



# 2015 Urban Water Management Plan

Prepared for:



Adopted June 27, 2016



## **2015 Urban Water Management Plan**

Prepared by:



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## Acronyms, Units of Measurement, Chemical Symbols

Acronyms, units of measurement and chemical symbols used throughout the UWMP are identified in this section.

### Acronyms

AMR	Automatic Meter Reading
AWWA	American Water Works Association
BMP	Best Management Practice
CASGEM	California Statewide Groundwater Elevation Monitoring
CDA	Chino Desalter Authority
CCR	California Code of Regulations
CDP	Census Designated Place
CFD	Community Facilities District
CII	Commercial, Industrial, and Institutional
CIMIS	California Irrigation Management Information System
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
CWSRF	California Water State Revolving Fund
DAC	Disadvantaged Community
DMM	Demand Management Measure
DWR	Department of Water Resources
DYY	Dry Year Yield
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
GIS	Geographic Information System



**Acronyms**

GRCC	Groundwater Recharge Coordinating Committee
GWMP	Groundwater Management Plan
ICS	Incident Command System
IEBL	Inland Empire Brine Line
IERCD	Inland Empire Resource Conservation District
IEUA	Inland Empire Utilities Agency
ILI	Infrastructure Leaking Index
ITP	Independent Technical Panel
JCSD	Jurupa Community Services District
JPA	Joint Powers Authority
MCL	Maximum Contaminant Level
MHI	Median Household Income
MOU	Memorandum of Understanding
MWD	The Metropolitan Water District of Southern California
MZ	Management Zone
N/A	Not Applicable
OBMP	Optimum Basin Management Plan
PWS	Public Water System
PWSS	Public Water System Statistics
RCSD	Rubidoux Community Services District
RHNA	Regional Housing Needs Assessment
RIX	Rapid Infiltration Extraction
RPU	Riverside Public Utilities
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCP	Regional Water Quality Control Plant
SARI	Santa Ana River Interceptor
SARWC	Santa Ana River Water Company
SAWPA	Santa Ana Watershed Project Authority
SB	(California) Senate Bill
SBCFCD	San Bernardino County Flood Control District
SCAG	Southern California Association of Governments
SWP	State Water Project
SWRCB	State Water Resources Control Board
TVMWD	Three Valleys Metropolitan Water District
UCR	University of California, Riverside
UWMP	Urban Water Management Plan
WEBB	Albert A. Webb Associates
WET	Water Education for Teachers
WMWD	Western Municipal Water District
WRCRWA	Western Riverside County Regional Wastewater Authority
WSCP	Water Shortage Contingency Plan
WUE	Water Use Efficiency

**Units of Measurement and Chemical Symbols**

AF	Acre Feet
AFY	Acre Feet per Year
CY	Calendar Year
EDU	Equivalent Dwelling Unit
°F	Fahrenheit
FY	Fiscal Year
GPCD	Gallons per Capita per Day
GPM	Gallons per Minute
HCF	Hundred Cubic Feet
MEU	Meter Equivalent Unit
MGD	Million Gallons per Day
mg/L	Milligrams per Liter
TDS	Total Dissolved Solids

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## Executive Summary

Since the adoption of the 2010 Urban Water Management Plan, the Jurupa Community Services District has been successful in meeting the goals and intent of both the Urban Water Management Planning Act of 1983 and the Water Conservation Act of 2009. The District has accomplished the following:

- Adopt Ordinance No. 389 to implement the emergency State regulations for water conservation as part of the District's Water Shortage Contingency Plan;
- Replace all of the meters in the District's service area and update the system to an Automatic Meter Reading technology;
- Co-sponsor a State grant application for a recycled water intertie project with Inland Empire Utilities Agency to recharge the Chino Basin and irrigate portions of the Eastvale area with recycled water;
- Adopt Resolution Nos. 2511 and 2512 to increase the tiered water rates and to add a sewer quantity charge to encourage conservation;
- Adopt Resolution Nos. 2627 and 2628 to update the Water and Sewer Capacity Charges to fund future capital projects to benefit existing and future customers;
- Increase funding of the Water Conservation Program to support the Conservation Coordinator and expand rebate programs;
- Participate with the voluntary reporting requested by the California Urban Water Conservation Council;
- Replace 971 water service laterals and 191 mainline pipes that were broken or leaking;
- Construct two new high-producing groundwater wells and a new intertie to Rubidoux Community Services District at the Jewel Street interagency booster station; and
- Increase the total number of service connections by 10 percent while decreasing total water production by 10 percent since 2011.

Future water savings will be achieved by focusing conservation efforts on residential indoor use, outdoor irrigation, and commercial properties. In total, these three sectors constitute 83 percent of the District's water demands, as of 2015.

This Plan estimates the District's 2015 population at 119,034 persons and projects ultimate build-out at about 159,000 persons by 2039. Based on the growth assumptions contained herein, additional sources of water supply may be needed by 2030, which are currently in various stages of development, to meet projected needs of JCSD. By 2040, the District's total annual water demand (potable and non-potable) is anticipated to be approximately 37,000 acre-feet.

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# **CHAPTER 1: INTRODUCTION AND OVERVIEW**

## **1.1 Background**

As specified in the California Water Code (CWC) Sections §10608– 10656, Urban Water Management Plans (UWMPs or Plans) are required of “urban water suppliers” pursuant to the Urban Water Management Planning Act of 1983. An “urban water supplier” may be publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. UWMPs are intended to support long-term resource planning by urban water suppliers, and to ensure adequate water supplies are available to meet existing and future water demands.

Every urban water supplier is also required to assess the reliability of its water sources over a 20-year planning horizon, and report its progress on 20 percent reduction in per-capita urban water consumption by the year 2020, as required in the Water Conservation Bill of 2009 (“SBX7-7,” aka Senate Bill 7 of the Senate’s 7<sup>th</sup> Extraordinary Session). Prior to the adoption of the UWMP Act, there were no specific requirements that water agencies conduct long-term resource planning. While many water agencies conducted long-term water supply and resource planning prior to the Act, those that did not were left vulnerable to supply disruptions during dry periods or catastrophic events.

UWMPs must be updated by the urban water supplier at least once every 5 years and submitted to the Department of Water Resources (DWR). DWR staff then reviews the submitted plans to make sure they have completed the requirements identified in the California Water Code (CWC), Sections §10608– 10656, then submits a report to the Legislature summarizing the status of the plans.

This UWMP follows the chapter organization outlined in the DWR UWMP Guidebook (March, 2016) and utilizes data kept and maintained by Jurupa Community Services District, as well as supplemental data from Carollo Engineers, Inc. (Carollo) and Albert A. Webb Associates (WEBB). The required UWMP tables provided by DWR are shades of blue and titled “**Table 2-1**,” for example. The additional tables created during the writing of this report have no color and contain letters after the Table number (e.g., **Table 2A**). Required tables pertaining to Chapter 5 Baselines and Targets begin with “**SB X7-7 Table...**” and are shaded brown and green.

WEBB is the District Engineer for the Jurupa Community Services District and submits this document on their behalf with their review and approval. A copy of JCSD Resolution No. 2660 to adopt the 2015 UWMP is provided in **Appendix P**.

## 1.2 Purpose

It is the stated goal of the Jurupa Community Services District (JCSD or District) to deliver a reliable and high quality water supply for their customers, even during dry periods. The purpose of the 2015 UWMP is to outline progress toward conservation and supply reliability goals since the 2010 UWMP was prepared,<sup>1</sup> as well to outline future long-term opportunities to meet projected water demands. The identification of future potential opportunities for water supplies in the UWMP neither commits JCSD to any stated endeavor, nor precludes them from exploring a different project that is not identified in the UWMP.

The sections of the CWC that apply to UWMPs (§10608– 10656) require water suppliers to report, describe, and evaluate:

- Water deliveries and uses;
- Water supply sources;
- Efficient water uses;
- Demand management measures, and
- Water shortage contingency planning.

Another purpose of the UWMP is to obtain eligibility for any water management grant or loan administered by DWR. In order for JCSD to be eligible, they must have a current UWMP on file that has been determined by DWR to address the requirements of the CWC. A current UWMP must also be maintained by JCSD throughout the term of any grant or loan administered by DWR.<sup>2</sup> Beginning in 2016, retail water suppliers like JCSD are also required to comply with the water conservation requirements in SB X7-7 in order to be eligible for State water grants or loans (CWC §10608.56(a)). As detailed in Chapter 5, JCSD has met the 2015 interim water conservation target and the requirements of SB X7-7.

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<sup>1</sup> 2010 Urban Water Management Plan for JCSD, prepared by Kennedy/Jenks Consultants. May, 2011.

<sup>2</sup> An UWMP may also be required in order to be eligible for other State funding, depending on the conditions that are specified in the funding guidelines.

Another purpose of this document is to inform the local wholesale water providers, Western Municipal Water District (WMWD) and Chino Desalter Authority (CDA), of JCSD's projected population and projected need for water supplies. Likewise, this document is also intended to communicate forecasted growth to the wastewater treatment agencies that service the District.

*There is no substitute for water planning at the local water supplier level. Only a local supplier has the knowledge, ability to consider the unique circumstances of the individual agency, can provide for participation by the community, and tailor the planning to local conditions (DWR UWMP Guidebook, March 2016).*



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## **CHAPTER 2: PLAN PREPARATION**

### **2.1 Plan Preparation**

CWC §10620 states: *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.*<sup>1</sup> JCSD is considered an “urban retail water supplier” because it directly provides water to more than 3,000 customers, and it supplies more than 3,000 acre-feet of water annually. The District is not a “wholesale” water supplier. Therefore, the tables and information provided in the UWMP follow the requirements for “retail” water suppliers. A checklist to ensure compliance of this Plan with the UWMP Act requirements is provided in **Appendix A**.

Public Water Systems (PWSs) are the systems that provide drinking water for human consumption. These are regulated by the State Water Resources Control Board (SWRCB), Division of Drinking Water. The PWS name and number, the total number of connections, and volume of water supplied by the District as of December 31, 2015 is shown in **Table 2-1**. DWR guidelines require the water use and planning data for the entire year of 2015, and because JCSD reports on a calendar year (CY) basis, data included in this UWMP is through December 31, 2015.

<b>Table 2-1 Retail Only: Public Water Systems</b>			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
CA3310021	Jurupa Community Services District	29,669	21,645
Sources: JCSD Finance Dept. & Annual Report. Includes non-potable. CY data, volume in acre-feet.			

During CY 2015, JCSD delivered 21,106 acre-feet (AF)<sup>2</sup> of potable water and 539 AF of non-potable water to 29,669 meters for a total of 21,645 AF (**Table 2-1**).

DWR suggests water suppliers engage in *regional* planning to reduce inefficiencies when many agencies are involved. Although the CWC provides mechanisms for participating in area-wide,

<sup>1</sup> “Person” means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity (CWC §10614).

<sup>2</sup> One acre-foot (AF) equals 43,560 cubic feet or 325,851.43 gallons.

regional, watershed, or basin-wide urban water management planning, JCSD has chosen “Individual Reporting” for its UWMP, as identified in **Table 2-2**.

Table 2-2: Plan Identification (Select One)	
<input checked="" type="checkbox"/>	Individual UWMP
<input type="checkbox"/>	Regional UWMP (RUWMP) <i>(checking this triggers the next line to appear)</i>
NOTES: <input type="checkbox"/>	

The District’s basic information for the UWMP is listed in **Table 2-3**: that JCSD is a retailer with the data provided in CY and all units in AF.

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" 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
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

As required by DWR guidelines for the UWMP, JCSD has notified and solicited input from the following pertinent agencies for preparation of this Plan:

- Chino Basin Desalter Authority
- Chino Basin Watermaster
- City of Eastvale (*required*)
- City of Jurupa Valley (*required*)
- City of Norco
- City of Ontario
- City of Riverside Public Utilities Department
- Corona-Norco Unified School District
- Inland Empire Utilities Agency

- Jurupa Unified School District
- Rubidoux Community Services District
- Santa Ana River Water Company
- Western Municipal Water District

At least 60 days before the public hearing on the Plan, the District is required to notify every city to whom it provides water that JCSD is reviewing and considering changes to the UWMP. JCSD issued a notification letter to the agencies listed above on April 21, 2016 that included the date, time, and location of the public hearing held at JCSD on June 27, 2016. The draft UWMP became publicly available on June 13, 2016, two weeks prior to the public hearing. A hard copy was provided at the front counter in the District office, as well as the JCSD Web site. Copies of the required agency notification letters, proof of public notice in *The Press Enterprise* newspaper, as well as a screenshot of JCSD's Web site where the draft UWMP was available are included in **Appendix B**.

The Chino Desalter Authority (CDA) is a Joint Exercise of Powers Agency<sup>3</sup> and water wholesaler that provides potable water to its member agencies. To date, JCSD has not received water supplies from a wholesale agency other than CDA; however the potential for future partnership is discussed in Chapter 6. **Table 2-4** simply identifies Western Municipal Water District (WMWD) and CDA as the water wholesalers in the region and acknowledges that WMWD and CDA have been notified of this Plan.

<b>Table 2-4 Retail: Water Supplier Information Exchange</b>
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name <i>(Add additional rows as needed)</i>
Western Municipal Water District (WMWD)
Chino Desalter Authority (CDA)

Retail agencies, like JCSD, that may receive a water supply from one (or more) wholesalers, like WMWD, are required to provide their wholesaler with their projected water demand from that source, in five-year increments for 20 years. CWC §10631(j) requires JCSD to include documentation in the UWMP that they have provided WMWD and CDA with their water use projections. **Appendix C** contains documentation that JCSD provided a copy of **Table 4-2**:

<sup>3</sup> Often referred to as Joint Powers of Authority, or JPA.

Demands for Potable and Raw Water-Projected, and **Table 6-9**: Water Supplies-Projected to WMWD on May 9, 2016 and to CDA on May 26, 2016. The District has also provided, upon request, its population projections from **Table 3-1** to both WMWD and CDA for their respective UWMPs.

## **CHAPTER 3: SYSTEM DESCRIPTION**

### **3.1 General Description**

JCSD was formed in 1956 for the purpose of providing a sewer system to the community of Jurupa. Water service with JCSD began in 1966 with the consolidation of three mutual water companies: Jurupa Heights Water Company, La Bonita Mutual Water Company, and the Monte Rue Acres Mutual Water Company. Through the years, JCSD's area expanded along with their services, which include the following:

- Treatment, production, and distribution of safe and reliable water;
- Collecting, transporting, and treating residential, commercial, and industrial wastewater;
- Removing graffiti from public areas;
- Administering the street lighting maintenance program;
- Providing parks and recreation programs in the parks service area of the City of Eastvale; and
- Maintaining landscaping in public areas.

JCSD is a public agency with an elected five-person Board of Directors overseeing the five divisions of the service area. The Board of Directors is the legislative governing body for JCSD and is responsible for developing and implementing laws that govern the services provided within the jurisdiction of its community services. Each of the five Board Members is elected to four-year terms by registered voters who reside within the JCSD service territory. To ensure that each area has equal representation, JCSD's service area is divided into five divisions. The Board of Directors conducts public meetings on the 2nd and 4th Monday of each month. The Board President appoints each member to serve on Board Committees.

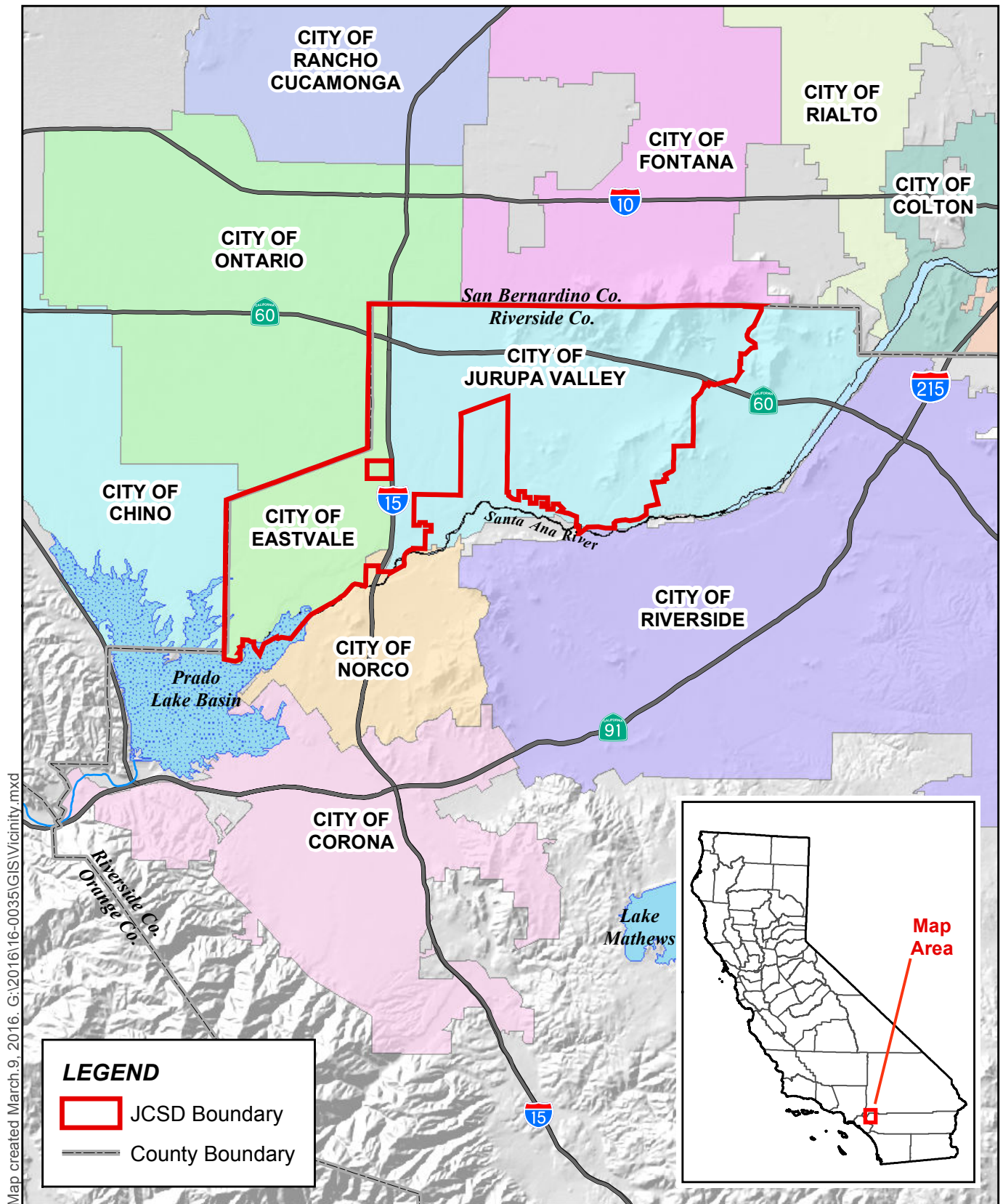
### **3.2 Service Area Boundary**

The JCSD service area covers 40.5 square miles of northwest Riverside County and includes the City of Eastvale and a majority of the City of Jurupa Valley. Refer to **Figure 3-1** for locations of surrounding cities. JCSD's service area is demarcated along the northern and western boundaries by the Riverside/San Bernardino County line, beyond which lie parts of the Cities of Chino, Ontario and Fontana. JCSD is bounded to the east by the City of Jurupa Valley. To the east and south of the Santa Ana River are the City of Riverside and its supplier, Riverside

Public Utilities Agency (RPU). To the south, JCSD is bounded partially by the City of Norco, the Santa Ana River Water Company (SARWC) service area and generally by the Santa Ana River. **Figure 3-2** illustrates the surrounding water providers, including Rubidoux Community Services District (RCSD). Swan Lake Mobile Home Park is included in the District's population estimate since they are a master contract water customer, but not included in the service area acreage. A gap in the service area along the river is served by SARWC, a mutual water company.

Changes to the JCSD service area since the 2010 UWMP include annexation of the "Riverbend" development (Tract 36391) totaling 95 acres, located south of 68<sup>th</sup> Street, east of Interstate 15, and west of Dana Street (see **Figure 3-3**). There are also two potential annexations to JCSD's service area, including:

- Paradise Knolls: 30 acres (of the total 113 acres) of residential development, with a small area for commercial development, located along Limonite Avenue between Van Buren Boulevard and Etiwanda Avenue.
- Highland Park (Tract 31894): 124 acres (of the total 167 acres) located north of the 60 Freeway and east of Sierra Avenue.

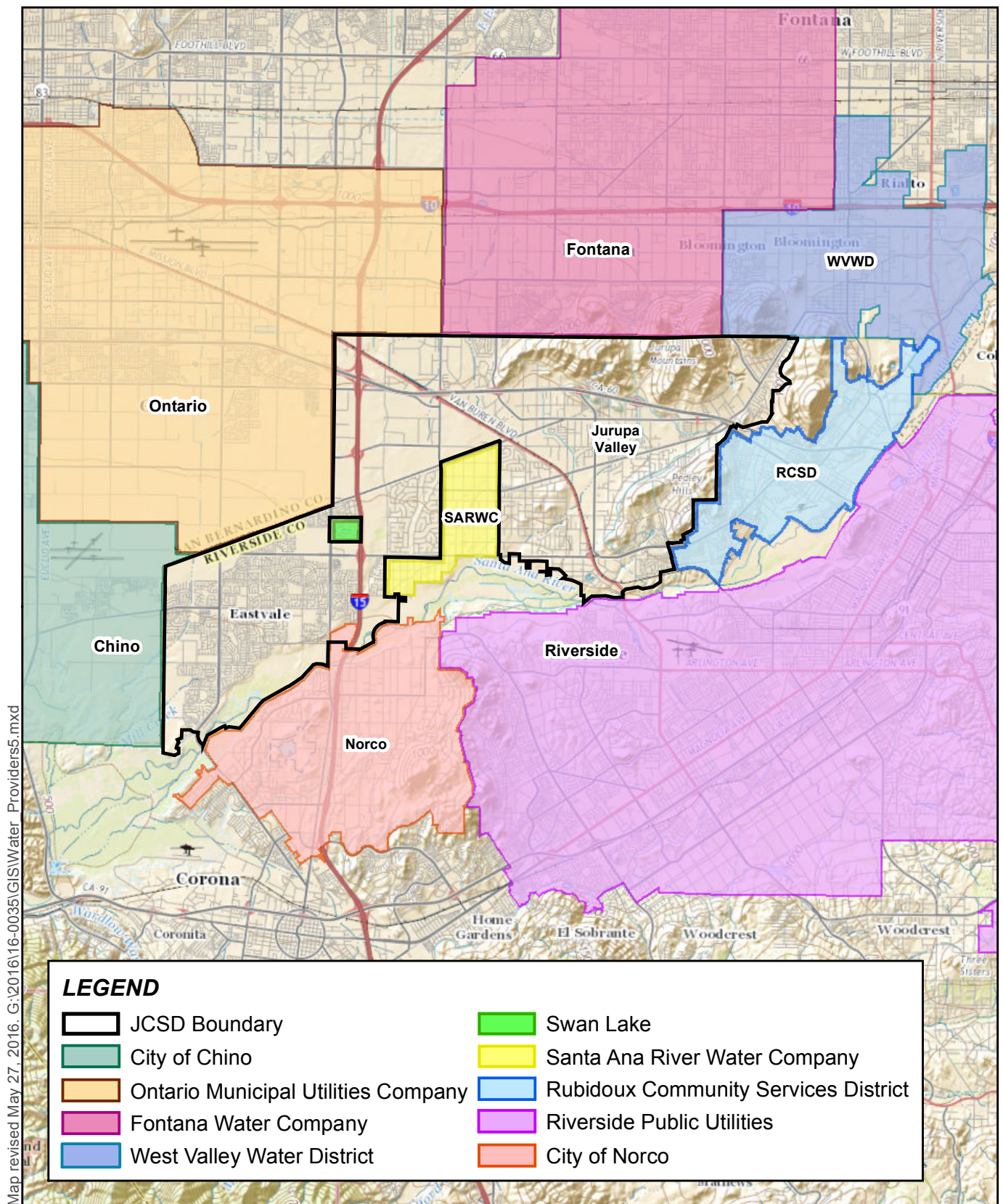


**Figure 3-1 – Vicinity Map**  
JCSD 2015 Urban Water Management Plan





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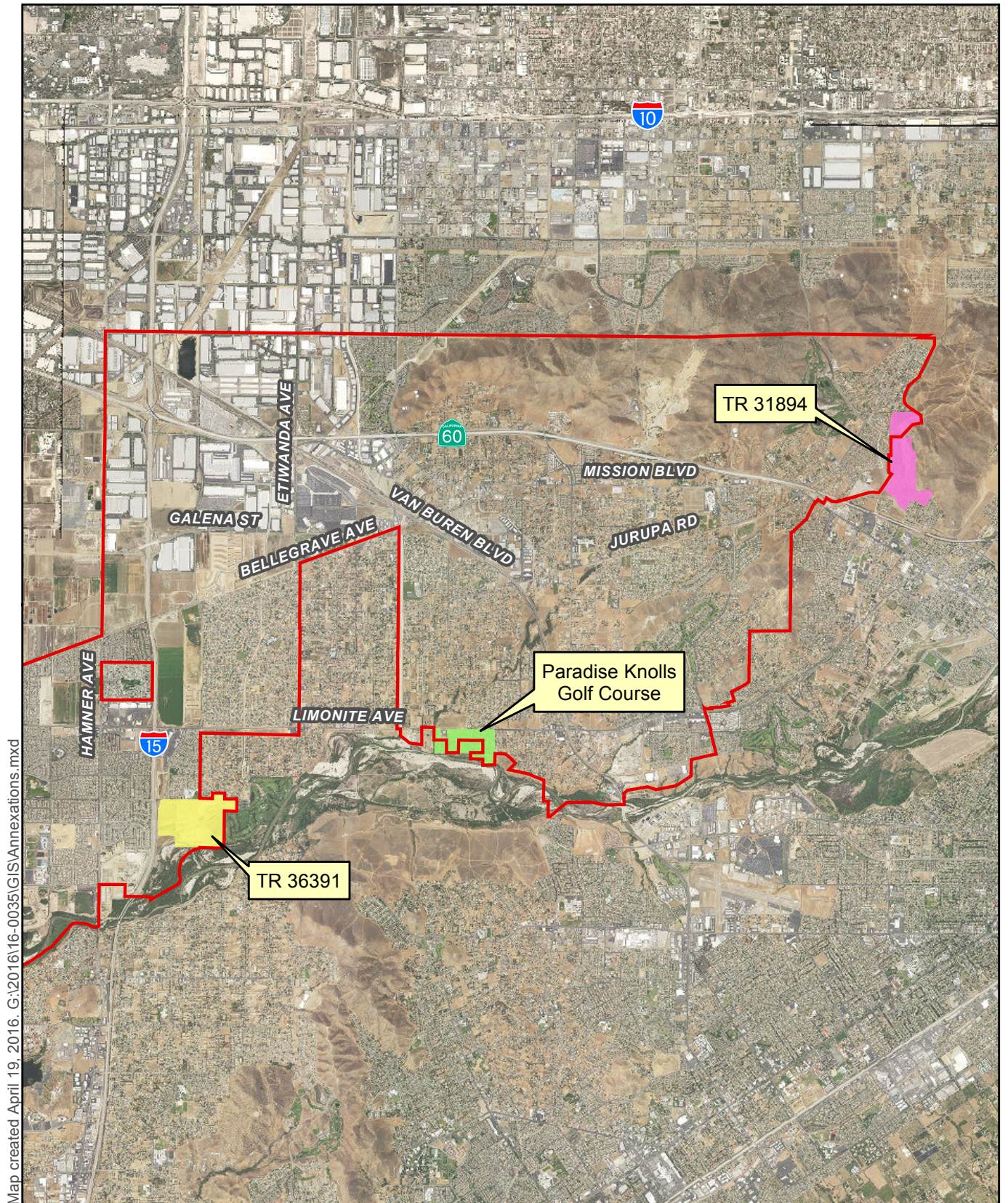


**Figure 3-2 – Surrounding Water Providers**  
JCSD 2015 Urban Water Management Plan



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**Figure 3-3 – Complete and Pending Annexations**  
JCSD 2015 Urban Water Management Plan





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### 3.3 Service Area Climate

The climate of JCSD's service area within the greater "Chino Basin" valley is generally semi-arid and warm. As shown in **Table 3A**, summers are dry with average temperatures as high as 95 degrees Fahrenheit (°F) and maximum daily temperatures that sometimes exceed 100°F. Winters are somewhat cool with average temperatures as low as 40°F. Average rainfall for the past 14 years (2001-2015) is approximately 8 inches per year, whereas the historical average rainfall data from 1908-1988 was approximately 13 inches per year. Recent rainfall is much lower than in previous years because the region is currently in its fourth year of severe drought (USGS, 2016). The elevations within the JCSD service area range from 368 feet to 2,210 feet above mean sea level.

**Table 3A: Climate Data for the JCSD Service Area**

	Jan	Feb	Mar	Apr	May	Jun	Jul <sup>4</sup>	Aug	Sep	Oct	Nov	Dec
<b>Standard Monthly Average ET<sub>o</sub> (inches)<sup>1</sup></b>	2.8	3.3	4.8	6.0	6.8	7.7	7.6	7.2	5.4	3.8	2.4	2.2
<b>Average Rainfall (inches)<sup>2</sup></b>	1.3	1.9	0.8	0.6	0.2	0.0 <sup>3</sup>	0.2	0.1	0.2	0.5	0.8	1.8
<b>Average Max. Temperature (°F)<sup>2</sup></b>	70.5	69.7	74.3	75.9	81.9	88.2	93.3	95.8	94.0	84.2	76.3	68.1

<sup>1</sup> ET<sub>o</sub> data represents monthly averages from 2012 to 2015 from the JCSD CIMIS station (from JCSD staff).

<sup>2</sup> Average rainfall and temperature data are reported from 2001 through 2015 the UCR weather station, [http://gacc.nifc.gov/oscc/predictive/weather/ucr\\_data/ucr\\_climate\\_files.html](http://gacc.nifc.gov/oscc/predictive/weather/ucr_data/ucr_climate_files.html).

<sup>3</sup> Average monthly values which are rounded; therefore, values reported as zero may not actually be equal to zero.

<sup>4</sup> Data was missing for the month of July from 2002 through 2006. Thus, the average rainfall and maximum temperature for July includes data from 2001, and 2007 through 2015.

The region's annual average climate data is provided in **Table 3B**. Monthly average ET<sub>o</sub> data was collected from JCSD's California Irrigation Management Information System (CIMIS) weather station. This station does not record temperature or average rainfall data. Therefore, standard monthly average rainfall and temperature data was collected from the University of California, Riverside (UCR) CIMIS station (No. 44) and the UCR weather station. These sites were selected as representative of JCSD's service area climate because these were the closest weather and CIMIS stations that had reliable data from within the past 10 years. It was important to use data from recent years because, as stated above, California is currently

experiencing a severe drought. In addition to the drought, temperatures have been higher than usual, with 2014 being California's hottest year on record (NASA, 2015).

**Table 3B: Climate Summary for the JCSD Service Area**

<b>Total Annual ET<sub>o</sub> (inches)</b>	60
<b>Total Annual Rainfall (inches)</b>	8.4
<b>Average Max. Temperature (°F)<sup>2</sup></b>	88

### 3.4 Climate Change

Although the CWC does not specifically require the Plan to address climate change, DWR guidelines recommend a discussion of possible effects and an opportunity for water suppliers to outline response actions. The following discussion is guided by the "Climate Change Vulnerability Assessment" provided in the DWR guidelines that comes from the U.S. Environmental Protection Agency (EPA) and DWR document, "Climate Change Handbook for Regional Water Planning" (2011).

#### Water Demand

- *Are water curtailment efforts effective in your area?*
  - Response: Curtailment measures have been effective in JCSD's service area. As detailed in Chapter 8, JCSD has developed a five-level Water Shortage Contingency Plan. Water production per meter has decreased roughly 18 percent from 2011 to 2015, according to the Annual Reports submitted to the SWRCB.

#### Water Supply

- *Does a portion of the water supply in your region come from snowmelt?*
  - Response: JCSD primarily relies on groundwater pumped from the Chino Basin. Because snowmelt naturally contributes to groundwater recharge, decreasing snowmelt could indirectly impact JCSD's water supply. However, JCSD is exploring a variety of options to supplement its existing water supply including using recycled water for recharge.
- *Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climate-sensitive systems outside your region?*

- Response: JCSD indirectly relied upon imported water from the State Water Project for recharge of the Chino Basin; however, the Chino Basin has not been recharged with imported water from the State Water Project for many years due to drought restrictions. The Chino Basin Watermaster and other agencies have successfully turned to other resources such as storm water, treated municipal wastewater (i.e., recycled water) and conservation measures to accommodate the loss of recharged imported water to the Chino Basin.

### **Water Quality**

- *Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby which could pose a water quality concern from increased erosion?*
  - Response: Increased wildfires are one consequence of climate change, due to decreased rainfall and increasingly dry vegetation. JCSD's primary water source is groundwater from the Chino Basin. Increased erosion due to wildfires would not pose a water quality concern because water percolates into the ground before being withdrawn for treatment and use. The greatest concern related to wildfires is loss of power to the pumping and distribution system; however, JCSD has developed an Emergency Response Plan to prepare for system impacts resulting from wildfires, earthquakes, and other threats (discussed further in Chapter 8).

### **Ecosystem and Habitat Vulnerability**

- *Do climate-sensitive fauna or flora populations live in your region?*
  - Response: The flora and fauna in JCSD's service area are adapted to a Mediterranean climate, with a mild winter and a hot, dry summer. However, climate change is expected to increase the occurrence of drought and higher temperatures, which could reasonably be expected to negatively impact flora and fauna residing in the area.



## Hydropower

- *Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generation facilities or conditions for hydropower generation in your region?*
  - Response: Energy needs are expected to increase as the population of JCSD's service area increases. However, the arid climate of JCSD's service area generally makes hydropower infeasible in this area.

### 3.5 Service Area Population and Demographics

The population in the District's service area consists of the cities of Jurupa Valley and Eastvale. All of the City of Eastvale and approximately 70 percent of the City of Jurupa Valley are within the District's service area. The DWR Population Tool was used to generate the current and projected population estimates shown in **Table 3-1**. The DWR Population Tool output results are included in **Appendix D**, which is required for inclusion in this Plan per DWR guidelines. The Tool uses U.S. Census year data (1990, 2000, 2010) with the number of residential meters (combined single-family and multi-family residential) from the JCSD Annual Reports to the SWRCB to calculate a Persons-Per-Connection ratio. To calculate the 2015 population for JCSD, the total number of residential connections for 2015 is entered (28,462 meters) and the Tool multiplies that by a person-per-connection ratio of 4.18 (with 6 digits). This generates a population of 119,034 people within the District for CY 2015. For comparison, in 2014, the JCSD Board of Directors adopted an official District population of 118,731. The 2015 population estimate generated by the Tool is therefore considered a reasonable estimate.

Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040(opt)
	119,034	127,004	134,974	142,944	150,914	157,290
NOTES: From DWR Population Tool. Projections from JCSD data.						

The District's population projections shown in **Table 3-1** are based on information from the JCSD Development Status and Water Demands Map and Tables (WEBB(a), updated June 2015). The methodology consists of adding the number of residential dwelling units proposed by future projects with the number of dwelling units for vacant properties that are identified as future residential by the General Plan's Land Use Plan. This gives 9,155 future residential

dwelling units (single-family and multifamily combined), which is multiplied by the 2015 persons-per-connection ratio of 4.18 for a possible future addition of 38,268 people. This was divided by the number of years until build-out (24) for an approximate annual increase of 1,594 residents.

**Table 3-1** gives the projections as described. By build-out in 2039, this method estimates a District population of 157,290 persons.<sup>1</sup>

The City of Eastvale makes up 30 percent of the JCSD service area, and the entirety of Eastvale is within the boundary of JCSD. A recently incorporated City (2010), with relatively new housing, infrastructure, and residents, Eastvale is nearly built-out. Most notably, Eastvale's median household income (MHI) of approximately \$110,000 is in the 92<sup>nd</sup> percentile for the state.<sup>2</sup> Eastvale is a wealthy, modern, dense, and diverse City of approximately 59,039 people (as of July 1, 2015).

The City of Jurupa Valley also recently incorporated in 2011 but contains a population 71 percent greater than Eastvale, with roughly half the MHI.<sup>3</sup> Approximately 58 percent of Jurupa Valley's population of roughly 100,314 people (as of July 1, 2015) is within the District's service area.<sup>4</sup> As of 2014, the MHI was reported by the City of Jurupa Valley as \$53,215. The City has potential for significant growth and redevelopment in all urban land use types.

The current (as of March, 2016) development status of properties in the District is shown in **Figure 3-4**. The active properties are identified as either residential or non-residential (i.e., commercial or industrial) based on the current development plans, and their development status is classified as either "Availability Letter", "Plan Check", or "Under Construction". The vacant properties not in the development process were identified using GIS spatial analysis<sup>5</sup> and verified against 2014 aerial imagery. As of June 1, 2015, there are approximately 331 acres of residential land uses actively proceeding through the development process and 600 acres under construction. In addition, approximately 1,821 acres of inactive residential-designated properties within the District boundaries (i.e., expired availability letter or undeveloped land) (**Figure 3-4**).

<sup>1</sup> The District projects build-out by 2039. Therefore the projected population for 2039 is shown in Table 3-1 as the population for 2040.

<sup>2</sup> Source: U.S. Census data, Median household income (in 2014 dollars), 2010-2014

<sup>3</sup> Source: U.S. Census QuickFacts, July 1, 2014

<sup>4</sup> Source: U.S. Census data, "American Fact Finder" as of July 1, 2015.

<sup>5</sup> Parcels were filtered by structure values less than or equal to \$10,000 per the latest Riverside County Assessors Database.

In addition, approximately 455 acres of active commercial and/or industrial land uses in the development process, and no projects under construction. Approximately 1,625 acres of inactive non-residential land uses appear to be within the District (i.e. expired availability letter or undeveloped land, **Figure 3-4**).

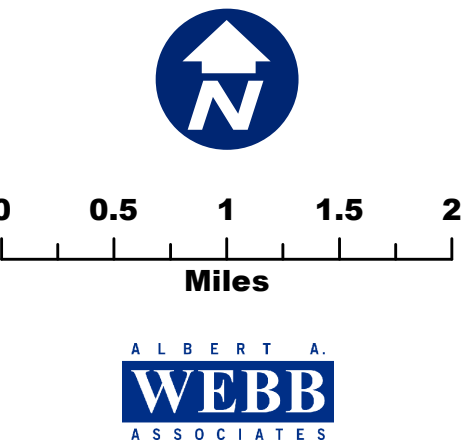
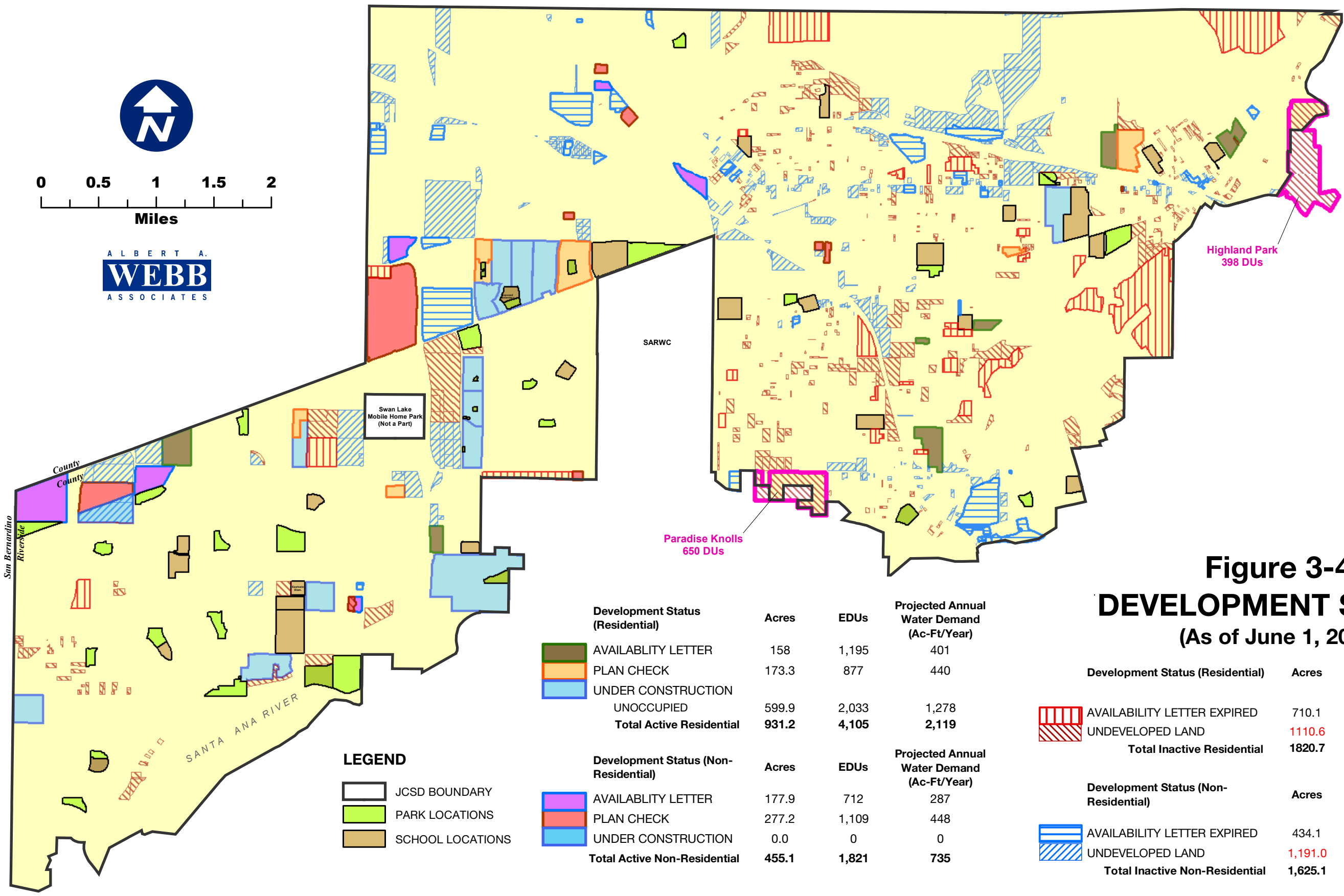
U.S. Census data is gathered at three levels of precision: at the broadest level for unincorporated areas is the Census Designated Place (CDP), followed by Census Tracts that are made up of Block Groups. According to U.S. Census data collected from 2009 to 2013 by the Water Management Planning Tool<sup>6</sup> at DWR, some Community Tracts and Block Groups within the JCSD service area qualify as “disadvantaged”. California Code of Regulations Section 596.1(b)(2) defines a “disadvantaged community (DAC)” as: “A community with an annual median household income (MHI) that is less than 80 percent of the statewide annual MHI.” The statewide MHI according to the 2009-2013 Census data is \$61,094, and 80 percent of that is the DAC threshold of \$48,875.

The Census Block Groups that qualify as “disadvantaged” and “severely disadvantaged”<sup>7</sup> are shown in **Figure 3-5**. The information contained in Figure 3-5 is taken directly from the DWR Web site, “Disadvantaged Communities (DAC) Mapping Tool,” which is a reference to assist local agencies to evaluate DAC status, using the definition provided by Proposition 84 Guidelines. Having areas that qualify as a DAC opens the District to the possibility of applying for State grant funding to assist with the implementation, planning, and disadvantaged community involvement efforts through Proposition 1 (Water Quality, Supply, and Infrastructure Improvement Act of 2014), and potentially grant funding through Proposition 84, Chapter 2 (Integrated Regional Water Management). In the event JCSD proceeds with either grant application process, additional research per the grant requirements may be necessary.

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<sup>6</sup> Source: *U.S. Census American Community Survey (ACS) 5-Year Data: 2009-2013* (with a median household income (MHI) of \$61,094 and hence a calculated disadvantaged communities (DAC) threshold of \$48,875) located at the DWR Water Management Planning Tool, <https://gis.water.ca.gov/app/boundaries/>

<sup>7</sup> “Severely” disadvantaged communities have an annual median household income less than 60 percent of the State’s annual median household income, or \$36,656 according to the ACS data shown here.



**Figure 3-4**  
**DEVELOPMENT STATUS**  
(As of June 1, 2015)

Development Status (Residential)			
	Acres	EDUs	Projected Annual Water Demand (Ac-Ft/Year)
AVAILABILITY LETTER	158	1,195	401
PLAN CHECK	173.3	877	440
UNDER CONSTRUCTION			
UNOCCUPIED	599.9	2,033	1,278
<b>Total Active Residential</b>	<b>931.2</b>	<b>4,105</b>	<b>2,119</b>

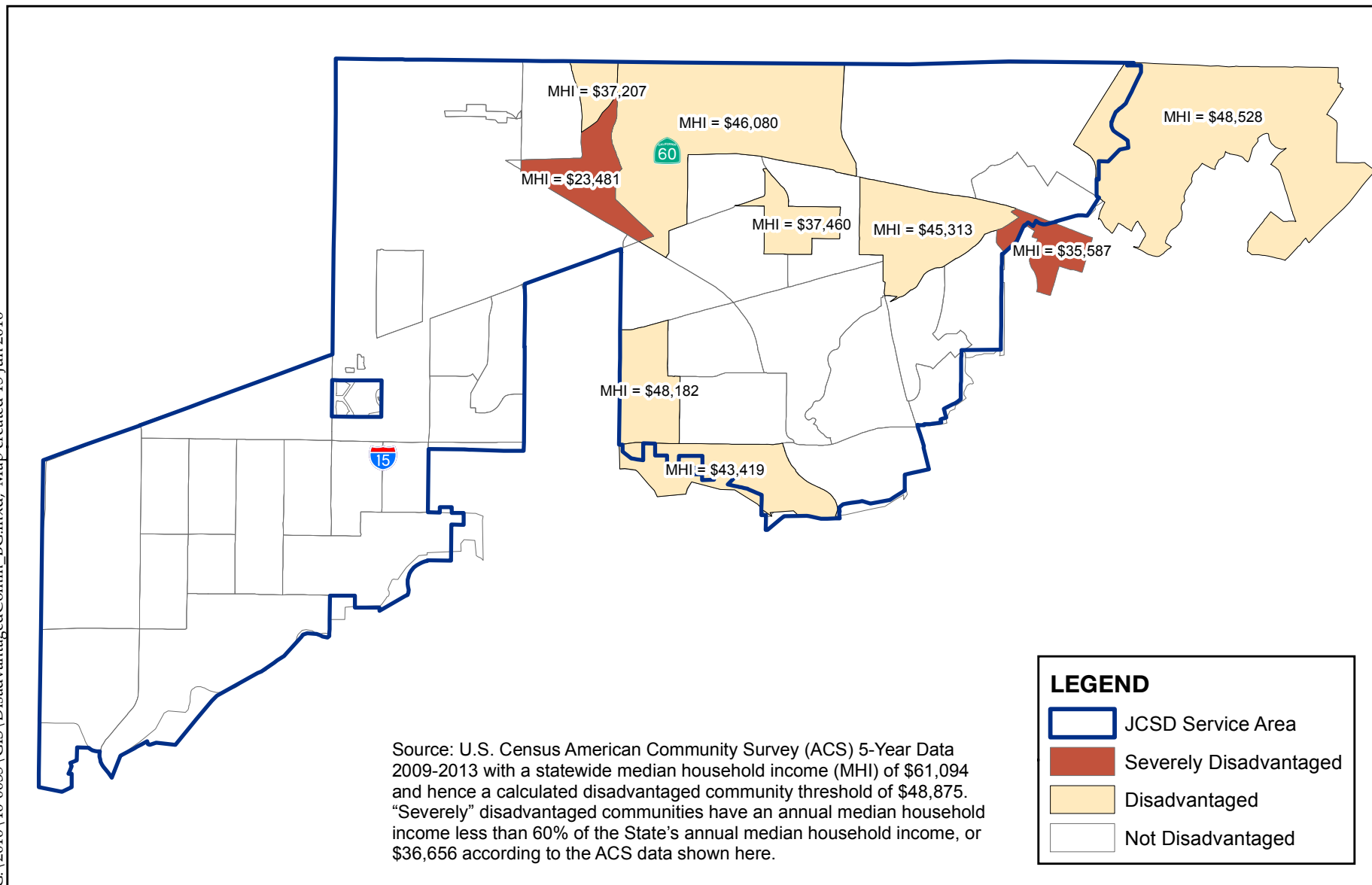
Development Status (Non-Residential)			
	Acres	EDUs	Projected Annual Water Demand (Ac-Ft/Year)
AVAILABILITY LETTER	177.9	712	287
PLAN CHECK	277.2	1,109	448
UNDER CONSTRUCTION	0.0	0	0
<b>Total Active Non-Residential</b>	<b>455.1</b>	<b>1,821</b>	<b>735</b>

Development Status (Residential)			
	Acres	EDUs	Projected Annual Water Demand (Ac-Ft/Year)
AVAILABILITY LETTER EXPIRED	710.1	1,199	1,420
UNDEVELOPED LAND	1110.6	3,851	2,500
<b>Total Inactive Residential</b>	<b>1820.7</b>	<b>5,050</b>	<b>3,920</b>

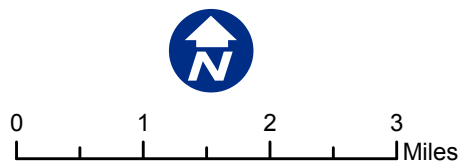
Development Status (Non-Residential)			
	Acres	EDUs	Projected Annual Water Demand (Ac-Ft/Year)
AVAILABILITY LETTER EXPIRED	434.1	1,736	698
UNDEVELOPED LAND	1,191.0	4,760	1,987
<b>Total Inactive Non-Residential</b>	<b>1,625.1</b>	<b>6,496</b>	<b>2,685</b>

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**Figure 3-5 - Disadvantaged Community by Census Block Group**

JCSD 2015 Urban Water Management Plan



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## CHAPTER 4: SYSTEM WATER USE

This chapter describes and quantifies the District's current water use<sup>1</sup> and water use projections through the year 2040, to the extent information is available. Impacts to water use from climate change are discussed in Chapter 3 and recycled water is discussed separately in Chapter 6.

### 4.1 Current Use

As of December 31, 2015, JCSD delivered 21,106 AF of potable water and 539 AF of non-potable water for a total of 21,645 AF. The 2010 UWMP estimated a total demand volume of 28,962 AF for CY 2015. As shown in **Table 4-1**, the actual metered water use is divided into sectors including: single-family residential, multi-family residential, commercial (includes governmental/institutional meters and non-billing meters<sup>2</sup>), industrial facilities, landscape irrigation, non-potable landscape irrigation, hydrants,<sup>3</sup> and losses.<sup>4</sup>

<b>Table 4-1 Retail: Demands for Potable and Raw Water - Actual</b>			
Use Type <i>(Add additional rows as needed)</i>	2015 Actual		
<i>Use Drop down list</i> <i>May select each use multiple times</i> <i>These are the only Use Types that will be</i> <i>recognized by the WUEdata online</i> <i>submittal tool</i>	Additional Description <i>(as needed)</i>	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Single Family	includes "no-sewer" accounts	Drinking Water	14,286
Multi-Family		Drinking Water	1,236
Commercial	includes governmental/institutional and "non-billing EDUs" for commercial landscape irrigation	Drinking Water	2,185
Industrial		Drinking Water	653
Landscape		Drinking Water	2,141
Landscape	non-potable	Raw Water	539
Other	hydrants	Drinking Water	605
Losses	production minus consumption	Raw Water	307
Losses	production minus consumption	Drinking Water	429
<b>TOTAL</b>			<b>22,381</b>
NOTES: CY 2015. Units in acre-feet (AF). Source: 2015 JCSD Annual Report Table 6b.			

<sup>1</sup> For purposes of the UWMP, the terms "water use" and "water demand" will be used interchangeably.

<sup>2</sup> At some commercial sites, the District has installed sub-metering to track landscape irrigation separately.

<sup>3</sup> Fire hydrants are used for fire suppression and to supply water for dust control and construction.

<sup>4</sup> Losses in Table 4-1 are calculated as the difference between production volumes and consumption volumes for both potable and non-potable water, from the PWSS/Annual Reports submitted to the State.



The non-potable irrigation demand is satisfied with non-potable well water and is listed separately in the District's Annual Reports to the Drinking Water Program. The system loss that is shown in **Table 4-1** is calculated by subtracting metered deliveries from total production sources for both potable and non-potable sources. The District's distribution system also includes a meter to track pass-through water delivered to the Santa Ana River Water Company (SARWC), the City of Ontario, and the City of Norco. This pass-through water comes from the Chino Desalter Authority, which is treated groundwater and is not considered part of JCSD's production volumes and is not billed.

Listed in **Table 4A** is the District's water use by sector from 2011 to 2015. Total water use increased 24 percent from 2011 to 2013; however in response to conservation measures, total water use then decreased 23 percent by 2015. Notably, system losses decreased substantially in response to new meter installations across the entire District.

**Table 4A: JCSD Water Use by Sector (AF), 2011-2014**

SECTOR	2011	2012	2013 <sup>5</sup>	2014	2015
Single-Family Residential	14,787	16,986	19,341	16,839	14,286
Multi-Family Residential	1,027	1,260	1,280	1,274	1,236
Commercial/Institutional	881	1,157	3,111	2,380	2,185
Industrial	718	777	739	726	653
Landscape Irrigation	1,521	2,175	3,037	2,604	2,141
Other*	3,259	1,734	0	1,543	605
<b>TOTAL (AF)</b>	<b>22,193</b>	<b>24,089</b>	<b>27,508</b>	<b>25,366</b>	<b>21,106</b>
<b>Losses (calculated)**</b>	2,126 (9%)	1,155 (4%)	125 (0.5%)	869 (3%)	736 (4%)
<b>Non-Potable Irrigation</b>	552	750	0	727	539

Source: JCSD PWSS/Annual Reports 2011-2015.

\*Hydrants or construction water may be included in the "other" category.

\*\*Losses are calculated as the difference between production and consumption data from JCSD.

## 4.2 Projected Use

Estimating future demand, as accurately as possible, allows water agencies to manage their water supply and appropriately plan their infrastructure investments. Factors to consider are current and future land uses, number of occupants or dwelling units, and typical water demand generation factors.

<sup>5</sup> The reports changed beginning in 2013 from "Public Water System Statistics" reports under the review of DWR, to "Annual Report to the Drinking Water Program" reports under the review of the State Water Resources Control Board (SWRCB).

On March 14, 2016, the JCSD Board of Directors approved new water and sewer capacity charge rate schedules based on a study by Carollo Engineers, Inc. (Carollo, 2016) from which the demand projections included in **Table 4-2** are derived.<sup>6</sup> The Carollo capacity rate study utilizes information from the JCSD Development Status Map (WEBB(a), 2015), discussed previously in Chapter 3 and shown on Figure 3-4. The WEBB Associates Development Status Map and associated data tables identify the current development status of parcels within JCSD's service area and their associated demand projections. For each parcel, the projected annual water demands are determined using the "Unit Values of Applied Water" from JCSD's draft Summary Master Water Plan (Table 5-1, WEBB(b), 2005).

In summary, after analyzing all potential land uses of undeveloped land, WEBB Associates (June, 2015) projected an increase of 9,460 AFY,<sup>7</sup> which is a 37 percent increase in water consumption by 2039 (or "build-out"). According to the Carollo study, a 37 percent increase in water demand provides sufficient volume to support 15,753 additional Meter Equivalent Units (MEUs)<sup>8</sup> to the District. Carollo (March, 2016) estimates JCSD currently has 42,421 MEUs and will have a total of 58,173 MEUs at build-out. For this UWMP, JCSD Finance Department forecasted demand projections from 2015 through 2040 using approximately 58,173 MEUs as its end-point. This produced an annual growth in water use across all sectors of approximately 2 percent, as shown in **Table 4-2**. System losses shown in **Table 4-2** were calculated as 5 percent of the projected potable and non-potable water demands in five year increments provided by JCSD Finance Department data.

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<sup>6</sup> Resolution Nos. 2627 and 2628

<sup>7</sup> Calculated from a baseline assumption for 2015 water demand of 25,472 AF per year of potable water.

<sup>8</sup> One MEU is meant to represent a typical, single family residential customer with a 5/8x3/4 inch meter. Larger customers, such as apartment complexes or manufacturing facilities are assigned a higher number of MEUs based on their meter size and flow rates to better represent the capacity ratio of their potential demand on the water system. Every account, existing and future, is assigned a number of MEUs to represent how many typical customers it is equivalent to (Carollo, section 3.1.2, March 2016).

Table 4-2 Retail: 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>Use 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
Single Family		15,700	17,341	19,153	21,154	23,364
Multi-Family		1,359	1,501	1,657	1,830	2,022
Landscape	potable	2,353	2,599	2,870	3,170	3,502
Other	CII	3,119	3,444	3,804	4,202	4,641
Other	Hydrant (construction)	665	735	811	896	990
Landscape	non-potable (raw water)	592	654	722	797	881
Losses	potable & non-potable combined	1,189	1,314	1,451	1,602	1,770
<b>TOTAL</b>		<b>24,977</b>	<b>27,588</b>	<b>30,468</b>	<b>33,651</b>	<b>37,170</b>

NOTES: Units in AF. Assumes 2% per year growth. Losses are 5% of total demand. Source: JCSD Finance Dept.

The demand projections in **Table 4-3** begin with 2015 actual water use, which is considered by the District as significantly low in response to the ongoing drought and mandatory water conservation efforts. The projections plan for future water demand based on a “normal” or non-drought condition.

Although future water savings (or “Passive Savings”) from codes, standards, ordinances, or transportation and land use plans are not explicitly included in the District’s demand projections, the District has been successful in reducing demand, as discussed in Chapter 9. Total water demand for JCSD beginning with current demand and projected through 2040 is summarized in **Table 4-3**.

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 (opt)
Potable and Raw Water <i>From Tables 4-1 and 4-2</i>	22,381	24,977	27,588	30,468	33,651	37,170
Recycled Water Demand <i>From Table 6-4</i>	0	500	500	500	500	500
<b>TOTAL WATER DEMAND</b>	<b>22,381</b>	<b>25,477</b>	<b>28,088</b>	<b>30,968</b>	<b>34,151</b>	<b>37,670</b>

NOTES: Includes potable and non-potable water use.

Although the UWMP **Table 4-3** automatically adds the projected recycled water demand to the projected potable and raw water demands, JCSD expects the opposite to occur when recycled

water becomes a part of its supply. Indeed, recycled water is expected to take the place of potable and raw water used for irrigation, and therefore decreasing future demand for them.

### 4.3 Distribution System Water Losses

Distribution system water losses are the physical water losses from the water distribution system and the supplier's storage facilities, up to the point of customer consumption. In a rough sense, the difference between the water brought into the system and the volume sold to customers. System water losses can occur because of leaking or broken pipes, system flushing, theft, metering inaccuracies, or unbilled authorized and unauthorized consumption. California Senate Bill No. 1420 (SB 1420) requires water utilities that submit UWMPs to calculate annual system water losses using the water audit methodology developed by the American Water Works Association (AWWA). SB 1420 also requires that utilities submit these audits every five years as part of their respective UWMP. To facilitate user-friendly and consistent water auditing practices, AWWA has developed the AWWA Free Water Audit Software, which is based on the principles of the AWWA M36 Water Audit methodology. Per DWR guidelines, utilities must use this software to complete their audit. **Table 4-4** summarizes the total water loss volume for 2015. The complete water loss audit is included in **Appendix E** and summarized below.

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss
01/2015	351.4
NOTES: CY 2015. Volume in AF. Source: JCSD Engineering Dept.	

The water audit performed by JCSD for production and consumption data for CY 2015 considered the water supplied, the water consumed, pipeline system details, and cost data to arrive at a real loss<sup>9</sup> volume of 351.4 AF per year and a "Water Audit Data Validity Score" of 65 out of 100. The Data Validity Score of 65 puts JCSD's water audit data within "Level III" on a five-level rating scale. This is a composite score that reflects the quality of the data entered into the audit, as determined by the District's self-reported data validity scores for individual fields. The score is a volumetrically-weighted average, in which a lower score reflects less confidence in the accuracy of data, and a higher score reflects greater confidence. DWR provides

<sup>9</sup> Real Loss is the difference between Water Losses (water supplied minus authorized consumption) and Apparent Losses (sum of unauthorized consumption, customer metering inaccuracies and systematic data handling errors).

suggestions for data improvement for each Level to control water loss in five focus areas, as shown below in **Table 4B**.

**Table 4B: Water Loss Control Recommendations**

	<b>Audit Data Collection</b>	<b>Short-Term Loss Control</b>	<b>Long-Term Loss Control</b>	<b>Target-Setting</b>	<b>Benchmarking</b>
<b>Level III (score 51-70)</b>	Establish/ revise policies and procedures for data collection	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process.	Establish long-term apparent and real loss reduction goals (+10 year horizon)	Preliminary Comparisons – can begin to rely upon the Infrastructure Leaking Index (ILI) for performance comparisons for real losses.

According to the District’s production and consumption data in 2015, it had a system loss of 351.4 AF, or 1.6 percent of production, which is considered very low by industry standards. In the 2010 UWMP, JCSD reported a system loss of 10 percent and was in the process of assessing its water losses. Since then, the District has replaced all of its meters and significantly improved system efficiency.

#### **4.4 Water Use for Lower Income Households**

California Senate Bill No. 1087 (SB 1087) requires the water use projections of an UWMP to include the water demands for affordable housing as identified in the housing element of any city, county, or city and county in the service area of the supplier. SB 1087 builds on an existing statutory priority for providing water and sewer services to affordable housing developments. JCSD will not deny nor condition approval of water services, or reduce the amount of services applied for by a proposed development that includes housing units affordable to low-income households.

The City of Eastvale’s General Plan Housing Element (June, 2013) identifies a housing need of **624** low-income<sup>10</sup> units (a combination of extremely low-, very low-, and low-income categories) for the 2013-2021 planning period.<sup>11</sup>

<sup>10</sup> Low-Income is defined the same as “disadvantaged community”, which is defined by CCR §596.1(b)(2) as “an annual median household income that is less than 80 percent of the statewide annual median household income.”

Although the City of Jurupa Valley does not yet have an adopted Housing Element, the Southern California Association of Governments (SCAG) has identified the regional housing needs allocation (RHNA) for the city of 684 low-income units (a combination of very low-income and low-income categories) in the 5<sup>th</sup> Cycle Regional Housing Needs Assessment Final Allocation Plan (SCAG, 2012). This is anticipated to be incorporated into their forth-coming General Plan document.

To address the intent of SB 1087, water use during CY 2014 and 2015 from residential meters located in a low-income area (Route 220) of the JCSD service area were compared to water use from residential meters located in a high-income area (Route 420). Although only two years were analyzed, the volumes consumed per meter were nearly the same, as shown in **Table 4C**. This data suggest that residential water consumption in the District, on average, is generally equivalent between income levels. It should be noted that this did not tease-out the influence of any factors such as multi-family residential meters or property size.

**Table 4C: Residential Water Use by Income Level, 2014-2015**

	Metered Deliveries (AF)	Residential Meters	Annual Water Use per meter (AF)
<b>Low-Income Route</b>			
<b>2014</b>	797	1,474	0.54
<b>2015</b>	703	1,482	0.47
<b>High-Income Route</b>			
<b>2014</b>	2,350	4,051	0.58
<b>2015</b>	1,979	4,260	0.46

Source: JCSD data.

The District's water use projections are based on a build-out land use scenario that incorporates the existing and planned housing needs that are required of each city in its service area. The planned housing needs are developed under the edict of the State Department of Housing and Community Development who then directs the Southern California Association of Governments (SCAG) to allocate each jurisdiction its share. The District also does not deny services or otherwise discriminate against affordable housing projects simply because they are for low-income residents. The demand projections included herein that were prepared by JCSD include the projected water demands for future low-income housing by virtue of accounting for land use

<sup>11</sup> This is based on the 5<sup>th</sup> Cycle Regional Housing Needs Allocation (January 2014-October 2021 planning period) generated by the State Department of Housing and Community Development to allocate the regional housing need to the SCAG (SCAG RTP, 2012).

designations from approved Housing Elements.<sup>12</sup> Therefore, the required verification to answer “yes” in **Table 4-5** is provided in **Table 4D**.

Although future water savings (or “Passive Savings”) from codes, standards, ordinances, or transportation and land use plans are not explicitly included in the District’s demand projections, the District has been successful in reducing demand, as discussed in Chapter 9.

<b>Table 4-5 Retail Only: Inclusion in Water Use Projections</b>	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i>	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i>	Yes
NOTES: Assumed 0.5 AF/meter/year for low-income water use based on actual data.	

Assuming an average annual water demand of 0.5 AF per connection based on the findings in **Table 4C**, the projected low-income water use shown in **Table 4D** is accounted for in the District’s water demand projections for single-family residential.

**Table 4D: Projected Low-Income Water Use (AF)**

City	Projected Low-Income Housing Units	Average Annual Water Use (AF) per Meter	Projected Low-Income Water Use (AF)
Eastvale	624*	0.5	312
Jurupa Valley	684**		342

\* Source: City of Eastvale’s General Plan Housing Element (June, 2013)

\*\* Source: 5<sup>th</sup> Cycle Regional Housing Needs Assessment Final Allocation Plan (2012)

<sup>12</sup> In the case of Jurupa Valley, the County of Riverside General Plan land use plan is used until the City of Jurupa Valley adopts its own General Plan.

## **CHAPTER 5: SB X7-7 BASELINES AND TARGETS**

With the adoption of the Water Conservation Act of 2009, also known as the SB X7-7, the State is required to set a goal of reducing per capita urban water use by 20 percent by the year 2020. Each retail urban water supplier must determine baseline water use during their baseline period and also target water use for the years 2015 and 2020 in order to help the State achieve the 20 percent reduction. In this UWMP, JCSD must demonstrate compliance with their Interim Water Use Target for the year 2015 to determine if they are on-track to achieve the 2020 target. Compliance is verified by DWR reviewing the SB X7-7 Verification Forms submitted with this UWMP (the complete set of SB X7-7 tables is provided in **Appendix F**). Tables from the SB X7-7 Verification Forms that are shown below differ from the UWMP tables in the rest of this Plan as they are colored green and brown and begin with the title “SB X7-7 Table ...”

In the 2010 UWMP, the District calculated water use targets using the best available census data at the time, which was the 2000 U.S. Census. DWR requires use of the 2010 U.S. Census data; therefore the baseline and targets were updated and recalculated as part of this UWMP.

On May 9, 2016, Governor Brown issued Executive Order B-37-16,<sup>1</sup> which directs DWR to publish a draft framework by January 10, 2017 to develop new water use targets as part of a permanent framework for urban water agencies. The Executive Order states:

These water use targets shall be customized to the unique conditions of each water agency, shall generate more statewide water conservation than existing requirements, and shall be based on strengthened standards for: (a) indoor residential per capita water use; (b) outdoor irrigation, in a manner that incorporates landscape area, local climate, and new satellite imagery data; (c) commercial, industrial, and institutional water use; and (d) water lost through leaks.

JCSD will review the new regulations when they become available and revise the water conservation targets described herein as needed.

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<sup>1</sup> [https://www.gov.ca.gov/docs/5.9.16\\_Executive\\_Order.pdf](https://www.gov.ca.gov/docs/5.9.16_Executive_Order.pdf)



## 5.1 Updating Calculations from 2010 UWMP

As allowed by the California Water Code (CWC) and explained in DWR guidelines, water agencies may update their 2020 Target using a different Target Method and/or revising population estimates for the baseline years. JCSD used Target Method 1 in their 2010 Plan, and will continue to use Target Method 1 in their 2015 Plan. Revised population estimates used to calculate the Targets and Baselines are derived from DWR's Population Tool provided in **Appendix D**. The calculation methodology for Target Method 1 is detailed in **Appendix F** and summarized below.

## 5.2 Baseline Periods

According to the CWC, water suppliers who used less than 10 percent recycled water in 2008 must use a 10-year baseline period for water use and calculate the average water use, in Gallons Per Capita per Day (GPCD),<sup>2</sup> over that length of time. JCSD has yet to use recycled water and will therefore continue using a 10-year baseline period beginning in 1999 and ending in 2008, as identified in the 2010 UWMP.

Water suppliers must also calculate water use, in GPCD, for a 5-year baseline period, which is used to confirm that the selected 2020 target meets the minimum water use reduction requirements. In other words, the 10-year baseline can be considered the "Baseline GPCD" and the 5-year baseline as the "Target Confirmation". The District selected in their 2010 Plan a 5-year base period beginning in 2003 and ending in 2007 as shown in SB X7-7 **Table 1**.

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<sup>2</sup> Two terms are often used interchangeably; Daily per Capita Water Use and Gallons per Capita per Day (GPCD). Daily per Capita Water Use is the amount of water used per person per day. In the UWMP, this is total water use within a service area, divided by population and is measured in gallons. GPCD is Daily per Capita Water Use measured in gallons. These are different from R-GPCD, which is solely the residential water use divided by population, and is used in drought reporting to the SWRCB.

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	24,279	Acre Feet
	2008 total volume of delivered recycled water	0	Acre Feet
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period <sup>1</sup>	10	Years
	Year beginning baseline period range	1999	
	Year ending baseline period range <sup>2</sup>	2008	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range <sup>3</sup>	2007	
<sup>1</sup> If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled			
<sup>2</sup> The ending year must be between December 31, 2004 and December 31, 2010.			
<sup>3</sup> The ending year must be between December 31, 2007 and December 31, 2010.			
NOTES: Source: PWSS Reports.			

### 5.3 Service Area Population

In order to correctly calculate annual GPCD, agencies must determine the population that they served for each baseline year in both of the baseline periods and for the 2015 compliance year. The Population Tool utilizes U.S. Census year (i.e., 1990, 2000, and 2010) population data and electronic boundary maps of the JCSD service area for each census year (developed by WEBB) to obtain population numbers for census years. Using the number of residential meters (single-family and multifamily residential combined) from the District's annual Public Water System Statistics (PWSS) reports or Annual Reports to the SWRCB, the tool calculates the population for the non-census years as shown in **SB X7-7 Table 3**.

SB X7-7 Table 3: Service Area Population		
Year		Population
10 to 15 Year Baseline Population		
Year 1	1999	49,914
Year 2	2000	50,489
Year 3	2001	54,844
Year 4	2002	63,142
Year 5	2003	70,484
Year 6	2004	82,893
Year 7	2005	90,315
Year 8	2006	97,688
Year 9	2007	101,693
Year 10	2008	103,270
5 Year Baseline Population		
Year 1	2003	70,484
Year 2	2004	82,893
Year 3	2005	90,315
Year 4	2006	97,688
Year 5	2007	101,693
2015 Compliance Year Population		
2015		119,034
NOTES: From Population Tool.		

The DWR Population Tool (**Appendix D**) generated population numbers that are close to the District's expected population in all years. In particular, the 2015 Compliance Year Population of 119,034 is on-par with the official District 2014 population of 118,731 persons described in Chapter 3. Therefore the Tool is used herein for measuring SB X7-7 compliance.

## 5.4 Gross Water Use

Gross water use is a measure of water that enters the distribution system of the supplier over a 12-month period (calendar year) with certain allowable exclusions. These exclusions are:

- Recycled water delivered within the service area;
- Indirect recycled water;
- Water placed into long term storage (surface or groundwater);
- Water conveyed to another urban supplier;
- Water delivered for agricultural use; or
- Process water.

None of the water brought into JCSD's system is used for any of the purposes listed above; one exception is "water conveyed to another supplier" because JCSD does meter pass-through water from the Chino Desalter Authority through its system to Santa Ana River Water Company and the Cities of Norco and Ontario. However, the District does not include this water in its supply source volumes nor does it include it in consumption volumes or billing numbers. Therefore, JCSD does not qualify for the exclusions to its gross water use for SB X7-7 compliance.

Gross water use is reported for each year in the baseline periods as well as 2015, the compliance year. Two versions of **SB X7-7 Table 4-A** are shown below for the District's water sources: one for JCSD's own wells (i.e., "The supplier's own water source"), and the other for water purchased from other sources (i.e., "A purchased or imported source"). This data is kept by JCSD in order to track recorded well production and purchased water (described in Chapter 6).

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)		
Complete one table for each source.		
Name of Source		JCSD Wells
This water source is:		
<input checked="" type="checkbox"/>	The supplier's own water source	
<input type="checkbox"/>	A purchased or imported source	
Baseline Year <i>Fm SB X7-7 Table 3</i>		Rounded Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System		
Year 1	1999	16,233
Year 2	2000	16,746
Year 3	2001	13,905
Year 4	2002	14,562
Year 5	2003	16,811
Year 6	2004	19,991
Year 7	2005	18,913
Year 8	2006	17,836
Year 9	2007	15,761
Year 10	2008	18,559
5 Year Baseline - Water into Distribution System		
Year 1	2003	16,811
Year 2	2004	19,991
Year 3	2005	18,913
Year 4	2006	17,836
Year 5	2007	15,761
2015 Compliance Year - Water into Distribution System		
2015		9,838
* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document		
Source: PWSS reports. Potable and non-potable. (AF)		

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)		
Complete one table for each source.		
Name of Source	Purchased sources	
This water source is:		
<input type="checkbox"/>	The supplier's own water source	
<input checked="" type="checkbox"/>	A purchased or imported source	
Baseline Year <i>Fm SB X7-7 Table 3</i>	Rounded Volume Entering Distribution System	
10 to 15 Year Baseline - Water into Distribution System		
Year 1	1999	0
Year 2	2000	1,960
Year 3	2001	3,646
Year 4	2002	2,923
Year 5	2003	2,982
Year 6	2004	1,323
Year 7	2005	4,981
Year 8	2006	8,639
Year 9	2007	13,087
Year 10	2008	8,028
5 Year Baseline - Water into Distribution System		
Year 1	2003	2,982
Year 2	2004	1,323
Year 3	2005	4,981
Year 4	2006	8,639
Year 5	2007	13,087
2015 Compliance Year - Water into Distribution System		
2015	12,543	
* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document		
Source: PWSS reports. (AF)		

Annual gross water use is then the sum of the two water sources (**SB X7-7 Table 4-A** on the right and **SB X7-7 Table 4-A** on the left) for each year.

As shown in **SB X7-7 Table 4** below, and **Appendix F**, the 10-year baseline average gross water use from 1999 to 2008 is 21,689 AF. Likewise, the 5-year baseline average gross water use is 24,065 AF and the 2015 compliance year gross water use is 22,381 AF.<sup>3</sup> This includes both sources of water to the District; pumping from its own wells (potable and non-potable), and purchases from other sources described in Chapter 6.

<sup>3</sup> Indeed, this volume of water into the distribution system differs from the volume of water supplied shown in **Table 2-1** by approximately 736 AF. This can be explained in-part by system water loss.

<b>SB X7-7 Table 4: Annual Gross Water Use *</b>			
	<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	<b>Volume Into Distribution System</b> <i>Fm SB X7-7 Table(s) 4-A</i>	<b>Annual Gross Water Use</b>
<b>10 to 15 Year Baseline - Gross Water Use</b>			
Year 1	1999	16233	16,233
Year 2	2000	18706	18,706
Year 3	2001	17551	17,551
Year 4	2002	17485	17,485
Year 5	2003	19793	19,793
Year 6	2004	21314	21,314
Year 7	2005	23894	23,894
Year 8	2006	26475	26,475
Year 9	2007	28848	28,848
Year 10	2008	26587	26,587
<b>10 - 15 year baseline average gross water use</b>			<b>21,689</b>
<b>5 Year Baseline - Gross Water Use</b>			
Year 1	2003	19,793	19,793
Year 2	2004	21,314	21,314
Year 3	2005	23,894	23,894
Year 4	2006	26,475	26,475
Year 5	2007	28,848	28,848
<b>5 year baseline average gross water use</b>			<b>24,065</b>
<b>2015 Compliance Year - Gross Water Use</b>			
<b>2015</b>		22,381	22,381
* NOTE that the units of measure must remain consistent			
NOTES: Volume in AF from PWSS/Annual Reports			

## 5.5 Baseline Daily per Capita Water Use

To obtain the GPCD, divide the yearly gross water use by the service area population. As shown on **SB X7-7 Table 5**, the 10-year Average Baseline GPCD is 260 and the 5-year Average Baseline GPCD is 242. The 2015 Compliance Year GPCD of 168 is calculated in the same manner as the 5- and 10-year periods using the total population and total volume of water into the system.

<b>SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)</b>				
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>		<b>Service Area Population</b> <i>Fm SB X7-7 Table 3</i>	<b>Annual Gross Water Use</b> <i>Fm SB X7-7 Table 4</i>	<b>Daily Per Capita Water Use (GPCD)</b>
<b>10 to 15 Year Baseline GPCD</b>				
Year 1	1999	49,914	16,233	290
Year 2	2000	50,489	18,706	331
Year 3	2001	54,844	17,551	286
Year 4	2002	63,142	17,485	247
Year 5	2003	70,484	19,793	251
Year 6	2004	82,893	21,314	230
Year 7	2005	90,315	23,894	236
Year 8	2006	97,688	26,475	242
Year 9	2007	101,693	28,848	253
Year 10	2008	103,270	26,587	230
<b>10-15 Year Average Baseline GPCD</b>				<b>260</b>
<b>5 Year Baseline GPCD</b>				
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>		<b>Service Area Population</b> <i>Fm SB X7-7 Table 3</i>	<b>Gross Water Use</b> <i>Fm SB X7-7 Table 4</i>	<b>Daily Per Capita Water Use</b>
Year 1	2003	70,484	19,793	251
Year 2	2004	82,893	21,314	230
Year 3	2005	90,315	23,894	236
Year 4	2006	97,688	26,475	242
Year 5	2007	101,693	28,848	253
<b>5 Year Average Baseline GPCD</b>				<b>242</b>
<b>2015 Compliance Year GPCD</b>				
<b>2015</b>		119,034	22,381	168
NOTES: Annual Gross Water Use in AF.				

## 5.6 2015 and 2020 Targets

Each water supplier has four different methods to choose from when determining the 2020 Urban Water Use Target; they are:

- Method 1: *80 Percent of 10-Year Baseline GPCD;*
- Method 2: *Efficiency Standards (Indoor Residential Use, Landscaped Area Water Use and Baseline CII Water Use);*
- Method 3: *95 Percent of Hydrologic Regional Target from the 20x2020 Water Conservation Plan, State of California Agency Team, 2010; and*
- Method 4: *Savings by Water Sector.*

According to DWR, Method 1 is the most common while Methods 2 and 4 are the least commonly-used. JCSD chose Method 1 in their 2010 Plan and will continue for this 2015 Plan, as shown in **SB X7-7 Table 7**.

SB X7-7 Table 7: 2020 Target Method		
Target Method		Supporting Documentation
<input checked="" type="checkbox"/>	Method 1	SB X7-7 Table 7A
<input type="checkbox"/>	Method 2	SB X7-7 Tables 7B, 7C, and 7D <i>Contact DWR for these tables</i>
<input type="checkbox"/>	Method 3	SB X7-7 Table 7-E
<input type="checkbox"/>	Method 4	Method 4 Calculator
NOTES:		

**SB X7-7 Table 7-A** is required by retail water suppliers that use Target Method 1. The 2020 Target GPCD of 208 is calculated as 80 percent of the 10-year baseline GPCD shown.

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	2020 Target GPCD
260	208
NOTES:	

**SB X7-7 Table 7-F** illustrates the next step in the process to verify that the 2020 Water Use Target calculated above will reduce the District's 2020 water use by a minimum of 5 percent from the 5-year baseline. This confirmation is automatically calculated in **SBX7-7 Table 7-F**.

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD <i>From SB X7-7 Table 5</i>	Maximum 2020 Target*	Calculated 2020 Target <i>Fm Appropriate Target Table</i>	Confirmed 2020 Target
242	230	208	208
* Maximum 2020 Target is 95% of the 5 Year Baseline GPCD			
NOTES:			

Next, the 2015 Interim Urban Water Use Target is calculated to determine the District's current compliance status as of 2015. The 2015 Interim Target is the value halfway between the 10-year Baseline GPCD of 260 GPCD (from **SB X7-7 Table 5**) and the confirmed 2020 Target of 208 GPCD (**SB X7-7 Table 7**).

As shown in **SB X7-7 Table 8**, JCSD's 2015 Interim Target is 234 GPCD, which was achieved and exceeded based on their 2015 compliance GPCD of 168 as summarized in **Table 5-1**.

<b>SB X7-7 Table 8: 2015 Interim Target GPCD</b>		
Confirmed 2020 Target <i>Fm SB X7-7 Table 7-F</i>	10-15 year Baseline GPCD <i>Fm SB X7-7 Table 5</i>	2015 Interim Target GPCD
208	260	234
NOTES:		

**SB X7-7 Table 9** compares the District's actual 2015 GPCD with the calculated 2015 Interim Target and summarizes that JCSD did achieve their water conservation Target for compliance with SB X7-7.

<b>SB X7-7 Table 9: 2015 Compliance</b>								
Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments <i>(in GPCD)</i>					2015 GPCD <i>(Adjusted if applicable)</i>	Did Supplier Achieve Targeted
		Extraordinary Events	Weather Normalization	Economic Adjustment	TOTAL Adjustments	Adjusted 2015 GPCD		
168	234	0	0	0	0	167.8531783	167.8531783	YES
NOTES:								

JCSD has demonstrated water use reductions above and beyond that which is required by the State's SB X7-7 law. Considering their baseline population growth over the last few years and gross water use, the District must use no more than 208 GPCD as of 2020, and no more than 234 GPCD as of 2015. The District's GPCD for 2015 is 168; therefore, JCSD is well within compliance and certainly projected to meet the water conservation Target for 2020, as summarized in **Table 5-1**.

<b>Table 5-1 Baselines and Targets Summary Retail Agency or Regional Alliance Only</b>					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	1999	2008	260	234	208
5 Year	2003	2007	242		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES:					



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## **CHAPTER 6: SYSTEM SUPPLIES**

JCSD's potable and non-potable water supply primarily consists of groundwater pumped from the Chino Basin, and is supplemented with water from the Riverside-Arlington (Riverside south) Basin. As one of the largest groundwater basins in southern California, the Chino Basin is adjudicated and pumping activities are closely monitored by the Chino Basin Watermaster. A copy of the 1978 Chino Groundwater Basin Judgment is provided in **Appendix G**. The Riverside Basin is also adjudicated by the 1969 Orange County Judgment,<sup>1</sup> which is provided in **Appendix H**. The Riverside Basin pumping rights are further defined in the 1969 Western-San Bernardino Judgment located in **Appendix I**.<sup>2</sup>

Groundwater pumped from some parts of the Chino Basin is impaired by nitrates and TDS concentrations in excess of drinking water standards; however, the Chino Desalter Authority (CDA), the Roger D. Teagarden Ion Exchange Facility (JCSD), and the Wells 17/18 Ion Exchange Facility (JCSD) described below are able to treat this impaired water to potable standards. JCSD is actively involved in the expansion of the CDA facilities to further increase water supply to meet future demands. The District's Water Supply Outlook as of June 7, 2016 is provided in **Appendix J**. The Outlook lists the current sources of pumped water supply, which well is treated, their current production rates, operating status, and whether they have a back-up generator.

JCSD does not rely on imported water, surface water, storm water, or recycled water directly to supplement their water supply. However, all of these sources can, and are, being used by other agencies in the Chino Basin, in particular the Chino Basin Watermaster, to recharge the groundwater basin. Thus, it is important to include these activities in a discussion of JCSD's water supply.

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<sup>1</sup> Orange County Water District vs. City of Chino, et al., Case No. 117628 (i.e. the Orange County Judgment of April 17, 1969).

<sup>2</sup> Western Municipal Water District vs. East San Bernardino County Water District, et al., Case No. 78426 (i.e. the Western-San Bernardino Judgment of April 17, 1969) describes the groundwater pumping rights in the Colton, Riverside, and San Bernardino Area and is administered by the two-person Western-San Bernardino Watermaster.

## 6.1 Purchased or Imported Water

### *Rubidoux Community Services District*

Since 2000, JCSD has purchased water extracted from the Riverside South Groundwater Basin from Rubidoux Community Services District (RCSD, or Rubidoux CSD). In 2014, JCSD finalized an agreement with Rubidoux CSD to allow JCSD to pump potable water from Rubidoux CSD into JCSD's 1110' Pressure Zone via the new Jewel Street Booster Station. In CY 2015, JCSD purchased 2,250 AF from RCSD, and **Table 6A** lists the purchases for the last five years. JCSD assumes future annual purchases of 2,000 AF from RCSD, as shown in **Table 6-9**, which is located at the end of this chapter.

**Table 6A: Purchased Riverside Basin Water from RCSD, 2011-2015**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Volume (AF)</b>	808	702	774	1,062	2,250

Source: JCSD Water Operations Dept.

### *Chino Desalter Authority*

JCSD also purchases water from the Chino Desalter Authority (CDA) through a "take or pay" contract. JCSD is a member of the CDA, a Joint Powers Authority (JPA) created in 2001, along with Santa Ana River Water Company (SARWC), Inland Empire Utilities Agency (IEUA), Western Municipal Water District (WMWD), and the Cities of Chino, Chino Hills, Ontario, and Norco. The stated goals of the CDA include:

- Achieve hydraulic control of the Chino Basin to prevent contaminated Chino Basin groundwater from entering the Santa Ana River;
- Reduce TDS and removal contaminants, including nitrates, TCE, PCE, and TCP, from groundwater in the southern portion of the Chino Basin; and
- Deliver the treated water to member agencies to offset the need for imported water.

As part of the Watermaster's Optimum Basin Management Plan (OBMP) for the Chino Basin, the member agencies of the JPA decided to extract and treat approximately 40,000 AF per year of groundwater from the southern portion of the Basin, treat it to potable water standards, and

deliver it to the member agencies. CDA treats the groundwater with two desalters,<sup>3</sup> known as “Chino I” and “Chino II”. As a member of CDA, JCSD is entitled to 8,200 AF per year from the Chino I and Chino II Desalters. During CY 2015, JCSD purchased 8,616 AF from CDA, and the purchases for the last five years are listed in **Table 6B**. The CDA facilities are currently being expanded to increase treatment capacity by 10,600 AF per year, of which JCSD will receive approximately 3,533 AF per year in addition to the existing contracted amount of 8,200 AF. JCSD assumes future annual purchases of 11,733 AF from CDA beginning in 2017, as shown in **Table 6-9**.

**Table 6B: Purchased Water from CDA, 2011-2015**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Volume (AF)</b>	8,088	8,032	8,642	8,690	8,616

Source: JCSD Water Operations Dept.

### ***Imported Water Supplies***

JCSD has no existing imported water supplies. Development of imported water supplies will require a large financial commitment by JCSD to construct the infrastructure necessary to bring imported water to the JCSD service area. Several potential sources of imported water being considered are:

- State Water Project water purchased from The Metropolitan Water District of Southern California (MWD), purchased off a proposed connection on the Etiwanda or Rialto Feeder (would need the participation of IEUA and WMWD at a minimum);
- Western Municipal Water District Mills Pipeline or La Sierra Pipeline project;
- Construction of a water treatment plant off of MWD’s Upper Feeder to treat water delivered from the Colorado River.

Timing and implementation of any future water development projects is dependent on the reliability of the existing groundwater supply, growth in water demand, and the feasibility and

<sup>3</sup> Each “desalter” is a water treatment plant that uses both reverse osmosis and ion exchange processes to remove total dissolved solids (TDS) and nitrates.

cost of obtaining future water supplies. JCSD has planned to invest \$500,000 a year up to a maximum of \$30 million to develop an imported water source.<sup>4</sup>

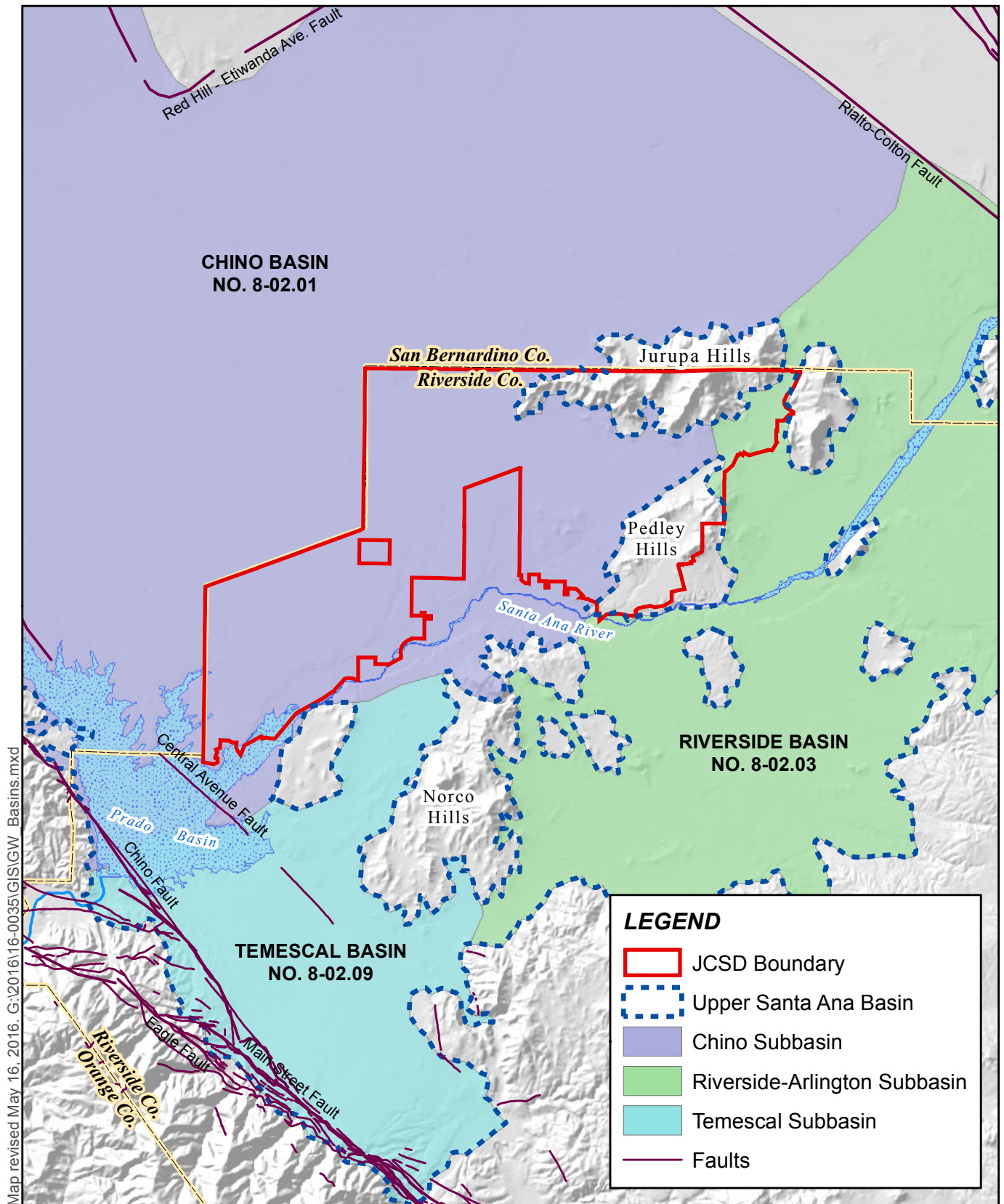
## 6.2 Groundwater

Water supplied within the JCSD service area is entirely from groundwater production. The largest source of groundwater within JCSD's service area is the Chino Groundwater Basin (Chino Basin, No. 8-2.01),<sup>5</sup> which supplies all of the District's potable wells, in addition to CDA's wells. A small portion of JCSD's service area overlies the Riverside Groundwater Basin (No. 8-2.03). The location of the groundwater basins within the District's service area are shown in **Figure 6-1**. The actual groundwater volumes pumped by groundwater basin in the last five years is presented in **Table 6-1**.

Table 6-1 Retail: Groundwater Volume Pumped						
<input 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</i>	Location or Basin Name	2011	2012	2013	2014	2015
<i>Add additional rows as needed</i>						
Alluvial Basin	Chino Basin - potable (No. 8-2.01)	15,174	12,599	16,724	16,249	8993
Alluvial Basin	Chino Basin - non-potable (No. 8-2.01)	324	330	295	343	266
Alluvial Basin	Riverside Basin - non-potable (No. 8-2.03)	509	532	511	484	464
Alluvial Basin	Chino Basin - Non-Adjudicated, non-potable (8-2.01)	0	0	17	135	115
<b>TOTAL</b>		<b>16,007</b>	<b>13,461</b>	<b>17,547</b>	<b>17,211</b>	<b>9,838</b>
NOTES: CY data. Units in acre-feet (AF). Does not include purchased groundwater.						

<sup>4</sup> JCSD Capital Projects Budget FY 16-17 Proposed Budget.

<sup>5</sup> DWR collects, summarizes, and evaluates groundwater data in the "Bulletin 118" series, which present the results of basin evaluations and defines the boundaries of California's 515 alluvial groundwater basins. An update was provided in 2003. In Bulletin 118, DWR identifies each basin and subbasin with a number code.



**Figure 6-1 – Groundwater Basin Map**  
JCSD 2015 Urban Water Management Plan



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### ***Chino Groundwater Basin – Potable Water***

JCSD currently operates 18 potable water wells in the Chino Basin that have a theoretical maximum production rate of 47.6 million gallons per day (MGD or 33,085 gallons per minute, GPM). However, JCSD does not operate its wells at maximum capacity,<sup>6</sup> but rather they fluctuate on and off as demand changes. During CY 2015, JCSD pumped 8,993 AF from its potable wells. The pumped potable water volumes from the last five years are provided in **Table 6-1**.

The Board of Directors of JCSD authorized the construction of two new wells; Well No. 29 and Well No. 30 that are expected to be operational by 2020 and each contribute an additional 2,500 AF per year. Therefore, by 2020 the District's total maximum day groundwater production capacity will be 54.8 MGD (or 38,000 GPM). Construction of these wells will not only contribute additional supply, but also increase redundancy and replacement capacity.

The District operates two ion-exchange plants to denitrify water from several of their wells. The first is the Roger D. Teagarden Ion Exchange Facility which removes nitrates from seven potable wells. The other plant is the Well 17/18 Ion Exchange Facility that removes nitrates from JCSD Well Nos. 17 and 18.

As part of the planning process developing this UWMP, JCSD has taken the position to assume the future pumped volumes from its potable well field will peak at 14,000 AF per year, beginning in 2030, as shown in **Table 6-9**. This level of production aims to minimize a decline in the groundwater table in the vicinity of JCSD's well field.

### ***Chino Groundwater Basin – Non-Potable Water***

JCSD also operates five non-potable wells located in the Chino Groundwater Basin. During CY 2015, JCSD pumped 266 AF from its non-potable Chino Basin wells to serve local park landscape irrigation-only accounts. The pumped non-potable water volumes from the last five years are listed in **Table 6-1**. The District's future non-potable water supply pumped from the Chino Basin is anticipated at 310 AF per year, as shown in **Table 6-9**.

### ***Chino Groundwater Basin (Outside Adjudicated Area) – Non-Potable Water***

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<sup>6</sup> 'Maximum capacity' is considered operating wells 24 hours per day every day of the year.



JCSD also pumps non-potable water from the “Van Leeuwen” well, which is located in the Chino Basin; however it is not within the area adjudicated by the 1978 Chino Basin Judgment, nor within the purview of Chino Basin Watermaster. Water from the Van Leeuwen well is non-potable and has been used for irrigation purposes at the Eastvale Community Park located at 12750 Citrus Street in Eastvale. During CY 2015, JCSD pumped 115 AF of non-potable water from the Van Leeuwen well. The pumped volumes from the last five years are listed in **Table 6-1**. JCSD plans for closure of this well in the near future and expects long-term irrigation of the Park will be supplied with recycled water from Western Riverside County Regional Wastewater Authority (WRCRWA) plant.

### ***Riverside Groundwater Basin – Non-Potable Water***

In addition to the potable and non-potable wells operated by JCSD within the Chino Basin described above, the District also operates two non-potable wells located in the Riverside Groundwater Basin. Water from these wells is used to irrigate Oak Quarry Golf Club located at 7151 Sierra Avenue in Jurupa Valley. During CY 2015, JCSD pumped 464 AF from its non-potable wells in the Riverside Groundwater Basin. The pumped non-potable water volumes from the last five years are listed in **Table 6-1**. The District’s future non-potable water supply pumped from the Chino Basin is anticipated at 450 AF per year, as shown in **Table 6-9**.

## **6.2.1 Basin Description**

### ***Chino Groundwater Basin***

The Chino Groundwater Basin encompasses approximately 240 square miles and is identified in the 2003 Update to the DWR Bulletin 118 as the Chino Subbasin (No. 8.2-01), which is part of the Upper Santa Ana Valley Groundwater Basin (No. 8.2). The Chino Basin is one of the largest groundwater basins in Southern California, with approximately five million AF of water in storage and an unused storage capacity of approximately one million AF. This alluvial groundwater basin formed from the eroded sediments of the San Gabriel Mountains, the Chino Hills, Puente Hills, and the San Bernardino Mountains to fill a structural depression. The water-bearing units in the Chino Basin include the Older Alluvium of Pleistocene and Younger Alluvium of Holocene age. Older Alluvium is exposed mainly in the northern part of the Chino Basin and supplies most of the water to wells. It varies in thickness from about 200 feet thick near the southwestern end of Chino Basin to over 1,100 feet thick southwest of Fontana, and

averages about 500 feet throughout the basin. Pumping capacities of wells completed in the Older Alluvium generally range between 500 and 1,500 gallons per minute (gpm). In the southern part of the basin where sediments tend to be more clayey, wells generally yield 100 to 1,000 gpm. Indeed, wells have been constructed to yield more than 4,000 gpm at favorable locations within the basin (OBMP DYY Modeling Report, 2003).

While still considered a single basin for hydrologic purposes, the Chino Basin can be hydrologically subdivided into at least five flow systems that act as separate and distinct hydrologic units. Each flow system can be considered a management zone (MZ) as shown in **Figure 6-2**. Each management zone has a unique hydrology, and water resource management activities that occur in one management zone have limited impact on the other management zones.

Many parties including farmers, overlying industries, cities, and other water supply entities produce groundwater from the Chino Basin. JCSD has rights to groundwater pumping in the Chino Basin through the adjudication process and by participating in the Chino Desalter Authority.

### ***Chino Basin Water Quality***

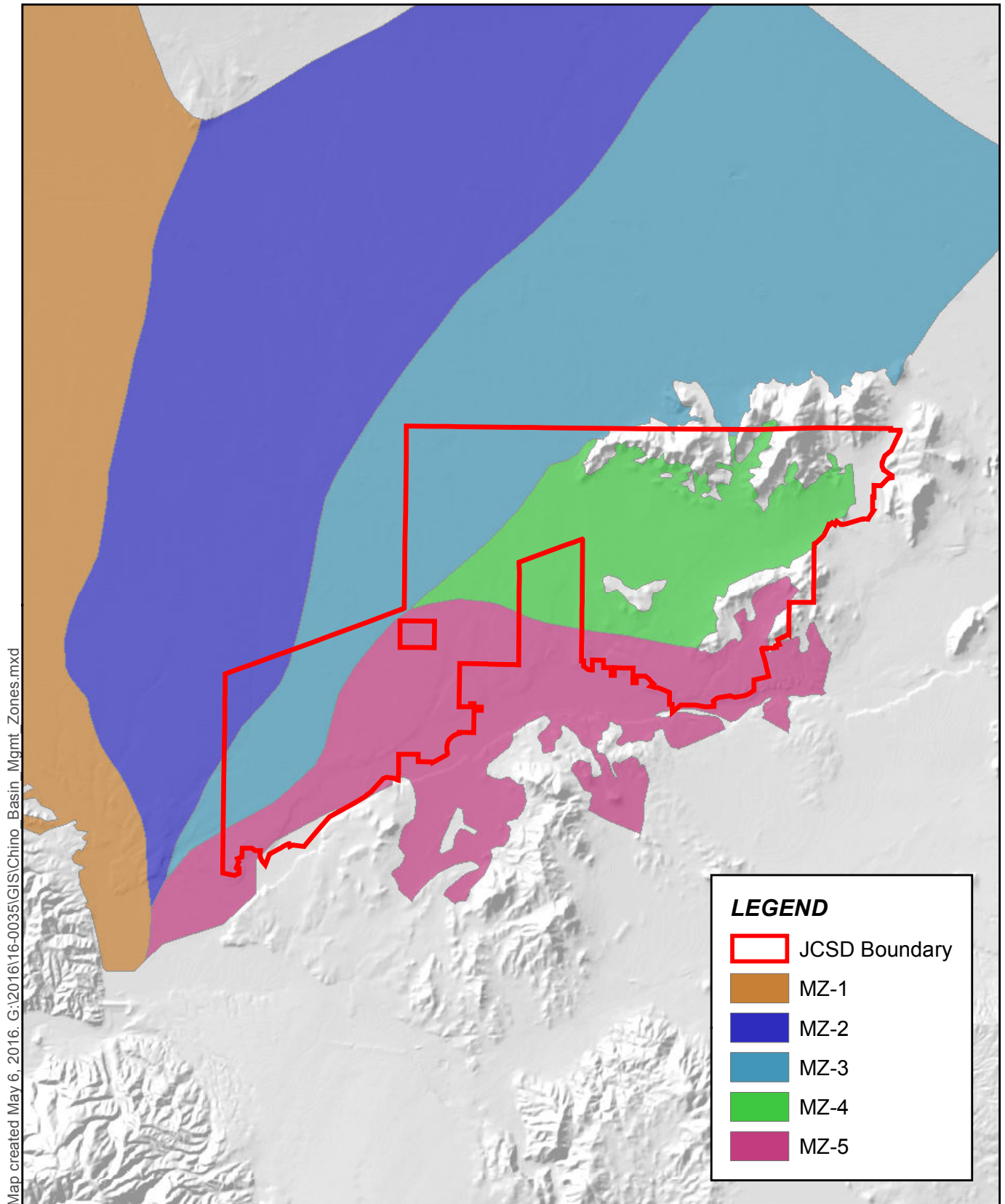
All groundwater pumpers in the Chino Groundwater Basin have to address the issues of elevated nitrates and TDS (discussed in Chapter 6.6). The concentrations of nitrates found in the basin are high enough to correlate with historic overlying land uses such as dairies (OBMP Phase 1, 1999). The California Department of Public Health (DPH) places nitrate into the health risk category of “acute toxicity” wherein a single detection may result in public health concerns. Purveyors of drinking water typically strive to provide customers with drinking water that has a nitrate concentration less than 10 mg/L as nitrogen. The District’s Roger D. Teagarden Ion Exchange facility (18 MGD treatment capacity) and Wells 17/18 Ion Exchange facility (7.2 MGD treatment capacity) remove nitrates from groundwater prior to entering the distribution system.

Since 2005, JCSD has reported that all samples of delivered water have been below the State and Federal MCL<sup>7</sup> of 45 mg/L. This is due to JCSD’s treatment and blending plan within the service area. JCSD has obtained a permit from the California DPH that allows high nitrate water

<sup>7</sup> Maximum Contaminant Levels (MCLs) are standards that are set by the U.S. Environmental Protection Agency for drinking water quality. A MCL is the legal threshold limit on the amount of a substance that is allowed in public water system under the Safe Drinking Water Act. The limit is usually expressed as a concentration in milligrams or micrograms per liter of water.

to be blended with lower nitrate waters. This approach results in a level of nitrate consistently below the MCL. A monthly "Nitrate 980 Blending Report" is produced and posted to JCSD's Web site showing that JCSD maintains concentrations less than 35 mg/L nitrate at the JCSD Blend Points (before the first customers' tap).

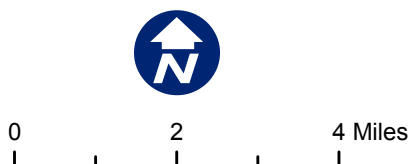
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Source: SAWPA, 2014

**Figure 6-2 – Chino Basin Management Zones**

JCSD 2015 Urban Water Management Plan



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As detailed in the 2014 State of the Basin Report that is published annually as required by the Chino Basin OBMP (Watermaster, June 2015), there are currently 13 groundwater plumes in the larger Chino Basin that are monitored and remediated by various agencies and responsible parties. One of these, the Stringfellow site, is located within the JCSD service area. None of the District's wells have been impacted by the Stringfellow plume, which is located in the Jurupa Hills.<sup>8</sup> In addition, the District makes a conscious effort to ensure none of its future wells interfere with the clean-up efforts at Stringfellow and that a safe distance is always maintained.

### ***Riverside Groundwater Basin***

The Riverside Groundwater Basin is identified by DWR as the Riverside portion of the Riverside-Arlington Sub-basin (No. 8-2.03), which is part of the Upper Santa Ana Valley Groundwater Basin. See **Figure 6-1** for locations of groundwater basins. The Riverside Basin was divided as a result of the 1969 Western-San Bernardino Judgment into the Riverside North (San Bernardino County) and Riverside South (Riverside County), and all of JCSD's non-potable wells in the Riverside Groundwater Basin, are located in the Riverside South Groundwater Basin.

## **6.2.2 Groundwater Management**

DWR implemented the California Statewide Groundwater Elevation Monitoring (CASGEM) Program in response to legislation enacted in California's 2009 Comprehensive Water package. As part of the CASGEM Program and pursuant to the California Water Code (CWC §10933), DWR is required to prioritize California groundwater basins, so as to help identify, evaluate, and determine the need for additional groundwater level monitoring. A DWR spreadsheet summarizing the prioritization grading and results for the Chino Basin and Riverside Basin is provided in **Appendix K**.

### ***Chino Groundwater Basin***

The Chino Basin is designated as a High Priority Basin under CASGEM. The Superior Court of the State of California for the County of San Bernardino adjudicated the Chino Groundwater Basin on January 27, 1978 (**Appendix G**). The principal function of the adjudication is to control

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<sup>8</sup> The Stringfellow facility operated from 1957 to 1968 as a Class I hazardous waste disposal site. Approximately 34 million gallons of toxic waste was disposed there over an area of 9.1 acres (EPA.gov).

the use of the water source in order to ensure the source is utilized in an optimum manner. Operation of the basin is governed by the Judgment and agreement among producers, whereby producers are allotted a “Base Water Right” to a certain amount of the operating “Safe Yield”<sup>9</sup> of the basin. According to the Judgment, participating entities including JCSD, can pump in excess of their allotted “Base Water Right” but must pay a replenishment assessment to the Watermaster to cover the cost to replenish any overdraft caused by the excess pumping. The provisions of the Judgment and the monitoring of the basin are carried out by the court-appointed Chino Basin Watermaster. The Watermaster files an annual report to the court that addresses pumping and replenishment.<sup>10</sup>

The 1978 Judgment grouped Chino Basin property owners into three groups, or “pools” consisting of: the Overlying Agricultural Pool, the Overlying Non-Agricultural Pool, and the Appropriative Pool. JCSD is a member of the Appropriative Pool and therefore has adjudicated production rights to the Chino Basin groundwater. As required by the Judgment, the Watermaster determines each Party’s share of Safe Yield and Operating Safe Yield from year-to-year. The Judgment does not limit a Party’s groundwater production to its share of Safe Yield. JCSD’s portion of Safe Yield is the sum of Base Rights and agricultural land use conversions. Since 2000, JCSD is credited two acre-feet per acre per year of water rights for every acre converted to non-agricultural use within the JCSD service area (Peace I Agreement, 2000).<sup>11</sup> The District’s Base Right is 2,061 AF per year. As of 2014/2015, the water right from the land use conversion program is 12,598 AF per year, for a total production right in the Chino Groundwater Basin of 14,659 AF.

The 1978 Judgment established the Safe Yield of the Chino Basin in the amount of 140,000 AF per year. The Watermaster is conducting a Safe Yield Redetermination, which has been ongoing for several years. Consequently, subject to certain localized physical limitations, any potential reduction in Safe Yield with or without augmenting Basin management measures affects the cost of groundwater production rather than the reliability of groundwater supplies. The Judgment evinces a clear expectation that parties, including JCSD would produce water in excess of their adjudicated production rights; provided, they pay a replenishment assessment. Therefore, JCSD’s ability to produce water from the Basin is thus largely a matter of cost. Water

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<sup>9</sup> The safe yield of a groundwater basin is defined as the amount of water than can be withdrawn annually without producing an undesirable result. Withdrawal in excess of safe yield is termed overdraft.

<sup>10</sup> Reports are available at [www.cbwm.org](http://www.cbwm.org).

<sup>11</sup> Prior to the Peace I Agreement, the appropriator in which the agricultural property was located received 1.3 acre-feet per acre per year of water rights.

produced in excess of production rights will cost more than water produced within a party's production rights. Thus, the quantity and reliability of water supplies is a matter of cost of the water produced from the Basin rather than limitations on JCSD's access to groundwater supply.

As stated previously, the Chino Basin Watermaster is the responsible agency for recharging and preventing overdraft within the Chino Basin. Parties to the Judgment entered into an agreement called the "Peace Agreement" on June 29, 2000, the provisions of which are implemented in the OBMP. In 2000, the Watermaster approved the OBMP, which consists of nine key elements to cover a range of water activity in the basin. Some of the key elements include development and implementation of comprehensive monitoring and recharge programs and establishment of a cooperative program to improve basin management. As part of the OBMP, the Watermaster has a groundwater management program comprised of approximately 1,000 wells. This program measures both groundwater quantity and quality throughout the Chino Basin and can be used to monitor groundwater pumping and to identify pollution sources and problems.

Beginning September 30, 2011, MWD delivery of State Water Project (SWP) water for replenishment of the Chino Basin ended. Therefore two primary sources of recharge are currently pursued by the Watermaster on behalf of the parties to the Judgment: stormwater recharge and recycled water from wastewater treatment plants. In the 2013 Amendment to the 2010 Recharge Master Plan, the Watermaster identified several supplemental sources of water that could be used for recharge activities, including:

- Metropolitan's SWP supplies delivered through Metropolitan facilities, when available;
- Groundwater and surface water supplies in the Santa Ana Watershed that can be supplied to the Chino Basin directly through existing or new conveyance facilities or by exchange;
- Surplus groundwater from the Six Basins area;
- Recycled water from the Western Riverside County Regional Wastewater Authority (WRCRWA) Plant located in the Chino Basin;
- Recycled water from the Rapid Infiltration Extraction Treatment Plant in Colton, from the City of Rialto, from the City of Riverside, and from others;
- Groundwater and surface supplies from the Central Valley, conveyed to the Chino Basin through SWP and Metropolitan facilities, San Bernardino Valley Municipal Water District facilities, and San Gabriel Municipal Water District facilities; and
- Groundwater and surface water supplies from the Colorado River Basin conveyed to the Chino Basin through Metropolitan facilities.



### ***Riverside Groundwater Basin***

The Riverside Basin is designated as a High Priority Basin under CASGEM. The major pumper of this basin is the City of Riverside who has water rights per the Western-San Bernardino Judgment (**Appendix I**).<sup>12</sup> The City of Riverside Public Utilities (RPU) prepared the Riverside Basin Groundwater Management Plan (GWMP) in 2012 through a stakeholder-based groundwater management planning effort with DWR. According to the RPU 2010 UWMP, the average Safe Yield for the Riverside South Basin is 35,100 AF per year, and the Base Right is 29,633 AF per year (RPU GWMP). RPU pumped 13,571 AF of potable and raw water during CY 2015 from the Riverside South Basin (RPU 2015 draft UWMP). In addition, RPU plans to augment natural recharge of the Riverside Basins through a conjunctive use project slated for completion in 2020 (RPU 2015 draft UWMP). RPU's pumping volumes are based on safe yield modeling and calculations for the Riverside North and Riverside South basins.

According to the 2012 RPU GWMP, the projected groundwater production in Riverside South Basin will exceed Base Rights. In addition, the 2012 GWMP identified that Riverside South Basin is projected to be in overdraft in the future. WMWD is responsible for replenishment of the Riverside South Basin should extractions exceed the base period extraction (over a 5-year period), or by more than 20 percent in a single year, unless credits are available from previous years, as specified by the Western-San Bernardino Judgment (RPU 2010 UWMP). RPU participates in independent groundwater level and quality monitoring in the Riverside Basin, and all groundwater production is metered and reported to the Western-San Bernardino Watermaster.

### ***California Statewide Groundwater Elevation Monitoring Program (CASGEM)***

Final Basin Prioritization findings indicate that 127 of California's 515 groundwater basins and sub-basins are High and Medium priority. These basins account for 96 percent of California's annual groundwater pumping and supply 88 percent of the population which resides over groundwater basins. The remaining 388 basins are Low and Very Low priority and comprise 75 percent of the groundwater basins in the State.

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<sup>12</sup> Other entities that exercise rights to pump in Riverside South Basin in addition to JCSD and RPU are, Riverside Highland Water Company, Rubidoux CSD, private wells and others (Table 4.3, RPU GWMP, 2012).

The Chino Basin and the Riverside Basin are ranked as High priority according to the CASGEM program. The CWC (§10933) specifies the eight criteria for prioritization: overlying population, projected growth of overlying population, public supply wells, total number of wells, irrigated acreage overlying the basin, reliance on groundwater as the primary source of water, impacts on groundwater, and any other information determined relevant by DWR staff. DWR then used statewide datasets from the Department of Finance census data, Department of Health, and DWR to grade each component on a scale of 0 to 5. The overall basin ranking is a calculation of the scores for each of the 8 criteria, using the following formula: Overall Basin Ranking = Population + Population Growth + Public Supply Wells + (Total Wells x .75) + Irrigated Acreage + [(Groundwater Use + % of Total Supply)/2] + Impacts + Other information. High priority basins have a grade of more than 21.08 and medium priority basins have a grade between 13.42 and 21.08.

The list of High and Medium priority groundwater basins that are not monitored under the CASGEM program will be provided to State water grant programs. Although CASGEM is a voluntary program, not participating could result in ineligibility for a State water grant or loan. Grant eligibility will be determined by the respective grant program.<sup>13</sup>

### **6.2.3 Overdraft Conditions**

#### ***Chino Groundwater Basin***

Prior to the 1978 adjudication, the Judgment found that the Chino Basin was operating in a continuous state of over-draft. The Judgment in this case found that the safe yield from the Chino Basin is equal to 140,000 AFY. As a party to the adjudication, JCSD's legal right to pump groundwater in the Chino Basin includes amounts in excess of allocated safe yield as described in the Judgment. This can occur when a member of the Chino Basin Agricultural Pool converts property to a non-agricultural use. For every acre converted to non-agricultural use, the appropriator in which the property is located receives two AF per acre per year of water rights (Peace I Agreement, Section 5.3(h), June 2000). Pumping in excess of safe yield can occur because of the OBMP activities under the oversight of the Watermaster that supply groundwater recharge.

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<sup>13</sup> [http://water.ca.gov/groundwater/casgem/basin\\_prioritization.cfm](http://water.ca.gov/groundwater/casgem/basin_prioritization.cfm)

All Watermaster processes are governed by Rules and Regulations and receive active oversight from the Court, which retains continuing jurisdiction over the administration of the Judgment. Consequently, the sufficiency of the groundwater is not only directed by rigorous Watermaster management processes, but validated and ensured by continuing Court oversight.

### ***Riverside Groundwater Basin***

The Riverside Basin is adjudicated by the Western-San Bernardino Judgment as described previously. The Riverside South Basin is not identified by DWR as operating in “critical overdraft” conditions per the Sustainable Groundwater Management Act. The Riverside South Basin, where JCSD pumping occurs, covers approximately 20,000 acres with an estimated storage of 986,000 AF. The majority of pumping and management is done by the City of Riverside who developed a Riverside Groundwater Basin Management Plan in 2012. For the Riverside South Basin, the Western-San Bernardino Judgment set a 5-year Base Period Average and Base Period Extraction of 29,633 AF for use in Riverside County. In Riverside South, should extractions exceed the base period extraction over a 5-year period, or by more than 20 percent in a single year, WMWD is responsible for replenishment in the following year equal to the excess extractions over a 20 percent peaking allowance, unless credits are available from previous years due to production below the base period extraction or to importing water. With the management of the Riverside Basin by RPU and reporting by WMWD to the court-appointed Western-San Bernardino Watermaster, JCSD’s extractions are not anticipated to contribute to overdraft.

### **6.2.4 Historical Groundwater Pumping**

Water agencies that have pumped groundwater at any time during the years 2011-2015 are required to complete **Table 6-1**, which is provided at the beginning of this Chapter. The sufficiency of groundwater pumped by JCSD has been a matter more of cost than of physical supply. Each of the groundwater basins that are tapped by the District’s wells has been analyzed and is expected to have substantial volumes, far more than the volumes pumped by JCSD. In addition, each groundwater basin is adjudicated and monitored by court-appointed Watermasters. The cost to the District to pump the groundwater basins includes not only the cost of deeper wells and larger pumping facilities, but also the cost of desalter and/or denitrification systems, and replenishment assessment to replace water taken in exceedance of safe yield allocations.

### **6.3 Surface Water**

JCSD does not use surface water as part of its supply, nor does it have plans to expand supply sources by using surface water. There are three major creeks that flow through the District's service area; Day Creek, San Sevaine Creek, and Cucamonga Creek that drain towards the south from the San Gabriel mountains to the Santa Ana River. These waterways are concrete-lined and heavily managed by other entities and not a part of JCSD's activities. Surface water quantity and quality is managed and monitored throughout the Chino Basin as a component of the OBMP. The Watermaster and IEUA continually measure the quantity of storm water and supplemental water entering the recharge basins. In addition to these quantity measurements, Watermaster receives water quality information from MWD on SWP imported water (when deliveries are permitted) and from IEUA on recycled water being used for recharge in the Chino Basin.

### **6.4 Stormwater**

Communities are increasingly implementing opportunities to beneficially use storm water to meet local water supply demands. JCSD does not have the authority to manage storm water intentionally to divert for beneficial use, but there are many facilities in the Chino Basin that are performing this task. Groundwater recharge with storm water capture and infiltration (or spreading) basins is an integral part of the Chino Basin Watermaster's OBMP efforts to increase supply and improve groundwater quality. Stormwater recharge in the San Bernardino County portion of the Chino Basin is guided by the Chino Basin Recharge Facilities Operation Procedures (GRCC, 2006) developed by the Groundwater Recharge Coordinating Committee whose members include the Chino Basin Watermaster, Chino Basin Water Conservation District, IEUA, and the San Bernardino Flood Control District. The 2013 Update to the Watermaster's 2010 Recharge Master Plan for the Chino Basin will expand recharge facilities with the first phases due for completion in 2018 (Wildermuth, 2013).

### **6.5 Wastewater and Recycled Water**

JCSD does not currently rely on wastewater or recycled water. However, the District is planning to replace some potable water use with recycled water to meet the demands of future irrigation needs. Utilizing recycled water for irrigation and other non-potable purposes, JCSD can more efficiently allocate its potable water supply and increase the overall reliability of water supplies in the service area. As discussed previously for storm water recharge, recycled water recharge

throughout the Chino Basin is managed by a partnership between IEUA, Chino Basin Watermaster, Chino Basin Water Conservation District, and the San Bernardino County Flood Control District (SBCFCD) under the Chino Basin Recycled Water Groundwater Recharge Program. The recycled water infrastructure consists of a network of pipes that direct stormwater run-off, imported water from SWP, and IEUA recycled water to a network of sixteen recharge sites, most of which contain multiple recharge basins. IEUA annually recharges approximately 10,000 AF of recycled water annually.<sup>14</sup>

### **6.5.1 Recycled Water Coordination**

As discussed in Chapter 4, the future water demand in the JCSD service area will increase as development continues; thus, JCSD recognizes that recycled water as a source of non-potable water could be an important and reliable source. The use of recycled water has been gaining wide support in the JCSD area, where there are irrigation, commercial, landscapes, and industrial customers that could convert some or most of their water use to recycled water. JCSD has been exploring potential non-potable water sources not only to supplement the water supply portfolio but also to convert some of the existing irrigation pumping that is currently met by potable supplies.

JCSD is the responsible agency for collecting, treating, and discharging of municipal wastewater generated within its service area. Wastewater collected by JCSD is treated at three regional wastewater treatment plants:

- City of Riverside Regional Water Quality Control Plant (RWQCP);
- Orange County Sanitation District via the Inland Empire Brine Line (IEBL); and
- Western Riverside County Regional Wastewater Authority's Wastewater Treatment Plant (WRCRWA).

City of Riverside RWQCP provides recycled water for irrigation of 41 acres at the Van Buren Golf Center, 10 acres of Van Buren Blvd. median and frontage, and industrial use at the Toro Manufacturing Company. WRCRWA and the IEBL do not currently provide recycled water. JCSD has worked with IEUA to submit a grant application to fund a recycled water program for

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<sup>14</sup> IEUA Website: <http://www.ieua.org/water-sources/groundwater/>

the Eastvale area. At this time, implementation of proposed recycled water projects is pending funding availability.

## 6.5.2 Wastewater Collection, Treatment, and Disposal

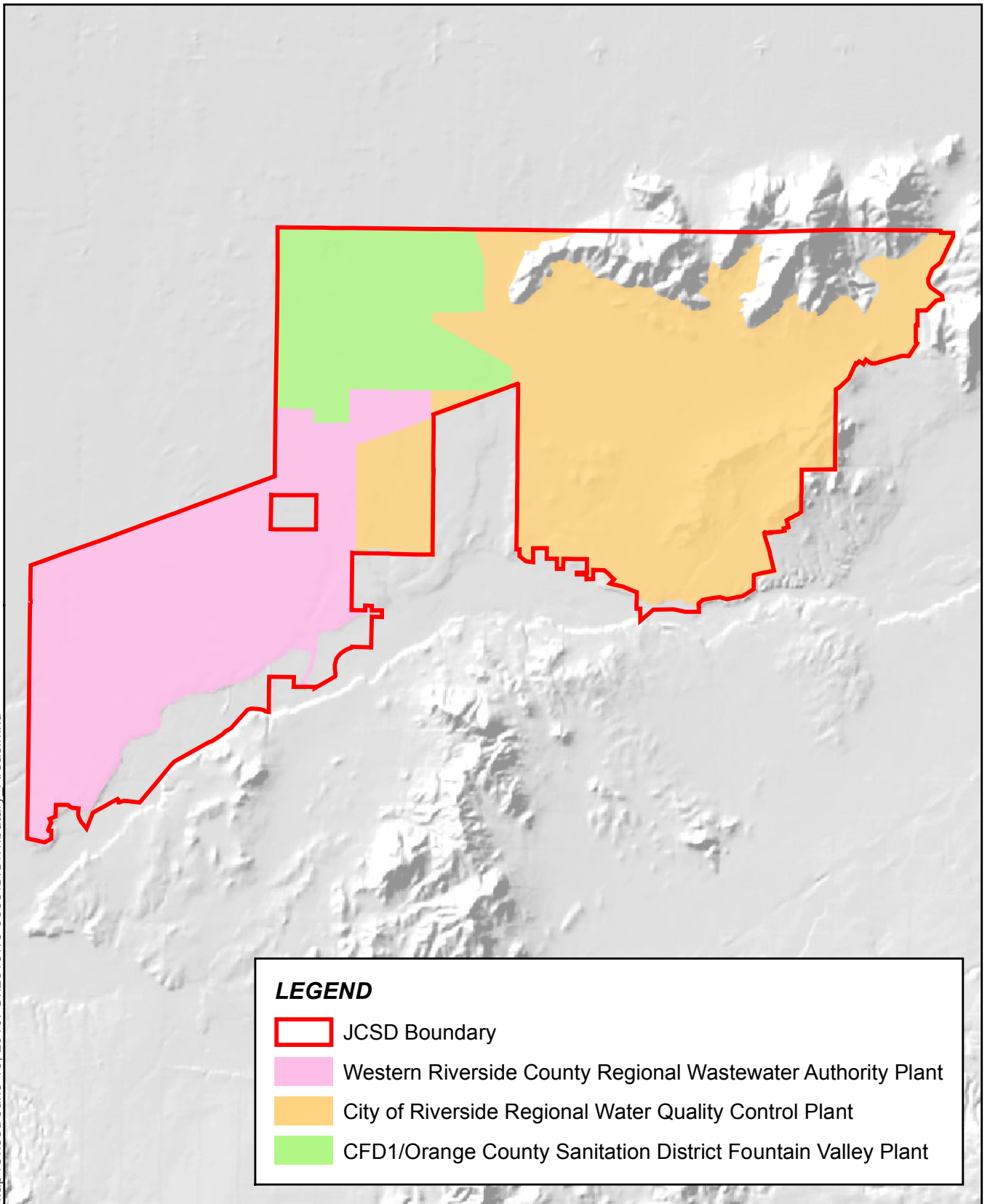
JCSD's sewer system is centered on the regional approach to treatment as a cost-effective way to treat wastewater. JCSD has over 387 miles of collection pipelines and the vast majority of flow is collected and transmitted by gravity flow. For situations where gravity flow was unattainable, pressure systems were utilized with lift stations and pumps. JCSD delivers wastewater to two treatment plants and a regional brine line from three independent sewer systems (**Figure 6-3**). First, the JCSD Regional Lift Station pumps wastewater to the City of Riverside RWQCP. Second, the Community Facilities District (CFD) No. 1 wastewater system discharges into the Inland Empire Brine Line (IEBL)<sup>15</sup> for treatment by the Orange County Sanitation District, which has higher salt limits because it is an ocean discharge. Finally, the Eastvale area discharges to the River Road Lift Station, which pumps the wastewater to WRCRWA. JCSD is a member of the WRCRWA Joint Powers Authority (JPA) and has a capacity right to the plant, as well as capacity rights to the RWQCP, as summarized below in **Table 6C**.

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<sup>15</sup> Formerly known as the Santa Ana River Interceptor (SARI) System.

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Map revised June 15, 2016. G:\2016\16-0035\GIS\Tributary Areas.mxd



**Figure 6-3 – Treatment Plant Tributary Areas**  
JCSD 2015 Urban Water Management Plan



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**Table 6C: Information for Treatment Plants that Serve JCSD**

	<b>City of Riverside RWQCP</b>	<b>WRCRWA</b>	<b>IEBL &amp; Orange County Sanitation District</b>
<b>Operator:</b>	City of Riverside	WMWD	Santa Ana Watershed Project Authority (SAWPA)
<b>Service Provided:</b>	Primary, secondary and tertiary treatment. Meets all Title 22 requirements for recycled water.	Primary, secondary and tertiary treatment. Meets all Title 22 requirements for recycled water.	Conveys brine from Upper Santa Ana River Watershed sources to treatment in Orange County and discharge to ocean.
<b>Volume JCSD Contributes*:</b>	3 MGD	3.5 MGD	0.85 MGD
<b>JCSD Capacity Right:</b>	5 MGD	3.25 MGD	3.493 MGD for IEBL conveyance, 0.94 MGD in OCSD treatment plant.
<b>JCSD Projected Build-Out Contribution:</b>	4.9 MGD	6 MGD	Not yet known. Ample space available.
<b>Current Volume Treated from all Sources:</b>	29 MGD	6 MGD	9.8 MGD***
<b>Current Maximum Permitted Capacity:</b>	40 MGD	8 MGD	17 MGD***
<b>Upgradable Potential Capacity:</b>	46 MGD**	14 MGD**	JCSD in process to purchase 0.215 MGD of additional treatment capacity. SAWPA has the ability to purchase up to 30 MGD of capacity rights from OCSD.

\*Average of most recent 12 months of information available (October 2014-September 2015).

\*\*Currently under construction to reach this treatment capacity, completion expected in 2017.

\*\*\* Source: SAWPA staff, 5/11/16.

The City of Riverside RWQCP and WRCRWA have tertiary treatment facilities and both discharge the tertiary-treated effluent into the Santa Ana River. IEBL is treated by Orange County Sanitation District and discharged to the Pacific Ocean. Information on collection of wastewater within the service area is summarized in **Table 6-2**.

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
<input type="checkbox"/>	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2015 service area covered by wastewater collection system <i>(optional)</i>					
	Percentage of 2015 service area population covered by wastewater collection system <i>(optional)</i>					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected in 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i> <i>Drop Down List</i>
Add additional rows as needed						
JCSD - WRCRWA	Metered	3,890	Western Riverside County Regional Wastewater Authority (WRCRWA)	Western Riverside County Regional Wastewater Authority Treatment Plant	Yes	Yes
JCSD - Riverside	Metered	3,293	City of Riverside	Regional Water Quality Control Plant	No	No
JCSD - Brine Line	Metered	898	Santa Ana Watershed Project Authority	Orange County Sanitation District	No	Yes
Total Wastewater Collected from		8,081				
NOTES: Volume in AF. Brine Line wastewater is non-reclaimable. Riverside RWQCP is not technically in the JCSD Service Area, but on the border.						

JCSD staff estimate that approximately 1,500 customers are equipped with private septic tanks instead of connecting to the JCSD sewer system. The volume of treated wastewater either recycled or disposed of within (and outside of) the JCSD service area is provided in **Table 6-3**.

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015										
<input type="checkbox"/>	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.									
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number <i>(optional)</i>	Method of Disposal  <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level  <i>Drop down list</i>	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
Western Riverside County Regional Water Authority Treatment Plant	Santa Ana River	Santa Ana River		River or creek outfall	Yes	Tertiary	6,949	6,949	0	0
Riverside Regional Water Quality Control Plant	Santa Ana River	Santa Ana River		River or creek outfall	Yes	Advanced	29,516	29,392	0	124
Total							36,465	36,341	0	124
NOTES: Volume in AF. Riverside WQCP is on the border of our service area and recycled water pipes are installed in Van Buren Bridge, but are not connected.										

### 6.5.3 Recycled Water System

As defined in CWC §13050(n), recycled water means, "...water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur

and is therefore considered a valuable resource.” JCSD does not operate nor participate in a recycled water system at this time. However, the District is in the process of developing a recycled water system that will deliver irrigation water to parks and playgrounds in the Eastvale area utilizing a portion of the recycled water entitled to the District from the WRCRWA treatment plant. JCSD has also taken great effort recently to partner with IEUA who does operate a recycled water system adjacent to JCSD. The partnership has resulted in a grant application titled, “Joint IEUA-JCSD Recycled Water Intertie Project” to the SWRCB Proposition 1 Grant and State Revolving Fund Loan (CWSRF Project No. 8167-110).

#### **6.5.4 Recycled Water Beneficial Uses**

The definition of recycled water includes the term “direct beneficial use”, which is defined in CCR, Title 22, §60301.200 as “the use of recycled water that has been transported from the point of treatment or production to the point of use without an intervening discharge to waters of the State.” JCSD does not currently operate nor participate in a recycled water system and therefore cannot provide recycled water beneficial use information for recycled water delivered within the service area. In the future as recycled water use becomes a reality for JCSD, beneficial uses<sup>16</sup> could include:

- Landscape irrigation (excluding golf courses);
- Golf course irrigation;
- Commercial use;
- Industrial use; and
- Groundwater recharge.

Future recycled water use is expected to become available by 2020, as shown in **Table 6-4**. At such time that recycled water becomes part of JCSD’s supply portfolio, the District expects to see an equal decrease in potable water that was previously used for irrigation purposes.

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<sup>16</sup> The different types of beneficial uses are listed in CWC §10633(d).

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area									
<input type="checkbox"/>		Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.							
Name of Agency Producing (Treating) the Recycled Water:			Western Riverside County Regional Wastewater Authority (WR						
Name of Agency Operating the Recycled Water Distribution System:			Inland Empire Utilities Agency (IEUA)						
Supplemental Water Added in 2015			0						
Source of 2015 Supplemental Water			0						
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	2015	2020	2025	2030	2035	2040 (opt)	
<i>These are the only Use Types that will be recognized by</i> <i>Drop down list</i>									
Agricultural irrigation									
Landscape irrigation (excludes golf courses)	no recycled water use in 2015	Tertiary	0	500	500	500	500	500	500
Golf course irrigation									
Commercial use									
Industrial use									
Geothermal and other energy production									
Seawater intrusion barrier									
Recreational impoundment									
Wetlands or wildlife habitat									
Groundwater recharge (IPR)									
Surface water augmentation (IPR)									
Direct potable reuse									
Other	Type of Use								
			<b>Total:</b>	0	500	500	500	500	500
IPR - Indirect Potable Reuse									
NOTES: Volumes in AF. Future landscape irrigation using recycled water from the Joint IEUA-JCSD Recycled Water Intertie Project.									

The 2015 UWMP must provide a description of the actual use of recycled water in comparison to recycled water use previously projected in the 2010 UWMP. **Table 6-5** provides the required information. Table 4-10 of the District's 2010 UWMP projected that up to 500 AF per year of recycled water would be available from the WRCRWA plant for JCSD irrigation purposes. Work is still ongoing to achieve this goal and recycled water is expected for JCSD by 2020.

**Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual**

□	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.	
Use Type <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>	2010 Projection for 2015	2015 actual use
Agricultural irrigation		
Landscape irrigation (excludes golf courses)	500	0
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Surface water augmentation (IPR)		
Direct potable reuse		
Other	Required for this use	
<b>Total</b>		0
NOTES: From Table 4-10 of the 2010 UWMP.		

### 6.5.5 Actions to Encourage and Optimize Future Recycled Water Use

JCSD has been involved with public outreach and coordinating with local entities, local water agencies, regional wastewater agencies, and other planning agencies to discuss the feasibility of using recycled water in lieu of potable or non-potable groundwater that is currently used for irrigation. In this Plan, it is projected that some level of recycled water use may potentially result from these ongoing efforts. This regional planning and coordination effort should continue to the extent possible as a project develops toward implementation. Funding availability, securing grant funding, and financial incentives are among the factors that will play a big role in the future implementation of recommended recycled water projects. JCSD has completed detailed evaluations of potential alternatives and projects to use recycled water, but implementation of such alternatives, at this time, is pending funding availability, given the high estimated project costs and high unit cost of water when compared to JCSD's current unit cost of potable and non-potable groundwater. State and federal funding, if available, could offset the cost imposed during project construction which typically makes the project cost-prohibitive. Obtaining funding can also help build community support for a project because it results in reduced taxpayer contribution.

Production of recycled water from the existing regional wastewater treatment plants is anticipated to be adequate to meet the non-potable irrigation demands for JCSD. As potable water demands increase and, consequently, recycled water production increases, treated effluent to meet non-potable demands would also increase. As described earlier, JCSD has completed studies to identify both existing and future potential non-potable demands that could be potentially supplied by non-potable sources, thus, freeing up potable supplies currently used to meet portion of irrigation demands.

The expected increase in recycled water (and subsequent decrease in potable and non-potable water demand) if the District's grant application is approved by DWR is provided in **Table 6-6**.

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
<input type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
<i>Add additional rows as needed</i>			
Joint IEUA-JCSD Recycled Water Intertie Project (CWSRF Project No. 8167-110)	To use 500 AFY recycled water for irrigating parks, playgrounds and other landscaped areas in JCSD boundary. Also to replace current irrigation source of recycled water so that 1500 AFY more can be put in spreading basins.	2020	2,000
<b>Total</b>			<b>2,000</b>
NOTES: Project is pending grant funding. Volume in AF.			

## 6.6 Desalinated Water Opportunities

The Chino Basin has several areas of elevated concentrations of nitrate and TDS resulting from dairy and agricultural activities. As stated previously, JCSD is a member of the Chino Desalter Authority (CDA), a joint exercise of powers agency created in 2001. CDA owns and operates two desalters, Chino I and Chino II, which pump and treat approximately 28,000 AFY.<sup>17</sup> These facilities include groundwater extraction wells, pumps and pipelines that extract and pump water to the desalters for pretreatment, filtration, air stripping of volatile organic compounds, ion exchange for nitrate removal, reverse osmosis for salt removal, and disinfection to produce high

<sup>17</sup> From Space Center Water Supply Assessment prepared for JCSD (WEBB(c), July 2015).

quality drinking water. JCSD will continue participating in the CDA and support future expansions.

Salinity measured in the form of TDS and nitrate (discussed previously) in the Chino Basin are the greatest concerns for water quality. The southern part of the basin has the highest measured TDS levels exceeding 500 milligrams per liter (mg/L). These levels are above the recommended secondary MCL of 500 mg/L. TDS is not considered a public health risk but rather relates to the aesthetic quality of water. Depending on the location and water usage, TDS can contribute to the corrosion of metal surfaces or have deleterious effects on sensitive crops. Taste however, is the driving force behind the secondary MCLs from the state.

## **6.7 Conjunctive Use, Exchanges or Transfers**

JCSD participates in a conjunctive use program called the Dry Year Yield (DYY) Storage Program. The DYY program is a cooperative conjunctive use effort involving MWD, IEUA, Chino Basin Watermaster, Three Valleys Municipal Water District (TVMWD) and Chino Basin groundwater producers.<sup>18</sup> Under this Program, MWD is allowed to store up to 100,000 AF per year of SWP water in the Chino Basin when surplus water is available during wet years, and to reduce imported water deliveries up to 33,000 AF per year during dry, drought, or emergency periods. The DYY program provides MWD the right to store groundwater in the basin, as a hedge against drought, in exchange for paying the costs of developing the facilities that deliver that water. This program has now completed a full cycle, with Chino Basin benefiting from those facilities, and by MWD received approximately 100,000 AF of supplies.

JCSD entered into a Local Agency Agreement on January 12, 2004 with the City of Ontario because Ontario has a direct connection with imported water from MWD at the Water Facilities Authority treatment plant in Upland. When MWD makes a “call” for its stored water, the participating agencies will produce up to 33,000 AF per year (i.e. Dry Year Yield) from MWD’s “storage account.” In exchange, MWD will provide agencies an Operation and Maintenance credit per AF for the cost of pumping. During “wet years” or “non-call” years, Ontario will increase MWD deliveries, which JCSD will purchase from Ontario and becomes part of JCSD’s supply in the form of Ontario’s portion of CDA water. Up to 2,000 AF over 12 months is anticipated. During a “call year”, Ontario will stop deliveries to JCSD to meet the performance

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<sup>18</sup> Information on the Dry Year Yield Program is available at the Chino Basin Watermaster Web site, [http://cbwm.org/rep\\_engineering.htm](http://cbwm.org/rep_engineering.htm).



requirements of the program. JCSD will stop receiving Ontario's portion of CDA water and return to District well supply to meet demand. This program provides JCSD an indirect access, through City of Ontario facilities, to imported water.

## 6.8 Future Water Projects

Expected future water supply projects or programs that will have a quantifiable increase in water supply to JCSD, and can reasonably be expected to be implemented within the 20-year time frame of the UWMP are summarized in **Table 6-7**. Wells No. 29 and 30 have been authorized by the JCSD Board of Directors and are expected to be brought online by 2020. Approximately 2,500 AF per year of potable water supply is expected from each well.

Table 6-7 Retail: 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 checked="" 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 other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency
	Drop Down List (y/n)	If Yes, Agency Name				
Add additional rows as needed						
Well No. 29	No			2019	Average Year	2,500
Well No. 30	No			2020	Average Year	2,500
NOTES: Volume in AF.						

NOTES: Volume in AF.

Other future water supply projects may result from a JCSD partnership with WMWD to connect with the Mills Pipeline or La Sierra Pipeline projects. Both projects would directly connect imported water supplies with the District.

## 6.9 Summary of Existing and Planned Sources of Water

The actual source and volume of water pumped or purchased by JCSD during CY 2015 is provided in **Table 6-8**.

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
<b>Drop down list</b> <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 <i>(optional)</i>
Add additional rows as needed				
Purchased or Imported Water	CDA Chino I and Chino II Desalters (Chino Basin)	8,616	Drinking Water	
Groundwater	Chino Basin - potable wells	8,993	Drinking Water	
Groundwater	Chino Basin - non-potable wells	266	Raw Water	
Groundwater	Riverside South Basin - non-potable wells	464	Raw Water	
Other	Conjunctive Use Program. Ontario Dry-Year Yield deliveries from Chino Basin (desalter).	1,677	Drinking Water	
Purchased or Imported Water	Riverside Basin (Rubidoux CSD)	2,250	Drinking Water	
Groundwater	Chino Basin - Not Adjudicated. (Van Leeuwen well)	115	Raw Water	
Total		22,381		0
NOTES: CY 2015 data. Units in AF. Source: JCSD Water Operations.				

According to information reasonably available to JCSD during preparation of this UWMP, **Table 6-9** provides projected water supplies by source.

Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply									
<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</i>		2020		2025		2030		2035		2040 (opt)	
		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)
Add additional rows as needed											
Purchased or Imported Water	Western Municipal Water District	5,000		7,500		10,000		10,000		10,000	
Other	Dry Year Yield conjunctive use agreement with City of Ontario	2,000		2,000		2,000		2,000		2,000	
Purchased or Imported Water	Rubidoux CSD (Riverside Basin)	2,000		2,000		2,000		2,000		2,000	
Groundwater	Current potable wells (Chino Basin)	10,000		12,000		14,000		14,000		14,000	
Purchased or Imported Water	Chino Desalter Authority (Chino Basin)	11,733		11,733		11,733		11,733		11,733	
Recycled Water	WRCRWA plant	500		500		500		500		500	
Groundwater	Non-Potable from Riverside Basin	450		450		450		450		450	
Groundwater	Non-Potable from Chino Basin	310		310		310		310		310	
Groundwater	Non-Potable (Van Leeuwen)	0		0		0		0		0	
Total		31,993	0	36,493	0	40,993	0	40,993	0	40,993	0
NOTES: Volumes in AF provided by JCSD.											

Items of note from Table 6-9 include the addition of purchased water from WMWD beginning in 2020. Notably, the water supply volumes projected in Table 6-9 are much higher than the water demand volumes projected in Table 4-2 (Chapter 4). Projected water supply needs to exceed projected demand in order to meet maximum day water demand which is approximately 2.7 times average day water demand.

## **CHAPTER 7: WATER SUPPLY RELIABILITY ASSESSMENT**

Assessment of water supply reliability is complex and dependent upon a number of factors, such as the number of water sources, regulatory and legal constraints, climate change, and expected growth, among others. JCSD provides in this chapter its best determination of the long term reliability of their water supplies based upon what is known by the District at the time the 2015 UWMP was prepared. Shorter term reliability planning is addressed in Chapter 8, Water Shortage Contingency Planning.

JCSD's primary source of potable water is local groundwater from the Chino Groundwater Basin, which is pumped from wells located throughout the JCSD service area. JCSD also pumps non-potable groundwater from the Chino Basin and the Riverside (south) Basin. In addition to these groundwater sources, JCSD also purchases potable water from Rubidoux CSD. JCSD is a member of the Chino Desalter Authority (CDA), a Joint Powers Authority, which allows them to obtain Chino Basin groundwater treated by the Chino I and Chino II Desalters. Lastly, the District is partner to a conjunctive-use program with the City of Ontario for an indirect connection to MWD (DYY program). This diverse portfolio provides JCSD with a relatively stable and reliable water supply, even when environmental conditions are exceptionally dry. To ensure reliability in the future, the District intends to further diversify its supplies by partnering with the local wholesale supplier, Western Municipal Water District (WMWD) to obtain a direct connection to an imported water supply.

### **7.1 Constraints on Water Sources**

JCSD relies predominantly upon groundwater supplies. Therefore JCSD could be constrained in the future by physical, financial, or legal limitations that are dependent upon a wide variety of unknown future scenarios. As described in Chapter 6, the District intends to pursue a partnership with the local wholesale supplier, WMWD, in order to diversify its supply portfolio, and to avoid risks related to prolonged drought or decreasing groundwater levels. In addition, JCSD is pursuing State grant funds (described in Chapter 6) to bring recycled water from the WRCRWA plant into the District's service area for landscape irrigation and additional recharge water to the Chino Basin. Otherwise, JCSD does not foresee nor is it preparing for other potential constraints on water sources.

A physical constraint to the groundwater resources utilized by JCSD could result from inadequate recharge of the basin. In the event the Watermaster (and partner agencies) are unable to install enough storm water recharge basins, or possibly less rain falls in the basin (from continuing drought or climate change), groundwater levels may continue to decline. Likewise, if a legal constraint limits recycled water from being used for recharge in the Chino Basin then all users of the groundwater basin might be impacted. A possible response by JCSD to the potential further decline in groundwater levels might include higher costs to JCSD as a result of increased energy usage to pump groundwater. Higher costs to the District may also include additional wells that may be located where groundwater is not potable; therefore additional treatment facilities could be required. Another constraint in terms of cost would arise if the Watermaster were to increase the Chino Basin replenishment assessment price and/or reduce the District's safe yield allocation.

### ***Water Quality Impacts on Reliability and Planned Management Strategies***

Three factors can affect the availability of groundwater: 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 known contamination, or provisions for treatment in the event of contamination. The first two of those factors are addressed in Chapter 6. The third factor, the impact and resolution of contamination, is being addressed for the Chino Basin as follows.

First, JCSD does provide water quality treatment of several of its wells for denitrification (remove nitrates) as described in Chapter 6. As discussed previously, groundwater in the Chino Basin may require removal of various constituents such as nitrates and TDS. In addition, there are areas of contamination that are to be avoided such as the Stringfellow site. The District may construct additional treatment facilities in the future it deems necessary to provide additional potable water supply.

Second, JCSD is partner to and recipient of groundwater treated by the CDA Chino I and Chino II desalters (reverse osmosis and ion exchange), which remove both TDS and nitrates from Chino Basin groundwater. A copy of JCSD's 2014 Consumer Confidence Report (CCR) is provided in **Appendix L**. These annual reports summarize the weekly, monthly, and quarterly sampling and analysis of all drinking water supplies that are required by the State. As shown on the CCR, JCSD is divided into three areas depending on the source of water. Area 1 is supplied

by water from the Chino I Desalter and supplemented from Area 2. Area 2 is supplied from the Teagarden Ion Exchange plant, the Chino II Desalter and additional wells. Area 3 is supplied primarily from Area 2 sources, occasionally from Area 1 during low water use periods, and supplemented from Rubidoux CSD purchases.

The Chino Basin Watermaster has identified three management practices to ensure water quality does not impact the reliability of groundwater supply. These are: minimizing agricultural activities, desalting the groundwater, and maximizing the storm water recharge of the Basin (JCSD UWMP, 2010). Agricultural activities have decreased as a result of urbanization according to approved city and county land use plans, and recharge basins continue to obtain maximum infiltration from storm water and urban runoff. Continued implementation of these efforts is expected to provide sustainable groundwater supplies from the Chino Basin.

## 7.2 Reliability by Type of Year

JCSD has various sources of water supplies available to meet demands during normal, single-dry, and multiple-dry years. Notably, the District has had sufficient supplies during the ongoing drought, of which the State is in the fourth year. JCSD assumes 2004 as its “Normal<sup>1</sup> Water Year”, 1977 as its “Single Dry<sup>2</sup> Year” and 2012-2015 as its “Multiple-Dry<sup>3</sup> Water Years”. The Normal and Single Dry years were established in the 2010 UWMP and will be continued as the assumption herein. However, the District has updated its Multiple-Dry years to 2012-2015 because the rainfall amounts are less than the previous dry year period used in the 2010 UWMP of 1990-1992.

As shown in **Table 7-1**, JCSD expects 100% of its supply to be available in all year types. Since the District’s supply source is groundwater, and in particular knowing the Chino Basin has five million AF of water in storage, providing water during drought conditions would result in increased pumping costs (discussed in Chapter 6). JCSD does not operate its groundwater wells at full capacity (refer to **Appendix J**). Therefore, it can be assumed if drought conditions persisted or worsened, groundwater pumping could increase to continue meeting water demands. On the other hand, water conservation efforts have been significant over the past few years (Chapter 9). Additional drought regulations on water end-use, as described in Chapter 8,

<sup>1</sup> A year, or an averaged range of years, that most closely represents the average water supply available to the agency. The UWMP Act uses the term “normal”.

<sup>2</sup> The single-dry year is the year that represents the lowest water supply available to the agency.

<sup>3</sup> The multiple dry year period that represents the lowest average water supply availability to the agency for a consecutive multiple year period (three years or more).

could further decrease water demands and ensure that existing supplies could meet future demands even if drought conditions persist.

Table 7-1 Retail: Basis of Water Year Data			
Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both	
		Volume Available	% of Average Supply
Average Year	2004		100%
Single-Dry Year	1977		100%
Multiple-Dry Years 1st Year	2012		100%
Multiple-Dry Years 2nd Year	2013		100%
Multiple-Dry Years 3rd Year	2014		100%
Multiple-Dry Years 4th Year <i>Optional</i>	2015		100%

\*Agencies with different water sources that each may have a different hydrology, resulting in different base years for each source should complete Table 7-1 for each source. The hydrology does not differ between JCSD's sources.

### 7.3 Supply and Demand Assessment

Per CWC §10635(a), "Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry years. This water supply and demand assessment shall compare the total water supply sources available to the water suppliers with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years."

JCSD water demands are discussed in Chapter 4 and projections during a Normal Year are provided in Table 4-3. JCSD water supplies are presented in Chapter 6 and projections during a Normal Year are provided in Table 6-9. The Normal Year supply and demand projections are compared in **Table 7-2**.

<b>Table 7-2 Retail: Normal Year Supply and Demand Comparison</b>					
	2020	2025	2030	2035	2040 (Opt)
Supply totals (autofill from Table 6-9)	31,993	36,493	40,993	40,993	40,993
Demand totals (autofill from Table 4-3)	25,477	28,088	30,968	34,151	37,670
Difference	6,516	8,405	10,025	6,842	3,323
NOTES:					

During Normal Years, with the addition of an imported source from WMWD, the District has sufficient supply and groundwater pumping capacity to meet maximum day water demands<sup>4</sup> to the year 2040.

The Single Dry Year supply and demand comparisons are provided in **Table 7-3**. In this scenario, the District assumes the same supply volumes from the Normal Year will be available and projected demand volumes will also remain the same. A surplus of water supply continues through 2040 (build-out). JCSD expects by 2020 that recycled water will meet some of the irrigation water demand, thus making available several hundred acre-feet of groundwater potentially.

<b>Table 7-3 Retail: Single Dry Year Supply and Demand Comparison</b>					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	31,993	36,493	40,993	40,993	40,993
Demand totals	25,477	28,088	30,968	34,151	37,670
Difference	6,516	8,405	10,025	6,842	3,323
NOTES: Assumes no change in supply or demand projections.					

The Multiple Dry Year supply and demand comparisons are provided in **Table 7-4**. During the first dry year, JCSD assumes no change in projected demand (same demand totals from Table 7-3). During the second dry year, JCSD assumes a decrease in water use of 5%, using the first year as a baseline. During the third year, JCSD assumes a 10% decrease in demand in response to water conservation efforts, measured from the first year as the baseline. Lastly during the fourth dry year, the District assumes a 20% decrease in demand, as measured from the first year baseline. This demonstrates the expected time-lag between the first dry year until

<sup>4</sup> Maximum Day Demand (MDD) is calculated as 2.7 times Average Day Demand (ADD). Peak Hour Demand is 1.5 times MDD, or 4.05 times ADD.



water conservation efforts start to show an impact in water use. A multiple dry year decrease in demand of 20 percent has been demonstrated by JCSD, which has reduced water production by 23 percent since 2013, according to Annual Reports of production volumes to the SWRCB.

In the 2010 UWMP, JCSD assumed that water supply and water demand would be equal in all dry year scenarios since the volume of groundwater pumped would equal demand. In addition, during the single and multiple dry years, supply and demand increased equally by 10% in the 2010 UWMP. This is no longer the District's expected response to drought. Demand is expected to gradually decrease in response to drought regulations and water conservation.

Table 7-4 Retail: Multiple Dry Years Supply and Demand						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	31,993	36,493	40,993	40,993	40,993
	Demand totals	25,477	28,088	30,968	34,151	37,670
	Difference	6,516	8,405	10,025	6,842	3,323
Second year	Supply totals	31,993	36,493	40,993	40,993	40,993
	Demand totals	24,203	26,684	29,420	32,443	35,787
	Difference	7,790	9,809	11,573	8,550	5,206
Third year	Supply totals	31,993	36,493	40,993	40,993	40,993
	Demand totals	22,929	25,279	27,871	30,736	33,903
	Difference	9,064	11,214	13,122	10,257	7,090
Fourth year (optional)	Supply totals	31,993	36,493	40,993	40,993	40,993
	Demand totals	20,382	22,470	24,771	27,321	30,136
	Difference	11,611	14,023	16,222	13,672	10,857

As shown in the tables above, JCSD anticipates having adequate water supplies to meet future demands during normal, single-dry, and multiple-dry years through the 20-year planning period. However, the available supply shown above in Table 7-4 assumes that the District develops an imported water supply from WMWD or an alternate source as noted on Table 6-9.

## 7.4 Regional Supply Reliability

JCSD will continue making efforts to maximize the use of local water resources and minimize the need to import water. District actions such as increased implementation of demand management measures, increased use of recycled water, and enhanced groundwater management are anticipated.

Demand management measures implemented by JCSD are outlined in Chapter 9, and are designed to help JCSD meet its water use reduction targets as defined in Chapter 5. Although the District has achieved the target for water conservation pursuant to SB X7-7, it is understood that drought conditions are likely ongoing in the foreseeable future. And therefore, water conservation efforts are planned to continue and expand to reduce potable water use to the maximum extent practicable. To encourage water use reductions during drought conditions, JCSD has developed a multi-level Water Shortage Contingency Plan, as discussed in detail in Chapter 8 of this UWMP.

The District has also made efforts to replace some non-potable and potable landscape water use with an equal allotment of treated water from the WRCRWA plant. Notably, using recycled water as groundwater recharge and/or other beneficial uses is expected to expand in the Chino Basin. JCSD aims to partner with pertinent agencies to bring recycled water supplies into its supply portfolio.

JCSD primarily relies on local Chino Basin groundwater supplies to meet water demands, which due to its size and constraints, requires extensive management and monitoring. The Chino Basin Optimum Basin Management Plan (OBMP) is administered by the Watermaster to protect the basin from overproduction by way of nine elements. The element that could potentially impact JCSD's supply directly is Program Element 2, which addresses the recharge program (OBMP Phase I, 1999). The decisions and infrastructure related to this OBMP element will be used to balance long-term groundwater production. Similarly, JCSD will continue supporting storm water capture and infiltration projects within its service area and local Chino Basin Management Zone.

Although JCSD will continue utilizing local water supplies to the maximum extent practicable following the intent of CWC §10620 to minimize the need to import water from other regions, the District has chosen to diversify the supply portfolio with the DYY Program and future purchases

from WMWD. Local water supplies will continue to constitute a majority of JCSD's supply portfolio, as previously shown in **Table 6-9**.

## **CHAPTER 8: WATER SHORTAGE CONTINGENCY PLANNING**

Water shortage contingency planning is a strategic planning process to prepare for and respond to water shortages. Good planning and preparation helps agencies maintain reliable supplies and reduce the impacts of supply interruptions. Water supplies may be interrupted or reduced significantly in a number of ways, such as an ongoing drought that limits recharge, or a large earthquake that damages water delivery or storage facilities, a regional power outage, or a toxic spill that affects water quality. This Chapter describes how JCSD will implement staged responses to a water shortage that occurs over a period of time, as well as catastrophic supply interruptions which occur suddenly.<sup>1</sup>

California is currently in its fourth year of a significant drought, which impacts California's water supplies and its ability to meet all of the demands for water in the state. Thus, the SWRCB formally adopted emergency regulations in spring of 2015 prohibiting certain types of potable water use, ordering all urban water suppliers to implement mandatory conservation measures, and requiring water providers with 3,000 or more service connections to provide monthly data on water production.

In May 2015, in response to these emergency regulations, the JCSD Board of Directors adopted Ordinance No. 389 which is provided in **Appendix M**. This Ordinance sets forth a five-level Water Shortage Contingency Plan (WSCP), which details mandatory water conservation measures as described herein.

On May 9, 2016, Governor Brown issued Executive Order B-37-16,<sup>2</sup> which directs DWR to publish draft requirements by January 10, 2017 to strengthen urban WSCPs. The Executive Order states, "These updated requirements shall include adequate actions to respond to droughts lasting at least five years, as well as more frequent and severe periods of drought." JCSD will update the WSCP described herein according to future regulations.

In light of the Governor's Executive Order B-37-16 (May 9, 2016), the District is considering modifications to some of the language of JCSD Ordinance No. 389.

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<sup>1</sup> According to DWR UWMP Guidelines, a WSCP can be created separately from the UWMP and amended as needed without amending the corresponding UWMP. JCSD has updated its WSCP from the 2010 UWMP and included herein.

<sup>2</sup> [https://www.gov.ca.gov/docs/5.9.16\\_Executive\\_Order.pdf](https://www.gov.ca.gov/docs/5.9.16_Executive_Order.pdf)

## 8.1 Stages of Action

The number of stages of action in a WSCP is at the discretion of each water supplier. The stages reflect increasing levels of prohibitions and consumption reduction methods. JCSD Ordinance No. 389 describes the District's five-level WSCP to be invoked during declared water shortages. Notably, the District maintains that Stage 1 is in force at all times and prohibits water waste. The WSCP includes both voluntary and mandatory rationing depending on the causes, severity, and anticipated duration of the water supply shortage. Therefore, the District may declare a Drought Emergency (Level 5) at any time based on the current circumstances, without regard to the Drought Response Level previously in effect. The five-level program is outlined in **Table 8-1** and detailed in Ordinance No. 389 provided in **Appendix M**:

<b>Table 8-1 Retail Stages of Water Shortage Contingency Plan</b>		
Stage	Complete Both	
	Percent Supply Reduction <sup>1</sup> <i>Numerical value as a percent</i>	Water Supply Condition <i>(Narrative description)</i>
<i>Add additional rows as needed</i>		
1	10%	Drought Watch
2	20%	Drought Caution (10-20% reduction target)
3	30%	Drought Alert (20-30% reduction target)
4	40%	Drought Critical (30-40% reduction target)
5	40%	Drought Emergency (40%+ reduction target)
<sup>1</sup> One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.		
NOTES: Water shortage of 50% addressed in Level 5 Drought Emergency		

The General Manager shall monitor drought conditions and regulations, evaluate the supply and demand for water within the service area, and recommend the Drought Response Level to be declared to the Board of Directors. The Board of Directors may declare Drought Response Levels 1 through 5 by resolution of the Board and adopted at a regular or special public meeting, in accordance with State law. A Drought Response Level shall remain in full force and effect until discontinued by resolution of the Board of Directors.

Within ten days of declaration of a drought response level, the District shall publish notice in a newspaper used for such notices and on the JCSD Web site. Customers will be notified of water allocations associated with Drought Response Levels 4 or 5 by mailing to the address where the

billing statement is normally sent, and shall take effect on the fifth day following mailing of notice, or at a later date as specified on the notice. On May 26, 2015, the JCSD Board of Directors adopted Level 3 Drought Alert conditions.

### **Drought Response Level 1 – Drought Watch Condition**

A Level 1 condition applies when the Board of Directors requests all water users to voluntarily reduce their water use up to 10 percent. During a Level 1 Drought Watch condition, the District will increase its public education and outreach efforts to implement the voluntary water conservation practices listed in **Table 8A** (located at end of this section).

### **Drought Response Level 2 – Drought Caution Condition**

A Level 2 condition applies when the Board of Directors mandates all water users to reduce their water use more than 10 percent and up to 20 percent. The water conservation measures required in addition to Level 1 measures are presented in **Table 8A**. Beginning with Drought Response Level 2, violation of the mandatory water conservation measures shall be subject to civil penalties.

### **Drought Response Level 3 – Drought Alert Condition<sup>3</sup>**

A Level 3 condition applies when the Board of Directors mandates all water users to reduce their water use more than 20 percent and up to 30 percent to ensure sufficient supplies. The water conservation measures required in addition to Level 1 and Level 2 measures are presented in **Table 8A**. According to Ordinance No. 389, new service availability letters will be issued by JCSD provided that the applicant proves to the satisfaction of the District of an enforceable commitment that water demands for the project will be offset by 100 percent prior to the provision of a new water meter. However, in light of the JCSD 2015 Capacity Charges Study (Carollo, 2016), the District has chosen to implement JCSD Resolution No. 2627 and specifically, a new Water Resources Capacity Charge (**Appendix N**).<sup>4</sup> New customers are billed a one-time Water Resources Capacity Charge upon connecting to the water system in order to recover the costs related to securing additional water resources. Therefore, during Drought Level 3 Conditions, new customers are conditioned to pay the Water Resources Capacity

<sup>3</sup> At the time of this Plan preparation, the JCSD Board of Directors adopted Level 3 Drought Alert conditions (beginning May 26, 2015).

<sup>4</sup> JCSD also adopted Resolution No. 2628 to establish a revised Sewer Capacity Charge to recover the cost of future sewer infrastructure capacity (**Appendix N**).

Charge instead of providing an enforceable commitment to offset demands by 100 percent. In light of the Governor's Executive Order B-37-16 (May 9, 2016), the District is considering modifications to some of the language of JCSD Ordinance No. 389.

#### **Drought Response Level 4 – Drought Critical Condition**

A Level 4 condition applies when the Board of Directors mandates all water users to reduce their water use more than 30 percent and up to 40 percent to ensure sufficient supplies. The water conservation measures required in addition to Level 1, Level 2, and Level 3 measures are presented in **Table 8A**. Upon declaration of a Level 4 condition, the issuance of new service availability letters shall be suspended, unless already approved, provided the applicant provides proof to the satisfaction of the District of an enforceable commitment that water demands from the project will be offset by 125 percent prior to the provision of a new water meter.<sup>5</sup> In light of the Governor's Executive Order B-37-16 (May 9, 2016), the District is considering modifications to some of the language of JCSD Ordinance No. 389. New connections and temporary construction meters shall be permitted as necessary under the discretion of the Board of Directors to protect public's health, safety and welfare.

Beginning with Level 4, the District shall also suspend consideration of annexations to its service area, unless the annexation increases the water supply available to the District by more than the anticipated demands of the property to be annexed. Also beginning with a Level 4 condition, the Board of Directors will determine the Water Allocation Target for each property served. The calculation will only be applied to consumption in excess of the Public Health and Safety threshold of eleven units per monthly billing period.

#### **Drought Response Level 5 – Drought Emergency Condition**

In the event of a water shortage of more than 40 percent, or at any other time the Board of Directors deems necessary, the Board of Directors may consider a moratorium on new service connections regardless of approved water availability letters. The water conservation measures required in addition to Level 1, Level 2, Level 3, and Level 4 measures are presented in **Table 8A**. The Water Allocation Target percentage calculations would be continued from Level 4.

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<sup>5</sup> Substituting this requirement with imposition of the Water Resources Capacity Charge is at the discretion of the District at such time they enter Drought Level 4.

**Table 8A: Drought Response Level Water Conservation Measures**

Prohibition	Voluntary	Prohibition is mandatory			
	Level 1	Level 2	Level 3	Level 4	Level 5
Do not use water to wash down paved surfaces	X	X	X	X	X
Adjust sprinklers and irrigation systems to avoid overspray, runoff, and waste	X	X	X	X	X
Irrigate all landscapes before dawn, and never between 8:00 AM and 8:00 PM	X	X	X	X	X
Irrigation is prohibited during and 48 hours after measurable rain	X	X	X	X	X
Agricultural users are requested to reduce water usage and consult with local Resource Conservation District as needed for appropriate measures	X	X	X	X	X
Developers and residents are encouraged to design and install water-efficient landscaping and minimize turf areas	X	X	X	X	X
Install water saving devices in indoor plumbing	X	X	X	X	X
Check for and repair leaks both indoors and outdoors	X	X	X	X	X
Use re-circulated water in decorative features	X	X	X	X	X
Wash motor vehicles and other mobile equipment with a bucket or hand-held hose with positive shut-off valve	X	X	X		
Vehicles may only be washed at commercial carwashes				X	X
Restaurants do not serve water unless requested	X	X	X	X	X
Hotels and motels must provide guests with a no-wash option	X	X	X	X	X
Limit all outdoor irrigation to 4 days per week, no more than 10 minutes per station per day; does not apply to functional landscapes.		X			
Limit all outdoor irrigation to 3 days per week, no more than 10 minutes per station per day; functional landscapes watering limited to 4 days per week			X		
Limit all outdoor irrigation to 2 days per week, no more than 10 minutes per station per day; functional landscapes watering limited to 3 days per week				X	X
Irrigation will be limited to odd-numbered addresses on Mondays, Wednesdays, Fridays and even-numbered addresses on Tuesdays, Thursdays, Saturdays			X		
Irrigation will be limited to odd-numbered addresses on Mondays and Thursdays, even-numbered addresses on Tuesdays and Fridays				X	X
Ornamental landscapes with properly operating water-efficient devices can be irrigated 30 minutes/station/day for drip irrigation or 20 minutes/station/day for stream rotors on the days authorized for landscape irrigation		X	X	X	X
Repair or stop leaks within 72 hours of notification		X			
Repair or stop leaks within 48 hours of notification			X	X	X
No irrigation of turf on public medians			X	X	X
Irrigation with potable water outside newly constructed homes inconsistent with CBSC or DHCD standards is prohibited <sup>6</sup>			X	X	X
Each developer must submit a Water Conservation Plan prior to using water for dust control and grading at construction sites			X	X	X
The District may establish a water allocation for each property served				X	X

<sup>6</sup> CBSC = California Building Standards Commission, DHCD = Department of Housing and Community Development



JCSD Resolution No. 2499 was approved by the Board of Directors on August 11, 2014 to elevate the District to Drought Response Level 2. According to staff records, residential water use (as R-GPCD) at that time was 179.2. More than nine months later, the JCSD Board of Directors approved Resolution No. 2542 on May 26, 2015 to elevate the District to Drought Response Level 3. From the time JCSD went from Level 2 to Level 3, residential water use decreased from 179.2 GPCD to 119.6 GPCD (a 33% drop). Since May 26, 2015 to April 2016 (the most recent month of records), JCSD residential water use has decreased nearly 14 percent from 119.6 GPCD to 103 GPCD.

## 8.2 Prohibitions on End Uses

JCSD Ordinance No. 389 defines and prohibits unreasonable uses of water regardless of the Drought Response Level in effect. These uses include, but are not limited to, the following:

- Allowing water to flow from a person's property onto adjacent properties, roadways, or streets due to excessive irrigation and/or leaks;
- Failing to repair a water leak;
- Using water to wash down sidewalks, driveways, parking areas, or other paved areas, except to alleviate immediate safety or sanitation hazards; and
- Watering lawns and/or groundcovers and irrigating landscaping between the hours of 8:00 AM and 8:00 PM.

In addition to the above listed restrictions, **Table 8-2**, details the specific prohibitions on end uses associated with each Drought Response Level.

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
Add additional rows as needed			
1	Other - Prohibit use of potable water for washing hard surfaces	Note: During a Level 1 Drought Watch Condition, the Board will request all water users to make the following voluntary reductions in water use.	No
1	Landscape - Restrict or prohibit runoff from landscape irrigation	Adjust sprinklers to avoid overspray, avoid watering on windy days.	No
1	Landscape - Limit landscape irrigation to specific times	Irrigation is limited to before 8 AM and after 8 PM.	No
1	Landscape - Other landscape restriction or prohibition	Irrigation is prohibited during at for 48 hours after measurable rain.	No
1	Other	Agricultural users are encouraged to meet with Conservation District staff to identify water conservation measures.	No
1	Other	Residents/developers are urged to install waterwise landscaping/minimize turf areas.	No
1	Other	Install water saving devices indoors.	No
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Check for leaks indoors/outdoors and repair them immediately.	No
1	Water Features - Restrict water use for decorative water features, such as fountains	Use re-circulated water in these features.	No
1	Other - Require automatic shut of hoses	Wash vehicles/etc. with a hose and shut-off nozzle, or at a commercial site.	No
1	CII - Restaurants may only serve water upon request	Also applicable in other public places where food is served.	No
1	CII - Lodging establishment must offer opt out of linen service	Notice of this option should be displayed prominently in each room.	No

(continued on next page)

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
Add additional rows as needed			
2	Landscape - Other landscape restriction or prohibition	Limit all outdoor irrigation to 4 days per week and no more than 10 minutes per station. (separate requirement for ornamental landscape)	Yes
2	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	All leaks must be repaired/stopped within 72 hours of notification.	Yes
3	Landscape - Other landscape restriction or prohibition	Limit irrigation to 3 days per week, 10 minutes per station.	Yes
3	Landscape - Limit landscape irrigation to specific days	Odd and even addresses water on opposite days.	Yes
3	Landscape - Other landscape restriction or prohibition	No irrigation of turf on public medians.	Yes
3	Landscape - Prohibit certain types of landscape irrigation	Irrigation with potable water outside of newly-constructed homes and buildings inconsistent with CBSC standards.	Yes
3	Other	Restrict use of potable water for dust control, projects must submit Water Conservation Plan for construction	Yes
3	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Repair or stop leaks within 48 hours	Yes
4	Landscape - Other landscape restriction or prohibition	Limit outdoor irrigation to 2 days per week, 10 minutes per station. (Some exemptions for safety/ornamental landscapes)	Yes
4	Landscape - Limit landscape irrigation to specific days	Odd and even addresses water on opposite days.	Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Vehicles can only be washed at commercial carwashes.	Yes
5	Other	District will calculate water allocation amounts at Drought Response Level 5.	Yes

As can be seen in **Table 8-2**, JCSD is pursuing a variety of enforcement mechanisms to ensure that the targeted reductions at each Drought Response Level are met. Upon declaration of Drought Response Level 4 or 5, specific allocations may be established for each property served. Water allocation targets will be calculated for each account by comparing usage in the current billing period to the same period identified in the resolution.

### 8.3 Penalties, Charges, Other Enforcement of Prohibitions

The District will make a reasonable effort to assist customers with compliance, including personal contact, door hanger, letter, email, or telephone to notify customers of violation. Violation of the mandatory water restrictions associated with Drought Response Levels 2 through 5 will be subject to civil penalties set forth in Section 10.0 of Ordinance No. 389, as well as all other criminal and civil sanctions available under State law. During Drought Response Level 1, all reduction measures are voluntary.

As outlined in Section 10.0 of Ordinance No. 389, each day that a violation occurs is a separate offense. First violation of any provision will result in a civil penalty fee of \$25.00; fees associated with any other provisions within one year of the first violation of any provision of Ordinance No. 389 will be assessed as follows in **Table 8B**.

**Table 8B: Civil Penalties for Violations of Drought Levels 2-5 Water-Use Restrictions**

First Violation	\$25.00
Second Violation	\$50.00
Third Violation	\$100.00
Fourth Violation	\$200.00
Fifth Violation	\$500.00

If a water allocation has been imposed by the District during a Drought Response Level 4 or Level 5, water use in excess of the violation shall also constitute a violation. Water use in excess of the water allocation target per equivalent dwelling unit in any monthly period shall constitute a first offense, resulting in written notification. Monthly water use in excess of the water allocation target of any provision in any subsequent monthly billing period within one year of the first violation will constitute subsequent violation and the user will be assessed fees according to the following schedule:

**Table 8C: Civil Penalties for Violations of Water Allocation Target**

First Violation	Written Notification
Second Violation	\$20.00
Third Violation	\$50.00
Fourth Violation	\$100.00
Fifth Violation	\$250.00
Sixth Violation	\$500.00

When a civil penalty is to be imposed, the customer will be given written notification of the penalty to be imposed. The customer then has seven days to contest the penalty, and the District will hold a hearing within 14 days if requested. Penalty amounts may be separately itemized on the District's monthly bill for water service, and will be due at the same time and in the same manner as charges for water service. Penalties collected will be used solely to implement and enforce water conservation measures.

Violation of a provision of this ordinance is subject to enforcement through installation of a flow-restricting device at the meter and could also be persecuted as a misdemeanor, punishable by imprisonment or fines. Willful violations could also constitute cause for termination of service to the property in violation.

#### **8.4 Consumption Reduction Methods**

In addition to the drought action stages described in Chapter 8.1 and the end-use restrictions described in Chapter 8.2, the District's water conservation program also includes provisions aimed at reducing water demand within the service area. This is described in Chapter 9.1.4, Public Education and Outreach.

As summarized from Chapter 8.1, when the Board of Directors declares a Drought Response Level 1, the District will make an effort to expand its drought public information campaign. Under Drought Response Level 4, issuance of new service letters may be suspended, but new connections will be allowed pursuant to service availability letters then in effect provided that the applicant provides substantial evidence, to the satisfaction of the District, of an enforceable commitment that water demands for the project will be offset by 125 percent prior to provision of a new water meter.<sup>7</sup> There may be a moratorium on new service connections under Drought Response Level 5 conditions. Additionally, under Drought Response Levels 4 and 5, the District will suspend consideration of any proposed annexations to its service area unless the annexation would increase the water supply available to the District by more than the anticipated demands of the property to be annexed.

The consumption reduction methods from the stages of action of the WSCP are outlined in **Table 8-3**.

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<sup>7</sup> Substituting this requirement with imposition of the Water Resources Capacity Charge is at the discretion of the District at such time they enter Drought Level 4.

**Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods**

Stage	Consumption Reduction Methods by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>
<i>Add additional rows as needed</i>		
1	Expand Public Information Campaign	During a Drought Watch Level 1 condition, the District will increase its public education and outreach efforts to enhance awareness of the need to implement water conservation measures.
3	Moratorium or Net Zero Demand Increase on New Connections	Issuance of new service availability letters shall be allowed provided that the applicant provides substantial evidence that the water demands will be offset 100% prior to the provision of new water meters.
4	Moratorium or Net Zero Demand Increase on New Connections	Issuance of new service letters shall be suspended, but new connections shall be allowed pursuant to service availability letters provided that the applicant provides substantial evidence to the satisfaction of the District of an enforceable commitment that water demands will be offset by 125% prior to provision of new water meters.
4	Other	The District will suspend consideration of annexations to its service area, unless the annexation would increase the water supply available to the District by more than the anticipated demands of the annexed property.
4	Other	The District may establish a water allocation for property served. Separate methods will be used for residential/multi-family customers and other accounts.
5	Moratorium or Net Zero Demand Increase on New Connections	The Board may consider a moratorium on new service connections, regardless of the existence of water availability letters for such connections.
5	Other	The District may establish a water allocation for property served. Separate methods will be used for residential/multi-family customers and other accounts.

A drought rate structure or surcharge that is implemented in times of water shortage differs from a conservation rate structure (described in Chapter 9.1.3 and **Appendix O**), which is in place at all times.<sup>8</sup> JCSD does not utilize a drought rate structure at this time.

<sup>8</sup> When considering a new rate structure, some water suppliers have embedded a drought rate structure within their proposed conservation rate structure. This can help avoid the difficulty and delay of instituting a drought structure during an emergency and streamlines the public process so that all rate structures are reviewed together.

## **8.5 Determining Water Shortage Reductions**

CWC §10632(a)(9) requires, “A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.” JCSD meets this requirement by relying upon water meters to record the production and consumption of water. JCSD issues bills to their customers on a monthly basis. The prior year’s consumption is included on most customer bills, which allows for comparison of the total consumption from each billing period to the same billing period from the prior year. The Conservation Coordinator (discussed in Chapter 9.1.6) reports the Residential-GPCD (as volume pumped/produced) to the SWRCB as required in the statewide drought regulations. The volume pumped/produced per meter across all customers (e.g., residential, industrial, non-potable, etc.) has decreased 23 percent from 2013 to 2015.

Under “normal” supply conditions, potable water production figures are recorded daily. Totals are reported weekly to the Operations Manager and incorporated into the water supply report. During drought conditions, the JCSD Operations Department reports weekly production figures to the Conservation Coordinator, who then prepares a monthly report to the Board of Directors. The report updates the Board members on progress toward the water conservation target.

## **8.6 Revenue and Expenditure Impacts**

As described in Section 8.3, above, JCSD has established a graduated fee structure for successive violations of water use restrictions during each Drought Response Level. Any penalties collected under this policy will be used to implement and enforce water conservation measures.

In June 2012, JCSD adopted a Reserve Policy (Policy No. 2007-02) to ensure that the District will have sufficient funding available to meet the District’s operating, capital, and debt service obligations. Reserves are managed in a manner that allows JCSD to fund costs consistent with its annually updated Capital Replacement Program as well as other long term plans while avoiding significant rate fluctuations due to changes in cash flow requirements.

One component of this Reserve Policy is a Rate Stabilization Fund, established specifically to shield the Water Fund from the financial effects of extraordinary circumstances. This Reserve is in place to ensure that the District can meet costs of necessary services while lessening the impact of otherwise significant changes in user fees, in any one year. Funding is determined at

the end of each fiscal year based on analysis of available funds remaining based on the District's operations as presented in the audited financial statements.

## 8.7 Resolution or Ordinance

The District approved the current WSCP outlined above under Ordinance No. 389 on May 26, 2015 (**Appendix M**). It became effective immediately as an urgency ordinance in accordance with CWC §376. This Ordinance replaced Ordinance No. 387, the District's previous WSCP. The District is considering modifications to Ordinance No. 389 in light of the Governor's Executive Order B-37-16.

## 8.8 Catastrophic Supply Interruption

JCSD adopted an Emergency Response Plan (ERP) in January 2016 to ensure that District services can safely resume normal operation as quickly as possible following any natural, weather-related, man-made, or technological disaster.<sup>9</sup> The goals of the ERP are as follows:

- Rapidly restore service after an emergency;
- Ensure adequate water service for fire suppression;
- Minimize water or electrical system damage;
- Minimize impact and loss to customers; and
- Provide emergency public information concerning customer services.

To accomplish these goals, JCSD has adopted an Incident Command System (ICS) to organize emergency response efforts by clearly establishing a uniform set of processes and procedures that can be used to conduct response operations. Standard Operating Procedures included in the ICS include, but are not limited to, search and rescue, first aid, and medical emergency responses. JCSD has a designated Safety Coordinator who is responsible for establishing and implementing the ERP, and all JCSD staff are trained on these policies.

The ERP identifies earthquakes and fires as the two greatest natural threats to the service system. In order to mitigate risks associated with these events, JCSD's facilities were designed and built to withstand earthquakes. Most of the District's systems are built of concrete and steel,

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<sup>9</sup> Required by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188).



but the potential for electrical and structural fires still exists. In addition to causing structural damage, both earthquakes and fires could cause regional power outages. JCSD has installed standby power sources and repair supplies at strategic locations to lessen this risk to service disruption. The District's potable wells that are equipped with back-up generators at this time are listed in the Water Supply Outlook in **Appendix J**. More than half of JCSD's potable wells are equipped with back-up generators with a generator-based production rate of 24,925 gpm, which is 71 percent of the total current production rate. Therefore, in the event of a regional power outage and wells were run on generators, the District could provide approximately 71 percent of their current demand. Standby generators are also installed at all JCSD booster stations. Furthermore, each of JCSD's 17 storage tanks totaling 56.7 million gallons of storage has dedicated emergency water supply equal to 75 percent of maximum day demand, in addition to supply reserved to meet fire flow, and peak demands.

JCSD is a member of the statewide Water/Wastewater Agency Response Network (CalWARN) that functions in coordination with the State Office of Emergency Services. CalWARN is a network of agencies that support and promote statewide emergency preparedness, disaster response, and mutual assistance for public and private water and wastewater utilities.

JCSD is also a member of the Emergency Response Network of the Inland Empire (ERNIE), which facilitates public agency preparedness for, response to, and recovery from local and regional disasters. Agencies volunteer to enter into an agreement to provide mutual aid and assistance to other member agencies. ERNIE assists agencies with trainings, communication, documentations for reimbursement, concept of emergency operations, and writing after-action reports and corrective action plans.

In addition to the ERP, the District has prepared a Hazard Mitigation Plan and Vulnerability Assessment (confidential), which are updated bi-annually.

In addition to drought, earthquake, fire, and power outages, the District's ERP considers appropriate responses to floods, waterborne diseases, vandalism, terrorism, pandemic, system neglect, cross connections, backflow conditions, construction accidents, chemical spills, and sewage spills.

Notably, SARWC has just one well and depends on JCSD's pass-through system to deliver the majority of its water supply. If JCSD's operations are impacted by a disaster, drinking water

would be jeopardized temporarily to SARWC. Nevertheless, in the event of a regional disaster many other water sources may also be jeopardized and it is critical that JCSD can return to full operation as quickly and safely as possible.

As a result of preparing this UWMP, JCSD identified a potential future need to review and update the District's catastrophic event response procedures, so that they are consistent with current State guidance.

## 8.9 Minimum Supply Next Three Years

The minimum supply available during the next three years would occur during a three-year multiple-dry year event between 2016 and 2018. JCSD, like most water suppliers in the State, is operating in the fourth year of a statewide drought and are subject to drought regulations to reduce demand. The District anticipates drought regulations to continue. On May 9, 2016, Governor Brown issued Executive Order B-37-16 to establish longer-term water conservation measures, including permanent monthly water use reporting, new permanent water use standards in California communities and bans on clearly wasteful practices such as hosing-off sidewalks, driveways and other hardscapes.

The minimum supply available to JCSD during each of the next three water years based on the driest three-year historic sequence (i.e., 2013-2015) is expected to meet minimum anticipated demand, as shown in **Table 8-4**.

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	21,969	22,411	22,860
NOTES: Volume in AF, CY data from JCSD Finance Dept.			

The volumes shown in Table 8-4 are based off 2015 actual demand volumes, which are considered significantly depressed in response to several years of drought regulations and water conservation. The difference between years in Table 8-4 is conservatively assumed at 2 percent growth. As described in Chapter 7, water supplies available to JCSD are limited in most part by costs of pumping and replenishment assessments. Therefore, JCSD has adequate supplies available to meet projected demands should the multiple-dry year period continue for the next three years.

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## **CHAPTER 9: DEMAND MANAGEMENT MEASURES**

This chapter provides a comprehensive description of the water conservation programs that JCSD has implemented, is currently implementing, and plans to implement in the future to meet its urban water use reduction targets. The section of the CWC that addresses Demand Management Measures (DMMs) was significantly modified in 2014, based on recommendations from the Independent Technical Panel to the State Legislature. The Panel was formed by DWR to provide information and recommendations to DWR and the Legislature on new DMMs, technologies, and approaches to water use efficiency. The Panel recommended, and the legislature enacted, streamlining the retail agency requirements from 14 specific measures to six general requirements plus an “other” category, as discussed below.

### **9.1 Demand Management Measures for Retail Agencies**

This section communicates JCSDs efforts to promote conservation and reduce the demand for water supplies with programs to implement each of the following DMM categories. As required by CWC §10631, each DMM description includes how the measure has been implemented over the past five years, and how future projects will help the District continue to meet its water use targets described in Chapter 5.

#### **9.1.1 Water Waste Prevention Ordinances**

The JCSD Board of Directors adopted Ordinance No. 389 on May 26, 2015, which contains the District’s Water Conservation Program (and water waste ordinance). The Ordinance is provided in **Appendix M**. A water waste ordinance explicitly states that the waste of water is to be prohibited. According to DWR, the ordinance may prohibit specific actions that waste water, such as excessive runoff from landscape irrigation, or use of a hose outdoors without a shut off nozzle. It is in place at all times and is not dependent upon a water shortage for implementation. However a water waste ordinance may include increasingly restrictive prohibitions that may be implemented in response to shortages (DWR 2015 UWMP Guidebook).

Because the SWRCB adopted additional emergency regulations for urban water suppliers on March 17, 2015 and May 5, 2015, Ordinance 389 was prepared as an update and replacement of JCSD Ordinance No. 387 that was adopted in response to the first emergency regulations adopted by the SWRCB on July 15, 2014. Article 3.0, Item A of Ordinance 389, states: “The water conservation measures set forth in this Article 3.0 shall be in effect at all times and shall

be subject to the penalties hereafter set forth.” Item B continues, “It shall be unlawful for any Person to waste water or to use it unreasonably.” The Ordinance includes the five Drought Response Levels (of which the District is always in one), prohibitions, and penalties as detailed in Chapter 8.

➤ **Implementation Over the Past Five Years**

JCSD actively pursues incidents of water waste. They are investigated by staff and, depending on the nature of the situation, noticed to the property owner, repaired, or disconnected in cases of excessive leakage and/or facilities failure.

➤ **Planned Implementation to Achieve Water Use Targets**

Water waste has always been a priority of JCSD and will continue to be a focus of their operations. The District allocates a portion of its annual Capital Improvement Plan budget for waterline replacement projects based on information from the JCSD Master Water Plan Update (Sept., 1982). The pipeline replacement program uses the following criteria to discern which pipes are replaced each year:

1. Leakage: District Water Operations data suggests leaking or ruptured pipes;
2. Size: Pipeline diameters that do not meet minimum State requirements;
3. Fire Flow: Maximum velocities that exceed 10 feet per second;
4. Inefficient System Operations: Old pipes that could rupture when water pumped in from a high pressure zone is then depressurized;
5. Odd Sizes: Maintenance is problematic with oddly-sized pipes (3 inch and 5 inch diameters) due to their nonconformity with standard water system sizes.

### **9.1.2 Metering**

JCSD is fully metered. Since the last UWMP in 2010, the District replaced all residential and non-residential (potable and non-potable) water meters. JCSD uses Automatic Meter Reading (AMR) on all of their service connections. AMR is a technology of automatically collecting consumption data from water meters and transferring that data to a central database for billing, troubleshooting, and analysis. AMR can reduce the cost of meter reading, provide real-time information, reduce billing errors, monitor tampering and promotes conservation with time-of-use consumption.

➤ **Implementation Over the Past Five Years**

As discussed previously, during the past five years the District completed an effort to become fully metered with an AMR system at all of its service connections.

➤ **Planned Implementation to Achieve Water Use Targets**

Over the next five years, the District will continue its efforts to ensure that all service connections are fully metered and a part of their AMR system. Meters will continue to be updated, replaced, and repaired as needed.

### 9.1.3 Conservation Pricing

Conservation pricing sends a signal to customers regarding their water use. For example, the rates might be tiered at progressively higher prices to encourage efficient water use. Like a water waste ordinance, a conservation pricing structure is always in place and is not dependent upon a water shortage for implementation; although, a conservation rate structure could include *drought* rate structures.

JCSD Board of Directors adopted Resolution No. 2511 on November 10, 2014 (effective January 1, 2015) establishing rates for water service through 2019. The complete Resolution is provided in **Appendix O**. Customers are charged for water based on their meter size for a monthly service charge and second, based on their volume of water use. There are different charges for potable meters and non-potable irrigation meters, as well as fire hydrants, and private fire protection lines. Most residences in the District have a 3/4-inch meter. Irrigation meters are either 1½-inch or 2-inch and commercial/institutional/industrial customers vary from the smallest (5/8x3/4-inch) to the largest (10-inch). In 2015, the monthly service charges range from \$25.36 for a 5/8x3/4-inch meter to \$2,208.71 for a 10-inch meter.

The second monthly charge is from a four-tier rate structure based on the volume of water used measured in “hundred cubic feet” (HCF), as shown below in **Table 9A**.

**Table 9A: JCSD Tiered Rate Structure for Potable Water, 2015-2019**

HCF	2015	2016	2017	2018	2019
<b>Tier 1: 0-20 HCF</b>	\$1.41	\$1.51	\$1.46	\$1.49	\$1.52
<b>Tier 2: 21-50 HCF</b>	\$1.79	\$1.92	\$1.85	\$1.89	\$1.93
<b>Tier 3: 51-100 HCF</b>	\$2.06	\$2.21	\$2.13	\$2.18	\$2.22
<b>Tier 4: Over 100 HCF</b>	\$2.30	\$2.46	\$2.38	\$2.43	\$2.48

Reproduced from Resolution No. 2511, page A-2.

Fire hydrant meters and private fire protection lines (if use is unauthorized)<sup>1</sup> are also subject to their own tiered rate structures as shown in Resolution 2511 (**Appendix O**). Non-potable irrigation meters do not have a tiered rate structure at this time; however there are currently 10 non-potable irrigation meters that do not constitute a significant source of demand (539 AF, or 2.5 percent of total delivered in 2015).

#### ➤ **Implementation Over the Past Five Years**

The District has initiated several financial studies and updates to their water rate schedules since the 2010 UWMP. This tiered commodity charges have increased over this period of time, and are projected to increase through 2019 per JCSD Resolution No. 2511. In addition, the District adopted a HCF Quantity Charge in addition to the monthly base rate for sewer services in Resolution No. 2512. These changes in rates are designed to encourage water conservation and have resulted in a decrease of per capita water consumption along with other conditions including economic swings and drought regulations. Since 2011, JCSD has realized an 18 percent drop in total water production per customer concurrently with a 10 percent increase of connections.

Beginning in June of 2015, JCSD and the City of Eastvale partnered to offer “E-Citizen,” a free smart phone application for the public to report water waste and other non-emergency issues. Users can upload a photo or video of the issue and mark the geographic location on a map. Each request can then be tracked for follow-up by the

<sup>1</sup> Unauthorized use of private fire lines for non-fire protection use will result in a quantity charge per each HCF (hundred cubic feet) used without proper authorization from the District. If use is authorized, then there is tiered quantity charge in addition to the monthly standby service charge.

District. In 2015, 445 reports of water waste or property flooding were sent to the District. So far in 2016, the District has received 278 reports of water waste.

➤ **Planned Implementation to Achieve Water Use Targets**

The District will continue striving for conservation pricing that is on par with industry standard to be effective, yet fair and equitable.

#### **9.1.4 Public Education and Outreach**

JCSD continues to educate their customers about the importance of meeting water reduction targets through a number of avenues including print materials and neighborhood and school presentations. Education and Outreach is typically divided into two different areas: Residential/CII (Commercial, Industrial, and Institutional) and School Outreach.

**Residential/CII:** Community education programs include informational booths at community events including the 4<sup>th</sup> of July celebration, Healthy Jurupa Events, Home Depot Plant Sales, and the Community Fall Festival. Also, JCSD coordinates “Drought Drop Ins,” wherein JCSD staff visit various neighborhoods and set up water conservation information booths. Invitations to these events are mailed to residents in the area asking them to stop by for giveaways and water conservation information. Upon request, conservation staff provides presentations to CII customers and their employees. Information about outreach events and other water conservation strategies is also available on JCSD’s Web site (<https://www.jcsd.us/home>) and social media accounts. Printed materials are mailed to all customers or handed out at outreach events and include quarterly newsletters, monthly bill inserts, and flyers marketing a variety of programs, including:

- Rebates for water saving devices;
- Free water conservation kits;
- Water Wise landscaping workshops;
- Free sprinkler replacement programs;
- Turf replacement programs;
- Informational door hangers;
- EPA WaterSense Partnership;
- Water Wise violation door hangers;
- Direct mailers; and



- Mulch giveaway events.

**School Programs:** JCSD's school education program provides school assembly presentations, classroom presentations, curriculum, grant opportunities, and field trips on the importance of water. All programs meet curriculum standards for specific grades. All schools within the District receive brochures for each teacher outlining the available programs. The JCSD Conservation Coordinator works with partners throughout the District (e.g., Inland Empire Waterkeeper, Western Municipal Water District, etc.) to schedule the requested services. In addition, outreach includes Earth Day celebrations, science fairs and open house nights. Other examples of education outreach include: "Water is Life" children's poster contest, Lois B. Kreiger Grants for Educators, and Kids Club afterschool programs.

➤ **Implementation Over the Past Five Years**

Over the past five years, JCSD continued to provide a variety of water conservation outreach to its customers. One-time events held since 2010 include speaking at the Kid's Zone, conducting community "drought drop-ins", participation in "iEfficient," and a rain barrel distribution event. There are approximately 100 attendees at each "drought drop-in" event. More than 300 discounted rain barrels were distributed. Rain barrels are no longer given away, due to overwhelming demand; however, residents can apply for a rain barrel rebate through The Metropolitan Water District of Southern California (MWD). Many new programs were implemented since the last UWMP in 2010, which are listed in **Table 9B**.

**Table 9B: Water Conservation Outreach Programs, 2011-2015**

<b>Outreach Event</b>	<b>Status</b>	<b>Total Number Reached</b>
Children's Poster Contest	JCSD has sponsored a "Water is Life" poster contest annually since 2011.	35,000 entries and participants
Bill Stuffer	Bills with water reduction informational stuffer sent out monthly since May 2012.	25,000 per month
Newsletter	Distributed quarterly to JCSD customers and posted online.	25,000 recipients
JARPD 3 <sup>rd</sup> of July	Independence Day Celebration annually on July 3 <sup>rd</sup> .	5,000 attendees annually
Web site	JCSD Web site continues to prominently display water conservation information.	4,000 daily online visitors
Social Media	JCSD maintains various social media profiles including Facebook, Twitter, YouTube, and Instagram that are regularly updated.	1,200 weekly reach
Add Water Waste Category to E-Citizen	Citizens can report water waste using JCSD's E-Citizen Web site and smart phone application.	2,000 reports annually
Mulch giveaway	Free mulch provided to JCSD customers annually every March.	500
Eastvale Town Hall Meeting	Ongoing quarterly meetings, since May 2015.	Approximately 45 per meeting
Ad in <i>Record News</i>	Ongoing weekly water-related advertisements since May 2015.	5,000 per month
Ad in <i>Eastvale News</i>	Advertisements from May through November 2015.	5,000 per month
"Construction-type" Signs with Drought Messaging	Display of banners including message "JCSD is at a Level 3 Drought Status. Visit jcsd.us for restrictions or call (951) 727-8002 for more information" has been ongoing since May 26, 2015.	20,000 per day
Picnic in the Park Info Booth	Multi-day event was held June 26 through June 28, 2015.	10,000 participants per day
Theater Ad at Eastvale and Jurupa Valley Theaters	Informational advertisement displayed for three months from June through August 2015.	Approx. 10,000 per month in Eastvale, 5,000 per month in Jurupa Valley
Regulations Infographic	Ongoing distribution and posted on JCSD Web site since June 2015.	118,700
Hold Message	Hold message with water conservation information ongoing since June 2015.	Approximately 500 per day
Lawn Signs for Residents	Distribution of lawn signs for residents with "Brown is the new Green" and "This yard is helping to save water" messaging is ongoing since June 2015.	15,000 have been distributed
Parks and Recreation Brochure	Quarterly distribution with water information since June 2015.	7,000 recipients

Over the past five years, JCSD has developed comprehensive educational programs such as:

- Partnering with Inland Empire Resource Conservation District (IERCD) to offer free educational programs to schools and community groups within JCSD's service area on topics such as water-use efficiency, growing native, and wonders of wetlands.
- Offering Lois B. Krieger Water Project Grants for educators seeking to do creative classroom projects or go on field trips.

- Partnering with Discovery Science Center to provide assembly-style interactive programs promoting water awareness and introducing simple water conservation practices for 4<sup>th</sup> and 5<sup>th</sup> grade students.
- Distributing curriculum and activity materials designed by WMWD to local educators at no cost. These materials correlate with current California state content standards, particularly related to science and history/social science.
- Providing field trips with Inland Empire Waterkeeper at the Santa Ana River to learn about water supply and the environment, and with the Jurupa Mountains Discovery Center to learn about the gold rush and California's water history.

➤ **Planned Implementation to Achieve Water Use Targets**

JCSD plans to provide more resources to teachers and their students by sponsoring a "Project WET" (Water Education for Teachers) program to provide educators with activities that they can share with their students to learn about water-related topics. Upon completion of the free workshop, educators will receive the Project WET Curriculum Activity Guide.

### **9.1.5 Programs to Assess and Manage Distribution System Real Loss**

Production losses are estimated at 1.6 percent based on the JCSD Water Loss Audit described in Chapter 4. System leaks are detected visually and reported by employees and customers. The majority of leaks occur on water service laterals (the line between the meter and the main line), which are replaced completely instead of repaired.

JCSD is committed to limiting the amount of water loss and has also required that all temporary sales and construction waters be metered to minimize unaccounted-for water that is attributed to these uses.

➤ **Implementation Over the Past Five Years**

The meter and main repairs performed by the District for the past five years are detailed in **Table 9C** as evidence of JCSD's ongoing efforts to detect leaks quickly and minimize water loss.

**Table 9C: JCSD Repairs, 2011-2015**

Year	Service Connection (Meter) Breaks or Leaks	Main Breaks or Leaks
2011	140	49
2012	190	50
2013	171	33
2014	234	45
2015	236	14

Source: JCSD PWSS/Annual Reports

➤ **Planned Implementation to Achieve Water Use Targets**

JCSD staff will continue to check for leaks visually and respond to reports from the public to perform repairs quickly. Staff will continue to monitor production and consumption data to quickly detect a spike in loss, and respond accordingly to locate the leak or break. JCSD will also continue its annual waterline replacement program described in Chapter 9.1.1 to replace aging main lines.

Executive Order B-37-16 issued by Governor Brown on May 9, 2016 directs the SWRCB, DWR, and the California Energy Commission to develop funding sources, programs, and technology to decrease water system losses. JCSD will respond to forthcoming regulations for improving system loss detection.

### **9.1.6 Water Conservation Program Coordination and Staffing Support**

The Conservation Coordinator for JCSD is currently Alison Loukeh. She began with the District in 2014 and was previously a Water Conservation Coordinator for ten years with nearby cities. The Conservation Coordinator has had assistance periodically from temporary water conservation specialists and/or interns. The District's conservation program budget for FY 2015-2016 has expanded significantly to over \$1 million in response to the drought regulations.

➤ **Implementation Over the Past Five Years**

One of the stated goals for JCSD according to the 2010 UWMP was to hire a water conservation coordinator and expand the program from its then-budget of \$385,000 (FY 2010-2011). Beginning in 2011, JCSD has achieved its goal of filling a Conservation Coordinator position and expanding the program budget to over \$1 million. Beginning in 2011, several programs were instituted to reduce water demand. These include:

**Residential Audit and Direct Install Program:** This comprehensive program from 07/01/2012 through 03/20/2013 and was a water efficiency makeover for many homes. The replacement totals are:

- Faucet aerators – 507
- Showerheads – 366
- Sprinkler nozzles – 6,896
- High Efficiency Toilets – 282
- Weather Based Irrigation Controllers -289
- Indoor Audits – 324
- Outdoor Audits – 300

**Turf Replacement:** Funded through three different entities (WMWD, MWD, and JCSD), the turf replacement program targeted both CII and residential customers. CII customers included Nestle (25,000 square feet), MCC Corporation (260,000 square feet) and Lennox (46,000 square feet) among other smaller projects. Public agencies including school districts also took advantage of the additional funding provided by JCSD to offset their costs and replace turf with drought tolerant plants materials. Residential customers also enjoyed the benefits of the turf replacement program with 103 customers receiving a rebate since FY 13-14.

**Rebates:** Different devices that are available for rebates include High Efficiency Toilets, High Efficiency Clothes Washers, Irrigation controllers, Rain Barrels, and Rotating Nozzles. From 2010 to 2015, a total of 1,854 different rebates were paid to residential customers. The corresponding amount for CII customers is 24. This does not include turf replacement programs.

**JCSD landscape areas:** Select landscape facilities were retrofitted with rain sensors to ensure that irrigation systems are automatically turned off during rain events. This saves water and employees the time it takes to drive to the location and physically turn off the controller. Approximately 125 were installed. Additionally, many park and frontage areas

were retrofitted with drought tolerant landscaping and water-efficient spray nozzles and drip irrigation.

**Grants:** JCSD participates in several grants. Generally, funding comes from the DWR or the Bureau of Reclamation and is administered by WMWD or the Santa Ana Watershed Project Authority (SAWPA). Additionally, JCSD supports other member agencies like the Inland Empire Utilities Agency (IEUA) in their grant process as many water projects are regional in nature. Grants that JCSD was involved in directly during the UMWP time frame include the CUWCC landscape class grant, Kreiger grant for educators, WECAN grant (SAWPA), High Visibility Turf grant (SAWPA), and a Urinal replacement grant (Bureau of Reclamation).

**Cost-share rain barrel program:** At a one-time event, over 300 rain barrels were pre-ordered and picked up by customers in one day. JCSD offset the cost of the rain barrels by purchasing in bulk and providing a discounted price to residential customers.

**CII Account Analysis:** Conservation staff began tracking usage from high water users and contacting each company to review the findings and provide conservation advice. This generally led to water conservation methods to reduce demand.

**Water Waste Procedures:** Although JCSD has a water waste ordinance the new drought Emergency Regulations made this a priority. To ensure reporting ease, several methods were added:

E-Citizen: A Web-based app allows anyone to report water waste on their smart phone.

Email: Numerous residents and employees report water waste directly to the Conservation Coordinator.

Hotline: A conservation hotline was added. Beginning in May 2014, conservation staff began tracking additional calls from residents that do not necessarily escalate to a formal water waste issue. Through December 2015, the number of calls was 1,228.

**Water waste reports:** Water waste reports are assessed and acted on in the order of urgency. Main line leaks are reported to the maintenance department; all others are investigated and resolved by conservation staff. This is a component of the SWRCB drought report. From July 2015 through December 2015, JCSD reported 2,114 follow-up items to the SWRCB.

**Free Sprinkler Nozzles:** This is a program offered through WMWD. Beginning in 2011, the program offers free high efficiency nozzles to commercial and residential customers at no charge through a voucher program. To date, approximately 12,000 vouchers have been redeemed for 300,000 nozzles.

**Conservation Garden:** To provide an example of a “water wise” landscape, JCSD removed 8,100 square feet of turf at their headquarters and replaced it with drought tolerant and native plants.

**Saturation Study:** Conservation staff requested and received a high efficiency toilet saturation study from WMWD. According to the study, approximately 13 percent of toilets within the District have not been changed to a more efficient toilet. Through natural attrition, that number will decrease, thereby illustrating that a direct installation program for toilets would not be cost effective. Instead, conservation staff increased the rebate amount leading to an increase in toilet replacement activity without increasing staff time or the conservation budget significantly.

**Urinal Program:** This is a grant-funded program offered by WMWD. To date, 110 urinals have been replaced to JCSD customers at no cost to the District.

➤ **Planned Implementation to Achieve Water Use Targets**

JCSD understands that drought conditions may become the new normal for Southern California and therefore plans to budget additional staff for the water conservation program to assist and expand the efforts of the Conservation Coordinator. Many of the currently existing programs will be continued, however, additional programs are currently in development:

**Drip Irrigation Rebate:** JCSD-funded, this program is in development to offset the cost of drip irrigation to both CII and residential customers.

**Limited Turf Replacement:** To encourage customers who want to replace part of their turf, JCSD is developing a program to assist customers in removing turf in areas that come into contact with hard surfaces such as a driveway or sidewalk.

**Grants:** JCSD will continue the WECAN grant through 2017 and apply for additional conservation grants as they become available.

**Audits:** JCSD will continue to offer audits selectively to large water users.

**CII:** JCSD plans to implement an extensive CII program that includes cooling towers and process water.

Executive Order B-37-16 issued by Governor Brown on May 9, 2016 directs the SWRCB and DWR to permanently require urban water suppliers to issue a monthly report on their water usage, amount of conservation achieved, and any enforcement efforts. JCSD will abide by the requirements of the Order and continue reporting to the State.

## **9.2 Members of the California Urban Water Conservation Council**

The California Urban Water Conservation Council (CUWCC) is a consensus-based partnership of agencies and organizations concerned with California's water supply and conservation of natural resources. Urban water suppliers that are members of the CUWCC have the option of submitting their 2013-2014 Best Management Practice (BMP) annual reports in lieu of, or in addition to, describing the DMMs in their 2015 UWMP. Although JCSD is a signatory to the CUWCC Memorandum of Understanding (since 1994), the BMP reports were not filed for 2009, 2010, 2011, 2012, 2013, and 2014. The District's Conservation Coordinator has submitted the 2009-2014 BMP reports and expects the District to receive credits for the reported water conservation efforts. Submittal of the 2015 BMP report to the CUWCC is expected to bring JCSD into compliance with the MOU. The District maintains its firm commitment to the implementation of the BMPs (aka DMMs) as a signatory to the CUWCC and every effort will be made to bring the District into compliance.



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## **CHAPTER 10: PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION**

This chapter provides guidance to address the CWC requirements for a public hearing, the UWMP adoption process, submitting an adopted UWMP, plan implementation, and the process for amending an adopted UWMP.

### **10.1 Inclusion of All 2015 Data**

2015 UWMPs must include the water use and planning data for the entire year of 2015. If an agency is reporting on a calendar year basis (January to December), the 2015 UWMP cannot be completed before the end of the calendar year 2015. If an agency is reporting on a fiscal year basis (July to June), they may complete their 2015 UWMP at the end of their fiscal year. Since JCSD is reporting on a calendar year basis, the 2015 UWMP was not completed until the end of the calendar year 2015.

### **10.2 Notice of Public Hearing**

A public hearing must be hosted by JCSD prior to adopting the Plan; it may be held at the adoption hearing, but the public hearing must be listed as an agenda item to allow time for public input. DWR guidelines state that all public input shall be considered by the Board of Directors. There are two audiences within the service area that are required to be noticed for the public hearing: cities and counties, and the public. JCSD held a joint public hearing and adoption hearing on June 27, 2016.

#### **10.2.1 Notice to Cities and Counties**

##### **10.2.1.1 60 Day Notification**

The CWC states that cities and counties must be notified that the supplier will be reviewing the UWMP and considering amendments to the Plan. This notice must be sent at least 60 days prior to the public hearing. Notices were sent to applicable cities and counties on April 21, 2016.

<b>Table 10-1 Retail: Notification to Cities and Counties</b>		
City Name	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
Eastvale	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Jurupa Valley	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Table 10-1: Notification to Cities and Counties** lists the required notifications. JCSD also notified the following list of interested agencies and organizations.

- Chino Basin Desalter Authority
- Chino Basin Watermaster
- City of Eastvale (*required*)
- City of Jurupa Valley (*required*)
- City of Norco
- City of Ontario
- City of Riverside Public Utilities Department
- Corona-Norco Unified School District
- Inland Empire Utilities Agency
- Jurupa Unified School District
- Rubidoux Community Services District
- Santa Ana River Water Company
- Western Municipal Water District

### 10.2.1.2 Notice of Public Hearing

JCSD also provided notice of the time and place of the public hearing to cities and counties, as well as interested agencies. The notices to the cities and counties also included the location where the 2015 UWMP can be viewed, the UWMP revision schedule, and contact information of the UWMP preparer. Notices were sent to applicable cities and counties on April 21, 2016.

### 10.2.2 Notice to the Public

The public was notified of the public hearing and availability to review the Plan in the local newspaper (*The Press Enterprise*) once a week for two successive weeks pursuant to Government Code 6066, on June 13 and June 20, 2016. JCSD provided a public draft of the

Plan on their Web site [www.icsd.us](http://www.icsd.us) and at the District office beginning on June 13, 2016.

**Appendix B** contains copies of all notices.

### 10.3 Public Hearing and Adoption

Before submitting the UWMP to DWR, the JCSD Board of Directors must formally adopt the plan, as prepared or as modified after the public hearing.

In relation to the “20 percent by 2020” baseline and targets described in Chapter 5, the CWC requires the public hearing to also accomplish the following in order to comply with SB X7-7:

- Allow community input on the implementation plan;<sup>1</sup>
- Consider the economic impacts of the implementation plan; and
- Adopt a method for determining its urban water use target.<sup>2</sup>

Therefore, the hearing provided information on the baseline values, water use targets, and implementation plan developed by JCSD as required by the Water Conservation Act of 2009.

#### 10.3.1 Adoption

The 2015 UWMP was adopted by the JCSD Board of Directors on June 27, 2016 following a public hearing on June, 27, 2016. A copy of the JCSD adoption Resolution No. 2660 is included in **Appendix P**.

### 10.4 Plan Submittal

#### 10.4.1 Submitting a UWMP to DWR

2015 UWMPs must be submitted to DWR within 30 days of adoption and by July 1, 2016.

UWMP submittal will be done electronically through WUEdata, an online submittal tool.

After the UWMP has been submitted, DWR will review the plan utilizing the checklist provided in Appendix A and make a determination as to whether or not the UWMP addresses the

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<sup>1</sup> The term “implementation plan” as mentioned in the 20% by 2020 Water Conservation Act of 2009 is not defined. But according to DWR staff, it is meant to suggest the District’s plans as described in the UWMP for continuing to meet its water conservation target.

<sup>2</sup> The method chosen by JCSD to calculate the 2020 water use target has been, “Method 1: Eighty percent of the water supplier’s baseline per capita water use” as defined in CWC Section 10608.20(a)(1).

requirements of the CWC. The DWR reviewer will contact JCSD as needed during the review process. Upon completion of the Plan review, DWR will issue a letter to the agency with results of the review.

#### **10.4.2 Electronic Data Submittal**

DWR developed an online submittal tool, WUEdata, which was used for the 2015 UWMPs. The tool accepts complete UWMPs, as well as tabular data from all the data tables. The WUE data online submittal tool is online at <https://wuedata.water.ca.gov.secure/>.

JCSD submitted its electronic data via the WUEdata online submittal tool on June 28, 2016.

#### **10.4.3 Submitting a UWMP to the California State Library**

No later than 30 days after adoption, JCSD shall submit a CD or hardcopy of the adopted 2015 UWMP to the California State Library at:

California State Library  
Government Publications Section  
P.O. Box 942837  
Sacramento, CA 94237-0001  
Attention: Coordinator, Urban Water Management Plans

Or by courier or overnight carrier to the State Library at:

California State Library  
Government Publications Section  
914 Capitol Mall  
Sacramento, CA 95814

#### **10.4.4 Submitting a UWMP to Cities and Counties**

No later than 30 days after adoption, JCSD shall submit a hard or electronic copy of the adopted 2015 UWMP to any city or county to which it provides water including the City of Jurupa Valley and the City of Eastvale. This submittal satisfies Water Code Section 10635(b).

## **10.5 Public Availability**

The adopted UWMP is available for public review at JCSD, located at 11201 Harrel Street, Jurupa Valley, CA 91752 during normal business hours Monday through Friday 7:30 AM to 5:30 PM. In addition, a copy of the adopted UWMP can be found on JCSD's Web site (<http://www.jcsd.us/documents>) for public viewing anytime.

## **10.6 Amending an Adopted UWMP**

If JCSD decides to amend the adopted UWMP, each of the steps for notification, public hearing, adoption, and submittal must also be followed for the amended plan. Notably, the water use target method described in Chapter 5 may not be changed in any amendments to the 2015 Plan or in the 2020 Plan.

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## **REFERENCES**

The following documents were referred to as general information sources during preparation of this UWMP. They are referenced in the document by the acronyms shown.

### **Chapter 1**

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- 2010 JCSD UWMP Kennedy/Jenks Consultants. *2010 Urban Water Management Plan for Jurupa Community Services District*. May 2011. Available at <http://www.jcsd.us/home/showdocument?id=496>

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### **Chapter 4**

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- SCAG RTP 2012 Southern California Association of Governments. *Local Housing Element Assistance: Existing Housing Needs Data Report by City* generated 3/24/16. From the *Regional Transportation Plan 2012-2035 Sustainable Communities Strategy*. Adopted April 2012. (Available at <http://rtpscs.scag.ca.gov/Pages/default.aspx>)
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WEBB(b) Albert A. Webb Associates. *(Draft) Summary Master Water Plan for Jurupa Community Services District*. October, 2005.

## Chapter 6

Adjudications Chino Basin Municipal Water District vs. City of Chino, et al. Case No. 164327. (Available at <http://www.cbwm.org/docs/legaldocs/Judgment.pdf>).

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and  
Western Municipal Water District vs. East San Bernardino County Water District, et al., Case No. 78426.  
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OBMP Phase I Wildermuth Environmental Inc., *Optimum Basin Management Program prepared for Chino Basin Watermaster*. August, 1999. Available at [http://cbwm.org/docs/engdocs/obmpps1rep/Text/OBMP\\_Ph1\\_Report.pdf](http://cbwm.org/docs/engdocs/obmpps1rep/Text/OBMP_Ph1_Report.pdf).

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Peace I Agreement Chino Basin Watermaster. *Chino Basin Peace Agreement*. July, 2000. (Available at [http://cbwm.org/rep\\_legal.htm](http://cbwm.org/rep_legal.htm))

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## Chapter 8

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