

# **San Bernardino Countywide Plan Water, Wastewater, and Hydrology Existing Conditions**

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DATA AND ANALYSIS AS MAY 2017

UPDATED WITH OUTREACH SUMMARY IN NOVEMBER 2018

## **REPORT USE, INTENT, AND LIMITATIONS**

This Background Report was prepared to inform the preparation of the Countywide Plan. This report is not intended to be continuously updated and may contain out-of-date material and information. This report reflects data collected in 2016 and analyzed in 2016 and 2017 as part of due diligence and issue identification.

This report is not intended to be comprehensive and does not address all issues that were or could have been considered and discussed during the preparation of the Countywide Plan. Additionally, many other materials (reports, data, etc.) were used in the preparation of the Countywide Plan. This report is not intended to be a compendium of all reference materials.

This report may be used to understand some of the issues considered and discussed during the preparation of the Countywide Plan, but should not be used as the sole reference for data or as confirmation of intended or desired policy direction. Final policy direction was subject to change based on additional input from the general public, stakeholders, and decision makers during regional outreach meetings, public review of the environmental impact report, and public adoption hearings.

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- B Water and Wastewater Maps and Matrices
- C Regional Stormwater Maps and Information
- D Water Quality Maps and Information

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# 1 EXECUTIVE SUMMARY

The purpose of this background report is to present the existing water, wastewater, storm drain, regional flood, and water quality conditions in San Bernardino County, with a focus on the ability of infrastructure systems to serve existing development and potential future growth in unincorporated communities. This executive summary highlights the report's key findings.

## 1.1 Water Supply

Based on information from water agencies and providers, there is sufficient water supply and adequate water conveyance systems to serve existing development throughout the unincorporated areas of the county. Agency-supplied projections indicate few barriers to continued growth based on water supply or conveyance systems. Additionally, none of the areas that rely on private or well water systems reported water supply concerns.

Table 1 summarizes existing conditions in the county's unincorporated communities and unincorporated spheres of influence (SOIs). Appendix A provides a map of the various unincorporated communities. Appendix B provides maps and a detailed breakdown agency-supplied information for water providers.

Information was also obtained from the Local Agency Formation Commission (LAFCO) for San Bernardino County through municipal service reviews, GIS data, and a series of meetings. Table 2 provides a summary of a community's ability to support growth based solely on water supply (excluding other factors that will be considered at other stages of the Countywide Plan, such as community growth patterns, topography, and hazard overlays).

Insight from LAFCO indicates that the communities in the Valley region are best positioned to have sufficient water supplies for continued growth. Some communities in the Desert region may also be able to accommodate additional growth without affecting the long-term sustainability of water supply. Communities in the Mountain region are better positioned to continue serving existing residents and businesses while accommodating a more incremental level of growth.

According to the County Division of Environmental Health Services (DEHS) and recent state law, hauled water is not allowed for new construction and the potable water source for any property must be from an approved water purveyor or permitted well.

## 1.2 Wastewater Services

Based on information from wastewater service agencies and providers, the Valley Region contains the most public wastewater collection/treatment facilities and most communities are connected to one of these systems. The Mountain Region contains regional treatment facilities for some communities, while many are still reliant on septic tanks and leach fields. Most communities in the Desert Region are serviced by private septic systems as the infrastructure, both collection and treatment plants, are limited in number and capacity.

In areas with wastewater plans and treatment plants, all agencies reported adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are also no reports of any major system deficiencies or service inadequacies. Data was unavailable, however, to make an assessment for almost half of the unincorporated communities in the county (these areas are predominantly on septic systems).

Table 1 summarizes existing conditions in the county's unincorporated communities and unincorporated SOIs. Appendix A provides a map of the various unincorporated communities. Appendix B provides maps and a detailed breakdown agency-supplied information for wastewater service providers.

Insight from LAFCO indicates that the communities in the Valley region are best positioned to accommodate growth and treat the associated wastewater. Some communities in the Desert region may also have sufficient treatment systems to accommodate additional growth. Communities in the Mountain region are better positioned to continue serving existing residents and businesses while accommodating a more incremental level of growth. Table 3 provides a summary of a community's ability to support growth based solely on wastewater systems (excluding other factors that will be considered at other stages of the Countywide Plan, such as community growth patterns, topography, and hazard overlays).

The County of San Bernardino adopted a Local Area Management Program (LAMP) to comply with the state's onsite wastewater treatment systems (OTWS) policy. The LAMP provides minimum standards and requirements for the treatment and disposal of sewage through OWTS when no connection to a sewer is available. Requirements for new development include siting standards for OWTS located near drinking water wells, impaired waterways, sources of groundwater, and other specific land uses. Regulations include minimum lot size, residential density, minimum setback requirements, natural ground slope and percolation, OWTS design specifications, and other criteria. In addition, OTWS are not allowed in certain areas of the county where a moratorium exists due to the high concentration of existing OWTS or proximity to groundwater or surface water sources. These communities include:

- Grand Terrace (County Service Area 70, Improvement Zone H)
- Yucaipa – Calimesa
- Lytle Creek (above 2,600 ft MSL)
- Mill Creek (above 2,600 ft MSL)
- Bear Valley (including Baldwin Lake drainage area)
- Lahontan Regional Water Quality Control Board Prohibition Areas 1-5

Oversight of OWTS installation and maintenance involves multiple County divisions: Building and Safety, Environmental Health Services, and Code Enforcement.

**Table 1: Summary of Existing Water and Wastewater Systems and Issues**

AREA	WATER *			WASTEWATER **		
	Primary Purveyor	System Issues	Supply Concerns	Treatment Provider	System Issues	Capacity Concerns
<b>Detailed Community Plans</b>						
Bear Valley	Mix	No	No	Public Agency	No	No
Bloomington	Mix	No	No	Mix	No	No
Crest Forest	Mix	No	No	Public Agency	No	No
Helendale	Mix	No	No	Public Agency	No	No
Hilltop	Mix	No	No	Public Agency	No	Yes
Joshua Tree	Public Agency	No	No	Private/Septic	N/A	N/A
Lake Arrowhead	Mix	No	No	Public Agency	Possible (2040)	No
Lucerne Valley	Private/Wells	N/A	No	Private/Septic	N/A	N/A
Mentone	Public Agency	No	No	Mix	No	No
Muscoy	Private/Wells	N/A	No	Private/Septic	N/A	N/A
Oak Glen	Private/Wells	N/A	No	Private/Septic	N/A	N/A
Phelan/Pinion Hills	Mix	No	No	Private/Septic	N/A	N/A
<b>Other Community Plan Areas</b>						
Angelus Oaks	Mix	No	No	Private/Septic	N/A	N/A
Baker	Mix	N/A	No	Public Agency	No	No
Daggett	Mix	No	No	Private/Septic	N/A	N/A
El Mirage	Private/Wells	N/A	No	Private/Septic	N/A	N/A
Homestead Valley	Mix	No	No	Private/Septic	N/A	N/A
Lytle Creek	Private/Wells	N/A	No	Public Agency	No	N/A
Morongo Valley	Private/Wells	No	No	Private/Septic	N/A	N/A
Mt Baldy	Private/Wells	N/A	No	Private/Septic	N/A	N/A
Newberry Springs	Private/Wells	N/A	No	Private/Septic	N/A	N/A
Oak Hills	Public Agency	No	No	Private/Septic	N/A	N/A
Oro Grande	Public Agency	No	No	Public Agency	No	No
Pioneertown	Public Agency	No	No	Private/Septic	N/A	N/A
San Antonio Heights	Public Agency	No	No	Public Agency	No	No
Wrightwood	Private/Wells	N/A	No	Private/Septic	N/A	N/A
Yermo	Mix	No	No	Private/Septic	N/A	N/A
<b>Unincorporated SOIs</b>						
Adelanto	Private/Wells	N/A	No	Private/Septic	N/A	N/A
Apple Valley	Mix	No	No	Public Agency	No	No
Barstow	Mix	No	No	Public Agency	No	No
Chino	Public Agency	No	No	Public Agency	No	No
Colton (northwest)	Mix	No	No	Public Agency	No	No
Colton (east)	Private/Wells	N/A	No	Private/Septic	N/A	No
Fontana (west)	Mix	No	No	Public Agency	No	No
Fontana (north)	Public Agency	No	No	Public Agency	No	Yes
Hesperia	Public Agency	No	No	Public Agency	No	No
Highland	Public Agency	No	No	Public Agency	No	No

**Table 1: Summary of Existing Water and Wastewater Systems and Issues**

AREA	WATER *			WASTEWATER **		
	Primary Purveyor	System Issues	Supply Concerns	Treatment Provider	System Issues	Capacity Concerns
Loma Linda	Private/Wells	N/A	No	Private/Septic	N/A	N/A
Montclair	Public Agency	No	No	Public Agency	No	No
Needles	Public Agency	No	No	Public Agency	No	No
Rancho Cucamonga	Public Agency	No	No	Public Agency	No	No
Redlands	Public Agency	No	No	Private/Septic	N/A	N/A
Rialto	Public Agency	No	No	Public Agency	No	Yes
San Bernardino (north)	Public Agency	No	No	Public Agency	No	No
San Bernardino (east)	Public Agency	No	No	Public Agency	No	No
Twentynine Palms	Public Agency	No	No	Private/Septic	N/A	N/A
Victorville	Public Agency	No	No	Public Agency	No	No
Upland	Public Agency	No	No	Public Agency	No	No
Yucaipa	Public Agency	No	No	Public Agency	No	No

\*Opinion based on 2010/2015 UWMP data including supply/demand projections and population models.

\*\*Opinion based on current demand/capacity information provided by the wastewater treatment agency. Current treatment capacity less than 75% of the Average Daily Flow (ADF) translated to be a capacity concern. OWTS (septic) is prohibited in the following areas in the County: Grand Terrace, Yucaipa, Lytle Creek, Mill Creek, Bear Valley.



**Table 2: Ability to Accommodate Growth Based on Water Supply**

LOCATION 1 = Yes * 2 = Likely 3 = Potentially 4 = Unlikely	Water Supply Able to Accommodate Growth **	LOCATION	Water Supply Able to Accommodate Growth **	LOCATION	Water Supply Able to Accommodate Growth **
<b>COMMUNITY PLAN AREAS</b>		Lucerne Valley	3	Highland	1
<b>VALLEY</b>		Phelan/Piñon Hills	2	Loma Linda	2
Bloomington	1	Baker	2	Montclair	1
Muscoy	2	Homestead Valley	4   2	Rancho Cucamonga	2
Mentone	2	Morongo Valley (incl CSA 70 F/W3)	4	Redlands	2
San Antonio Heights	3	Oak Hills (CSA 70 J)	2	Rialto	1
<b>MOUNTAIN</b>		Daggett	4	San Bernardino	1
Bear Valley	3	El Mirage	4	Upland	2
Crest Forest	2	Newberry Springs	4	Yucaipa	2
Hilltop	2	Oro Grande (incl CSA 42)	2	<b>MOUNTAIN</b>	
Lake Arrowhead (incl CSA 70 CG)	3	Pioneertown (CSA 70 W4)	4	Big Bear	3
Oak Glen	3	Yermo	4	<b>DESERT</b>	
Wrightwood	3	<b>UNINCORPORATED SOI</b>		Adelanto	3
Angelus Oaks	3	<b>VALLEY</b>		Apple Valley	2
Lytle Creek	4	Chino	1	Barstow	3
Mt Baldy	3	Colton   Northwest	1	Hesperia	2
<b>DESERT</b>		Colton   East	1	Needles (no service per MSR)	3
Helendale	2	Fontana   North	1	Victorville (incl CSA 64)	2
Joshua Tree	3	Fontana   West	1	Twentynine Palms	2

\*The ability to accommodate growth is not quantified and is a generalized reference in regard to existing level of development in the community. In addition to access to adequate water supply, current information on groundwater quality contamination, the ability to treat, and the associated costs of treatment was also considered.

\*\*Opinion based on latest available municipal service reviews, California Department of Water Resources reports, GIS data, and interviews with LAFCO staff.

**Table 3: Ability to Accommodate Growth Based on Wastewater System**

LOCATION 1 = Yes * 2 = Likely 3 = Potentially 4 = Unlikely	Wastewater System Able to Accommodate Growth **	LOCATION	Wastewater System Able to Accommodate Growth **	LOCATION	Wastewater System Able to Accommodate Growth **
<b>COMMUNITY PLAN AREAS</b>		Lucerne Valley	4	Highland	1
<b>VALLEY</b>		Phelan/Piñon Hills	3	Loma Linda	2
Bloomington (incl CSA 70 BL)	2	Baker (CSD)	4	Montclair	1
Muscoy	2	Homestead Valley	4   2	Rancho Cucamonga	1
Mentone (incl CFD 2003-1)	2	Morongo Valley (incl CSA 70 F/W3)	4	Redlands	2
San Antonio Heights	2	Oak Hills (CSA 70 J)	2	Rialto (incl CSA 70 GH)	1
<b>MOUNTAIN</b>		Daggett	4	San Bernardino (incl CSA 70 GH)	1
Bear Valley (incl CSA 53 B, OWTS ban)	3	El Mirage	4	Upland	2
Crest Forest (Crestline San Dist)	3	Newberry Springs	4	Yucaipa	2
Hilltop (incl CSA 79)	3	Oro Grande (incl CSA 42)	2	<b>MOUNTAIN</b>	
Lake Arrowhead (CSD)	3	Pioneertown	3	Big Bear	3
Oak Glen	2	Yermo	4	<b>DESERT</b>	
Wrightwood	4	<b>UNINCORPORATED SOI</b>		Adelanto	3
Angelus Oaks	4	<b>VALLEY</b>		Apple Valley	3
Lytle Creek (incl CSA 70 S3, OWTS ban)	3	Chino	2	Barstow (incl CSA 70 S7)	4
Mt Baldy	4	Colton   Northwest	2	Hesperia (incl CSA 70 SP2)	2
<b>DESERT</b>		Colton   East	2	Needles	3
Helendale	2	Fontana   North	2	Victorville (incl CSA 64)	2
Joshua Tree (exploring reg'l WWTS)	2	Fontana   West (incl CFD 2002-1)	2	Twentynine Palms	3

\*The ability to accommodate growth is not quantified and is a generalized reference in regard to existing level of development in the community. In addition to access to adequate wastewater treatment (OWTS or WWTS), proximity to existing sewer systems and current information on groundwater quality contamination, the ability to treat, and the associated costs of treatment was also considered.

\*\*Opinion based on latest available municipal service reviews, GIS data, and interviews with LAFCO staff.

### 1.3 Drainage and Flooding / Surface Water

San Bernardino County's topography, seasonal rainfall, and drainage patterns have made it susceptible to periodic flooding. The Federal Emergency Management Agency (FEMA) has identified extensive areas within the county that are subject to 100-year and 500-year flooding. However, many parts of the County are not mapped by FEMA and are denoted as Zone D on FEMA flood zone maps. The Department of Water Resources has identified areas in the County that may be subject to the 100-year flood, but regulatory mapping has yet to be completed by FEMA. Additional infrastructure is built as development occurs in different regions of the county.

The County Flood Control District has an extensive system of facilities - including about 70 dams and 40 levees – designed to convey water away from developed areas to protect property. The County has adopted a Master Stormwater System Maintenance Plan to facilitate timely maintenance of its more than 500 facilities. For future development proposals, the County does not require the payment of impact fees to pay for the construction and maintenance of regional infrastructure, although each project is required to include drainage improvements. This is an ongoing issue in outlying areas not located near service providers.

Typical water quality issues for surface water include excess sediments and nutrients, protection of endangered plant and animal species, wastewater disposal problems (septic tanks) and invasive plant eradication.

### 1.4 Groundwater Management

Groundwater resource protection in San Bernardino County is also an important issue given historical land subsidence and the high demand for water from urban uses. The 2014 Sustainable Groundwater Management Act (SGMA) requires qualifying entities to form groundwater sustainability agencies and prepare groundwater sustainability plans (GSPs). These are areas that are critically overdrafted, designated high and medium priority basins, and adjudicated.<sup>1</sup> The majority of high and medium priority basins in the county are adjudicated; only a handful of groundwater basins are unadjudicated and would be required to prepare a GSP by 2022. The County has also adopted its Desert Groundwater Management Ordinance to protect groundwater resources in the unincorporated and unadjudicated desert region (Ordinance 33.06551).

Long-term groundwater management will remain a concern for decades to come, in particular until the long-term drought subsides. Although the majority of the groundwater basins in San Bernardino County are adjudicated, there continues to be ongoing discussion at the Department of Water Resources and other agencies regarding the effectiveness of adjudicated agreements in achieving the long-term goals articulated in the SGMA. The Sustainable Groundwater Management Act asks watermasters or managers of adjudicated areas to submit certain values and

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<sup>1</sup> In adjudicated groundwater basins, the amounts of water that can be extracted by each person or entity holding rights to such water are set forth in a court judgement.

documents to DWR by April 1 of each year. This will allow for the monitoring of the elevation, use, and storage of groundwater throughout different basins in California.

## 1.5 Groundwater Quality

There are common water quality issues throughout San Bernardino County identified by the State and Regional Water Boards. These are due to a combination of issues, including historical and current agricultural, industrial, military, and other land uses within the county. The most typical water quality issues for groundwater include high total dissolved solids (TDS) and nitrate levels, solvent plumes, toxic constituents (metals), wastewater disposal problems (septic tanks), groundwater recharge and aquifer water level management.

The California Water Resources Control Board and its regional boards implement a variety of programs to address the quality of the groundwater.<sup>2</sup> Key statewide programs include: 1) monitoring groundwater contamination; 2) setting groundwater quality objectives to protect beneficial uses of groundwater; 3) implementing programs that regulate the discharge of pollutants to the ground, and cleanup of pollution that has contaminated groundwater; and 4) providing grants and loans for projects that protect the quality of the groundwater. The agency also works with other state and federal entities to cleanup groundwater contamination.

## 1.6 Drinking Water Quality

Water purveyors are solely responsible for ensuring that groundwater they provide to customers meets state and federal drinking water standards. The responsibility to control and treat groundwater is the sole responsibility of water purveyors. Ultimately, all water delivered by water purveyors and private wells must meet or exceed water quality standards established by state and federal drinking water regulations. Many of the water collection facilities that provide potable water from either groundwater or surface water sources actively treat the water before distribution to the communities. Potential impairments to drinking water (e.g., uranium, hexavalent chromium or Cr6<sup>3</sup>, and arsenic) are present throughout the County.

## 1.7 Summary of Public Outreach

This section summarizes the public outreach that included opportunities to comment on or were entirely focused on water, wastewater, and hydrology topics. Table 4 summarizes the input

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<sup>2</sup> San Bernardino County is within the jurisdiction of three regional water quality control boards: the Santa Ana RWQCB for the southwest part of the County; the Lahontan RWQCB for the central and western desert portions of the County; and the Colorado River RWQCB for the southeast and south-central desert portions of the County.

<sup>3</sup> Note that this report evaluates hexavalent chromium based on the standard set by the California Department of Public Health in 2014: 10 parts per billion (ppb). On May 5, 2017, the Sacramento Superior Court issued a decision that the state's water regulation of hexavalent chromium is not economically feasible and must be withdrawn (a copy of the Court's Order can be read [here](#)). The State Water Board is reviewing the order and could appeal or develop a new standard. While the 10 ppb standard is withdrawn, the existing standard for total chromium will continue to limit hexavalent chromium to 50 ppb.

received related to water, wastewater, and hydrology during activities conducted between October 2015 and November 2018, followed by a narrative description of the outreach efforts. Note that issues identified through analysis of governmental data and other reports, are not summarized in Table 4. That information and implications are described elsewhere in this report.

**Table 4: Water, Wastewater, & Hydrology Issues Identified in Public Outreach, 2015–2018**

Issues Identified by the Community	Valley	Mountain	North Desert	East Desert
Drought / water supply	X	X	X	X
Development outpacing infrastructure	X	X	X	X
General water management concerns	X	X		X
Drinking water quality / pollution			X	X
Groundwater contamination			X	X
Flooding			X	X
Sewage sludge and impacts on water quality			X	
Low lake levels		X		
Improve/increase reclaimed water use			X	
Negative response to state limits on hauled water			X	X

Engaging residents in a county as large and diverse as San Bernardino required a robust effort to reach residents, agencies, and other stakeholders who live, work, or serve one or more of the county’s communities. Between 2015 and 2017, the County engaged over 2,100 individuals from over 80 unincorporated communities throughout the county’s four regions. The outreach consisted of over 70 meetings in over 30 different locations, along with in-person and online surveys (total of 910 survey responses).

The public meetings were designed to engage residents in a workshop setting to identify problems and potential solutions to address specific issues unique to each community planning area. Attendees were given a presentation and materials on the overall Countywide Plan effort. Specific questions asked of the community (in person and through the surveys), included the following:

- What areas are there for improvement in the community?
- What internal or external factors or resources could be opportunities for your community?
- What are threats to your community?
- What outside factors outside of the control of the community could threaten your community?

The second phase of public meetings took place in 2017 and 2018 through two rounds of 17 regional meetings in 13 different locations throughout the county’s four regions. Over 600 individuals attended these meetings, including representatives from over 50 agencies and organizations associated with federal, state, regional, and local services and interests. The first round of regional meeting was designed to engage residents, agencies, service, providers, advocacy groups, and other stakeholders to identify and discuss issues that are unique to specific communities or regions or are countywide. The second round of regional meetings presented draft policy recommendations based on input received and as directed by state law. Throughout 2018,

the County conducted individual interviews with service agencies, advocacy groups, and other organizationally-oriented stakeholders.

Finally, with over 100 communities spread across 20,000 square miles, the County anticipated that attendance at public meetings would not be feasible for many community members. To maximize input and access to information, the County posted all of the meeting material online ([countywideplan.com/cp](http://countywideplan.com/cp)) in advance of public meetings (with summary information and electronic versions of surveys posted after the meetings). An individual webpage was dedicated for each community planning area (e.g., [www.countywideplan.com/bloomington](http://www.countywideplan.com/bloomington)) so that community members could focus on information and provide input specific to their area of interest.

The County also maintained individual email addresses for each community (e.g., [bakercp@lus.sbcounty.gov](mailto:bakercp@lus.sbcounty.gov)) and provided an online submission form (no email required) for people to submit comments and questions. Over the span of the three-year outreach effort, the project website was used by over 13,000 unique visitors (excluding County and consultant usage), with the County receiving hundreds of comments and questions through the email addresses and online submission forms (anonymous if desired). A portion of these comments and questions addressed matters related to water, wastewater, and hydrology.

## 2 WATER SERVICES

The unincorporated areas within San Bernardino County have access to domestic water sources that are generally supplied through local and imported water—with approximately 85% of the domestic water supplied by local groundwater sources and the remaining 15% supplied by imported purchased water. Imported water is primarily purchased from the Metropolitan Water District through the State Water Project as a supplemental source to local groundwater supplies. While several regional water wholesalers distribute this imported water throughout the County, numerous retail and private water purveyors manage the majority of the groundwater pumping and distribution.

The following includes a brief discussion on hauled water and County Special Districts, followed by more detailed discussions of water services in the 12 communities associated with the Detailed Community Plans. Water services provided through community service districts (independent, self-governed entities), are referenced in the appropriate community discussion. Maps of water service providers and a detailed matrix of agency-supplied information by geographic area can be found in Appendix B.

### 2.1 Regulation of Hauled Water

#### 2.1.1 County Regulation of Hauled Water

The County's current practice is to not permit hauled water as a water source for new residential construction due to the risk of contamination. This practice was supported by a joint 2003 recommendation of the California Conference of Directors of Environmental Health and the State Department of Health Services Division of Drinking Water and Environmental Management. The State Drinking Water Program was transferred to the State Water Resources Control Board Division of Drinking Water on July 1, 2014.

The County Development Code Section 84.21.030, subdivision (i)(3)(C), authorizes Environmental Health Services (EHS) to approve or deny the residential use of hauled water. A limited number of residences have historically used hauled water and have been allowed to continue (grandfathered). If one of these residences were to be destroyed by a natural disaster, pursuant to Development Code Section 86.15.050 and EHS policy, the owner would be permitted to rebuild in-kind, including continued utilization of hauled water as a water source. Hauled water is not a permitted source of water for multifamily dwellings pursuant to County Development Code Section 84.16.040, subdivision (i).

#### 2.1.2 State Regulation of Hauled Water

##### **SB 1262**

Effective January 1, 2017, the County will be prohibited from considering hauled water as a source of water for any project as defined in California Water Code Section 10912 (including residential

subdivisions with 500 or more units) that the County determines is subject to the California Environmental Quality Act (CEQA).

### **SB 1263**

Effective January 1, 2017, the County will be prohibited from issuing a building permit for the construction of a new residential development as defined in California Government Code Section 65008 (including a single-family residence, a multifamily residence, and manufactured homes) where a source of water supply is water transported by a water hauler, bottled water, a water-vending machine, or a retail water facility. The rebuilding of residences destroyed by a natural disaster is exempt from the prohibition.

## **2.2 County Special Districts**

County Special Districts serves as a water supplier to unincorporated communities through county service areas (CSAs), community facilities districts (CFDs), as well as three regional parks, the High Desert Detention Center, and the Gilbert Street Complex.

CSAs are separate legal entities authorized by California laws and formed by the County Board of Supervisors to fund the County's provision of services, capital improvements and financial flexibility. They are formed and tailored to meet the specific needs of an area so that the property owners only pay for the services they that they want. Some of the unincorporated areas within San Bernardino County are exclusively serviced by these CSAs. CSA's in the County are generalized characterized by small and remote service areas with primary customers being single family residential parcels.

The CSAs provide water to approximately 7,939 residential and commercial connections. The water supply is from the Mojave and Morongo groundwater basins, with water pumped from and treated at active wells in each CSA. Groundwater meets the total annual demand of 3,850 acre-feet (ac-ft) for all CSAs. The CSAs distribute the pumped groundwater to its customers through a series of storage tanks and miles of distribution pipelines.

Special Districts also administers CFDs (aka Mello-Roos), which are formed when the property owners in a geographic area agree to impose a special property tax on the land to fund infrastructure improvements. Based on future tax revenue, CFDs seek public financing through bonds. A Mello-Roos tax must be approved by 2/3 of the voters in a proposed district. There are three CFDs that finance public improvements related to water services in unincorporated county areas.

A summary of the areas receiving water service or water-related public facility improvements is provided in Table 5 and subsequent narratives.



**Table 5: Water Services Areas through County Special Districts**

Reference	Name	Geographic Area	Other Services/Facilities
CSA 42	Oro Grande	North of Victorville	Sewer service
CSA 64	Spring Valley Lake	Between Victorville/Apple Valley	Sewer service
CSA 70 F	Little Morongo Heights	Morongo Valley	--
CSA 70 J	Oak Hills	South of Hesperia	--
CSA 70 CG	Cedar Glen	Lake Arrowhead	--
CSA 70 W3	Hacienda Heights	Morongo Valley	--
CSA 70 W4	Pioneertown	North of Yucca Valley	--
CFD 2002-1	Kaiser Commerce Center	Western Fontana SOI	Roads, sewer, storm drains, public utilities
CFD 2003-1	Citrus Plaza	Redlands, uninc. "Donut Hole"	Roads, sewer, storm drains, traffic mitigation
CFD 2006-1	Lytle Creek North	South of Cajon Pass, west of I-15	Sewer, wastewater treatment, roads and crossings, drainage and flood protection, parks, open space and trails
--	Calico Ghost Town	Calico Ghost Town Regional Park	--
--	Moabi Regional Park	Moabi Regional Park	--
--	Mojave Forks Regional Park	Mojave Forks Regional Park	--
--	High Desert Detention Center	City of Adelanto	--
--	Gilbert Street Complex	City of San Bernardino	--

### **2.2.1 CSA 42 – Oro Grande**

The Oro Grande CSA was established in 1965 to provide water services to what used to be the Riverside Cement Company's "Company Town", in the area five miles northwest of the City of Victorville. The CSA uses user fees, connection fees, and service charges to provide water services to 136 customers. The water supply is obtained through a system of four wells located along the Mojave River, and stored in a 246,000-gallon tank. As of 2015, there were 108 single family residence, 7 multifamily residence, and 5 commercial or industrial connections. CSA 42 also provides sewer services.

### **2.2.2 CSA 64 – Spring Valley Lake**

The Spring Valley Lake CSA was established in 1968, just before The Boise Cascade Home and Land Corporate bought the land to turn it from ranch and farmland into a community. The area uses property taxes, user fees, and services charges to provide services to 3,843 customers and maintain five wells, one booster station, and three water tanks. Spring Valley Lake is in the City of Victorville sphere of influence (SOI) and is adjacent to the Town of Apple Valley. CSA 64 also provides sewer services.

### **2.2.3 CSA 70 F – Little Morongo Heights**

The Little Morongo Heights CSA in Morongo Valley was established in 1971. The district currently services 84 customers using three wells, one booster station, and a reservoir that stores 260,000 gallons of water. The area uses user fees and service charges, and also includes Requirements to fund and transfers.

Potential concerns include groundwater with elevated levels of radiation (gross alpha and uranium). As measured in water samples from January 2016, gross alpha levels were 31 picocuries per liter (pCi/L), which is above the standard or maximum contaminant level (MCL) of 15 pCi/L. As measured in water samples from March 2017, uranium levels were 42 picocuries per liter (pCi/L) and the running annual average (RAA) was 40 pCi/L, which is above the MCL of 20 pCi/L. County Special Districts is seeking grant funding for water treatment facilities to address these concerns. There are no requirements for customers to use alternative water supplies (e.g., bottled water).

#### **2.2.4 CSA 70 CG – Cedar Glen**

The Cedar Glen CSA was established in 2005 and provides operation and maintenance of water connections for 332 customers. The district is funded through user fees, service charges, and special assessments. Water is purchased from the Crestline-Lake Arrowhead Water Agency.

#### **2.2.5 CSA 70 J – Oak Hills**

The Oak Hills CSA, established in 1971, provides services to approximately 11,577 customers in the City of Oak Hills SOI through 3,219 metered water connections, and maintains five wells, five booster stations, nine water storage reservoirs, and 148 miles of water pipelines. It is mainly funded by user fees and services charges.

Potential concerns include groundwater with elevated levels of hexavalent chromium or Cr6. As of December 2016, the level of Cr6 was determined to have a RAA of 20 micrograms per liter (ug/L), which is above the MCL of 10 ug/L. A successful pilot test study was conducted in 2016 to remove the hexavalent chromium by weak base anion resins in well #5. A full-scale design is currently under consideration, with an estimated annual operation cost of \$120,000 for well #5. Per state law, Cr6 levels must be reduced below the MCL by January 2020. There are no requirements for customers to use alternative water supplies (e.g., bottled water).

#### **2.2.6 CSA 70 W-3 – Hacienda**

The Hacienda CSA was established in 1976 and provides operation and water maintenance for 167 customers. The zone maintains two wells, two booster stations, and two storage reservoirs. It's main funding sources are user fees and service charges. Hacienda Heights is in the Morongo Valley.

Potential concerns include groundwater with elevated levels of radiation (gross alpha and uranium). As measured in water samples from August 2015, gross alpha levels were 20 to 31 pCi/L, which is above the MCL of 15 pCi/L. As measured in water samples from January 2017, uranium levels were 19 to 26 pCi/L and the RAA was 22 pCi/L, which is above the MCL of 20 pCi/L. County Special Districts is seeking grant funding for water treatment facilities to address these concerns. There are no requirements for customers to use alternative water supplies (e.g., bottled water).

### **2.2.7 CSA 70 W-4 – Pioneertown**

The Pioneertown CSA was established in 1980 and provides water to 120 customers, maintains two wells and two storage reservoirs. These are funded through user fees and service charges. Pioneertown is north of Yucca Valley.

Potential concerns include groundwater with elevated levels of arsenic, fluoride, and radiation (gross alpha and uranium). As measured in water samples from March 2017, arsenic levels were 62 ug/L, which is above the MCL of 10 ug/L. As measured in water samples from March 2017, fluoride levels were 0.24 to 8.0 milligrams per liter (mg/L) and the RAA was 2.7 mg/L, which is above the MCL of 2.0 mg/L. As measured in water samples from January 2016, gross alpha levels were 17 pCi/L, which is above the MCL of 15 pCi/L. As measured in water samples from January 2016, uranium levels were 10 pCi/L, which is above the MCL of 20 pCi/L.

To address water quality issues, County Special Districts prepared and submitted a construction grant application seeking \$5,045,000 under the State's Drinking Water State Revolving Fund to pay for the construction of a pipeline to interconnect with the Hi-Desert Water District. Under that plan, a pipeline paralleling Pioneertown Road with pumping stations would deliver Hi-Desert Water District water from Yucca Valley to Pioneertown.

Regarding elevated arsenic and radiation levels, there are no requirements for customers to use alternative water supplies (e.g., bottled water). For elevated fluoride levels, County Special Districts recommended that children under the age of nine use an alternative source of water that is low in fluoride.

### **2.2.8 CFD 2002-1 – Kaiser Commerce Center**

CFD 2002-1 was formed in 2002 to finance public improvements for the Kaiser Commerce Center project formerly located on the old Kaiser Steel site in Fontana's western SOI. The CFD is authorized to bonds for the acquisition and improvement of public facilities, including water transmission and distribution facilities. Other authorized facilities include public roadways, sewer facilities, storm drain facilities, and general public utilities.

### **2.2.9 CFD 2003-1 – Citrus Plaza**

CFD 2003-1 was formed in 2003 to finance public infrastructure facilities, including sewer, water, roadway, storm drain and traffic mitigation improvements to the Citrus Plaza development in the unincorporated area known as the "Donut Hole." The Donut Hole is an unincorporated pocket surrounded by incorporated cities, but it is not a part of the Redlands SOI. This area is also subject to a tax sharing agreement (2003, No. 03-0856), which apportions sales and use tax revenue (90% to the City of Redlands through 2028 or until annexation). The City provides sewage collection/treatment, water service, and law enforcement services. The County contracts with the City for fire protection and emergency medical services.

## **2.2.10 CFD 2006-1 – Lytle Creek**

CFD 2006-1 was formed in 2007 to finance public facilities, including street, water, sewer, storm drain, flood control, and park and recreation improvements for the Lytle Creek North Community development, located just west of Interstate 15 in the San Gabriel Mountains. The CFD currently consists of 1,396 taxable parcels and five improvement areas, with and a sixth improvement area under consideration.

## **2.2.11 County Regional Parks**

### ***Calico Ghost Town Regional Park***

The Calico Ghost Town Regional Park is in the Calico Mountains of the Mojave region of San Bernardino County. The water system consists of three wells (only 1 active), two water reservoirs with a capacity of 100,000 gallons, and approximately four miles of water line. There are 25 water connections.

Potential concerns include groundwater with elevated levels of arsenic and fluoride. As measured in water samples from October 2016, arsenic levels were 22 to 24 ug/L and the RAA was 22 ug/L, which is above the MCL of 10 ug/L. As measured in water samples in the fourth quarter 2016, the RAA was 2.6 mg/L, which is above the MCL of 2.0 mg/L.

Regarding elevated arsenic, there are no requirements for customers to use alternative water supplies (e.g., bottled water). For elevated fluoride levels, County Special Districts recommended that children under the age of nine use an alternative source of water that is low in fluoride.

### ***Moabi Regional Park***

The Moabi Regional Park is in the Needles area of San Bernardino County. The water system consists of two wells and two water reservoir tanks with a total capacity of 240,000 gallons. The regional park consists of 100 mobile home sites, 75 RV sites, 188 camp sites, 14 rental cabins, and 13 restrooms.

Potential concerns include groundwater with elevated levels of hexavalent chromium or Cr6. As of December 2016, the level of Cr6 was determined to have a RAA of 11 ug/L, which is above the MCL of 10 ug/L. Per state law, Cr6 levels must be reduced below the MCL by January 2020. There are no requirements for customers to use alternative water supplies (e.g., bottled water).

### ***Mojave River Forks Regional Park***

The Mojave River Forks Regional Park is in the Summit Valley area of San Bernardino County. The water system consists of one well and one water reservoir tank with a capacity of 50,000 gallons. There are 53 water connections, one residence, and 25 RV spaces and 25 campsites.

### **2.2.12 High Desert Detention Center**

The High Desert Detention Center (HDDC) is in the City of Adelanto and currently provides safe, secure housing for over 700 inmates and over 160 safety, general, and medical employees. County Special Districts operates a Class III water treatment facility for the HDDC. The system consists of a single vertical well, pre-filter, reverse osmosis system, calcite treatment, chlorinator, storage tank capacity of 226,000 gallons and four variable frequency drive motors. The system has a backup water connection to City of Adelanto.

### **2.2.13 Gilbert Street Complex**

The Gilbert Street Complex Water System is owned by the County of San Bernardino and is operated by County Special Districts. The system provides water services to the numerous buildings and a juvenile detention center, and consists of one well and one reservoir with a capacity of 250,000 gallons of water. The system has an auxiliary connection to the San Bernardino Municipal Water District for emergencies. A booster station serves the Juvenile Detention Center and consists of a pressure tank and two booster pumps.

## **2.3 Bloomington**

Bloomington is locally serviced by West Valley Water District (WVWD), Fontana Water Company (FWC) and Marygold Mutual Water Company (MMWC) which all serve as the retail water purveyors. A WVWD water system facility map, UWMP and Water Master Plan have been obtained and have been preliminarily reviewed. More information/analysis regarding the Bloomington community is provided under separate cover.

## **2.4 Bear Valley Communities**

The Bear Valley plan area encompasses approximately 135 square miles surrounding Big Bear Lake in the San Bernardino National Forest. It is bound to the southwest by the Hilltop Community and to the north by Lucerne Valley. Included within the Bear Valley Community are the communities of Baldwin Lake, Big Bear City, Erwin Lake, Fawnskin/Northshore, Lake Williams, Moonridge and Sugarloaf. Groundwater derived from the Bear Valley Groundwater Basin serves as the primary source of regional water throughout this community.

### **2.4.1 Baldwin Lake**

Baldwin Lake is locally serviced by the Big Bear City Community Services District, which serves as the retail water purveyor. The BBCCSD service area encompasses approximately 21 square miles and 6,018 connections. BBCCSD draws water from a singular source: groundwater developed through springs, vertical wells and horizontal (slant) wells.

Water System facility maps have been obtained for the BBCCSD service area and the current infrastructure appears acceptable to meet the demands of the current land uses. In addition, a water master plan has been obtained for BBCCSD and the existing system appears to be in good condition with no pitfalls readily identified. The BBCCSD water distribution system includes four

reservoirs with a capacity of 6.25 mg, 82 miles of pipeline, 10 active vertical wells, 2 slant wells, 2 springs and 6 booster stations. BBCCSD plans to pump groundwater to meet the projected water use for the planning horizon and currently pumps 1,307 ac-ft/year.

The 2015 UWMP provides a forecast for water supply and demand within the district boundary based on population projections. According to the information available, the community of Baldwin Lake appears to have adequate supplies and infrastructure to meet projected water demands during average, single-dry, and multiple-dry years through 2035. There are no reports of any major system deficiencies or current service inadequacies.

#### **2.4.2 Big Bear City**

Big Bear City is locally serviced by the BBCCSD, which serves as the retail water purveyor. A discussion regarding the BBCCSD water system can be found above. According to the information available, the community of Big Bear City appears to have adequate supplies and infrastructure to meet projected water demands during average, single-dry, and multiple-dry years through 2035. There are no reports of any major system deficiencies or current service inadequacies.

#### **2.4.3 Erwin Lake**

Erwin Lake is locally serviced by the City of Big Bear Lake Department of Water and Power (BBLDWP), which serves as the retail water purveyor. The BBLDWP service area encompasses approximately 9.3 square miles. BBLDWP primarily produces potable water from groundwater wells (through pumping or by gravity) and does not currently use surface or imported water to meet its water demand.

Water System facility maps were obtained for the BBLDWP service area and the current infrastructure appears acceptable to meet the demands of the current land uses. In addition, a water master plan was obtained for BBLDWP and the existing system appears to be in good condition with no pitfalls readily identified. The BBLDWP water distribution system includes five water systems with 15 separate pressure zones, 176 miles of pipeline, 62 wells, 16 reservoirs and 12 booster stations. BBLDWP plans to pump groundwater to meet the projected water use for the planning horizon and currently pumps 2,228 ac-ft/year. According to the 2015 UWMP, the estimate of perennial yield available to the BBLDWP is 3,100 ac-ft/year.

The 2015 UWMP provides a forecast for water supply and demand within the district boundary based on population projections. According to the information available, the community of Erwin Lake appears to have adequate supplies and infrastructure to meet projected water demands during average single-dry, and multiple-dry years through 2040. There are no reports of any major system deficiencies or current service inadequacies.

#### **2.4.4 Fawnskin/Northshore**

Fawnskin/Northshore is locally serviced by BBLDWP, which serves as the retail water purveyor. A discussion regarding the BBLDWP water system can be found above. According to the

information available, the community of Fawnskin/Northshore appears to have adequate supplies and infrastructure to meet projected water demands during average, single-dry, and multiple-dry years. There are no reports of any major system deficiencies or current service inadequacies.

#### **2.4.5 Lake Williams**

Lake Williams is locally serviced by BBLDWP, which serves as the retail water purveyor. A discussion regarding the BBLDWP water system can be found above. According to the information available, the community of Lake Williams appears to have adequate supplies and infrastructure to meet projected water demands during average, single-dry, and multiple-dry years. There are no reports of any major system deficiencies or current service inadequacies.

#### **2.4.6 Moonridge**

Moonridge is locally serviced by BBLDWP, which serves as the retail water purveyor. A discussion regarding the BBLDWP water system can be found above. According to the information available, the community of Moonridge appears to have adequate supplies and infrastructure to meet projected water demands during average, single-dry, and multiple-dry years. There are no reports of any major system deficiencies or current service inadequacies.

#### **2.4.7 Sugarloaf**

Sugarloaf is locally served by BBLDWP, which serves as the retail water purveyor. A discussion regarding the BBLDWP water system can be found above. According to the information available, the community of Sugarloaf appears to have adequate supplies and infrastructure to meet projected water demands during average, single-dry, and multiple-dry years. There are no reports of any major system deficiencies or current service inadequacies.

### **2.5 Crest Forest Communities**

The Crest Forest plan area encompasses approximately 18 square miles and is bound to the east by the Lake Arrowhead Community. Included within the Crest Forest Community are the communities of Cedarpines Park, Crestline, Lake Gregory, and Valley of Enchantment. CLAWA serves as the primary regional water wholesaler for this Community. As such, CLAWA contracts for California State Water Project (SWP) water, and in turn sells this water to public and private retail water purveyors within the CLAWA service area.

#### **2.5.1 Cedarpines Park**

Cedarpines Park is locally serviced by Cedarpines Park Mutual Water Company (CPPMWC), which serves as the retail water purveyor. According to the UWMP Act, water suppliers who directly or indirectly provide water for municipal purposes to no more than 3,000 customers, or supply less than 3,000 ac-ft of water annually do not need to develop and implement an Urban Water Management Plan. Because Cedarpines Park falls into this exempt category, water system assessment information is not readily available and a detailed existing conditions summary is not possible at this time. In addition, cooperation from CPPMWC has been restrictive so the County

of San Bernardino will be relied upon to acquire the pertinent existing conditions information for future inclusion in this report.

### **2.5.2 Crestline**

Crestline is locally serviced by the Crestline Village Water District (CVWD), which serves as the retail water purveyor. The CVWD service area encompasses approximately 5 square miles. CVWD produces water locally from 52 approved groundwater sources located on 22 individual sites and purchases supplemental water from CLAWA. CVWD also has 12 water storage tanks with a total storage capacity of 8.84 million gallons. According to the 2010 UWMP, CVWD serves approximately 4,957 active service connections with 96% of those connections classified as residential.

Neither water system facility maps nor a water master plan has been obtained at this time for CVWD and a detailed assessment of the existing infrastructure can only be postulated from the available data. The 2010 UWMP vaguely describes the current system as containing “many miles of pipelines, of varying ages, types and conditions”.

The 2015 UWMP provides a forecast for future water supply and demand within the district boundary based on population projections. According to the information available, the community of Crestline appears to have adequate supplies and infrastructure to meet projected water demands during average, single-dry, and multiple-dry years through 2035. There are no reports of any major system deficiencies or current service inadequacies.

### **2.5.3 Lake Gregory**

Lake Gregory is locally serviced by CVWD, the retail water purveyor. A discussion regarding the CVWD water system can be found above in the discussion of the Crestline community. According to the information available, Lake Gregory appears to have adequate supplies and infrastructure to meet projected water demands during average, single-dry, and multiple-dry years through 2035. There are no reports of any major system deficiencies or current service inadequacies.

### **2.5.4 Valley of Enchantment**

Valley of Enchantment is locally serviced by Valley of Enchantment Mutual Water Company (VOEMWC), which serves as the retail water purveyor. According to the UWMP Act, water suppliers who directly or indirectly provide water for municipal purposes to no more than 3,000 customers, or supply less than 3,000 ac-ft of water annually do not need to develop and implement an Urban Water Management Plan. According to a 2014 Valley of Enchantment shareholder press release, VOEMWC purchased 67% of its total water supply from CLAWA and produced 33% from company well sources in 2013. Because Valley of Enchantment falls into this exempt category, water system information assessment is not readily available and a detailed existing conditions summary is not possible at this time.



## **2.6 Hilltop Communities**

The Hilltop plan area encompasses approximately 40 square miles and is bound to the northwest by the Lake Arrowhead Community and to the east by the Bear Valley Community. Included within the Hilltop Community are the communities of Arrowbear Lake, Green Valley Lake, and Running Springs. CLAWA serves as the primary regional water wholesaler for this Community. As such, CLAWA contracts for SWP water, and in turn sells this water to public and private retail water purveyors within the CLAWA service area.

### **2.6.1 Arrowbear Lake**

Arrowbear Lake is locally serviced by Arrowbear Park County Water District (APCWD), which serves as the retail water purveyor. According to the UWMP Act, water suppliers who directly or indirectly provide water for municipal purposes to no more than 3,000 customers, or supply less than 3,000 ac-ft of water annually do not need to develop and implement an Urban Water Management Plan. Because Arrowbear Lake falls into this exempt category, water system assessment information is not readily available and a detailed existing conditions summary is not possible at this time.

### **2.6.2 Green Valley Lake**

Green Valley Lake is locally serviced by Green Valley Mutual Water Company (GVMWC), the retail water purveyor. According to the UWMP Act, water suppliers who directly or indirectly provide water for municipal purposes to no more than 3,000 customers, or supply less than 3,000 ac-ft of water annually do not need to develop and implement a UWMP. Because Green Valley Lake falls into this exempt category, water system assessment information is not readily available and a detailed existing conditions summary is not possible at this time. In addition, cooperation from GVMWC has been restrictive so the County of San Bernardino will be relied upon to acquire the pertinent existing conditions information for future inclusion in this report.

### **2.6.3 Running Springs**

Running Springs is locally serviced by the Running Springs Water District (RSWD), the retail water purveyor. The RSWD water system supplies water to over 4,500 people with a distribution system encompassing approximately 7 square miles. RSWD draws water from three different sources: purchased water from CLAWA, purchased water from Arrowbear Park County Water District (APCWD) and groundwater from 12 wells. The current mix of water supplied within the distribution system is 53% groundwater and 47% purchased water. According to the 2010 UWMP, the RSWD planned to construct new wells so an update to this breakdown may be forthcoming.

Water System facility maps have been obtained for the entire water network within the RSWD service area and the current infrastructure appears acceptable to meet the demands of the current land uses. In addition, a water master plan has been obtained for RSWD and the existing system appears to be in good condition with no pitfalls readily identified. The RSWD water supply system includes 13 water storage tanks, 14 booster (pumping) stations and approximately 43 miles of

pipes ranging in size from 2” to 16” in diameter. Pipe materials in the distribution system consist of asbestos-concrete (AC) pipe, PVC pipe and steel pipe.

In addition, the 2010 UWMP provides a forecast for future water supply and demand within the district boundary based on population projections. According to the information available, RSWD has adequate supplies to meet demands throughout the planning period (through the year 2025) assuming they will continue to be able to purchase water from CLAWA and APCWD. There are no reports of any major system deficiencies or current service inadequacies.

## **2.7 Helendale**

The Helendale plan area encompasses 5 square miles and a population of 5,623. The Helendale Community Services District (HCSD) supplies water from local groundwater sourced by the Mojave River Regional aquifer. The MWA replenishes the aquifer with imported water primarily from the SWP and serves as the regional water wholesaler for Helendale. The MWA maintains a comprehensive groundwater monitoring program and the 2015 UMWP states that water levels in the Helendale plan area (Alto Subarea) appear to be in regional balance although portions of the subarea have shown continued historical decline. Ultimately, supply is anticipated to continue to meet future demand based on population growth projections for this plan area.

According to the UWMP Act, water suppliers who directly or indirectly provide water for municipal purposes to no more than 3,000 customers, or supply less than 3,000 ac-ft/year of water annually do not need to develop and implement an Urban Water Management Plan. Because HCSD falls into this exempt category, water system assessment information is not readily available and a detailed existing conditions summary is not possible at this time.

## **2.8 Joshua Tree**

The Joshua Tree area is locally serviced by the Joshua Basin Water District (JBWD), which encompasses approximately 100 square miles and serves more than 4,200 water connections. JBWD draws water from two groundwater sub-basins as its sole source of water.

The underground basins are not adjudicated; there are no deeded rights to withdraw water. JBWD is responsible for overall management of water resources pursuant to their Groundwater Management Plan. MWA replenishes the aquifer with imported water primarily obtained from the SWP and serves as the regional water wholesaler. JBWD is in the process of constructing a basin recharge system to use SWP water via MWA’s Morongo Basin Pipeline and lessen the overdraft situation. The MWA maintains a comprehensive groundwater monitoring program and the 2015 UWMP states that the Joshua Tree area (Morongo Subarea) is in overdraft condition. As shown in the UWMP analyses, JBWD has adequate supply to meet demands during average, single-dry and multiple-dry years throughout the planning period (through 2035). While during the dry years, the groundwater basin will continue to be overdrafted to meet the supplies due to the lack of imported

supplies being available to recharge the basin, the planned imported SWP supply will lessen and offset the overdraft as much as possible.

Through an agreement with MWA, JBWD is entitled to 1,959 ac-ft/year of SWP water until 2022, which they cannot access without the extension of the Morongo Pipeline and construction of planned recharge facilities. Groundwater production from the underground basins has averaged 1,660 ac-ft/yr. According to the 2015 UWMP, JBWD obtains its water supply from 5 wells; two wells are in the Copper Mountain basin and three wells, along with the proposed recharge basins, are in the Joshua Tree Basin. Water System facility maps were obtained for the JBWD service area and the current infrastructure appears acceptable to meet the demands of the current land use.

According to the information available, the community of Joshua Tree appears to have adequate supplies and infrastructure to meet projected water demands during average, single-dry, and multiple-dry years throughout the 20-year planning period (through the year 2040) to maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or current service inadequacies.

## **2.9 Lake Arrowhead Communities**

The Lake Arrowhead plan area encompasses approximately 30 square miles and is bound to the west by the Crestline Community and to the southeast by the Hilltop Community. Included within the Lake Arrowhead Community are the communities of Blue Jay, Cedar Glen, Deer Lodge Park, Lake Arrowhead, Rim Forest, Sky Forest, and Twin Peaks. The Crestline-Lake Arrowhead Water Agency (CLAWA) serves as the primary regional water wholesaler for this Community as a whole. As such, CLAWA contracts for SWP water, and in turn sells this water to public and private retail water purveyors within the CLAWA service area.

### **2.9.1 Blue Jay**

Blue Jay is locally serviced by CLAWA, the retail water purveyor. Although primarily serving as a water wholesaler, CLAWA does provide some direct service to retail customers such as those located within Blue Jay. According to the 2010 UMWP, there are approximately 14,750 active service connections in the entirety of the CLAWA service area with only 1,199 of those connections being served by CLAWA directly. Neither water system facility maps nor a water master plan has been obtained at this time and a detailed assessment of the existing infrastructure can only be postulated from the available data.

According to the information available, the community of Blue Jay appears to have adequate supplies and infrastructure to meet projected water demands during average and multiple-dry years through the year 2035, but may run into deficiencies by 2035 during single-dry years. The single-dry year scenario is based on a very conservative assumption that no Houston Creek supplies would be available despite historical availability during such years. There are otherwise no reports of any major system deficiencies or current service inadequacies.

### **2.9.2 Cedar Glen**

Cedar Glen is locally serviced by CSA 70 Zone CG, which serves as the retail water purveyor. Cedar Glen maintains two in-service groundwater supply wells and approximately 22 miles of pipeline for water deliveries. Total population in the service area is 1,253 per LAFCO MSR data with 342 single family residential connections (no multi family or commercial/industrial connections). No information has been found for current and future water supply and demand assessments as they are not required to prepare an Urban Water Management Plan and a California Department of Water Resources survey was not available.

### **2.9.3 Deer Lodge Park**

Deer Lodge Park is locally serviced by LACSD, the retail water purveyor. The LACSD water system boundary includes approximately 4,900 acres and services several environs within the Lake Arrowhead Community. LACSD draws water from three different sources: purchased water from CLAWA, surface water from Lake Arrowhead and groundwater from approximately 5 wells. Recycled water is also being produced from wastewater in limited capacity with the potential to expand the system in the future.

According to the 2015 Urban Water Management Plan (UWMP), LACSD has 7,800 water meters installed. Water System facility maps have been obtained for the entire water network within the LACSD service area and the current infrastructure appears acceptable to meet the demands of the current land use. A water master plan could not be obtained at this time so a detailed assessment of infrastructure can only be postulated from available data. The 2015 UWMP forecasts future water supply and demand within the district boundary based on population projections.

According to the information available, the community of Deer Lodge Park appears to have adequate supplies and infrastructure to meet projected water demands during average and multiple-dry years through the year 2035, but may run into deficiencies by 2040 during average and single-dry years. There are otherwise no reports of any major system deficiencies or current service inadequacies.

### **2.9.4 Lake Arrowhead**

Lake Arrowhead is locally serviced by the Lake Arrowhead Community Services District (LACSD), which serves as the retail water purveyor. A discussion regarding the LACSD water system is can be found above. According to the information available, the LACSD appears to have adequate supplies and infrastructure to meet projected water demands during average and multiple-dry years through the year 2035, but may run into deficiencies by 2040 during average and single-dry years. There are otherwise no reports of any major system deficiencies or current service inadequacies.

### **2.9.5 Rim Forest**

Rim Forest is locally serviced by LACSD, the retail water purveyor. A discussion regarding the LACSD water system can be found above. According to the information available, the community of Rim Forest appears to have adequate supplies and infrastructure to meet projected water demands during average and multiple-dry years through the year 2035, but may run into deficiencies by 2040 during average and single-dry years. There are otherwise no reports of any major system deficiencies or current service inadequacies.

### **2.9.6 Sky Forest**

Sky Forest is locally serviced by Sky Forest Mutual Water Company (SFMWC), the retail water purveyor. According to the UWMP Act, water suppliers who directly or indirectly provide water for municipal purposes to no more than 3,000 customers, or supply less than 3,000 ac-ft/year of water annually do not need to develop and implement an Urban Water Management Plan. Because Sky Forest falls into this exempt category, water system assessment information is not readily available and a detailed existing conditions summary is not possible at this time.

### **2.9.7 Twin Peaks**

Twin Peaks is locally serviced by Alpine Water Users Association (AWUA), the retail water purveyor. According to the UWMP Act, water suppliers who directly or indirectly provide water for municipal purposes to no more than 3,000 customers, or supply less than 3,000 ac-ft of water annually do not need to develop and implement an Urban Water Management Plan. Because Twin Peaks falls into this exempt category, water system assessment information is not readily available and a detailed existing conditions summary is not possible at this time.

## **2.10 Lucerne Valley**

The Lucerne Valley plan area encompasses approximately 433 square miles and is bound directly to the south by the Bear Valley Community. Included within this plan area are 10 private water purveyors that serve their respective customers. The water companies include Bar H Mutual Water Company, Center Water Company, Desert Dawn Mutual Water Company, Desert Springs Mutual Water Company, Golden State Water Company (Lucerne Valley System), Gordan Acres Water Company, Jubilee Mutual Water Company, Lucerne Valley Mutual Water Company, Lucerne Vista Mutual Water Company and West End Mutual Water Company.

All of the water retailers listed above supply water to their customers from local groundwater from the Lucerne Valley Groundwater Basin. The Mojave Water Agency (MWA) replenishes the aquifer with imported water primarily obtained from the SWP and serves as the regional water wholesaler. The MWA maintains a comprehensive groundwater monitoring program and the 2015 UMWP states that water levels in the Lucerne Valley plan area (Este Subarea) have remained stable indicating a relative balance between recharge and discharge. Ultimately, supply is anticipated to continue to meet future demand based on population growth projections for this plan

area. Neither water system facility maps nor a water master plan has been obtained at this time and a detailed assessment of the existing infrastructure can only be postulated from the available data

According to the UWMP Act, water suppliers who directly or indirectly provide water for municipal purposes to no more than 3,000 customers, or supply less than 3,000 ac-ft/year of water do not need to develop and implement an UWMP. Because all 10 of the water companies servicing Lucerne Valley fall into this exempt category, and no additional information could be obtained from the majority of these water companies, water system assessment information is not readily available and a detailed existing conditions summary is not possible at this time.

## **2.11     Mentone**

The Mentone plan area is locally serviced by the City of Redlands, which serves as the retail water purveyor. Currently, Redlands provides water to a population of about 78,000 within its service area with approximately 23,000 water connections. The service area encompasses approximately 36 square miles.

Redlands supplies local groundwater, surface water, and imported water from SBVMWD. The majority of water is obtained from the Santa Ana River, Mill Creek, and the San Bernardino and Yucaipa Basins. Redlands utilizes about 50% groundwater to meet annual water demand. Historically, Redlands has purchased supplemental water from SBVMWD only when surface water flows are not available to meet demands. Redlands system includes two surface water treatment plants, 20 wells, 37 booster pumps, 18 reservoirs, and nearly 400 miles of transmission and distribution lines. Redlands' average daily water consumption is estimated at 27 million gallons-per-day (MGD) with a maximum daily of 50 MGD in the summer. The entire water system has a 54-million-gallon maximum storage capacity and the Tate water treatment plant has a design capacity of 20 MGD.

Neither a water system facility maps nor a water master plan were furnished by Redlands, a meeting with the municipal utility indicated that adequate resources are available to meet current and future water demands with excess resources and expansion potential. A limiting factor to consider for future land use scenarios stems from Measure 'U' which limits the City's ability to only approve 125 new domestic water meters and 25 new commercial water meters in any given year on a first-come first-serve basis. According to the 2015 UWMP and the City, the community of Mentone has adequate supplies and infrastructure to meet projected water demands during average, single-dry, and multiple-dry years through 2040. There are no reports of any major system deficiencies or current service inadequacies.

## **2.12     Muscoy**

The Muscoy community is locally serviced by the Muscoy Mutual Water Company (MMWC), which serves as the retail water purveyor. MMWC draws groundwater as its singular source, which is delivered through 1,550 service connections. According to the UWMP Act, water suppliers who

directly or indirectly provide water for municipal purposes to no more than 3,000 customers, or supply less than 3,000 ac-ft/year of water annually do not need to develop and implement an Urban Water Management Plan. Because MMWC falls into this exempt category, and no additional information could be obtained from MMWC, water system assessment information is not readily available and a detailed existing conditions summary is not possible at this time.

However, MMWC supplies water to their customers from local groundwater sourced by the San Bernardino Basin aquifer and pumped via wells. The San Bernardino Valley Municipal Water District (SBVMWD) replenishes the aquifer with imported water primarily obtained from the SWP and serves as the regional water wholesaler for Muscoy. According to the 2015 UWMP for SBVMWD, the community of Muscoy appears to have adequate supplies and infrastructure to meet projected water demands during average, single-dry, and multiple-dry years through 2035. There are no reports of any major system deficiencies or current service inadequacies.

## **2.13 Oak Glen**

Oak Glen is locally serviced by Oak Glen Domestic Water Company (OGDWC), which serves as the retail water purveyor. According to the UWMP Act, water suppliers who directly or indirectly provide water for municipal purposes to no more than 3,000 customers, or supply less than 3,000 ac-ft of water annually do not need to develop and implement an Urban Water Management Plan. Because OGDWC falls into this exempt category, water system assessment information is not readily available and a detailed existing conditions summary is not possible at this time.

## **2.14 Phelan/Piñon Hills**

The Phelan/Piñon Hills area covers 134 square miles and is served by two water purveyors: Phelan Piñon Hills Community Services District (PPHCSD) and Sheep Creek Water Company. Both agencies supply water from local groundwater sourced by the Mojave River Regional aquifer and pumped via wells. The MWA replenishes the aquifer with imported water primarily obtained from the SWP and serves as the regional water wholesaler. The MWA maintains a comprehensive groundwater monitoring program and the 2015 UMWP states that water levels in the Phelan/Piñon plan area (Alto Subarea) appear to be in regional balance although portions of the subarea have shown continued historical decline. Ultimately, supply is anticipated to continue to meet future demand based on population growth projections for this plan area.

PPHCSD's service area encompasses 119 square miles and provides water to 6,800 service connections, of which 99% are single-family homes. According to the 2015 UWMP, PPHCSD obtains its water supply from the local groundwater aquifer through 11 wells. PPHCSD's water distribution system consists of 353 miles of pipelines, 16 pressure zones, 35 storage reservoirs, 32 pressure-reducing stations and 24 booster pump stations. Neither water system facility maps nor a water master plan has been obtained for PPHCSD and a detailed assessment of the existing infrastructure can only be postulated from the available data. According to the information available, the community of Phelan/Piñon Hills appears to have adequate supplies and

infrastructure to meet projected water demands during average, single-dry, and multiple-dry years through 2040. There are no reports of any major system deficiencies or current service inadequacies.

An area of about 10 square miles centered at the south end of PPHCSD's service area is serviced by the Sheep Creek Mutual Water Company. Because Sheep Creek Water Company is considered exempt from the preparation of a UWMP, water system assessment information is not readily available and a detailed existing conditions summary is not possible at this time. In addition, cooperation from PPHCSD has been restrictive so the County of San Bernardino will be relied upon to acquire the pertinent existing conditions information for future inclusion in this report.

## **2.15 Other Unincorporated Areas**

Data was also gathered for other areas in the unincorporated portion of San Bernardino County, including unincorporated spheres of influence (SOIs) and smaller communities that are generally farther away from urbanized areas. Based on information provided by water districts/purveyors, the vast majority of land within unincorporated SOIs receive water service from public agencies with adequate water supplies through 2040. Additional information can be found in Appendix B.

### **2.15.1 Communities on Wells**

Other portions of unincorporated areas in San Bernardino County rely on groundwater extracted by wells as the primary source of drinking water. DEHS is responsible for permitting new wells. If a community area is not within the service area of a water purveyor, well water is allowed if all setback requirements and appropriate testing are met, and the well permit is approved. DEHS also recommends testing annually for bacteria, nitrates and any other contaminants of concern including arsenic, fluoride, iron, manganese and sulfur.

A list of unincorporated areas or communities that are reliant on wells (and are not covered by a CSA) is provided below.

- Adelanto SOI (portions)
- Colton SOI (east)
- El Mirage
- Loma Linda SOI (east)
- Lytle Creek
- Mt Baldy
- Newberry Springs

### **2.15.2 Community Service Districts**

Three CSDs provide water service to unincorporated communities in the county.



### ***Baker CSD***

The Baker CSD provides water, sanitary sewer, trash collection, fire protection, television translators, road maintenance, street lighting, park and recreation including the Jesse Meyer Community Center, a public swimming pool, and a senior center (shared by the Baker Area Chamber of Commerce). The current service population is approximately 1,000.

Potential concerns include groundwater with elevated levels of gross alpha uranium and Cr6. As measured in water samples from June 2015, gross alpha uranium levels were 22-33 pCi/L, which is above the MCL of 15 pCi/L. As of June 2015, the level of Cr6 was measured at 7.3-19 ug/L, which is above the MCL of 10 ug/L. Per state law, Cr6 levels must be reduced below the MCL by January 2020. There are no requirements for customers to use alternative water supplies (e.g., bottled water).

### ***Daggett CSD***

The Daggett CSD provides water, streetlighting, fire protection, and park and recreation services. While the permanent population of this community is low (current service population approximately 1,000), the services are also used by travelers passing through along Interstate 40. Water production rights are determined by the adjudication of the Mojave Water Basin, with a based annual production of 304 ac-ft and a 40% free production allowance (122 ac-ft) for 2017-18.

### ***Newberry CSD***

The Newberry CSD provides water, sewer, refuse, fire protection, park and recreation, police, and streetlighting services. The CSD utilizes water from local wells for its facilities and fire protection purposes. While the permanent population of this community is low (current service population approximately 2,071), the services are also used by travelers passing through along Interstates 15 and 40.

### 3 WASTEWATER SERVICES

The Valley Region of San Bernardino County contains the most public wastewater collection/treatment facilities and most communities there are connected to one of these systems. The Mountain Region also contains regional treatment facilities for the associated communities. While most of the communities are connected to these systems, some communities still rely on private sewage treatment systems (septic). Most communities in the Desert Region are serviced by private septic systems, however, there are limited sewer service agencies in the region.

The following includes a brief discussion on wastewater regulation and County Special Districts, followed by more detailed discussions of wastewater services in the 12 communities associated with the Detailed Community Plans. Wastewater services provided through community service districts (independent, self-governed entities), are referenced in the appropriate community discussion. Maps of wastewater service providers and a detailed matrix of agency-supplied information by geographic area can be found in Appendix B.

#### 3.1 Regulation of Wastewater

##### 3.1.1 County Regulation of Wastewater

The County of San Bernardino adopted a Local Area Management Program (LAMP) to comply with the state's onsite wastewater treatment systems (OTWS) policy. The LAMP provides minimum standards and requirements for the treatment and disposal of sewage through OWTS when no connection to a sewer is available. Requirements for new development include siting standards for OWTS located near drinking water wells, impaired waterways, sources of groundwater, and other specific land uses. Regulations include minimum lot size, residential density, minimum setback requirements, natural ground slope and percolation, OWTS design specifications, and other criteria. In addition, OTWS are not allowed in certain areas of the county where a moratorium exists due to the high concentration of existing OWTS or proximity to groundwater or surface water sources. These communities include:

- Grand Terrace (County Service Area 70, Improvement Zone H)
- Yucaipa – Calimesa
- Lytle Creek (above 2,600 ft MSL)
- Mill Creek (above 2,600 ft MSL)
- Bear Valley (including Baldwin Lake drainage area)
- Lahontan Regional Water Quality Control Board Prohibition Areas 1-5

Oversight of OWTS installation and maintenance involves multiple County divisions. The Building and Safety Division is responsible for issuing permits for new construction, replacement, and repair of OWTS; reviewing plot plans for new and replacement OWTS; retaining permit

information; and complying with LAMP reporting requirements. The Building and Safety Division requires DEHS approval for OWTS proposals when the OTWS is in a prohibition area, or within the Advanced Protection Management Program area.

DEHS is also responsible for issuing permits for alternative treatment systems; reviewing percolation reports and alternative treatment proposals for new and replacement systems in high risk residential areas and commercial projects; investigating and storing complaints for OWTS in multi-family dwellings (3 or more units); and complying with LAMP reporting requirements.

The Division of Code Enforcement Investigating complaints for overflowing/failed septic tanks for single family residences and two-unit dwellings, and complying with LAMP reporting requirements.

### **3.1.2 State Regulation of Wastewater**

#### **AB 885**

The State Water Resources Control Board implements regulations to reduce the impact of wastewater sources on groundwater quality in accordance with state law (AB 885), through its water quality control policy for siting, design, operation, and maintenance of OWTS (Resolution No. 2012-0032). This policy establishes a statewide, risk-based, tiered approach for the regulation and management of OWTS installations and replacements that have affected, or will affect, groundwater or surface water to a degree that makes it unfit for drinking water or other uses, or cause a health or public nuisance condition. RWQCBs incorporated the standards established in the OWTS Policy, or standards that are more protective of the environment and public health, into their water quality control plans. Implementation is overseen by the state and regional water quality boards and local agencies (e.g., county and city departments and independent districts).

## **3.2 County Special Districts**

County Special Districts provides sewer services to unincorporated communities through county service areas (CSAs) and community facilities districts (CFDs).

Ten county service areas (CSAs) provide sewer services to approximately 11,484 residential and commercial connections, serving small and/or remote areas. Special Districts collects and transports sewage flow over its miles of collection pipelines to local treatment facilities or to a third-party treatment provider. For the CSAs that do not have treatment facilities, Special Districts has treatment agreements with Victor Valley Wastewater Reclamation Authority (VWVRA), Running Springs Water Agency, and Big Bear Area Regional Wastewater Agency (BBARWA).

In general, the Special Districts operates and maintains each CSA as a self-supporting enterprise. CSAs are formed and tailored to meet the specific needs of an area so that the property owners only pay for the services they want. As self-supporting enterprises, the water and sewer rates should provide sufficient levels of revenue to meet all operation and maintenance expenses,

debt service requirements, routine annual replacements of capital improvements, and other requirements.

Special Districts also administers CFDs (aka Mello-Roos), which are formed when the property owners in a geographic area agree to impose a special property tax on the land to fund infrastructure improvements. Based on future tax revenue, CFDs seek public financing through bonds. A Mello-Roos tax must be approved by 2/3 of the voters in a proposed district. There are two CFDs that finance public improvements related to wastewater services in unincorporated county areas.

A summary of the wastewater CSAs and CFDs is provided in Table 6 and maps are included in Appendix B.

**Table 6: Wastewater Services Areas through County Special Districts**

Reference	Name	Geographic Area	Other Services/Facilities
CSA 42	Oro Grande	North of Victorville	Water service
CSA 53 B	Fawnskin	Big Bear Lake	--
CSA 64	Spring Valley Lake	Between Victorville and Apple Valley	Water service
CSA 70 BL	Bloomington	Valley, southeast of Fontana	--
CSA 70 GH	Glen Helen	North of San Bernardino by I-15/I-215	--
CSA 70 S-3	Lytle Creek	South of Cajon Pass and west of I-15	--
CSA 70 S-7	Lenwood	West of Barstow	--
CSA 70 SP-2	High Country	Hesperia	--
CSA 79	Green Valley Lake	West of Big Bear Lake	--
CSA 82	Trona	Desert region, north of Barstow	--
CFD 2002-1	Kaiser Commerce Center	Western Fontana SOI	Roads, water, storm drains, public utilities
CFD 2003-1	Citrus Plaza	Redlands, uninc. "Donut Hole"	Roads, water, storm drains, traffic mitigation

### **3.2.1 CSA 42 – Oro Grande**

The Oro Grande CSA provides sewer and water services, and was created in 1965. It is funded by user fees and service charges to provide service through approximately 190 sewer connections (190 equivalent dwelling units (EDUs) and a population estimate of less than 1,000). The collection system is operated by the Victor Valley Wastewater Reclamation Authority (VWVRA). Oro Grande is north of the City of Victorville.

### **3.2.2 CSA 53B – Fawnskin**

The Fawnskin CSA was established in 1968 to provide sewer services. It is funded by user fees and service charges, and provides service through approximately 962 sewer connections (1,259 EDUs and a population estimate of 3,559). The collection system involves an innovated vacuum system, and sewage treatment is provided by a contract with the Big Bear Area Regional Water Agency. Fawnskin is near Big Bear City.

### **3.2.3 CSA 64 – Spring Valley Lake**

The Spring Valley Lake CSA was established in 1968, and provides sewer and water services to approximately 3,771 connections (4,349 EDUs and a population estimate of 14,300). It is funded through property taxes, user fees, and service charges, and is operated by the VVWRA. Spring Valley Lake is a planned community in the Victorville sphere of influence (SOI) consisting of 4,213 individually-owned lots, two condominium complexes, one townhome complex, restaurants and convenience stores, and a 200-acre fresh water lake.

### **3.2.4 CSA 70 BL – Bloomington**

The Bloomington sanitation district was established in 2013, and will provide sewer services to Bloomington residents using user fees. The district has an agreement with the City of Rialto to provide services to 419 dwelling units, and will connect sewage to the Rialto Wastewater Treatment Plant. A recent affordable housing development will require approximately 280 EDUs, leaving approximately 139 EDUs of sewer capacity. Bloomington is primarily in the Rialto SOI.

### **3.2.5 CSA 70 GH – Glen Helen**

The Glen Helen CSA was established in 2004 to provide parks and recreation, sewer, and streetlight services to the Glen Helen master planned community and the San Bernardino Sheriff's Department detention facility. It is funded by developer contributions, user fees, and services charges to provide service through approximately 1,452 sewer connections (1,391 EDUs and a population estimate of 5,372). Glen Helen is partially in the northwest portion of the City of San Bernardino SOI.

### **3.2.6 CSA 70 S-3 – Lytle Creek**

The Lytle Creek CSA was established in 1974 and is funded by user fees and service charges to provide service through approximately 798 sewer connections (750 EDUs and a population estimate of 2,953). The CSA provides sanitation services to residents in the Lytle Creek community as well as the U.S. Forest Service. Lytle Creek is in the San Gabriel Mountains south of the Cajon Pass.

### **3.2.7 CSA 70 S-7 – Lenwood**

The Lenwood CSA was established in 1977 to provide sewer services to property owners who approved assessments to pay the debt service on construction of the sewer system. Sewer demand is approximately 850 EDUs. Lenwood is north of the City of Barstow, and the City performs routine maintenance on the system, while the CSA is responsible for non-routine repairs. The CSA does not, therefore, charge regular service fees.

### **3.2.8 CSA 70 SP-2 – High Country**

The High Country CSA was established in 1985, and is funded through uses user fees and service charges to provide service through approximately 503 sewer connections (503 EDUs and a

population estimate of 1,861). Service is provided to the High Country development tract in the City of Hesperia SOI and addition homes in the incorporated boundaries of the City of Hesperia.

### **3.2.9 CSA 79 – Green Valley Lake**

The Green Valley Lake CSA was established in 1971 is funded through user fees and service charges to provide service sewer services through approximately 1,064 sewer connections (1,192 EDUs and a population estimate of 3,937). Wastewater treatment is provided through a contract with the Running Springs Water District. Green Valley Lake is in the San Bernardino Mountains between Lake Arrowhead and Big Bear.

### **3.2.10 CSA 82 – Trona**

The Trona CSA was first established in 1976, in 2000, the sanitation zones of Trona and Pioneer Point were combined to create a new CSA. This CSA is funded by property taxes, user fees, and service charges to provide service sewer services through approximately 568 sewer connections (568 EDUs and a population estimate of 2,102). The CSA provides sewer and streetlight services, and maintains a park/rest stop. Trona (and the Searles Valley area) is at the northwestern top of the county.

### **3.2.11 CFD 2002-1 – Kaiser Commerce Center**

CFD 2002-1 was formed in 2002 to finance public improvements for the Kaiser Commerce Center project formerly located on the old Kaiser Steel site in Fontana's western SOI. The CFD is authorized to bonds for the acquisition and improvement of public facilities, including sewer facilities. Other authorized facilities include public roadways, water transmission and distribution facilities, storm drain facilities, and general public utilities.

### **3.2.12 CFD 2003-1 – Citrus Plaza**

CFD 2003-1 was formed in 2003 to finance public infrastructure facilities, including sewer, water, roadway, storm drain and traffic mitigation improvements to the Citrus Plaza development in the unincorporated area known as the "Donut Hole." The Donut Hole is an unincorporated pocket surrounded by incorporated cities, but it is not a part of the Redlands SOI. This area is also subject to a tax sharing agreement (2003, No. 03-0856), which apportions sales and use tax revenue (90% to the City of Redlands through 2028 or until annexation). The City provides sewage collection/treatment, water service, and law enforcement services. The County contracts with the City for fire protection and emergency medical services.

## **3.3 Bloomington**

The Bloomington community is currently serviced by septic tanks and leach field systems with some regional wastewater treatment provided by the Cities of Rialto and Fontana. A sewer master plan for the City of Rialto has been obtained and preliminarily reviewed. More information/analysis regarding the Bloomington community is provided under separate cover.

### **3.4 Bear Valley Communities**

Big Bear Area Regional Wastewater Agency's (BBARWA) serves the entire Big Bear area totaling 79,000 acres. It is served by three separate collection systems: City of Big Bear Lake (CBBL), Big Bear City Community Services District (BBCCSD) and the County of San Bernardino Service Area 53B (CSA 53B). Each Member Agency maintains and operates its own sewer collection system and delivers wastewater to BBARWA's interceptor system for transport to the WWTP (4.89 MGD).

CBBL's service area covers all land located within the city limits, which includes a permanent population of 6,142, with about 11,489 equivalent dwelling units (EDU). CBBL's sewer system includes 126 miles of gravity sewer, 3,027 manholes, 13 lift stations, and associated force mains. BBCCSD's service area encompasses 21 square miles, and serves portions of the unincorporated area of Big Bear City, Lake William, Baldwin Lake and Erwin Lake. BBCCSD serves 11,855 EDUs, and maintains 115 miles of sewer pipeline, 2,842 manholes, 7 lift stations, and associated force mains. CSA 53B's service area encompasses a small area in Fawnskin. Its sewer system provides sewer service to 1,253 EDUs in the Fawnskin area from the dam to Division Drive.

BBARWA operates three sewer main lines. The Lake Pump Station (LPS) force main serves CBBL's sewer system and transfers system flows from BBARWA's LPS to the WWTP. The North Shore Interceptor that serves CSA 53B's sewer system and the BBARWA Trunk Line that serves BBCCSD's sewer system conveys flow to the WWTP. The Trunk Line transfers CSA 53B and BBCCSD's collection flows to the treatment plant. BBARWA discharges secondary WTP effluent to a 480-acre site in Lucerne Valley for irrigation of farmlands.

#### **3.4.1 Baldwin Lake**

Baldwin Lake is serviced by BBARWA for wastewater services. A discussion regarding the BBARWA wastewater system can be found above. According to the information available, the community of Baldwin Lake appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

#### **3.4.2 Big Bear City**

Big Bear City is serviced by BBCCSD for wastewater services. Discussion regarding the BBCCSD wastewater system can be found above. According to the information available, the community of Big Bear City appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

#### **3.4.3 Erwin Lake**

Erwin Lake is serviced by BBCCSD for wastewater services. A discussion regarding the BBCCSD wastewater system can be found above. According to the information available, the community of

Erwin Lake appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

#### **3.4.4 Fawnskin/Northshore**

Fawnskin/Northshore is serviced by CSA 53B for wastewater services. A discussion regarding CSA 53B and the BBARWA wastewater system can be found above. According to the information available, the community of Fawnskin/Northshore appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

#### **3.4.5 Lake Williams**

Lake Williams is serviced by CSA 53B for wastewater services. A discussion regarding the BBARWA wastewater system can be found above. According to the information available, the community of Lake Williams appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

#### **3.4.6 Moonridge**

Moonridge is serviced by BBARWA for wastewater services. A discussion regarding the BBARWA wastewater system can be found above. According to the information available, the community of Moonridge appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

#### **3.4.7 Sugarloaf**

Sugarloaf is locally serviced by BBCCSD for wastewater services. A discussion regarding the BBCCSD wastewater system can be found above. According to the information available, the community of Sugarloaf appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.5 Crest Forest Communities**

The Crestline Sanitation District (CSD) presently provides collection, treatment, and redisposal for primarily domestic sewage from four wastewater collection and treatment systems through one common effluent disposal system.

Each of the four wastewater treatment plants within the individual tributary areas treat sewage from an upstream collection system. The area served by the Huston Creek Treatment Plant is the largest (0.7 MGD), providing service for 75% of the sewered area. The service area for the Seeley Creek Treatment Plant (0.5 MGD) comprises the remaining 25% within the present boundaries of



the CSD. The Cleghorn Treatment Plant (owned by the CSD with 0.2 MGD) and the State-owned Pilot Rock treatment plants provide service to areas whose collection systems are owned and maintained by the California Departments of Parks and Recreation and Forestry.

CSD's sewage collection system was built from 1952 to 1977. Since then, private developers have installed other sewers, totaling about 15,000 feet. Approximately 95% of the systems are composed of 8" sewer mains. CSD has two primary sewage pump stations and one small backyard pump station serving three residences. The Lake Gregory pump station is located on the east side of Lake Gregory along San Moritz Way and receives raw sewage from Assessment Districts 2, 11, 12 and the Pinecrest area. The pump station was built in 1968 with construction of the sewer system for Assessment District No. 2 and also serves Assessment Districts No. 11 and 12, and was expanded in 1988 to accommodate flows from Camp Pinecrest.

CSD owns and operates three wastewater treatment plants—Huston Creek Treatment Plant, the Seeley Creek Treatment Plant, and the Cleghorn Treatment Plant. In addition, CSD disposes of treated effluent from the Pilot Rock Treatment Plant (owned by the California Department of Forestry) that is pumped into CSD's effluent outfall. The effluent outfall traverses around Silverwood Lake and disposal from these facilities occurs at the Las Flores Ranch in Summit.

### **3.5.1 Cedarpines Park**

Cedarpines Park is served by CSD for wastewater services. A discussion regarding the CSD wastewater system can be found above. According to the information available, the community of Cedarpines Park appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.5.2 Crestline**

Crestline is locally serviced by CSD for wastewater services. A discussion regarding the CSD wastewater system can be found above. According to the information available, the community of Crestline appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.5.3 Lake Gregory**

Lake Gregory is locally served by CSD for wastewater services. A discussion regarding the CSD wastewater system can be found above. According to the information available, the community of Lake Gregory appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.5.4 Valley of Enchantment**

Valley of Enchantment is locally served by CSD for wastewater services. A discussion regarding the CSD wastewater system can be found above. According to the information available, the community of Valley of Enchantment appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.6 Helendale**

The Helendale community is serviced by the Helendale Community Services District (HCSD) which operates the Silver Lakes WWTP with a max design capacity of 1.2 MGD and a currently average daily flow of 0.5 MGD. Wastewater system assessment information is not readily available and a detailed existing conditions summary is not possible at this time. In addition, cooperation from HCSD has been restrictive so the County of San Bernardino will be relied upon to acquire the pertinent existing conditions information for future inclusion in this report.

### **3.7 Hilltop Communities**

The Hilltop plan area encompasses approximately 40 square miles and is bound to the northwest by the Lake Arrowhead Community and to the west by the Crestline Community. Included within the Hilltop Community are Arrowbear Lake, Green Valley Lake, and Running Springs. Running Springs Water District serves as the primary regional wastewater service provider to the Hilltop communities. Also included are CSA 79, US Forest Service Recreation areas, and the Snow Valley Ski area recreation site located on Highway 18 at Snow Valley.

#### **3.7.1 Arrowbear Lake**

Arrowbear Lake is locally serviced by APCWD for wastewater services. A discussion regarding the APCWD wastewater system can be found the discussion of Running Springs. According to the information available, the community of Arrowbear Lake appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

#### **3.7.2 Green Valley Lake**

Green Valley Lake is locally serviced by CSA 79 for wastewater services. A discussion regarding the CSA 79 wastewater system can be found in the discussion on CSAs. According to the information available, the community of Green Valley Lake appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

#### **3.7.3 Running Springs**

RSWD's sewer system consists of seven Assessment Districts, one interceptor system, and 3.2 miles of transmission lines. The collection system consists of pipelines ranging in sizes from 6" to

15", spanning 58 miles with 1,994 associated manholes and cleanouts. RSWD has 9 lift stations with 2.25 miles of sewer force mains. Wastewater treatment is provided by the Running Springs WWTP, which is designed for a maximum flow of 0.6 MGD and currently treats an average flow of 0.5 MGD. The facility includes a solids handling system, effluent disposal site and evaporation ponds, and spray irrigation.

According to the information available, the community of Running Springs appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.8 Joshua Tree**

The Joshua Tree community is currently serviced by septic tanks and leach field systems with no regional wastewater treatment. Regional wastewater treatment and disposal facilities are currently being investigated by the JBWD and may be implemented in the future. JBWD has applied and been approved by County LAFCO as the regional sewer provider for the area. A plant is currently being operated by JBWD at the Hi Desert Medical Center. This plant may be decommissioned as future centralized treatment facilities are constructed.

### **3.9 Lake Arrowhead Communities**

The Lake Arrowhead Community Services District (LACSD) wastewater service area lies in the San Bernardino National Forest. It covers an extensive area of approximately 9,600 acres and includes the communities of Lake Arrowhead, Cedar Glen, Blue Jay, Twin Peaks, Deer Lodge Park, Rim Forest, Agua Fria and Sky Forest.

LACSD manages a wastewater collection system that includes about 200 miles of gravity sewer pipes; 6,200 manholes; 1,300 cleanouts, 2 siphons, 21 pump stations, and 7 miles of force mains. LACSD also owns a 2-mile, 24" intertie pipeline that runs between the Grass Valley and Willow Creek wastewater treatment plants (WWTP). LACSD has 21 lift stations and associated force mains carry water from lower to higher elevation areas. Wastewater generated within LACSD's service area consists primarily of domestic flow generated from residential and commercial sources. There are no industrial discharges. During the winter, a significant portion of the wastewater flows also includes infiltration of high groundwater and inflow of storm runoff.

The Willow Creek and Grass Valley WWTPs have a total combined permitted treatment capacity for dry weather average daily flow of 3.75 MGD. Partially treated effluent is conveyed from the Willow Creek WWTP to the Grass Valley WWTP for final treatment. Treated wastewater is then conveyed through the District's 10-mile outfall pipeline to percolation ponds on a 350-acre facility owned by the District in Hesperia.

### **3.9.1 Blue Jay**

Blue Jay is locally serviced by LACSD for wastewater services. A discussion regarding the LACSD wastewater system can be found above. According to the information available, the community of Blue Jay appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.9.2 Cedar Glen**

Cedar Glen is locally serviced by LACSD for wastewater services. A discussion regarding the LACSD wastewater system can be found above. According to the information available, the community of Cedar Glen appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.9.3 Deer Lodge Park**

Deer Lodge Park is locally serviced by LACSD for wastewater services. A discussion regarding the LACSD wastewater system can be found above. According to the information available, the community of Deer Lodge Park appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.9.4 Lake Arrowhead**

Lake Arrowhead is locally serviced by LACSD for wastewater services. A discussion regarding the LACSD wastewater system can be found above. According to the information available, the community of Lake Arrowhead appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.9.5 Rim Forest**

Rim Forest is locally serviced by LACSD for wastewater services. A discussion regarding the LACSD wastewater system can be found above. According to the information available, the community of Rim Forest appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.9.6 Sky Forest**

Sky Forest is locally serviced by LACSD for wastewater services. A discussion regarding the LACSD wastewater system can be found above. According to the information available, the community of Sky Forest appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.9.7 Twin Peaks**

Twin Peaks is locally serviced by LACSD for wastewater services. A discussion regarding the LACSD wastewater system can be found above. According to the information available, the community of Twin Peaks appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.10 Lucerne Valley**

The Lucerne Valley community is currently served by septic tanks and leach field systems with no regional wastewater treatment. After preliminary research, it appears that sanitary sewer upgrades for the area are not planned. According to the information available, the community of Lucerne Valley appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.11 Mentone**

Mentone is primarily serviced by septic tanks and leach field systems with some regional wastewater treatment provided by Redlands. Although the City could not disclose for security concerns the portions of Mentone served by them, the City has 17,500 sewer connections. The Redlands WWTP can process 9.5 MGD of wastewater but is currently processing about 6 MGD. According to the information available, Mentone appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain current level of service for existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.12 Muscoy**

The Muscoy community is serviced by septic tanks and leach field systems with no regional wastewater treatment. After preliminary research, it appears that sanitary sewer upgrades for the area are not planned. Because this study area is entirely on septic, wastewater system assessment information is not readily available and a detailed existing conditions summary is not possible at this time.

### **3.13 Oak Glen**

The Oak Glen community is currently serviced by septic tanks and leach field systems with no regional wastewater treatment. After initial research, sanitary sewer upgrades for the area are not planned. Because this study area is entirely on septic, wastewater system assessment information is not readily available and a detailed existing conditions summary is not possible at this time.

### **3.14 Phelan/Piñon Hills**

Piñon Hills and Phelan communities are currently being serviced by septic tanks and leach field systems with no regional wastewater treatment. After preliminary research, it appears that sanitary sewer upgrades for the area are not planned. According to the information available, the community of Phelan/Piñon Hills appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

### **3.15 Other Unincorporated Areas**

Data was also gathered for other areas in the unincorporated portion of San Bernardino County, including unincorporated spheres of influence (SOIs) and smaller communities that are generally farther away from urbanized areas. Based on information provided by wastewater treatment providers, the vast majority of land within unincorporated SOIs receive wastewater treatment service from public agencies with additional capacity to serve future growth. Additional information can be found in Appendix B.

#### **3.15.1 Communities on Septic Systems**

Generally, other portions of the unincorporated county rely on private septic systems as there are no close regional sewer services. Some unincorporated communities within the Valley region could connect to nearby regional wastewater collection systems if additional funding mechanisms are supported by property owners. Most unincorporated communities within the Mountain and Desert regions are geographically isolated from regional wastewater collection systems and will continue to require private septic tank systems as the primary wastewater disposal option unless regional wastewater collection and treatment systems are established. A list of unincorporated areas or communities that are reliant on septic systems is provided below.

- Angelus Oaks
- Adelanto SOI (portions)
- Bloomington (portions)
- Colton SOI (east)
- Daggett
- El Mirage
- Homestead Valley (Flamingo Heights, Johnson Valley, Landers, and Yucca Mesa)
- Joshua Tree (portions)
- Loma Linda SOI (east)
- Lucerne Valley

- Morongo Valley
- Mt Baldy
- Newberry Springs
- Oak Glen
- Oak Hills
- Pioneertown
- Redlands (east)
- Twentynine Palms
- Wrightwood
- Yermo

### **3.15.2 Community Service Districts**

One CSD provides wastewater service to the unincorporated community of Baker.

#### ***Baker CSD***

The Baker CSD provides sanitary sewer, water, trash collection, fire protection, television translators, road maintenance, street lighting, park and recreation including the Jesse Meyer Community Center, a public swimming pool, and a senior center (shared by the Baker Area Chamber of Commerce). The current service population is approximately 1,000. The CSD maintains the Body Wastewater Treatment Facility and provides service to 53 domestic connections and 29 commercial connections. According to the information available, the community of Baker appears to have adequate capacity and infrastructure to meet current wastewater demands and maintain the current level of service for the existing land uses. There are no reports of any major system deficiencies or service inadequacies.

## **4 DRAINAGE, HYDROLOGY, AND FLOODING**

### **4.1 Hydro-Geographic Description**

San Bernardino County encompasses 20,105 square miles and is divided into three distinct regions: Valley, Mountain, and Desert. About 80% of the County is desert with the remaining areas divided between the valley and mountains. Flood Control Zones 1, 2 and 3 include the Valley Region. Zone 5 includes the Mountain Region and Zones 4 and 6 include primarily the Desert Region but also contain some drainage facilities located in the Mountain Region.

#### **4.1.1 Valley Region**

The Valley Region is situated at the base of the San Gabriel and San Bernardino mountains to the north, Los Angeles County line to the west, and Yucaipa and the Riverside County line to the east. The defining fluvial landforms include the creeks, streams, and washes that have formed from mountain and foothill fluvial processes. Many of these features drain into the Santa Ana River. Prominent drainage features in the Valley Region maintained in full or in part by the District include creeks, streams, washes, rivers, and channels, basins and dams. District-maintained drainages drain into the Santa Ana River, which ultimately ends at the Pacific Ocean.

#### **4.1.2 Mountain Region**

The Mountain Region spans the San Gabriel and San Bernardino mountains, and includes communities stretching from Mt. Baldy and Wrightwood to the west, to Big Bear City on the east, and Forest Falls to the southeast. Runoff from the mountains provides the main water source for the Santa Ana and Mojave rivers. Fluvial landforms in the Mountain Region consist of a series of creeks, streams, and rivers that drain into mountain lakes, the valleys, and deserts. The more prominent drainage features maintained in full or in part by the Public Works Departments are creeks, streams, washes, and channels. These include streams and rivers that emanate from or feed into Lake Arrowhead, Big Bear Lake, and other water bodies.

#### **4.1.3 Desert Region**

The Desert Region is characterized by an assemblage of low mountain ranges and desert floors. The more prominent drainage features maintained in full or in part by the District are creeks, streams, washes, rivers, channels, and basins. The Mojave River, a 120-mile long river is dry most of the year and terminates at Silver Dry Lake. However, there are areas where surface flows are year-round, at the headwaters, and where groundwater is forced to the surface in areas with impermeable bedrock (e.g., near Victorville and in the Afton Canyon area). Morongo Valley Creek, which is dry most of the year, drains into Whitewater River, and ultimately into the Salton Sea. Several drainages in Needles drain to the Colorado River. Other drainages and washes emanating from the low mountain ranges terminate in dry lakes or on the desert floor.



## 4.2 Flood Control District Zones

The flood control functions of San Bernardino County are handled through the San Bernardino County Flood Control District (SBCFCD). The District was established in 1939 in response to the severe floods of 1938, which caused millions of dollars of property damage throughout the county. The SBCFCD has developed an extensive system of facilities including dams, conservation basins, channels and storm drains. The primary purpose of these facilities is to intercept and convey flood flows through and away from the major developed areas of the County to protect property and ensure public safety. Primary functions of SBCFCD are flood protection, water conservation, and storm drain construction. SBCFCD also maintains more than 530 flood control facilities that are spread throughout its 20,000-square mile service area.

The SBCFCD is divided into six zones with interests, responsibilities and geographical divisions distinctive to the particular zone. Maps depicting these different zones have been provided in Appendix C along with facilities in each zone. Because the Flood Control District is so large and many of the drainage issues are more localized, Master Plans of Drainage (MPD) and Comprehensive Storm Drain Plans (CSDP) have been created to evaluate the existing drainage systems, identify deficiencies and recommend improvements and new facilities in an area. Following is a breakdown of the existing hydrologic conditions for the County.

### 4.2.1 Zone 1

This zone encompasses the County's West End, from the Los Angeles and Riverside County lines to West Fontana and several other unincorporated areas within San Bernardino County. This includes the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga and Upland with the community of Etiwanda. According to the information readily available for Zone 1, the type of facility in this area primarily consists of underground storm drains that empty into the Santa Ana River. An MPD or CSDP was not available for review. The average ground slope across Zone 1 has generally been calculated at 1.5% from the northeast to the southwest.

### 4.2.2 Zone 2

This zone encompasses the central area of the San Bernardino Valley. This region includes This includes the cities of Colton, Fontana, Grand Terrace, Highland, Loma Linda, Redlands, Rialto and San Bernardino with the communities of Bloomington, Del Rosa, Devore and Muscoy. According to the information readily available for Zone 2, the type of facility in this area primarily consists of levees. An MPD or CSDP was not available for review; however, a comprehensive Storm Drain Plan No. 7 (dated 12/29/82) exists for the Muscoy area describing several storm drains in the area. The average ground slope across Zone 2 has generally been calculated at 2% from the northwest to the southeast.

### **4.2.3 Zone 3**

This zone consists of the east end of the San Bernardino Valley, including the Cities of Highland, Loma Linda, Redlands, San Bernardino and Yucaipa with the community of Mentone. According to the information readily available for Zone 3, the types of facilities in this area primarily consists of channels, streams, and natural watercourses. An MPD or CSDP was not available for review in this area. The average ground slope across Zone 3 has generally been calculated at 2.6% from the northwest to the southeast.

### **4.2.4 Zone 4**

This zone consists of portions of the Mojave River Valley, and includes the cities/towns of Adelanto, Apple Valley, Barstow, Hesperia and Victorville and all or portions of the communities of Baker, Baldy Mesa, Daggett, Desert Knolls, El Mirage, Helendale, Hinkley, Hodge, Lenwood, Oro Grande, Phelan, Piñon Hills, Silver Lakes, Spring Valley Lake, Wrightwood and Yermo. According to the information readily available for Zone 4, the types of facilities in this area primarily consists of channels, streams, and natural watercourses. An MPD or CSDP was not available for review in this area. The average ground slope across Zone 4 has generally been calculated at 0.3% from the southeast to the northwest.

### **4.2.5 Zone 5**

This zone consists of communities in the San Bernardino Mountains—Arrowbear Lake, Blue Jay, Cedar Glen, Crestline, Green Valley Lake, Lake Arrowhead, Lake Gregory, Rimforest, Running Springs, Silverwood Lake, Skyforest, Snow Valley, and Twin Peaks. According to the information readily available for Zone 5, the types of facilities in this area primarily consists of channels, streams, and natural watercourses. The MPD (dated 8/15/68) shows existing earth channels with recommendations to upgrade to concrete channels and recommended roadway crossings to be improved with box culverts. The report presents recommended storm drain and flood control facility system plan for the eventual protection of all private lands within Zone 5. The average ground slope has generally been calculated at 2.4% from southeast to northwest.

### **4.2.6 Zone 6**

This zone consists of the remaining portions of the San Gabriel and San Bernardino Mountains and the semi-desert portion of the county. This zone includes Bear Valley, Joshua Tree and Lucerne Valley. According to the information readily available for Zone 6, the types of facilities primarily consist of storm drains, channels, natural streams and watercourses. An MPD or CSDP was not available for review in this area. However, according to the Cushenbury Creek Drainage Study (SBCFCD, 2011), detention basins are being proposed to mitigate the ongoing flooding issues in the Cushenbury Springs area. In addition, the MPD (dated 2/19/92) shows storm drain pipes, channels, and retention basins in the area. The average ground slope across Zone 6 has generally been calculated at 0.2% from the west to the east.

### 4.3 Public Facility Improvements and Developer Fees

The San Bernardino County Flood Control Planning Division is mainly responsible for long range advance planning and for coordinating flood control project development and funding with other agencies. Included in Appendix C is a list of Flood Control Capital Improvement projects from the 2015-16 recommended budget, with projects in the unincorporated communities of Rim Forest and Wrightwood. Also included in Appendix C is a County of San Bernardino Public Facilities Needs list (prepared in 2013) related to individual flood control improvements throughout Flood Zones 1-6.

In addition to agency funding, there are two active developer fee plans currently in affect for the Valley Region of the County. These programs are summarized below:

- **Project 3-5 Area.** This project covers a total area of 2,045 acres and includes areas within the Cities of San Bernardino, Rialto, and Colton as well as unincorporated areas of the County. The project will provide a system of storm drains, channels, and basin improvements to assist in the protection of properties that are developed or planned for future development or redevelopment. The area drainage fee is provided as \$7,159/acre.
- **Upper Etiwanda Creek and San Sevaine Creek Area.** This project covers 51 square miles and includes areas within Rancho Cucamonga, Fontana, and the unincorporated County. The project will provide a backbone system of channels and basins to assist in the protection of properties that are being developed or planned for future development or redevelopment. The area drainage fees are \$9,790/acre for the Upper Etiwanda Drainage Area and \$4,405/acre for the San Sevaine Creek Drainage Area.

Periodically the County has considered the option of instituting impact fees to address the long - term impacts of growth on the County's infrastructure. The majority of improvements in the infrastructure backbone system in the County occurs in response to targeted growth. The County does not currently impose development impact fees to fund the construction of backbone infrastructure for flooding and drainage control. Instead, County growth management policies have encouraged development in the spheres of influence of incorporated communities because of the availability of infrastructure and services. Where infrastructure does not exist or needs to be expanded, the service providers for the sphere and adjacent incorporated areas may impose impact fees to provide the necessary funding.

### 4.4 FEMA Regulatory Flood Zones

San Bernardino's topography, climate, and seasonal rains have made it susceptible to flooding. Since 2000, 272 reported flooding events have caused an estimated \$233 million in damage to property, crops, public facilities, and infrastructure. This section details flooding risks in San Bernardino County. The Safety Technical Report provides greater detail.

Flood zones are geographic areas that FEMA defines according to varying levels of flood risk. While FEMA has generally categorized specific flood limits of the communities detailed in this report, it is important to note that flood risks are dynamic and can change over time. Water flow and drainage patterns can be altered dramatically due to surface erosion, changes to land use and natural forces. Consequently, FEMA continues to update their flood maps using the latest data gathering and mapping technology wherever possible.

The County has established Floodplain Overlay Districts that correspond to major flood zones designated by FEMA. These overlay districts trigger specific requirements for proposed developments with respect to density, site design, building standards, and various technical reports and inspections. Table 7 compares a list of FEMA and County flood designations. Appendix C includes a map of the 100-year and 500-year flood zones provided by FEMA.

**Table 7: FEMA Floodplains and San Bernardino County Overlay Districts**

FEMA Flood zone	FEMA Definition of Flood Zones	Corresponding County Overlay District Definition, if applicable
100-year	High flood hazards are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 100-year flood zone are Zones A, AO, AH, A1-A30, AE, A99, AR, AR/AE, AR/AO, AR/A1-A30, AR/A, V, VE, and V1-V30.	County has established its FP 1 zone to correspond to the 100-year flood zone defined by FEMA to identify areas that are prone to flooding.
500 year	Moderate flood hazard areas, labeled Zone B or Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The 500-year flood zone includes areas designated A-99 and shaded Zone X.	County has established its FP 2 zone to closely correspond to the 500-year flood defined by FEMA to identify areas that are prone to flooding.
Undetermined	FEMA identifies certain areas with a designation Zone D. This flooding designation is used for areas where there are possible but undetermined flood hazards, as no analysis of flood hazards has been conducted.	County has established its FP 3 zone for areas of undetermined, but possible, shallow flooding as determined by the County, Flood Control District, or other governmental entity.

Source: Federal Emergency Management Agency, 2016; San Bernardino County Development Code

#### **4.4.1 Zone D and Areas of Unknown Risk**

Although limited urbanized areas in San Bernardino County are designated within FEMA’s 100-year flood zone, the majority of less populated areas is classified as Zone D. As defined by FEMA, Zone D is used for areas where there are possible but undetermined flood hazards, as no analysis of flood limits has been conducted. The San Bernardino County Development Code does not contain an overlay district that corresponds to FEMA’s designation of Zone D. However, the County’s Floodplain Overlay District regulations authorize the County, at its discretion, to establish a FP3 overlay in areas where flood risks have not been determined.

With respect to property insurance, lenders typically require the purchase of flood insurance for areas within the 100- and 500-year flood zones. While flood insurance is available to purchase in Zone D and property owners are typically encouraged to purchase it, flood insurance is not federally required by lenders for loans on properties in these zones. Although these areas tend to be undeveloped or sparsely populated, lenders may become aware that new development in such areas has increased the possibility of property damage from flooding. As a result, they may require coverage as a condition of their loans, even though it is not federally required. Flood insurance rates for properties in Zone D are commensurate with the uncertainty of the flood risk.

While local regional flood control ordinances do not specifically preclude development in the floodplain, the land use compatibility matrix set forth in the existing General Plan Safety Element addresses the appropriateness of certain development within the 100-year flood zones. However, the General Plan land use compatibility matrix does not include the 500-year floodplain, potential 100-year floodplains as identified by DWR, or areas where FEMA has determined there is possible, but undetermined flooding potential (Zone D). Therefore, there is some uncertainty on how other flood hazards are addressed at the general plan level.

#### **4.4.2 DWR Awareness Areas**

Although limited community areas are impacted by the 100-year flood limit according to FEMA, the California Department of Water Resources (DWR) has developed Best Available Maps (BAM) for all counties. These maps contain the best available information on flood hazards and are accessible through a web viewer. The BAM, however, does not replace existing FEMA regulatory floodplains shown on Flood Insurance Rate Maps. Rather the BAM identify areas with potential flood risks that may warrant further studies or analyses for land use decisions.

The BAM floodplains delineate areas that are subject to potential exposure to flooding for three storm events: the 100-year flood, 200-year flood (for Central Valley only), and 500-year flood. Appendix C includes a map showing areas where a 100-year floodplain may exist in the county, but precise studies and elevations have not yet been assessed. Many of these potential 100-year floodplains are located in portions of the county designated as Zone D by FEMA.

### **4.5 Dam Inundation Areas**

When dams that are designed to restrict water from entering a region of land fail, the water body being restricted suddenly and abruptly enters into the city or region. However, because of geographic patterns and slopes in the land, certain sections of the area downstream from the dam get completely covered with the receiving flood waters while other areas of the land remain untouched. The specific areas of land that would become flooded and covered with water if a particular dam were to break or fail is known as a Dam Inundation Area.

San Bernardino County has more than 70 dams, of which 35 are tracked based on their potential risk of inundation. Dam operators are required to submit inundation maps to the Department of Water Resources (DWR). DWR is responsible for monitoring inspecting, and maintaining a

database of these dams that includes the year built, construction types, built specifications, purpose, capacity, etc. The vast majority of dams are primarily intended for flood and debris control purposes, followed by recreation and water supply, irrigation, and other purposes. Table 8 summarizes these dams and Appendix C maps the associated inundation paths where known.

**Table 8: Inventory of San Bernardino County Dams by Primary Purpose**

Primary Purpose	Basic Characteristics		Description of Use
	Number of Dams	Storage Capacity (Acre feet)	
Flood/Debris Control	15	535,905	This includes flood control and debris control purposes
Recreation	8	3,083	This may include boating, fishing, or other recreational use
Water Supply	8	111,588	This includes potable water supply, including following treatment
Irrigation	5	100,274	This is for purpose of irrigation of crops
Hydroelectric	2	236,400	This includes dams that generate electricity
Mining	2	160	This applies to specific mining interests

Sources: National Inventory of Dams, Army Corps of Engineers, 2016

The presence of dams and inundation paths within the County does affect the feasibility of development. Although still developable land, proposed development projects within the dam inundation areas may be limited by the local approving agency and additional insurance may be required. However, certain restrictions exist for different types of development projects. The 2007 County General Plan contains a program to prohibit critical, essential, and high risk land uses from dam inundation areas identified on the County's hazards overlay maps.

## 4.6 Levee Protected Areas

San Bernardino County relies on a system of levees to divert waters away from developed areas. According to the Army Corps of Engineers, the County has 33 levee systems comprising 63 linear miles of channels. The largest levees are in the Upper Colorado region near the Arizona border. The Bureau of Reclamation built four levees spanning 20 linear miles to provide protection from storm flow of the Colorado River and meet agricultural irrigation and water supply needs. These levees protect approximately 20 square miles of land area from flooding.

Although the majority of levees were originally built by the federal government, the SBCFCD now owns and operates the vast majority of levees. The federal government maintains oversight of levees, but has no direct responsibilities for maintenance, except for Corps-operated levees. The Corps has developed a National Inventory of Levees that details the condition of each levee. According to this database, only one levee is rated in acceptable condition, 19 levees are rated in minimally acceptable condition, 8 levees are in unacceptable condition, and 5 are not rated.

Table 9, Levees in San Bernardino County, summarizes basic information for levees in San Bernardino County. Information regarding safety concerns are documented in the Safety Technical Background Report, prepared for the Countywide Plan.

**Table 9: Summary of Levees and Safety Ratings in San Bernardino County**

Safety Rating	Basic Characteristics			Description of Levee Safety Rating
	Number of Systems	Length in Miles	Acres Protected	
Acceptable	1	0.2	11	<b>Acceptable.</b> While all the items may not be rated Acceptable, the levee system was assigned an "Acceptable" rating because no action is required in the recommendation other than to monitor.
Minimally Acceptable	19	24.7	17,877	<b>Minimally Acceptable.</b> Where one or more items are rated minimally acceptable or unacceptable, the unacceptable items would not prevent the system or segment from performing as intended during the next flood.
Unacceptable	8	17.4	4,742	<b>Unacceptable.</b> One or more system components are rated unacceptable and would seriously impair the functioning of the levee system, prevent it from performing as intended, and pose unacceptable risk to public safety.
Not Rated	5	21.4	12,378	

Source: Army Corps of Engineers, National Inventory of Levees, 2016.

Specific inspection reports are available at: <http://www.spl.usace.army.mil/Missions/Civil-Works/Levee-Safety-Program/>.

## 4.7 Operations and Maintenance

Maintenance of flood control facilities occurs year-round, with some facilities requiring maintenance several times a year and others on an as-needed basis in preparation of or following large storm events. In past years, the District has had to obtain multiple permits for the same work in the same facilities for each season or year, which has become an inefficient method of facility maintenance. In order to ensure continued stormwater infrastructure reliability, the District implements a Master Stormwater System Maintenance Program (MSWMP) for flood facilities in the county.

In 2014, the County of San Bernardino County adopted a Maintenance Plan, along with appropriate environmental clearance, to facilitate required operations and maintenance (O&M) activities associated with watershed management, while still protecting life, property, and public infrastructure from damages associated with stormwater. Under the Maintenance Plan, documentation would be prepared for O&M activities, and long-term programmatic regional permits would be obtained for work to streamline the CEQA and permitting process and execute projects on a regular and timely basis.

Although O&M activities within San Bernardino County flood control facilities are ongoing, the Maintenance Plan provides a systematic and scheduled approach to these maintenance activities, providing increased efficiency and environmental sensitivity to the implementation of

maintenance activities. The Maintenance Plan describes routine maintenance activities and provide a schedule for routine inspection and maintenance of various flood control facilities. The Maintenance Plan also identifies facilities with sensitive resources and BMPs to avoid and minimize potential impacts to those resources from maintenance activities.

Routine O&M activities allow a facility/structure to function at its current/designed capacity, including minor alterations to a facility/structure to meet current standards or maintain structural integrity. O&M activities do not include alterations for expanding facility capacity. Routine O&M activities include, but are not limited to, the removal of excess sediment, debris, and vegetation; stockpiling excess material and debris following removal; maintaining sufficient flowpaths; grooming/repairing earthen and improved channel slopes and bottoms; and maintaining culverts and bridges to ensure drainage and structural integrity.

More information about the County's Maintenance Management Plan can be found online at: <http://cms.sbcounty.gov/dpw/PublicNotices.aspx#27545>.



## **5. SURFACE WATER QUALITY**

Stormwater runoff has long been recognized as one of the most persistent and serious contributors to the degradation of surface waters. The following describes the National Pollutant Discharge Elimination System (NPDES) requirements affecting San Bernardino County.

### **5.1 National Pollutant Discharge Elimination System**

In 1972, the Federal Clean Water Act (CWA) established the NPDES program to regulate the discharge of pollutants from point sources to waters of the United States. However, pollutants from land runoff were largely unabated until the 1987 CWA amendments. In 1987, the CWA was amended to require public agencies that serve urbanized areas with a population above 100,000 and other designated areas to obtain permits to discharge stormwater runoff from municipally owned drainage facilities including streets, highways, storm drains and flood control channels.

In 1990, the United States Environmental Protection Agency (USEPA) promulgated enforceable regulations establishing Municipal Separate Storm Sewer System (MS4) Permit requirements under its National Pollutant Discharge Elimination System (NPDES) program. The NPDES program is intended to ensure, to the greatest extent possible, that discharges to surface waters do not adversely affect the quality and beneficial uses of such waters. NPDES permits are required by all entities that discharge pollutants from any point source into waters of the United States [40 CFR Part 122.1]. Agricultural activities are not subject to NPDES permits.

In California, the USEPA has delegated its NPDES permitting authority to the California State Water Resources Control Board (SWRCB). The SWRCB issues and enforces NPDES Municipal Separate Storm Sewer System (MS4) permits through Regional Water Quality Control Boards. Three regional boards—Santa Ana, Mojave River, the Colorado River-- cover San Bernardino County. Each regional board is charged by the Porter-Cologne Water Quality Control Act with the protection of water quality for waters within the region and implementing provisions and pollution control requirements that the federal Clean Water Act specifies for surface waters.

The Federal Clean Water Act [Section 303(d)] requires states to develop lists of waters that do not meet water quality standards through the implementation of technology-based controls. This planning process is known as Total Maximum Daily Loads (TMDLs). The TMDL process involves determining the amount of pollutants that can be allowed in each water body without exceeding water quality standards, and allocating responsibility for managing those pollutants. In accordance with California's "Porter-Cologne" Water Quality Control Act, any TMDL implementation program should be adopted as an amendment to the applicable Basin Plan.

## 5.2 Designated Impaired Waterways

Table 10 lists all the impaired waterways by impaired segment, type of impairment, and estimated TMDL completion date. A map of impaired waterways can also be found online at [http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2012.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml).

**Table 10: Impaired Waterways in San Bernardino County as of 2012**

Water Body	Impaired Segments	Impairments	Est. TMDL Completion
Amargosa River	Willow-Creek confluence to Badwater	Arsenic	2019
Colorado River	Stateline to Lake Havasu	Toxicity	2025
Colorado River	Lake Havasu Dam to Imperial Dam	Toxicity	2025
Searles Lake	Saline Lake	Salinity & Total Petroleum Hydrocarbons	2019
Mojave River	Forks Reservoir to Upper Narrows	Fluoride	2021
Holcomb Creek	No segment specified	Total Dissolved Solids	2021
Arrowhead Lake	Entire lake	Mercury	2025
Lake Gregory	Entire lake	Mercury	2025
Silverwood Reservoir	Entire lake	Mercury, PCBs	2025
Big Bear Lake	Entire lake	Mercury, Nutrients   PCBs	2007   2009
Grout Creek	No segment specified	Nutrients	2008
Rathbone Creek	No segment specified	Cadmium & Copper   Nutrients   Sediment	2021   2008   2006
Summit Creek	No segment specified	Nutrients	2008
Knickerbocker Creek	No segment specified	Pathogens	2005
Crab Creek	No segment specified	Total Dissolved Solids	2021
Sheep Creek	No segment specified	Total Dissolved Solids & Nitrate	2021
Santa Ana River	Reach 6	Cadmium, Copper, Lead	2021
Santa Ana River	Reach 4	Pathogens	2019
Mountain Home Creek	No segment specified	Pathogens	2019
Lytle Creek	No segment specified	Pathogens	2019
Mill Creek	Reach 1 & 2	Pathogens	2019
San Antonio Creek	No segment specified	pH	2021
Cucamonga Creek	Reach 2	pH	2021
Cucamonga Creek	Reach 1	Cadmium, Copper, Lead, Zinc   Coliform	2021   2007
Chino Creek	Reach 1B	Nutrients   Pathogens	2019   2007
Chino Creek	Reach 2	Coliform Bacteria   pH	2007   2021

Source: [http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2012.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml)

## 5.3 Basin Requirements

In San Bernardino County, three regional boards—Santa Ana, Lahontan, and the Colorado River—are charged by the Porter-Cologne Water Quality Control Act with the protection of water quality for waters within the region and implementing provisions and pollution control measures specified for surface waters under the federal Clean Water Act. Each region implements a series of programs (described below) to achieve water quality objectives. Included in Appendix D is a watershed map showing the various regional water quality control boards (RWQCBs) and watersheds in San Bernardino County.

### 5.3.1 Santa Ana River Basin

The Santa Ana River Basin covers nearly 3,000 square miles of mountains, foothills, and valleys that cross portions of Los Angeles, Riverside, San Bernardino, and Orange Counties. The Santa Ana River channel, through both surface and subsurface flow, transects the watershed for a linear distance of 100 miles, from the San Bernardino National Forest in a southwesterly direction to its terminus into the ocean at Huntington Beach. The Upper Santa Ana River basin covers the Valley and Mountains Regions of San Bernardino County; the remainder of the Santa Ana River Basin is in other counties.

The Santa Ana RWCB has adopted a Basin Plan that identifies beneficial uses for waterbodies, establishes water quality objectives to protect those uses, and provides an implementation plan to protect water quality. Other key issues addressed in the plan include dairies in the Chino Valley and their impact on present and future water quality, including total dissolved solids and nitrates. This has led to a separate order issued by the SARWQCB for dairy operations. In addition, much of the region's efforts is focused on addressing the salt imbalance along the Santa Ana River.

The County is a co-permittee under a stormwater discharge permit, issued through the Santa Ana RWQCB. As the "Principal Permittee" under the MS4 Permit, the SBCFCD administers and coordinates many of the permit requirements on behalf of all the Permittees. Under Order No. R8-2010-0036, the County prepares and implements the following plans:

- Model Areawide Local Implementation Plan (Model LIP)
- Comprehensive Bacteria Reduction Plan
- Santa Ana Rivershed Technical Guidance Document for Water Quality Management Plans (WQMPs)
- Watershed Action Plan (WAP)
- Integrated Watershed Monitoring Program (IWMP)

Unlike the Lahontan and Colorado River RWQCBs, the many jurisdictions and communities in the Valley Region of San Bernardino County are covered under the County's MS4 permit. Many

communities may also need to comply with relevant grading and erosion control ordinances and regulations promulgated by the County or air quality management district.

### **5.3.2 Mojave River Basin**

The Mojave River Watershed encompasses approximately 4,500 square miles and is located entirely within San Bernardino County. Much of the existing and projected future population is concentrated in Victor Valley, which includes the incorporated cities of Victorville, Hesperia, Apple Valley and Adelanto. The headwaters of the Mojave River are in the San Bernardino Mountains. The Mojave River channel, through both surface and subsurface flow, transects the watershed a linear distance of 120 miles to its terminus at Silver Dry Lake near Baker.

The Lahontan RWQCB has adopted a Basin Plan that identifies beneficial uses for waterbodies, establishes water quality objectives to protect those uses, and provides an implementation plan to protect water quality. The Basin Plan was updated in 2014 to address the remediation of groundwater contamination at China Lake, flexibility in the application of pesticides to water, and various minor amendments. The Mojave River has been selected as a priority or focus watershed because of the numerous water quality issues associated with the watershed.

The Mojave River Watershed Group (includes San Bernardino County, Hesperia, Victorville, Apple Valley, Phelan, Oak Hills, Spring Valley Lake, and unincorporated Victorville) has been issued a Small Municipal Separate Sewer System (Phase 2 MS4) permit. Under Order No. 2013-0001-DWQ, these agencies have prepared and implement the following plans:

- Stormwater Management Plan;
- Mojave River Watershed Technical Guidance-Water Quality Management Plans (2016);
- Model Areawide Local Implementation Plan (Model LIP)

It should be noted that many unincorporated communities within San Bernardino County that are in the Lahontan RWQCB are excluded from the Phase 1 or Phase 2 MS4 program. Some of these communities do not have at least 10,000 residents or do not have a density of at least 1,000 people per square mile. Some other communities, regardless of population, do not contain Waters of the United States.<sup>4</sup> Surface waters in such communities are contained within the existing area topography and are ultimately infiltrated into the underground aquifer. NPDES permits are not required in such areas.

However, jurisdictions and projects proposed exempt from MS4 permits must still adhere to construction and post-construction practices as required by their respective jurisdictions or the SWQRCB to ensure that best management practices are followed. Desert areas may also need to

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<sup>4</sup> Waters of the United States include waters that are or have been used, or could be used, in interstate or foreign commerce; interstate waters including interstate wetlands; tributaries of the aforementioned categories of waters; territorial seas; and wetlands adjacent to the aforementioned categories of waters.

comply with relevant grading and erosion control ordinances and regulations promulgated by the County or air quality management district.

### **5.3.3 Colorado River Basin**

The Colorado River Basin covers over 240,000 square miles of the western United States and includes all of Imperial County and portions of San Bernardino, Riverside, and San Diego Counties. Regional drainage waters from the Colorado River drain into the Salton Sea. Multiple dams along the Colorado River divert water to users in accordance with documents collectively referred to as the “Law of the River.” This includes interstate compacts, federal legislation, water delivery contracts, state legislation, a treaty with Mexico, and US Supreme Court decrees. For reporting purposes, the basin is divided into seven major planning areas, of which several are within San Bernardino County.

The Colorado River RWQCB has adopted a Basin Plan that identifies beneficial uses for waterbodies, establishes water quality objectives to protect those uses, and provides an implementation plan to protect water quality. The Colorado River Basin Plan was adopted in 2006 with amendments most recently in 2014 to address recent issues. Priority issues for the Basin include, but are not limited to:

- Agricultural uses in the Imperial Valley and Palo Verde Valley
- Surface water quality issues in the Salton Sea and its tributaries
- Leaking underground storage tanks
- Onsite wastewater treatment systems in the Colorado region
- Bacteria plan for the Coachella Valley

Incorporated cities and unincorporated communities within San Bernardino County within the jurisdiction of the Colorado River RWQCB are excluded from Phase 1 or Phase 2 MS4 permits. These excluded communities include smaller communities within the Lucerne Valley and the Morongo Basin. These jurisdictions either do not have at least 10,000 residents or do not have a population density of at least 1,000 people per square mile. As there are no Waters of the US in these areas, these communities are not covered by an MS4 permit.

However, jurisdictions and projects exempt from MS4 permits must still adhere to construction and post-construction practices to control and reduce stormwater runoff as required by their respective jurisdictions or SWQRCB to ensure implementation of best management practices where feasible. In desert areas, communities and projects may also need to comply with grading and erosion control regulations promulgated by the County or air quality management district.

## 6 GROUNDWATER CONDITIONS

Groundwater resource protection in San Bernardino County depends upon the continued availability of groundwater through ensuring that extraction activities do not exceed the safe yield of aquifers, considering both the short and long-term impacts of groundwater extraction, including the recovery of groundwater aquifers through natural and artificial recharge. Groundwater resource protection also includes the consideration of the health of individual aquifers and the continued ability of those aquifers to store and maintain water.

### 6.1 Groundwater Management

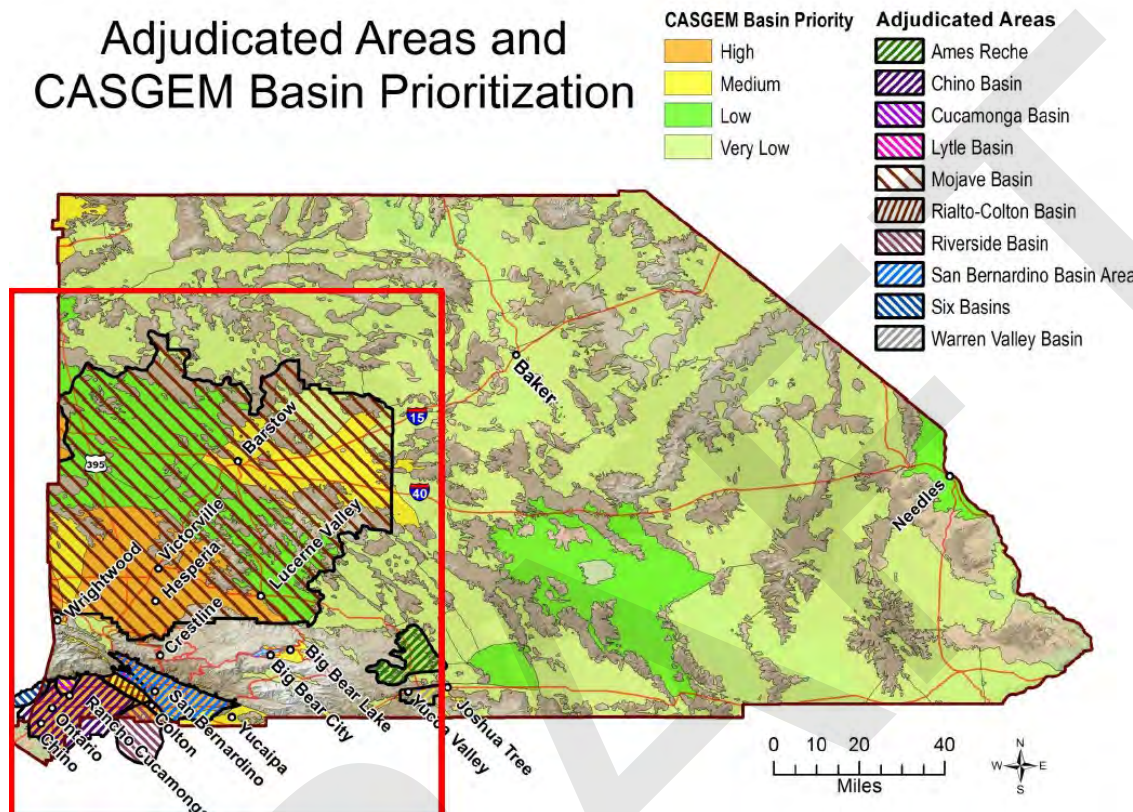
In 2014, the Legislature passed the Sustainable Groundwater Management Act (SGMA) to address the long-term sustainable management of groundwater in California. This ground-breaking legislation is the result of severe water shortages in certain areas of California, long-term issues with land subsidence, and continued overdrafting of groundwater aquifers. Although the issues driving this legislation are statewide, particularly for central California, the SGMA set the stage for a more coordinated statewide approach to managing groundwater.

To further this mandate, the Department of Water Resources (DWR) has developed a Strategic Plan for its Sustainable Groundwater Management Program. The DWR was tasked with a variety of responsibilities, including: (1) developing regulations to revise groundwater basin boundaries; (2) adopting regulations for evaluating and implementing Groundwater Sustainability Plans (GSPs) and coordination agreements; (3) identifying basins subject of concern; (4) identifying water available for groundwater replenishment; and (5) publishing best management practices.

DWR has identified the status of water basins by overdraft (critically or not critical) and different priority levels (e.g., very low, low, medium, or high priority). Critically overdrafted basins that are assigned a high or medium priority must be managed under a GSP by January 31, 2020. All other high and medium priority basins must be managed under a GSP by January 31, 2022. However, this requirement does not apply to areas where the water rights have been adjudicated. Appendix D provides a map of the medium and high priority water basins within San Bernardino County and where adjudication has been determined.

As of 2016, only one of the county's groundwater basins are *critically* overdrafted: the Indian Wells Valley basin, which just overlaps the county boundary near Trona. Of the dozen medium and high priority water basins, only a handful of groundwater basins have not been adjudicated and would be required to prepare a GSP by 2022. For other groundwater basins designated as low or very low priority, the Water Code encourages and authorizes (but does not require) that public agencies form GSAs and develop GSPs, update groundwater management plans, or collaborate with others to develop new plans in accordance with Water Code 10750. The following figure highlights priority basins and the status of adjudication.

## Adjudicated Areas and CASGEM Basin Prioritization



Identification of Basin Priority and Adjudicated Areas

For the areas outside the Mojave River Basin that are unadjudicated, the County adopted a Desert Groundwater Management Ordinance designed to protect groundwater resources in the unincorporated and unadjudicated desert region (Ordinance 33.06551). Well proposals located outside of the jurisdictional boundaries of the Mojave Water Agency and Public Water Districts within the Morongo Basin and which are situated in the unincorporated desert region of the County must either adopt a groundwater management plan or fall under one of the specified exclusions. In addition, a permit is required for any new groundwater well.

The last significant piece of legislation enacted that affects sustainable groundwater management is AB 1739 (Chapter 347, Statutes of 2014), which reinforces the State Legislature's intent to link local land use planning and groundwater management. GSAs are required to take into account the most recent planning assumptions stated in local general plans overlaying the basin in their water planning efforts. Moreover, prior to adoption or substantial amendment of a general plan, the planning agency is required to review and consider a GSP, GMP, groundwater management order, judgement, decree, or adjudication of water rights. This mandate will ensure that land use decisions and water supplies are considered in tandem.



## 6.2 Groundwater Quality

The Groundwater Quality Monitoring Act of 2001 was enacted to address statewide concerns with groundwater quality. To implement this act, the SWRCB and USGS initiated the GAMA Priority Basin project to assess and monitor the quality of groundwater in all priority basins. The priority basins chosen account for 90% of all groundwater in the state. Monitoring and assessments are on a ten-year cycle, with more frequent trend monitoring. The GAMA Priority Basin Project focuses on an assessment of the quality of “untreated” groundwater, not the quality of drinking water, which is regulated by state and federal law.

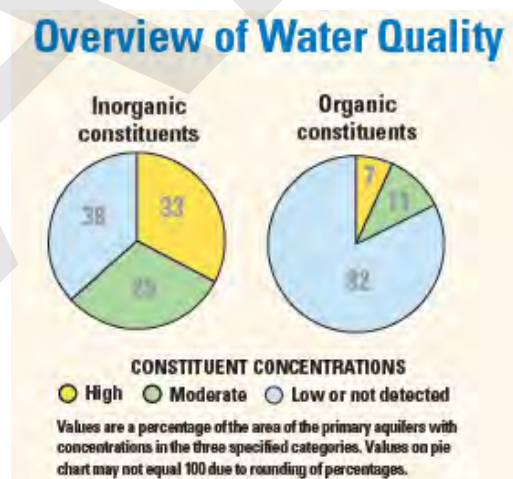
Groundwater quality is rated against federal and state regulatory benchmarks (e.g., Maximum Contaminant Levels, MCL) when available. Concentrations are considered high if they exceed a benchmark MCL. For inorganic constituents, concentrations are moderate if they are greater than one half a benchmark. For organic and special interest constituents, concentrations are moderate if greater than 1/10 of a benchmark; this lower threshold was used because organic constituents are less prevalent and have smaller concentrations relative to benchmarks than inorganic constituents. Low include non-detections and values less than the moderate concentrations

### 6.2.1 Santa Ana Basin

In the Upper Santa Ana Watershed area, one or more organic constituents were present at high concentrations in 7% of the primary aquifers and at moderate concentrations in 11%. Inorganic constituents were present at high concentrations in 33% of the primary aquifers and moderate concentrations in 29% of primary aquifers.

Trace elements with human health benchmarks were present at high levels in 7% of primary aquifers. Arsenic, boron, and molybdenum were most frequently found at high concentrations. Aluminum, fluoride, lead, uranium, and vanadium were also detected at high concentrations, but in less than 2% of the primary aquifers. Gross alpha radioactivity, uranium, or radium-2228 occurred at high concentrations in 4% of the primary aquifers and at moderate levels in 14%.

Of additional interest, nitrate was found at high levels in 25% of the aquifers. Solvents were detected at high levels in 3% of primary aquifers. 1,2-Dibromo-3-chloropropane, a fumigant, was detected at high concentrations in 4% of the primary aquifers. Perchlorate was found at high concentrations in 11% of the primary aquifers, and at moderate concentrations in 53%. There are several major groundwater contamination plumes in the Upper Santa Ana River Valley



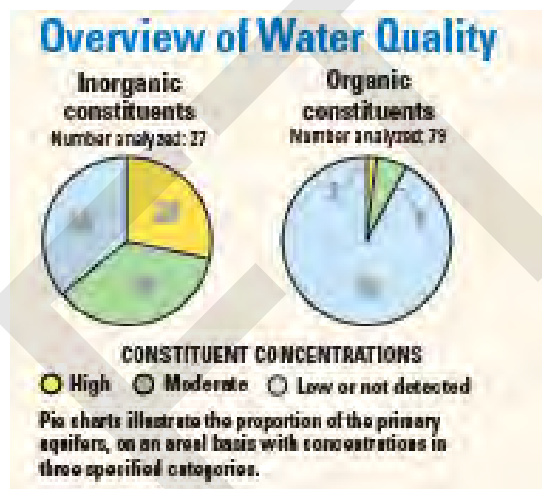


Groundwater Basin; pollutants include 1,2-dichloroethylene (1,2-DCE), trichloroethylene (TCE), perchloroethylene (PCE), debromochloropropane, (DBCP), and perchlorate.

### 6.2.2 Mojave Basin

In the Mojave study area, one or more inorganic constituents were present at high concentrations in 28% of primary aquifers and at moderate concentrations in 36%. Meanwhile, organic constituents were present at high concentrations in 2% of the primary aquifers and at moderate concentrations in 6%.

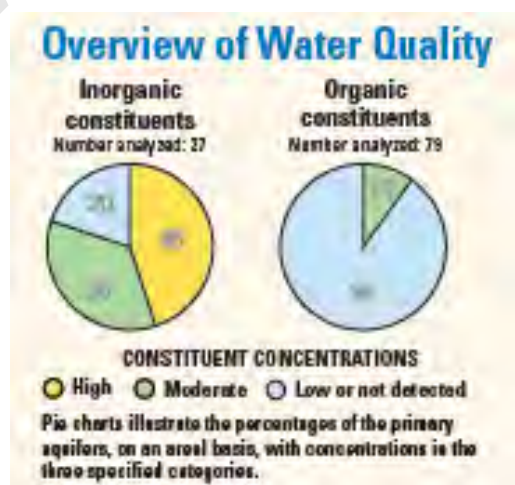
Trace elements were present in 33% of the primary aquifers and at moderate concentrations in 22%. Of the 17 trace elements analyzed, 6 were detected at high levels: arsenic, boron, fluoride, molybdenum, strontium, and vanadium. Radioactive constituents were detected at high concentrations in 2% of the primary aquifers and at moderate concentrations in 15%. Perchlorate was found at moderate concentrations within 22% of the samples and nitrates were detected at concentrations above benchmarks. There are several plumes in the region. Of particular note, groundwater under Hinkley is contaminated with hexavalent chromium or Cr6 remaining from past use at a Pacific Gas & Electric (PG&E) facility.



### 6.2.3 Colorado River Basin

One or more inorganic constituents were present at high concentrations in 45% of the primary aquifers and at moderate concentrations in 35% of aquifers. Organic constituents were present at moderate concentrations in 10% of the primary aquifers

Trace elements were present at high concentrations in 40% of the primary aquifers, and at moderate concentrations in 30% of the primary aquifers. Of the 17 trace elements analyzed in this study, high concentrations were detected for arsenic, boron, fluoride, molybdenum, and strontium. Cr6 was also detected at moderate concentrations.



It should be noted, however, that groundwater is typically treated before consumption. Common methods used to ensure that groundwater meets state and federal standards include disinfection, filtering, blending, and other techniques. Water purveyors in California are required to meet stringent state and federal drinking water standards to protect public health.

#### 6.2.4 Groundwater Quality Programs

As authorized by state and federal law, the California Water Resources Control Board and its regional boards implement a variety of programs to address the quality of the groundwater. Key statewide programs are summarized below:

- **Groundwater Quality Standards.** The SWRCB adopts and implements numerical and narrative standards called water quality objectives (WQOs) to protect beneficial uses of groundwater. To achieve this goal, Water Boards identify the actual and likely future groundwater uses, and the applicable protection standards for each groundwater basin.
- **Groundwater Monitoring.** The SWRCB samples community and domestic water supply wells for a variety of historic and emerging pollutants using ultra-low detection limits. The Water Boards use these data to help prioritize cleanup work and permitting decisions to ensure that high quality groundwater is protected.
- **Regulatory Activities.** The SWRCB implements programs that regulate the discharge of pollutants to the ground, and cleanup pollution within the ground. These programs aim to prevent the release of hazardous substances from a variety of facilities – such as landfills, waste disposal sites, and service stations– clean up spills and leaks that may occur.
- **Financial Assistance.** The SWRCB provides grants and loans for constructing municipal sewage and water recycling facilities, remediation for underground storage tank release, watershed protection projects, nonpoint source pollution (NPS) control projects, public drinking water system projects, and other projects.

The Department of Toxic Substances Control (DTSC) is charged with protecting California's people and environment from harmful effects of toxic substances. This is achieved by restoring contaminated resources, enforcing hazardous waste laws, reducing hazardous waste generation, and encouraging the manufacture of chemically safer products. DTSC works closely with the SWRCB on enforcing or overseeing the cleanup of various plumes that affect the quality of groundwater or drinking water supplies. Specific projects include the PG&E Topock Compressor Station in Needles, Hinkley facility, Newmark facility in San Bernardino, and other facilities.

Individual water suppliers also implement numerous programs to address groundwater quality. These include wellhead protection, disinfection/treatment, mixing/blending, and other programs too numerous to mention in this report. Additional information on groundwater quality programs can be found within the urban water management plans of each water agency.

## 6.3 Drinking Water Quality

The southern California region relies on a mix of groundwater water, surface water, and imported water to meet its drinking water needs. The State Water Resources Control Board has assumed responsibility for monitoring and regulating the quality of drinking water in California from the California Department of Public Health. In implementing its mission, the SWRCB is committed to implementing UN Resolution 64/292, Human Right to Water and Sanitation, to provide clean drinking water and sanitation to all people in California.

### 6.3.1 Drinking Water Quality

Fundamental to the mission of SWRCB is the provision of healthful drinking water. The Health and Safety Code requires that water supplies provided to customers must meet minimum quality standards. As described later, the County of San Bernardino is also involved in ensuring the delivery of clean and healthful drinking water.

Water quality standards fall into two general categories.

- **Public Health Goals (PHG):** PHGs are established by the Office of Environmental Health Hazard Assessment (OEHHA). PHGS are concentrations of drinking water contaminants that pose no significant health risk if consumed for a lifetime, based on current risk assessment principles, practices, and methods. OEHHA establishes PHGs pursuant for contaminants with MCLs, and for those for which MCLs will be adopted.
- **Maximum Contaminant Levels (MCL):** The MCL is the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, allowing an adequate margin of safety. State law requires a contaminant's MCL to be established at a level as close to its PHG as is technologically and economically feasible, placing primary emphasis on the protection of public health

Appendix D includes a table reflecting California's current maximum contaminated levels (MCLs) and public health goals (PHGs) for regulated drinking water contaminants in California.

Although these regulations affect the usefulness of groundwater in a particular region, the responsibility to control and treat groundwater is the sole responsibility of the water purveyor. In addition, all new wells must be permitted and accompanied by the water well driller's report, bacterial analysis, inorganic chemical analysis, general physical assessment, radiological analysis, nitrate analysis, organic chemical analysis and general mineral breakdowns. All of these tests must comply with drinking water quality requirements before being put into use. Ultimately, all water delivered by water purveyors and private wells must meet or exceed water quality standards established by state and federal drinking water regulations.

### **6.3.2 Constituents of Emerging Concern (CEC)**

CECs are typically classified as the pharmaceuticals that people use to treat illnesses as well as everyday products that people use for personal care including shampoos and detergents. These constituents enter into the wastewater and subsequently the water supply by human waste and improper disposal methods. Generally, these constituents are found at trace levels in many water sources including potable water from treatment facilities, underground aquifers, and recycled water.

Conventional wastewater treatment partially removes CECs to very low levels or levels below detection. As analytical methods continue to improve to allow the detection of even lower levels of contaminants, more compounds will be found but the ability to detect a compound does not necessarily translate to human health concerns. Water and recycled water treatment agencies are responsible for producing high-quality water through source control, treatment, monitoring and research.

There are currently measures in place to reduce the amounts of CECs entering into the water systems including outreach to the general public and collaboration amongst regulators. California and its associated counties are actively monitoring levels of CECs; but no legislation has currently been passed specifically addressing the issue within San Bernardino County.

### **6.3.4 Small Drinking Water Programs**

The DEHS Small Drinking Water System Program protects public health and safety by inspecting water systems to ensure pure and safe drinking water is supplied throughout San Bernardino County. In partnership with small drinking water systems owners/operators, DEHS conducts routine inspections to prevent waterborne diseases, identify risks of bacteriological, chemical and/or radiological contamination, and provides technical assistance.

DEHS has an agreement with the California Department of Public Health, Drinking Water Program for administration and enforcement of federal and state statutes and regulations for any water systems under 200 service connections. Currently, there are 272 small drinking water systems in the County. DEHS is currently using a grant to take domestic well water samples for known or suspected contaminants for their voluntary Domestic Well Water Sample Program. The goal is to identify contaminants of concern and to notify the property owner of the results so they can be properly informed regarding their well water quality.

### **6.3.5 Wastewater Impacts on Groundwater Quality**

Wastewater from septic tanks has long been an environmental concern in southern California. As early as 1989, the State Water Resources Control Board identified high concentrations of nitrate from septic tanks as one of the leading long-term threats to groundwater quality in California. Excessive nitrate levels are associated with a range of deleterious health effects, some of which can be fatal to children and other vulnerable populations. Similarly, pathogens from leaking septic tanks can also lead to a range of human diseases, including diseases that can be fatal. As such, the

State Water Resources Control Board implements regulations to reduce the impact of wastewater sources on groundwater quality in accordance with state law (AB 885).

In 2012, the State Water Resources Control Board adopted Resolution No. 2012-0032, which provides the water quality control policy for siting, design, operation, and maintenance of onsite wastewater treatment systems (OWTS). This policy establishes a statewide, risk-based, tiered approach for the regulation and management of OWTS installations and replacements that have affected, or will affect, groundwater or surface water to a degree that makes it unfit for drinking water or other uses, or cause a health or public nuisance condition. RWQCBs incorporated the standards established in the OWTS Policy, or standards that are more protective of the environment and public health, into their water quality control plans. Implementation is overseen by the State and regional water quality boards and local agencies (e.g., county and city departments and independent districts).

The County of San Bernardino adopted a Local Area Management Program (LAMP) to comply with the state's OTWS Policy. The LAMP provides minimum standards and requirements for the treatment and disposal of sewage through OWTS when no connection to a sewer is available. Requirements for new development include siting standards for OWTS located near drinking water wells, impaired waterways, sources of groundwater, and other specific land uses. Regulations include minimum lot size, residential density, minimum setback requirements, natural ground slope and percolation, OWTS design specifications, and other criteria. In addition, OTWS are not allowed in certain areas of the county where a moratorium exists due to the high concentration of existing OWTS or proximity to groundwater or surface water sources. These communities include:

- Grand Terrace (County Service Area 70, Improvement Zone H)
- Yucaipa – Calimesa
- Lytle Creek (above 2,600 ft MSL)
- Mill Creek (above 2,600 ft MSL)
- Bear Valley (including Baldwin Lake drainage area)
- Lahontan RWQCB Prohibition Areas 1-5

Addressing the issue of water quality is problematic for many small communities. For community water supplies, there are at least five options for improving potable water supplies:

- (1) Locating and developing a new source of drinking water
- (2) Purchasing drinking water from another water system
- (3) Blending water from a contaminated source with water from uncontaminated source(s)
- (4) Building and operating a treatment plant to remove contaminants; or

(5) Installing point-of-use (POU) treatment devices at each drinking water tap

(6) Haul in bulk domestic water supplies, either by truck or bottle

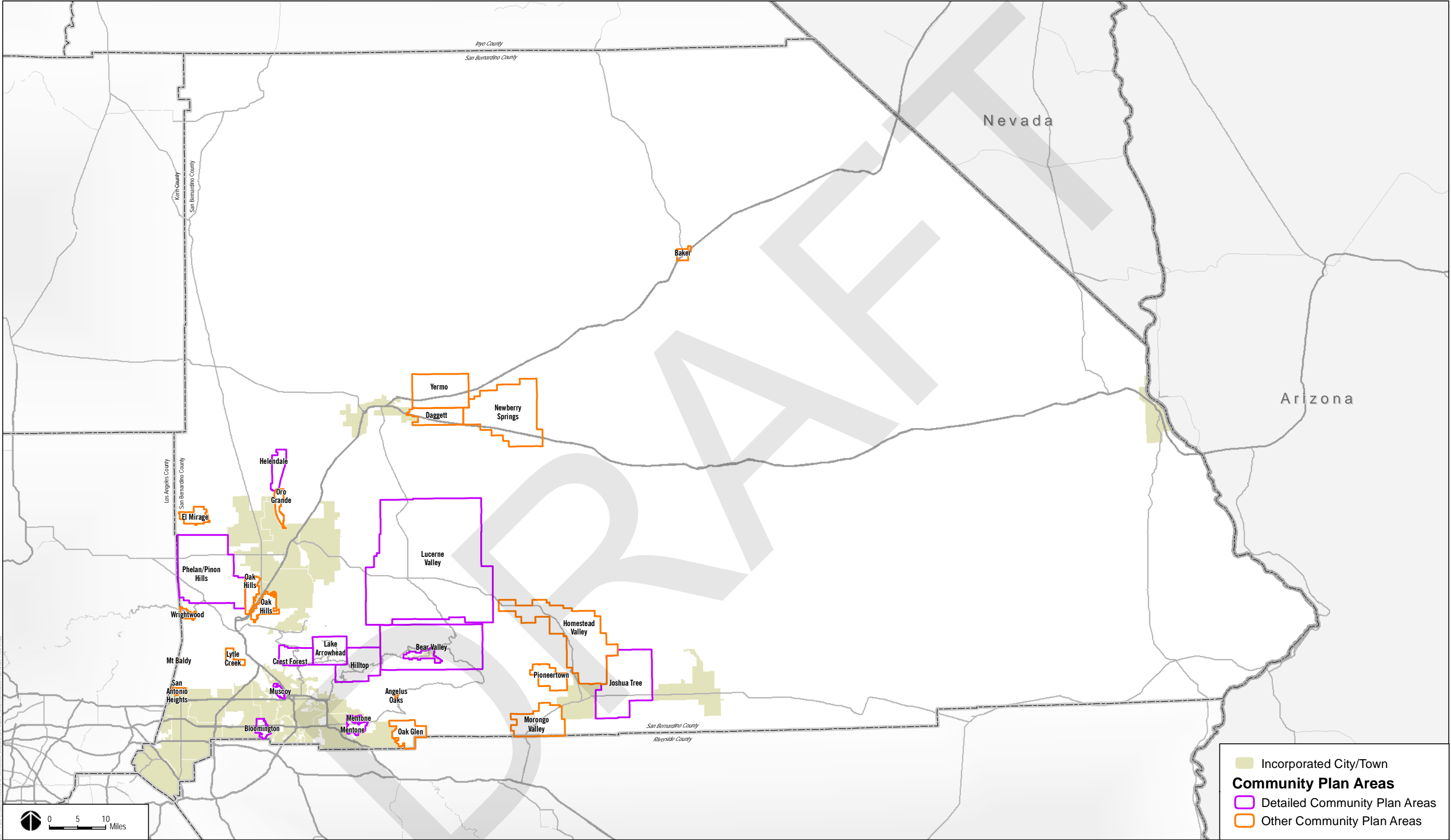
For non-community water systems (e.g., schools, restaurants, churches, motels, etc. served by their own water supply), a point of entry (POE) treatment system can be effective. However, a POU system can also be effective for residents served by individual wells.

**Table 11: Communities Vulnerable to Groundwater Quality Concerns**

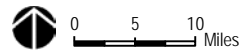
Community	Issue	Concern
Morongo Valley	WQ	Water quality supplies are contaminated with high levels of uranium that may exceed MCLs.
Joshua Tree	WQ	Numerous wells in the JBWD system have Cr6 levels that exceed the new state MCL.
Newberry Springs	WQ	High fluoride concentrations
East of Barstow	WQ	UST leakage – benzene, toluene, MTBE, etc.
West of Barstow	WQ	OWTS density and leaching, industrial pollutants, illegal dumping
Wrightwood	WQ	Nitrates from OWTS density, Cr6
Phelan Pinion Hills	WQ	Nitrates from OWTS density, Cr6
Oak Hills (CSA 70 J)	WQ	Nitrates from OWTS density, Cr6
Pioneertown, Hacienda Heights, and Little Morongo (CSA 70)	WQ	CSA 70 W-3 and CSA 70 F water wells exceed MCL for gross alpha and uranium. CSA 70 W-4 water wells exceed the MCL for arsenic, fluoride, and uranium.

Source: [http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2012.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml)

APPENDIX A  
*Community Boundary Map*



- Incorporated City/Town
- Community Plan Areas**
- Detailed Community Plan Areas
- Other Community Plan Areas



SOURCE: County of San Bernardino 2016

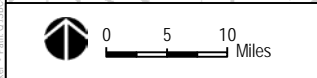
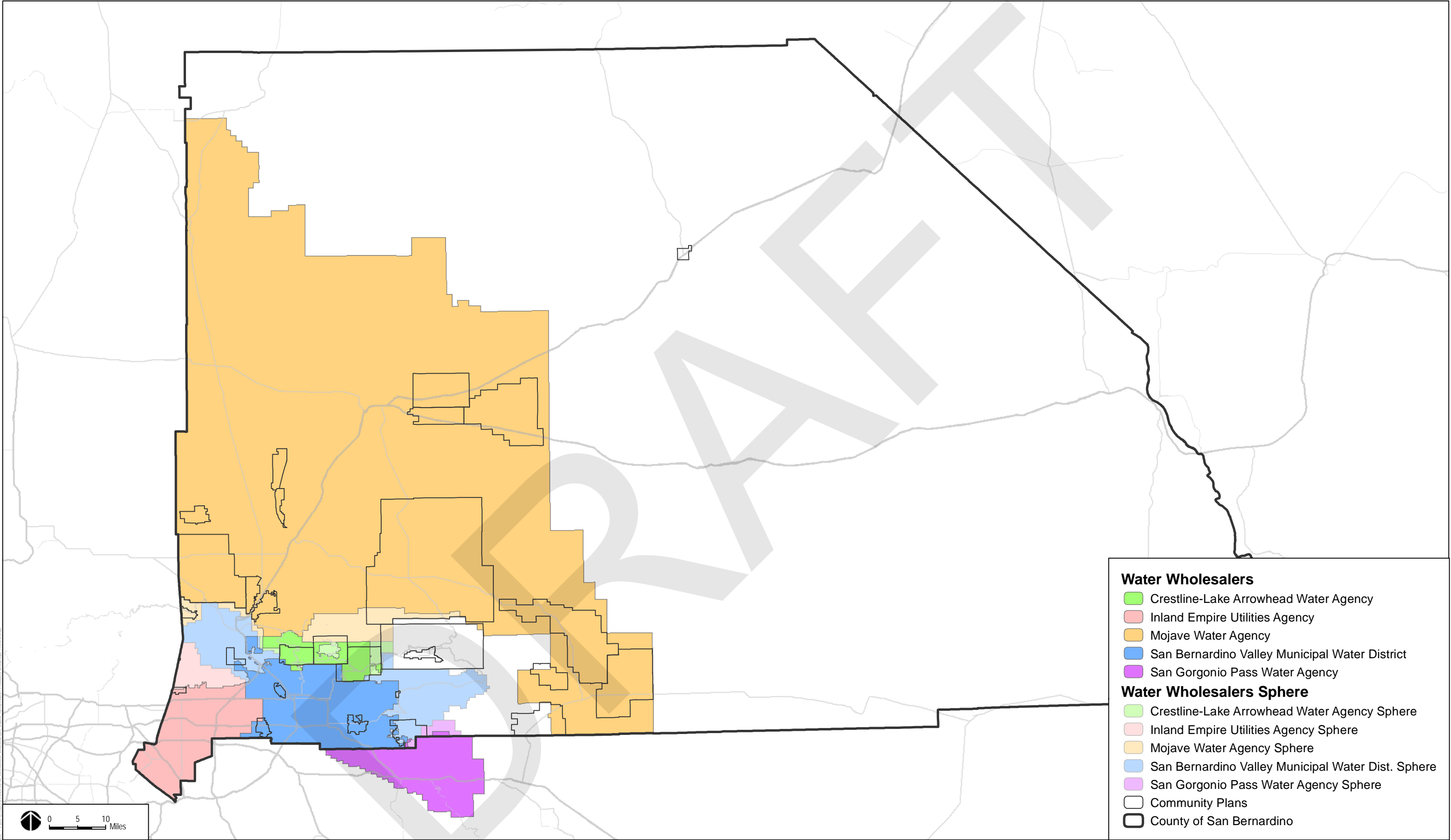
San Bernardino Countywide Plan

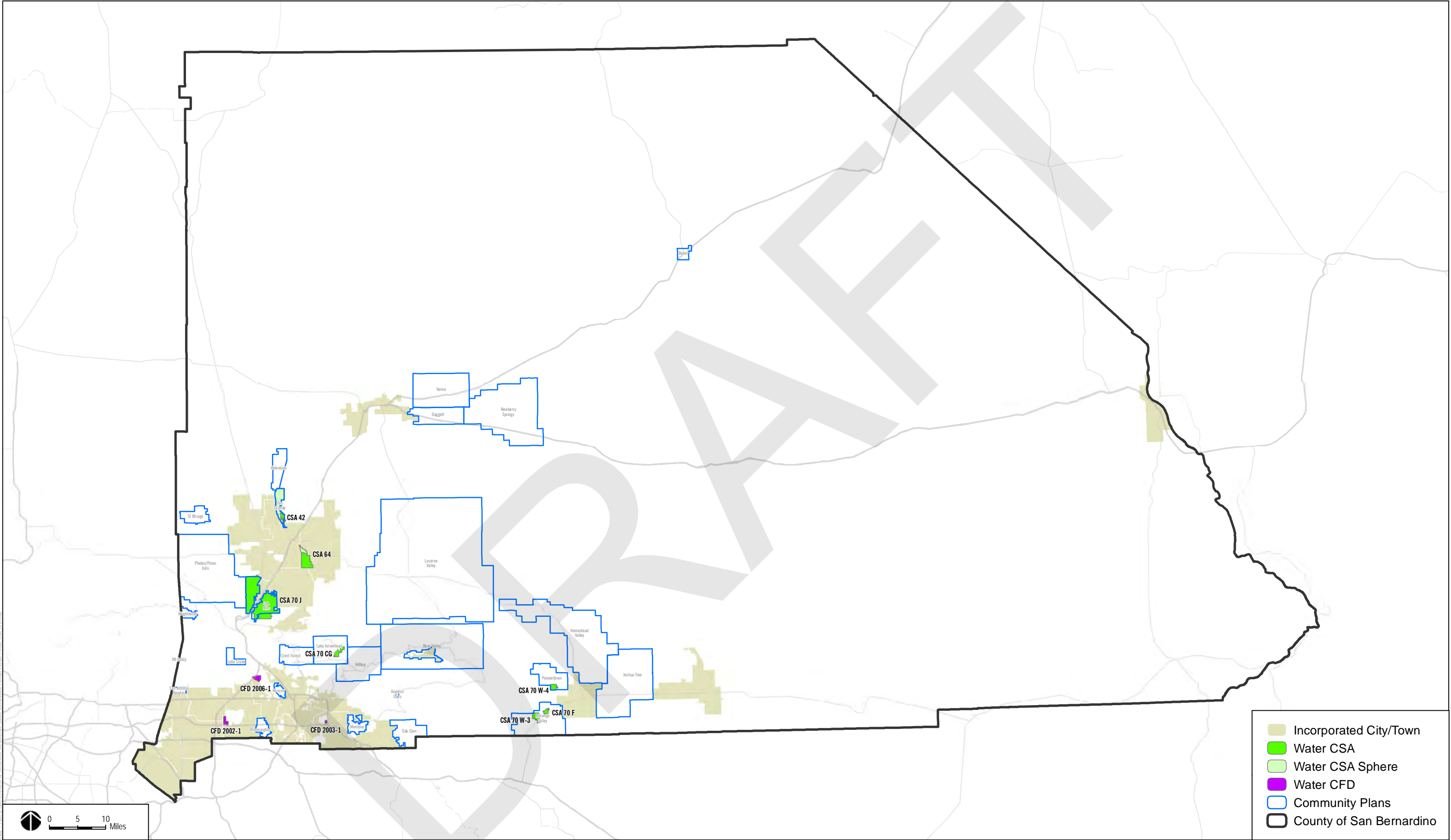
Commuity Plan Areas



# APPENDIX B

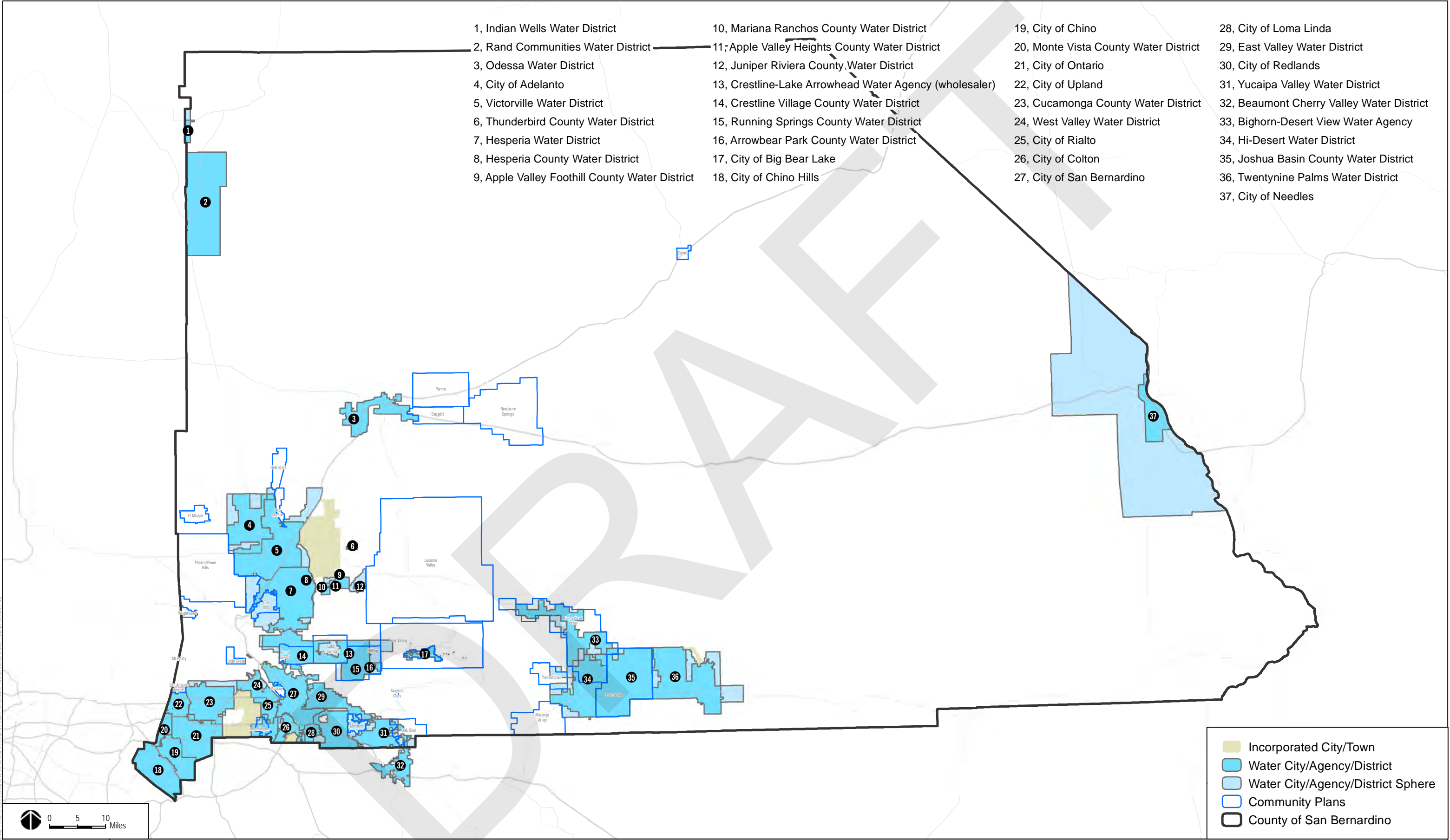
## *Water and Wastewater Maps and Matrices*





- Incorporated City/Town
- Water CSA
- Water CSA Sphere
- Water CFD
- Community Plans
- County of San Bernardino



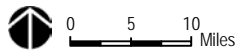


- 1, Indian Wells Water District
- 2, Rand Communities Water District
- 3, Odessa Water District
- 4, City of Adelanto
- 5, Victorville Water District
- 6, Thunderbird County Water District
- 7, Hesperia Water District
- 8, Hesperia County Water District
- 9, Apple Valley Foothill County Water District

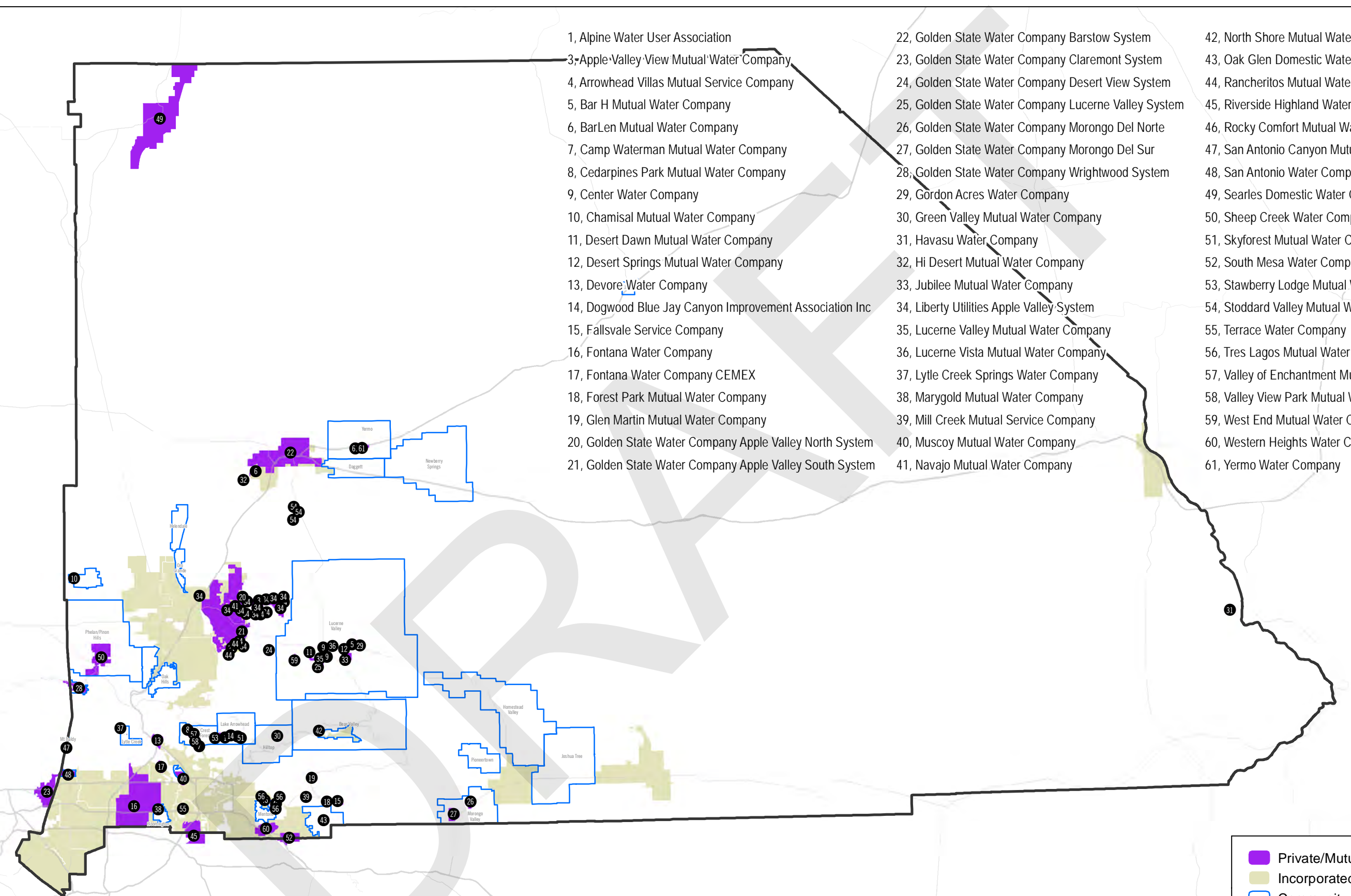
- 10, Mariana Ranchos County Water District
- 11, Apple Valley Heights County Water District
- 12, Juniper Riviera County Water District
- 13, Crestline-Lake Arrowhead Water Agency (wholesaler)
- 14, Crestline Village County Water District
- 15, Running Springs County Water District
- 16, Arrowbear Park County Water District
- 17, City of Big Bear Lake
- 18, City of Chino Hills

- 19, City of Chino
- 20, Monte Vista County Water District
- 21, City of Ontario
- 22, City of Upland
- 23, Cucamonga County Water District
- 24, West Valley Water District
- 25, City of Rialto
- 26, City of Colton
- 27, City of San Bernardino

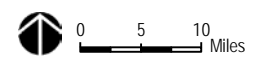
- 28, City of Loma Linda
- 29, East Valley Water District
- 30, City of Redlands
- 31, Yucaipa Valley Water District
- 32, Beaumont Cherry Valley Water District
- 33, Bighorn-Desert View Water Agency
- 34, Hi-Desert Water District
- 35, Joshua Basin County Water District
- 36, Twentynine Palms Water District
- 37, City of Needles



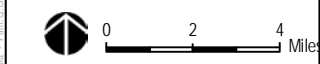
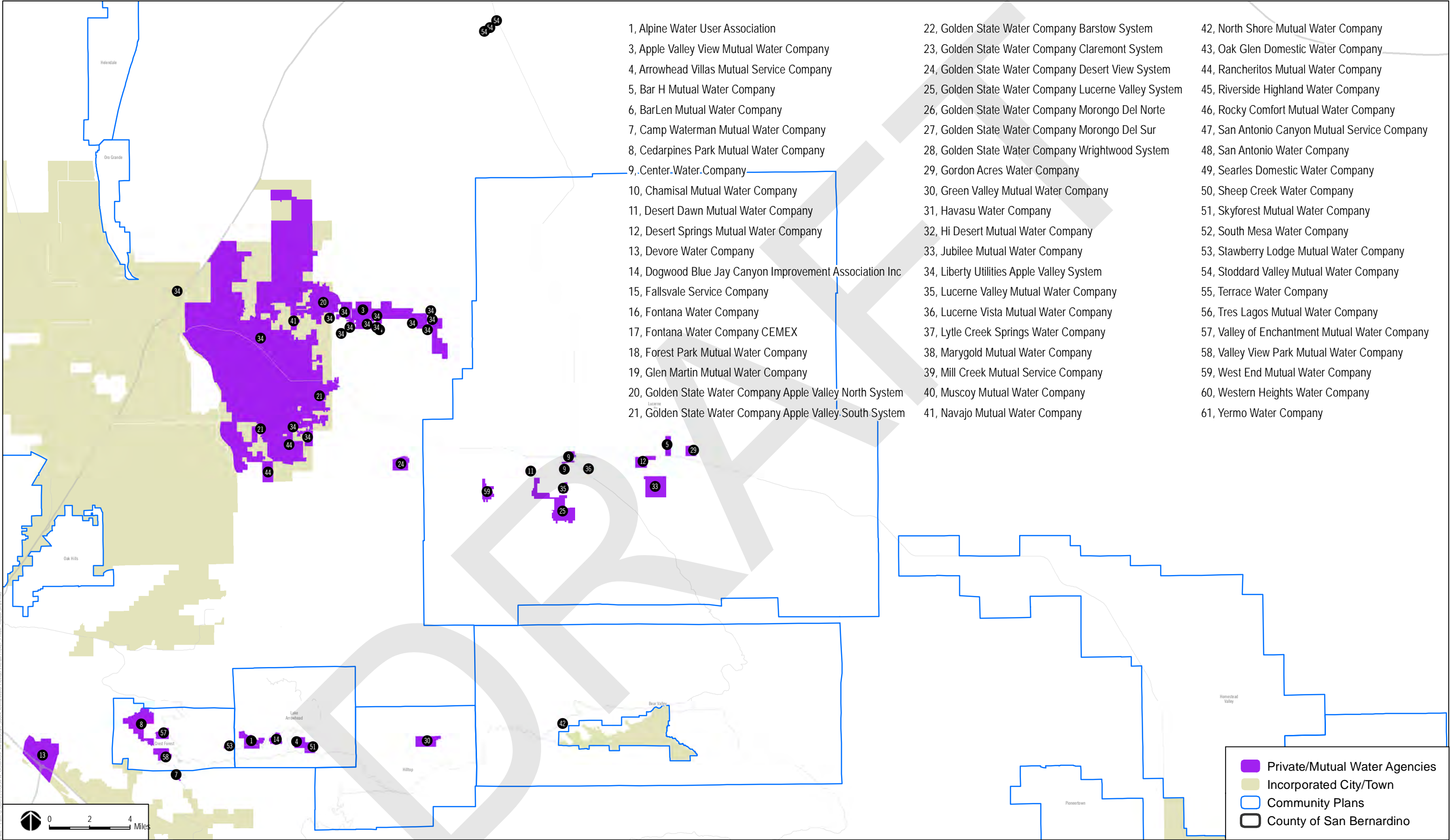




- |  |  |  |
|--|--|--|
| 1, Alpine Water User Association                         | 22, Golden State Water Company Barstow System        | 42, North Shore Mutual Water Company           |
| 2, Apple Valley View Mutual Water Company                | 23, Golden State Water Company Claremont System      | 43, Oak Glen Domestic Water Company            |
| 3, Arrowhead Villas Mutual Service Company               | 24, Golden State Water Company Desert View System    | 44, Rancheritos Mutual Water Company           |
| 4, Bar H Mutual Water Company                            | 25, Golden State Water Company Lucerne Valley System | 45, Riverside Highland Water Company           |
| 5, Bar Len Mutual Water Company                          | 26, Golden State Water Company Morongo Del Norte     | 46, Rocky Comfort Mutual Water Company         |
| 6, Bar Len Mutual Water Company                          | 27, Golden State Water Company Morongo Del Sur       | 47, San Antonio Canyon Mutual Service Company  |
| 7, Camp Waterman Mutual Water Company                    | 28, Golden State Water Company Wrightwood System     | 48, San Antonio Water Company                  |
| 8, Cedarpines Park Mutual Water Company                  | 29, Gordon Acres Water Company                       | 49, Searles Domestic Water Company             |
| 9, Center Water Company                                  | 30, Green Valley Mutual Water Company                | 50, Sheep Creek Water Company                  |
| 10, Chamisal Mutual Water Company                        | 31, Havasu Water Company                             | 51, Skyforest Mutual Water Company             |
| 11, Desert Dawn Mutual Water Company                     | 32, Hi Desert Mutual Water Company                   | 52, South Mesa Water Company                   |
| 12, Desert Springs Mutual Water Company                  | 33, Jubilee Mutual Water Company                     | 53, Strawberry Lodge Mutual Water Company      |
| 13, Devore Water Company                                 | 34, Liberty Utilities Apple Valley System            | 54, Stoddard Valley Mutual Water Company       |
| 14, Dogwood Blue Jay Canyon Improvement Association Inc  | 35, Lucerne Valley Mutual Water Company              | 55, Terrace Water Company                      |
| 15, Fallsvale Service Company                            | 36, Lucerne Vista Mutual Water Company               | 56, Tres Lagos Mutual Water Company            |
| 16, Fontana Water Company                                | 37, Lytle Creek Springs Water Company                | 57, Valley of Enchantment Mutual Water Company |
| 17, Fontana Water Company CEMEX                          | 38, Marygold Mutual Water Company                    | 58, Valley View Park Mutual Water Company      |
| 18, Forest Park Mutual Water Company                     | 39, Mill Creek Mutual Service Company                | 59, West End Mutual Water Company              |
| 19, Glen Martin Mutual Water Company                     | 40, Muscoy Mutual Water Company                      | 60, Western Heights Water Company              |
| 20, Golden State Water Company Apple Valley North System | 41, Navajo Mutual Water Company                      | 61, Yermo Water Company                        |
| 21, Golden State Water Company Apple Valley South System |  |  |



- Private/Mutual Water Agencies
- Incorporated City/Town
- Community Plans
- County of San Bernardino



DETAILED COMMUNITY PLAN AREAS		WATER DISTRICT// PURVEYOR	UWMP	LAFCO MSR	DWR Survey	2010/2015 Service Pop	2035/2040 Service Pop	SFR	Multi	Comm/Ind	Irrigation	Fire	Other	SFR	Multi	Comm/Ind	Irrigation	Fire	Other	PROJECTED SERVICE DEMAND DIFFERENCE ACRE-FEET/YEAR (OR CONNECTIONS)						
																					SFR	Multi	Comm/Ind	Irrigation	Fire	Other
BEAR VALLEY COMMUNITIES		Big Bear City Community Services District	2015			11,528	13,485	890						1,196							306					
Baldwin Lake																										
Big Bear City																										
Erwin Lake																										
Fawnskin/ Northshore																										
Lake Williams																										
Moonridge																										
Sugarloaf																										
		Big Bear Lake Department of Water	2015			25,601 ttl 11,382 full 14,219 temp	30,479 ttl 13,550 full 16,928 temp	1,394		458			243	1,660		545		438	288		266		87		45	
BLOOMINGTON		West Valley Water District - SBVRUWMP	2015			80,161	115,568	9,786	504	2,987	1,424	275	2,155	15,616	804	5,865	2,105	438	2,484	5,830	300	2,878	681	163	329	
		Fontana Water Company	Draft 2015		N	223,307	271,690	17,754	3,438	10,566	-	15	3,191	27,404	5,306	15,994	-	23	4,835	9,650	1,868	5,428	-	8	1,644	
		Marygold Mutual Water Company	N					785 conn	51 conn	83 conn																
CREST FOREST COMMUNITIES																										
Cedarpines Park		Cedarpines Park Mutual Water Company	Exempt	Y	Y	2,418		767																		
Crestline		Crestline Village Water District	2015			7,607	9,259	491	15	73			32	599	19	89			32	108	4	16			32	
Lake Gregory		Crestline Village Water District	2015			7,607	9,259	491	15	73			32	599	19	89			32	108	4	16			32	
Valley of Enchantment		Valley of Enchantment Mutual Water Company	Exempt	Y	Y	1,280		786 conn	6 conn	17 conn																
HELENDALE		Helendale Community Services District	Exempt		Y			2,746 conn	14 conn	29 conn																
HILLTOP COMMUNITIES																										
Arrowbear Lake		Arrowbear Park County Water District	Exempt	Y	Y	703		946 conn		7	2															
Green Valley Lake		Green Valley Mutual Water Company	Exempt	Y	Y	700 - 3,000		1,048 conn	1																	
Running Springs		Running Springs Water District	2010	Y		5,303																				
JOSHUA TREE		Joshua Basin Water District	2015			9,745	11,617	903	76	161			229	1,371	106	254			229	468	30	93			0	
LAKE ARROWHEAD COMMUNITIES																										
Blue Jay		Crestline-Lake Arrowhead Water Agency (see note 1)	2010			2,750	3,141	1,199 conn			57 conn	8 conn		17 conn												
Cedar Glen		County Service Area 70 CG	Exempt	Y	N	1,253		342																		
Deer Lodge Park		Lake Arrowhead Community Services District	2015			9,587	10,837	854			117	13	0.3	254	1,303		184	27	4	425	449	67	14	3.7	171	
Lake Arrowhead		Lake Arrowhead Community Services District	2015			9,587	10,837	854			117	13	0.3	254	1,303		184	27	4	425	449	67	14	3.7	171	
Rim Forest		Lake Arrowhead Community Services District	2015			9,587	10,837	854			117	13	0.3	254	1,303		184	27	4	425	449	67	14	3.7	171	
Sky Forest		Sky Forest Mutual Water Company	Exempt		N																					
Twin Peaks		Alpine Water Users Association	Exempt	Y	Y	3,000		914 conn			20 conn															
LUCERNE VALLEY		Bar H Mutual Water Company	Exempt	Y	N	124																				
		Center Water Company	Exempt	Y	Y	65		19 conn	4 conn	26 conn																
		Desert Dawn Mutual Water Company	Exempt	Y	Y	120		41 conn																		
		Desert Springs Mutual Water Company	Exempt	Y	N	325																				
		Golden State Water Company Lucerne Valley System	Exempt	Y	Y	648		303 conn			7 conn															
		Gordan Acres Water Company	Exempt	Y	Y	200		46 conn	15 conn																	
		Jubilee Mutual Water Company	Exempt	Y	Y	855		191 conn																		
		Lucerne Valley Mutual Water Company	Exempt	Y	Y	275		67 conn																		
		Lucerne Vista Mutual Water Company	Exempt	Y	N	160																				
		West End Mutual Water Company	Exempt		Y			30 conn																		
MENTONE		City of Redlands - SBVRUWMP	2015			85,276	95,000	11,653	2,853	3,457	2,987	-	340	16,592	4,062	4,922	4,253	-	484	4,939	1,209	1,465	1,266	-	144	
MUSCOY		Muscoy Mutual Water Company	Exempt		Y			1,337 conn		50 conn																
OAK GLEN		Oak Glen Domestic Water Company	N		Y			44 conn																		
PHELAN/PINON HILLS		Sheep Creek Water Company	Exempt		Y			1,253 conn	9 conn	115 conn																
		Phelan Pinon Hills Community Services District	2015			19,291	33,046	2,300	3	191			282	4,968	7	412			609	2,668	4	221			327	

Note 1. Crestline-Lake Arrowhead Water Agency is primarily a wholesaler and water supply figures are provided for the entire service area. The Agency serves as the retail water provider for Blue Jay. Service population and connections are shown only for Blue Jay.

[illegible]

Note: 1. Crestline-Lake Arrowhead Water Agency is primarily a wholesaler and water supply figures are provided for the entire service area. The Agency serves as the retail water provider for Blue Jay. Service population and connections are shown only for Blue Jay.



OTHER UNINCORPORATED COMMUNITY AREAS	WATER DISTRICT/ PURVEYOR	UWMP	LAFCO MSR	DWR SURVEY	2010/2015 Service Pop	2035/2040 Service Pop	2010/2015 SERVICE DEMAND ACRE-FEET/YEAR (OR CONNECTIONS)						2035/2040 SERVICE DEMAND ACRE-FEET/YEAR (OR CONNECTIONS)						PROJECTED SERVICE DEMAND DIFFERENCE ACRE-FEET/YEAR (OR CONNECTIONS)					
							SFR	Multi	Comm/Ind	Irrigation	Fire	Other	SFR	Multi	Comm/Ind	Irrigation	Fire	Other	SFR	Multi	Comm/Ind	Irrigation	Fire	Other
ANGELUS OAKS	Glen Martin Mutual Water Company	Exempt		Y			326 conn	1 conn	12 conn															
BAKER	Baker Community Services District	Exempt	SDWIS	Y	1,000		73 conn	7 conn	29 conn															
DAGGETT	Daggett Community Services District	Exempt	Y	Y	1,005		148 conn	36 conn	11 conn															
EL MIRAGE	N/A	N/A																						
HOMESTEAD VALLEY COMMUNITIES																								
Flamingo Heights	Bighorn-Desert View Water Agency	Exempt	Y	Y	3,069		1,625 conn																	
Johnson Valley																								
Landers																								
Yucca Mesa	HI-Desert Water District	2015			24,520	31,276	1,717	217	247	177	-	41	2,196	279	318	227	-	53	479	62	71	50	-	12
LYTLE CREEK	N/A	N/A																						
MORONGO VALLEY	Golden State Water Company	Exempt	Y	Y	3,530		2,661 conn	21 conn	57 conn															
	CSA 70 F	Exempt	County SD-2015	Y	274		74 conn																	
	CSA 70 W-3	Exempt	Y	Y	576		150 conn																	
MT BALDY	N/A	N/A																						
NEWBERRY SPRINGS	N/A	Exempt	Y		2,071																			
OAK HILLS	County Service Area 70 J	Exempt	County SD-2015	N	11,577		3,219 conn ttl																	
ORO GRANDE	County Service Area 42	Exempt	SDWIS	Y	700		109 conn	7 conn	5 conn															
PIONEERTOWN	County Service Area 70 W4	Exempt	SDWIS	Y	625		99 conn	4 conn																
SAN ANTONIO HEIGHTS	San Antonio Water Company (see note 1)	2015			3,396	3,635	1,074	19	355	455	-	6,034	1,141	19	26	0.01	-	8,633	67	0	-329	-455	-	2,599
WRIGHTWOOD	Golden State Water Company	Exempt	SDWIS	Y	4,388		2,661 conn	21 conn	57 conn															
YERMO	Liberty Utilities	Exempt	Y	N	1,500		276 conn																	

Note 1. Other includes wholesale of 6,034 ac-ft for 2015 (in the extended area); also includes 1,800 ac-ft and 6,834 ac-ft of inactive/underused shares or wholesale (in the extended area).

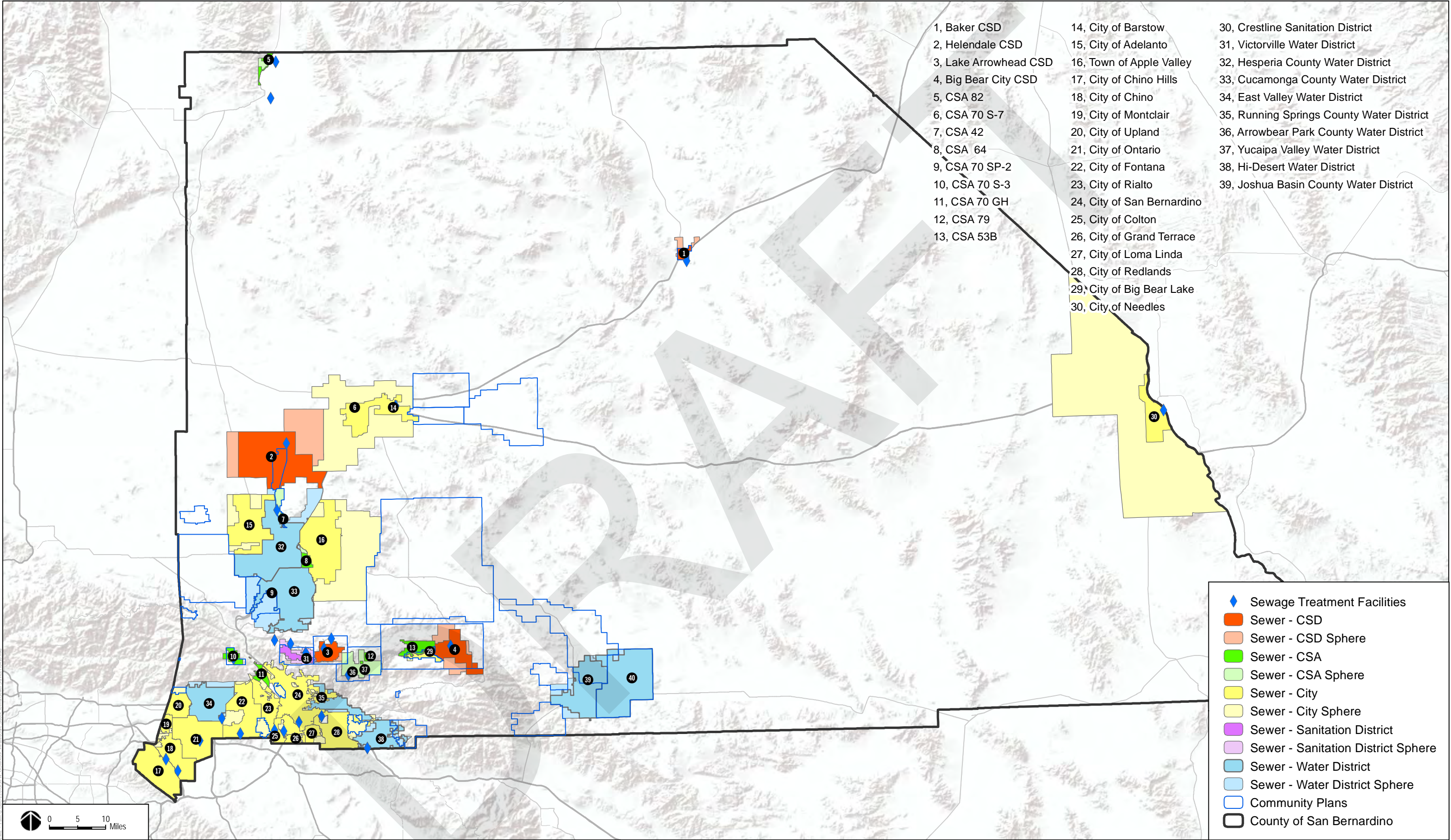
OTHER UNINCORPORATED COMMUNITY AREAS	WATER DISTRICT/ PURVEYOR	UWMP	LAFCO MSR	DWR SURVEY	2010/2015 UWMP PROJECTED WATER SUPPLY (ACRE-FEET/YEAR)						2010/2015 UWMP PROJECTED WATER DEMAND (ACRE-FEET/YEAR)						PROJECTED WATER DIFFERENCE (ACRE-FEET/YEAR) - Negative Shows Deficiency						2035/2040 SINGLE DRY YEAR		
					2015	2020	2025	2030	2035	2040	2015	2020	2025	2030	2035	2040	2015	2020	2025	2030	2035	2040	Supply	Demand	Delta
ANGELUS OAKS	Glen Martin Mutual Water Company	Exempt		Y	N/A						75						N/A								
BAKER	Baker Community Services District	Exempt	SDWIS	Y	N/A						333						N/A								
DAGGETT	Daggett Community Services District	Exempt	Y	Y	N/A						264						N/A								
EL MIRAGE	N/A	N/A			N/A						N/A						N/A								
HOMESTEAD VALLEY COMMUNITIES																									
Flamingo Heights	Bighorn-Desert View Water Agency	Exempt	Y	Y	N/A						339														
Johnson Valley																									
Landers																									
Yucca Mesa	Hi-Desert Water District	2015				19,751	22,627	24,832	26,924	28,913		2,507	2,634	2,783	2,930	3,074	N/A	17,244	19,993	22,049	23,994	25,839	4,586	3,591	995
LYTLE CREEK	N/A	N/A			N/A						N/A						N/A								
MORONGO VALLEY	Golden State Water Company	Exempt	Y	Y	N/A						220						N/A								
	CSA 70 F	Exempt	County SD-2015	Y	N/A						29						N/A								
	CSA 70 W-3	Exempt	Y	Y	N/A						72						N/A								
MT BALDY	N/A	N/A			N/A						N/A						N/A								
NEWBERRY SPRINGS	N/A	Exempt	Y		N/A						N/A						N/A								
OAK HILLS	County Service Area 70 J	Exempt	County SD-2015	N	N/A						N/A						N/A								
ORO GRANDE	County Service Area 42	Exempt	SDWIS	Y	N/A						65						N/A								
PIONEERTOWN	County Service Area 70 W4	Exempt	SDWIS	Y	N/A						20						N/A								
SAN ANTONIO HEIGHTS	San Antonio Water Company	2015				9,819	9,819	9,819	9,819			9,819	9,819	9,819	9,819			0	0	0	0		9,819	9,819	0
WRIGHTWOOD	Golden State Water Company	Exempt	SDWIS	Y	N/A						517						N/A								
YERMO	Liberty Utilities	Exempt	Y	N	N/A						N/A						N/A								

UNINCORPORATED CITY/ TOWN SPHERES OF INFLUENCE	WATER DISTRICT/ PURVEYOR	UWMP	LAFCO MSR	DWR Survey	2010/2015 Service Pop	2035/2040 Service Pop	2010/2015 SERVICE DEMAND ACRE-FEET/YEAR (OR CONNECTIONS)						2035/2040 SERVICE DEMAND ACRE-FEET/YEAR (OR CONNECTIONS)						PROJECTED SERVICE DEMAND DIFFERENCE ACRE-FEET/YEAR (OR CONNECTIONS)					
							SFR	Multi	Com/Ind/Inst	Irrigation	Fire	Other	SFR	Multi	Com/Ind/Inst	Irrigation	Fire	Other	SFR	Multi	Com/Ind/Inst	Irrigation	Fire	Other
ADELANTO (portions)	N/A	N/A																						
APPLE VALLEY (portions)	Liberty Utilities	2015			59,601	80,003	5,508	0	1,958	2,654	-	526	11,448	0	4,071	5,515	-	1,094	5,940	0	2,113	2,861	-	568
	Golden State Water Company	Exempt	Y	Y	4,111		1,809 conn	46 conn	22 conn															
	Thunderbird County Water District	Exempt	Y	Y	535		324 conn																	
	Mariana Ranchos	Exempt	Y	Y	1,097		420 conn																	
	Apple Valley Foothill Water District	Exempt	Y	Y	550		205 conn																	
	Juniper Riviera County Water District	Exempt	Y	Y	650		250 conn																	
	Rancheritas Mutual Water Company	Exempt		N																				
	Apple Valley Heights County Water District	Exempt	Y	Y	650		309 conn																	
	Apple Valley View Mutual Water Company	Exempt		Y			77 conn																	
	Apple Valley Terrace Mutual Water Company	Exempt		N																				
BARSTOW (outer perimeter)	Golden State Water Company	2015			31,668	35,923	1,877	736	1,812	234	-	595	3,159	1,201	2,615	422	-	1,184	1,282	465	803	188	-	589
CHINO (northwest)	Monte Vista Water District (see note 1)	2015			133,177	158,849	4,521	1,380	1,839	762	28	8,304	5,739	2,334	2,219	1,143	30	24,899	1,218	954	380	381	2	16,595
	City of Chino	2010			71,506	103,902	7,321	1,051	2,448	2,742	-	9,906	11,398	2,293	6,107	1,117	-	8,168	4,077	1,242	3,659	-1,625	-	-1,738
COLTON (east)	N/A	N/A																						
COLTON (northwest)	Terrace Water Company	N		Y - no data																				
FONTANA (north)	West Valley Water District - SBVRUWMP	2015			80,161	115,568	9,786	504	2,987	1,424	275	2,155	15,616	804	5,865	2,105	438	2,484	5,830	300	2,878	681	163	329
FONTANA (west)	Fontana Water Company	Draft 2015		N	223,307	271,690	17,754	3,438	10,566	-	15	3,191	27,404	5,306	15,994	-	23	4,835	9,650	1,868	5,428	-	8	1,644
HESPERIA (south)	City of Hesperia	2015			92,177	129,739	9,526	438	1,672	276	-	756	14,511	667	1,967	0	-	1,152	4,985	229	295	-276	-	396
HIGHLAND (portions)	East Valley Water District - SBVRUWMP	2015			104,457	146,945	9,434	2,589	2,181	1,537	0	1,202	16,029	4,398	3,706	2,611	0	2,758	6,595	1,809	1,525	1,074	0	1,556
LOMA LINDA (east)	N/A	N/A																						
MONTCLAIR (south)	Monte Vista Water District	2015			133,177	158,849	4,521	1,380	1,839	762	28	8,304	5,739	2,334	2,219	1,143	30	24,899	1,218	954	380	381	2	16,595
NEEDLES (west)	City of Needles - no service to SOI per MSR	N	Y																					
RANCHO CUCAMONGA (north)	Cucamonga Valley Water District	2015			200,466	228,200	21,926	3,802	4,778	8,072	-	2,873	34,608	5,116	6,383	13,594	-	3,999	12,682	1,314	1,605	5,522	-	1,126
REDLANDS (east)	City of Redlands - SBVRUWMP	2015			85,276	95,000	11,653	2,853	3,457	2,987	-	340	16,592	4,062	4,922	4,253	-	484	4,939	1,209	1,465	1,266	-	144
RIALTO (north and south)	West Valley Water District - SBVRUWMP	2015			80,161	115,568	9,786	504	2,987	1,424	275	2,155	15,616	804	5,865	2,105	438	2,484	5,830	300	2,878	681	163	329
SAN BERNARDINO (east)	East Valley Water District - SBVRUWMP	2015			104,457	146,945	9,434	2,589	2,181	1,537	0	1,202	16,029	4,398	3,706	2,611	0	2,758	6,595	1,809	1,525	1,074	0	1,556
SAN BERNARDINO (north)	City of San Bernardino MW - SBVRUWMP	2015			199,657	234,821	15,806	5,370	6,083	4,954	29	3,794	20,986	7,130	8,076	2,800	38	7,619	5,180	1,760	1,993	-2,154	9	3,825
TWENTYNINE PALMS (northwest and east)	Twentynine Palms Water District	2015			14,985	36,661	1,429	335	232	114	-	1	5,316	981	300	30	-	67	3,887	646	68	-84	-	66
VICTORVILLE (portions)	Victorville Water District	2015			128,005	204,986	14,119	1,692	1,962	1,354	-	1,717	23,867	2,860	3,318	2,289	-	2,595	9,748	1,168	1,356	935	-	878
YUCAIPA (northwest)	Yucaipa Valley Water District - SBVRUWMP	2015			44,745	69,207	6,549	1,050	527	457	0.31	1,011	8,522	1,317	683	668	0	1,537	1,973	267	156	211	0	526

Note 1. Other includes wholesale demand of 6,933 ac-ft for 2015 actual and 22,650 ac-ft projected for 2040, which equals full contractual obligation to the City of Chino Hills.

UNINCORPORATED CITY/ TOWN SPHERES OF INFLUENCE	WATER DISTRICT/ PURVEYOR	UWMP	LAFCO MSR	DWR Survey	2010/2015 UWMP PROJECTED WATER SUPPLY (ACRE-FEET/YEAR)						2010/2015 UWMP PROJECTED WATER DEMAND (ACRE-FEET/YEAR)						PROJECTED WATER DIFFERENCE (ACRE-FEET/YEAR) - Negative Shows Deficiency						2035/2040 SINGLE DRY YEAR		
					2015	2020	2025	2030	2035	2040	2015	2020	2025	2030	2035	2040	2015	2020	2025	2030	2035	2040	Supply	Demand	Delta
ADELANTO (portions)	N/A	N/A			N/A						N/A						N/A								
APPLE VALLEY (portions)	Liberty Utilities	2015				16,895	18,197	19,580	20,940	22,128	N/A	16,895	18,197	19,580	20,940	22,128	N/A	0	0	0	0	0	21,713	21,713	0
	Golden State Water Company	Exempt	Y	Y	N/A						612						N/A								
	Thunderbird County Water District	Exempt	Y	Y	N/A						102						N/A								
	Mariana Ranchos	Exempt	Y	Y	N/A						185						N/A								
	Apple Valley Foothill Water District	Exempt	Y	Y	N/A						82						N/A								
	Juniper Riviera County Water District	Exempt	Y	Y	N/A						63						N/A								
	Rancheritas Mutual Water Company	Exempt		N	N/A						N/A						N/A								
	Apple Valley Heights County Water District	Exempt	Y	Y	N/A						97						N/A								
	Apple Valley View Mutual Water Company	Exempt		Y	N/A						22						N/A								
Apple Valley Terrace Mutual Water Company	Exempt		N	N/A						N/A						N/A									
BARSTOW (outer perimeter)	Golden State Water Company	2015				7,814	8,005	8,197	8,389	8,581	N/A	7,814	8,005	8,197	8,389	8,581	N/A	0	0	0	0	0	8,581	8,581	0
CHINO (northwest)	Monte Vista Water District	2015				51,790	51,749	51,778	51,828	51,828	N/A	35,200	35,396	35,730	36,081	36,364	N/A	16,590	16,353	16,048	15,747	15,464	51,684	36,364	15,320
	City of Chino	2010			27,117	27,866	29,415	30,497	31,528		25,357	25,980	27,299	28,214	29,083		1,760	1,886	2,116	2,283	2,445	0	29,494	28,369	1,125
COLTON (east)	N/A	N/A			N/A						N/A						N/A								
COLTON (northwest)	Terrace Water Company	N		Y - but no data	N/A						N/A						N/A								
FONTANA (north)	West Valley Water District - SBVRUWMP	2015				36,400	41,900	45,400	48,400	48,400	N/A	20,799	22,256	23,802	25,492	27,312	N/A	15,601	19,644	21,598	22,908	21,088	45,030	30,043	14,987
FONTANA (west)	Fontana Water Company	Draft 2015		N		40,140	47,536	50,773	53,711	56,562		40,140	47,536	50,773	53,711	56,562		0	0	0	0	0	42,272	42,272	0
HESPERIA (south)	City of Hesperia	2015				15,078	16,298	17,743	19,297		N/A	15,078	16,298	17,743	19,297		N/A	0	0	0	0	0	17,367	17,367	0
HIGHLAND (portions)	East Valley Water District - SBVRUWMP	2015				43,972	47,810	51,702	55,652	55,652	N/A	31,609	32,879	33,943	35,050	36,203	N/A	12,363	14,931	17,759	20,602	19,449	50,352	36,203	14,149
LOMA LINDA (east)	N/A	N/A			N/A						N/A						N/A								
MONTCLAIR (south)	Monte Vista Water District	2015				51,790	51,749	51,778	51,828	51,828	N/A	35,200	35,396	35,730	36,081	36,364	N/A	16,590	16,353	16,048	15,747	15,464	51,684	36,364	15,320
NEEDLES (west)	City of Needles - no service to SOI per MSR	N	Y		N/A						N/A						N/A								
RANCHO CUCAMONGA (north)	Cucamonga Valley Water District	2015				60,500	63,100	65,700	65,700		N/A	58,900	61,300	63,700	63,700		N/A	1,600	1,800	2,000	2,000	0	65,700	65,700	0
REDLANDS (east)	City of Redlands - SBVRUWMP	2015				62,148	62,966	63,534	64,098	64,098	N/A	33,138	34,164	34,940	35,715	35,715	N/A	29,010	28,802	28,594	28,383	28,383	55,767	32,649	23,118
RIALTO (north and south)	West Valley Water District - SBVRUWMP	2015				36,400	41,900	45,400	48,400	48,400	N/A	20,799	22,256	23,802	25,492	27,312	N/A	15,601	19,644	21,598	22,908	21,088	45,030	30,043	14,987
SAN BERNARDINO (east)	East Valley Water District - SBVRUWMP	2015				43,972	47,810	51,702	55,652	55,652	N/A	31,609	32,879	33,943	35,050	36,203	N/A	12,363	14,931	17,759	20,602	19,449	50,352	36,203	14,149
SAN BERNARDINO (north)	City of San Bernardino MW - SBVRUWMP	2015				58,271	66,830	75,466	84,082	90,582	N/A	45,969	49,094	53,339	57,623	59,449	N/A	12,302	17,736	22,127	26,459	31,133	90,582	65,394	25,188
TWENTYNINE PALMS (northwest and east)	Twentynine Palms Water District	2015				6,995	6,995	6,995	6,995	6,995	N/A	4,333	4,882	5,431	5,980	6,530	N/A	2,662	2,113	1,564	1,015	465	7,686	7,686	0
VICTORVILLE (portions)	Victorville Water District	2015			21,454	27,156	29,699	32,489	35,197	37,859	21,454	27,156	29,699	32,489	35,197	37,859	0	0	0	0	0	0	37,858	37,858	0
YUCAIPA (northwest)	Yucaipa Valley Water District - SBVRUWMP	2015				28,879	30,413	31,598	33,358	32,608	N/A	12,891	13,751	14,730	15,815	17,007	N/A	15,988	16,662	16,868	17,543	15,601	26,108	15,991	10,117





- 1, Baker CSD

2, Helendale CSD

3, Lake Arrowhead CSD

4, Big Bear City CSD

5, CSA 82

6, CSA 70 S-7

7, CSA 42

8, CSA 64

9, CSA 70 SP-2

10, CSA 70 S-3

11, CSA 70 GH

12, CSA 79

13, CSA 53B
- 14, City of Barstow

15, City of Adelanto

16, Town of Apple Valley

17, City of Chino Hills

18, City of Chino

19, City of Montclair

20, City of Upland

21, City of Ontario

22, City of Fontana

23, City of Rialto

24, City of San Bernardino

25, City of Colton

26, City of Grand Terrace

27, City of Loma Linda

28, City of Redlands

29, City of Big Bear Lake

30, City of Needles
- 30, Crestline Sanitation District

31, Victorville Water District

32, Hesperia County Water District

33, Cucamonga County Water District

34, East Valley Water District

35, Running Springs County Water District

36, Arrowbear Park County Water District

37, Yucaipa Valley Water District

38, Hi-Desert Water District

39, Joshua Basin County Water District

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 Sewerage Treatment Facilities

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 Sewer - CSD

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 Sewer - CSD Sphere

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 Sewer - CSA

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 Sewer - CSA Sphere

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 Sewer - City

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 Sewer - City Sphere

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 Sewer - Sanitation District

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 Sewer - Sanitation District Sphere

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 Sewer - Water District

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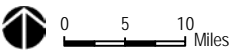
 Sewer - Water District Sphere

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 Community Plans

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 County of San Bernardino



DETAILED COMMUNITY PLAN AREAS	WASTEWATER TREATMENT PROVIDER	WASTEWATER TREATMENT FACILITY NAME	2015 AVERAGE DAILY FLOW (MGD)	MAX DESIGN CAPACITY (MGD)	Delta (MGD)	Domestic Service Connections	Commercial Service Connections
BLOOMINGTON	Small portion serviced by City of Rialto	City of Rialto WWTP	9	11.7	2.7	300 EDUs	0
BEAR VALLEY COMMUNITIES							
Baldwin Lake - Septic or Holding Tanks	Big Bear Area Regional Wastewater Agency	BBARWA WWTP	2.5	4.89	2.39	11,786 + 920	203 + 45
Big Bear City							
Erwin Lake							
Fawnskin/ Northshore (County Service Area 53 B)							
Lake Williams - Septic or Holding Tanks							
Moonridge							
Sugarloaf							
CREST FOREST COMMUNITIES							
Cedarpines Park	Crestline Sanitation District	Huston Creek WWTP	0.46	0.7	0.24	4,562	143
Crestline		Seeley Creek WWTP	0.17	0.5	0.33		
Lake Gregory		Cleghorn WWTP	0.01	0.2	0.19		
Valley of Enchantment							
HELENDALE	Helendale Community Services District	Silver Lakes WWTP	0.5	1.2	0.7	2,712	49
HILLTOP COMMUNITIES							
Arrowbear Lake	Running Springs Water District	RSWD WWTP	0.5	0.6	0.1	4,867	262
Green Valley Lake							
Running Springs							
JOSHUA TREE	N/A Septic						
LAKE ARROWHEAD COMMUNITIES							
Blue Jay	Lake Arrowhead Community Services District	Willow Creek WWTP	3.1	3.75	0.65	10,391	253
Cedar Glen							
Deer Lodge Park		Grass Valley WWTP					
Lake Arrowhead							
Rim Forest							
Sky Forest							
Twin Peaks							
LUCERNE VALLEY	N/A Septic						
MENTONE	Small portion serviced by City of Redlands	City of Redlands WWTP	6	9.5	3.5	940	128
MUSCOY	N/A Septic						
OAK GLEN	N/A Septic						
PHELAN/PINON HILLS	N/A Septic						

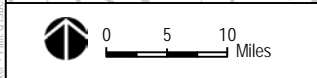
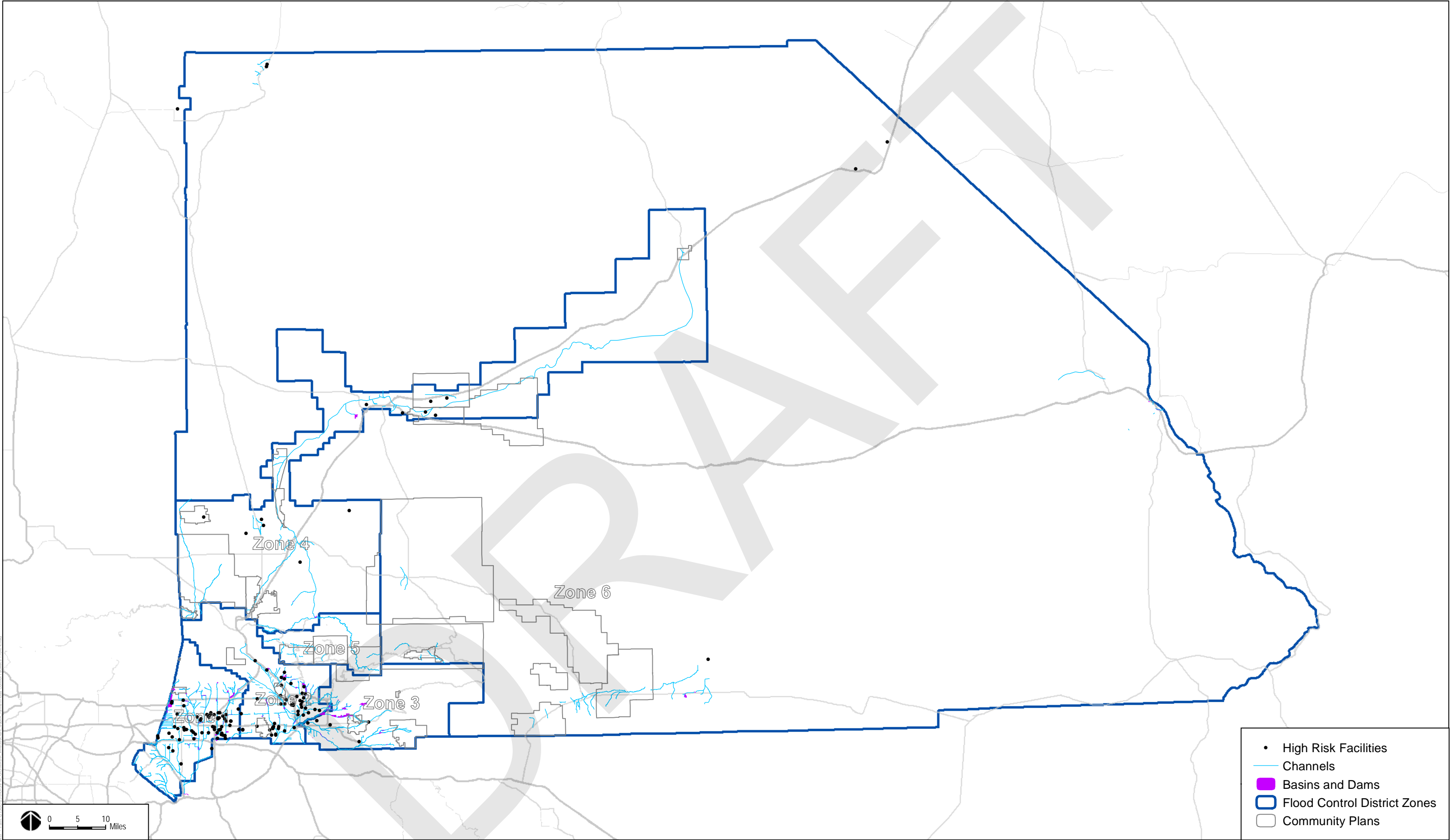


OTHER UNINCORPORATED COMMUNITY AREAS	WASTEWATER TREATMENT PROVIDER	WASTEWATER TREATMENT FACILITY NAME	2015 AVERAGE DAILY FLOW (MGD)	MAX DESIGN CAPACITY (MGD)	Delta (MGD)	Domestic Service Connections	Commercial Service Connections
ANGELUS OAKS	N/A Septic						
BAKER	Baker Community Services District	Body	0.23 - 0.29	0.35 - 0.52 winter-summer	0.12-0.23	53	29
DAGGETT	N/A Septic						
EL MIRAGE	N/A Septic						
HOMESTEAD VALLEY COMMUNITIES							
Flamingo Heights	N/A Septic						
Johnson Valley	N/A Septic						
Landers	N/A Septic						
Yucca Mesa	N/A Septic						
LYTLE CREEK	County Service Area 70 S-3	Lytle Creek WWTP	0.066	0.16	0.094	382	11
MORONGO VALLEY	N/A Septic						
MT BALDY	N/A Septic						
NEWBERRY SPRINGS	N/A Septic						
OAK HILLS	N/A Septic						
ORO GRANDE	County Service Area 42	VVWRA WWTP	0.06	22	21.94	190 ttl	
PIONEERTOWN	N/A Septic						
SAN ANTONIO HEIGHTS	Inland Empire Utilities Agency	Reg'l Water Recycling Plant #1	28	44	16	122	
WRIGHTWOOD	N/A Septic						
YERMO	N/A Septic						

UNINCORPORATED CITY/ TOWN SPHERES OF INFLUENCE	WASTEWATER TREATMENT PROVIDER	WASTEWATER TREATMENT FACILITY NAME	2015 AVERAGE DAILY FLOW (MGD)	MAX DESIGN CAPACITY (MGD)	Delta (MGD)	Commercial Service Connections	Industrial Service Connections
ADELANTO (portions)	N/A Septic						
APPLE VALLEY (portions)	Victor Valley Wastewater Reclamation Authority	VVWRA WWTP	3.2	22	18.8	8,312	618
BARSTOW (outer perimeter)	City of Barstow	Barstow WWTP	2.2	4.5	2.3	5,960	485
CHINO (northwest)	Inland Empire Utilities Agency	Regional Water Recycling Plant #5	9	16.3	7.3	18,055	1,681
COLTON (northwest)	City of San Bernardino Municipal Water Department	WRP	28	33	5	13,820	750
COLTON (east)	N/A Septic						
FONTANA (west)	Inland Empire Utilities Agency	Regional Water Recycling Plant #4	10	14	4	46,994 EDUs	8,951 EDUs
FONTANA (north)	City of Rialto	City of Rialto WWTP	9	11.7	2.7	Same as Above	Same as Above
HESPERIA (south)	Victor Valley Wastewater Reclamation Authority	VVWRA WWTP	3.73	22	18.27	4,685	494
HIGHLAND (portions)	City of San Bernardino Municipal Water Department	WRP	28	33	5	18,936 EDUs	596 EDUs
LOMA LINDA (east)	N/A Septic						
MONTCLAIR (south)	Inland Empire Utilities Agency	Regional Water Recycling Plant #5	9	16.3	7.3	7,335	593
NEEDLES (west)	City of Needles	Needles WWTP	0.4 - 0.65	1.2	0.55	1,300	500
RANCHO CUCAMONGA (north)	Inland Empire Utilities Agency	Regional Water Recycling Plant #4	10	14	4	13,470	237
	Inland Empire Utilities Agency	Regional Water Recycling Plant #1	28	44	16	21,688	1,729
REDLANDS (east)	N/A Septic						
RIALTO (north and south)	City of Rialto	City of Rialto WWTP	9	11.7	2.7	774	19,690
SAN BERNARDINO (north)	City of San Bernardino Municipal Water Department	WRP	28	33	5	No info avail/provided	No info avail/provided
SAN BERNARDINO (east)	City of San Bernardino Municipal Water Department	WRP	28	33	5	No info available	No info available
TWENTYNINE PALMS (northwest and east)	N/A Septic						
VICTORVILLE (portions)	Victor Valley Wastewater Reclamation Authority	VVWRA WWTP	12.47	22	9.53	27,043 EDUS	7,007 EDUs
YUCAIPA (northwest)	Yucaipa Valley Water District	Wocholz Regional WRF	3.5	6.7 (4.5 max before expansion)	3.2	13,652	278

# APPENDIX C

## *Regional Stormwater Maps and Information*



- High Risk Facilities
- Channels
- Basins and Dams
- Flood Control District Zones
- Community Plans







## CAPITAL IMPROVEMENT PROJECTS IN 2015-16 RECOMMENDED OPERATING BUDGET

The following Capital Improvement projects are included in the 2015-16 recommended budget:

# Proj.	Location/ Address	District	Project Name-Description	Fund	Total Project Budget	New Projects	Carryover Balances	2015-16 Recommended Requirements
1	Highland	District 3	Sand/Warm Creek Confluence	RFF	4,327,076	-	3,611,000	3,611,000
2	Rialto	District 5	Cactus Basin #3	RFF	17,300,000	-	16,551,964	16,551,964
3	Highland	District 3	Elder Creek	RFL	8,107,291	-	6,667,441	6,667,441
4	Twentynine Palms	District 3	Donnell Basin Phase I	RFV	6,555,438	-	958,442	958,442
5	Victorville	District 1	Mojave River I-15 Levee	RFQ	2,562,426	-	1,646,000	1,646,000
6	Victorville	District 1	Amethyst Basin	RFQ	10,827,690	-	6,684,800	6,684,800
7	Rimforest	District 2	Rimforest Drainage Mitigation	RFT	6,250,000	-	1,093,000	1,093,000
8	Hesperia	District 1	Bandicoot Basin	RFQ	21,300,000	-	3,067,000	3,067,000
9	Yucaipa	District 3	Wilson Creek	RFL	930,602	-	694,250	694,250
10	Apple Valley	District 1	Desert Knolls Wash	RFQ	10,200,503	-	1,025,000	1,025,000
11	Rialto	District 5	Rialto Channel at Riverside Avenue	RFF	7,119,017	-	440,000	440,000
12	Wrightwood	District 1	Sheep Creek Channel	RFQ	4,677,835	-	41,900	41,900
13	San Bernardino	District 5	29th Street Basin Levee Certification Restoration Project	RFF	502,250	456,250	-	456,250
14	San Bernardino	District 5	Patton Basin Levee Certification Restoration Project	RFF	901,750	846,750	-	846,750
15	Rialto	District 5	Cactus Basin #4	RFF	19,500,000	613,750	-	613,750
16	Rialto	District 5	Rialto Channel from Willow Avenue to Etiwanda Avenue	RFF	25,921,513	28,000	-	28,000
17	Fontana	District 2	West Fontana Channel Phase I	RFA/ RFF	35,300,000	6,329,377	-	6,329,377
18	Ontario	District 4	Francis Street Storm Drain	RFA	8,244,887	2,773,977	-	2,773,977
19	Hesperia	District 1	Oak Hills Basin	RFQ	19,000,000	2,600,000	-	2,600,000
20	Ontario	District 4	West State Street Storm Drain	RFA	9,829,500	200,000	-	200,000
21	Barstow	District 3	Avenue I - Barstow Project	RFQ	3,272,394	1,000,000	-	1,000,000
22	Rancho Cucamonga	District 2	Cucamonga Storm Drain	RFA	2,600,000	2,600,000	-	2,600,000
23	Chino Hills	District 4	English Channel	RFA	4,370,000	1,000,000	-	1,000,000
<b>TOTAL 2015-16 CIP BUDGET FOR FLOOD CONTROL DISTRICT</b>					<b>229,600,172</b>	<b>18,448,104</b>	<b>42,480,797</b>	<b>60,928,901</b>

\* Funded with County Discretionary General Funding

Expenses associated with these Major Improvements consist primarily of right of way acquisition expenses, consultants for design or geotechnical services, labor, and construction costs.



**DEVELOPMENT IMPACT FEE PROGRAM**  
**COUNTY OF SAN BERNARDINO**  
**PUBLIC FACILITIES NEEDS LIST**

Facility Name	
<b>A. FLOOD CONTROL IMPROVEMENTS (REGIONAL)</b>	
<b>Zone 1</b>	
<b>1. West Fontana Channel</b>	<b>Base Year = January 2011</b>
West Fontana Channel Construction	
Detention Basin [1]	
<b>West Fontana Channel Subtotal</b>	
<b>Zone 2</b>	
<b>1. Muscoy Area (CSDP 7)</b>	<b>Base Year = March 1982</b>
Priority Group 1	
Line E-28	
Priority Group 1 Subtotal	
Priority Group 2	
Line E-27 (Ogden St to Cajon Blvd)	
Priority Group 2 Subtotal	
Priority Group 3	
Line E-27 (TCC Section)	
Priority Group 3 Subtotal	
Priority Group 4	
Priority Group 4 Subtotal	
Priority Group 5	
Line E-23	
Line E-24	
Priority Group 5 Subtotal	
<b>Muscoy Area (CSDP 7) Subtotal</b>	
<b>2. CSDP 3, Project 3-4</b>	<b>Base Year = October 1992</b>
Line A	
Line B	
Line C	
Line D	
Line E	
Line F	
Line G	
<b>CSDP 3, Project 3-4 Subtotal</b>	
<b>Zone 3</b>	
<b>1. CSDP 4</b>	<b>Base Year = October 1992</b>
Mentone/Crafton	
Mission Zanja Channel	
Santa Ana to I-10 Trapezoidal Concrete Channel	
I-10 to New Jersey Rectangular Concrete Channel	
New Jersey to Iowa Trapezoidal Concrete Channel	
Iowa to New York Trapezoidal Concrete Channel	
Division to Lincoln Reinforced Concrete Box	
Lincoln to Opal Trapezoidal Concrete Channel	
Walnut to Sapphire Trapezoidal Concrete Channel	
Sapphire to Garnet Trapezoidal Concrete Channel	
Bridges and Culverts	
Morey Arroyo:	
Tennessee to Orange Rectangular Concrete Channel	
Orange to Alhambra Rectangular Concrete Channel	
Alhambra to Zanja Reinforced Concrete Box	
Bridges and Culverts	
Opal Avenue:	
Detention Basin (Phase I) [2]	
Storm Drain	
CSDP No. 4: Project 4-24	
Mission Zanja Channel Subtotal	
Donut Hole (CSDP 4)	
Palmetto Ave	
San Bernardino Ave	
Almond Ave & California St	
Lugonia	
Donut Hole Subtotal	
<b>CSDP 4 Subtotal</b>	
<b>Zone 4</b>	
<b>1. Hesperia Master Plan of Drainage</b>	
Bandicoot Basin	<b>Base Year = Nov 2012</b>
<b>R/W Acquisition Cost</b>	
Oak Hills Basin	<b>Base Year = Nov 2012</b>
Ranchero Road Basin	<b>Base Year = Mar 2011</b>
Basins Subtotal	
Upstream Portion of Line D-01	<b>Base Year = May 1996</b>

**DEVELOPMENT IMPACT FEE PROGRAM**  
**COUNTY OF SAN BERNARDINO**  
**PUBLIC FACILITIES NEEDS LIST**

Facility Name	
Line D-02	
Line D-03	
Line D-04	
Line D-05	
Line D-06	
Line D-07	
Line D-08	
Line D-09	
Line D-10	
Upstream Portion of Line H-01	Base Year = May 1996
Line H-05	
Line H-06	
Line H-07	
Upstream Regional Lines Subtotal	
Hesperia Master Plan of Drainage Subtotal	
<b>2. Baldy Mesa Flood Drainage Basin [4]</b>	Base Year = December 2006
Line A-01	
Line A-02	
Line A-03	
Line A-04	
Line A-05	
Line A-06	
Line B-01	
Line B-02	
Line D-01	
Line E-01	
Line F-01	
Line F-02	
Baldy Mesa Flood Drainage Basin Subtotal	
<b>3. Apple Valley - East Community</b>	Base Year = 1988
Line E-01	
Line E-02	
Line E-03	
Line E-04	
Line E-05	
Line E-06	
Line E-07	
Line E-08	
Apple Valley - East Community Subtotal	
<b>Zone 5</b>	
<b>1. Zone 5 CSDP</b>	Base Year = November 1969
Priority Group 1	
Project 4-1 (Seeley Creek)	
Project 4-13 (East Fork Seeley Creek)	
Project 5-1 (Houston Creek)	
Project 9-1 (Little Bear Creek)	
Project 9-14	
Project 11-3 (Hooke Creek)	
Project 16-1 (Green Valley Creek)	
Project 17-7 (Hunsaker Drain)	
Priority Group 1 Subtotal	
Priority Group 2	
Project 4-7	
Project 4-11	
Project 4-12	
Project 4-15	
Project 4-22 (Sequoia Drain)	
Project 5-4	
Project 5-6 (Bowl Creek)	
Project 5-7	
Project 5-17 (Dart Creek)	
Project 7-10	
Project 9-4 (Dogwood Creek)	
Project 9-7 (Donkey Creek)	
Project 9-11 (Flaming Creek)	
Project 17-9	
Priority Group 2 Subtotal	
Priority Group 3	
Project 1-1 (Horsethief Creek)	
Project 3-1 (Sawpit Creek)	
Project 4-4	

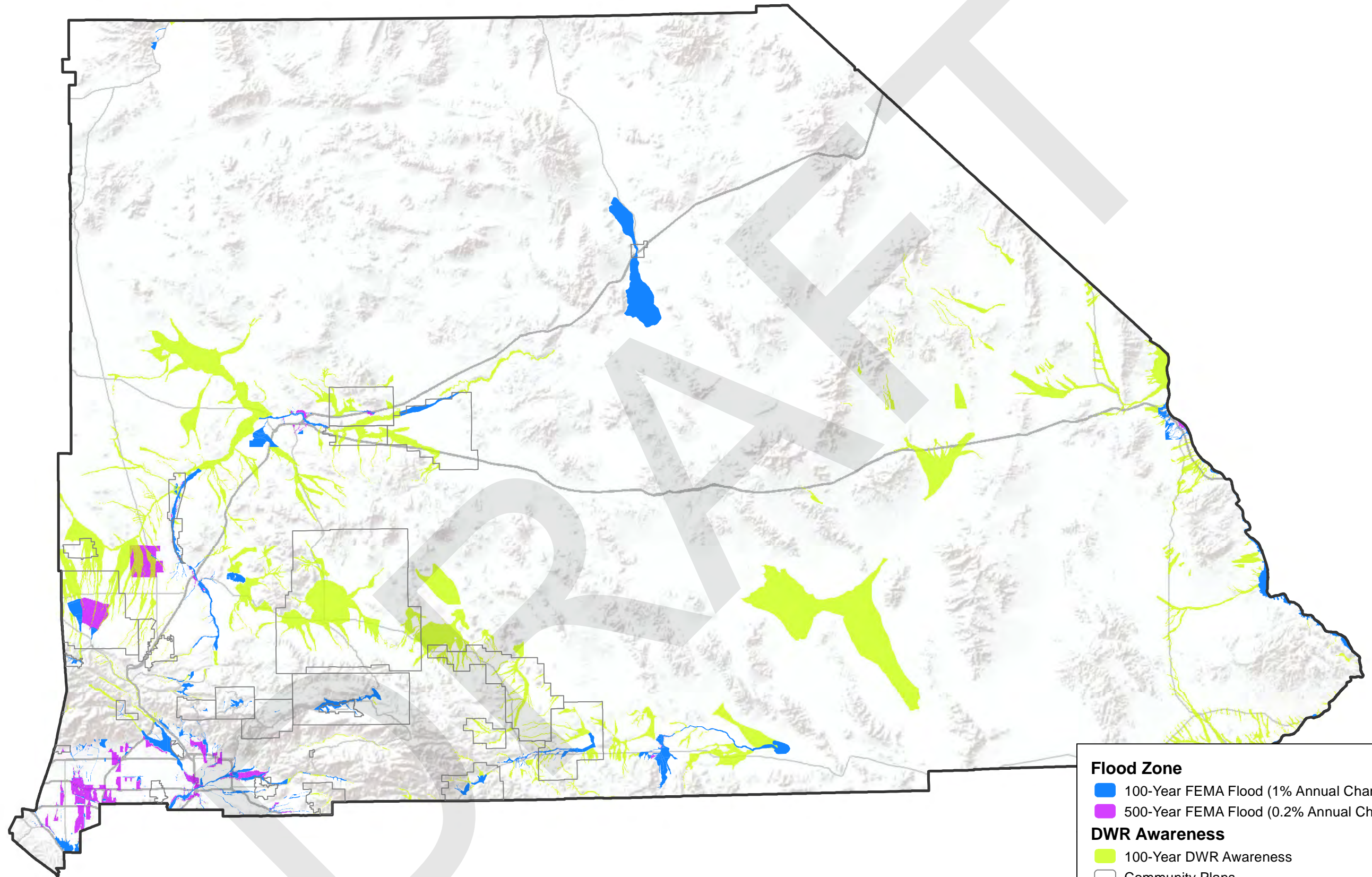
**DEVELOPMENT IMPACT FEE PROGRAM**  
**COUNTY OF SAN BERNARDINO**  
**PUBLIC FACILITIES NEEDS LIST**

Facility Name
Project 4-10
Project 5-2 (Shady Creek)
Project 5-3 (Friendly Dr)
Project 5-5
Project 5-8
Project 5-9 (Basel Dr)
Project 5-15
Project 5-16
Project 5-19
Project 5-20
Project 5-21
Project 7-1 (Grass Valley Creek)
Project 7-3 (Pinehurst)
Project 7-3A
Project 7-5
Project 7-8
Project 7-11
Project 9-6
Project 9-8 (Burnt Mill Creek)
Project 9-12 (Kuffel Creek)
Project 9-13 (Orchard Creek)
Project 9-16
Project 9-21 (Willow Creek)
Project 9-26 (Pine Dr)
Project 9-27 (Springs Dr)
Project 10-1
Project 10-2 (Backridge Dr)
Project 11-8 (Agate Dr)
Project 17-18 (South Fork Deep Creek)
Priority Group 3 Subtotal
Priority Group 4
Project 1-2
Project 1-3
Project 1-4
Project 1-5
Project 1-6
Project 1-7
Project 1-8
Project 1-9
Project 1-10 (Little Horsethief Creek)
Project 1-11
Project 1-12
Project 1-20
Project 1-22
Project 1-23
Project 1-25
Project 1-26
Project 1-27
Project 1-29
Project 3-2
Project 4-2
Project 4-3
Project 4-5
Project 4-9
Project 4-14
Project 4-19
Project 5-12
Project 5-13
Project 6-1
Project 6-2
Project 6-3
Project 6-4
Project 6-5
Project 6-6
Project 9-5 (Blue Jay Creek)
Project 9-9
Project 9-17
Project 9-18
Project 9-19
Project 9-23

**DEVELOPMENT IMPACT FEE PROGRAM**  
**COUNTY OF SAN BERNARDINO**  
**PUBLIC FACILITIES NEEDS LIST**

Facility Name	
Project 9-24	
Project 9-25	
Project 11-1 (Little Bear Creek)	
Project 11-4	
Project 11-5 (Hooke Creek)	
Project 11-7	
Project 16-2	
Project 16-3	
Project 16-4	
Project 17-2 (Dry Creek)	
Project 17-3	
Project 17-4	
Project 17-12	
Project 17-13	
Project 17-16	
Project 17-17	
Project 17-19	
Project 17-20	
Priority Group 4 Subtotal	
Zone 5 CSDP Subtotal	
Zone 6	
1. Joshua Tree	Base Year = February 1992
Quail Wash - Including a Possible Intercept Levee	
Joshua Wash and South Fork Joshua Wash [6]	
Reach I (Confluence with Yucca Wash to Rice Ave):	
Reach II (Rice Ave to Center Ave):	
Reach III (Center Ave to Confluence with Coyote Creek - Larkspur):	
Reach IV (Larkspur to Border):	
Reach V (Border to Sunburst):	
Reach VI (Sunburst to 500' U/S Sunset):	
Reach VII (500' U/S Sunset to 29 Palms Hwy - S. Joshua Wash):	
Reach VIII (Confluence S. Joshua Wash to 29 Palms Hwy):	
Joshua Wash and South Fork Joshua Wash Subtotal	
Alta Loma Dr. and Sherwood Rd. [7]	
Joshua Tree Subtotal	
2. Newberry Springs	Base Year = July 2009



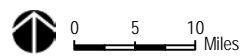


**Flood Zone**

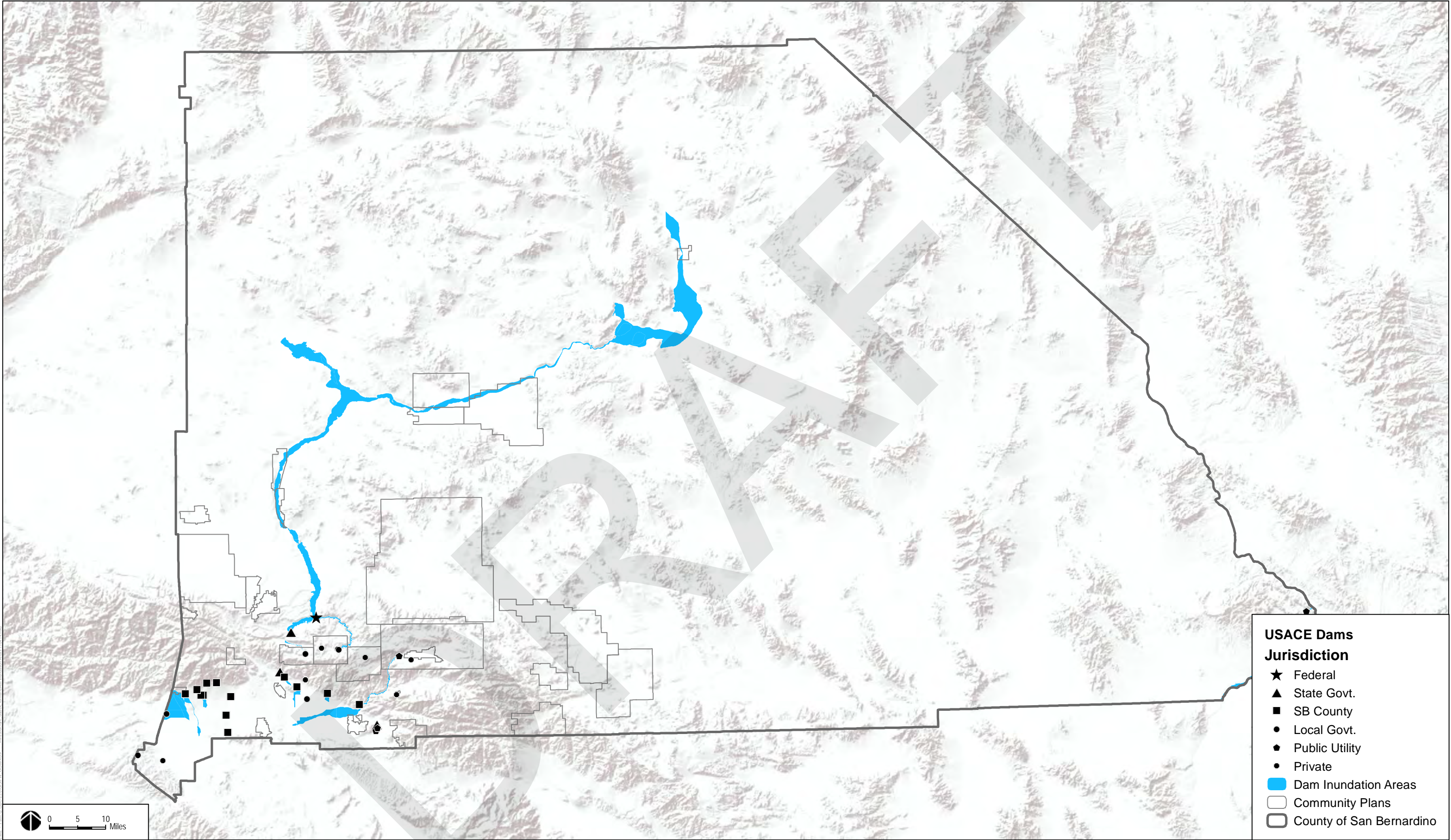
- 100-Year FEMA Flood (1% Annual Chance Flood Hazard)
- 500-Year FEMA Flood (0.2% Annual Chance Flood Hazard)

**DWR Awareness**

- 100-Year DWR Awareness
- Community Plans
- County of San Bernardino







**USACE Dams  
Jurisdiction**

- ★ Federal
- ▲ State Govt.
- SB County
- Local Govt.
- ◆ Public Utility
- Private
- Dam Inundation Areas
- Community Plans
- ▭ County of San Bernardino

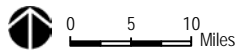
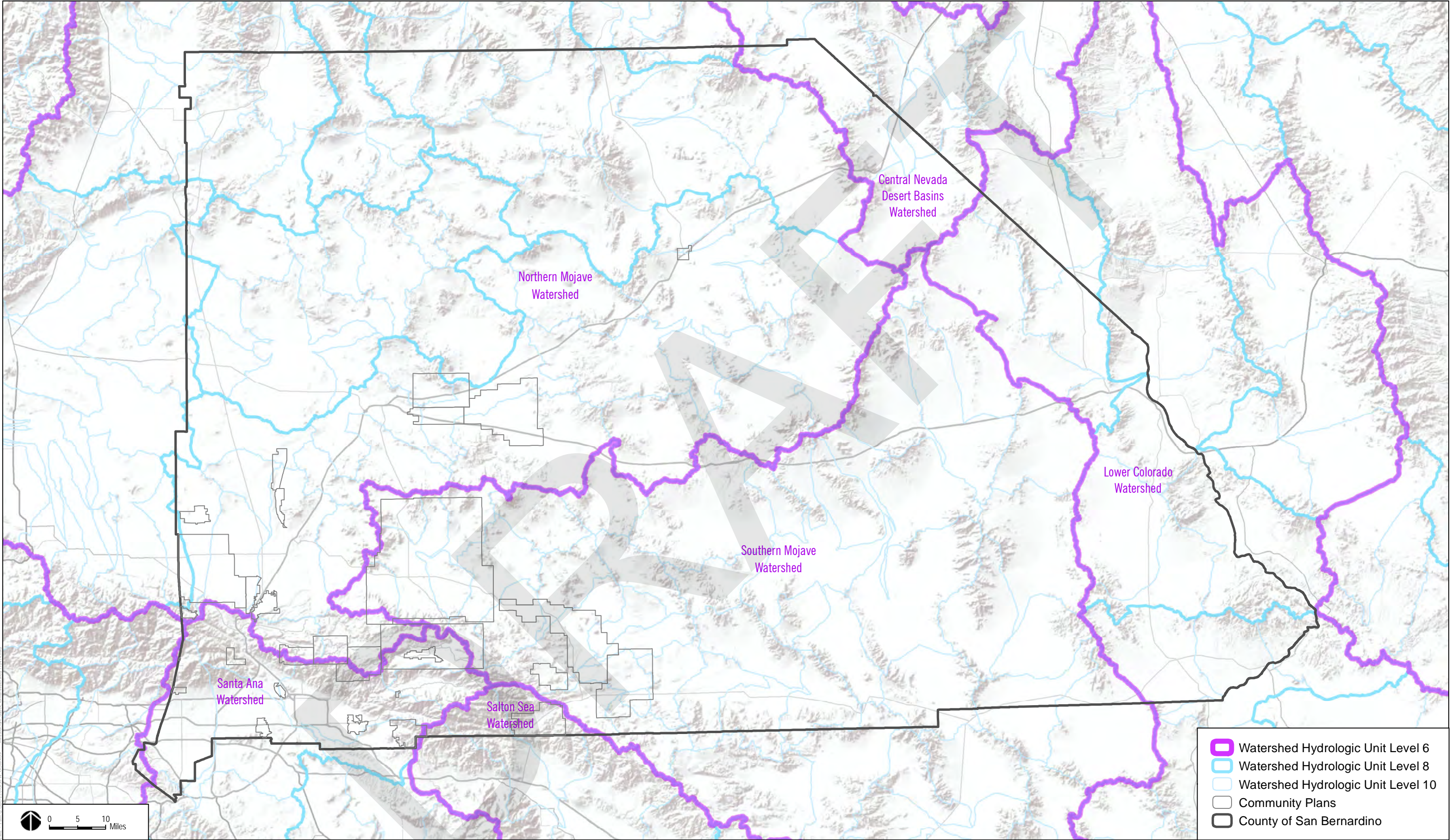
0 5 10 Miles



# APPENDIX D

## *Water Quality Maps and Information*





- Watershed Hydrologic Unit Level 6
- Watershed Hydrologic Unit Level 8
- Watershed Hydrologic Unit Level 10
- Community Plans
- County of San Bernardino

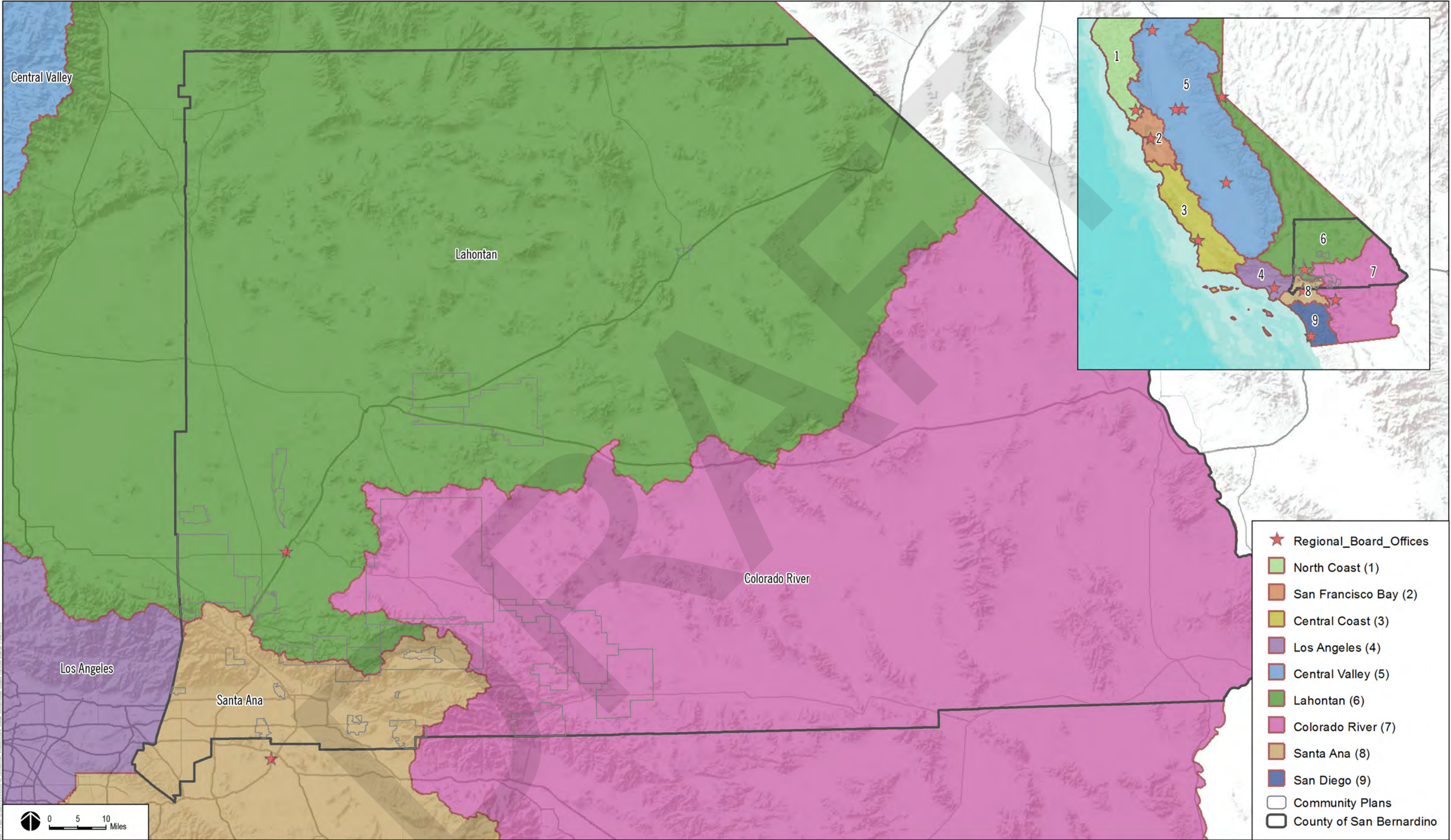


SOURCE: USGS National Watershed Boundary Dataset 2015

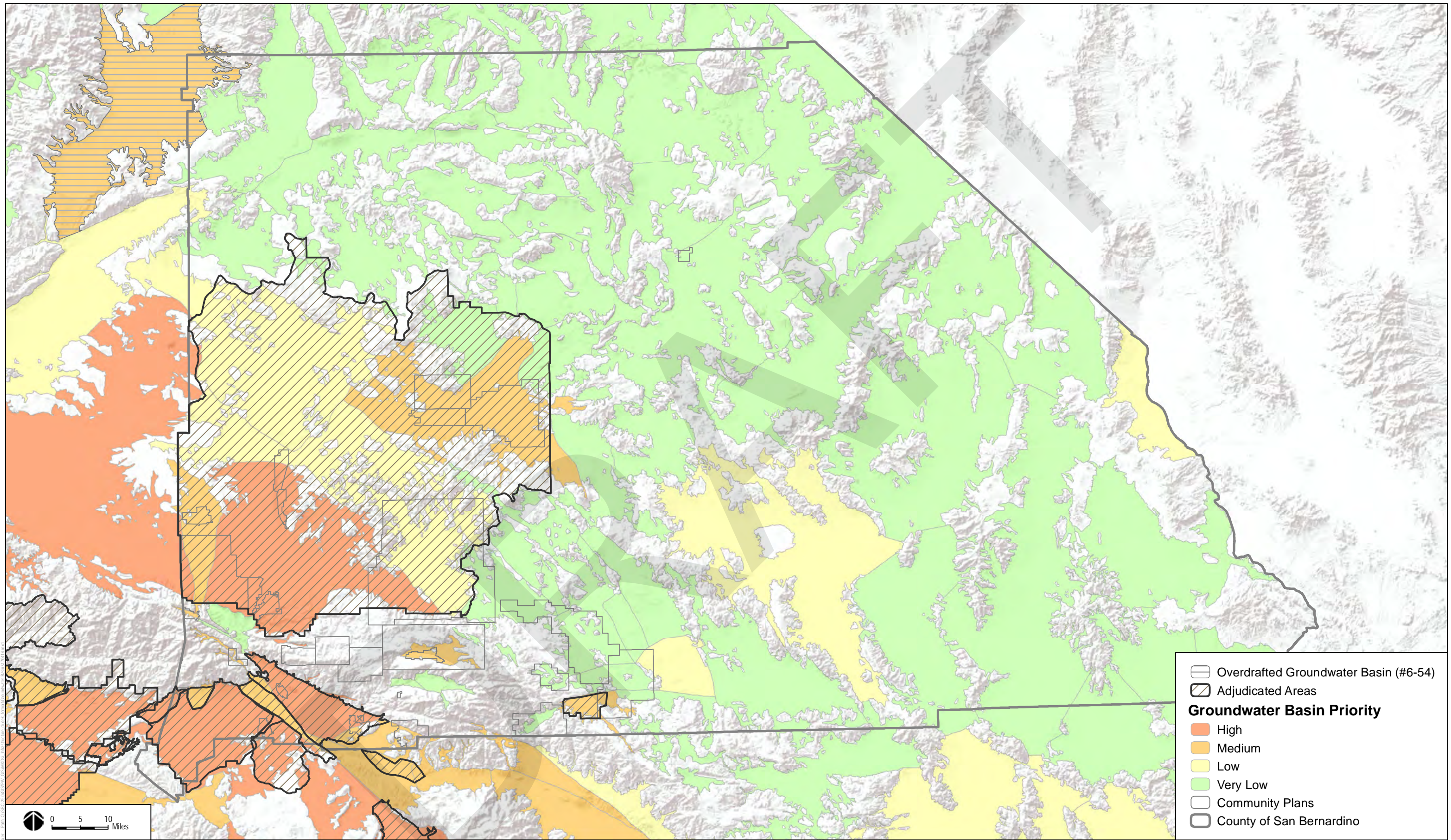
San Bernardino Countywide Plan

Major Watersheds

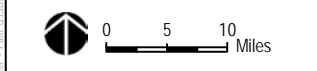
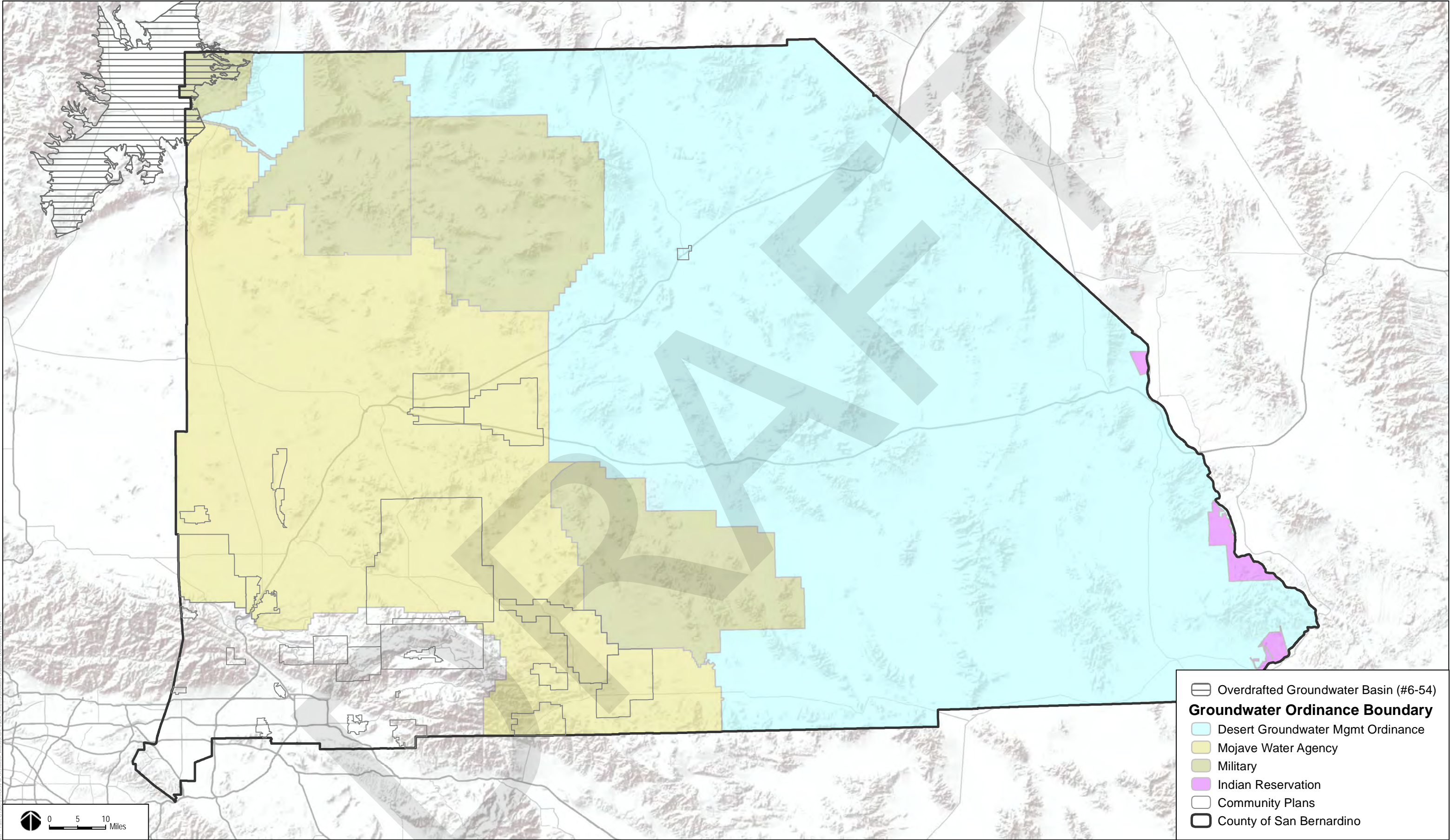












- Overdrafted Groundwater Basin (#6-54)
- Groundwater Ordinance Boundary**
- Desert Groundwater Mgmt Ordinance
- Mojave Water Agency
- Military
- Indian Reservation
- Community Plans
- County of San Bernardino

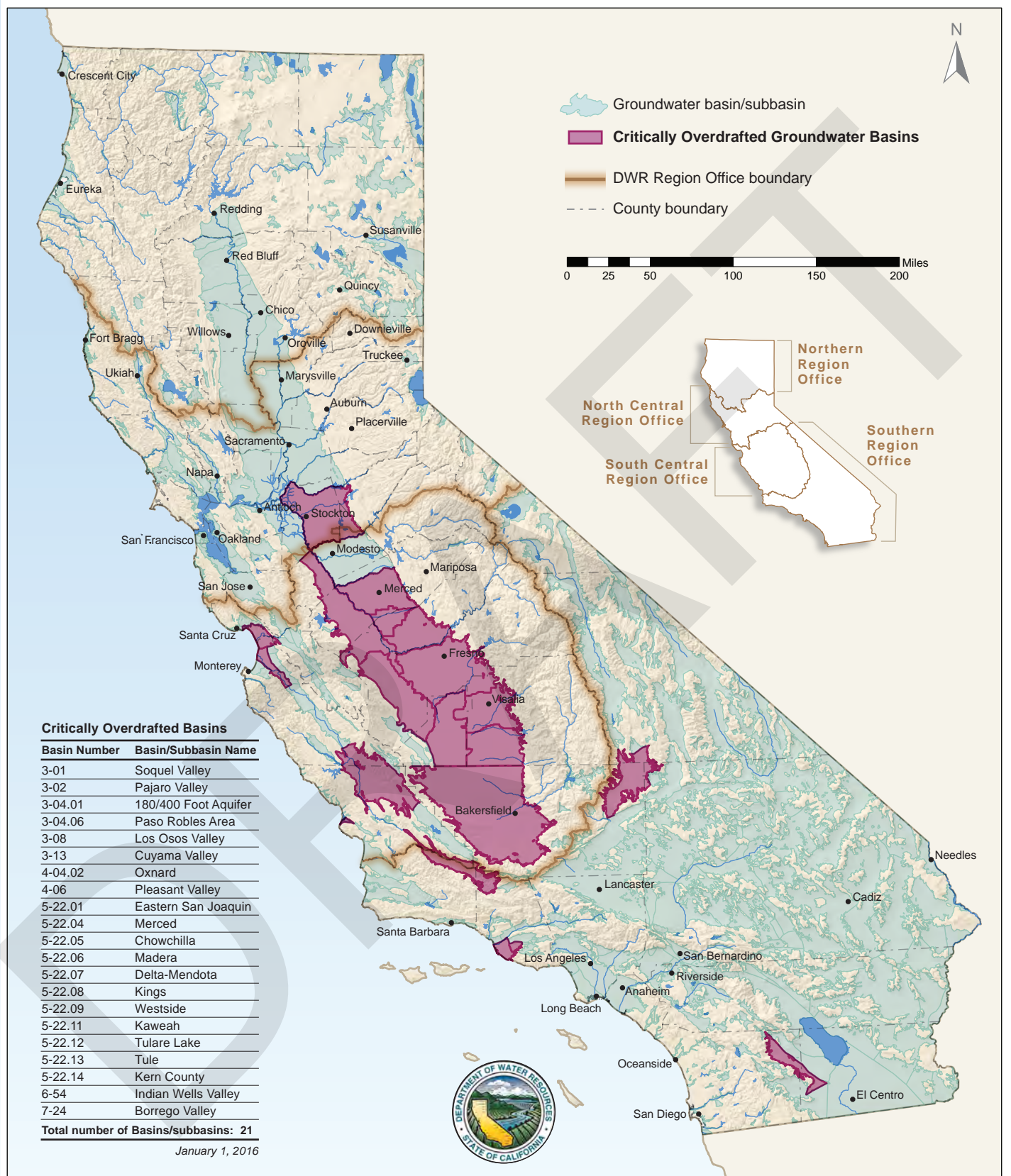


SOURCE: County of San Bernardino 2015 & 2016

San Bernardino Countywide Plan

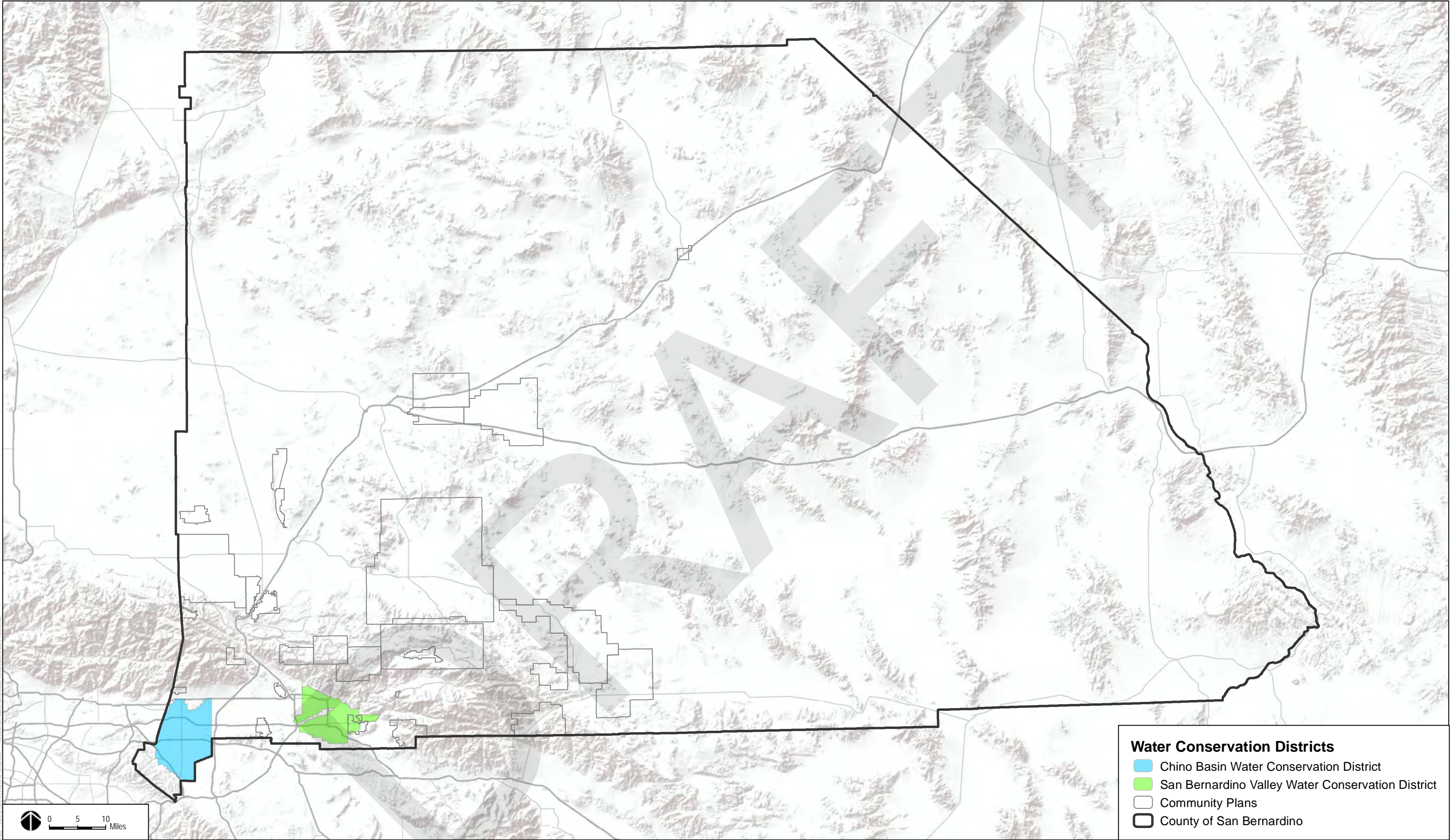
Groundwater Ordinance Boundaries










**Figure 1. Updated List of Critically Overdrafted Groundwater Basins**



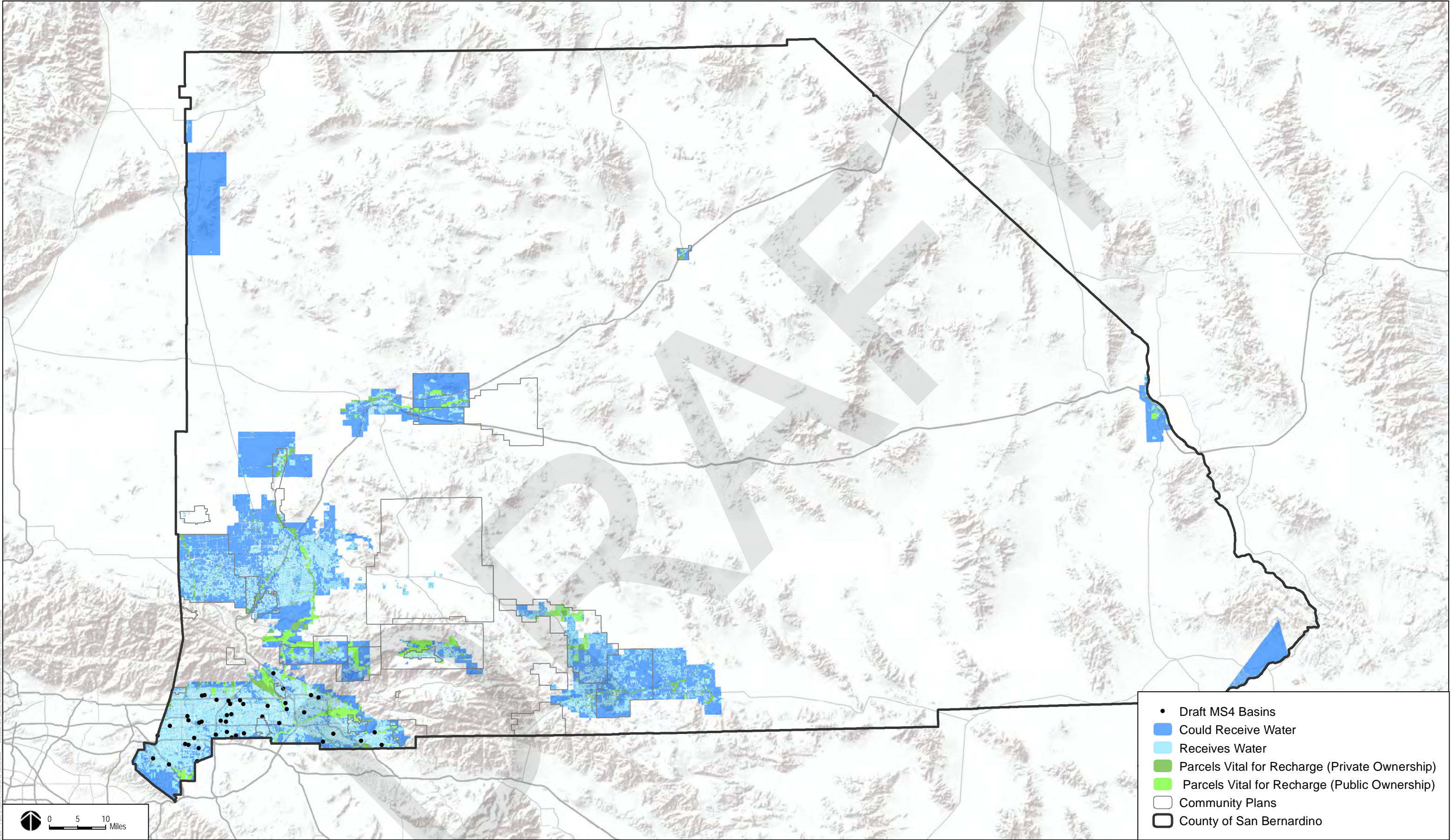


**Water Conservation Districts**

-  Chino Basin Water Conservation District
-  San Bernardino Valley Water Conservation District
-  Community Plans
-  County of San Bernardino

 0 5 10 Miles





- Draft MS4 Basins
- Could Receive Water
- Receives Water
- Parcels Vital for Recharge (Private Ownership)
- Parcels Vital for Recharge (Public Ownership)
- Community Plans
- County of San Bernardino

0 5 10 Miles

DUDEK

SOURCE: County of San Bernardino 2015

San Bernardino Countywide Plan

Groundwater Recharge Parcels







## MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants

(Units are in milligrams per liter (mg/L), unless otherwise noted.)

Last Update: July 22, 2016

This table includes:

California's maximum contaminant levels (MCLs)

Detection limits for purposes of reporting (DLRs)

[Public health goals \(PHGs\) from the Office of Environmental Health Hazard Assessment \(OEHHA\)](#)

Also, PHGs for NDMA and 1,2,3-Trichloropropane (which are not yet regulated) are included at the bottom of this table.

	MCL	DLR	PHG	Date of PHG
<b>Chemicals with MCLs in 22 CCR §64431—Inorganic Chemicals</b>				
Aluminum	1	0.05	0.6	2001
Antimony	0.006	0.006	0.02	1997
Antimony	--	--	0.001	2016 draft
Arsenic	0.010	0.002	0.000004	2004
Asbestos (MFL = million fibers per liter; for fibers >10 microns long)	7 MFL	0.2 MFL	7 MFL	2003
Barium	1	0.1	2	2003
Beryllium	0.004	0.001	0.001	2003
Cadmium	0.005	0.001	0.00004	2006
Chromium, Total - OEHHA withdrew the 0.0025-mg/L PHG	0.05	0.01	withdrawn Nov. 2001	1999
Chromium, Hexavalent	0.010	0.001	0.00002	2011
Cyanide	0.15	0.1	0.15	1997
Fluoride	2	0.1	1	1997
Mercury (inorganic)	0.002	0.001	0.0012	1999 (rev2005)*
Nickel	0.1	0.01	0.012	2001
Nitrate (as nitrogen, N)	10 as N	0.4	45 as NO <sub>3</sub> (=10 as N)	1997
Nitrite (as N)	1 as N	0.4	1 as N	1997
Nitrate + Nitrite (as N)	10 as N	--	10 as N	1997
Perchlorate	0.006	0.004	0.001	2015
Selenium	0.05	0.005	0.03	2010
Thallium	0.002	0.001	0.0001	1999 (rev2004)
<b>Copper and Lead, 22 CCR §64672.3</b>				
<i>Values referred to as MCLs for lead and copper are not actually MCLs; instead, they are called "Action Levels" under the lead and copper rule</i>				
Copper	1.3	0.05	0.3	2008
Lead	0.015	0.005	0.0002	2009
<b>Radionuclides with MCLs in 22 CCR §64441 and §64443—Radioactivity</b>				

[units are picocuries per liter (pCi/L), unless otherwise stated; n/a = not applicable]

Gross alpha particle activity - OEHHA concluded in 2003 that a PHG was not practical	15	3	none	n/a
Gross beta particle activity - OEHHA concluded in 2003 that a PHG was not practical	4 mrem/yr	4	none	n/a
Radium-226	--	1	0.05	2006
Radium-228	--	1	0.019	2006
Radium-226 + Radium-228	5	--	--	--
Strontium-90	8	2	0.35	2006
Tritium	20,000	1,000	400	2006
Uranium	20	1	0.43	2001

**Chemicals with MCLs in 22 CCR §64444—Organic Chemicals**

**(a) Volatile Organic Chemicals (VOCs)**

Benzene	0.001	0.0005	0.00015	2001
Carbon tetrachloride	0.0005	0.0005	0.0001	2000
1,2-Dichlorobenzene	0.6	0.0005	0.6	1997 (rev2009)
1,4-Dichlorobenzene (p-DCB)	0.005	0.0005	0.006	1997
1,1-Dichloroethane (1,1-DCA)	0.005	0.0005	0.003	2003
1,2-Dichloroethane (1,2-DCA)	0.0005	0.0005	0.0004	1999 (rev2005)
1,1-Dichloroethylene (1,1-DCE)	0.006	0.0005	0.01	1999
cis-1,2-Dichloroethylene	0.006	0.0005	0.1	2006
trans-1,2-Dichloroethylene	0.01	0.0005	0.06	2006
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	2000
1,2-Dichloropropane	0.005	0.0005	0.0005	1999
1,3-Dichloropropene	0.0005	0.0005	0.0002	1999 (rev2006)
Ethylbenzene	0.3	0.0005	0.3	1997
Methyl tertiary butyl ether (MTBE)	0.013	0.003	0.013	1999
Monochlorobenzene	0.07	0.0005	0.07	2014
Styrene	0.1	0.0005	0.0005	2010
1,1,2,2-Tetrachloroethane	0.001	0.0005	0.0001	2003
Tetrachloroethylene (PCE)	0.005	0.0005	0.00006	2001
Toluene	0.15	0.0005	0.15	1999
1,2,4-Trichlorobenzene	0.005	0.0005	0.005	1999
1,1,1-Trichloroethane (1,1,1-TCA)	0.2	0.0005	1	2006
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0005	0.0003	2006
Trichloroethylene (TCE)	0.005	0.0005	0.0017	2009
Trichlorofluoromethane (Freon 11)	0.15	0.005	1.3	2014
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	1.2	0.01	4	1997 (rev2011)
Vinyl chloride	0.0005	0.0005	0.00005	2000
Xylenes	1.75	0.0005	1.8	1997

**(b) Non-Volatile Synthetic Organic Chemicals (SOCs)**

Alachlor	0.002	0.001	0.004	1997
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Atrazine	0.001	0.0005	0.00015	1999
Bentazon	0.018	0.002	0.2	1999 (rev2009)
Benzo(a)pyrene	0.0002	0.0001	0.000007	2010
Carbofuran	0.018	0.005	0.0017	2000
Carbofuran	--	--	0.0007	2015 draft
Chlordane	0.0001	0.0001	0.00003	1997 (rev2006)
Dalapon	0.2	0.01	0.79	1997 (rev2009)
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0.00001	0.0000017	1999
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.07	0.01	0.02	2009
Di(2-ethylhexyl)adipate	0.4	0.005	0.2	2003
Di(2-ethylhexyl)phthalate (DEHP)	0.004	0.003	0.012	1997
Dinoseb	0.007	0.002	0.014	1997 (rev2010)
Diquat	0.02	0.004	0.015	2000
Diquat	--	--	0.006	2015 draft
Endrin	0.002	0.0001	0.0018	1999 (rev2008)
Endrin	--	--	0.0003	2015 draft
Endothal	0.1	0.045	0.094	2014
Ethylene dibromide (EDB)	0.00005	0.00002	0.00001	2003
Glyphosate	0.7	0.025	0.9	2007
Heptachlor	0.00001	0.00001	0.000008	1999
Heptachlor epoxide	0.00001	0.00001	0.000006	1999
Hexachlorobenzene	0.001	0.0005	0.00003	2003
Hexachlorocyclopentadiene	0.05	0.001	0.002	2014
Lindane	0.0002	0.0002	0.000032	1999 (rev2005)
Methoxychlor	0.03	0.01	0.00009	2010
Molinate	0.02	0.002	0.001	2008
Oxamyl	0.05	0.02	0.026	2009
Pentachlorophenol	0.001	0.0002	0.0003	2009
Picloram	0.5	0.001	0.5	1997
Picloram	--	--	0.166	2015 draft
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.00009	2007
Simazine	0.004	0.001	0.004	2001
2,4,5-TP (Silvex)	0.05	0.001	0.003	2014
2,3,7,8-TCDD (dioxin)	$3 \times 10^{-8}$	$5 \times 10^{-9}$	$5 \times 10^{-11}$	2010
Thiobencarb	0.07	0.001	0.07	2000
Thiobencarb	--	--	0.042	2015 draft
Toxaphene	0.003	0.001	0.00003	2003
<b>Chemicals with MCLs in 22 CCR §64533—Disinfection Byproducts</b>				
Total Trihalomethanes	0.080	--	0.0008	2010 draft
Bromodichloromethane	--	0.0010	--	--
Bromoform	--	0.0010	--	--
Chloroform	--	0.0010	--	--
Dibromochloromethane	--	0.0010	--	--
Haloacetic Acids (five) (HAA5)	0.060	--	--	--
Monochloroacetic Acid	--	0.0020	--	--

Dichloroacetic Acid	--	0.0010	--	--
Trichloroacetic Acid	--	0.0010	--	--
Monobromoacetic Acid	--	0.0010	--	--
Dibromoacetic Acid	--	0.0010	--	--
Bromate	0.010	0.0050**	0.0001	2009
Chlorite	1.0	0.020	0.05	2009
<b><i>Chemicals with PHGs established in response to DDW requests. These are not currently regulated drinking water contaminants.</i></b>				
N-Nitrosodimethylamine (NDMA)	--	--	0.000003	2006
1,2,3-Trichloropropane	--	--	0.0000007	2009
*OEHHA's review of this chemical during the year indicated (rev20XX) resulted in no change in the PHG.				
**The DLR for Bromate is 0.0010 mg/L for analysis performed using EPA Method 317.0 Revision 2.0, 321.8, or 326.0.				