2025

URBAN WATER MANAGEMENT PLAN

Lakeside Water District, CA

WEST&ASSOCIATES
ENGINEERING, INC.

2025

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Lakeside Water District, CA

10375 Vine Street, Lakeside, CA 92040
(619) 443-3805, Fax: (619) 443-3690

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(Draft)

Prepared by:

WEST&ASSOCIATES
ENGINEERING, INC.

West & Associates Engineering, Inc.
78 Anacapa Ct. Foothill Ranch, CA

Table of Contents

List of Tables

List of Figures

Appendices

Appendix A	District Board Resolution Adopting 2025 UWMP
Appendix B	District Board Resolution Adopting 2025 WSCP
Appendix C	UWMP Act
Appendix D	Dept. of Water Resources UWMP Checklist
Appendix E	Dept. of Water Resources UWMP Data Tables
Appendix F	Dept. of Water Resources SBx7-7 Tables
Appendix G	UWMP Notices: 60-Day Notice, 2-Week and 1 Week Notices
Appendix H	Final Transmittals to County and State Library
Appendix I	Lakeside Water District Asset Management Plan 2024 Update
Appendix J	CASGEM Groundwater Elevation Monitoring
Appendix K	2023 Multi-Hazard Mitigation Plan for San Diego County
Appendix N	District Rates & Fees
Appendix M	Santee Basin Aquifer Recharge Study Technical Memorandum Water
Appendix N	Shortage Response Policy and Procedure
Appendix O	(PLACEHOLDER)
Appendix P	(PLACEHOLDER)

ACRONYMS

AAC	All-American Canal
Act	Urban Water Management Planning Act
AF	Acre-Feet
AFY	Acre-Feet per Year
AMI	Automatic Metering Infrastructure
AP	Allocation Plan
Basin	Santee-El Monte Basin
BDCP	Bay-Delta Conservation Plan
BMP	Best Management Practice
Board	Metropolitan Water District of Southern California's Board of Directors
CDP	Census Designated Place
CDPH	California Department of Public Health
CFS	Cubic Feet per Second
CII	Commercial/Industrial/Institutional
CIMIS	California Irrigation Management Information System
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
CWC	California Water Code
DBPs	Disinfection Byproducts
DDW	Division of Drinking Water
DMM	Demand Management Measure
DOE	Department of Energy
DWSAP	Drinking Water Source Assessment and Protection
DWR	Department of Water Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
Eto	Evapotranspiration
GPCD	Gallons per Capita per Day
GPF	Gallons per Flush

GPM	Gallons per Minute
GW	Groundwater
HECW	High Efficiency Clothes Washer
HEN	High Efficiency Nozzle
HET	High Efficiency Toilet
HEW	High Efficiency Washer
HR	Hydrologic Region
IID	Imperial Irrigation District
IPR	Indirect Potable Reuse
IRP	Integrated Resources Plan
IWA	International Water Association
JWPCP	Joint Water Pollution Control Plant
LRWSP	Local, Reliable Water Supply Program
MAF	Million Acre-Feet
MBR	Membrane Bioreactor
MCL	Maximum Contaminant Level
MG	Million Gallons
MGD	Million Gallons per Day
mg/L	Milligrams per Liter
µg/L	Micrograms per Liter
MOU	Memorandum of Understanding
MWD	Metropolitan Water District of Southern California
MWELO	Model Water Efficient Landscape Ordinance
MTBE	Methyl Tertiary Butyl Ether
NDMA	N-Nitrosodimethylamine
ng/L	Nanograms per Liter
NPDWR	National Primary Drinking Water Regulations
NTU	Nephelometric Turbidity Units
PCA	Possible Contaminating Activities
PCE	Tetrachloroethylene
PHETs	Premium High Efficiency Toilets
PHG	Public Health Goal
PPCPs	Pharmaceuticals and Personal Care Products
PVID	Palo Verde Irrigation District

QSA	Quantification Settlement Agreement
RHNA	Regional Housing Needs Assessment
SB	Senate Bill
SBx7-7	Senate Bill x7-7
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Governments
SDP	Seawater Desalination Program
SDWA	Safe Drinking Water Act
SMSS	Soil Moisture Sensor System
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
ULARA	Upper Los Angeles River Area
ULFT	Ultra-Low-Flow Toilet
USFWS	U.S. Fish and Wildlife Service
UWMP	Urban Water Management Plan
VOC	Volatile Organic Compound
WARN	Water Agency Response Network
WBIC	Weather-Based Irrigation Controller
WRP	Water Reclamation Plant
WSAP	Water Supply Allocation Plan
WSCP	Water Shortage Contingency Plan
WSDM	Water Surplus and Drought Management Plan
WSS	Watershed Sanitary Survey
WWTP	Wastewater Treatment Plant

1

Section 1: Introduction

In accordance with the Water Code, an Urban Water Management Plan is required to be updated every five years.

1.1. PURPOSE AND SUMMARY

This is the 2025 Urban Water Management Plan ("UWMP" or "Plan") for the Lakeside Water District (hereinafter "District"). This Plan has been prepared in compliance with the Urban Water Management Planning Act (Act), which was established in 1983 and has been codified into the California Water Code sections 10610 through 10657. A copy of the Act can be found in **Appendix C** to this 2025 UWMP.

As part of the Act, the legislature declared that waters of the state are a limited and renewable resource subject to ever increasing demands; that the conservation and efficient use of urban water supplies are of statewide concern; that successful implementation of plans is best accomplished at the local level; that conservation and efficient use of water shall be actively pursued to protect both the people of the state and their water resources; that conservation and efficient use of urban water supplies shall be a guiding criterion in public decisions; and that urban water suppliers shall be required to develop water management plans to achieve conservation and efficient use.

The Act requires "every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt, in accordance with prescribed requirements, an Urban Water Management Plan."

These plans must be filed with the California Department of Water Resources (DWR) every five (5) years, describing and evaluating reasonable and practical efficient water uses, reclamation, and conservation activities. The CWC mandates that each water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one.

Figure 1.1 UWMPs are Governed by State Law

The Act has been amended multiple times since its initial passage in 1983. A summary of the amendments is provided in **Figure 1.2**. The intent of the amendments was to broaden the scope of the UWMPs, encourage public participation, and add financial incentives to the UWMPs. A significant amendment to the Act was a 2009 amendment (Senate Bill SBx7-7) signed by former Governor Arnold Schwarzenegger. The Senate Bill, also known as the "Water Conservation Act" required that per capita water use within an urban water supplier's service area decrease by 20 percent by the year 2020 in order to receive grants or loans administered by DWR or other state agencies. Each urban retail water supplier developed water use "targets" for 2015 and for 2020. The "target" date for 2020 passed on December 31, 2020. Urban water suppliers whose 2020 actual water use does not meet the target requirements established by this bill are not eligible for state water grants or loans This included, but was not limited to, the following funding sources:

Amendments to the Act have added financial incentives to UWMPs

- **Drinking Water State Revolving Fund**
  Primarily a source for funds to help correct deficiencies
- **Proposition 1**
  Primarily a source for funds related to supplies & infrastructure
- **Proposition 50**
  Primarily a source for funds related to security & treatment technology
- **Proposition 84**
  Primarily a source for funds related to protection from pollution

Agencies that submit their UWMPs past the July 2026 deadline are still technically eligible for grants or loans, provided that the UWMP addresses the requirements of the Act. However, applications for such funds

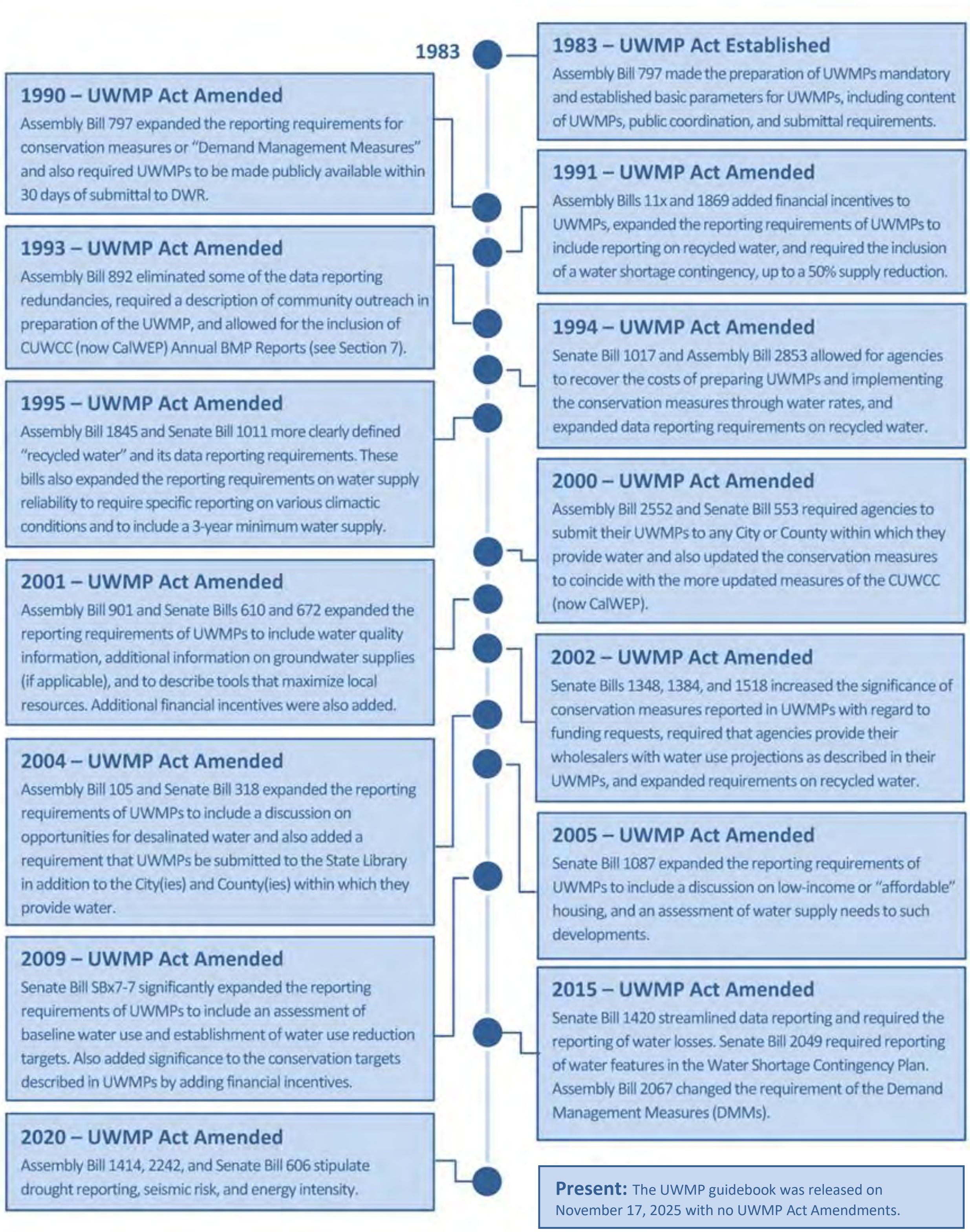

Figure 1.2 UWMP Act Establishment and Amendment

are subject to legal challenges coming from competing agencies for the same funding, if the competing agencies become aware of the timeframe in which an UWMP was submitted.

UWMPs are considered to be a foundation document and a source of information for Water Supply Assessments (Senate Bill 610) and Written Verifications of Water Supply (SB 221). In addition, an UWMP may serve as a long-range planning document for water supply, a source of data for development of a regional water plan, and a source document for cities and counties as they prepare their General Plans. These planning documents are linked, and their accuracy and usefulness are interdependent.

One of the primary objectives of the Act is the assessment of demands and supplies over a 20-year or a 25-year planning horizon under normal rainfall conditions, as well as under various drought conditions. The Act also requires water shortage contingency planning and drought response actions to be included in the UWMP. In short, this Plan is a management tool that provides a general, long-term framework for action, rather than a detailed blueprint for supply and demand management. This Plan evaluates the District's supply and demand projections over a 25-year planning horizon, and what mix of programs should be explored for ensuring that such water will be available. As part of the District's past and current water conservation policies, the District is currently implementing many facets of this plan already to achieve its water conservation goals.

1.2. COORDINATION

The process of preparing and submitting an UWMP is a transparent process that requires opportunities for outside-agency and general public involvement. In preparing this 2025 UWMP, the District has encouraged broad community participation. The District notified the agencies that the District interacts with more than 60 days in advance of the District Board's adoption of the 2025 UWMP. The District also made the draft 2025 UWMP available at the District's Board Room and on the District's website, leading up to a public hearing on the 2025 UWMP. Notices of the public hearing were published in the local press and on the District's website for a two-week period. On June 2, 2026, the District held a noticed public hearing to review and accept comments on the 2025 UWMP. Following the public hearing, the District officially adopted the 2025 UWMP through board resolution. A copy of the board resolution adopting this UWMP is included in **Appendix A.**

The District's 2025 UWMP is a collaborative effort involving its own staff, outside agencies, and the general public.

Table 1.1: Coordination and Public Involvement

Agency	Participated in Plan Preparation	Contacted for Assistance	Commented on Draft	Notified of Public Hearing	Attended Public Hearing
District Staff				x	
District Board				x	
Helix Water District				x	
Padre Dam Municipal Water District				x	
City of San Diego				**x**	
San Diego County				x	
San Diego County Water Authority				x	
Interested General Public				x	

Notes:

1. "60-Day" notice letters were sent out to all agencies (except the Districts own) as required by CWC § 10621(b):
2. 2-week and 1-week notices were published in the local press.
3. **Appendix G** contains copies of the 60-day notice and the 2-week and 1-week notices.

As required by the Act, the 2025 UWMP is being prepared by the District and will be submitted to DWR, the California State Library, and any city, special district, or county within which it provides water to no later than 30 days after adoption. The 2025 UWMP will be available to the public during normal business hours within 30 days of submitting the 2025 UWMP to DWR.

1.3. DWR UPDATES FOR THE 2025 UWMPS

There have been minor changes to the CWC affecting the 2025 UWMPs. The changes include the following:

- Clarified Reporting Requirements for SBx7-7: Agencies must provide a description in the 2025 UWMP how their water use goals of the 20x2020 were met. An urban retail water supplier's failure to meet those goals will establish a violation of law for purposes of any state administrative or judicial proceeding. If the agency did not achieve its targeted reduction in 2020, the agency must show in its 2025 UWMP whether it met their 2020 Target in 2025 to be eligible for state funds. Currently, the CWC does not set an end date for reporting on a supplier's progress in meeting the 2020 Target. (CWC § 10608.40)

- **Water Losses:** Retail Suppliers must indicate the quantity of water losses for five years by reporting data from their Validated Water Loss Audits, discuss their progress toward compliance with the 2028 Water Loss Standard, and show whether they met the Water Loss Performance Standard enacted by the State Water Resources Control Board (SWRCB). (CWC § 10631 (d) (3) (C), SB 1414, 2019). Suppliers can simply provide a link to their water loss reports submitted to DWR's Water Loss Audit Program.

- **Updates to Demand Management Measures (DMMs):** Retail Suppliers with an annual actual water use above their Urban Water Use-Objective (UWUO) must include a narrative describing additional DMMs the supplier plans to use to achieve its UWUO by January 1, 2027. (CWC § 10609.25, AB 1414, 2019)

- **UWUO and Water Use Reporting:** The standard for indoor residential water use from January 1, 2025 to January 1, 2030 was lowered from 52 to 47 Gallons per Capita per Day (gpcd). Until January 1, 2025, the standard was 55 gpcd. Beginning January 1, 2030 the standard was lowered from 50 to 42 gpcd. DWR, in coordination with SWRCB, will conduct an investigation to determine if the date for the 2030 indoor residential use standard will be changed. The District won't be subject to enforcement pursuant to this chapter solely for failing to meet the indoor residential use standard. (CWC § 10609.4).

- **Irrigation of Nonfunctional Turf:** "Functional turf" is ground cover surface of turf located in a recreational use area or community space. "Nonfunctional turf" means any turf that is not functional turf, and includes turf located within street rights-of-way and parking lots. Turf enclosed by fencing or other barriers to permanently preclude human access for recreation or assembly is Nonfunctional turf. The use of potable water to irrigate nonfunctional turf is wasteful and incompatible with state policy relating to climate change, water conservation, and reduced reliance on the Sacramento-San Joaquin Delta ecosystem (CWC § 110). The use of potable water to irrigate Nonfunctional turf on all properties owned by the District are to be phased out by January 1, 2027. All other Commercial, Industrial, and Institutional (CII) properties are to be phased out by January 1, 2028. After which it will be prohibited with a few exceptions (CWC § 10618.14). The website https://saveourwater.com/ provides information and resources on converting nonfunctional turf to native vegetation.

The use of potable water to irrigate nonfunctional turf is wasteful.

- **Definitions:** New definitions were added or existing definitions were modified, which include Nonfunctional Turf, CII water use, Large landscape, Gross water use, Potable reuse, Urban water use objective, Affordable housing, and Disadvantaged community to name a few (CWC § 10608.12).

In addition to the above, there are several optional or voluntary categorical and data reporting changes to the UWMP Act. These include an optional Planning Tool that suppliers can use to report and assess water use and supply in order to better conduct the Reliability Assessment and Drought Risk Assessment, a Potable and Non-Potable Planning Tool, Potable and Non-Potable Submittal Tables, as well as various optional data reporting.

1.4. UPDATES TO THE DISTRICT'S UWMP

In addition to required updates described in the previous section, the District's 2025 UWMP has undergone some changes from the 2020 UWMP. A summary of the key changes to the UWMP are as follows:

- **New Format:** Format of the UWMP has been changed to include a new look and new arrangement of sections. The new arrangement helps the discussion of certain topics which precede other topics. See Section 1.5 for the format of this 2025 UWMP.

- **DWR & Water Code:** A listing of DWR-required UWMP updates (see previous Section).
- **District Development Growth:** An updated look at development which took place in the District since the 2020 UWMP.
- **Water Sources and Supplies:** A broader, more in-depth discussion of water sources and supplies.
- **Recycled Water:** An updated look at recycled water opportunities in the District.
- **Water Quality:** An update to new regulations and contaminants effecting water quality and treatment.
- **Water Use:** Updated information on recent water use quantities and a deeper discussion on water use parameters.
- **Supply v Demand:** Updated information on projected supplies vs demands, and a discussion on recent regional droughts affecting the District. There is also an expansion on the discussion of the District's source water reliability.
- **Contingency Planning:** Updated information on the District's contingency plans, including the District's Ordinances.
- **Conservation Measures:** Updated information on the District's conservation measures, which reflect the previous (2020) changes by DWR.

In addition to the above changes, there are multiple minor changes. The changes reflect both those that are required by the CWC and those that are voluntarily included for the benefit of the District.

1.5. FORMAT OF THE 2025 UWMP

The information contained in this 2025 UWMP corresponds to the items in the UWMP Act and other amendments to the Water Code. The sections of the UWMP are as follows:

Section 1 - Introduction

This section describes the UWMP Act, the UWMP preparation and adoption process, updates to the UWMP, and a lay description of this entire document.

Section 2 – Service Area Description

This section outlines the history and development of the District and the District's water supply system, a description of its existing service area, the local climate, population served, and some basic statistics on the District's water distribution system.

Section 3 – Water Sources & Supplies

This section describes the existing potable water supplies available to the District, including groundwater from the Verdugo Groundwater Basin (Basin) and imported water from Metropolitan Water District of Southern California (MWD) through the Foothill Municipal Water District (FMWD). In addition, this section evaluates potential future water supply sources.

Section 4 – Recycled Water Opportunities

This section discusses potential recycled water supplies, an assessment of potential customers, and methods to expand the use of recycled water.

Section 5 – Water Quality

This section discusses the quality of the District's potable water supply sources, including imported water and groundwater. This section also discusses drinking water standards and the effect that water quality has on management strategies and supply reliability.

Section 6 – Water Use

This section describes past, current and projected water usage within the District's service area. Past and projected water use in this section is broken down by sector. This chapter also discusses the requirements of the 2009 Water Conservation Act (SBx7-7), including the 2020 Water Use Targets.

Section 7 – Reliability Planning

This section presents a drought risk assessment of the District's water system. The drought risk assessment is an assessment of the reliability of the District's water supplies by comparing projected future water demands with expected available water supplies under three different hydrologic conditions: normal year; a single dry year; and multiple dry years. This 2025 UWMP concludes that if projected imported and local supplies are developed as anticipated, no water shortages are anticipated in the District's service area during the planning period.

Section 8 – Contingency Planning

This section describes the District's response plan to water shortages, as well as those efforts that will be utilized in the event of water supply interruptions, such as power outages, earthquakes, or droughts. This section also describes regional response efforts to water supply interruptions.

Section 9 – Conservation Measures

This section addresses the District's compliance with water conservation measures that correspond to the seven (7) Demand Management Measures (DMMs) described in the 2025 UWMP Guidebook, which were previously the 14 DMMs listed in the Act. The DMMs also correspond to the current Best Management Practices (BMPs) from the California Water Efficiency Partnership (CalWEP).

Appendices

The Appendices contain references and specific documents that contain reference data used to prepare this 2025 UWMP.

1.6. LAY DESCRIPTION

To facilitate effective and efficient management of water supplies, and in compliance with the UWMP Act and the Water Conservation Act of 2009, the District has prepared this 2025 UWMP. This UWMP includes background information regarding the District’s history, water system, and water supplies. This UWMP also analyzes recent water demands and projects future water supply capacity and water demands through 2050. The effects of water quality, drought, and emergencies on the District’s water supply reliability are also analyzed.

As indicated by **Section 7** of this UWMP, the District does not expect to have a water supply shortage through 2050. Furthermore, this UWMP concludes that the District’s water supplies, which are obtained from local groundwater basins and wholesale agencies, are resilient to droughts. A basic overview of the District’s water system can be found in **Section 2**. Water quality concerns do have an occasional impact on the consistency of groundwater supplies, but the District’s groundwater quality is not expected to be affected. These are described in **Section 5**.

This 2025 UWMP recommends that the District implement water operation management tools that maximize the use of local groundwater production and imported water to meet its water demands. This UWMP also recommends conservation tools that will enable the District’s residents to conserve water and maximize water use efficiency. These are described in **Section 9**.

If the water consumption rates in the District decrease as this UWMP projects, the District can expect to have an adequate water supply in future years. This is in spite of a projected population growth over the next 25 years. Finally, this UWMP recommends that severe droughts or sudden supply interruptions be addressed by following the criteria of the Water Shortage Contingency Plan (WSCP), as described in **Section 8** of this UWMP.

Since UWMPs are due for revision every five years, this UWMP is projected to be in effect until the year’s end of 2030. At that time the District's 2030 UWMP will begin development and adoption.

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Section 2: Service Area Description

Originally as Lakeside Irrigation District, the term "Irrigation" was officially replaced with "Water" in 1980.

2.1. DISTRICT AND WATER SYSTEM HISTORY

The District was organized as the Lakeside Irrigation District in 1924. Its source of water was ground water and a connection to the Cuyamaca Water Company. The District's function was primarily as an agricultural water provider. In 1980, the District changed its name to the Lakeside Water District. The District is a single purpose agency providing retail domestic water service. In 2006 The District consolidated with Riverview Water District which was formed in 1916 as Riverview Farms Mutual Water District. In 1954 Riverview Water District became a local Public Agency and the District began to purchase water from Metropolitan Water District via Padre Dam Municipal Water District (Padre Dam), who was the wholesale distributor and the water supply came from the San Diego County Water Authority (CWA) and the R. M. Levy Water Treatment and Filtration Plant, owned and operated by the Helix Water District. The District has a 5-member Board of Directors who are elected at-large and participate in the management of the District.

2.1.1. Early Stages

The District was formed in August 1924. At that time, its mission was to provide water to the optimistic 90 customers living in the historical town center of The District. By 1925, the Board had passed a $35,000 bond to fund its first infrastructure projects: a 200,000 gallon reservoir located on Castle Court Drive and 15,500 linear feet of water main through the downtown streets of Julian, Maine, Park(side), Laurel, Sycamore (Lakeshore) and River Street. The sources of supply were from the Lakeside Heights Flume and Pipeline Company, and a well located along the San Diego River where the District's offices are currently located on Vine Street.

When The District was founded, Riverview Mutual Water Company and Lakeside Farms Mutual Company had already been in existence for a number of years, providing water to the farms in their respective service areas. Water was plentiful in the river valley and large concrete pipes were installed throughout the area to provide the water needed to serve the area's farmers.

In the late 1800s and early 1900s, the District's area was the hub of activity in East County. Home to the famous Lakeside Inn, the area was a thriving tourist destination. The District installed pipelines and added customers until the Great Depression of the 1930s. The optimism turned to a grim seriousness that proved to be a challenge for the area's water agencies. Keeping customers and maintaining revenue proved difficult to do. The District struggled, but as it moved into the 1940s and, with the war effort ramping up, San Diego and surrounding areas began growing again.

The City of San Diego completed El Capitan Reservoir in 1935 and, less than ten years later, a lengthy drought had dropped groundwater levels, which forced the District to look beyond local supplies to keep up with the growing demand. In 1944 The District was one of nine (9) original members to form the San Diego County Water Authority. This enabled county water agencies to divide up the area's secured water rights from the Colorado River and receive delivery through a newly built aqueduct with only three weeks local supply remaining.

A firm entitlement to imported water, allowed The District's population to increase rapidly, requiring more pipelines, reservoirs, and pump stations to serve the growing service area. As the next four decades of growth continued, the water system evolved and expanded into the system it has today.

Currently, it has approximately 125 miles of pipeline, ranging in size from 4-24 inches, twelve water storage reservoirs with a capacity of 14 million gallons, twelve pump stations, and one active groundwater treatment plant. The current replacement value is estimated at approximately $160 million. With this large infrastructure in place, the District developed a 100-year "Asset Management Plan" in 2014 to maintain the infrastructure for safe and reliable operation and to continue the high level of service the District's customers demand.

2.2. CURRENT WATER SERVICE AREA

The District's service area spans approximately 20 square miles of the unincorporated community of Lakeside, including Eucalyptus Hills, Moreno Valley and Muth Valley, as shown in Figure 3-1. An elevation gain from Lakeside's water connections with CWA to its Reservoirs' is only 575 feet but requires 11 pumping stations because of the hilly terrain.

2.3. LAND USE & ECONOMY

The District is located in San Diego County. San Diego County encompasses an area of 4,500 square miles or 2.9 million acres, and is bordered on the west by Pacific Ocean, on the north by Orange County, on the South by Mexico, and on the east by the Imperial County.

The District currently provides water service to over 6,850 accounts. The District's service area is for the most part built-out with densification accomplished through single-family lot splits and conversion of single-family to multi-family dwelling units.

2.3.1. District Land Use

Land use data from the regional growth forecast was overlaid with the District's service area using a geographical information system (GIS). This provided for a summary of existing and projected land uses within the boundaries of the District. The data presented is for both existing land use as well as 2050 land use projections derived from SANDAG's regional growth forecast. Approximately 86% of the District's existing service area is dedicated to single-family residential land use and 8% is multi-family categories and is projected to increase by 2050. Growth in residential sectors will be driven by development of existing vacant lands and by redevelopment infill. Existing commercial land use data accounted for 4.5% and Governmental was 1.5% with little change projected.

2.4. CLIMATE

The District's customers enjoy a Mediterranean climate with average annual high and low temperatures of 78 degrees and 52 degrees. The annual precipitation is approximately 12 inches and over 80% of the precipitation occurs between December and March. Winter temperatures occasionally dip below freezing and summer temperatures often exceed 90 degrees Fahrenheit. The District's service area is entirely within an inland region of eastern San Diego County. Climate is warm and arid as is characteristic of the inland areas of the county. Water demands are generally dependent on weather patterns. **Table 2.1** lists the historical average rainfall for the District:

Table 2.1 Historical Climate (1967-2013)

Lakeside 2 E, California (044628)

(www.wrcc.dri.edu)

Month	Average Rainfall (in)
Jan	2.79
Feb	3.45
Mar	2.97
Apr	1.14
May	0.32
Jun	0.12
Jul	0.07
Aug	0.09
Sep	0.26
Oct	0.76
Nov	1.49
Dec	2.14
Annual:	**15.58**

Evapotranspiration (ETo) data was obtained from the California Irrigation Management Information System (CIMIS), which maintains measuring stations throughout the state of California. The District uses CIMIS stations (cimis.water.ca.gov) at Otay Lake (#147) and at Escondido (#153) for the western and eastern portions of the District, respectively, as they are adequate representations of the District's weather. The Otay Lake and Escondido stations annual ETo of 51.49 inches and 54.19 inches, respectively, based on recorded data that spans a minimum of the last five years prior to 2020. Recent ETo and rainfall for the District is listed in **Table 2.2 and Table 2.3**:

Table 2.2 Recent Climate (2025)

CIMIS Station 147 (Otay Lake – South Coast Valleys)

Month	Rainfall (in)	ETo (in)
Jan (2025)	0.67	2.89
Feb (2025)	1.04	2.81
Mar (2025)	3.29	3.73
Apr (2025)	0.39	5.18
May (2025)	0.20	5.26
Jun (2025)	0.05	5.57
Jul (2025)	0.00	6.24
Aug (2025)	0.10	6.14
Sep (2025)	0.22	4.98
Oct (2025)	0.51	4.22
Nov (2025)	1.54	2.87
Dec (2025)	0.99	2.61
Totals:	**9.0**	**52.5**

Table 2.3 Recent Climate (2025)

CIMIS Station 153 (Escondido SPV – South Coast Valleys)

Month	Rainfall (in)	ETo (in)
Jan (2025)	0.48	3.11
Feb (2025)	1.55	2.77
Mar (2025)	3.03	3.54
Apr (2025)	0.26	4.87
May (2025)	0.15	5.55
Jun (2025)	0.12	6.37
Jul (2025)	0.87	7.37
Aug (2025)	0.29	6.80
Sep (2025)	0.42	5.00
Oct (2025)	0.39	3.94
Nov (2025)	1.22	2.52
Dec (2025)	0.80	2.19
Totals:	**9.6**	**54.03**

The National Oceanic and Atmospheric Administration (NOAA) has also been recording historical temperature and precipitation measurements within the District's service. **Table 2.1** lists recent total rainfall for the District:

Table 2.4 NOAA Recent Climate (2014-2025)

LAKESIDE 4.1NNE (US1CASD0103)

(www.ncdc.noaa.gov)

Year	Total Rainfall (in)
2014	3.7
2015	11.0
2016	14.1
2017	13.4
2018	7.0
2019	17.0
2020	15.6
2021	9.8
2022	9.3
2023	17.0
2024	15.7
2025	12.6
Average:	**12.2**

As the State of California and the San Diego County region has undergone a several-year drought, rainfall has been much lower in the District. Southern California is also expected to be Transitioning out of a weak La Nina into El Nino by the end of 2026.

2.4.1. Climate Change

The DWR Guidebook requires water suppliers to include a discussion of climate change in their UWMPs, specifically with regard to Drought Risk Assessments (DRA). **Section 7** of this UWMP provides an overview of droughts.

The rise of anthropogenic activities producing carbon dioxide in the world has changed the earth's climate by emitting greenhouse gasses responsible for global warming. This has resulted in extreme weather events occurring more frequently. The severity and frequency of climate change impacts on temperature and precipitation patterns can be difficult to forecast due to dramatic shifts in weather patterns as a result of increased concentrations of carbon dioxide in the atmosphere. While the precise timing, severity, and regional impacts of these temperature and precipitation changes are uncertain, climate researchers have identified several important issues of concern for water planners in California.

The climate change impacts of concern include increases in temperature, precipitation pattern changes. and see-level rise. More winter precipitation falling as rain than snow leads to reduced snowpack water storage, reduced long term soil humidity, reduced groundwater and downstream flows, and reduced imported water deliveries. Higher temperatures alter evapotranspiration rates and growing seasons become longer. Precipitation pattern changes leads to increase flooding from intense storms. Although the extent of these changes is uncertain, the District is already planning ahead to ensure long lasting reliability of its source for their customers.

Historical temperature and precipitation measurements recorded by NOAA for the District's area since 1899, as shown in the District's 2020 UWMP Table 3-1, demonstrate measured effects of climate change. It can be observed in that the temperature minimums and maximums are trending upwards, whereas the precipitation averages are trending downwards.

On behalf of its member agencies such as the District, the CWA recognizes the importance of adapting to climate change and being a leader in sustainability and natural resource stewardship. CWA has long supported efforts to develop renewable energy sources that are compatible with water operations. This has included investments to improve operational effectiveness, reduce greenhouse gases, and decrease CWA and member agency costs to help stabilize water rates. In June 2019, CWA's Board of Directors adopted an energy management policy that focuses on energy supplies, system operations, energy generation and storage, energy efficient equipment and features, collaborative relationships, and government relations. CWA recognizes the importance of adapting to climate change and is a leader in sustainability and natural resource stewardship. CWA is an active and founding member of the Water Utility Climate Alliance, which is dedicated to enhancing climate change research and improving water management decision making.

The key issues identified by CWA in its UWMP include advocating for improvement in modeling to provide precipitation data on a local and regional scale, encouraging focused scientific research on climate change to identify the impacts on the region's water supply, and partnering with other water utilities to incorporate the impacts of climate change on water supply planning and the development of decision support tools, all of which are described in CWA's UWMP. CWA has worked to analyze projected climate change impacts on water demands on behalf of its member agencies. Using advances in climate modeling that have occurred since the release of its 2015 UWMP, CWA adopted a qualitative approach that uses a manageable number of climate change scenarios to develop a range of potential demands. The scenarios account for the periods of 1981-2020, 2040-2060 and 2080-2099. Projected changes in temperature and precipitation were averaged within each scenario. Although no dramatic shifts in seasonal patterns of precipitation and average maximum daily temperature for the San Diego region were observed under any of the scenarios, on average the annual amounts of precipitation tend to be more concentrated in the winter with lesser proportions of total annual precipitation occurring in the spring and fall. It is noted that two of the climate change scenarios analyzed by CWA resulted in average annual precipitation estimates for 2040-2060 lower than the 1980-2010 historic average. Further, CWA indicates in Section 2.4.4 of its UWMP, all analyzed scenarios indicate warming on average relative to historical climate conditions, and the interaction to temperature and precipitation projections dictate the estimated impact on CWA's baseline demand forecasts of its member agencies, including that of the District. In 2013 CWA published its latest Regional Water Facilities Optimization and Master Plan, hereafter referred to as "RWF Plan". This document is available for review online at CWA's website (www.CWA.org/master-plan-documents) and is updated every 10 years, with the next update due to be completed in 2023. In Section 2.3.2 of the RWF Plan, CWA noted that impacts from climate change are not likely to be significant during the period of 2011 to 2035, which is the most current data available that is included in the projection time period under consideration for this update of District's UWMP (2025 to 2050). Further, CWA indicates in the RWF Plan that the primary effects of climate change will be experienced as shortages of imported water supply sources and not as significant increases in water demands.

It is important to note that the potential for impacts of imported supplies across multiple dry years in accordance with CWC 10635(a) and allocations to its member agencies, are accounted for by CWA in its UWMP. In accordance with CWC 10635(b), CWA's projections in its 2020 UWMP for the District for demands for five consecutive dry years are addressed by the District's drought risk assessment as required by CWC 10635(b). The projected dry year demands for the District, and measures established for addressing dry year projections, are discussed in **Chapters 7** and **8** in this UWMP in accordance with CWC 10632(a).

2.5. POPULATION

2.5.1. Service Area Population

According to the most recent population figures from the Water Loss Audits and Electronic Annual Report, the District's current 2025 population is 35,500; however, this value has been used for these reports since at least 2023 and SWRCB, the Division of Drinking Water (DDW) Records as of 6/21/2019, and it is unclear how these values were determined. Therefore, the number of service connections multiplied by the average persons per connection (5.0) was used to more accurately represent the true service area population, as number of service connections has been more closely accounted for. The total number of service connections by sector is shown in **Table 6.3.**

The population has experienced stagnant growth from 2021 through 2025, which was even more stagnant from 2015 through 2020. **Table 2.4** lists the District's recent and current (2025) overall populations:

Table 2.5 Lakeside Water District Overall Population

Year	Population
2021	34,740
2022	34,825
2023	34,790
2024	35,310
2025	35,040

Table 2.4 shows the District's population climbing over time to 35,040 in 2025.

2.5.2. District Population Forecasts

The District currently (2025) serves 7,008 accounts, which multiplied by 5 (five) persons per connection, brings the population to 35,040. Population projections for the District's service area are estimated with little to no growth because the district area is 95% built out. The population within the District's service area is diverse across social, economic, and demographic factors that demonstrate a wide range of communities must be considered when policy changes are made by the District. Customer economic factors within the district range widely.

2.5.3. Adjusted Population Forecasts

Future service area populations can be determined based on the projected number of service connections multiplied by the average persons per connection (5.0). The District determined an average growth factor of fifteen (15) persons per connection per year. Then the projected number of service connections is multiplied by the average persons per connection (5.0) to determine the projected population, as shown in **Table 2.6**.

There is no industry in the District's service area and there are approximately 5 percent commercial and/or institutional accounts. The District does not anticipate any significant increases in employment for the area based on the land availability and the zoning. Densification will occur as single-family lots are converted to multi-family dwellings where it is allowed by zoning classification and the governing agency.

There is no major planned development in Lakeside that would impact water supplies. Growth in residential sectors may be added by development of existing vacant lands and by redevelopment, but the City does not foresee any major increase in population nor the supply needs.

Table 2.6 Lakeside Water District Service Area Projected Population

Year	Population
2025	35,040
2030	35,415
2035	35,790
2040	36,165
2045	36,540
2050	36,915

As the District does not expect to grow in size significantly, the District may not likely experience periodic spikes in the number of daytime or short-term residents.

2.6. WATER SYSTEM

A basic overview of the District's water system is provided herein. More information on the District's water sources, water treatment, and water demands can be found in **Sections 3 through 6** of this report. As this report is more of a water-resource-management planning document, it does not provide a great degree of technical or engineering detail on water system components.

2.6.1. Water System Background

Since its founding in 1924, the District' has owned and operated a water system that has served the District's developed areas within its main core. Due to the lengthy drought around 1935, the water system would not be able to supply the increasing demand. The District joined the San Diego Water Authority to divide the areas secured rights from the Colorado River.

The District's water distribution system is a Grade 4 system including 125 miles of water mains, 11 reservoir tanks with a total storage capacity of 14 million gallons, and 11 pumping stations.

The District also has two well fields. The Riverview well field has 4 wells which have been inactive since 2007 due to MTBE Contamination and high levels of total dissolved solids (salt). The Vine Street Well Field has 2 active wells that produce a total of 1,371 ac-ft per year or about 28% of Lakeside's usage.

2.6.2. District Water System Overview

Overall, the District's water system consists of the following components:

- Groundwater Wells
- Purified Water System
- Wellhead Treatment
- Water Distribution Pipeline Network
- Emergency Transfer Interties
- Water Storage Facilities
- Booster Pump Stations
- Imported Water Connections

The District distributes water to about 7,000 service connections through over a 125-mile network of distribution mains. The water system is divided into 7 main pressure zones (**Figure 2.3**) served by 11 pumping stations and 11 storage reservoirs, totaling 14 million gallons.

2.6.3. Recent Pipeline Replacement

According to the District's 2024 Annual Water Quality Report (5.2.5 District Standards), the District's crews completed 1,800 lineal feet of 6" cement pipeline replacement in 2024. The projects were located on Toyon Hills Drive and Woodside Ave. Toyon Hills Drive, in Eucalyptus Hills, involved replacing 60-year-old asbestos concrete pipe (ACP) with 8-inch PVC pipe. As residents in the area know, the District has experienced many pipeline failures over the past 15 years, and coupled with the inconvenience and associated system pressure problems and water quality concerns, the District implemented an aggressive replacement timeline to replace the pipe with District crews.

A second project accomplished with District crews was located on Woodside Avenue at Lakeside Middle School, and was required due to a County of San Diego street improvement project. This project realigned and lowered a mix of 4" ACP and 6" ACP, with 6-inch PVC pipe.

2.6.4. Groundwater and Imported Water

The District's sources of potable water supply are groundwater pumped from the Santee-El Monte basin and aquifer which is comprised of loose alluvial sediments that extend along the San Diego River Valley Basin and imported water from CWA (San Diego County Water Authority). The San Diego River Valley Basin is roughly 9,890 acres and is located in the eastern portion of the greater San Diego Metropolitan area. The local water generated from Vine Street Well Field has 2 active wells that have the capacity of 1,371 AFY (or 850 gpm) and 3,447 AF from the CWA during a normal year. The District owns and operates eight (8) production wells located in Vine Street Well Field and Riverview Well Field.

Lakeside Water District's Asset Management Plan 2024 provides information of current active groundwater wells. The District currently operates two active groundwater wells that range in production capacity from 230 to 350 gpm located in Vine Street Well Field. A third and fourth wells exist but are currently inactive because of high TDS (Total Dissolved Solids) and iron bacteria levels. There are four additional inactive wells located at the Riverview Well Field. The Management Plan indicates that the District has no plans to upgrade the six wells to active status at this time.

The District purchases water from CWA,

which buys certain percentage of amount from MWD. MWD imports water through the Colorado River Aqueduct and facilities of the State Water Project (SWP). The District currently imports treated potable water through the CWA 12” metered connection with Helix Water District’s 54” line at Channel Road through an 11.5 mgd maximum connection. The District also has two emergency connections to Padre Dam’s wholesale system and one emergency connection with Helix Water District on Melrose Street.

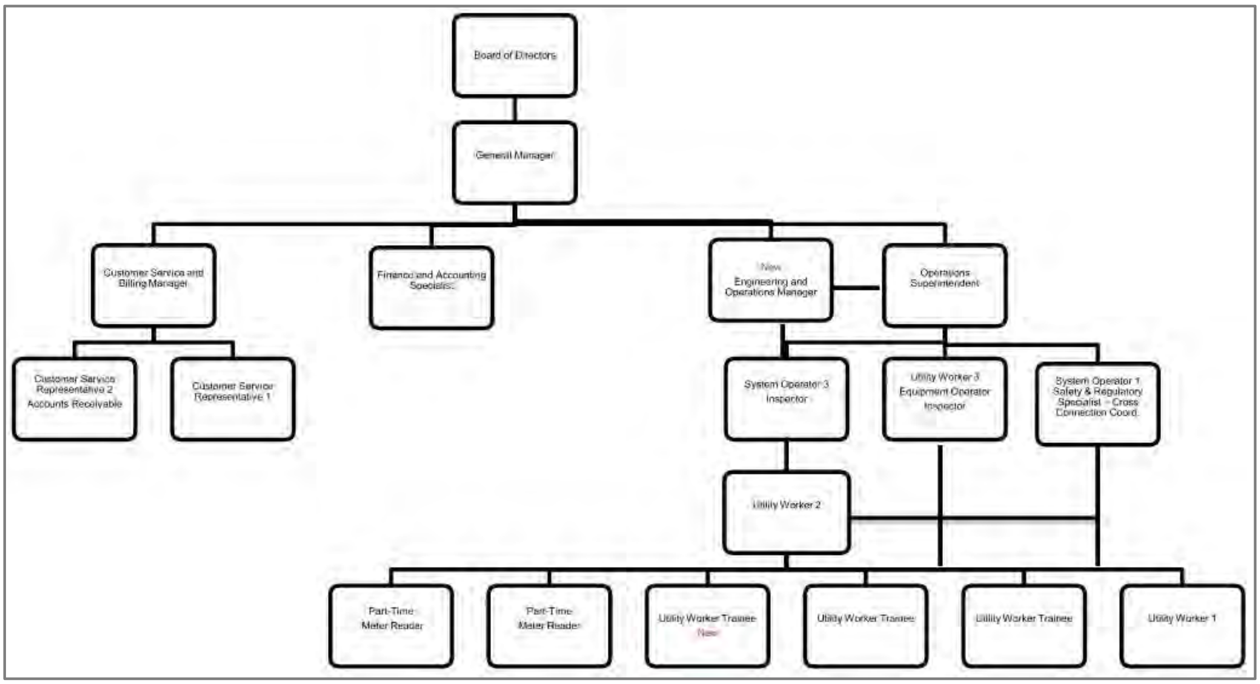

Figure 2.1 Lakeside Water District Organization Chart (2025)

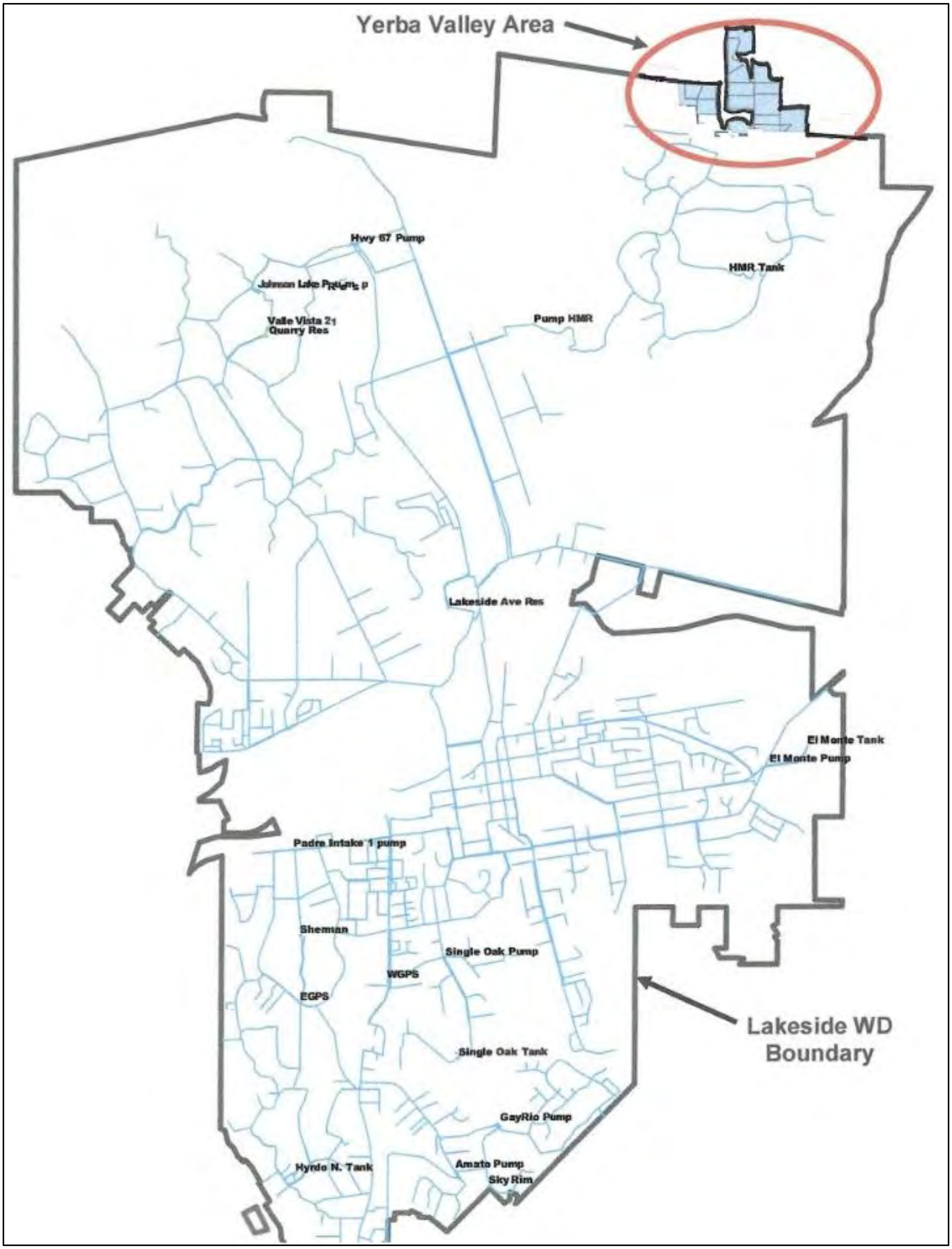

Figure 2.2 Lakeside Water District Service Area Map

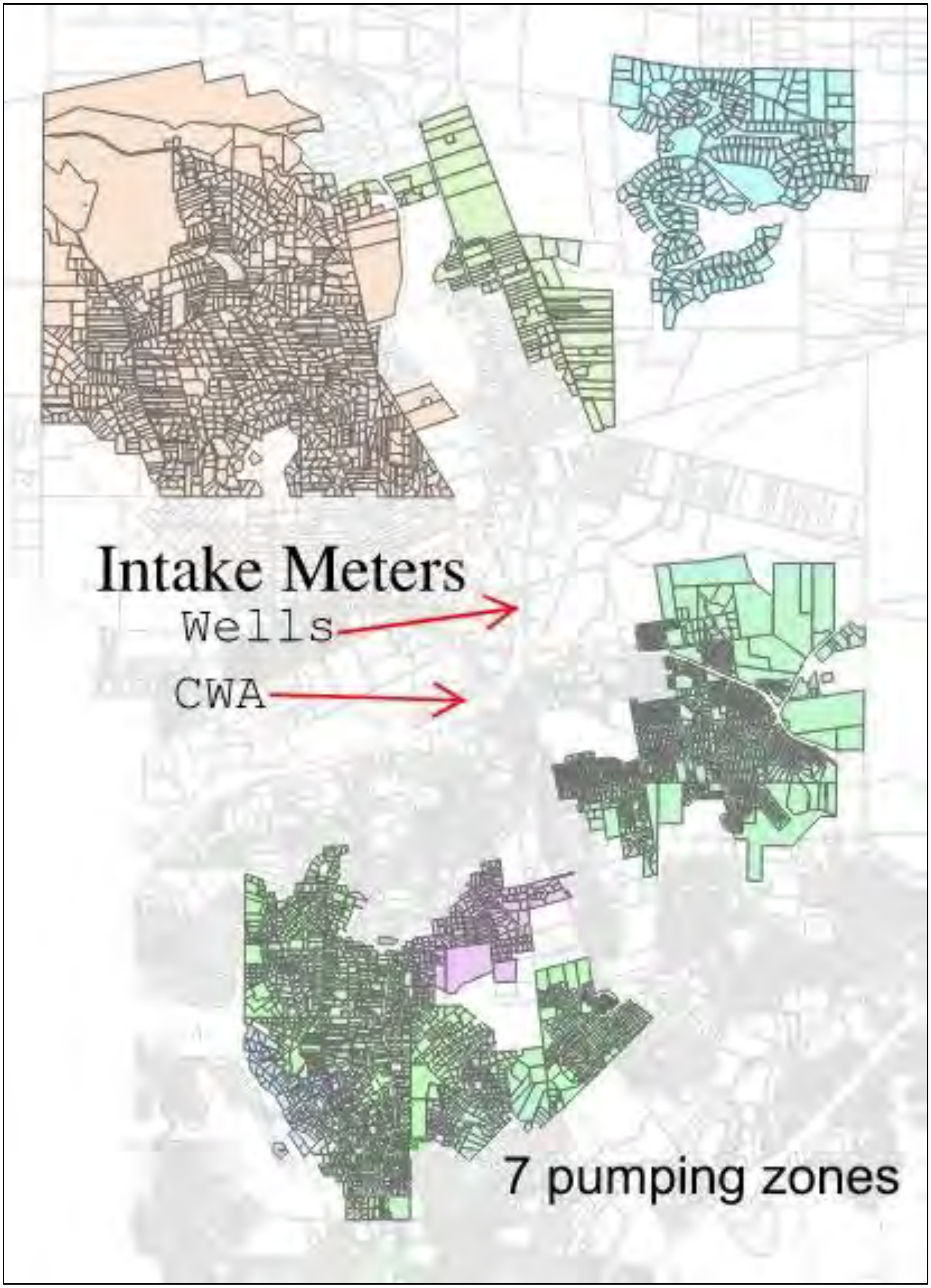

Figure 2.3 Lakeside Water District Pressure Zones

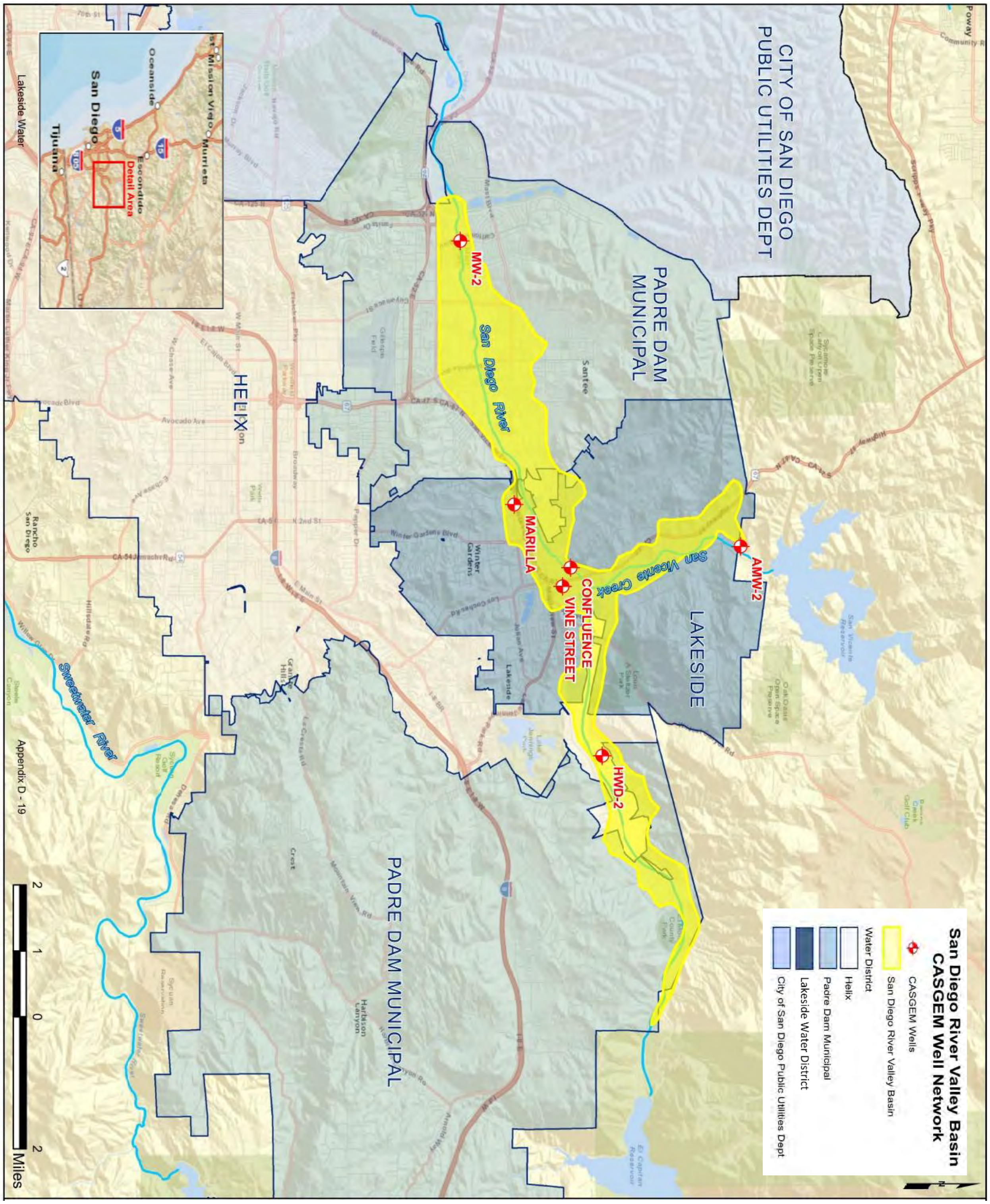

Figure 2.4 San Diego River Valley Basin CASGEM Well Network

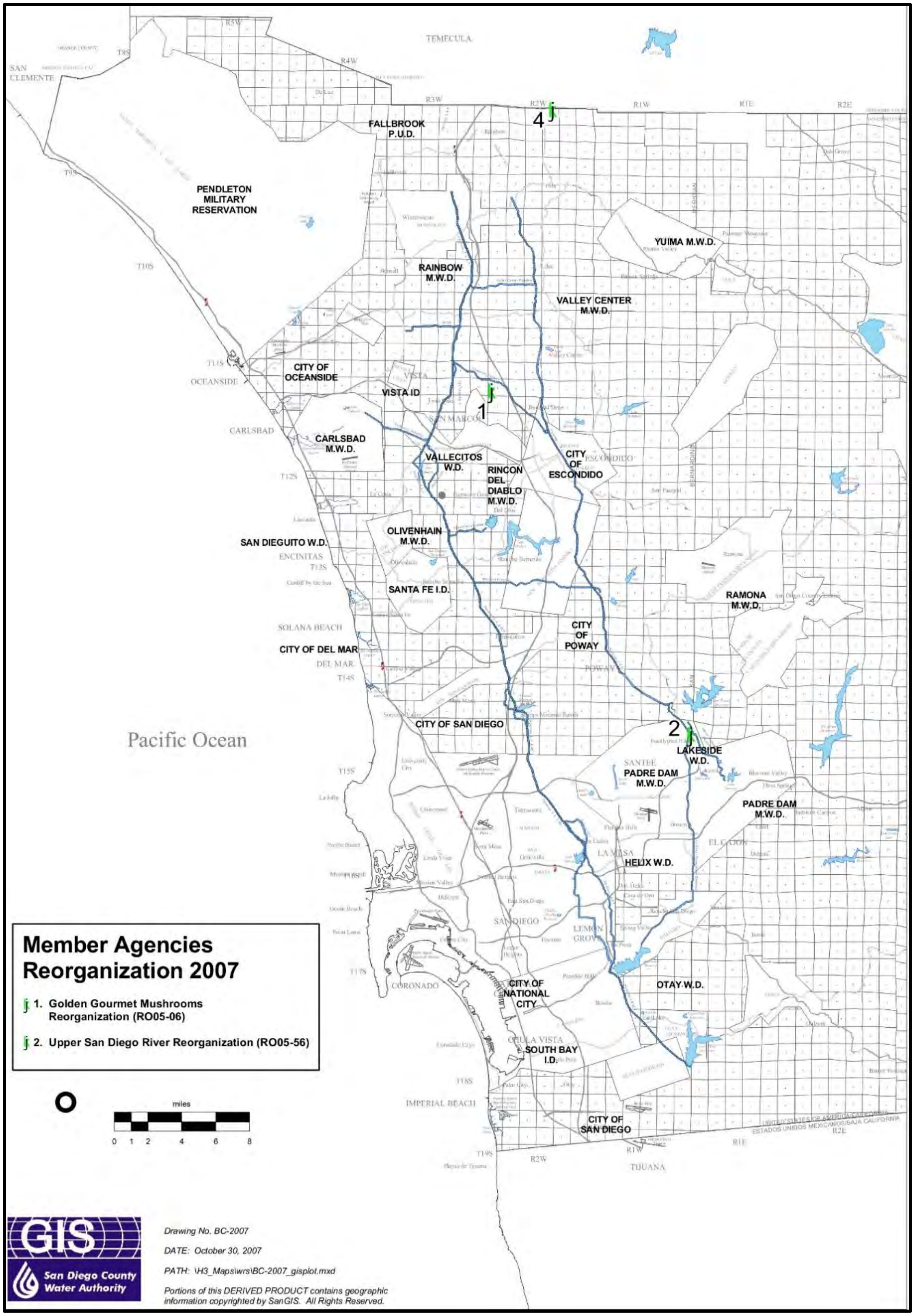

Figure 2.5 San Diego County Water Authority Member Agencies (October 30, 2007)

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Section 3: Water Sources and Supplies

Supplies consist of groundwater produced from the Santee-El Monte Basin and imported water from CWA.

3.1. INTRODUCTION

This Section describes the current and projected water resources available to the District over a 25-year period (from 2030 through 2050). This Section also provides some background information on the overall water supplies available to the region. The District's water supplies consist of groundwater produced from the Santee-El Monte Basin and imported water from the San Diego County Water Authority (CWA). The District purchased 90% of its water supply from CWA in 2025, which buys 57% from the Metropolitan Water District of Southern California (MWD). MWD imports water through the Colorado River Aqueduct (CRA) and facilities of the State Water Project (SWP). CWA imports 91 percent of the water used by county residents; the remaining 9 percent is from local sources, such as water recycling, groundwater, local runoff, and a desalinization plant. CWA also has transfer agreements with Imperial Valley Famers (IID transfer) 19% of water imported and the Quantification Settlement Agreement (QSA) transfer agreement for relining the All-American and Coachella Canals which is 15% of water imported. Critical issues in water resources planning, such as the County's rapidly growing population, limited storage capacity, water transmission facilities, uncertainties over water imported from northern California, and the loss of water imported from the Colorado River, are requiring CWA to develop long-range plans for meeting future water demands called the Supply Diversification Plan.

The District produced 10% of its water supply from local wells in 2025, pulling water from the Santee-El Monte Basin (Basin). The Vine Street well field has three wells, but only two are active, with a dual media package treatment plant for iron and manganese. The Riverview well field has four wells with an aeration treatment plant to remove MTBE, a gasoline additive, which was made inactive as of 2007.

3.2. IMPORTED WATER SOURCES

The District currently imports treated potable water through the CWA 12" metered connection with Helix Water District's 54" line at Channel Road through an 11.5 mgd maximum connection. The Helix Water District treats raw water, stored at Lake Jennings, at its Levy WTP, which is located just to the east of the District's boundary. The District also has two emergency connections to Padre Dam's wholesale system. They are located on Woodside Avenue, one 6" and one 10". There is also one 6" emergency connection with Helix Water District on Melrose Street.

In order to provide Southern California with imported water, MWD utilizes two separate aqueduct systems (one for each source of supply) to obtain its supplies. These two aqueduct systems convey water from each source into two separate reservoirs whereupon MWD pumps the water to one of its five treatment facilities. These aqueduct systems are known as CRA) and the California Aqueduct, also known as the State Water Project (SWP).

3.2.1. Colorado River Water Supply History

The Colorado River begins as far north as Wyoming, with multiple tributaries from seven States feeding the Colorado River's branch system. The watershed of the Colorado River encompasses 246,000 square miles, which is the seventh largest in North America. Most of the river's water source is produced during winter seasons, with snow above 5,000 feet and rainfall at lower elevations in the Rocky, Uinta, and Wind River Mountains. The snowmelt and rainfall occurring in and nearby these mountains are the primary origination or source point of the Colorado River's water.

Prior to the construction of major dams and canals, the Colorado River dumped about 16.3 million acre-feet (MAF), or 5.3 trillion gallons, of water into the Gulf of California on an annual basis. The river is also historically known to be very volatile, with summer flows, known for their flood potential, far surpassing winter flows by margins of over 50 to 1. Historically, this volatility was the cause of flooding concerns for the areas lying within the floodplain of the river.

Figure 3.1 Parker Dam at Colorado River

Figure 3.2 Colorado River Basin and Diversion Structure

3.2.2. Early Canal Systems

As mentioned in **Section 2**, the Colorado River was tapped as a source of supply in the early 1900s. The early canals were built mostly by and for private land owners in the Palo Verde Valley and the Imperial Valley, mainly for agricultural purposes. This included the Alamo Canal (also known as the Imperial Canal), which was the earliest major canal built from the Colorado River. Built in 1900-1901, the Alamo Canal connected the Colorado River to the head of the Alamo River, and supplied water to the Imperial Valley area just south of the Palo Verde Valley. In response to silt deposits that restricted flow capacity of the Alamo Canal, modifications were made to the Canal in 1904 to increase flow capacity.

Flooding of the Colorado River in the succeeding years occurred, and the improperly constructed improvements led to the river’s flows being diverted into the Canal, which then flowed into the Salton Sink and created the Salton Sea. The flooding was corrected and the Alamo Canal was modified in 1907 to prevent future incidents. Within a few years, the Imperial Valley farmers formed the Imperial Irrigation District to assume responsibility and control of the Alamo Canal, and plans for its replacement were soon underway.

3.2.3. Colorado River Water Rights

“Law of the River” (Water Rights)

The right to water from the Colorado River is governed by numerous compacts, state and federal laws, court decisions and decrees, contracts, and regulatory guidelines collectively known as the "Law of the River." These documents apportion the water and regulate the use and management of the Colorado River among the seven basin states and Mexico. A summary of the court decisions is as follows:

Colorado River Compact (1922):
An interstate agreement giving each basin perpetual rights to annual apportionments of 7.5 million acre-feet (MAF) of Colorado River water to the States of Arizona, California, and Nevada.

Boulder-Canyon Project Act (1928)
Further defined the lower basin's 7.5 MAF apportionment split, with an annual allocation of 2.8 MAF to Arizona, 4.4 MAF to California, and 0.3 MAF to Nevada.

CA Seven Party Agreement (1931)
Prioritized California water rights of 4.4 MAF, with agricultural entities using 3.85 MAF of that total. The remaining priorities are defined for years in which the Secretary declares that excess waters are available.

Arizona v. California (1964 & 1979)

The 1964 decision defined Arizona's rights to the Colorado River and paved the way for the Central Arizona Project. The 1979 decision addressed Present Perfected Rights (PPRs) previously mentioned in past agreements. These rights are entitlements essentially established under state law, and have priority over later contract entitlements.

CO River Basin Project Act (1968)
Authorized projects in both the upper and lower basins, including the Central Arizona Project (CAP) in 1968. The act made the priority of the CAP water supply subordinate to California's apportionment in times of shortage.

Quantification Settlement Agreement (2003)
The Quantification Settlement Agreement (QSA) settles disputes among the United States, the State of California, Imperial Irrigation District (IID), MWD, Coachella Valley Water District, and the San Diego County Water Authority (CWA). The agreements resolve, for a period of 35 to 75 years, issues regarding the reasonable and beneficial use of Colorado River water; the ability to conserve, transfer and acquire conserved Colorado River water; the quantification of Priorities 3 and 6 (*CA Seven Party Agreement*) within California for the use of Colorado River water; and the obligation to implement and fund environmental impact mitigation related to the above.

In short, the "Law of the River" and the more recent QSA provide the methods and the means to allow water rights holders to interact with one another and to elevate their water use to efficient 21st Century standards.

3.2.4. MWD'S Colorado River Rights

Water supply from the CRA continues to be a critical issue for Southern California as MWD competes with several agricultural water agencies in California for unused water rights to the Colorado River. Although California's allocation has been established at 4.4 MAF annually, MWD's allotment stands at 550,000 AFY with additional amounts increasing MWD's allotment to 842,000 AFY if there is any unused water from the agricultural agencies.

MWD recognizes that competition from other states and other agencies within California has decreased the CRA's supply reliability. In 2003, the Quantification Settlement Agreement (QSA) facilitated the transfer of water from agricultural agencies to urban uses. This historic agreement provides California the means to implement transfers and supply programs, which will allow California to live within the State's 4.4 MAF basic annual apportionment of Colorado River water.
Lake Mead, located on the Colorado River, is the largest reservoir in the United States. In

2015, it reached its lowest level since the 1930s when the reservoir first filled. As of March 30, 2026, the water level in Lake Mead measured 1,062.47 feet above mean sea level, which is 38 percent of capacity and only 11 feet above the level (1,075 feet) that would trigger a first-ever shortage declaration on the Colorado River.

3.2.5. BAY-DELTA

The District has access to imported water from the Sacramento-San Joaquin River Delta in Northern California through CWA. The Bay Delta water system provides Southern California agencies with over 1 million acre-feet (MAF) of water annually.

Figure 3.3 Bay Delta

The "Delta" is located at the confluence of the Sacramento and San Joaquin Rivers east of the San Francisco Bay and is the West Coast's largest estuary. The Delta supplies Southern California with over 1 MAF of water annually which has been significantly reduced in recent years.

The Delta is often considered the nexus of California's statewide water system. About half the total river flow in the State passes through this region, from which water is exported to the San Joaquin Valley, Southern California and portions of the Bay area to supply some 1,130,000 acres of farmland and 23 million people in central and Southern California. The Delta provides an estimated 7 million acre-feet (MAF) of water per year, of which about 100,000 AF are exported to the San Francisco Bay Area, 1.7 MAF are used locally, and over 5 MAF are exported to the San Joaquin Valley, coastal Central and Southern California via the State Water Project.

In past years, a planning effort to increase long-term supply reliability for both the State Water Project (SWP) and Central Valley Project (CVP) took place. This plan, formerly known as the Bay Delta Conservation Plan (BDCP), included co-equal goals to improve water supply reliability and restore the Delta ecosystem. In April 2015, state and federal agencies announced a new sub-alternative, California WaterFix and California EcoRestore, which replaced the proposed BDCP as the State's preferred project.

Figure 3.4 Sacramento-San Joaquin Bay Delta

However, plans for the California WaterFix did not gain support from Governor Newsom. In his speech to the state addressed in February 2019, Newsom announced that he did not "support WaterFix as currently configured," but does "support a single tunnel." As a result, in April of 2019, Governor Newsom issued Executive Order N-10-19, which announced a new single tunnel project known as the Delta Conveyance Project (DCP). Later that year, DWR initiated planning and environmental review for the DCP to protect the reliability of SWP supplies from the effects of climate change and seismic events, among other risks. DWR's current schedule for the DCP environmental planning and permitting extends to the end of 2024. DCP will potentially be operational in 2040 following extensive planning, permitting, and construction.

The Delta supplies Southern California with over 1 MAF of water annually

Ecosystem improvements and habitat restoration (California EcoRestore) more generally would be undertaken under a more phased approach than previously contemplated by the BDCP and would not be linked with the California WaterFix project or permits. Accelerated restoration actions totaling 30,000 acres of tidal marsh habitat were proposed to be undertaken in the coming decade to provide public benefits for listed fish in the Bay- Delta.

As of May 2020, 32 projects have been identified that restore more than the targeted 30,000 acres of habitat, including a projected 18,580 acres of floodplain, 14,000 acres of tidal habitat, 3,500 acres of non-tidal wetlands and 1,650 acres of riparian and upland habitat. To date, 12 projects have been completed, four more are under construction, and the remaining 16 projects are planned to begin construction by 2021.

3.2.6. State Water Project (Aqueduct)

The California State Water Project is a water storage and delivery system of reservoirs, aqueducts, power-plants and pumping plants. Its main purpose is to store water and distribute it to 29 urban and agricultural water suppliers in Northern California, the San Francisco Bay Area, the San Joaquin Valley, the Central Coast, and Southern California. Of the contracted water supply, 70 percent goes to urban users and 30 percent goes to agriculture.

The State Water Project or "SWP" is a result of decades of planning and construction dating back to the 1940s.

In 1947, the California State Legislature funded a water resources investigation that

Figure 3.5 Aqueduct Systems in California

Figure 3.6 State Water Project

led to the development of the State Water Project (SWP). This investigation resulted in the publication of the California Water Plan, which presented preliminary plans to meet the State's ultimate water needs, including those facility works required for transferring surplus water from northern California to southern California. Financing for the construction of SWP facilities was authorized in 1959, when the State Legislature enacted the California Water Resources Development Act (known as the Burns-Porter Act). The Burns-Porter Act, formally known as the California Water Resources Development Bond Act, was placed on the November 1960 ballot. Also known as Proposition One, the initial works included Oroville Dam and Lake Oroville, B.F. Sisk Dam (also known as San Luis Dam) and San Luis Reservoir, the South Bay Aqueduct, the North Bay Aqueduct, and the California Aqueduct. Construction on the Oroville site actually began even before the passage of the Burns-Porter Act. A $25 million emergency appropriation was passed in 1957 after a record late 1955-early 1956 flood, which devastated Northern and Central California. Statewide, 64 deaths were recorded, most in Sutter County and Yuba City, and more than $200 million of property damage.

The first SWP water deliveries were made in 1962, two years after construction began The State of California Department of Water Resources (DWR) and MWD signed the first water supply contract in 1960. Today 29 agencies have long-term water supply contracts with DWR. The service areas of these long-term water supply contractors vary widely in size, location, climate, and population. The contractors' uses for SWP water also differ. In the San Joaquin Valley, SWP water is used primarily for agriculture. In Southern California, SWP water is used primarily for urban and industrial needs.

Today, the SWP includes 34 storage facilities, reservoirs and lakes; 20 pumping plants; 4 pumping-generating plants; 5 hydroelectric power plants; and about 701 miles of open canals and pipelines. The SWP is owned and managed by DWR.

3.3. IMPORTED WATER PURCHASES

Table 3.1 presents the District's recent imported water purchases from FMWD for years 2021 to 2025 and compares them to years 2015 to 2020.

Table 3.1 Imported Water Supply

Year	Purchases (AF)
2021	1,987
2022	1,636
2023	1,457
2024	1,446
2025	1,602
Average:	**1,626**
2015 – 2020 Avg. (2020 UWMP)	**1,992**

3.4. GROUNDWATER SOURCES

The District averages 20% of its water supply from local wells and proactively meets all groundwater management standards. There is currently not a groundwater management plan and the basin is not adjudicated. The District is one of four agencies that have formed a voluntary cooperative groundwater monitoring association that complies with the Department of Water Resources "California Statewide Groundwater Elevation Monitoring" (CASGEM) program for the San Diego River Valley basin. The CASGEM voluntary program has been established in accordance with California State Senate Bill x7-6 that amended the State Water Code and mandates a statewide groundwater elevation monitoring program to track seasonal and long-term trends in groundwater elevation in California's groundwater basins. The intent of the CASGEM program is to establish a permanent, locally-managed program of regular and systematic monitoring in all of California's groundwater basins. The goal is to determine that the basins are sustainably managed and operated. The CASGEM report is in **Appendix J.**

The District's well field on Vine Street has three wells with a package dual media treatment plant for iron and manganese that produced 593 acft in fiscal year 2020. The Riverview well field was made inactive in 2007 and is off of Highway 67 between Wintergardens Blvd. and Riverford Ave. It has four wells with an aeration treatment plant to remove MTBE, a gasoline additive. This well field's production was considerably lower when compared to the other well field and also contains high levels of total dissolved solids and nitrates. Table 4-1 quantifies the historical amount of local groundwater pumped by the District. The District has estimated pumping 900 acre feet per year in the future.

3.4.1. Santee-El Monte Aquifer

The primary aquifer within the District's service area is the Santee-El Monte aquifer. This aquifer is comprised of loose alluvial sediments that extend along the San Diego River and major tributaries. The Santee-El Monte Alluvial Aquifer provides significant groundwater storage capacity, and has excellent recharge characteristics which has not been identified as over drafted nor projected to become over drafted. Well yields within the Santee-El Monte Alluvial Aquifer are good (typically on the order of hundreds of gallons per minute). The Santee-El Monte alluvial groundwater aquifer covers an area of approximately 4,600 acres. The aquifer stretches approximately 11 miles along the San Diego River from the eastern portion of the community of Lakeside to the western portions of the City of Santee.

The Santee-El Monte Basin consists of three distinct sub basins. The Santee Sub basin comprises the western half of the basin, and extends along the broad San Diego River flood plain downstream from the intersection of San Vicente Creek and the San Diego River. The Moreno Valley sub basin extends downstream from San Vicente Reservoir to the San Diego River. The El Monte Sub basin comprises the eastern portion of the Santee-El Monte Basin. The El Monte Sub basin is situated in the relatively narrow river valley along the San Diego River upstream from the river's confluence with San Vicente Creek.

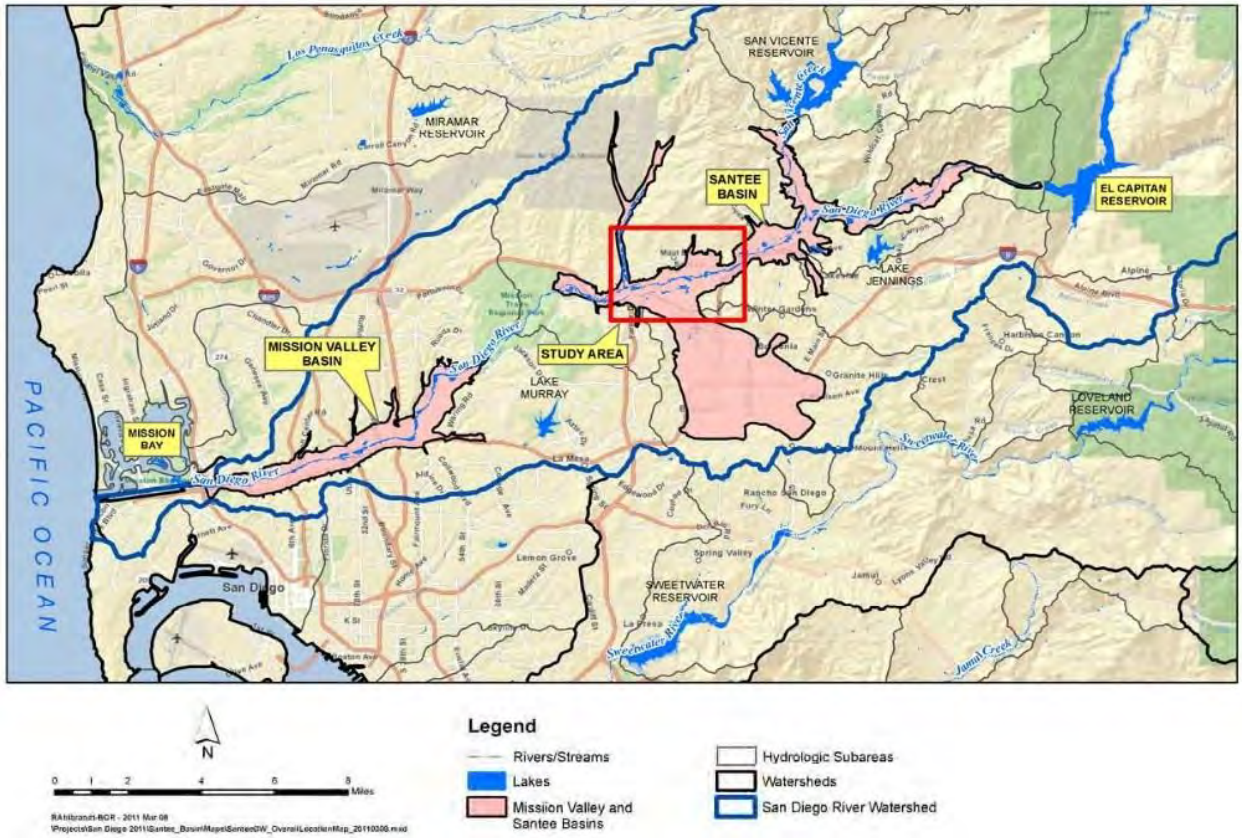


Figure 3.7 Santee-El Monte Basin (Santee Basin Aquifer Recharge Study, 2011)

3.4.2. Hydrogeology and Water Use

Table 3.2 summarizes hydro geologic parameters for the three sub basins that comprise the Santee-El Monte Alluvial Aquifer. As shown in the table, hydro geologic conditions vary widely within the three sub basins. In general, however, groundwater storage coefficients, hydraulic conductivities, and well yields are higher in the upstream reaches of the basin.

Past studies have reported a wide range of estimates for the groundwater storage capacity of the overall basin. (These estimates range from approximately 50,000 acre-feet (AF) to 100,000 AF.) The best available information, however, indicates that overall combined storage in the three sub basins of the Santee-El Monte Alluvial Aquifer is on the order of 70,000 AF. Hydraulic conductivity values in the sub basins (as reported in past studies) range from approximately 25 feet per day to 125 feet per day.

Streamflow infiltration comprises the dominant source of recharge within the Santee-El Monte Basin. Much of this streamflow infiltration recharge is believed to occur in the El Monte Subbasin. Because of limited groundwater pumping within the

Moreno and Santee Subbasins, these subbasins typically remain filled or nearly filled with groundwater. Thus, while the potential for significant streamflow infiltration exists within the Moreno and Santee Subbasins, streamflow infiltration is typically limited by a lack of available groundwater basin capacity.

Infiltration from agricultural and urban surface runoff also is a key component of groundwater recharge within the overall Santee-El Monte Alluvial Aquifer. Infiltrating applied waters, infiltrating precipitation, septic tank discharges, and subsurface inflow also contribute to groundwater recharge within the Santee-El Monte Alluvial Aquifer.

The Clean Water Program for Greater San Diego (1990) and NBS/Lowry (1995) conducted detailed well surveys of the Santee-El Monte Basin. These surveys show that groundwater use within the Santee Subbasin has decreased substantially within the past several decades (probably due to water quality limitations). While more than 20 historic wells existed within the Santee Subbasin, only a few wells remain active. Current groundwater use within the Santee Subbasin is on the order of several hundred acre-feet per year. The surveys report that many wells (over 20) are still active within the Moreno subbasin. Total existing groundwater use within the Moreno subbasin was estimated to be on the order of approximately 200 AFY.

A significant majority of the overall groundwater use within the Santee-El Monte Basin, however, occurs within the El Monte Subbasin. A total of more than 50 active irrigation and domestic wells exist within this basin. Total pumping within the El Monte Basin is estimated at approximately 4,000 AFY (NBS/Lowry, 1995). Groundwater users include private landowners and public entities. The District develops approximately 1,000 AFY of supply from the basin (Welch & CWA, 1997).

3.4.3. Basin Water Balance

Streamflow infiltration represents a key source of recharge to the Santee-El Monte Alluvial Aquifer. Infiltrating storm and urban runoff, percolating precipitation, percolating applied waters, septic tank discharges, and groundwater inflow from adjoining aquifers provide additional recharge to the aquifer. Once recharged to the basin, groundwater may exit the basin through groundwater pumping, withdrawal by phreatophytes (deep-rooted vegetation), surfacing groundwater, and subsurface outflow.

The quantity of basin recharge and discharge varies with hydrologic conditions, changes in land use, and changes in local water use. While depths to groundwater fluctuate in response to these factors, over a long period of time, overall basin and recharge and discharge are balanced. The recharge and discharge terms of this balance offer insight to appropriate strategies for developing additional water supply within the basin. Overall water balance estimates for the Santee-El Monte Basin have been presented in several previous studies, including DMJM and Lowry & Associates (1978), USGS (1985), NBS/Lowry (1994) and Bundy/Huntley/SDSU (2001). Differences exist between the studies in the manner in which individual recharge/discharge terms are defined and estimated. Even taking these differences into account, however, water balances presented in previous studies demonstrate that excess recharge capacity exists within the Santee-El Monte basin. (That is to say, increased pumping within the basin results in increased streamflow infiltration.)

Using information from these past studies to develop a water balance concluded that current long-term streamflow infiltration totals within the Santee-El Monte Basin are limited by the fact that the basins are typically too "full" to accept infiltrating streamflows. As a result, streamflow that would normally infiltrate into the basin flows out to the ocean.

3.4.4. Demonstration of Consistency with Delta Plan

The District, the San Diego County Water Authority (CWA), and Metropolitan Water District of Southern California (MWD) are all acting to reduce dependence on the Sacramento-San Joaquin Delta. In addition to the various demand management measures discussed in Chapter 9 of this UWMP, Helix Water District is pursuing an advanced water purification program in a joint effort with Padre Dam Municipal Water District, the City of El Cajon, and the County of San Diego in order to develop a program that will yield a drought-proof local supply of potable water. This program is described in detail in Chapter 6 of this UWMP. As noted in Chapter 6, the District projects that as much as 28.6 percent of its future supplies will be from new, locally sustainable sources that would significantly reduce the District's reliance on the Delta. Additional information is available at Appendix J of CWA's 2020 UWMP, and Appendix 11 of MWD's 2020 UWMP to address this requirement.

3.4.5. Development of Desalinated Water

The District's wholesale water supplier, CWA, has developed a desalinated water supply. It is expected to provide 8% of the region's supply by the year 2020. Additional detail may be found in CWA's 2020 UWMP. The District does not have a desalination opportunity.

3.4.6. Energy Intensity

Beginning in its 2020 UWMP update, the District is required to report information that could be used to quantify or calculate the energy intensity of its water services. The information is limited to that which is readily reportable or obtainable by the District. Based on available data from power bills (individual service meters at the District's facilities), the District is able to report energy consumption. Per DWR's reporting table, 1,520,791 kwh and 3472 AF, the District's energy intensity for its water management process is approximately 438 kilowatt hour per AF.

Table 3.2 Summary of Hydro geologic Characteristics
Santee-El Monte Alluvial Aquifer

Parameter	Santee Subbasin	Moreno Subbasin	El Monte Subbasin
Principal Surface Watercourse	San Diego River	San Vicente Creek	San Diego River
Location	Santee	Moreno Valley	Lakeside
Basin Length [1]	6 miles	2 miles	5 miles
Average Basin Width [1]	4,500 feet	2,000 feet	2,500 feet
Basin Elevation [1]	300 - 400 feet MSL[2]	400-500 ft MSL[2]	400 - 800 ft MSL[2]
Primary Aquifer Type [3]	Unconfined alluvium	Unconfined alluvium	Unconfined alluvium
Aquifer Composition [3]	Medium to coarse grained sand, and gravel	Medium to coarse grained sand and gravel	Medium to coarse grained sand and gravel
TDS [4]	800-2500 mg/L	500 - 800 mg/L	300 - 800 mg/L
Hydraulic Conductivity [4,]	25 - 100 ft/day 50 ft/day average	25-125 ft/day 75 ft/day average	50-125 ft/day 100 ft/day average
Specific Yield [4]	5 percent-20 percent range 13 percent average	5 percent-22 percent range 13 percent average	10 percent-22 percent range 15 percent average
Average Basin Hydraulic Gradient [1]	0.003 ft/ft	0.009 ft/ft	0.015 ft/ft
Estimated Basin Storage [4]	30,000-50,000 AF	5,000-8,000 AF	20,000-30,000 AF
Aquifer Thickness [4]	200 feet maximum 100 feet average	150 feet maximum 100 feet average	200 feet maximum 100 feet average
Current Estimated Pumping [4]	400 AFY [5]	200 AFY [5]	4,000 AFY [5]
Approximate Well Pumping Capacity[4,6]	200 - 1000 gpm	200 - 1000 gpm	800 - 1600 gpm
Areas of Greatest Surface Infiltration [4]	Along the San Diego river channel	Upper reaches of basin; along San Vicente Creek channel	Along San Diego River channel

1 Measured or estimated from USGS topographic maps for the El Cajon, San Vicente, and Alpine quads.
2 Elevations listed in feet above mean sea level (MSL).
3 From USGS (1985) and NBS/Lowry (1995).
4 Estimate based on information presented in State of California Department of Water Resources (1984), USGS (1985), SDCWA (1987), Luke-Dudek (1987), Clean Water Program for Greater San Diego (1990), NBS/Lowry (1995), and Welch & SDCWA (1997). In general, storage coefficients and hydraulic conductivity are higher in the upstream (El Monte and San Vicente) subbasins. Highest well yields occur in the El Monte Subbasin.
5 Estimate based on well surveys conducted by Clean Water Program for Greater San Diego (1990) and NBS/Lowry (1995).
6 Based on large-diameter irrigation wells. Maximum pumping rates from small diameter private domestic wells within the subbasins may be on the order of 100 (gallons per minute) gpm or less. (See NBS/Lowry (1995).

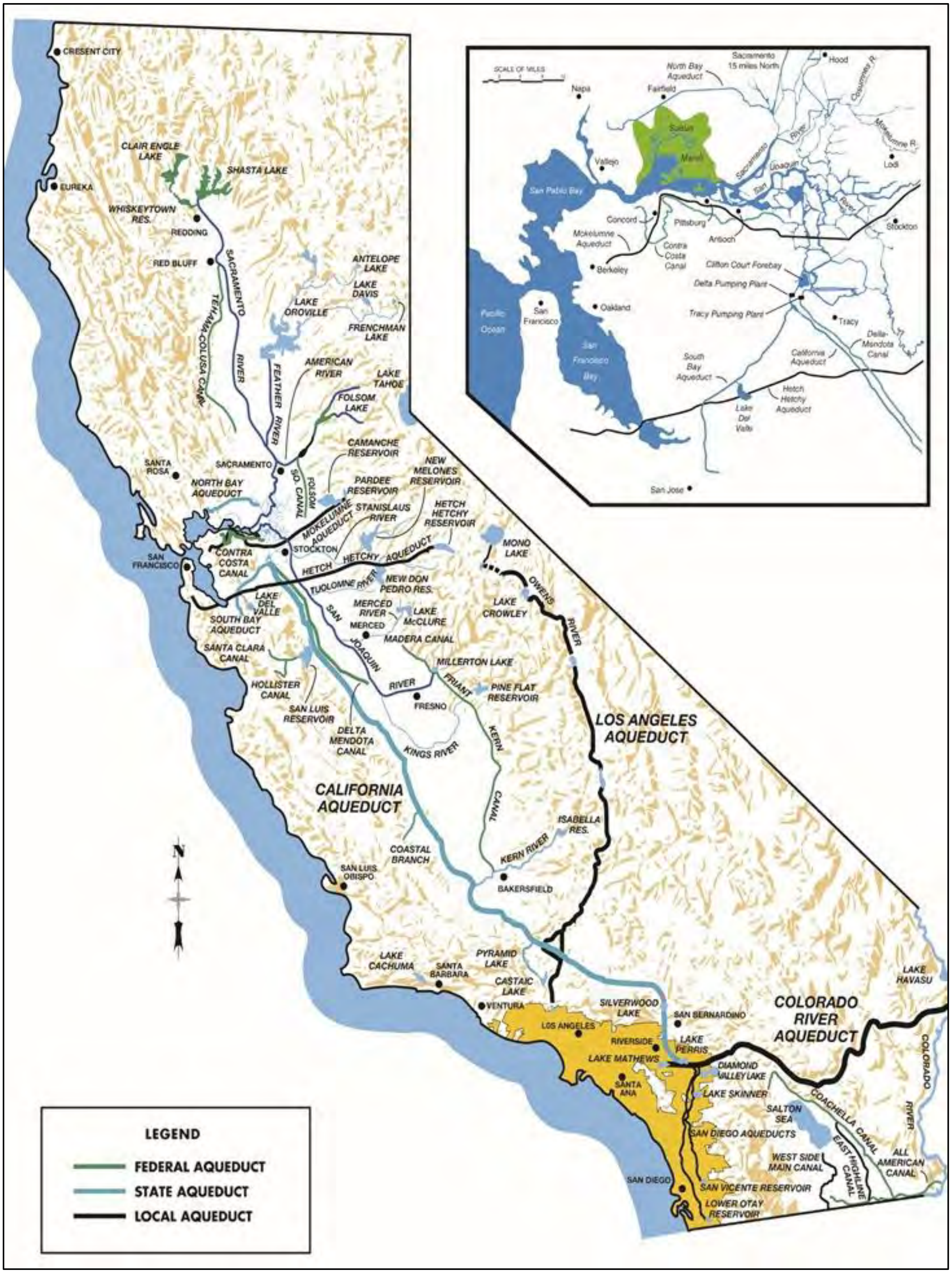


Figure 3.8 Santee-El Monte Basin

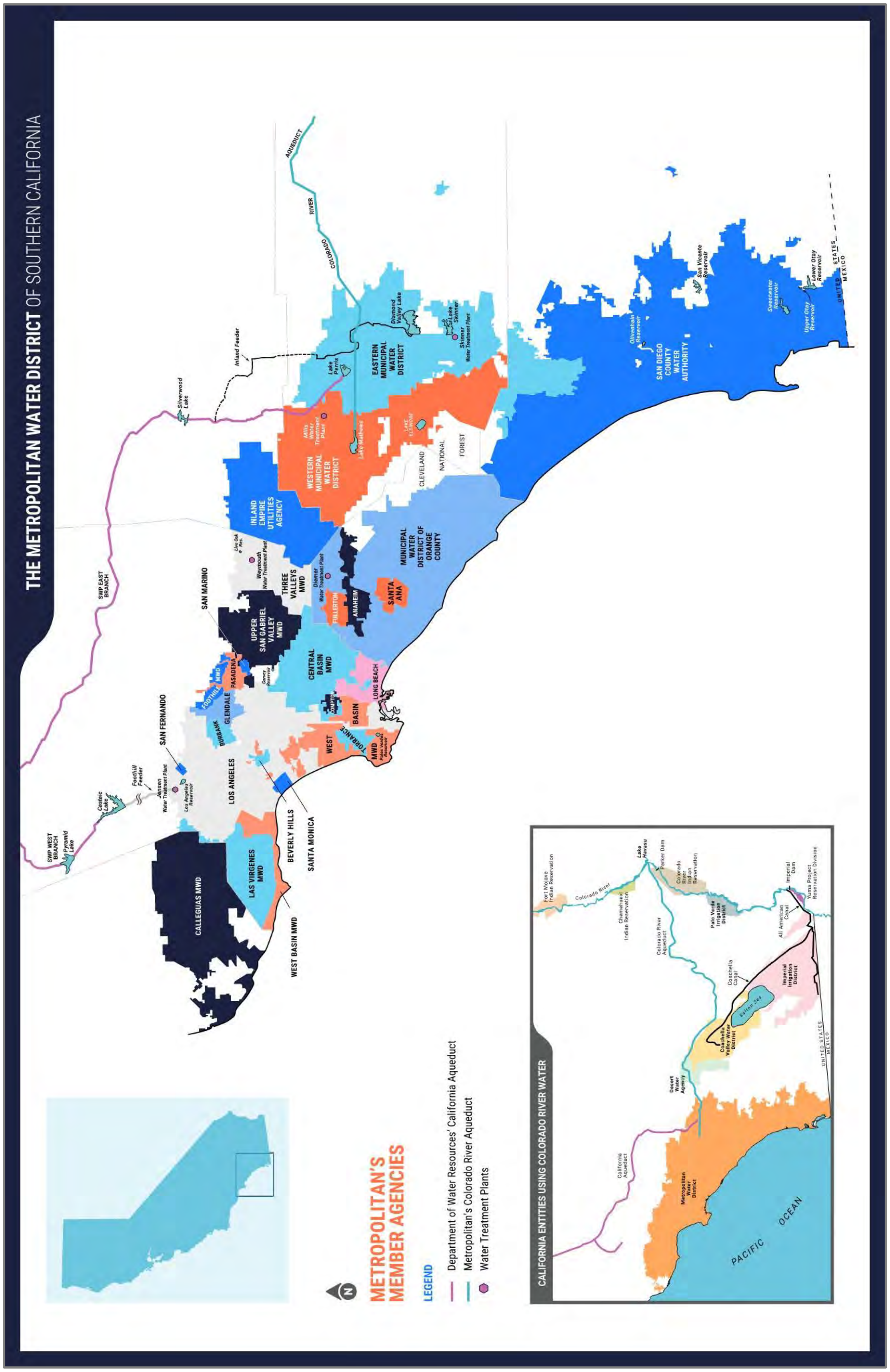


Figure 3.9 MWD Service Area Map

3.5. GROUNDWATER PRODUCTION

All wells within the District's service area are equipped with a flowmeter to measure water production. Water production is recorded monthly by District staff and reported annually to DWR. Over the past five years of operation, groundwater extraction has averaged 303 AFY. **Table 3.2** displays the District's groundwater supplies for years 2021 to 2025.

Table 3.3 Overall Groundwater Production

Year	Production (AF)
2021	404
2022	309
2023	256
2024	187
2025	358
Average:	**303**
2015 – 2020 Avg. (2020 UWMP)	**760**

As can be seen from the amounts shown above, overall water production has not changed from 2021 to 2025, although greatly decreased from the average produced from 2015 to 2020. This is most likely a result of the Riverview well field being inactive.

3.5.1. Groundwater Production Capacity

The District well field on Vine Street has three wells, with one offline, with a package dual media treatment plant for iron and manganese. The Riverview well field was made inactive in 2007 and is off of Highway 67 between Wintergardens Blvd. and Riverford Ave. It has four wells with an aeration treatment plant to remove MTBE, a gasoline additive. This well field's production was considerably lower when compared to the other well field and also contains high levels of total dissolved solids and nitrates. **Table 3.3** quantifies the historical amount of local groundwater pumped by The District.

3.6. PROJECTED WATER SUPPLIES

Based on MWD's supply projections that it will be able to meet full service demands under all three hydrologic scenarios, CWA, the District's wholesale supplier, concludes that it would also be able to meet the demands of its retail agencies under these conditions.

CWC section 10631(k) requires the wholesale agency to provide information to the urban retail water supplier for inclusion in its UWMP which identifies and quantifies the existing and planned sources of water available from the wholesale agency. **Table 3.3** indicates the wholesaler's water availability projections by source for the next 25 years as provided to District by CWA.

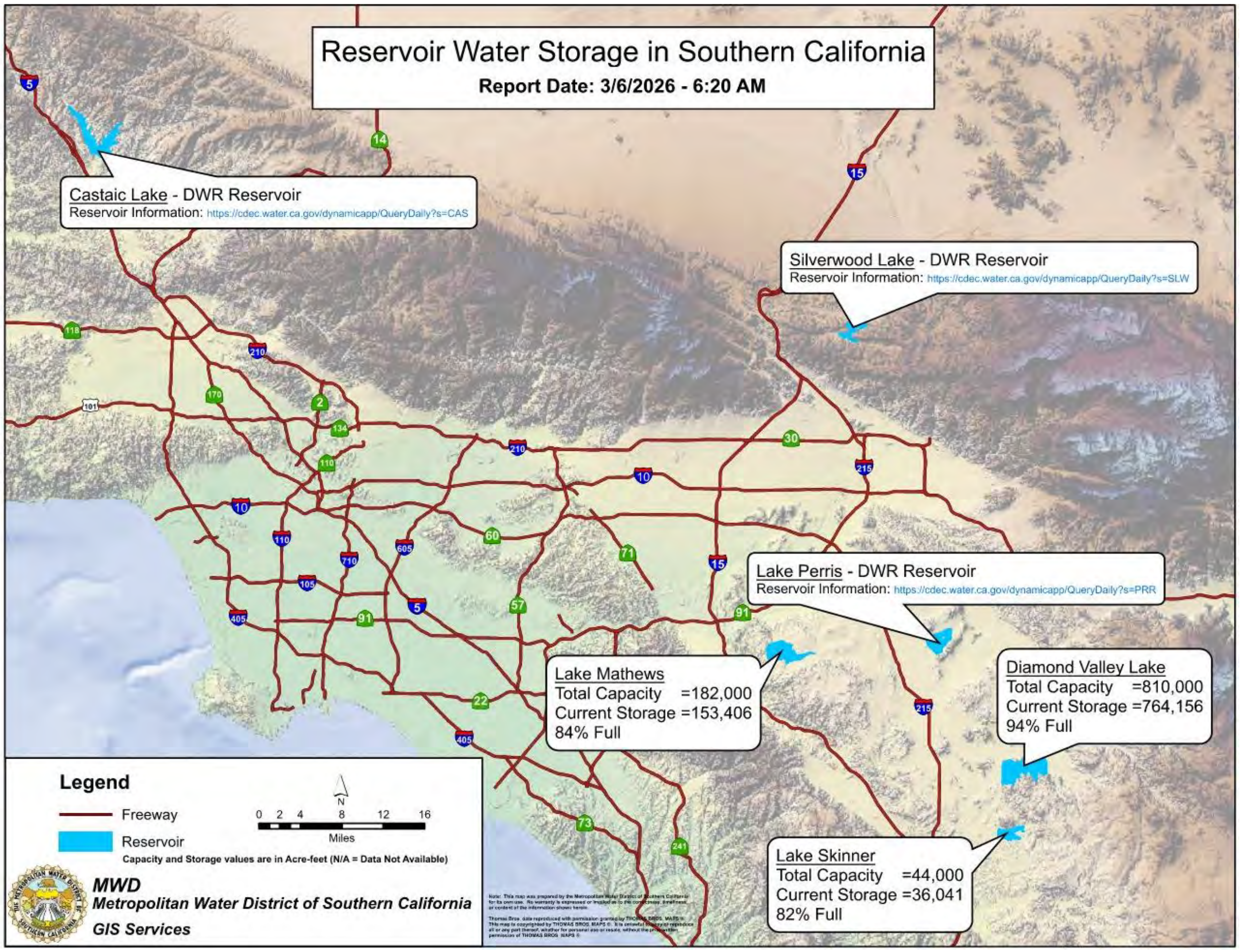


Figure 3.10 MWD Reservoir Levels (March 2026)

In addition to imported water supply availability, **Table 3.3** also shows the adjudicated amount of groundwater supply available to the District over the next 25 years. In the past, various problems with the District's wells have hindered the amount that is able to be pumped. This is a contributing factor to District's intention to embark on a well rehabilitation and development plan to increase reliance on local supplies over imported sources.

3.7. RELIABILITY OF SUPPLIES

The reliability of water supplies with regard to regular threats to reliability, including droughts and competition for supplies, is discussed in detail in **Section 7**. The reliability of supplies with regard to irregular threats to reliability, including catastrophic events or emergencies (earthquake/power outage) is discussed in **Section 8**.

4

Section 4: Recycled Water Opportunities

Recycled water use has increased overall water supply reliability for CWA.

4.1. OVERVIEW

Recycled water is defined as domestic wastewater purified through primary, secondary and tertiary treatment. The Southern California region, from Ventura County to San Diego County, discharges over 1 billion gallons of treated wastewater to the ocean each day. Since recycled water is acceptable for a variety of non-potable water purposes such as irrigation, groundwater recharge, and commercial/industrial processes, it is considered a reliable and drought-proof water source and could greatly reduce the region's reliance on imported water. As technological improvements continue to reduce treatment costs, and as public perception and acceptance continue to improve, more reuse opportunities should develop, which will increase demands for recycled water. Recycled water is a critical part of the California water picture because of the area's high likelihood of drought. As part of its overall water resources planning, the District continues to investigate the feasibility and cost-effectiveness of using recycled water.

Cost-effective opportunities for using recycled water are limited due to the lack of large users or large irrigated areas within the District's service area, especially when considering the large costs for developing and operating treatment facilities and distribution system. In addition, there is presently a possible source from Padre Dam Municipal Water District (Padre Dam), but no infrastructure is available within the District's service area. This potential use of recycled water is continually assessed by the District.

This Section describes the existing and future recycled water opportunities available to the District. The section also includes estimates of potential recycled water supply and recycled water demand from 2030 through 2050 in five-year increments.

4.2. WASTEWATER COLLECTION SYSTEM

Wastewater collection, treatment and disposal or reclamation services within the District's boundaries are performed by separate and unrelated agencies. Most of which is the San Diego County Sanitation District (**Figure 4.2**), with a small portion being served by the Padre Dam Municipal Water District (Padre Dam), and the remaining customers on septic. Municipal wastewater is generated in the District's service area from a combination of residential, commercial, and industrial sources. Although the water and sewer service areas are slightly different, the quantities of wastewater generated are generally proportional to the population and the water used within the service area. It is estimated that customers within the District's service area generate wastewater based on 80 percent of potable water demand, although that is not a strict figure.

4.2.1. Wastewater Treatment

For over 50 years Padre Dam has utilized the Ray Stoyer Water Recycling Facility to treat wastewater to tertiary recycled water standards. In its 2020 UWMP, Padre Dam reported 1,856 AF of treated wastewater in 2020 at this facility. However, the Ray Stoyer Water Recycling Facility was decommissioned on April 8, 2026, and will be replaced with the East County Advanced Water Purification Program (East County AWP). East County AWP is a collaborative effort with Padre Dam, county of San Diego, City of El Cajon and Helix Water District to purify East San Diego County's recycled water to produce up to 30% of East San Diego County's drinking water supply. East County AWP includes construction of a new water recycling facility to recycle wastewater from the cities of Santee and El Cajon and the communities of Lakeside, Winter Gardens and Alpine (**Figure 4.3**).

Figure 4.1 Installation of Large-Diameter Pipe for New Chet Harritt Pump Station

At the newly constructed East County Advanced Water Purification Facility, the recycled water produced will go through a four-step advanced treatment process:

1. Membrane Filtration
2. Reverse Osmosis
3. Ultra Violet/Advanced Oxidation
4. Free Chlorine Disinfection

The purified water will be transferred through a 10-mile pipeline to Lake Jennings. There the purified water will be added to the lake with water from the Colorado River and Lake Cuyamaca. According to regulations, the water must be stored in a lake or aquifer before it is distributed to customers. Helix Water District treats the water in Lake Jennings at the district's R.M. Levy Water Treatment Plant. It's then distributed to homes and businesses in the cities of La Mesa, Lemon Grove, and El Cajon, the Spring Valley community, and unincorporated areas of the county. The purified water from the East County AWP will provide up to 30% of Helix Water District's water supply.

4.3. RECYCLED WATER

Currently, no recycled water infrastructure exists within the District's service area. Further, the District does not use any recycled water produced by any other agencies. Thus, no wastewater is recycled within the District's service boundary, as **Table 4.1** indicates:

Table 4.1 Recycled Water Production and/or Use

Year	Recycled Water Produced or Used (AF)
2016	0
2017	0
2018	0
2019	0
2020	0

As projected in the District's 2020 UWMP, no recycled water was produced or used in the last five years.

4.3.1. Projected Recycled Water Use

As indicated in the previous section, the District neither produces itself nor uses recycled water produced by any other agencies within its service area, although the adjacent Padre Dam producers recycled water. Also, the District does not anticipate the production or use of recycled water for the foreseeable future, due to financial reasons. Recycled water infrastructure costs (pipelines and WWTP improvements) could be as high as $500 per AF of water (conservative ballpark estimate). The District would then have to sell the water at a price above that amount to make a return on its investment. Compared to the District's cost to produce and treat groundwater, it would simply be too costly to construct and maintain recycled water infrastructure. Thus, the District projects no recycled water production and/or use for the current UWMP planning period (through 2050), as shown in **Table 4.2** below:

Table 4.2 Projected Recycled Water Production and/or Use

Year	Recycled Water Production/Use (AF)
2025	0
2030	0
2035	0
2040	0
2045	0

4.3.2. Planned Recycled Water Infrastructure

There are no planned recycled water improvements that are projected to be constructed within the District's service area within this UWMP planning period (2050). However, as the adjacent Padre Dam producers recycled water the district may further look into utilizing some of this within its service area in the future.

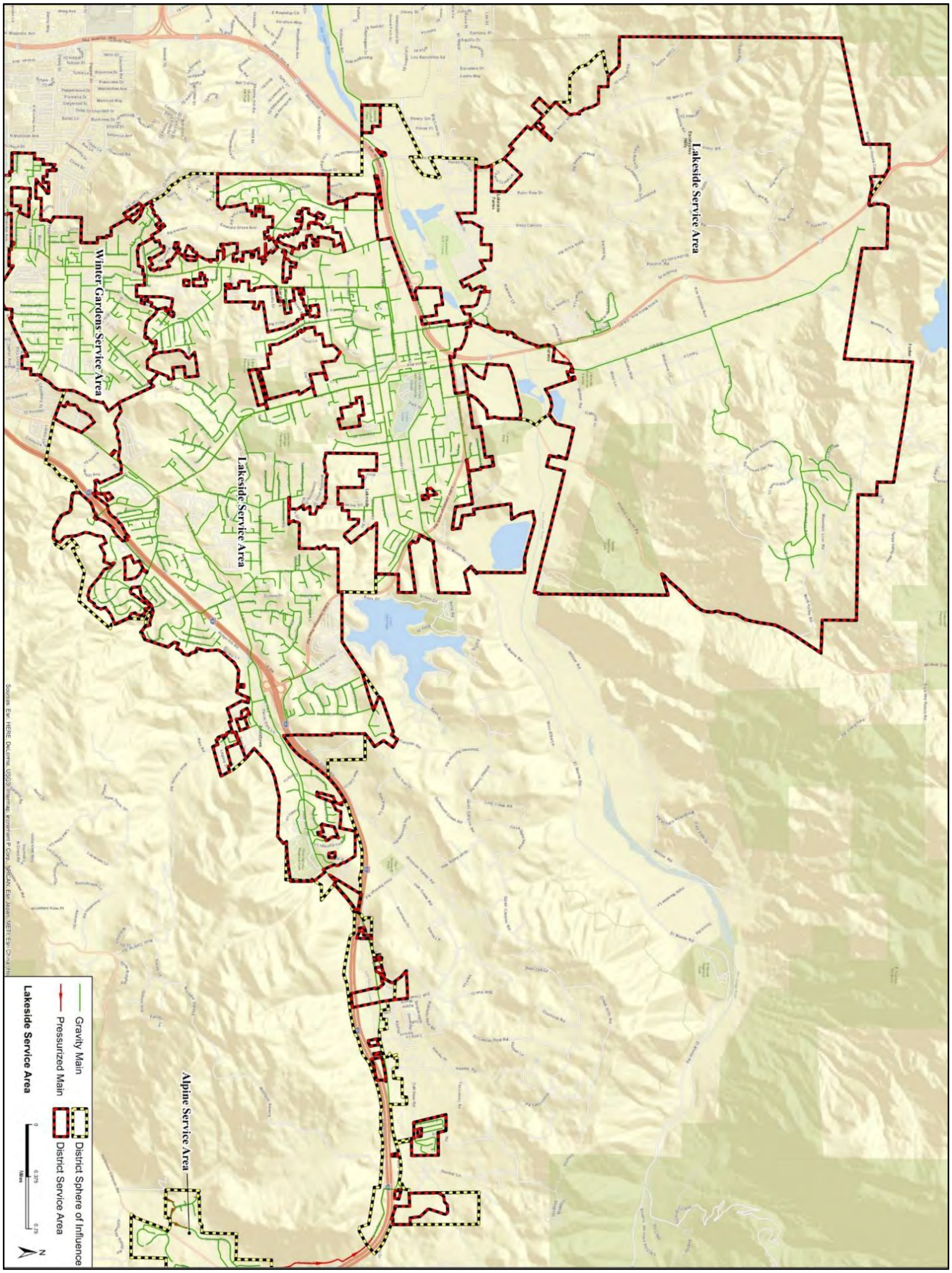


Figure 4.2 San Diego County Sanitation District – Lakeside Service Area Boundary

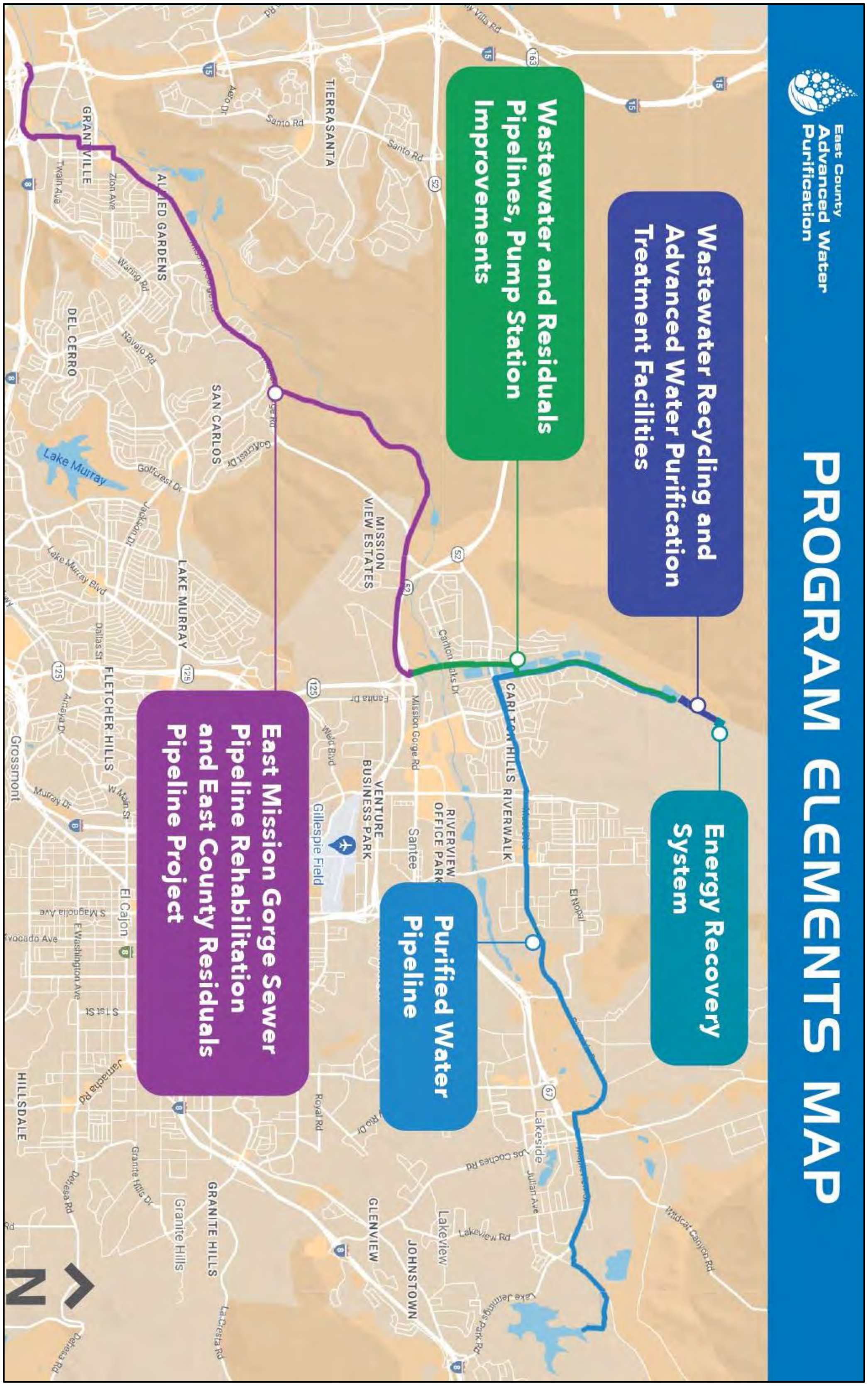
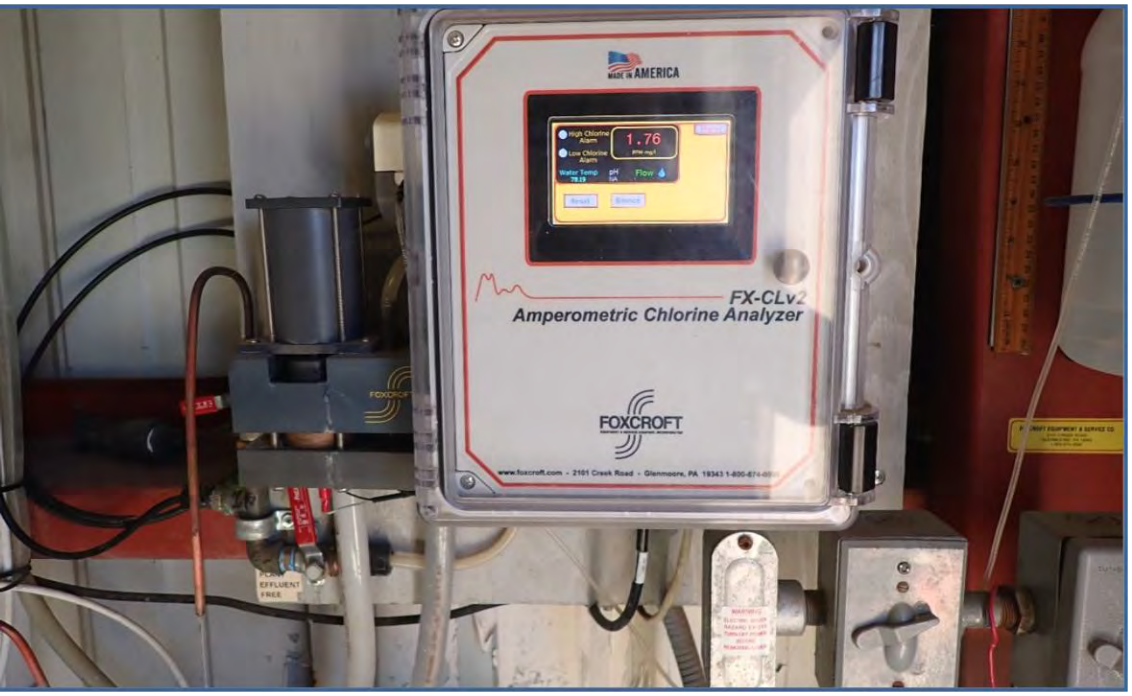


Figure 4.3 Wastewater Treatment and Water Recycling Facilities (CWA 2020 UWMP)



5

Section 5: Water Quality

Local groundwater from the District's wells is pumped and treated at the Vine Street Filtration Plant.

5.1. OVERVIEW

The quality of a natural body of water varies over time and location, and these variables must be recognized by water agencies. During periods of intense rainfall, contaminants can be washed into receiving waters, although dilution of existing contaminants may also occur. Conversely, during a drought, the concentration of existing contaminants may increase without additional incoming flows. These principles are true for both surface water and groundwater. As groundwater levels fluctuate, groundwater passes through different layers of rock and sediment and receives substances native to those strata. Likewise, groundwater wells that have not been utilized over periods of time can see water quality issues resulting from stagnant water. For these reasons, Lakeside Water District (District) monitors its wells for water quality as required by State and Federal regulations.

This Section provides a general description of the District's water sources, water quality monitoring and reporting, and water treatment. A discussion of potential water quality impacts on the reliability of supplies is also provided.

5.2. WATER QUALITY STANDARDS

5.2.1. Federal Regulations

In 1974, Congress passed the Safe Drinking Water Act (SDWA) in order to protect public health by regulating the nation's municipal drinking water supply. As part of the SDWA, powers were given to the Environmental Protection Agency (EPA) to regulate drinking water. The 1996 amendment to the SDWA required monitoring of new types of contaminants. Since the 1996 amendment to the SDWA, the EPA has identified over 90 contaminants in its National Primary Drinking Water Regulations (NPDWR) or "primary standards"). The main categories that the EPA has identified include: biological microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals, and radionuclides. As required by the SDWA, water agencies must provide annual Water Quality Reports to its customers.

As part of Federal EPA standards, water agencies are required to prepare annual water quality reports.

5.2.2. State Regulations

Water quality regulations have changed since the Safe Drinking Water Act in 1974. Several state, regional and county agencies have jurisdiction and responsibility for monitoring water quality. The actual regulations on water quality have also changed over the years. This is the result of the discovery of new contaminants, changing understanding of the health effects of previously known as well as new contaminants, development of new analytical technology, and the introduction of new treatment technology. All water purveyors are subject to drinking water standards set by the EPA and the State Water Resources Control Board (SWRCB). The California Department of Public Health (CDPH) previously oversaw the water quality of the State's drinking water program and the environmental lab accreditation program. As of July 2014, those programs were transferred to the SWRCB. Under the SWRCB, the Division of Drinking Water (DDW) regulates public drinking water systems, including setting the maximum contaminant levels (MCLs) and regulating the operation of water systems. In addition to the SWRCB, several regional and county agencies have jurisdiction and responsibility for monitoring water quality and contaminant sites.

In 2014, the State's drinking water program was transferred from the Health Department to the State Water Resources Control Board.

5.2.3. State Drinking Water Standards

The State of California has established two (2) main types of drinking water standards:

1. Maximum Contaminant Level (MCL)
2. Public Health Goal (PHG)

MCLs are the drinking water standards to be met by public water systems. The levels set by the State consider a contaminant's health risk, detectability, treatability, and costs of treatment. MCLs are further broken down into two (2) types:

1. Primary MCL – Health Related
2. Secondary MCL – Taste & Odor

Secondary MCLs are not federally enforceable according to the most recent SDWA amendments. However, they are regulated by the State of California. DDW publishes a list of Secondary MCLs, which include Copper, Iron, and Zinc.

PHGs are established by the Office of Environmental Health Hazard Assessment (OEHHA). They are concentrations of drinking water contaminants that pose no significant health risk if consumed for a lifetime, provided risk levels are not exceeded. Public water systems sometimes use PHGs to provide information about drinking water contaminants in their annual water quality reports. PHGs are not regulatory standards. However, state law requires the SWRCB to set drinking water standards for chemical contaminants as close to the corresponding PHG as is economically and technologically feasible.

5.2.4. Hexavalent Chromium (Cr6)

As of the 2020 UWMP, California had previously established a maximum contaminant level (MCL) of 10 parts per billion (ppb) for hexavalent chromium (Cr6), which took effect on October 1, 2024. This concentration can be described as one drop in an Olympic-size swimming pool. Prior to this, Cr6 was regulated under California's total chromium MCL of 50-ppb. The Federal Standard is currently set at 100-ppb. The SWRCB is currently evaluating treatment technologies and cost estimates for Chromium-6 removal.

5.2.5. District Standards

Water quality is tested at the Lake Skinner Treatment Plant and Helix Water District's R.M. Levy Water Treatment Plant (Plant) **Figure 5.2**, where water is treated before it is supplied to the District. To ensure quality of its water, the District's wholesale suppliers conduct sampling and testing of water on a daily, weekly, and monthly basis at their respective Treatment Plants. Local groundwater from the District's wells is pumped and treated at the Vine Street Filtration Plant (**Figure 5.4)**. Results of the water quality testing are posted annually to the District's website. The District's water quality reports are archived at the following link:

lakesidewater.org/about-lakeside-water-district/newsletters/

The testing is conducted on several parameters, including organic & inorganic chemicals, bacteriological contaminants, pesticides & herbicides, and radiological contaminants. The District contracts with certified laboratories to perform water quality testing. The District's Annual Water Quality Reports (also known as "Consumer Confidence Reports") are filed with DDW and released to customers. The annual reports identify regulated substances (Primary MCLs), secondary substances (Secondary MCLs), and unregulated substances (PHGs). The District identifies all detected substances in the annual reports. In addition, the District conducted a lead service line inventory in 2024 and the results are available on LWD's website.

Salinity levels often exceed secondary drinking water standards and pose a challenge for well operations.

According to the District's 2024 Annual Water Quality Report, the results for this type of testing indicate that lead and copper were not detected above the action level (AL).

5.3. QUALITY OF WATER SOURCES

The two main sources of the District's water supply are groundwater produced from the Santee-El Monte Basin (Basin) and imported water from the San Diego County Water Authority (CWA), which buys 57% from the Metropolitan Water District of Southern California (MWD). Since MWD draws the majority of its water from the CRA and the SWP, the quality of the District's imported water supply is closely related to the quality of these two sources.

5.3.1. Imported Water Quality

MWD is responsible for providing water of a high quality throughout its service area. The water delivered by MWD is tested both for currently regulated contaminants and for additional contaminants of concern. Over 300,000 water quality tests are conducted each year to regulate the safety of its water. MWD's supplies originate primarily from the CRA and from the SWP. The two sources, proportional to each year's availability of the source, is then treated and delivered throughout MWD's service area.

Figure 5.1 MWD's Robert A. Skinner Water Treatment Plant

MWD's primary sources face individual water quality issues of concern. The CRA water source contains a higher level of total dissolved solids (TDS) and a lower level of organic material. The SWP contains a lower TDS level while its level of organic materials is much higher, lending to the formation of disinfection byproducts. To remediate the

CRA's high level of salinity and the SWP's high level of organic materials, MWD has been blending CRA water with SWP supplies as well as implementing updated treatment processes to decrease the disinfection byproducts. In addition, MWD engages in efforts to protect its Colorado River supplies from threats of uranium, perchlorate, and chromium VI while also investigating the potential water quality impact of emerging contaminants, N-nitrosodimethylamine (NDMA) and pharmaceuticals and personal care products (PPCPs). MWD has assured its ability to overcome the above mentioned water quality concerns through its protection of source waters, implementation of renovated treatment processes, and blending of its two sources.

Figure 5.2 Helix Water District's R.M. Levy Water Treatment Plant

The Plant receives untreated water containing organic material with a negative electrical charge. Positively-charged chemicals, called coagulants, are added to the water to bind with the organic material and cause it to clump together. The clumps are called floc. When floc forms, it sinks to the bottom of the sedimentation basin. The clarified water, at the surface, flows to the next step in the treatment process. Disinfection destroys or inactivates any organisms in the water. Ozones are used as the primary disinfectant because it offers important advantages:

- Destroys or inactivates a wide range of organisms in water
- Needs little contact time with the water to be effective
- Produces fewer potentially harmful disinfection by-products than other disinfectants
- Removes most of the smell and taste issues people associate with tap water

The ozone is created by by passing oxygen through high voltage generators. Oxygen (O2) molecules break and oxygen radicals (O1) bind to oxygen molecules and form ozone (O3). The ozone molecules bubble up through the water column and destroy or inactivate the organisms present. Filters consist of a layer of anthracite coal (charcoal) and a layer of sand. Filtration works through two basic processes, straining and adsorption. Straining removes material and particles that are too large to pass through the filter material. Adsorption works through similar properties as coagulation. Material and particles that can pass through the filter material adhere or

Figure 5.3 Native Rock adds to the Salinity of the Colorado River Water Supplies

stick to the surface area of the anthracite and sand material. This happens on a very small scale removing very fine material and particles, like pharmaceuticals and personal care products (PPCPs). MWD has assured its ability to overcome the above mentioned water quality concerns through its protection of source waters, implementation of renovated treatment processes, and blending of its two sources.

5.3.2. Groundwater Quality

The Basin provides good water quality that has small amounts of iron and manganese, which the District removes with a specially designed treatment plant located at the Vine Street Filtration Plant (Figure 5.4) located at the District's Administration and Operations facility at 10375 Vine Street, Lakeside. A source water assessment detailing potential sources of contamination completed in January 2010 is available for review upon request at the District office. The remainder of. The District's well fields are sensitive to drought conditions and contamination from local runoff, MTBE, nitrates, and total dissolved solids. Water quality is constantly tested and currently meets all primary and secondary standards for all tested parameters to be within the MCL required by the U.S. EPA and California Department of Public Health.

5.4. IMPACTS OF WATER QUALITY

Water quality dictates the management strategies a water supplier will implement, including, but not limited to, the selection of water sources, treatment alternatives, blending options, and modifications to existing treatment facilities. A direct result of the degradation of a water source is the need to install wellhead treatment before consumption. That is, the poorer the quality of the source water, the greater the need (and cost) for treatment. This can also decrease water supply reliability. Due to the number of groundwater wells in the District's water system, the District has a degree of redundancy in the event of water quality impairments with a particular well. **Figure 5.1** shows a general procedure that the District may take when one of the District's wells is detected to have water quality concerns.

As a result of CWA's efforts, CWA's 2025 UWMP indicates that none of the water quality challenges described below will impact the reliability of its supplies during the next 25 years. The District's water system is and has been in compliance with all DDW water quality standards. Groundwater quality does not impact water supply at this time due to the combination of imported water and blending prior to delivery to customers.

5.4.1. Impacts of Abandoned Wells

The presence of abandoned groundwater wells represents a potential hazard to the quality of the groundwater basin. Abandoned and improperly destroyed wells can act as conduits for contaminants to reach drinking water supplies. It is vital for the long-term protection of the basin that abandoned wells be located and destroyed. While it is the landowner's responsibility to destroy an abandoned well, local water agencies should be proactive about making sure that abandoned wells are in fact destroyed. The destruction of abandoned groundwater wells should be performed in accordance with state standards. California Water Code Section 13750.5 requires that those responsible for the destruction of water wells possess a C-57 Water Well Contractor's License. Whenever a water well is destroyed, a report of completion must be filed with the California DWR within 60 days of the completion of the work. DDW and an Diego County (County) are responsible for permitting and inspecting construction and destruction of wells.

Abandoned private wells can pose a water quality concern if left unaddressed.

State policy for all functional and abandoned wells is to establish a "well site control zone", the area immediately surrounding the well alternatively referred to as the "wellhead". The purpose of this zone is to provide protection from vandalism, tampering, or other threats at the well site. The size of this zone can be determined by using a simple radius, or an equivalent area. The well site control zone should be managed to reduce the possibility of surface flows reaching the wellhead and traveling down the unprotected casing. SWRCB-DDW regulations recommend a minimum radius of 50 feet for well site control zones for all public water systems in the state. The requirement applies to abandoned wells as well as functional activities that could potentially lead to "source water contamination" according to EPA regulations (IWRP, 2007). Additionally, well owners are responsible for destroying abandoned wells per the Public Health and Safety Code, Part 9.5, Section 115700.

Figure 5.4 Water Quality Sampling Station at Vine Street Filtration Plant

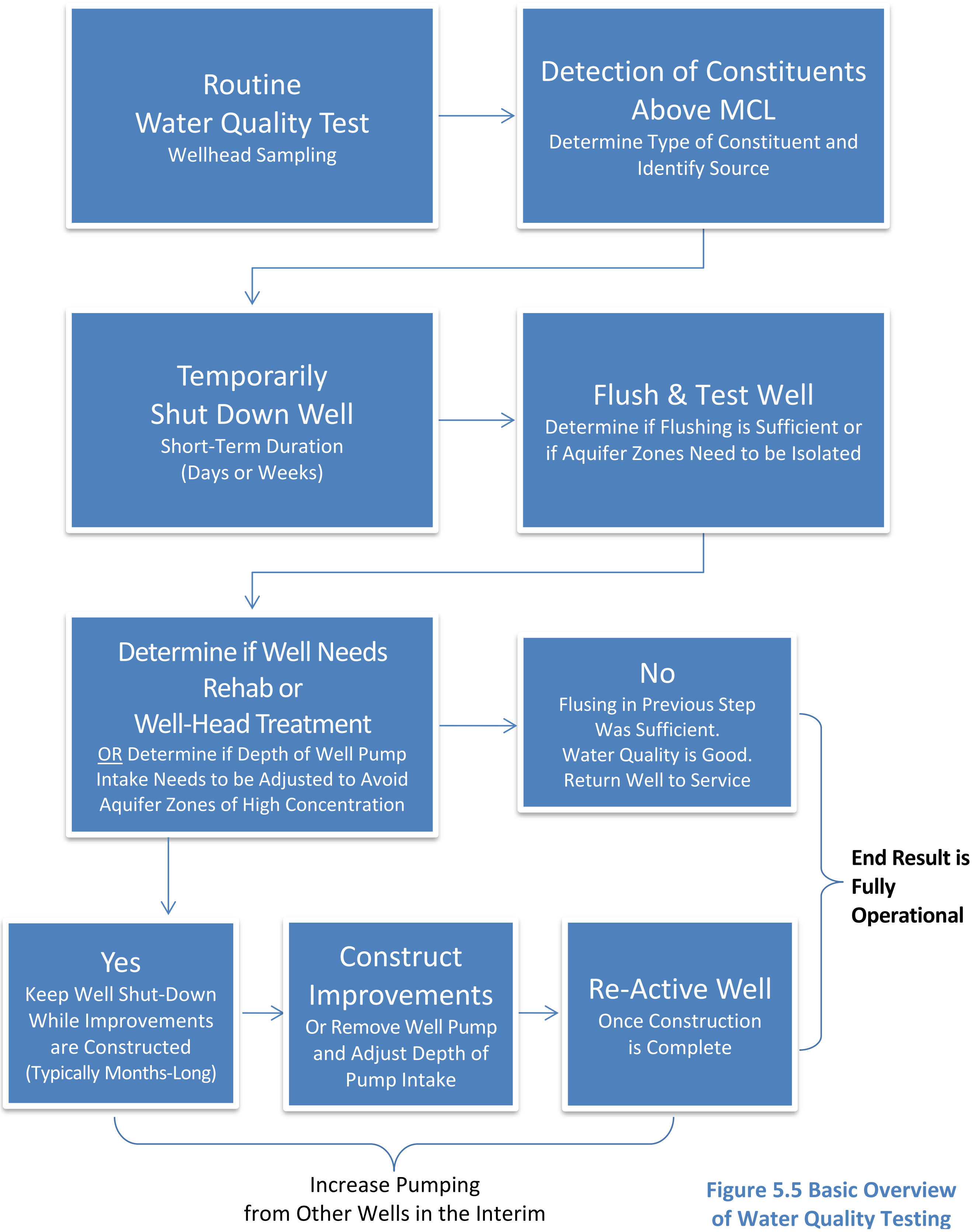


Figure 5.5 Basic Overview of Water Quality Testing

5.4.2. Groundwater Contamination Response

Currently, the District has a Water Shortage Contingency Plan (WSCP) and Asset Management Plan that work in conjunction to handle the effects of potential groundwater contamination and mitigate disasters such as sudden water shortages. This information is provided in **Section 8**.

The WSCP can provide guidance for dealing with the effects of a water shortage, which may be due to groundwater contamination. The District also has emergency response policies in place to respond to emergencies. Two recent tests of the District's emergency response network were seen in the year 2020, when the District responded to the Covid-19 pandemic, and in 2021, when Governor Newsom issued a State of Emergency due to drought that required Statewide correspondence with Level 2 of agency's WSCP. In the event of a groundwater contamination shortage, the District will work in conjunction with CWA and the County's Emergency Operations Center to deal with the effects of potential water shortages caused by severe water quality concerns.

5.4.3. Sanitary Surveys by DDW

The quality of water dictates numerous management strategies a water purveyor will implement, including, but not limited to, the selection of water sources, treatment alternatives, blending options, and modifications to existing treatment facilities. A direct result from the degradation of a water source is increased treatment cost before consumption. The poorer the quality of the source water, the greater the treatment cost. This in turn can decrease water supply reliability by potentially decreasing the total supply.

A Watershed Sanitary Survey is a document that examines the potential sources of contaminants in the watersheds and includes recommendations for managing these effects. Per DDW guidelines, the Watershed Sanitary Surveys are supposed to be updated every five (5) years. In the District's case, the District does not use any surface water, so the District does not prepare Watershed Sanitary Surveys. However, the District is still subject to periodic inspections by DDW staff every three (3) years. The Sanitary Surveys conducted by DDW include inspection and evaluation of the following:

1. Water Sources
2. Treatment
3. Distribution System
4. Finished Water Storage
5. Pumping Facilities
6. Monitoring & Reporting
7. System Management/Operation
8. Operator Compliance (with State Requirements)

5.4.4. Impacts on Management & Reliability

As a result of the District's water quality policies, the District has not experienced water quality issues that affect its ability to meet demands. As noted by Figure 5.5, when wells are offline, additional groundwater will be available through other wells to supplement water supplies. The District will also be constructing additional wells over the course of this UWMP planning period (2050), to create greater operational flexibility and redundancy. Therefore, the District does not anticipate any significant impacts to water supply reliability due to water quality issues.

6

Section 6: Water Use

Water use within the District's service area includes residential, commercial, governmental, and landscape irrigation.

6.1. OVERVIEW

The District's water consumption is subject to significant change from year to year. Further, water use within the District's service area is also variable over the course of a given month or climate conditions. This section explores the water usage trends within the District and quantifies total water usage per customer type. In addition, the provisions of Senate Bill x7-7 (Water Conservation Act) are explored in detail.

6.2. RECENT WATER USE CHANGES

As a result of the Coronavirus Disease 2019 (COVID-19) Pandemic, Commercial and Institutional water use had declined. On March 19, 2020, an Executive Order and Public Health Order directed all Californians to stay home, except to go to an essential job or to shop for essential needs. It was then modified on May 4, 2020. The Regional Stay Home Order, announced December 3, 2020, triggered additional restrictions after the region was announced to have less than 15% Intensive Care Unit (ICU) availability. It prohibited private gatherings of any size, closed sector operations except for critical infrastructure and retail, required 100% masking (with certain exceptions as indicated in guidance for use of face coverings), and physical distancing. The Regional Stay Home Order was lifted on January 25, 2021. During his 2021 State of the State Address Governor, Gavin Newsom reported that California had administered nearly eleven (11) million doses of the vaccine, and that the State was well on its way to seeing an end to this pandemic.

The State Water Resources Control Board – Division of Drinking Water (DDW) has stated that the public water systems (PWS) operations are designated as essential functions and staff and suppliers are not restricted by any current orders. This has allowed for water system operators and maintenance workers to successfully keep the PWS providing safe and clean drinking water to their customers.

The full extent of impacts of the coronavirus pandemic on the water sector are still emerging, but one area that has come to the fore is the effect on municipal water demand. Available data indicate that residential water demand has increased while non-residential demand has decreased. In San Francisco, California, residential demand increased by ten (10) percent, while non-residential demand declined by 32 percent. Residential communities have experienced either modest increases or the smallest decreases. Utilities where total water use has declined during the coronavirus pandemic will see a drop in revenue. Moreover, as businesses reopen and implement hygiene and disinfection practices and as temperatures rise, water use may rise dramatically. Such rapid and dramatic changes in water use can exacerbate existing and reveal new system weaknesses.

The Covid-19 Pandemic had impacted water use in the residential and commercial sectors.

6.3. CURRENT DISTRICT WATER NEEDS

Water use within the District's service area includes residential potable use, landscape irrigation use, commercial and government uses, and of course water losses. Water use is variable and depends on a number of factors which include seasonal climate changes, demographic shifts, changes in land use or redevelopment, and of course legislation. Since the District's service area is largely residential, changes in residential plumbing fixtures and customer usage habits can significantly affect water usage.

6.4. CLIMATE IMPACTS ON WATER USE

California faces changes in water use habits due to a variety of issues including population growth, regulatory restrictions and climate change (including the severe drought of 2020-2022). More specifically, weather unpredictability (more extreme drought and flood events) poses additional challenges to water agencies, not only due to impacts on water supplies but also due to impacts on water demands.

During and since the preparation of the 2020 UWMP, there have been local and statewide influences on water use in the District. California experienced a multi-year drought from 2020 through 2022, with precipitation consistently below average and record-high temperatures exacerbating water scarcity. Water year 2022, covering October 2021 to September 2022, ended with 77% of average precipitation, following an even drier 2021, making the three-year stretch drier than the previous record dry period of 2013–2015. Snowpack, a critical water source, fell to 35% of average by April 1, 2022, despite a strong start in December. Drought severity varied regionally, with the Central Valley and northern basins experiencing the most extreme conditions.

Environmental Impacts: The drought led to dry soils, reduced water availability, and increased wildfire risk. Wildfire activity fluctuated, with 4.3 million acres burned in 2020, decreasing to 2.57 million acres in 2021 and 362,455 acres in 2022, reflecting both drought intensity and mitigation efforts. Reduced snowpack and low precipitation stressed rivers, reservoirs, and groundwater systems, affecting ecosystems and water supply reliability.

Agricultural and Economic Impacts: Agriculture was heavily affected, particularly in the Sacramento Valley and rice-producing counties. In 2022, 750,000 acres of farmland were idled, more than half in the Sacramento area. Direct economic losses to farm activity were estimated at $1.2 billion in 2022, up from $810 million in 2021, with additional losses of $845 million in food processing industries, totaling $2 billion in value-added losses and 19,420 jobs lost. Increased evapotranspiration due to higher temperatures further stressed crops, requiring more irrigation to maintain productivity.

Regional and Temporal Variability: Drought intensity varied across the state and over time. In 2020, drought conditions were less severe, while 2021 and 2022 saw widespread and more intense drought, particularly in the Central Valley. Northern California basins faced early water curtailments, and the Sacramento Valley experienced unprecedented climatological stress due to limited groundwater pumping capacity. Despite these challenges, mitigation measures such as land idling, water trading, and increased groundwater pumping helped reduce potential losses.

Changes in water usage habits have a special concern for the State due to the inter-dependence of many agencies for the transfer and use of water. For instance, some agencies are unable to produce water locally and thus entirely dependent on imported water sources, while others are able to produce all water locally (i.e. groundwater). Further, some agencies are able to reduce demands with minimal economic impacts (only water sales revenues), while other agencies will suffer economically (i.e. agricultural & industrial users) if required by State or local agencies to reduce water consumption. Thus, the State will likely face challenges in the near future to find the correct balance of water supply allocations to meet demands under various weather conditions. For State Water Project (SWP) water rights holders, this is an all-too critical issue.

6.4.1. California Water Plan Update 2023

DWR’s California Water Plan Update 2023 emphasizes the urgency of climate change impacts, the need for watershed resilience, and the importance of equity in water management. It aims to ensure that all Californians benefit from water resources that are sustainable and resilient to climate change. There are three themes including:

Addressing Climate Urgency: The plan recognizes the increasing variability in California's hydrology due to climate change and promotes adaptive infrastructure and emergency planning to enhance resilience.

Strengthening Watershed Resilience: It encourages coordinated efforts at the watershed level to integrate engineered systems with natural processes, aiming for multiple benefits across water, agriculture, and ecology.

Achieving Equity: For the first time, the update includes a dedicated chapter on the challenges and resources of California Native American Tribes, ensuring that Indigenous knowledge and priorities are integrated into statewide planning.

6.5. WATER USE

6.5.1. Past Water Use

There was a decline in water use during the early 1990s when water conservation measures were first adopted, followed by a gradual increase for the following 10 years to about 5,500 AFY at 2007. Water usage decreased by more than 20% in 2020 due to California statewide water restrictions after a slight increase in 2013. The 20% reduction in 2020 is in addition to the 20% in 2009 and 2010 due to drought conditions requiring water use restrictions with the adoption of the Conservation Plan and the increasing cost of water. There has been a decrease in water usage when compared with over 20 years ago in spite of a population increase.

Table 6.1 District Past Water Use

Year	Total Potable Consumption (AF)
2015	3,707
2016	3,185
2017	3,380
2018	3,648
2019	3,472
2020	3,472
Average:	3,477

As the table suggests, water use has been fluctuating, although generally trending downward since 2015. This correlates with the increased water restrictions and conservation measures. Based on the numbers in **Table 6.1**, water use had decreased by nearly 6% since 2015.

6.5.2. Recent Water Use

Table 6.2 shows the District's water consumption over the past five (5) years. As indicated by **Table 6.2**, water demands within the District's service area over the past five (5) were met by groundwater from the Santee-El Monte Basin (Basin) and imported water from the San Diego County Water Authority (CWA).

Table 6.2 District Recent Water Use

Year	Total Potable Consumption (AF)	Per Capita (GPCD)
2021	3,696	98.7
2022	3,514	93.1
2023	3,166	84.3
2024	3,183	84.7
2025	3,452	90.2
Average:	**3,402**	**90.2**
2020 Water Use Target:		**141.6**

Annual water use since 2021 has ranged from about 3,166 AF to 3,696 AF [average 3,402 acre-feet per year (AFY)]. As indicated by the table, water use has been fluctuating, although generally trending downward since 2021.

6.6. WATER USE BY SECTOR

6.6.1. Service Connections/Accounts

The District maintains a database that compiles data on water use, categorized by the type of use. This data comes from meter records of all District customers and is recorded internally by the District on a semiannual basis in its Water Consumption Report, which includes water volume data for the current fiscal year of 2024-2025. For the purpose of this 2025 update to its UWMP, the District has adapted data obtained from its Water Consumption Report by grouping some sector categories to better align the District's sector labels with the descriptions and labeling of sectors that are set forth by the Water Code.

The District does not provide any sales to agriculture, industrial, other agencies, saline water intrusion barriers, groundwater recharge, or conjunctive use. The total number of service connections and water consumption by sector is shown in **Table 6.3** and **Table 6.4**, respectively.

Table 6.3 Service Connections (2025)

Sector	Service Accounts
Single Family Residential	6,253
Multi-Family Residential	430
Commercial/Institutional	349
Industrial	0
Landscape Irrigation	30
Agricultural	0
Total Connections:	**7,062**

Nearly 95 percent of the total service connections are residential (single- or multi-family), since the District consists primarily of residential properties. Single-family comprises the largest individual sector with 89 percent of the total service connections. Commercial and institutional accounts comprise about 5 percent of the total accounts.

District's water rates are listed in **Section 9.4** of this UWMP. Water sales data is compiled by District water staff and submitted to DWR in the Electronic Annual Report (eAR).

The total water consumption by customer type since 2021 is shown on **Table 6.4**. As noted by the table, Single-Family Residential accounts are the highest consuming sector in the District since most of the District is zoned for single-family accounts (with higher densities for multi-family accounts).

Table 6.4 Recent Water Demand by Sector (AF)

Sector	2021	2022	2023	2024	2025
Single Family Residential	2,262	2,151	1,927	1,817	2,007
Multi-Family Residential	965	917	822	895	890
Commercial/Institutional[1]	370	351	315	345	407
Landscape Irrigation	44	42	38	49	63
Other	55	53	47	42	48
Total Water Sales:	**3,696**	**3,514**	**3,149**	**3,148**	**3,414**
Water Loss (Real Loss + Apparent Loss)	146	117	119	167	87[2]
Total Water Consumption (Total Supply into System):	**3,842**	**3,631**	**3,268**	**3,315**	**3,501**

(1) Includes government use

(2) Near 0 real loss to be further reviewed in future Audits.

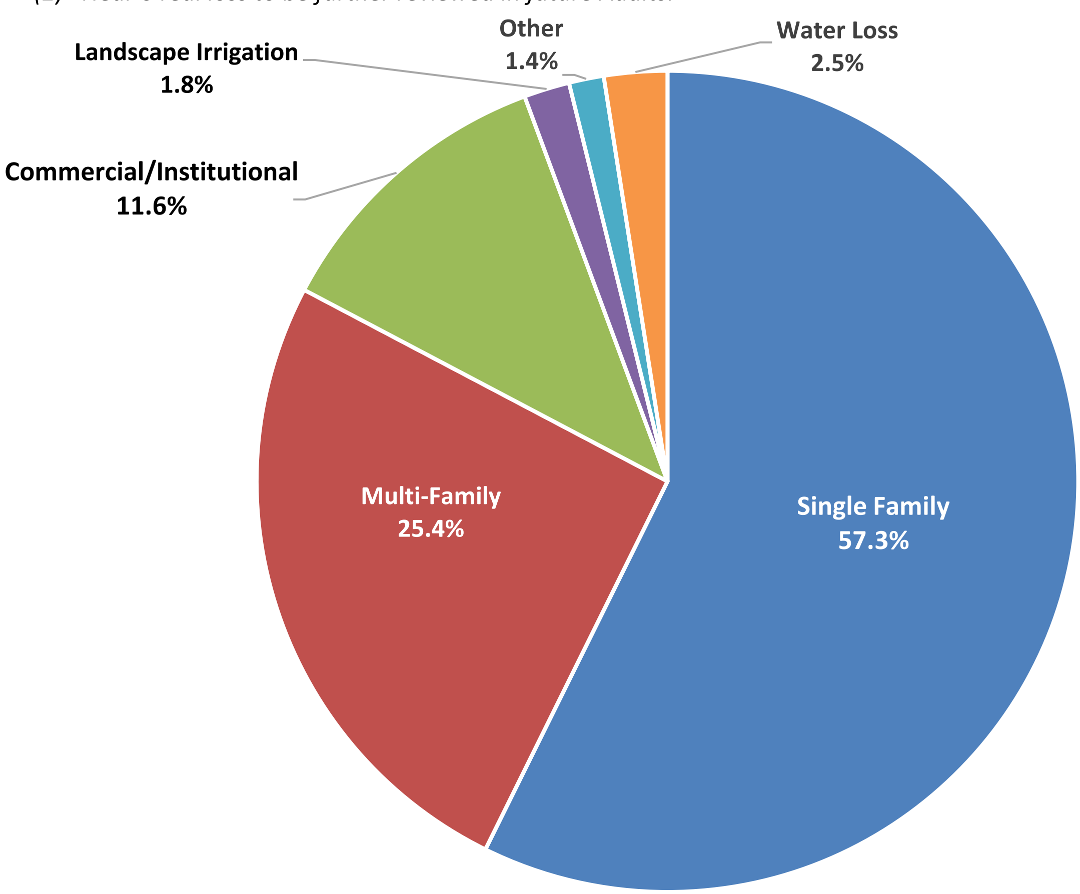


Figure 6.1 Current Water Demand by Sector (in 2025)

6.6.2. Distribution System Losses

As indicated by **Table 6.4**, the District's Water Loss ranged from 87 to 167 AF, which on average is 3.6 percent of the total water supply into the District's distribution system. Water Loss is determined as the sum of apparent loss and Real Loss, as determined in each years Validated Water Loss Audit. Examples of Water Loss consists of routine flushing, unmetered use, and main breaks, to name a few. Although water losses have cost impacts on water agencies, they cannot be prevented entirely.

Instead, effort is given to controlling the quantity of water losses (to a cost-effective extent) in order to reduce the cost impact of water losses on water operations. For this reason, the District's Staff prepares annual Water Loss Audits, using AWWA software. The 2025 Audit shows that the District's Leakage Index (the ratio of real loss to unavoidable loss) was near 0, which is below the 10^{th} percentile of Water Purveyors. The District's Validated Water Loss Audits can be located on DWR's WUE Portal:

wuedata.water.ca.gov/awwa_plans

6.6.3. 2028 Water Loss Standard

California Water Code (CWC) Section 10608.34 requires SWRCB to develop water loss performance standards for urban retail water suppliers. Executive Orders B-37-16 and B-40-17 direct SWRCB and DWR to minimize water waste through system leaks. Water loss performance standards were developed through a rulemaking that became effective in 2023. As part of a proposed water conservation regulation, urban retail water suppliers (not individual households or businesses) will be held to "urban water use objectives." An urban water use objective is the sum of standard-based budgets for a subset of water uses, such as residential outdoor use, as further described in **Section** Error! Reference source not found..

Retail Suppliers must meet water loss standards by January 1, 2028, calculated on a system level. Ongoing compliance will be on a three-year average basis. The baseline period for the 2028 Water Loss Standard is 2017-2020. Real loss and apparent losses used to calculate the standard are the average real losses and apparent losses in the baseline period. SWRCB staff can initiate an adjustment process for any system that has significant changes in data compared to the baseline if at least three (3) compliance assessments have passed. Suppliers can request an adjustment to the baseline period data if significant data improvements have been made.

Suppliers must either meet their apparent loss standard (equivalent to their baseline period (2017-2020) apparent losses) or submit an inventory of all apparent losses. Meeting the apparent loss standard is not required as long as an inventory of apparent losses is submitted.

The District's Baseline Real Loss is 21.2 gallons per service connection per day (GPSCD) and Real Loss Standard is 21.2 gpscd, resulting in no Required Real Loss Reduction from Baseline. Apparent Loss Standard is 5.6 gpscd.

6.7. URBAN WATER USE OBJECTIVE

The "Making Conservation a California Way of Life" regulation went into effect on January 1, 2025 and establishes unique efficiency goals for each urban retail water supplier in California and provides those suppliers flexibility to implement locally appropriate solutions. The regulation seeks to cultivate long-term practices that help communities adapt to California's ongoing water challenges. The regulation requires suppliers to:

- Annually calculate urban water use objectives for a subset of urban water uses: residential indoor water use, residential outdoor water use, real water loss, and commercial, industrial, and institutional (CII) landscapes with dedicated irrigation meters (DIMs).
- Carry out performance measures for CII water us.
- Annually report to SWRCB.

Thie District's Compliance Summary Report, prepared by SWRCB staff on February 23, 2026, summarizes the supplier's compliance with annual reporting requirements under the "Making Conservation a California Way of Life" regulation for the state fiscal year 2024-2025. This report was due on January 1, 2026.

6.7.1. Key Highlights from the Report

The following points are a summary of Sections 3 through 7 of the District's Compliance Summary Report:

- The report was submitted on time, on December 18, 2025.
- The supplier has met its calculated objective for fiscal year 2024-2025.1
- The supplier has no approved variances or temporary provisions for fiscal year 2024-2025.
- The report contains 1 data quality flag, which is that CII Classifications were not reported.

6.7.2. Objectives Calculated with Future Standards

The water use objectives will become progressively smaller as standards change through 2040. The following **Table 6.5** compares the current water use objective and reported water use to future efficiency requirements; the full summary can be found in Section 8 of the District's Compliance Summary Report. While this table does not capture how future water use objectives will be influenced by changes in local climatology, service area population, square footage of irrigated landscapes, and other data that will factor into future water use efficiency objectives, it is provided as a tool for local planning purposes.

Table 6.5 Objectives Calculated with Future Standards

Fiscal Year	FY 24-25 Use (AF)	Calculated/Projected Objective (AF)	Current use lower than objective?
24-25	3,011.8	4,883.8	Yes
25-26	3,011.8	4,723.3	Yes
30-31	3,011.8	4,524.5	Yes
35-36	3,011.8	3,983.4	Yes
40-41	3,011.8	3,721.9	Yes

As the table suggests, the District has met its calculated objective for fiscal year 2024-2025. The District's Compliance Summary Report can be located on DWR's WUE Portal:

wuedata.water.ca.gov/uwuo_plans

6.8. WATER CONSERVATION ACT

6.8.1. Act Background (SBx7-7)

Due to the limited amount of water allowed to be pumped in the San Joaquin Delta, the CA Legislature drafted the Water Conservation Act of 2009 (SBx7-7) to protect statewide water sources. The legislation called for a 20 percent reduction in water use in California by the year 2020. The legislation amended the Water Code to call for 2015 and 2020 water use targets in the 2010 UWMPs, updates or revisions to these targets in the 2015 and 2020 UWMPs, and allows DWR to enforce compliance to the new water use standards. In essence, the bill requires each urban retail water supplier to develop urban water use targets to help meet the 20 percent goal by 2020 and an interim 10 percent goal by 2015.

The bill establishes methods for urban retail water suppliers to determine their targets to help achieve statewide water reduction targets, which may or may not be a strict 20 percent level. The retail water supplier must select one of the four target-setting methods as described in **Section 2.4.3**. The retail agency may also choose to comply with SBx7-7 as an individual or as a region in collaboration with other water suppliers.

Under the regional compliance option, the retail water supplier is mandated to report the water use target for its individual service area. The bill also includes reporting requirements in the 2010, 2015, and 2020 UWMPs. Beginning in 2016, failure to comply with interim and final targets makes a retail agency ineligible for grants and loans from the state needed to attain water self-sufficiency by 2020; however, if an agency which is not in compliance documents a plan and obtains funding approval to come into compliance, it could then become eligible for grants or loans.

Wholesale water suppliers, including FMWD, are not required to determine baseline daily per capita water use, urban water use target, interim urban water use target, or compliance daily per capita water use. Instead, wholesale water suppliers are required to include in their UWMPs discussions of programs they intend to implement to support the retail water suppliers, such as the District, in attaining their reduction goals and targets.

Figure 6.2 California's 2020 Water Conservation Goals

Figure 6.3 California's 2020 Water Conservation Goals

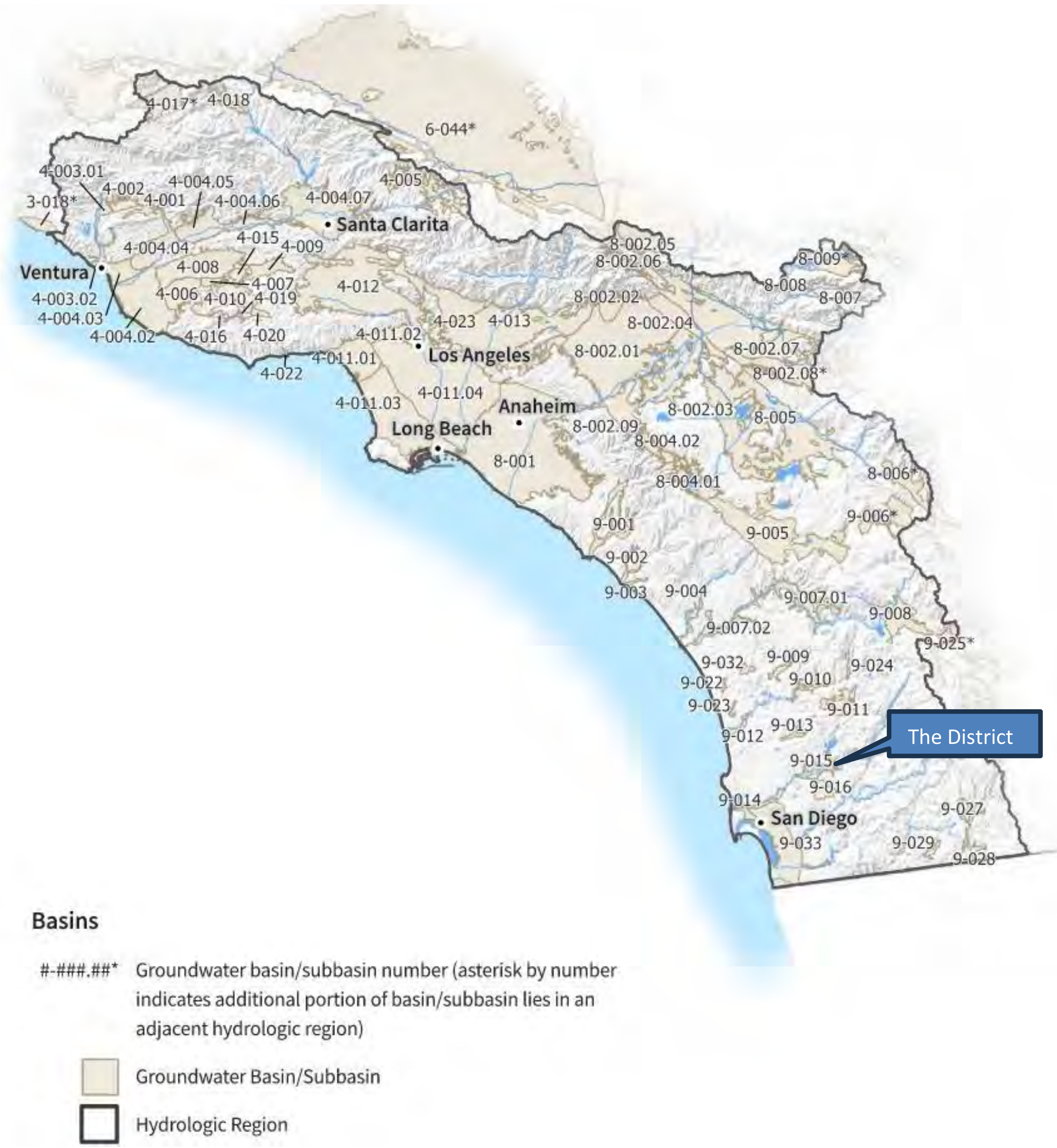


Figure 6.4 South Coast Hydrologic Region (DWR's California's Groundwater Update 2025)

6.8.2. Exempt Agencies

If an agency has a baseline per capita water use of 100 GPCD or less, that agency will not have to adhere to any reduction targets as that agency is already considered water efficient. In such a case, that agency must document in subsequent UWMPs that its water usage is still under 100 GPCD.

6.8.3. SBx7-7 Baseline & Target

There is a 10 year and a 5-year baseline period to determine what target must be met to comply. District 10-year baseline period is from 1999 to 2008 and the 5-year baseline period is from 2003 to 2007. For those periods gross water use is compared with populations to get gpcd (gallons per capita per day) or how many gallons each person uses each day on average for each year. Populations figures used for this calculation are from DWR’s Population tool online which is slightly lower population numbers when compared with SANDAG. Using DWR’s population estimates The District’s baseline gpcd is 155.28 for the 10-year baseline period and 155.75 gpcd for the 5-year baseline period. As you can see both are very close so The District’s baseline target for 2020 is 20% less than the baseline of 155 gpcd which is a target of 124 gpcd by 2020. This is a fairly low gpcd due to past conservation efforts and conservation hardening which is why the District decided to use Target Methodology 3 for the South Coastal Hydrological Region which has a 2020 regional target of 149 gpcd which was met.

Table 6.5 provides historical data on The District's daily per capita water use (GPCD). SBX7-7 was enacted to require retail urban water agencies within the state to achieve a 20 percent reduction in urban per capita water use by December 31, 2020. The District's 10-year average from 1999 to 2008 is 155 gpcd.

The selected SBx7-7 target is 142 GPCD (5% reduction from the South Coast HR's target) because this amount is greater than 124 GPCD (20% from its 10-year baseline). Since the District's minimum reduction requirement of 148 GPCD (5% reduction from 5-yr. Baseline) is greater than the 5% reduction from the regional target of 149 GPCD, the District can select **Method 3** (142 GPCD) as its 2020 water use target. Therefore, the District’s compliance target for 2020 per capita water consumption was 142 GPCD in accordance with Section 10608.22 of the Code.

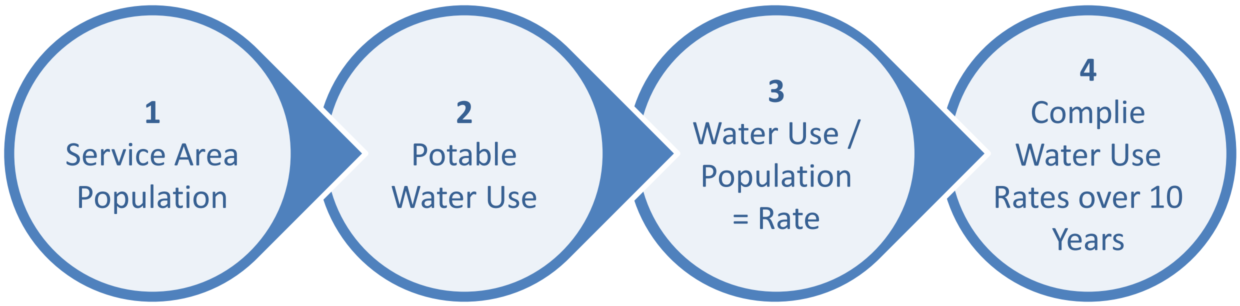


Figure 6.5 Procedure for Determining Baseline Per Capita Water Use

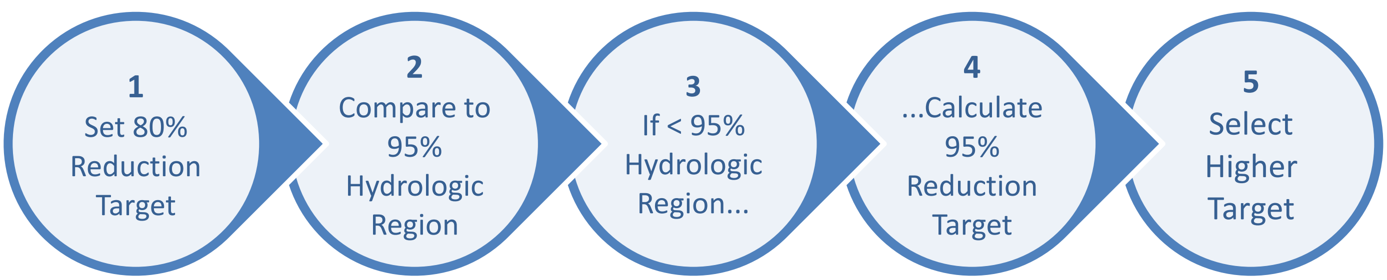


Figure 6.6 Procedure for Determining Target Per Capita Water Use

Table 6.6 Lakeside Water District Water Use (GPCPD)

Year	Service Area Population	Total Potable Consumption (AF)	Per Capita (GPCD)
1999	30,746	4,736	137.5
2000	31,000	5,731	165.0
2001	30,943	5,321	153.5
2002	30,935	5,709	164.8
2003	30,927	5,191	149.8
2004	30,914	5,858	169.2
2005	30,915	4,981	143.8
2006	30,897	5,390	155.7
2007	30,884	5,541	160.2
2008	30,862	5,298	153.3
		10-yr. Baseline (1999 - 2008) (SB7: 10608.20)	**155.4**
		5-yr. Baseline (2003-2007) (SB7: 10608.22)	**155.8**
		State Hydrologic Region Baseline	**180**
		State Hydrologic Region Target	**149**

Table 6.7 Lakeside Water District SBx7-7 2020 Water Use Targets

Min. Reduction Requirement (10608.22)	20% Target (10608.20) (b)(1)	5% Reduction from Regional Target (10608.20) (b)(3)
148	**124**	**142**
	2020 Per Capita Target:	**142**
	Interim (2015) Target:	**151**

6.8.4. SBx7-7 Target Compliance

Although the requirements of SBx7-7 seemed stringent, it is noteworthy to mention that the District has seen an increase in water efficiency in the past ten years. This is due in part to State legislation, stricter conservation measures, saturation of water-saving plumbing fixtures, and overall water conservation awareness. As indicated by **Table 6.2**, the District has already achieved not only its interim (2015) target, but also its final 2020 target. The District can maintain its consumption rates below the SBx7-7 target by continuing to focus on water conservation.

6.9. Codes and Other Considerations

Based on the DWR's endorsement in its UWMP Guidebook, CWA selected an off-the-shelf application developed by the Alliance for Water Efficiency (AWE) to estimate conservation savings for the San Diego region. The AWE Conservation Tracking Tool (AWE Tool) is an industry standard planning model that provides granular estimates of existing and future "passive" or code-based water savings and "active" savings resulting from the implementation of demand management programs. Estimates of water conservation savings were developed for each of CWA's member agencies, including the District, using the AWE Tool.

Per Section 2.4.2 of CWA's 2020 UWMP, key water savings assumptions are derived based on historical program efficiencies, current regional water savings assumptions that serve as the basis for regional incentives, and efficiency estimates by activity type that are contained in the AWE Tool Library.

Future active conservation savings are set at the 2020 level of conservation program activity moving forward, absent a large-scale turf replacement program and state-mandated water-use reductions. The passive conservation element includes estimated future savings from appliance standards and code changes, as well as savings from 2015 Model Water Efficient Landscape Ordinance (MWELO). An 80 percent MWELO compliance level is assumed on new residential development and a majority of this savings was assumed to continue over the UWMP planning horizon. To account for conservation included in the baseline regional demand forecast, passive water savings from before 2018 were subtracted from the estimated water savings.

A summary of the codes, standards and ordinances are provided below:

- 1992 National Energy Policy Act (EPAct) set the standard for:
  - Residential toilets
  - Commercial toilets
  - Residential showerheads
  - Residential clothes washers
  - Residential dishwashers

- California AB 715 requires only high-efficiency toilets be sold or installed as of January 1, 2014
- Title 20 of CA Code of Regulations for commercial pre-rinse spray valves as of January 1, 2006
- 2015 MWELO
- Passive Landscape Conservation (active landscape savings that migrate to passive)
- Passive Turf Removal (residential customers that convert turf to water efficient landscape outside of rebate program)

Passive Water Savings from conservation was estimated at 507 acft in 2025, 573 acft in 2030, 659 acft in 2035, and 743 acft in 2040.

6.10. PROJECTED WATER DEMAND

Future water use projections must consider significant factors on water demand, such as development and/or redevelopment, and climate patterns, among other less significant factors that affect water demand. Climate conditions will continue to be a major influence on demand as drought conditions will increase demand at a time when these supplies are limited. With open lots in the District available for development, the District has more potential for new development than typical "built-out" urban areas in Southern California. Whether this is probable remains to be seen. If this development occurs, this will result in greater total water consumption if the rate of consumption remains steady.

6.10.1. Passive Savings

For the sake of future water demand projections in this UWMP, this "passive savings" is taken into consideration. It is practical to assume that water use efficiency will continue to increase own its own over the next couple of decades. In other words, the District should experience some "passive savings" for the foreseeable future driven in part by State and local laws governing water use. **Table 6.7** lists projected water use by sector assuming a "passive savings" of about 0.5% annually and beginning with a consumption rate of 90.2 GPCD. A passive savings of 0.5% annually should provide a conservative yet practical estimate for the District.

Over time, "Passive Savings" will help offset water demands from new growth in the District.

6.10.2. Low-Income Water Demands

One significant change to the UWMP Act since 2005 is the requirement for retail water suppliers to develop water use projections for "low-income" households at the single- family and multi-family level. These projections assist retail suppliers with compliance with Section 65589.7 of the Government Code, which requires suppliers to grant a priority for the provision of service to low-income households. Consistent with this Code section, a low-income household is defined as a household earning 80 percent or less of the area's median income.

Lower income household usage in 2020 was 24 acre feet, and only consisted of 165 residential apartment units. Lower income residential usage is less than one percent of the District's overall usage.
Therefore, it is estimated that approximately 1 percent of the projected water demands within the District's service area will be for housing needed for low-income households. **Table 6.8** provides the projected water needs for low-income households. The projected water demands shown here represent 1 percent of the projected residential water demand.

6.10.3. Projected Water Use by Sector

For planning purposes, the District's projected water use for 2025-2050 is broken down by sector in **Table 6.7**. The estimates per sector are based on the ratios of the sectors shown in **Table 6.4** and **Figure 6.5**. **Figure 6.10** also shows the Projected Water Demand by Sector (in 2050).

Table 6.8 Projected Water Demand by Sector

Sector	2030	2035	2040	2045	2050
Water Service Area Population	35,415	35,790	36,165	36,540	36,915
Consumption Rate (GPCD) *Including 0.5% Annual Passive Savings*	88.1	85.9	83.8	81.7	79.7
Demands					
Single Family Residential	2,004	1,975	1,947	1,918	1,890
Multi-Family Residential	885	872	860	847	834
Commercial/Institutional[1]	353	347	342	337	332
Landscape Irrigation (Potable)	47	46	45	45	44
Other	48	48	47	46	46
Total Water Sales:	**3,337**	**3,289**	**3,241**	**3,193**	**3,146**
Water Losses (Real Loss + Apparent Loss)	156	154	152	150	147
Total Water Consumption (Total Supply into System):	**3,493**	**3,443**	**3,393**	**3,343**	**3,294**

(1) Includes government use

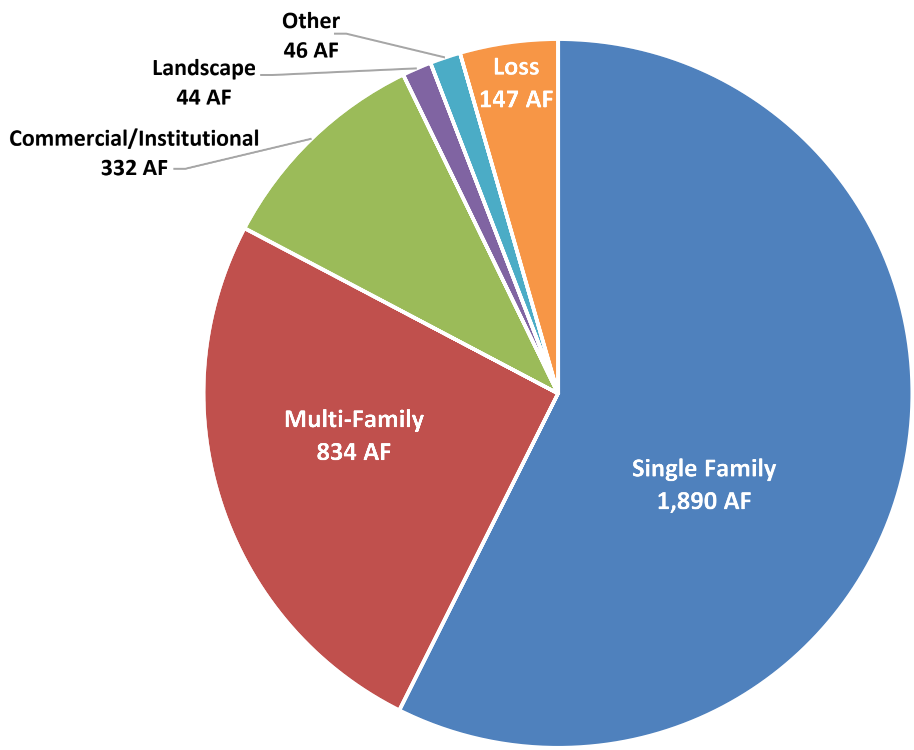


Figure 6.7 Projected Water Demand by Sector (in 2050)

7

Section 7: Reliability Planning

The recent drought in the Lower Colorado River Basin (pictured), has brought changes to water supply management.

7.1. OVERVIEW

Drought conditions continue to be a critical issue for Southern California's water supply. The recent drought of 2020-2022 has impacted deliveries of imported water to Southern California cities. The documented deliveries of water from the State Water Project (SWP) for Water Year 2022 (October 1st, 2022, to September 30, 2023) indicate that the volume of water delivered to SWP Contractors was the lowest since Water Year 2020. Therefore, it is important that agencies manage water consumption and reduce reliance on imported water through local groundwater and surface water supplies. Water agencies should prepare for prolonged droughts for up to five (5) years to ensure a reliable supply of water.

Since the District does rely on imported water, drought conditions are a critical issue for the District's water supply. A strong understanding of water supply sources, and the current state, regional, and local issues affecting those sources, are a first step to properly managing supply and demand. Water agencies should prepare for prolonged droughts for up to five (5) years to ensure a reliable supply of water.

This Section discusses historic and recent droughts in the State and in the region. This Section also compares projected supply to projected demand over a 25-year planning period (through 2050) for various climate scenarios. Demand and supply projections are provided in **Tables 7.1** - **7.7**.

7.2. HISTORIC DROUGHTS

Climate data has been recorded in California since 1858. Since then, California has experienced several periods of severe drought, including: 1928-34, 1976-77 and 1987-91, 2007-2009, 2011-2017 and most recently in 2020-2022. In addition to these, California has also experienced several periods of less severe drought. Among the aforementioned droughts, the year 1977 is still considered to be the driest year of record in the Four Rivers Basin by DWR (these rivers flow into the Sacramento Delta and are the source of water for the State Water Project) which had an all-time low of 15 million acre-feet of average annual runoff.

In 1983, as a result of previous droughts, the State legislature enacted the UWMP Act, which requires the preparation of an UWMP. Several subsequent amendments have been made to the Act to ensure such items as public coordination, recycled water, and contingency response plans are included in UWMPs.

In 1991, as a result of the 1987-1991 drought, over 100 water agencies and environmental groups came together to form the California Urban Water Conservation Council (CUWCC) to manage the impacts of drought and promote water conservation. In January 2018, the CUWCC became the California Water Efficiency Partnership (CalWEP), and consists of over 200 water agencies and private companies. CalWEP assists its member agencies with public policy, research, and education tools.

As a result of the drought of 2007-2009, Governor Schwarzenegger signed the Water Conservation Act of 2009 (SBx7-7), which is perhaps the strongest piece of legislation to date on water conservation, requiring mandatory water conservation up to 20 percent by 2020.

In January of 2014, former Governor Brown declared a state of emergency and directed state officials to take all necessary actions to prepare for water shortages. As the drought prolonged into Water Year 2015, former Governor Brown gave an executive order in April 2015, which mandated a statewide 25% reduction in water use, with each agency assigned specific target reductions.

At the local level, water agencies have enacted their own ordinances to deal with the impacts of drought. The District's Water Shortage Contingency Plan (WSCP), as contained in **Section 8**, deals with Water Conservation.

7.3. RECENT DROUGHT (2020-2022)

A significant and prolonged drought hit the state of California in 2020-2022. The drought depleted reservoir levels all across the state, as reflected by **Figure 7.1**. On July 8, 2021, Governor Newson declared a state of emergency and issued an Executive Order calling for a statewide voluntarily reduction of 15% from consumers 2020 levels in order to preserve the State's surface and groundwater supplies and better prepare for the potential for continued dry conditions next year, and to join existing efforts by agricultural water users, public water systems, and governmental agencies to respond to water shortages. On October 19, 2021, Governor Newsom issued an Executive Order declaring a statewide drought emergency.

Figure 7.1 Governor Newsom at Lake Mendocino in Ukiah on April 21, 2021

In May 2022, the Governor ordered the SWRCB into evaluate the adoption of regulations banning irrigation of “non-functional” turf (or grass), such as decorative grass adjacent to large industrial and commercial buildings. The ban would not include residential lawns or grass used for recreation, such as school fields, sports fields and parks. The DWR estimated this ban alone would result in potential water savings of several hundred thousand acre-feet. An acre-foot of water serves the needs of approximately three households for a year.

In March 2024 DWR finalized the 2024 State Water Project Long-Term Drought Plan. The 2024 State Water Project Long-Term Drought Plan consolidates information and actions taken during past droughts along with descriptions of the actions taken by the SWP to plan for and prepare for future droughts.

The scope of the SWP’s drought planning activities is driven by the role the SWP plays within California’s water management system during times of drought. The SWP’s planning is specific to its role as a wholesale water provider. The SWP’s drought planning is necessarily different from the planning by other water managers that are responsible for directly providing water to end-use customers. For these water managers, drought planning generally includes identifying a portfolio of different water supplies and demand management actions that ensure a minimum amount of water can be provided with a set degree of certainty. Retail water suppliers have a “duty to serve” water demand within their service areas and must have detailed contingency plans for meeting demand during drought conditions.

2024 SWP Drought Plan consolidates information and actions taken during past droughts.

Although the recent droughts have more significantly impacted northern and central-valley agencies that use SWP water for agriculture, the District is indirectly impacted by the recent drought conditions on Northern California Waters since this water source is the majority source of water imported from the MWD.

7.4. STATE WATER SUPPLY RELIABILITY

As a result of continued drought challenges to the State's water supplies, SWP Contractors understand the unpredictability of imported water allocations from the SWP.

With participation of the SWP Contractors, DWR strives to meet the water needs of Southern California by developing new projects to increase the capacity of its supplies while encouraging its member agencies to develop local supply projects to meet the needs of its customers. Also, DWR is committed to developing and maintaining high-capacity storage reservoirs, including both DWR-owned and Contractor-owned (such as Diamond Valley Lake, an MWD-owned reservoir, the largest in Southern California), to meet the needs during times of drought and emergency.

The large reservoirs help to avoid the repercussions of reduced supplies not only from the SWP but also the Colorado River Aqueduct (CRA). Throughout the Southern California Region, a total of three (3) DWR-owned reservoirs, nine (9) MWD-owned reservoirs, and twenty-four (24) CWA reservoirs contain up to 2.2 million acre-feet (MAF) of water storage.

One of the State's largest reservoirs, Lake Oroville in Butte County, witnessed low water conditions at Enterprise (**Figure 7.5)**. On this date (October 4, 2022), the water storage was 1.22 MAF, 35 percent of the total capacity.

Figure 7.6 shows an aerial view of high water conditions at Enterprise Bridge. On this date (June 12, 2023), the water storage was 3.52 MAF, 100 percent of the total capacity. The 2025 calendar year was also below the average, with a total recorded rainfall at the District's nearby CIMIS stations at Otay Lake (#147) and at Escondido (#153) of 9 and 9.3 inches, respectively (**Section 2.4**).

7.4.1. State Water Project (SWP) Reliability

As a SWP contractor, MWD has a "Table A" allocation of up to 1,911,500 AFY (per year). Since MWD began receiving SWP water, however, the average amount of water received each year is roughly 58% of the full Table A amount. On an annual basis, each of the 29 SWP Contractors request amounts of SWP water based on their anticipated yearly demand. Each SWP contractor's Water Supply Contract contains a "Table A" amount that identifies the maximum amount of water that a contractor may request. However, the amount of SWP water actually allocated to contractors each year is dependent on a number of factors that can vary significantly from year to year. The availability of SWP supplies is generally less than their full Table A amounts in many years and can be significantly less in very dry years. After receiving the requests, DWR assesses the amount of water supply available based on precipitation, snowpack on Northern California watersheds, volume of water in storage, projected carry over storage, and Sacramento-San Joaquin Bay Delta regulatory requirements. For example, according to the State Water Project Delivery Reliability Report 2023, the total SWP annual delivery of water to contractors ranged from a low of 279 thousand acre-feet (TAF) in 2022 to a high of 3.4 in 2017.

SWP supplies are typically less than the maximum "Table A" amounts requested by the Contractors each year.

Due to the uncertainty in water supply, contractors are not typically guaranteed their full Table A amount, but instead a percentage of that amount based on available supply. For instance, the current DWR Notice to Contractors 26-01 (January 2026) indicates that the initial allocation is set at 30%, which is up from 10% per initial allocation. For MWD, the current allocation based on the Notice to Contractors for this year is set at 573,450 AF.

The reliability of the SWP impacts the Contractors ability to plan for future growth and supply. SWP Contractors can seek out other local supply sources or transfer agreements (such as transfers with Colorado River rights holders). Although not directly important for the District, matters involving the SWP do impact the District indirectly.

Figure 7.2 Lake Oroville During Drought of 2020-2022 (October 4, 2022)

Figure 7.3 Lake Oroville After Drought (June 12, 2023)

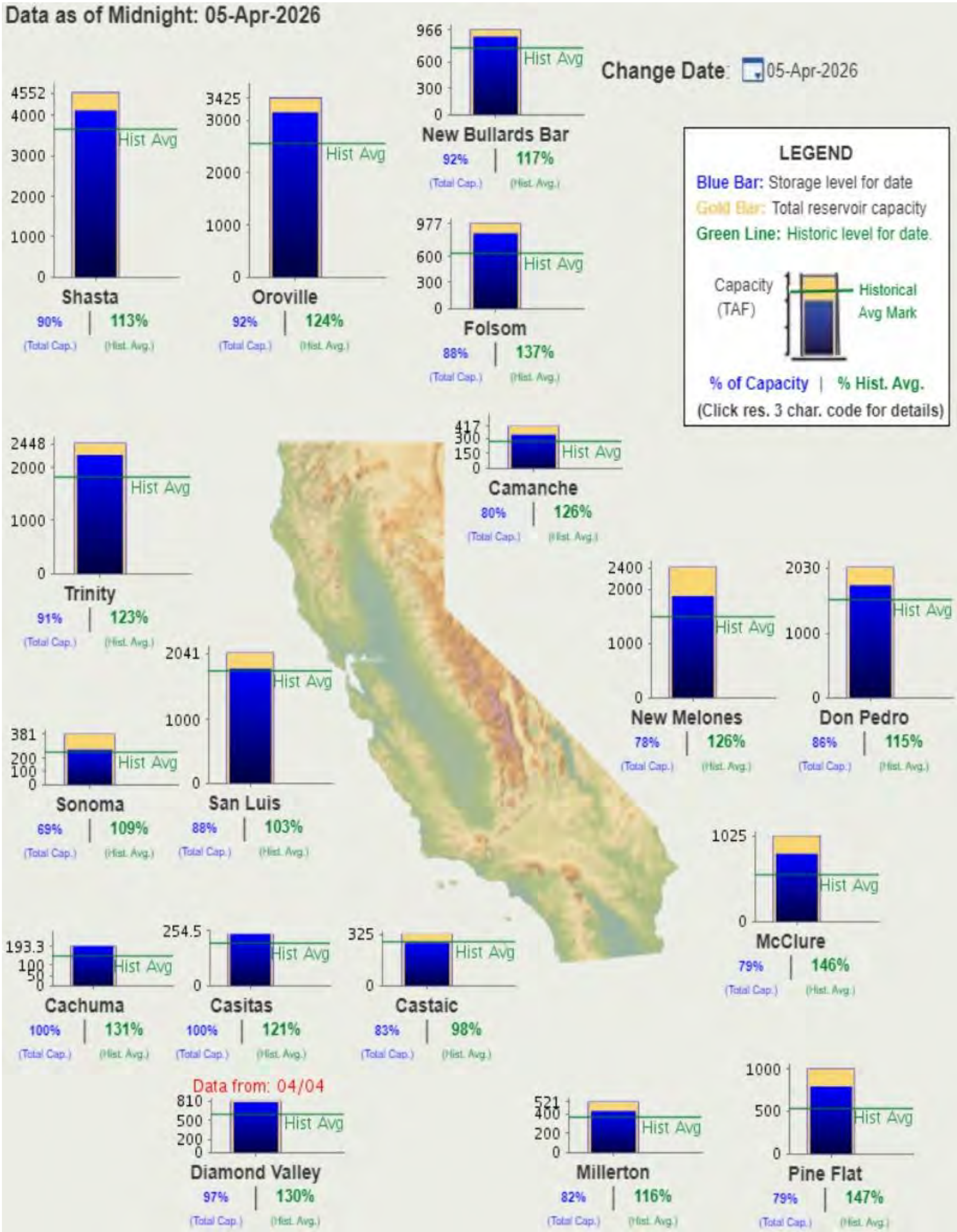


Figure 7.4 California State Reservoir Levels (April 2026)

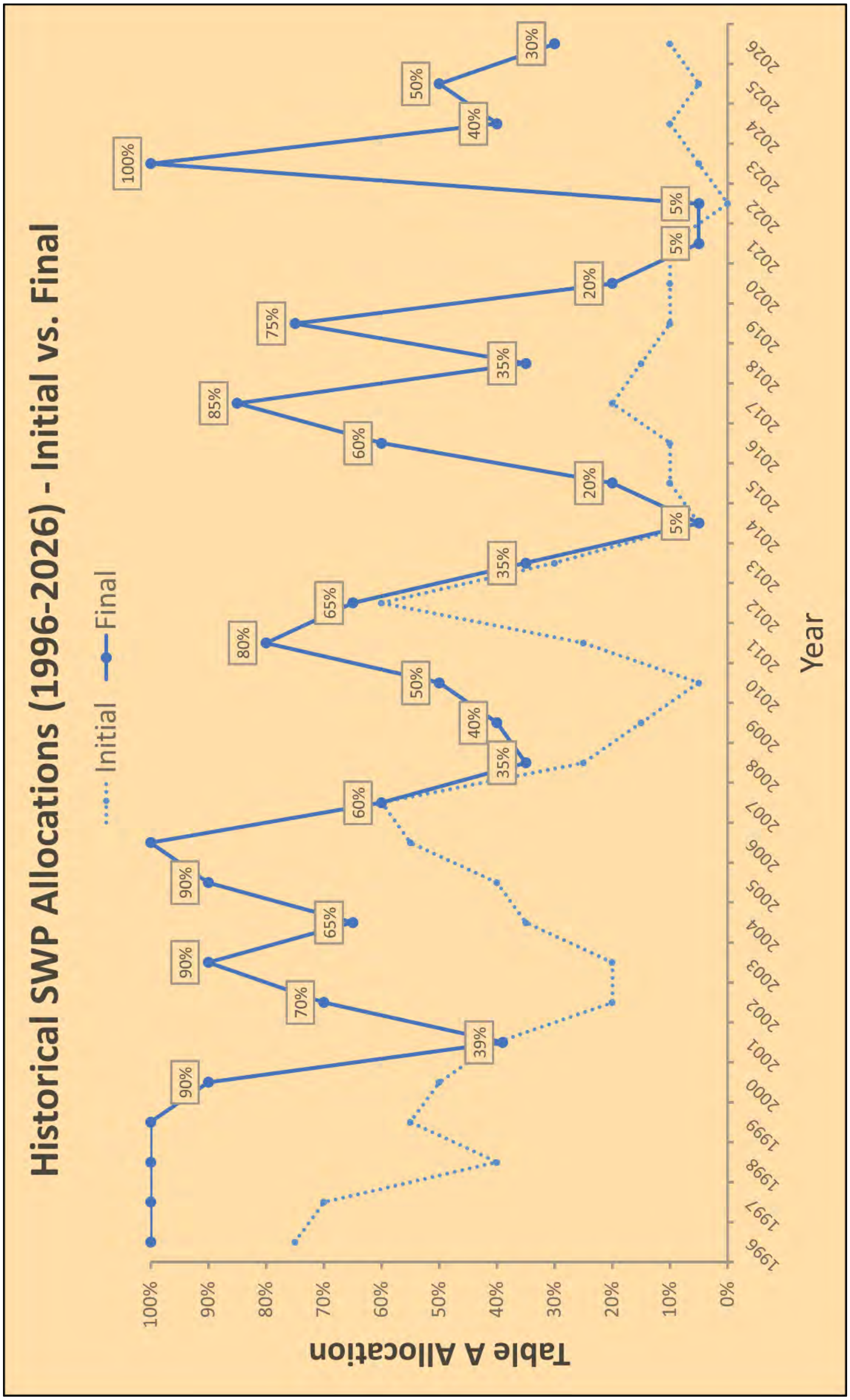


Figure 7.5 SWP Table A Deliveries

7.5. COLORADO RIVER RELIABILITY

Water supply from the Colorado River continues to be a critical issue for Southern California as many agencies compete for both SWP water and Colorado River water. The Lower Colorado River Basin has been suffering from its own drought (in addition to the droughts across California). The average annual flow of the Lower Colorado River is approximately 12.4 million acre-feet per year (MAFY) since 2000, with historical data showing an average of 14.6 MAFY. As of January 2025, Lake Powell had a storage volume of 8.67 MAF, which is about 37% of its capacity. In contrast, Lake Mead's storage was reported at 10.83 MAF, or 38% of its capacity.

Colorado River conditions have an indirect impact on the City since some SWP Contractors also have rights to the CRA (such as MWD and CVWD)

In February 2026, the Department of the Interior (DOI) is moving forward with the Post-2026 NEPA process to finalize operating guidelines for Colorado River reservoirs by Oct. 1, 2026. While the seven Colorado River Basin States have not reached full consensus on an operating framework, the DOI has indicated that they cannot delay action because meeting this deadline is essential to ensure certainty and stability for the Colorado River system beyond 2026.

7.5.1. Competition for Water Rights

For Colorado River rights holders, the "*Law of the River*" is essentially a compilation of numerous compacts, state and federal laws, court decisions and decrees, contracts, and regulatory guidelines which define rights to water from the Colorado River. These documents apportion the water and regulate the use and management of the Colorado River among the seven basin states and Mexico. A brief listing of these compacts and acts include:

- Colorado River Compact (1922)
- Boulder-Canyon Project Act (1928)
- CA Seven Party Agreement (1931)
- Arizona v. California (1964)
- CO River Basin Project Act (1968)
- Arizona v. California (1979)
- Quantification Settlement Agreement (2003)

Per the 2003 Quantification Settlement Agreement (QSA), California's allocation has been confirmed at 4.4 MAF per year, with MWD maintaining just over 1 MAF in rights. Likewise, the Coachella Valley Water District (LWD) holds rights to the CRA. As SWP contractors, MWD's and LWD's extractions from the CRA impact their annual requests for SWP Table A amounts.

Figure 7.6 The Palo Verde Diversion Dam on the Colorado River

7.6. DISTRICT SUPPLY RELIABILITY

As the District obtains its water sources from a combination of local groundwater and imported water, the supply reliability is based on the reliability of the Santee-El Monte Basin, the Colorado River, and the Sacramento-San Joaquin River Delta. The basin is considered to be a reliable source of supply since its current storage levels far exceed any planned pumping.

MWD is participating in the development of groundwater, groundwater recovery, recycled water systems, desalination opportunities, and collection of urban return flows to augment the reliability of the imported water system. There are various factors that may impact reliability of supplies, such as legal, environmental, water quality, and climatic, which are discussed below. The water supplies are projected to meet full-service demands; MWD's 2020 UWMP finds that MWD is able to meet with existing supplies full service demands of its member agencies in 2025 through 2045 during normal years, single dry year, and multiple dry years.

MWD's 2020 Integrated Water Resources Plan (IRP) update describes the core resource strategy used to meet full-service retail demands under all foreseeable hydrologic conditions from 2025 through 2045. The foundation of MWD's resource strategy for achieving regional water supply reliability consists of developing and implementing water resources programs and activities through its IRP preferred resource mix. This preferred resource mix includes conservation, local resources, such as water recycling and groundwater recovery, Colorado River supplies and transfers, SWP supplies and transfers, in-region surface reservoir storage, in-region groundwater storage, out-of-region banking, treatment, conveyance and infrastructure improvements. FMWD is reliant on MWD for all of its imported water. With the addition of planned supplies under development, MWD's 2020 UWMP finds that MWD will be able to meet full-service demands from 2025 through 2045, even under a repeat of the worst drought. **Table 3.10** shows the reliability of the MWD's supply for single dry year and multiple dry year scenarios. MWD's single dry year is based on the drought in 1977. MWD's five-consecutive dry years is based on from 1988 to 1992, which represents as the driest five-consecutive year historic sequence for MWD's water supply. In addition to meeting full- service demands from 2025 through 2045, MWD projects reserve and replenishment supplies to refill system storage.

Table 3.10: MWD Supply Reliability Single & Multiple Dry Years

		Base Year	Percent Available
Average		1922 -	100%
Single Dry		1977	100%
Multiple Dry Years	Year 1	1988	100%
	Year	1989	100%
	Year	1990	100%
	Year	1991	100%
	Year	1992	100%

7.6.1. Reliability of Alternative Sources

Recycled Water Reliability

Since recycled water is produced from wastewater, this source has the advantage of consistently being available during any type of average, single-dry, or multiple-dry year as discussed in **Section 3**. If the District were to use recycled water at some point in the future, it would genuinely add to the District's overall supply reliability, especially since about 5 percent of the District's water is used for landscape irrigation (i.e. lawns, parks, athletic fields, etc).

7.7. DROUGHT RISK ASSESSMENT

The quantity of supply available from different water supply sources can vary from one year to the next depending on hydrologic conditions. The drought risk assessment is an assessment of the reliability of the District's water supplies by comparing projected future water demands with expected available water supplies under three different hydrologic conditions: (1) normal water year, (2) single dry year, and (3) multiple dry years. For the sake of this UWMP, the multiple dry-year period is taken to be five (5) years. Future supply and demand conditions can be determined from the following data:

- Population forecasts
- Water supply capacity
- Recent water use trends

The data described above has been provided in the previous sections of this UWMP, including **Section 3** (Water Sources & Supplies), and **Section 6** (Water Use). The projected comparisons in this Section are based on data from those previous sections.

7.7.1. Basis for Projected Demands

To project future demands, it will be assumed that total demand will change annually based on changes in population multiplied by the individual demand per-person (also known as the "per-capita" consumption rate -see **Section 6**). The per-capita rates used in the future projections will be based on actual water use data from the recent past. In particular, the District's averages for the last five (5) years will be used as the basis to project demands through the year 2050. To project demands and supplies, the following is assumed:

- Consumption rate of 90.2 gallons per capita per day (GPCD) as the average consumption of the District in the last 5 years.
- *Decreasing* consumption rate (from 90.2 GPCD) starting in 2026 with a passive savings of 0.5% annually. This brings the 2026 consumption rate to 89.7 GPCD.

Although a constant consumption rate provides a more conservative approach, the decreasing consumption rate scenario provides a realistic basis for planning purposes since it considers gradual improvements in water-use efficiency. In the past 5 years, the District has seen a 9.09% decrease in water use efficiency. The District's GPCD in 2021 was 98.7 GPCD, and the District's consumption rate in 2025 was 90.2 GPCD. This amounts to an average decrease of about 2.17% annually.

For drought-time demands, it is expected that there will be a small degree of increase due to the lack of rainfall on landscapes. To project demands during single and multiple (five) year drought periods, the following increase factors will be assumed:

- Dry Year: 22%
- Multiple Dry Years: 8%, 12%, 16%, 20%, and 25%

During the recent drought of 2011 to 2017, water agencies in the State experienced an increase in water demands, until former Gov. Brown's Emergency Declaration in 2015. Nevertheless, the increase factors listed above are reasonable for the purposes of demand projections since they provide reasonable estimates of increases in water use for irrigation during dry-years.

7.7.2. Basis for Projected Supplies

As for projected supplies, because the District's supplies are mostly drought-proof as stated previously in this Section, it is very unlikely that supplies will be restricted, even during multi-year periods. Thus, for conservative planning purposes, the District's projected water supplies will be based off 75% of its active well capacity and maximum supply of imported/purchased water received in the last 10. With a current total supply capacity of roughly 2,987 gpm (including 2 wells) and Imported water from CWA), this equates to roughly 2,774 gpm or 4,475 AFY.

7.7.3. Tabular Comparisons

Tables **7.1** to **7.7**, shown on the following pages, provide an analysis of the District's supply and demand projections from 2030 through 2050. **Figures 7.9 to 7.11** show a visual pie-chart for the year 2050. Based on the data contained in these tables, the District can expect to meet future demands for all climate conditions through 2050.

Table 7.1 Lakeside Water District Water Supply Availability & Demand Projections – Normal Water Year (AF)

Water Sources	2030	2035	2040	2045	2050
Population					
Water Service Area Population	35,415	35,790	36,165	36,540	36,915
Consumption Rate (GPCD)[1] *Including 0.5% Annual Passive Savings*	88.1	85.9	83.8	81.7	79.7
Supply					
Groundwater Pumped (Total)	552	544	536	528	521
Recycled Water	0	0	0	0	0
Purchased Water	2,941	2,899	2,857	2,815	2,773
Total Anticipated Use of Supplies ***(Estimated Production)***	**3,493**	**3,443**	**3,393**	**3,343**	**3,294**
Minimum Available Supply[2]	4,475	4,475	4,475	4,475	4,475
Demand					
Estimated Potable Water Demand	**3,493**	**3,443**	**3,393**	**3,343**	**3,294**
Estimated Recycled Water Demand	0	0	0	0	0
Total Estimated Demand	**3,493**	**3,443**	**3,393**	**3,343**	**3,294**
Compare to Avg. Demand from 2021-2025 (3,402 AF)[3]	103%	101%	100%	98%	97%
Supply/Demand Comparison					
Supply-Demand (Difference)	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Supply Capacity[4]	982	1,032	1,082	1,132	1,181

Notes:

1. Total Demand and Total Supply = Consumption Rate x Projected Population
   a. Average consumption rate of last 5 years = 90.2 gallons per capita per day (GPCD)
   b. Estimated starting consumption rate in 2026 = 89.7 GPCD
   c. Approximate "passive" savings: 0.5% per year
   d. Projected "passive" savings: 0.5% per year = 79.6 gpcd by 2050
2. Groundwater production capacity (minimum available supply) represents the District's active wells:
   a. Wells in local area: Vine Street Well Field's 2 wells
   b. 75% of Total well capacity: 850 gpm (1,371 AFY)
3. Projected groundwater pumping and purchased water equals the projected water consumption (demands) shown in **Table 6.7** of **Section 6**.
4. No other potable supply sources are expected to become available.

Table 7.2 Lakeside Water District Water Supply Availability & Demand Projections – Single Dry Year (AF)

Water Sources	2030	2035	2040	2045	2050
Population					
Water Service Area Population	35,415	35,790	36,165	36,540	36,915
Consumption Rate (GPCD)[1] *Including 0.5% Annual Passive Savings*	88.1	85.9	83.8	81.7	79.7
Supply					
Groundwater Pumped (Total)	674	664	654	645	635
Recycled Water	0	0	0	0	0
Purchased Water	3,588	3,536	3,485	3,434	3,383
Total Anticipated Use of Supplies ***(Estimated Production)***	**4,262**	**4,200**	**4,139**	**4,079**	**4,018**
Minimum Available Supply[2]	4,475	4,475	4,475	4,475	4,475
Normal Year Supply	3,493	3,443	3,393	3,343	3,294
% of Normal Year	122%	122%	122%	122%	122%
Demand					
Total Dry Demand	**4,262**	**4,200**	**4,139**	**4,079**	**4,018**
Normal Year Demand	3,493	3,443	3,393	3,343	3,294
% of Normal Year	122%	122%	122%	122%	122%
Supply/Demand Comparison					
Supply-Demand (Difference)	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Supply Capacity[4]	213	275	336	396	456

Notes:

1. Dry Demand = Normal Year Demands x Single Dry Year Increase of 122%.

2. All other items determined in similitude to **Table 7.1**.

Table 7.3 Lakeside Water District Water Supply Availability & Demand Projections – Multiple Dry Years (2026-2030) (AF)

Water Sources	2026	2027	2028	2029	2030
Population					
Water Service Area Population	35,115	35,190	35,265	35,340	35,415
Consumption Rate (GPCD)[1] *Including 0.5% Annual Passive Savings*	89.8	89.4	88.9	88.5	88.1
Supply					
Groundwater Pumped (Total)	603	624	644	664	690
Recycled Water	0	0	0	0	0
Purchased Water	3,213	3,323	3,431	3,539	3,676
Total Anticipated Use of Supplies ***(Estimated Production)***	**3,816**	**3,946**	**4,076**	**4,204**	**4,366**
Minimum Available Supply[2]	4,475	4,475	4,475	4,475	4,475
Normal Year Supply	3,534	3,524	3,513	3,503	3,493
% of Normal Year	108%	112%	116%	120%	125%
Demand					
Total Dry Demand	**3,816**	**3,946**	**4,076**	**4,204**	**4,366**
Normal Year Demand	3,534	3,524	3,513	3,503	3,493
% of Normal Year	108%	112%	116%	120%	125%
Supply/Demand Comparison					
Supply-Demand (Difference)	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Supply Capacity[4]	658	528	399	271	108

Notes:

1. Dry Demand = Normal Year Demands x Multiple Dry Year Increases of 108%, 112%, 116%, 120%, and 125%.

2. All other items determined in similitude to **Table 7.1**.

Table 7.4 Lakeside Water District Water Supply Availability & Demand Projections – Multiple Dry Years (2031-2035) (AF)

Water Sources	2031	2032	2033	2034	2035
Population					
Water Service Area Population	35,490	35,565	35,640	35,715	35,790
Consumption Rate (GPCD)[1] *Including 0.5% Annual Passive Savings*	87.6	87.2	86.7	86.3	85.9
Supply					
Groundwater Pumped (Total)	595	615	635	655	680
Recycled Water	0	0	0	0	0
Purchased Water	3,167	3,275	3,382	3,489	3,623
Total Anticipated Use of Supplies ***(Estimated Production)***	**3,762**	**3,890**	**4,017**	**4,143**	**4,303**
Minimum Available Supply[2]	4,475	4,475	4,475	4,475	4,475
Normal Year Supply	3,483	3,473	3,463	3,453	3,443
% of Normal Year	108%	112%	116%	120%	125%
Demand					
Total Dry Demand	**3,762**	**3,890**	**4,017**	**4,143**	**4,303**
Normal Year Demand	3,483	3,473	3,463	3,453	3,443
% of Normal Year	108%	112%	116%	120%	125%
Supply/Demand Comparison					
Supply-Demand (Difference)	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Supply Capacity[4]	713	585	458	331	171

Notes:

1. Dry Demand = Normal Year Demands x Multiple Dry Year Increases of 108%, 112%, 116%, 120%, and 125%.
2. All other items determined in similitude to **Table 7.1**.

Table 7.5 Lakeside Water District Water Supply Availability & Demand Projections – Multiple Dry Years (2036-2040) (AF)

Water Sources	2036	2037	2038	2039	2040
Population					
Water Service Area Population	35,865	35,940	36,015	36,090	36,165
Consumption Rate (GPCD)[1] *Including 0.5% Annual Passive Savings*	85.4	85.0	84.6	84.2	83.8
Supply					
Groundwater Pumped (Total)	586	606	626	645	670
Recycled Water	0	0	0	0	0
Purchased Water	3,121	3,228	3,333	3,438	3,571
Total Anticipated Use of Supplies ***(Estimated Production)***	**3,707**	**3,833**	**3,959**	**4,083**	**4,241**
Minimum Available Supply[2]	4,475	4,475	4,475	4,475	4,475
Normal Year Supply	3,433	3,423	3,413	3,403	3,393
% of Normal Year	108%	112%	116%	120%	125%
Demand					
Total Dry Demand	**3,707**	**3,833**	**3,959**	**4,083**	**4,241**
Normal Year Demand	3,433	3,423	3,413	3,403	3,393
% of Normal Year	108%	112%	116%	120%	125%
Supply/Demand Comparison					
Supply-Demand (Difference)	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Supply Capacity[4]	767	641	516	392	234

Notes:

1. Dry Demand = Normal Year Demands x Multiple Dry Year Increases of 108%, 112%, 116%, 120%, and 125%.

2. All other items determined in similitude to **Table 7.1**.

Table 7.6 Lakeside Water District Water Supply Availability & Demand Projections – Multiple Dry Years (2041-2045) (AF)

Water Sources	2041	2042	2043	2044	2045
Population					
Water Service Area Population	36,240	36,315	36,390	36,465	36,540
Consumption Rate (GPCD)[1] *Including 0.5% Annual Passive Savings*	83.3	82.9	82.5	82.1	81.7
Supply					
Groundwater Pumped (Total)	577	597	617	636	660
Recycled Water	0	0	0	0	0
Purchased Water	3,076	3,181	3,284	3,388	3,518
Total Anticipated Use of Supplies *(Estimated Production)*	**3,653**	**3,778**	**3,901**	**4,024**	**4,179**
Minimum Available Supply[2]	4,475	4,475	4,475	4,475	4,475
Normal Year Supply	3,383	3,373	3,363	3,353	3,343
% of Normal Year	108%	112%	116%	120%	125%
Demand					
Total Dry Demand	**3,653**	**3,778**	**3,901**	**4,024**	**4,179**
Normal Year Demand	3,383	3,373	3,363	3,353	3,343
% of Normal Year	108%	112%	116%	120%	125%
Supply/Demand Comparison					
Supply-Demand (Difference)	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Supply Capacity[4]	821	697	574	451	296

Notes:

1. Dry Demand = Normal Year Demands x Multiple Dry Year Increases of 108%, 112%, 116%, 120%, and 125%.

2. All other items determined in similitude to **Table 7.1**.

Table 7.7 Lakeside Water District Water Supply Availability & Demand Projections – Multiple Dry Years (2046-2050) (AF)

Water Sources	2046	2047	2048	2049	2050
Population					
Water Service Area Population	36,615	36,690	36,765	36,840	36,915
Consumption Rate (GPCD)[1] *Including 0.5% Annual Passive Savings*	81.3	80.9	80.5	80.1	79.7
Supply					
Groundwater Pumped (Total)	569	588	607	627	651
Recycled Water	0	0	0	0	0
Purchased Water	3,031	3,134	3,236	3,338	3,466
Total Anticipated Use of Supplies ***(Estimated Production)***	**3,600**	**3,722**	**3,844**	**3,964**	**4,117**
Minimum Available Supply[2]	4,475	4,475	4,475	4,475	4,475
Normal Year Supply	3,333	3,323	3,313	3,304	3,294
% of Normal Year	108%	112%	116%	120%	125%
Demand					
Total Dry Demand	**3,600**	**3,722**	**3,844**	**3,964**	**4,117**
Normal Year Demand	3,333	3,323	3,313	3,304	3,294
% of Normal Year	108%	112%	116%	120%	125%
Supply/Demand Comparison					
Supply-Demand (Difference)	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Supply Capacity[4]	875	753	631	510	358

Notes:

1. Dry Demand = Normal Year Demands x Multiple Dry Year Increases of 108%, 112%, 116%, 120%, and 125%.

2. All other items determined in similitude to Table 7.1.

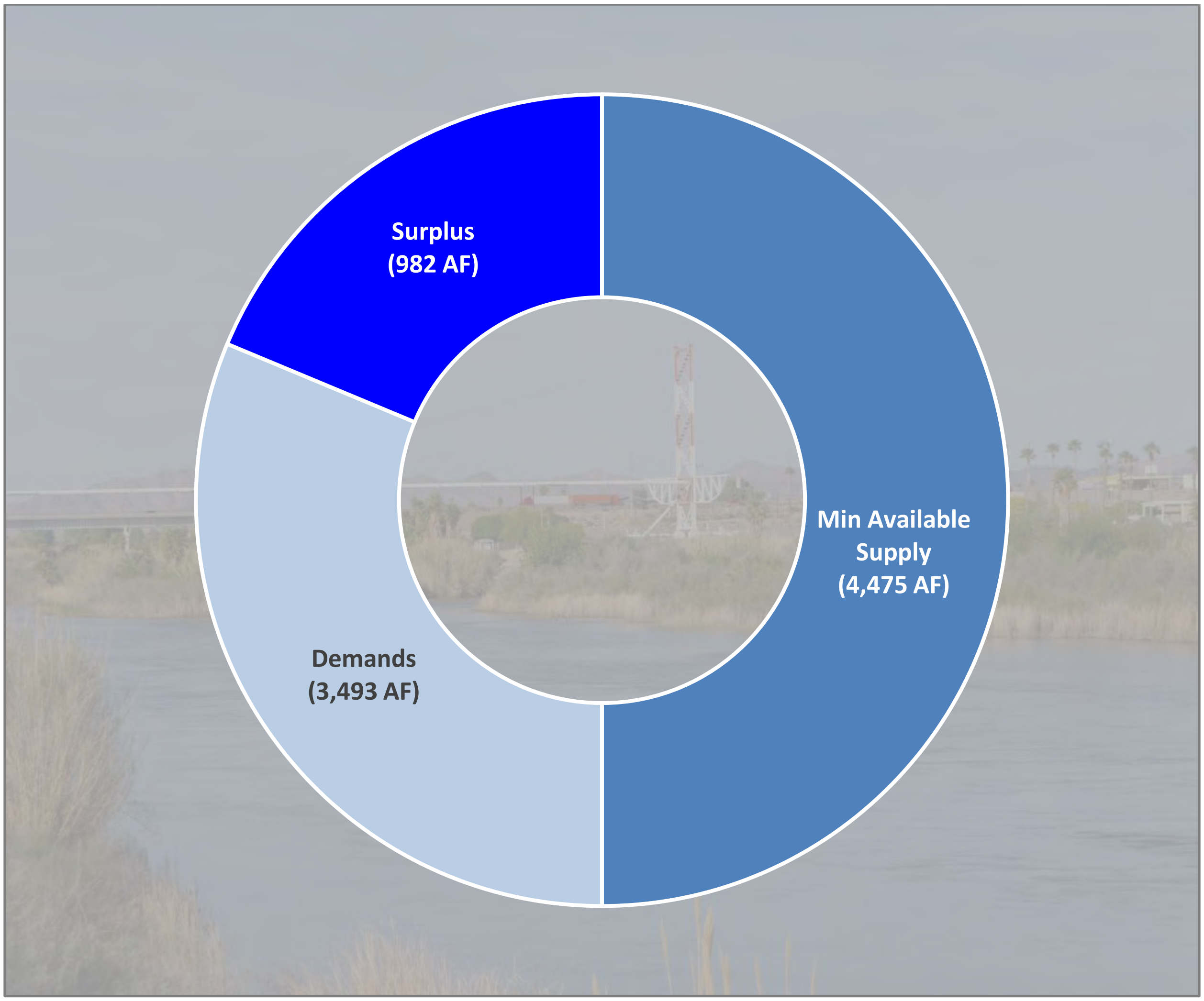


Figure 7.7 Projected Normal Water Supply: Year 2030

<u>Notes:</u>

1. See Notes Under Table 7.1.
2. Surplus = Minimum Available Supply – Total Demand = 4,475 AF – 3,493 AF = 982 AF

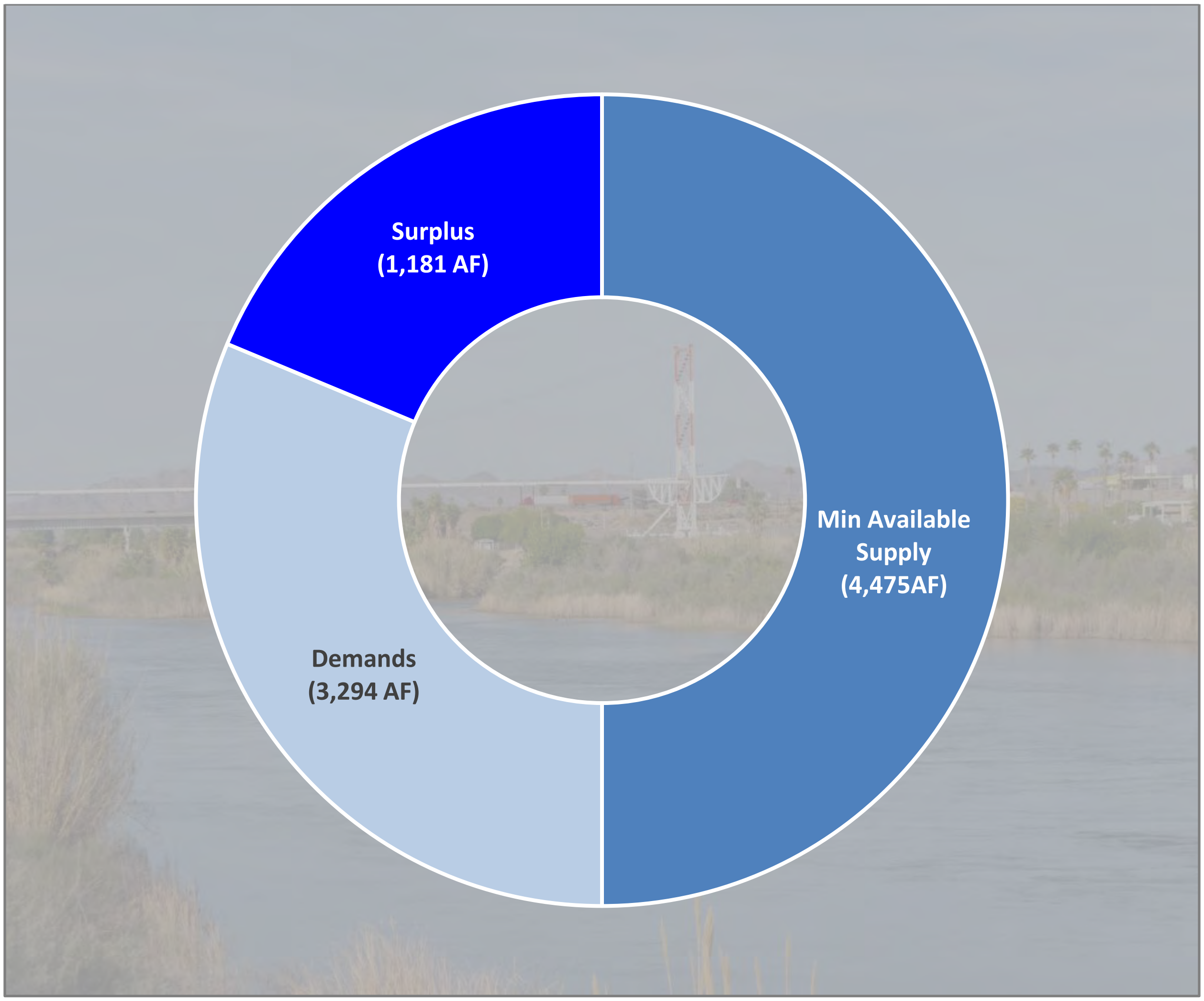


Figure 7.8 Projected Normal Water Supply: Year 2050

Notes:

1. See Notes Under Table 7.1.
2. Surplus = Total Available Supply – Total Demand = 4,475 AF – 3,294 AF = 1,181 AF

7.8. ENSURING ADEQUATE SUPPLY

As indicated by **Tables 7.1** to **7.7** and **Figures 7.9** to **7.11**, the District will be able to meet demands from 2030 through 2050 for all future climatic conditions. If supplies need to be increased in the future, this can most likely be accomplished through expansion of the District's Water Treatment Plant to accommodate additional wells, through the drilling of new wells, or through purchasing of recycled water. Besides expanding water supplies, there is also the measure of demand management (water conservation), which has more immediate impacts and helps demands to be met using the supplies that are already at hand.

Finally, droughts will be addressed by following the criteria of the District's Water Shortage Contingency Plan (WSCP) along with implementation of the regional contingency plans. These programs are discussed in **Section 8**. For these reasons, the District is confident that an adequate amount of supply can be provided to meet demands for all weather conditions through 2050.

7.9. WSCP SUPPLY AUGMENTATION

Although the District does not expect to have a water supply shortage through 2050, as indicated by **Tables 7.1** to **7.7**, severe and extent droughts may cause the WSCP to be enacted. The District will rely on the implementation of the WSCP to augment the District's reduced supply during consecutively dry years. The WSCP supply augmentation benefits during a five-year drought are shown in standard DWR Table 7-5 in **Appendix E**

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