



Yorba Linda  
Water District

Yorba Linda Water District

Final

# 2010 Urban Water Management Plan

May 2011

MALCOLM  
PIRNIE

 **ARCADIS**

The Water Division of ARCADIS



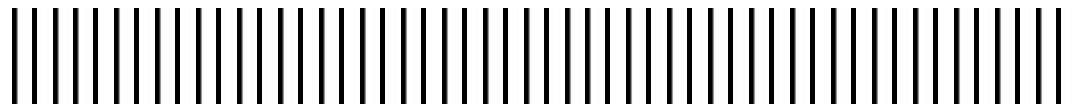
## Yorba Linda Water District

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# 2010 Urban Water Management Plan

May 2011



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The Malcolm Pirnie logo, which consists of the words 'MALCOLM' and 'PIRNIE' stacked vertically in a bold, white, sans-serif font, set against a solid black rectangular background.

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## Acronyms Used in the Report

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20x2020	20% reduction by 2020
Act	Urban Water Management Planning Act
AFY	acre-feet per year
Basin	Orange County Groundwater Basin
BDCP	Bay Delta Conservation Plan
BEA	Basin Equity Assessment
BMP	Best Management Practice
Board	Metropolitan's Board of Directors
BPP	Basin Production Percentage
CDR	Center for Demographic Research
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CII	Commercial/Industrial/Institutional
CIMIS	California Irrigation Management Information System
COG	council of governments
CRA	Colorado River Aqueduct
CUP	Conjunctive Use Program
CUWCC	California Urban Water Conservation Council
DMM	Demand Management Measure
DWR	Department of Water Resources
EIR	Environmental Impact Report
EOCF #2	East Orange County Feeder #2
ETo	Evapotranspiration
FY	Fiscal Year
FYE	Fiscal Year Ending
GAP	Green Acres Project
GPCD	gallons per capita per day
gpm	gallons per minute
GSWC	Golden State Water Company
GWMP	Groundwater Management Plan
GWRS	Groundwater Replenishment System
H2O2	hydrogen peroxide
HECW	High Efficiency Clothes Washer
HET	high efficiency toilet
HOAs	Homeowners Associations
ID-1	Improvement District No. 1
ID-2	Improvement District No. 2
IRP	Integrated Water Resources Plan
IWA	International Water Association

LOI	Letter of Intent
LPCP	Landscape Performance Certification Program
MCL	Maximum Contaminant Level
Metropolitan	Metropolitan Water District of Southern California
MF	Microfiltration
MG	million gallons
MGD	million gallons per day
msl	main sea level
MWDOC	Municipal Water District of Orange County
NDMA	N-nitrosodimethylamine
NOAA	National Oceanic and Atmospheric Administration
OCSD	Orange County Sanitation District
OCWD	Orange County Water District
Poseidon	Poseidon Resources LLC
PPCP	Pharmaceuticals and Personal Care Product
QSA	Quantification Settlement Agreement
RA	Replenishment Assessment
RAM-WSM	Risk Assessment Methodology for Water Systems
RHNA	Regional Housing Needs Assessment
RO	Reverse Osmosis
RUWMP	Regional Urban Water Management Plan
SBx7-7	Senate Bill 7 as part of the Seventh Extraordinary Session
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SDCWA	San Diego County Water Authority
SWP	State Water Project
TDS	Total Dissolved Solids
ULFT	ultra-low-flush toilet
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
WEROC	Water Emergency Response Organization of Orange County
WF-21	Water Factory 21
WOCWBF #2	West Orange County Water Board Feeder #2
WRFPS	Water Recycling Facilities Planning Study
WSAP	Water Supply Allocation Plan
WSDM	Water Surplus and Drought Management Plan
YLCWD	Yorba Linda County Water District
YLWD	Yorba Linda Water District

# Executive Summary

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

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

## Service Area and Facilities

YLWD provides water to a population of 77,320 throughout its 14,891 acre service area that covers all of the City of Yorba Linda and portions of the Cities of Brea, Placentia, Anaheim, and unincorporated area of Orange County. YLWD receives its water from two main sources, the Lower Santa Ana River Groundwater basin, which is managed by the Orange County Water District (OCWD) and imported water from Metropolitan Water District of Southern California (Metropolitan) through Municipal Water District of Orange County (MWDOC). Groundwater is pumped from 9 active wells located throughout YLWD, and imported water is treated at the Diemer Filtration Plant and is delivered to YLWD through four imported water connections.

## Water Demand

Currently, the total water demand for retail customers served by YLWD is approximately 20,100 acre-feet annually consisting of 11,700 acre-feet of imported water and 8,300 acre-feet of local groundwater. YLWD is projecting a 38% increase in demand in the next 25 years accompanying a projected 13% population growth.

With MWDOC's assistance, YLWD has selected to comply with **Option 1** of the SBx7-7 compliance options. YLWD is a member of the Orange County 20x2020 Regional

Alliance formed by MWDOC. This regional alliance consists of 29 retail agencies in Orange County. Under Compliance Option 1, YLWD's 2015 interim water use target is 257.5 GPCD and the 2020 final water use target is **228.9 GPCD**.

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

YLWD's main sources of water supply are groundwater from the Lower Santa Ana River Groundwater Basin and imported water from Metropolitan through MWDOC. Today, YLWD relies on 42% groundwater and 58% imported water. It is projected that through 2035, the water supply mix will remain roughly the same. The sources of imported water supplies include the Colorado River and the State Water Project (SWP). Metropolitan's 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands (non-interruptible agricultural and replenishment supplies) at the retail level under all foreseeable hydrologic conditions from 2015 through 2035.

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

### **Future Water Supply Projects**

YLWD is completing a Water Recycling Facilities Planning Study (WRFPS) which will investigate construction of a new 5 MGD water recycling facility. The water recycling facilities plan will investigate the diversion of raw wastewater from existing trunk sewer pipelines within YLWD into a new water recycling facility (i.e. scalping plant) to produce Title 22 recycled water within YLWD.

The WRFPS will evaluate the cost to treat, distribute and operate a water recycling facility and distribution system to supply specific customers. Water quality restrictions may require additional treatment for certain types of use and will be evaluated as part of the WRFPS. The WRFPS will evaluate the water quality requirements of existing customers and will determine if the water recycling facility can meet or exceed those water quality requirements.

The WRFPS will determine effectiveness of a future 5 MGD Wastewater Treatment Plant within YLWD's service area. The WRFPS should be completed by Spring 2011, and if the project is feasible a target completion date of 2014 is forecasted. YLWD has located two source points for collection of about 3 MGD of wastewater for the feasibility study.

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

# 1. Introduction

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## 1.1. Urban Water Management Plan Requirements

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

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

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

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

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

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

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

The sections in this Plan correspond to the outline of the Act, specifically Article 2, Contents of Plans, Sections 10631, 10632, and 10633. The sequence used for the required information, however, differs slightly in order to present information in a manner reflecting the unique characteristics of YLWD's water utility. The UWMP Checklist has been completed, which identifies the location of Act requirements in this Plan and is included as Appendix A.

Figure 1-1 illustrates the regional location of YLWD.



Figure 1-1: Regional Location of Urban Water Supplier

## 1.2. Agency Overview

YLWD is an independent special district providing water service to the City of Yorba Linda and portions of the Cities of Brea, Placentia, Anaheim, and unincorporated area of Orange County. YLWD's history dates to 1909 when the privately owned Yorba Linda Water Company was formed.

The YLWD Board has five Directors elected to four-year terms by the registered voters within the District. The Board establishes policies and programs leading to the achievement of the District's mission. The current board members are:

- Michael J. Beverage, President
- Phil Hawkins, Vice President
- Ric Collett, Director
- Bob Kiley, Director
- Gary Melton, Director

The present YLWD was organized as the Yorba Linda County Water District (YLCWD) on January 2, 1959 as a result of a vote of local residents. The new district was formed according to the provisions of County Water District Law under Division XII of the California Water Code (Section 30000 et seq.). On January 2, 1959 voters in the proposed district authorized issuance of \$1,900,000 in General Obligation bonds to finance the purchase of assets belonging to the Yorba Linda Water Company and construction of water improvements to the growing Yorba Linda community. Through 1959 the service area was largely rural in character with a small residential community at its center. In 1959 the service area covered 4,710 acres and the YLCWD provided service to 1,412 active connections, generally referred to as the Western Service Area.

From 1959 through the mid-1970, YLCWD experienced a gradual transition from a rural, agriculturally oriented area to a suburban community. In 1978 YLCWD's Board of Directors agreed to annex lands to the east of then current boundaries that more than doubled YLCWD's size. These annexations made YLCWD the largest County Water District in terms of geographic area in Orange County. Annexations completed in 1989 added 50 acres to YLCWD's service area. Annexations completed in 1996 added another 843 acres. YLCWD's present size is about 14,891 acres.

In response to the proposed 1978 annexations, the Board of Directors commissioned the preparation of a Water Facilities Master Plan by James M. Montgomery, Consulting Engineers. The Plan identified water production, storage, and transmission facilities to service the newly acquired territory, and estimated the cost to construct the major water facilities. The proposed annexations were divided into two Improvement Districts representing separate areas of benefit to future homeowners.

The Yorba Linda County Water District Board of Directors approved annexation of Improvement District No. 1 (ID-1) in May of 1978 and Improvement District No. 2 (ID-2) in June of 1978. Subsequently, voters in the two Improvement Districts authorized issuance of General Obligation Bonds to finance construction of backbone facilities. To date a total of two series of General Obligation Bonds have been issued in Improvement District No. 1 and three series, along with one refinancing issue, in Improvement District No. 2. These annexations increased YLCWD's service area by 50%. Subsequently, YLCWD entered a phase of high development within these annexations over the next twenty-five years.

In November of 1985 the Board of Directors, seeking a more accurate identification as an independent special district, dropped the "County" designation, thus officially changing the District's name to Yorba Linda Water District (YLWD).

In 1996 YLWD annexed acreage in the former Shell Oil property, adding 843 acres area resulting in a projected 10% increase in service connections.

YLWD receives its water from two main sources, the Orange County Groundwater basin, which is managed by the Orange County Water District (OCWD) and imported water from Metropolitan through Municipal Water District of Orange County (MWDOC). MWDOC is Orange County's wholesale supplier and is a member agency of the Metropolitan Water District of Southern California (Metropolitan).

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

#### **1.3.1. YLWD's Service Area**

YLWD is located against the foothills in the northern part of Orange County, approximately 13 miles northeast of Disneyland. Topography within the YLWD service area varies from about 250 feet above sea level to a high of about 1,390 feet above sea level.

The YLWD service area was originally located within an unincorporated county area, but now includes the City of Yorba Linda, and parts of the Cities of Placentia, Anaheim, Brea, and portions of unincorporated Orange County. The service area can be thought of as having two major parts: the western portion (Western Service Area) being an older established area whose eastern boundary was formerly YLWD's eastern limit; and the eastern portion consisting of the more newly ID-1 and ID-2 developed area. These two portions are intersected by a 400-acre strip of residential development known as the Locke Ranch. The Locke Ranch area receives its water service from the Golden State Water Company (GSWC) — Placentia Division, and its sewer service from YLWD.

YLWD provides water service to all residents and businesses within its service area. The service area is bounded by the service areas of the GSWC, City of Anaheim, and City of Brea. YLWD has emergency interconnections with each of these surrounding agencies.

## **Annexations**

An agreement between YLWD and Shappell Industries, Inc is in place for the annexation and development of properties owned by Shapell Industries, Inc. These properties are within YLWD's sphere of influence established by the Orange County Local Agency Formation Commission. It has been YLWD's policy that each annexation is carefully analyzed to ensure the development pays its own way without subsidy from existing customers. Annexations to YLWD are processed and administered in accordance with established YLWD policies. Shapell Industries, Inc is paying the annexation fees in stages to coincide with the developer's phased construction.

The Pulte Home Development and the Shell Property, along its northerly boundary, have already been annexed into YLWD. The Travis & Murdock Property is forecasted for development beginning around 2015 or later, and will be annexed at that time.

Figure 1-2 shows YLWD's water service area.

### **1.3.2. YLWD's Water Facilities**

YLWD's distribution system includes 9 wells, one untreated and three treated imported water connections with Metropolitan, 12 booster pumping stations, 14 water storage reservoirs, 41 pressure reducing stations, and 10 emergency interconnections with neighboring agencies. YLWD obtains approximately 40% of its water from wells and the remainder from the Metropolitan import connections. The system consists of 6 different pressure zones and serves approximately 23,844 potable water service connections. All zones utilize a gravity system with the latest Hidden Hills Reservoir serving zone 6C. The elevation served ranges from 250 to 1,275 feet mean sea level (msl).

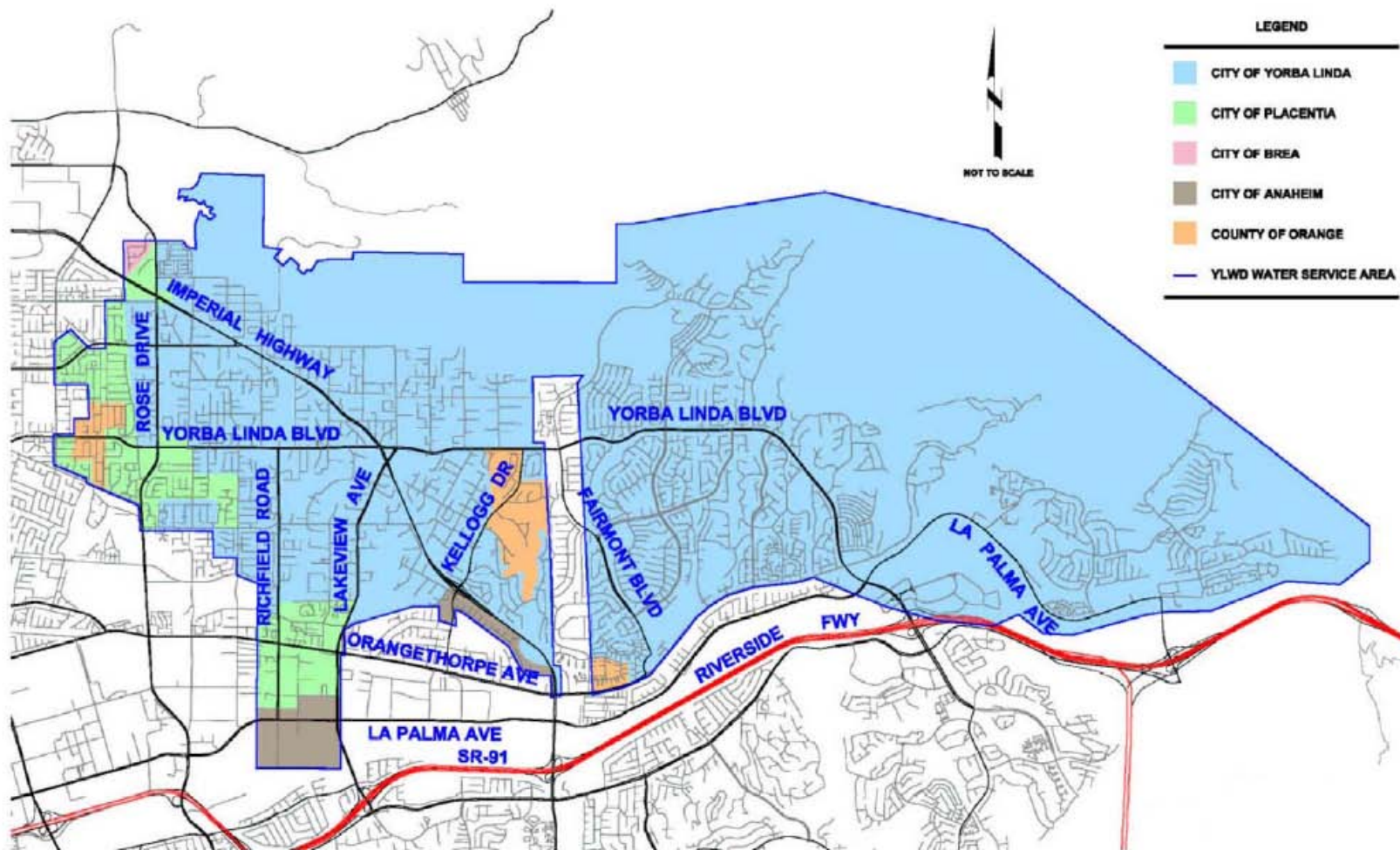


Figure 1-2: Yorba Linda Water District's Service Area