: Expected Future Water Supply Projects or Programs						
<input type="checkbox"/>	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
<input type="checkbox"/>	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
Provide page location of narrative in the UWMP						
Name of Future Projects or Programs	Joint Project with		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency
	Drop Down Menu	If Yes, Agency Name				
<i>Add additional rows as needed</i>						
Third Stage RO			Brine Concentration	2017	All Years	250
NOTES:						

6.10 Summary of Existing and Planned Sources

It is anticipated that PHWA will continue to utilize its current sources of water supply from UWCD and CMWD. Both agencies are exploring future projects to improve water supply reliability.

PHWA’s existing source of water from the O-H System is groundwater pumped from the Oxnard Plain Groundwater Basin which is managed by FCGMA. PHWA’s sub-allocation of UWCD’s Temporary Extraction Allocation (TEA) for the O-H System is 4,442 AFY and beginning January 1, 2016, its allocation is 80 percent of the TEA under Emergency Ordinance E.

PHWA’s current source of water from CMWD is limited by the adoption of CMWD’s Resolution No. 1865 which implements MWD’s Water Supply Allocation Plan. With the current SWP allocation to MWD of 60 percent, there are no delivery limitations from CMWD as of July 1, 2016.

These supplies are summarized in Tables 6-8 and 6-9

Table 6-8 Wholesale: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
<i>Drop down list</i> <i>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		Actual Volume	Water Quality <i>Drop Down List</i>	Total Right or Safe Yield (optional)
<i>Add additional rows as needed</i>				
Groundwater		3,144.37	Drinking Water	
Imported water		540.14	Drinking Water	
Total		3,684.51		0
NOTES:				

Table 6-9 Wholesale: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply									
		2020		2025		2030		2035		2040 (opt)	
<i>Drop down list</i> <i>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
<i>Add additional rows as needed</i>											
Groundwater		3,554		3,554		3,554		3,554		3,554	
Imported water		2,000		2,000		2,000		2,000		2,000	
Total		5,554	0	5,554	0	5,554	0	5,554	0	5,554	0
NOTES:											

6.11 Climate Change Impacts to Supply (Optional)

A topic of growing concern for water planners and managers is global warming and the potential impacts it could have on California’s future water supplies. Climate change models have predicted that potential effects of global warming will result in increased temperature, reduction in Sierra Nevada snowpack depth, early snow melt, and a rise in sea level. In the 2009 update

of the California Water Plan, multiple scenarios of future climate conditions are evaluated. These changing hydrological conditions could affect future planning efforts, which are typically based on historical conditions.

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 1oF, 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.

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.

Section 7: Water Supply Reliability Assessment

7.1 Overview

The Act requires urban water suppliers to assess water supply reliability that compares total projected water use with the expected water supply over the next twenty years in five year increments. The Act also requires an assessment for a single dry year and multiple dry years. This chapter presents the reliability assessment for PHWA's service area.

It is the stated goal of PHWA and the retail water purveyors to deliver a reliable and high quality water supply for their customers, even during dry periods. 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 UWMP successfully achieves this goal.

7.2 Constraints on Water Sources

The Oxnard Plain Groundwater Basin currently provides a reliable source of water for the O-H System except for during the severest droughts. UWCD also has a contractual right to State Water Project (SWP) water which can be released from Castaic Lake and diverted at the Freeman Diversion. Unfortunately, this supplemental source is costly and significant water is lost to infiltration, evaporation and consumptive use by vegetation during its delivery in the Santa Clara River. UWCD is currently contemplating a master planning process to, among other elements, identify potential supplemental water sources.

PHWA also purchases imported surface water from CMWD, which 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's 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 three mile-long tunnel through 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 has served the needs of its members, without fail, except for a few days following the 1994 Northridge Earthquake.

MWD has the obligation to provide available water to its member agencies, such as CMWD, based on its existing statute, governing regulations, and applicable agreements. As discussed below, both MWD and CMWD are undertaking a variety of programs to increase the reliability of imported water deliveries. Both CMWD and MWD, due to their historical performance and scope of operations, have provided and will continue to provide a reliable source of water to PHWA.

7.2.1 Water Quality

PHWA receives 80 percent of its water from UWCD and 20 percent from CMWD. UWCD groundwater treated at the PHWA membrane filtration plant meets all SWRCB drinking water quality requirements. SWP surface water is treated by MWD and delivered through CMWD. All CMWD water is provided directly to PHWA retail customers without further treatment.

PHWA is committed to providing its customers with high quality water that meets all federal and state primary drinking water standards. Some contaminants in the water supplies provided to PHWA by UWCD and CMWD are naturally-occurring minerals. In some cases, the presence of animals or human activity can contribute to the constituents in the source waters.

UWCD's 2010 Santa Clara River Watershed Sanitary Survey Update provided a survey of potential sources of contamination. 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 methyl tert-butyl ether (MTBE); however, no MTBE has been detected in the wells. UWCD continues to monitor the water quality.

MWD's source water assessment of the SWP indicate that SWP supplies are considered to be most vulnerable to urban/storm water runoff, wildlife, agriculture, recreation, and wastewater.

Based on UWCD's 2015 Consumer Confidence Report (CCR), 2010 Santa Clara River Watershed Sanitary Survey Update, and CMWD's 2015 CCR, the primary constituents of concern in PHWA's water supplies are:

- Nitrate
- Pathogens
- Radon
- Iron and Manganese

PHWA's membrane treatment plant uses two different types of state-of-the-art membrane filtration technologies to treat the UWCD water: reverse osmosis (RO) and nanofiltration (NF). These 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. The water is disinfected using chloramines.

Water provided by PHWA meets all of the California Division of Drinking Water's (DDW's) primary maximum contaminant levels (MCL) requirements. PHWA did not experience regulatory violations of treatment, monitoring, or reporting requirements during 2010-2015. PHWA anticipates receiving high quality potable water from the UWCD and CWMD that meets all DDW standards for the foreseeable future. There are currently no water quality concerns affecting the reliability of supplies to PHWA.

7.2.2 Groundwater Contamination

A potential risk to PHWA's groundwater supplies from UWCD is groundwater contamination caused by spillage of agricultural chemicals, runoff from industrial sites, spillage from tanker trucks carrying hazardous chemicals, or other accidents. Generally, UWCD would develop a response plan on a case-by-case basis depending on the severity of the risk. In a previous MTBE contamination event, UWCD was closely involved in oversight of the cleanup and increased the frequency of contaminant monitoring at its wells. However, if a severe groundwater contamination event were to occur, water supplies for the O-H System could be adversely affected.

7.2.3 Aquifer Protection

As described in Section 6, groundwater extractions from the Oxnard Plain Groundwater Basin are managed by FCGMA. As the designated Groundwater Sustainability Agency, FCGMA has the primary responsibility for aquifer protection and is currently preparing a Groundwater Sustainability Plan (GSP). FCGMA has the legal authority to implement the GSP when adopted. UWCD supports the FCGMA aquifer protection efforts through the preparation of an annual Groundwater Conditions Report which analyzes the water balance in the Oxnard Plain Groundwater Basin, as well as the other basins within UWCD. UWCD also prepares a biennial Groundwater and Surface Water Conditions Report which summarizes hydrogeology, hydrologic conditions, water levels, surface water flows, groundwater extractions and water quality of groundwater basins and surface waters within UWCD. It also discusses the key issues facing these hydrologic features.

7.2.4 Water Quality Impacts on Reliability

The primary factors affecting the availability of groundwater are sufficient source capacity (wells and pumps), sustainability of the groundwater resource to meet pumping demand on a renewable basis and protection of groundwater sources (wells) from natural or anthropogenic contamination, or provisions for treatment in the event of contamination. The development of sufficient source water capacity is an ongoing concern. Several wells are currently scheduled for replacement due to age, condition or high nitrate concerns. Aquifer protection is discussed in the previous section and UWCD is currently studying iron and manganese treatment for the O-H System.

In general, the wells with high nitrate concentrations are shallower than the wells with high iron and manganese concentrations. During severe drought conditions, it may not be possible to blend high nitrate concentrations to acceptable levels thereby impacting water supply reliability. Accordingly, UWCD could develop a reliable supply of low nitrate groundwater if treatment were implemented without creating water quality issues associated with iron and manganese. This would improve the water supply reliability of the O-H System. Accordingly, water quality is not expected to impact PHWA's water supply reliability from the O-H System.

7.3 Reliability by Type of Year

7.3.1 Types of Years

In order to determine PHWA'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) three-year dry cycle. The basis of the water supply and demand assessment is summarized in Table 7-1. The results for the assessment for each of these three conditions are described in the following sections.

Table 7-1 Wholesale: Basis of Water Year Data			
Year Type	Base Year	Available Supplies if	
		Agency may provide volume only,	
		Volume Available	% of Average Supply
Average Year	2009	5,532	100%
Single-Dry Year	2015	4,979	90%
Multiple-Dry Years 1st Year	2015	4,979	90%
Multiple-Dry Years 2nd Year	2015	4,702	85%
Multiple-Dry Years 3rd Year	2015	4,426	80%
Multiple-Dry Years 4th Year <i>Optional</i>			
Multiple-Dry Years 5th Year <i>Optional</i>			
Multiple-Dry Years 6th Year <i>Optional</i>			
<i>Agency may use multiple versions of Table 7-1 if different water sources have different base years</i>			
NOTES:			

7.4 Supply and Demand Assessment

As described in Section 6, UWCD's supplies groundwater to the O-H System from 13 wells in the Oxnard Plain Groundwater Basin. Groundwater extractions are managed by the FCGMA through the issuance of groundwater extraction allocations. When FCGMA enacted Emergency Ordinance E and Resolution 2013-03, extraction allocations were reduced by up to 20 percent. Accordingly, UWCD's water supplies to PHWA from the O-H System are limited by these allocations without incurring significant financial penalties.

PHWA's current secondary source of water from CMWD is currently limited by the adoption of CMWD's Resolution No. 1865 which implements MWD's Water Supply Allocation Plan. CMWD has allocated 1,039 AFY which includes significant financial penalties if allocation is exceeded. (Feel free to re-word this if it will flow better. These are the numbers for PHWA only).

PHWA has multiple water supplies available to meet demands during normal, single-dry, and multiple-dry years. In addition, it can discontinue water treatment to avoid the water supply loss associated with desalination concentrates. It is also considering the installation of third stage reverse osmosis to reduce concentrate losses. The following sections assess the reliability of these supplies under various hydrologic conditions.

7.4.1 Normal/Average Water Year Assessment

PHWA's current and future water demands are discussed earlier in Section 4 and current and future water supplies are described in Section 6. Conservative assumptions were utilized concerning availability of supplies. Values for calendar year 2009 were used for the average/normal year assessment. For the average/normal year reliability assessment, PHWA's demands were approximately 4,850 AF. Total water entitlements in 2009 were 5,725 AF via PHWA's agreement with UWCD and CMWD. Table 7-2 displays the average/normal year assessment. During a normal/average water year, it is projected that PHWA will be able to meet all of its purveyors' demands through 2035.

Table 7-2 Wholesale: Normal Year Supply and Demand					
	2020	2025	2030	2035	2040 (Opt)
Supply totals (autofill from Table 6-9)	5,554	5,554	5,554	5,554	5,554
Demand totals (autofill fm Table 4-3)	4,615	4,616	4,617	4,618	4,619
Difference	939	938	937	936	935
NOTES:					

7.4.2 Single Dry-Year Water Assessment

A single dry-year condition is anticipated to result in an allocation reduction of 10 percent. Accordingly, as shown in Table 7-3 it is projected that PHWA will be able to meet all of its purveyor demands during a single dry-year. In future single dry years through 2035, UWCD should have an adequate extraction allocation from FCGMA to meet its reduced customer demands.

Table 7-3 Wholesale: Single Dry Year Supply and Demand					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	4,979	4,979	4,979	4,979	4,979
Demand totals	4,615	4,616	4,617	4,618	4,619
Difference	364	363	362	361	360
NOTES:					

7.4.3 Multiple Dry-Year Water Assessment

During multiple consecutive dry years, FCGMA is anticipated to impose allocation reductions of up to 20 percent. In future multiple dry-year, UWCD is anticipated to reduce its purveyor allocations accordingly. CMWD is also anticipated to re-establish its Water Supply Allocation Plan which will limit CMWD deliveries to those similar to the UWCD reductions. As indicated in Table 7-4, the multiple dry-year assessment resulted in sufficient water supply to meet the reduced water demands through 2035 except in the third and subsequent years of a drought. Additional demand reductions will be necessary in those years unless PHWA implements its Third Stage RO project listed in Table 6-7. This projection appears consistent with the water supply and demand balance during the current drought.

		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	4,979	4,979	4,979	4,979	4,979
	Demand totals	4,624	4,625	4,626	4,627	4,628
	Difference	355	354	353	352	351
Second year	Supply totals	4,702	4,702	4,702	4,702	4,702
	Demand totals	4,624	4,625	4,626	4,627	4,628
	Difference	78	77	76	75	74
Third year	Supply totals	4,426	4,426	4,426	4,426	4,426
	Demand totals	4,624	4,625	4,626	4,627	4,628
	Difference	(198)	(199)	(200)	(201)	(202)
Fourth year (optional)	Supply totals					
	Demand totals					
	Difference					
Fifth year (optional)	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year (optional)	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
NOTES:						

7.5 Regional Supply Reliability

7.5.1 Groundwater

The Sustainable Groundwater Management Act (SGMA) of 2014 requires the preparation and adoption of a Groundwater Sustainability Plan (GSP) by 2020. Upon completion of the GSP, UWCD is planning on reevaluating its options regarding its water supply options for the O-H System. PHWA will work closely with UWCD during the development of the GSP and UWCD's water supply options.

7.5.2 Imported Water

PHWA also receive water from CMWD which is a member agency of the Metropolitan Water District of Southern California (MWD). PHWA purchases imported water from CMWD, which 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's 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 three-mile-long tunnel through 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. Although CMWD has served the needs of its members, without fail, except for a few days following the 1994 Northridge Earthquake, MWD and CMWD have implemented a Water Supply Allocation Plan which limits the quantity of water that its purveyors can receive without significant financial penalties. Both MWD and CMWD are undertaking a variety of programs to increase the reliability of imported water deliveries. Both CMWD and MWD, due to their historical performance and scope of operations, have provided and will continue to provide a reliable source of water to the largest O-H System purveyors.

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.

As a wholesale purveyor of water, PHWA's response to a water shortage is different than that of its retail purveyors (City of Port Hueneme, NBVC, and CIBCSD). PHWA's response to a water shortage involves providing a source of supply for its retailers and, in extreme cases, rationing of water to those retailers. However, PHWA does not have the authority to initiate specific restrictions on water use at the retail level. That authority remains with the management of the retail utilities.

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

8.2 Stages of Action

As discussed previously, PHWA's supply from the O-H System is dependent on UWCD's extraction allocation as determined by FCGMA. Because UWCD provides the largest proportion of PHWA's water supply and there is currently no other source of water for the O-H System, UWCD's and PHWA's Water Shortage Contingency Plan (WSCP) is dependent on the actions taken by FCGMA. Table 8-1 describes the potential stages of a WSCP based on reductions in allocation from FCGMA.

Table 8-1 Wholesale		
Stage	Complete Both	
	Percent Supply Reduction ¹ <i>Numerical value as a percentage</i>	Water Supply Condition <i>(Narrative description)</i>
<i>Add additional rows as needed</i>		
1	10%	10% reduction in groundwater allocation imposed by FCGMA
2	15%	15% reduction in groundwater allocation imposed by FCGMA
3	20%	20% reduction in groundwater allocation imposed by FCGMA
4	50%	50% reduction in groundwater allocation imposed by FCGMA
¹ One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.		
NOTES:		

8.3 Mandatory Prohibitions

As a wholesale supplier, this section is not applicable to PHWA.

8.4 Penalties, Charges, Other Enforcement

As a wholesale supplier, this section is not applicable to PHWA.

8.5 Consumption Reduction Methods

In the event of delivery reductions from UWCD, PHWA would inform its retail agencies of the reductions, their effective date, and each retailer’s reduces delivery. PHWA would also seek additional deliveries from CMWD and consider curtailment of treatment to reduce concentrate losses. PHWA would provide continuous communication with its retailers so that they are aware of their remaining allocations.

8.6 Determining Water Shortage Reductions

All turnouts to retailers and retail customers are metered. Accordingly, PHWA can monitor the actual water use based on meter readings.

8.7 Revenue and Expenditure Impacts

PHWA’s rate structure includes both fixed and variable components which are determined annually by the PHWA Board and allocated to its retail customers. Capital costs are allocated to

its customers based on the capacity requirements of the customer. This rate structure allows PHWA to receive revenues sufficient to fund its fixed annual costs regardless of water sales. Variable rates are based on actual usage and are utilized to fund PHWA's variable costs. Accordingly, PHWA is relatively insulated from reductions in allocations from UWCD or CMWD.

8.7.1 Drought Rate Structures and Surcharges

This section is for retail agencies and is not applicable to PHWA.

8.7.2 Use of Financial Reserves

PHWA does not have a policy regarding the use of reserves because all costs are allocated to its retail customers.

8.7.3 Other Measures

Other measures that PHWA may utilize to minimize the financial impacts of reduced water supply availability include the bypass of its treatment facilities to reduce variable costs and minimize concentrate production.

8.8 Resolution or Ordinance

PHWA does not have a drought declaration resolution or ordinance.

8.9 Catastrophic Supply Interruption

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

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. Each of PHWA's retail customers has established working relationships with personnel from many agencies. 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.

8.9.1 United Water Conservation District

In the event of a catastrophic supply interruption, UWCD will implement their Water System Emergency Response Plan. During an earthquake at the El Rio Treatment Plant, the disinfection facilities, which contain chlorine and ammonia, will be inspected first and the remaining facilities checked for damage once the disinfection facilities are secure. If a rupture on the O-H Pipeline occurs, the operators will take the necessary steps to isolate the leak and

have it repaired. The El Rio Treatment Plant has emergency generators in the event of a regional power outage.

Additional potential supply interruptions include groundwater contamination, sewage spills from wastewater treatment plants located upstream along the Santa Clara River, and petroleum spills from oil pipelines or overturned trucks. In these cases, UWCD would communicate with emergency personnel to shut down/isolate the O-H system and notify customers of the interruption in service.

8.9.2 Calleguas Municipal Water District

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.

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.

8.9.3 Conjunctive Use of Water Supplies

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 has an allocation 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.

All of PHWA’s retail customers, 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. At this time the wells are not equipped for emergency stand-by generator power.

8.10 Three-Year Minimum Supply

PHWA’s three-year minimum water supply is provided in Table 8-4. The three-year minimum supply was determined to occur for the base years 2016, 2017 and 2018. During those years, it is assumed that FCGMA would continue its current allocation to UWCD and PHWA would receive its current allocation from UWCD. It is also assumed that CMWD would continue its current WSAP allocation to Oxnard.

	2016	2017	2018
Available Water Supply	4,426	4,426	4,426
NOTES:			

Section 9: Demand Management Measures

9.1 Overview

This section describes the Demand Management Measures (DMMs) implemented by PHWA.

9.2 Demand Management Measures for Wholesale Agencies

As a wholesale agency, PHWA is required to comply with four demand management measures: 1) metering, 2) public education and outreach, 3) water conservation program coordination and staffing support and 4) other demand management measures.

9.2.1 Conservation Program Background

PHWA recognizes the importance of conserving water and supports its retail purveyors in the development and implementation of conservation programs that achieve measurable savings. As described in Section 1, PHWA was established 1994 as strictly an administrative entity to facilitate better management of the sub-regional water supplies, including use of SWP water. 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
- 13) Compliance

PHWA has no employees, no physical access to, or control of, water or water distribution infrastructure. To the extent feasible, given these constraints, PHWA plans to continue to support its retailers' conservation, outreach and education programs. Currently, PHWA works closely with the City of Port Hueneme (City) and collaborates with CMWD and MWD in conservation outreach efforts. It has also reached out to Naval Base Ventura County to discuss

conservation (as a federal agency, however, the Naval Base is not obligated to meet state conservation requirements).

PHWA 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 PHWA is not a signatory to the CUWCC's Memorandum of Understanding (MOU), the UWMP requires compliance with the DMMs.

9.2.2 Metering

PHWA's system is fully metered. Meters are changed out as they age as part of PHWA's maintenance program. A regular calibration program is in place to ensure meters are operating within acceptable ranges of accuracy for the specific type of meter.

9.2.3 Public Education and Outreach

9.2.3.1 Public Information

PHWA initiated discussions with its retailers in 2010 to determine the most effective way that PHWA can provide outreach support. To date, PHWA has provided conservation materials supplied by Calleguas and MWD.

9.2.3.2 School Education

PHWA began discussions in 2010 with the City and CIBCSD on implementing outreach and educational programs in schools. PHWA continues to work with its retailers, MWD and Calleguas to identify opportunities to support retailer conservation efforts.

9.2.4 Water Conservation Program Coordination

PHWA shares a conservation coordinator position with the City of Port Hueneme. The coordinator manages water conservation outreach, implementation, and planning activities implemented by PHWA as well as the City.

9.2.5 Other Demand Management Measures

PHWA has no other demand management measures to report.

9.2.6 Asset Management

PHWA's existing operations and maintenance activities include a valve exercise program, replacement of blind flanges and meter change-outs. PHWA also performs recommended maintenance of treatment equipment.

9.2.7 Wholesale Supplier Assistance Program

PHWA is working with the City and CIBCSD to develop and implement conservation programs and identify opportunities for support and collaboration. Two of the largest customers in the service area are federally owned and subject to federal facilities requirements for water conservation. PHWA has initiated discussions with the Naval Base Ventura County to identify potential conservation opportunities.

Because PHWA is strictly an administrative agency, it does not have access to water or water distribution facilities in order to evaluate or implement water loss control procedures. This function is addressed by PHWA's retailers individually. However, PHWA does monitor and evaluates water loss control for its own wholesale distribution facilities.

Section 10: Plan Adoption, Submittal, and Implementation

10.1 Overview

This section describes the noticing, public hearing, adoption and submittal process utilized for this UWMP.

10.2 Inclusion of All 2015 Data

All reported supply, demand and planning data for the year 2015 is based on a complete data record for the 2015 calendar year.

10.3 Notice of Public Hearing

A public meeting was held prior to the adoption of PHWA's UWMP. The public meeting provided a platform for cities, counties and members of the public to comment on the UWMP prior to its adoption. Notice of the public hearing was given to cities and counties within which water is supplied and to the general public. At least 60 days prior to the public hearing, cities and counties were also given a 60-Day Notice that PHWA is reviewing and considering amendments to the UWMP. Copies of all public notices have been included in Appendix A.

10.3.1 Notice to Cities and Counties

Table 10-1 provides a summary of cities and counties that were provided with both the 60-Day Notice and Notice of Public Hearing.

Table 10-1 Wholesale: Notification to Cities and Counties		
<input type="checkbox"/>	Supplier has notified more than 10 cities or counties in accordance with CWC 10621 (b) and 10642. Completion of the table below is not required. Provide a separate list of the cities and counties that were notified.	
	Provide the page or location of this list in the UWMP.	
<input checked="" type="checkbox"/>	Supplier has notified 10 or fewer cities or counties. Complete the table below.	
City Name	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
Port Hueneme	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Oxnard	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
Ventura County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
NOTES:		

10.3.2 Notice to the Public

Prior to holding the public hearing and adoption meeting for this UWMP, two Notices of Public Hearing were published in a local newspaper, with at least five intervening days between each notice. Copies of the public notices are included in Appendix B.

10.4 Public Hearing and Adoption

A public meeting was held at Port Hueneme, California on July 18, 2016 to receive public comments, make any final amendments and adopt this UWMP.

10.4.1 Adoption

A copy of the Board resolution adoption this UWMP is included in Appendix C.

10.5 Plan Submittal

Within 30 days of being adopted, copies of the 2015 UWMP was sent to the DWR, the California State Library and to any city or county with which water gets exchanged or transferred. The delivery means of the submittals vary by organization.

10.5.1 Submitting the UWMP to DWR

A copy of the 2015 UWMP was sent electronically to DWR.

10.5.2 Electronic Submittal

On August 30, 2016, an electronic copy of this 2015 UWMP and associated tables was uploaded to the DWR WUE data website at: <http://wuedata.water.ca.gov.secure/> .

10.5.3 Submitting the UWMP to the California State Library

A (CD/Hardcopy) of this UWMP was submitted to the California State Library within 30 days of the adoption date.

10.5.4 Submitting the UWMP to Cities and Counties

Within 30 days of the adoption of this UWMP, copies of the 2015 UWMP were submitted (electronically/by hardcopy) to Ventura County and the Cities of Oxnard and Port Hueneme.

10.6 Public Availability

The adopted 2015 UWMP is publicly available on the City of Port Hueneme website at: <http://www.ci.port-hueneme.ca.us/index.aspx?NID=881> .

10.7 Amending the UWMP

Any amendments to this 2015 UWMP require that the same public notification and adoption process be followed as was used in the development of the UWMP. County, city, DWR, and California State Library submittals of the amended UWMP must be completed within 30 days of adoption.

Appendix A

Notice to Agencies

Appendix B

Public Notice

Appendix C

Adoption Resolution

Appendix D

UWMP Checklist

This checklist is developed directly from the Urban Water Management Planning Act and SB X7-7. It is provided to support water suppliers during preparation of their UWMPs. Two versions of the UWMP Checklist are provided – the first one is organized according to the California Water Code and the second checklist according to subject matter. The two checklists contain duplicate information and the water supplier should use whichever checklist is more convenient. In the event that information or recommendations in these tables are inconsistent with, conflict with, or omit the requirements of the Act or applicable laws, the Act or other laws shall prevail. Each water supplier submitting an UWMP can also provide DWR with the UWMP location of the required element by completing the last column of either checklist. This will support DWR in its review of these UWMPs. The completed form can be included with the UWMP. If an item does not pertain to a water supplier, then state the UWMP requirement and note that it does not apply to the agency. For example, if a water supplier does not use groundwater as a water supply source, then there should be a statement in the UWMP that groundwater is not a water supply source.

Checklist Arranged by Water Code Section

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location <i>(Optional Column for Agency Use)</i>
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	NA
10608.20(e)	Retail suppliers shall 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.	Baselines and Targets	Chapter 5 and App E	NA
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	NA
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	NA
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	NA
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	NA
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	p. 5-1
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	NA
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	p. 2-1
10620(d)(2)	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	Plan Preparation	Section 2.5.2	p. 2-3 to 2-5

	the extent practicable.			
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	p. 7-6 to 7-7
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	p. 10-1 to 10-2
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	p. 10-2 to 10-3
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	p. 3-1 to 3-3
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	p. 3-4
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	p. 3-4 to 3-5
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	p. 3-4 to 3-5
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	p. 3-5
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	p. 6-12 to 6-13
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	p. 6-3 to 6-8
10631(b)(1)	Indicate whether a groundwater management plan has 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.	System Supplies	Section 6.2.2	p.6-4 to 6-6
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	p. 6-3 to 6-4
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	p. 6-4 to 6-8
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	p. 6-6

10631(b)(3)	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	System Supplies	Section 6.2.4	p. 6-6 to 6-8
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	p. 6-6 to 6-8
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	p.7-1 to 7-3
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	p.7-3 to 7-6
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	p. 7-1
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	p. 6-11
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	p. 4-1 to 4-3
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	p. 4-4
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	p. 9-1 to 9-3
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	p. 9-1 to 9-3
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	p. 6-11 to 6-12
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	p. 6-10 to 6-11
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	NA

10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	NA
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	p. 2-3 to 2-4
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	p. 4-4
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	p. 8-1 to 8-2
10632(a)(2)	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.	Water Shortage Contingency Planning	Section 8.9	p. 8-5
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	p. 8-3 to 8-5
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	p. 8-2
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	p. 8-2
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	p. 8-2
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	p. 8-2 to 8-3
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	p. 8-3
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	p. 8-2
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that	System Supplies (Recycled Water)	Section 6.5.1	p. 6-8

	operate within the supplier's service area.			
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	p. 6-8 to 6-10
10633(b)	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.	System Supplies (Recycled Water)	Section 6.5.2.2	p. 6-9
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	p. 6-9 to 6-10
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	p. 6-9 to 6-10
10633(e)	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.	System Supplies (Recycled Water)	Section 6.5.4	p. 6-9 to 6-10
10633(f)	Describe the actions 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.	System Supplies (Recycled Water)	Section 6.5.5	p. 6-9 to 6-10
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	p. 6-9 to 6-10
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	p. 7-1 to 7-3
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	p. 7-4 to 7-6
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	p. 10-3
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within	Plan Preparation	Section 2.5.2	p. 2-4 to 2-5

	the service area prior to and during the preparation of the plan.			
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	p. 10-1 to 10-3
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	p. 10-2
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	p. 10-2 to 10-3
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	p. 10-3
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	p. 10-3
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	p. 10-3
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	p. 10-3

Checklist Arranged by Subject

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location <i>(Optional Column for Agency Use)</i>
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	
10620(d)(2)	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.	Plan Preparation	Section 2.5.2	
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and	Baselines and Targets	Chapter 5 and App E	

	compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.		
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2
10631(b)(1)	Indicate whether a groundwater management plan has 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.	System Supplies	Section 6.2.2
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3
10631(b)(3)	Provide a detailed description and analysis	System Supplies	Section 6.2.4

	of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years		
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2
10633(b)	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.	System Supplies (Recycled Water)	Section 6.5.2.2
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end	System Supplies (Recycled	Section 6.5.4

	of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	Water)	
10633(f)	Describe the actions 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.	System Supplies (Recycled Water)	Section 6.5.5
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1
10632(a)(2)	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.	Water Shortage Contingency Planning	Section 8.9
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2
10632(a)(5)	Specify consumption reduction methods in	Water Shortage	Section 8.4

	the most restrictive stages.	Contingency Planning	
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county	Plan Adoption, Submittal, and Implementation	Section 10.4.4

	within which it provides water, no later than 60 days after the submission of the plan to DWR.		
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5

Appendix E

Water Loss Spreadsheet



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association,
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[?](#) Click to access definition
[+](#) Click to add a comment

Water Audit Report for: << Please enter system details and contact information on the Instructions tab >>
Reporting Year: 2015

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

PLEASE CHOOSE REPORTING UNITS FROM THE INSTRUCTIONS SHEET BEFORE ENTERING DATA

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below

Master Meter and Supply Error Adjustments

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+	?	n/a	<input type="text"/>
Water imported:	+	?	8	<input type="text" value="3,356.000"/>
Water exported:	+	?	n/a	<input type="text"/>

+	?	2	<input type="text"/>	<input type="text"/>
+	?	<input type="text"/>	<input type="text"/>	<input type="text"/>
+	?	<input type="text"/>	<input type="text"/>	<input type="text"/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED:

AUTHORIZED CONSUMPTION

Billed metered:	+	?	6	<input type="text" value="3,332.000"/>
Billed unmetered:	+	?	n/a	<input type="text"/>
Unbilled metered:	+	?	n/a	<input type="text"/>
Unbilled unmetered:	+	?	10	<input type="text" value="41.950"/>

Click here: [?](#)
for help using option buttons below

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION:

?	<input type="text" value="1.25%"/>	<input type="text"/>
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Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

Apparent Losses

Unauthorized consumption: [+](#) [?](#)

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+	?	7	<input type="text" value="0.000"/>
Systematic data handling errors:	+	?	5	<input type="text" value="8.330"/>

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses:

?	<input type="text" value="0.25%"/>	<input type="text"/>
-------------------	------------------------------------	----------------------

?	<input type="text" value="0.25%"/>	<input type="text"/>
-------------------	------------------------------------	----------------------

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:

WATER LOSSES:

NON-REVENUE WATER

NON-REVENUE WATER:

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+	?	7	<input type="text" value="10.0"/>	Miles
Number of active AND inactive service connections:	+	?	10	<input type="text" value="4"/>	
Service connection density:	?	<input type="text" value="0"/>			
Are customer meters typically located at the curbside or property line?	<input type="text" value="Yes"/>				
Average length of customer service line:	+	?	<input type="text" value="10"/>		(length of service line, beyond the property boundary, that is the responsibility of the utility)
Average operating pressure:	+	?	10	<input type="text" value="90.0"/>	PSI

COST DATA

Total annual cost of operating water system:	+	?	10	<input type="text" value="\$5,084,696"/>	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+	?	6	<input type="text" value="\$2.53"/>	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+	?	10	<input type="text" value="\$824.62"/>	\$/af

WATER AUDIT DATA VALIDITY SCORE:

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components: