

# Intro to LA Area Water Systems

Who Fills Your Taps?

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*November 2021 WIG Presentation Kathy Kunysz & Grace Peng*

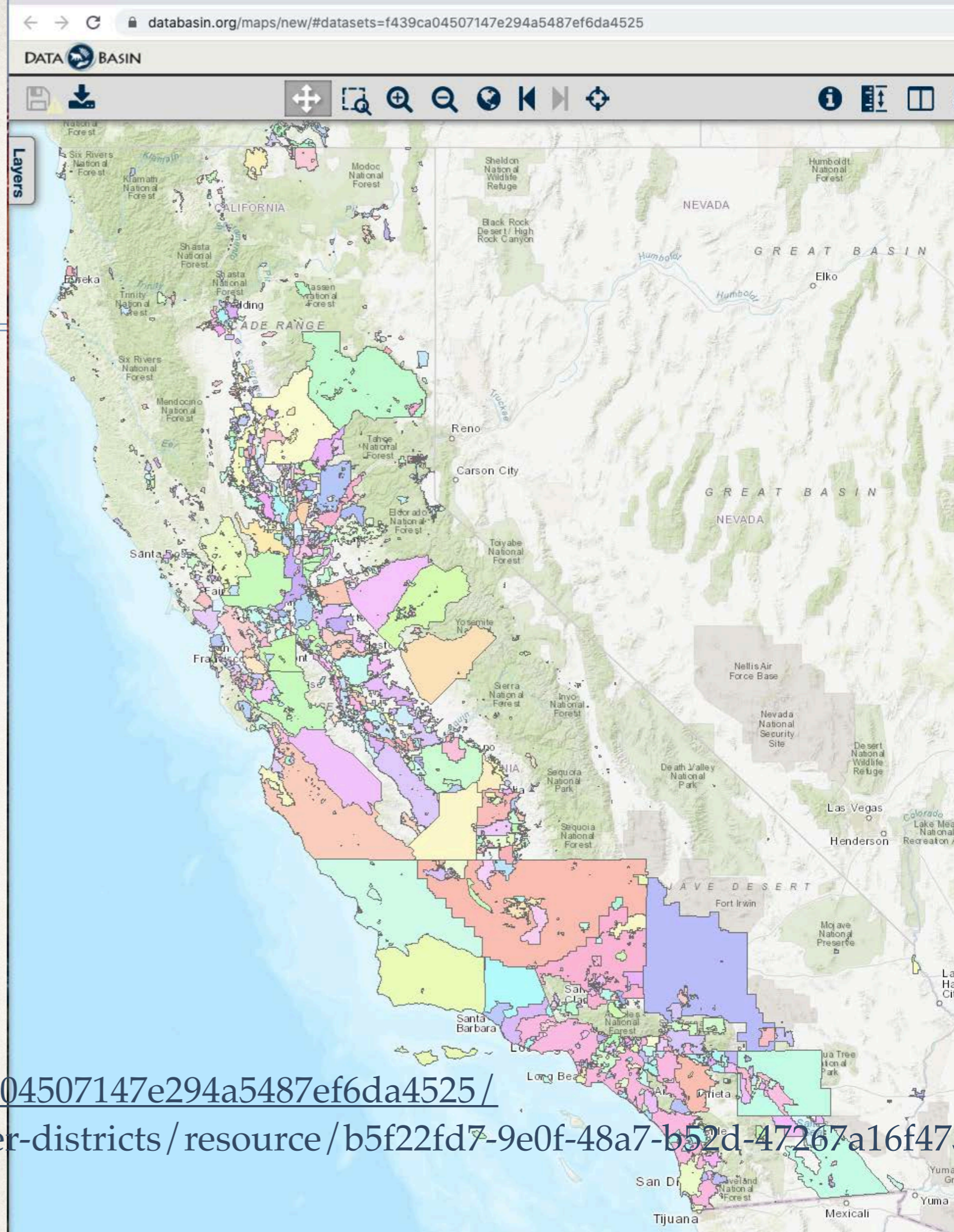


# Who Fills Your Taps?

- ❖ Water Sources
- ❖ Water Suppliers
- ❖ Water Governance
- ❖ 3575 Public Water Agencies in CA

<https://databasin.org/datasets/f439ca04507147e294a5487ef6da4525/>

<https://data.cnra.ca.gov/dataset/water-districts/resource/b5f22fd7-9e0f-48a7-b52d-47267a16f47>





# Water Supply Sources & Conveyance

- ❖ Imported Water
- ❖ State Water Project (SWP)
- ❖ Colorado River (CR)
- ❖ Owens Valley (LADWP)
- ❖ Local Supplies





# SoCal Water Source Diversification

A LONG VIEW OF SOUTHERN CALIFORNIA WATER SUPPLY: PERFECT DROUGHTS REVISITED

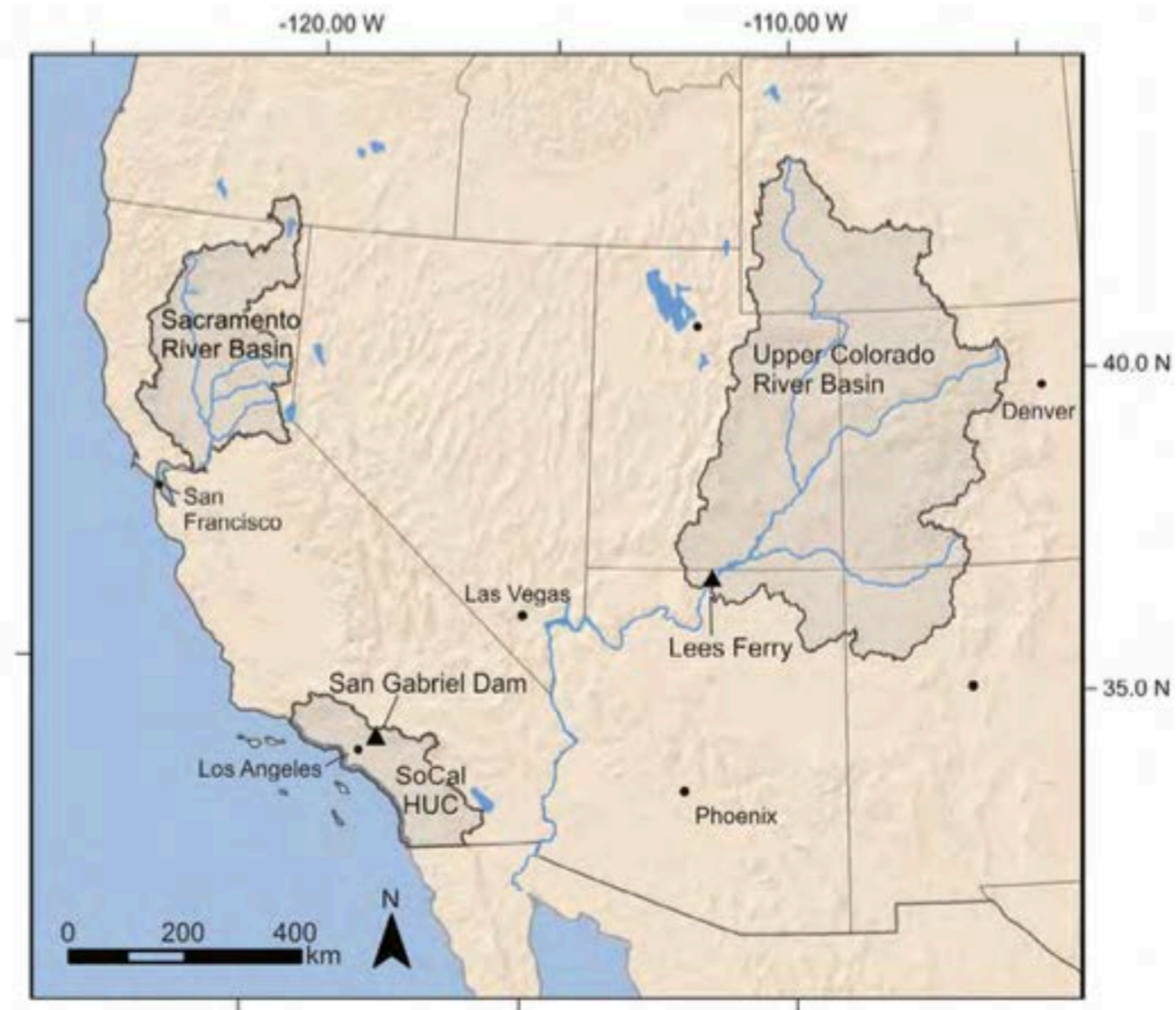


FIGURE 1. Study region, including upper Colorado River Basin, Sacramento River Basin, and Southern California (SoCal) Coast Hydrologic Unit (the three shaded areas). San Gabriel Dam and Lees Ferry are marked with a triangle. HUC, hydrologic unit code.



# Metropolitan: Imported Water & More

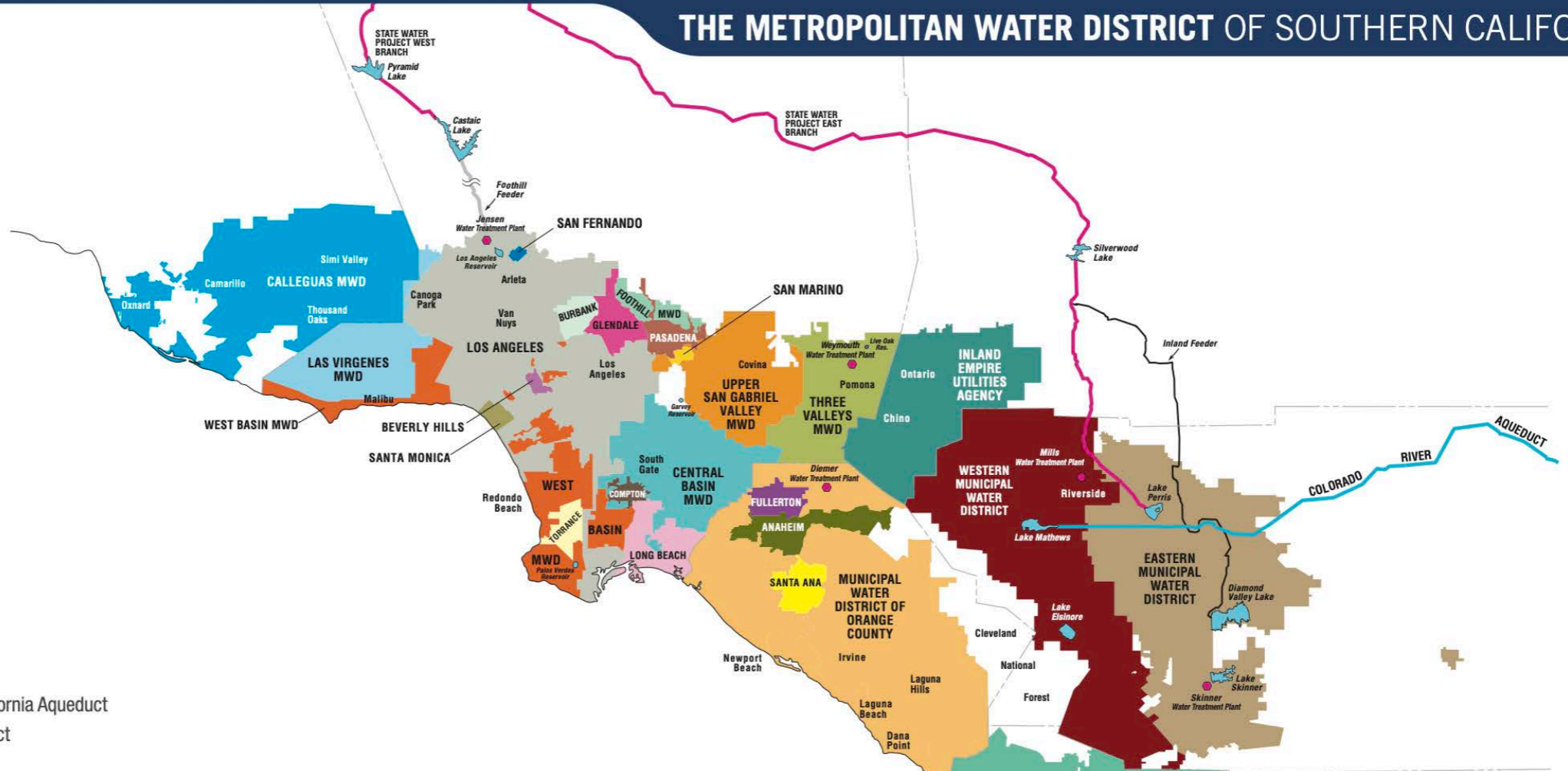
## THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA



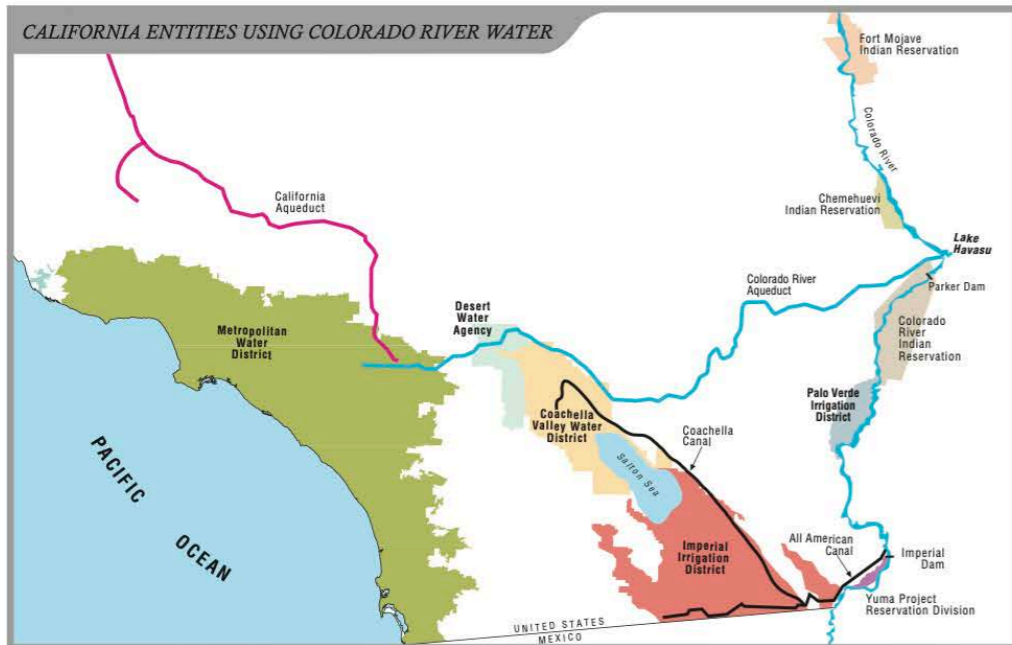
### METROPOLITAN'S MEMBER AGENCIES

#### LEGEND

- Department of Water Resources' California Aqueduct
- Metropolitan's Colorado River Aqueduct
- Water Treatment Plants



### CALIFORNIA ENTITIES USING COLORADO RIVER WATER



UNITED STATES MEXICO



**Anaheim**

**Beverly Hills**

**Burbank**

**Calleguas Municipal Water District**

Bell Canyon  
 Camarillo  
 Camarillo Estates  
 Camarillo Heights  
 Fairview  
 Lake Sherwood  
 Las Posas Valley  
 Moorpark  
 Naval Base Ventura County  
 Newbury Park  
 Oak Park  
 Oxnard  
 Port Hueneme  
 Santa Rosa Valley  
 Simi Valley  
 Somis  
 Thousand Oaks

**Central Basin Municipal Water District**

Artesia  
 Bell  
 Bellflower  
 Bell Gardens  
 Carson  
 Cerritos  
 Commerce  
 Compton  
 Cudahy  
 Downey  
 East Los Angeles  
 Florence-Graham  
 Hawaiian Gardens  
 Huntington Park  
 La Habra Heights  
 Lakewood  
 La Mirada  
 Los Nietos  
 Lynwood  
 Maywood  
 Montebello  
 Monterey Park  
 Norwalk  
 Paramount  
 Pico Rivera  
 Santa Fe Springs  
 Signal Hill  
 South Gate  
 South Whittier  
 Vernon  
 Walnut Park  
 West Whittier

Whittier

Willowbrook

**Compton**

**Eastern Municipal Water District**

French Valley  
 Good Hope  
 Hemet  
 Homeland  
 Juniper Flats  
 Lakeview  
 Mead Valley  
 Menifee  
 Moreno Valley  
 Murrieta  
 Murrieta Hot Springs  
 Nuevo  
 North Canyon Lake  
 Perris  
 Quail Valley  
 Romoland  
 San Jacinto  
 Sun City  
 Temecula  
 Valle Vista  
 Winchester

**Foothill Municipal Water District**

Altadena  
 La Cañada Flintridge  
 La Crescenta  
 Montrose

**Fullerton**

**Glendale**

**Inland Empire Utilities Agency**

Chino  
 Chino Hills  
 Fontana  
 Montclair  
 Ontario  
 Rancho Cucamonga  
 Upland

**Las Virgenes Municipal Water District**

Agoura  
 Agoura Hills  
 Calabasas  
 Chatsworth  
 Hidden Hills  
 Lake Manor  
 Malibu Lake  
 Monte Nido  
 Westlake Village  
 West Hills

**Long Beach**

**Los Angeles**

**Municipal Water District of Orange County**

Aliso Viejo  
 Brea

Buena Park  
 Capistrano Beach  
 Corona Del Mar  
 Costa Mesa  
 Coto De Caza  
 Cypress  
 Dana Point  
 Fountain Valley  
 Garden Grove  
 Huntington Beach  
 Irvine

Laguna Beach  
 Laguna Hills  
 Laguna Niguel  
 Laguna Woods  
 La Habra  
 La Palma  
 Ladera Ranch  
 Lake Forest  
 Las Flores  
 Los Alamitos  
 Mission Viejo  
 Monarch Beach  
 Newport Beach  
 Orange  
 Placentia  
 Rancho Mission Viejo  
 Rancho Santa Margarita  
 Rossmoor  
 San Clemente  
 San Juan Capistrano  
 Seal Beach  
 Stanton  
 Tustin  
 Tustin Foothills  
 Villa Park  
 Westminster  
 Yorba Linda

**Pasadena**

**San Diego County Water Authority**

Alpine  
 Bonita  
 Bonsall  
 Camp Pendleton  
 Carlsbad  
 Chula Vista  
 Del Mar  
 El Cajon  
 Encinitas  
 Escondido  
 Fallbrook  
 Jamul  
 Lakeside  
 La Mesa  
 Lemon Grove  
 Leucadia  
 Mount Helix  
 National City

Oceanside  
 Pauma Valley  
 Poway  
 Rainbow  
 Ramona  
 Rancho San Diego  
 Rancho Santa Fe  
 San Diego  
 San Marcos  
 Santee  
 Solana Beach  
 Spring Valley  
 Valley Center  
 Vista

**San Fernando**

**San Marino**

**Santa Ana**

**Santa Monica**

**Three Valleys Municipal Water District**

Azusa  
 Charter Oak  
 Claremont  
 Covina  
 Covina Hills  
 Diamond Bar  
 Glendora  
 Industry  
 La Verne  
 Pomona  
 Rowland Heights  
 San Dimas  
 South San Jose Hills  
 Walnut  
 West Covina

**Torrance**

**Upper San Gabriel Valley Municipal Water District**

Arcadia  
 Avocado Heights  
 Azusa  
 Baldwin Park  
 Bassett  
 Bradbury  
 Covina  
 Duarte  
 El Monte  
 Glendora  
 Hacienda Heights  
 Industry  
 Irwindale  
 La Puente  
 Monrovia  
 North Whittier  
 Rosemead  
 San Gabriel  
 South El Monte  
 South Pasadena  
 South San Gabriel

Spy Glass Hill  
 Temple City  
 Valinda  
 West Covina

**West Basin Municipal Water District**

Carson  
 Culver City  
 Del Aire  
 El Camino Village  
 El Segundo  
 Gardena  
 Hawthorne  
 Hermosa Beach  
 Inglewood  
 Ladera Heights  
 La Rambla  
 Lawndale  
 Lennox  
 Lomita  
 Malibu  
 Manhattan Beach  
 Marina Del Rey  
 Palos Verdes Estates  
 Rancho Dominguez  
 Rancho Palos Verdes  
 Redondo Beach  
 Rolling Hills  
 Rolling Hills Estates  
 Topanga Canyon  
 Torrance  
 View Park  
 West Athens  
 West Hollywood  
 Westmont  
 Windsor Hills  
 Wiseburn

**Western Municipal Water District of Riverside County**

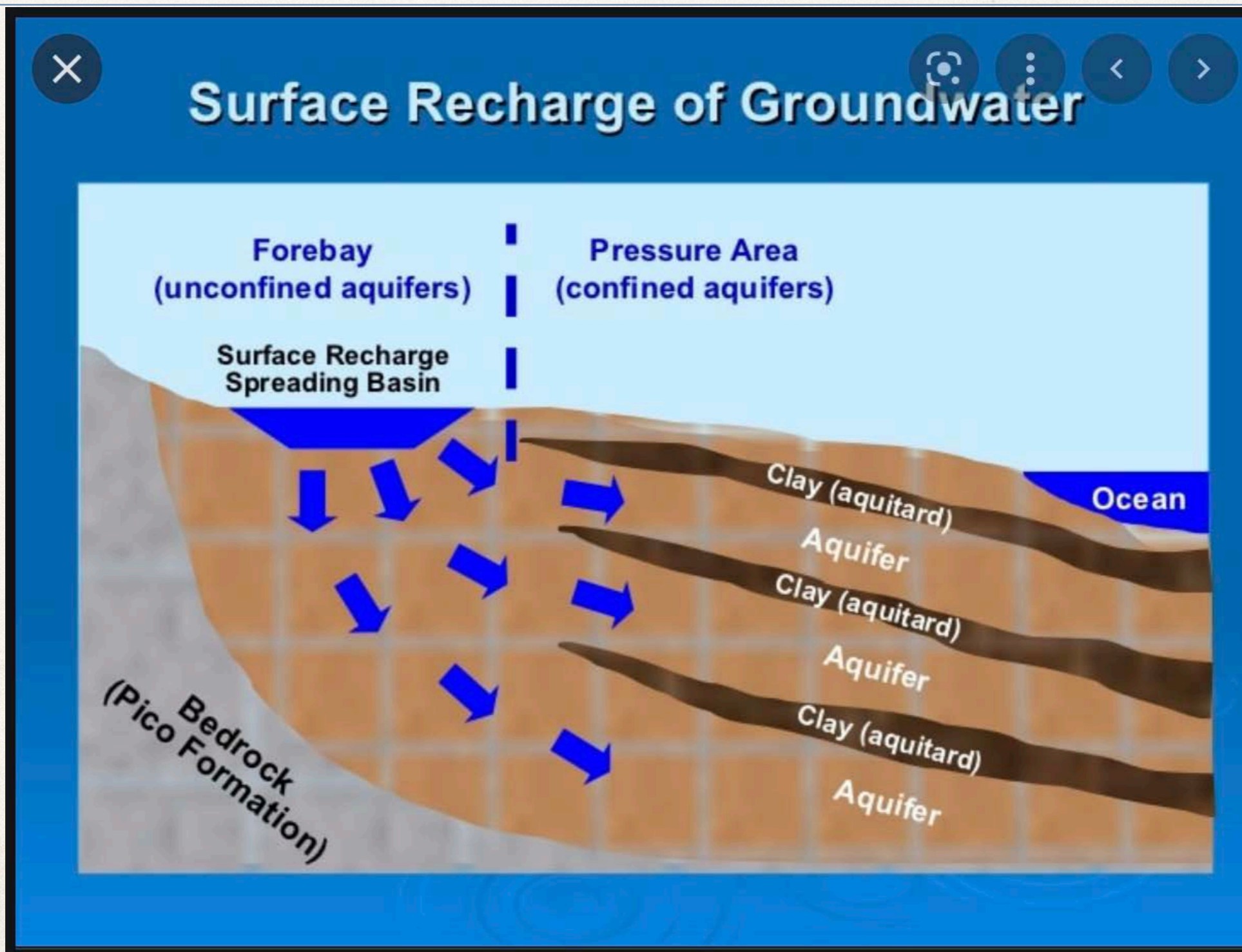
Canyon Lake  
 Corona  
 Eagle Valley  
 Eastvale  
 El Sobrante  
 Elsinore  
 Jurupa  
 Lake Elsinore  
 Lake Mathews  
 Lee Lake  
 March Air Reserve Base  
 Murrieta  
 Norco  
 Perris  
 Riverside  
 Rubidoux  
 Temecula  
 Temescal Canyon  
 Woodcrest





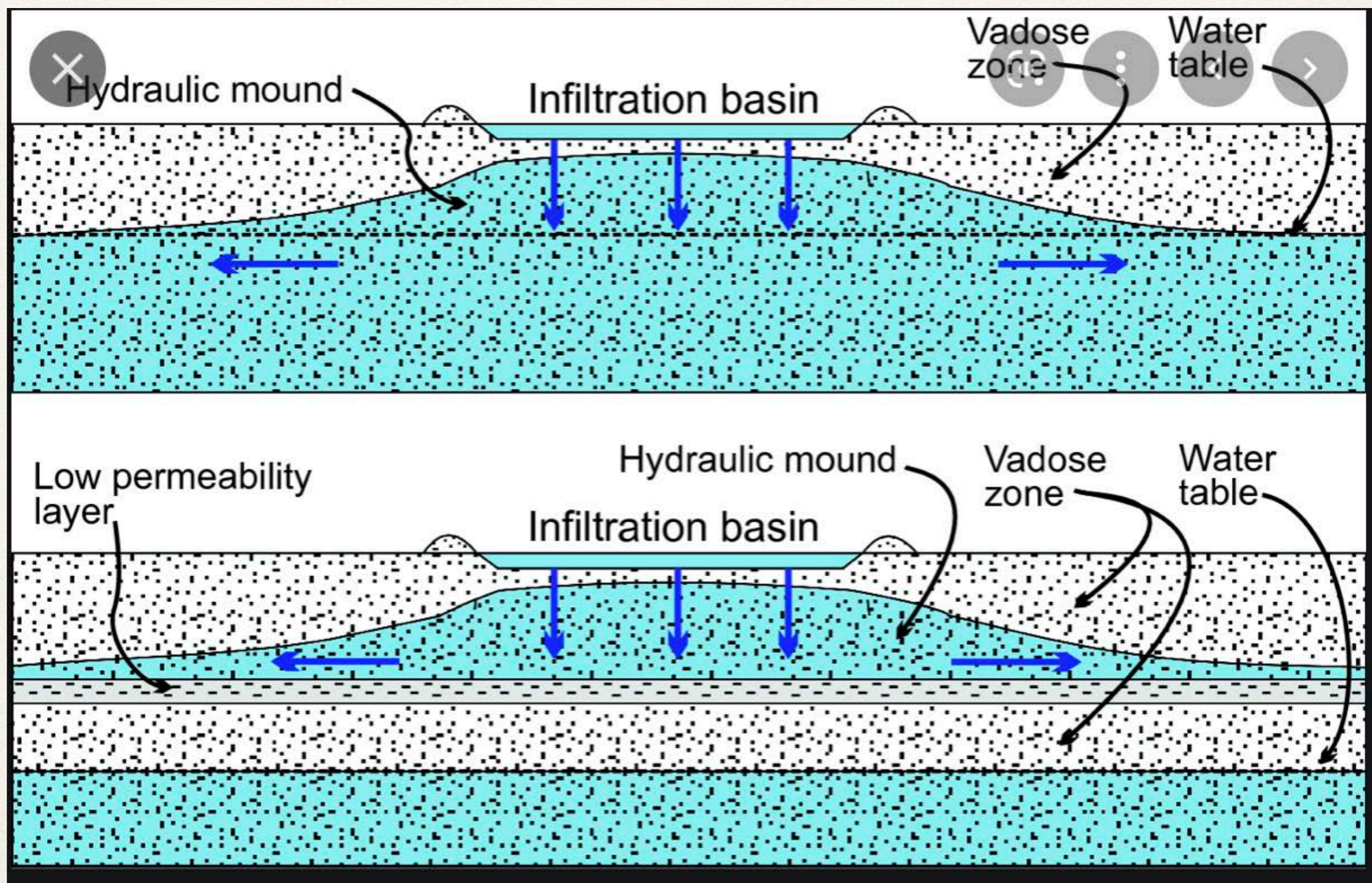


# Central Basin Recharge Limitations





# Water Infiltration Complexity





# Who Fills Your Taps: Local Water Sources

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- ❖ Groundwater

- ❖ Plentiful in LA Co, but subject to highly variable precipitation

- ❖ Surface Water

- ❖ San Gabriel and Los Angeles River systems
- ❖ Most surface water used for groundwater recharge
- ❖ Increased interest to capture more stormwater runoff
- ❖ Climate change is expected to make runoff flashier and more difficult to capture

- ❖ Recycled Water

- ❖ Local availability dependent on sewer system & Purple Pipe reach
- ❖ A growing resource



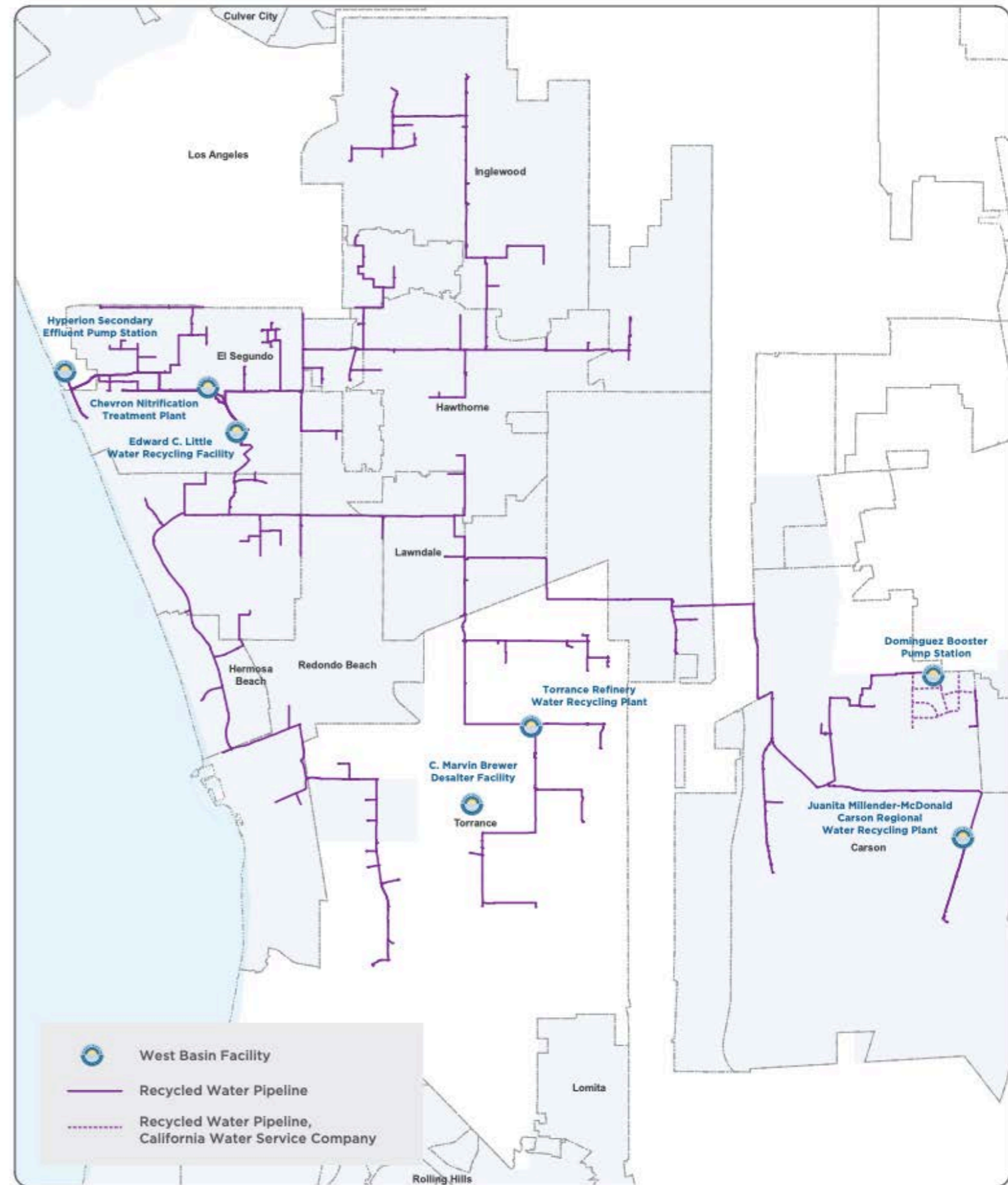
# Purple Pipe

- ❖ Recycled non-potable
- ❖ Separate delivery system
- ❖ Landscaping
- ❖ High salt content
- ❖ New office toilets
- ❖ PV new customer



West Basin Municipal Water District

## Recycled Water Distribution System





# SoCal Groundwater Basins



## Legend

### Chapter IV Basin Reports

#### Northwest Metropolitan Service Area Basins

- 1. Ventura County

#### San Fernando Valley Basins

- 2. Upper Los Angeles River Area

#### Los Angeles County Coastal Plain Basins

- 3. Central
- 4. West Coast
- 5. Santa Monica
- 6. Hollywood

#### Los Angeles County Coastal Plain Basins

- 7. Main San Gabriel and Puente
- 8. Raymond
- 9. Six

#### Orange County Basins

- 10. Orange County
- 11. San Juan

#### Inland Empire Basins

- 12. Chino and Cucamonga

#### Eastside Metropolitan Service Area Basins

- 13. Riverside
- 14. Arlington
- 15. Temescal Valley
- 16. Elsinore
- 17. West San Jacinto
- 18. Hemet-San Jacinto
- 19. Temecula-Murrieta

#### San Diego County Basins

- 20. Overview
- 21. North San Diego County
- 22. Central San Diego County
- 23. South San Diego County

#### Other Basins Not Covered

- 24. Other

#### Other Features

- County
- Groundwater Basin Boundary
- Water Body

Note: This map was prepared by the Metropolitan Water District of Southern California for its own use. No warranty is expressed or implied as to the correctness, timeliness, or content of the information shown herein.

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Additional Data Source(s): Santa Ana Watershed Project Authority (SAWPA), California Spatial Information Library (CaSIL).



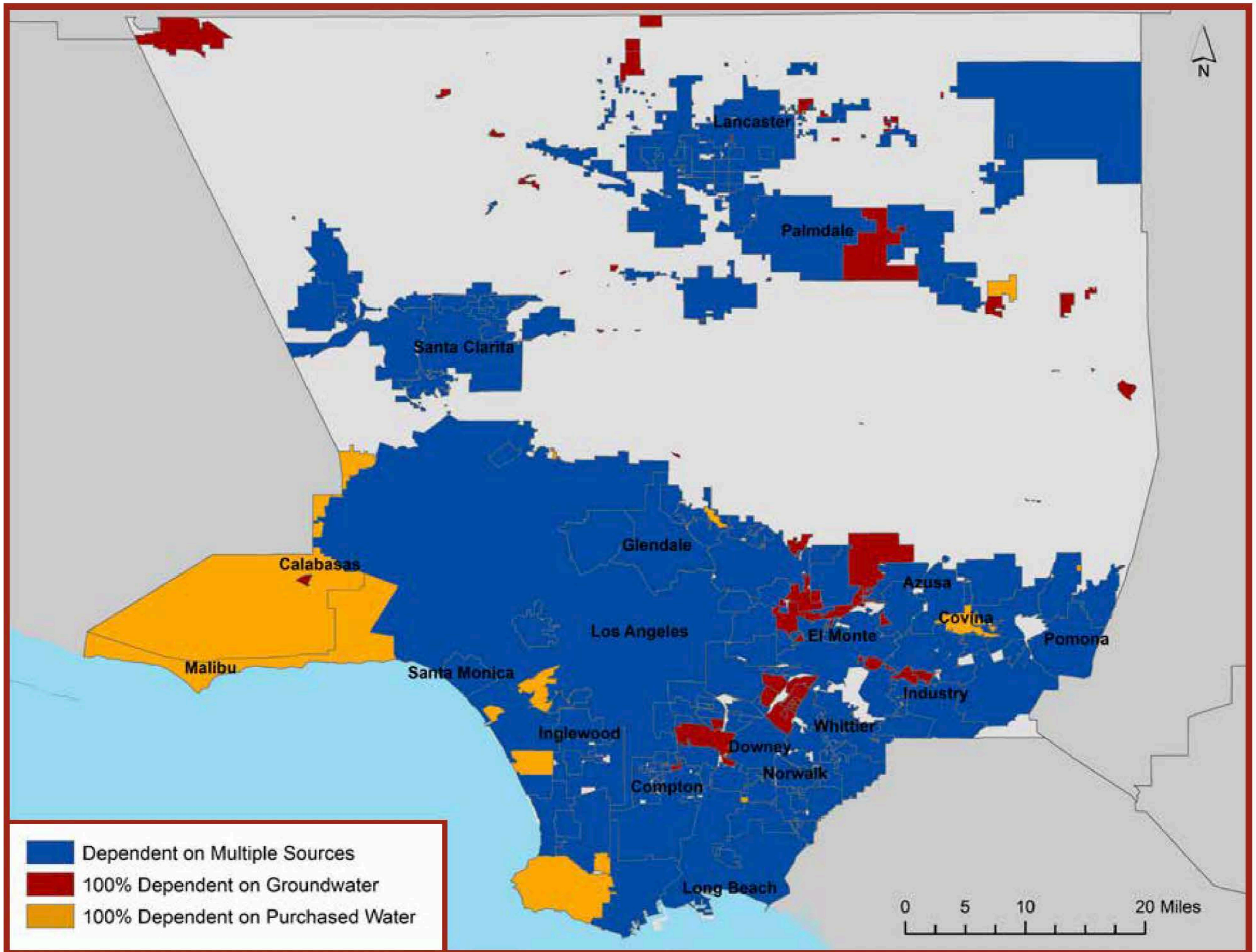
**MWD**  
Metropolitan Water District of Southern California  
GIS Services

Plate IV-1

Groundwater Assessment Study  
Basin Reports Index Map



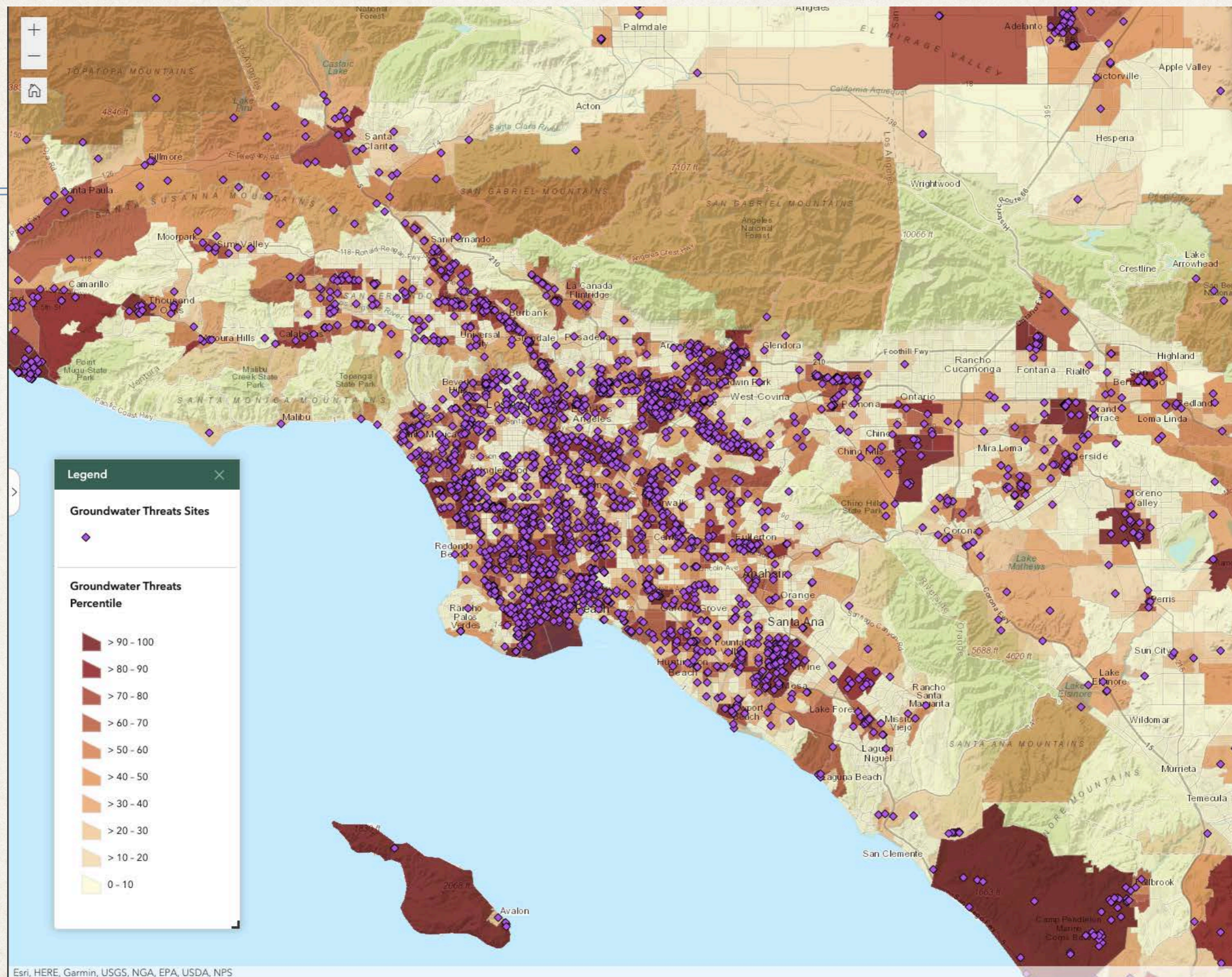
# WATER SOURCE DEPENDENCY BY COMMUNITY WATER SYSTEM



Source: UCLA Luskin Center for Innovation, see Methodology: "Community Water System Water Portfolio: Single Source Dependency"



# Groundwater Contamination

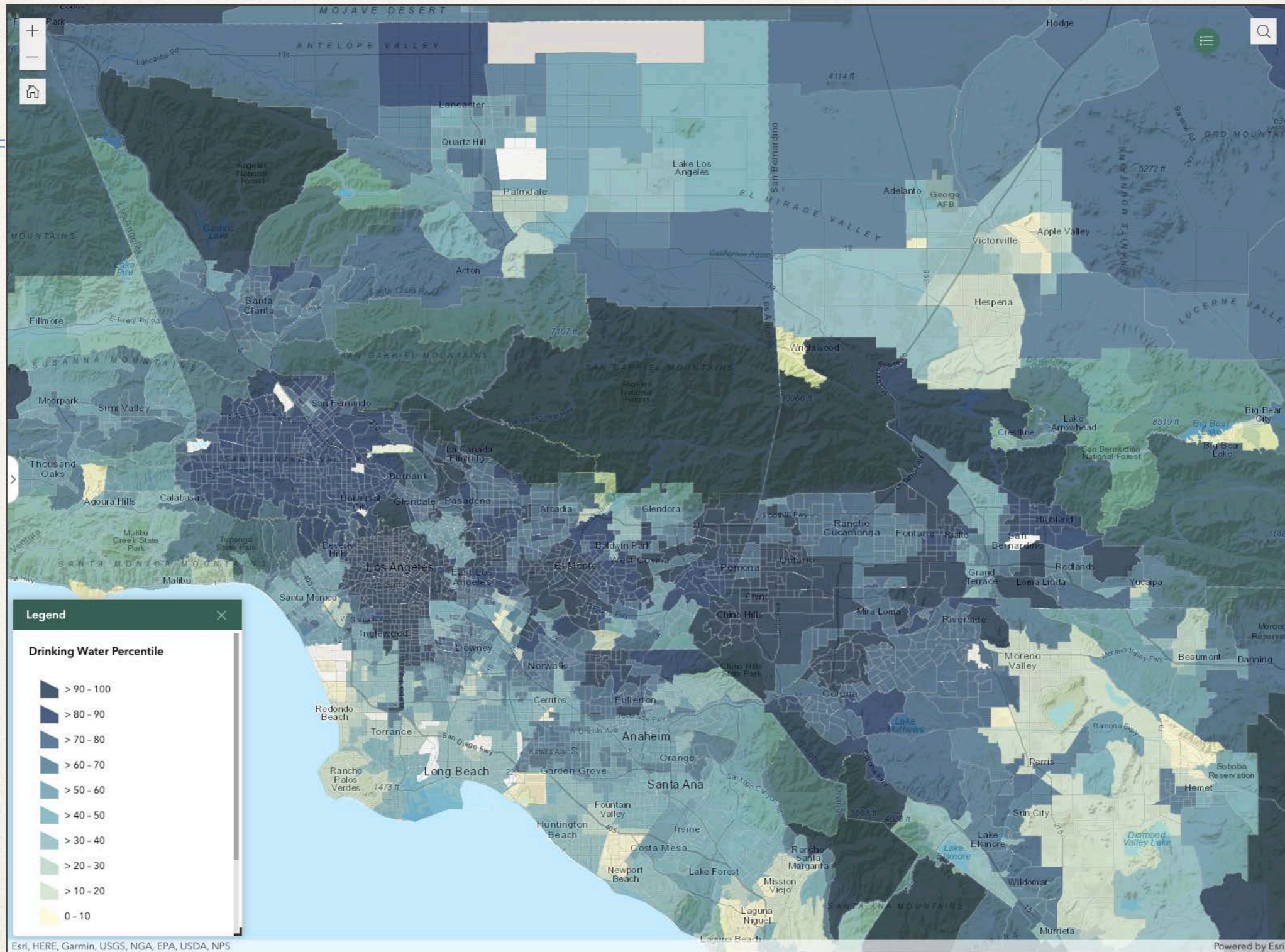


<https://oehha.ca.gov/calenviroscreen/report/draft-calenviroscreen-40>

[https://experience.arcgis.com/experience/ed5953d89038431dbf4f22ab9abfe40d/page/page\\_0/?views=view\\_37](https://experience.arcgis.com/experience/ed5953d89038431dbf4f22ab9abfe40d/page/page_0/?views=view_37)



# Contaminated Wells Doesn't have to => Contaminated Drinking Water



CalEnviroScreen 4.0

[https://experience.arcgis.com/experience/ed5953d89038431dbf4f22ab9abfe40d/page/page\\_0/?views=view\\_31](https://experience.arcgis.com/experience/ed5953d89038431dbf4f22ab9abfe40d/page/page_0/?views=view_31)



# Water Suppliers: Wholesale

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- ❖ Metropolitan Water District of So Cal
  - ❖ Organized under the Metropolitan Water District Act
- ❖ San Gabriel Valley Municipal Water District (4 Cities District)
  - ❖ State Water Project Contractor
  - ❖ Member agencies are: Azusa, Sierra Madre, Alhambra, Monterey Park
- ❖ Some of Met's member agencies are wholesale only
  - ❖ Municipal Water Districts organized under the Municipal Water District Act in the Calif Water Code
    - ❖ Examples: Upper San Gabriel MWD, Central Basin MWD, West Basin MWD, Three Valleys MWD



# Retail Water Suppliers

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- ❖ City and County Run Systems

- ❖ Pasadena, Los Angeles, Torrance, Burbank, Glendale

- ❖ Mutual Water Districts

- ❖ Historic
  - ❖ Private, not-for-profit organizations, distribute water to shareholder owned properties
  - ❖ Organized under the California Corporations Code

- ❖ Irrigation Districts

- ❖ Type of special district formed under the Irrigation Water District Act in the State Water Code
  - ❖ Public agency, usually with an elected board

- ❖ Investor-Owned Utilities

- ❖ Regulated by the California Public Utilities Commission, Water Division

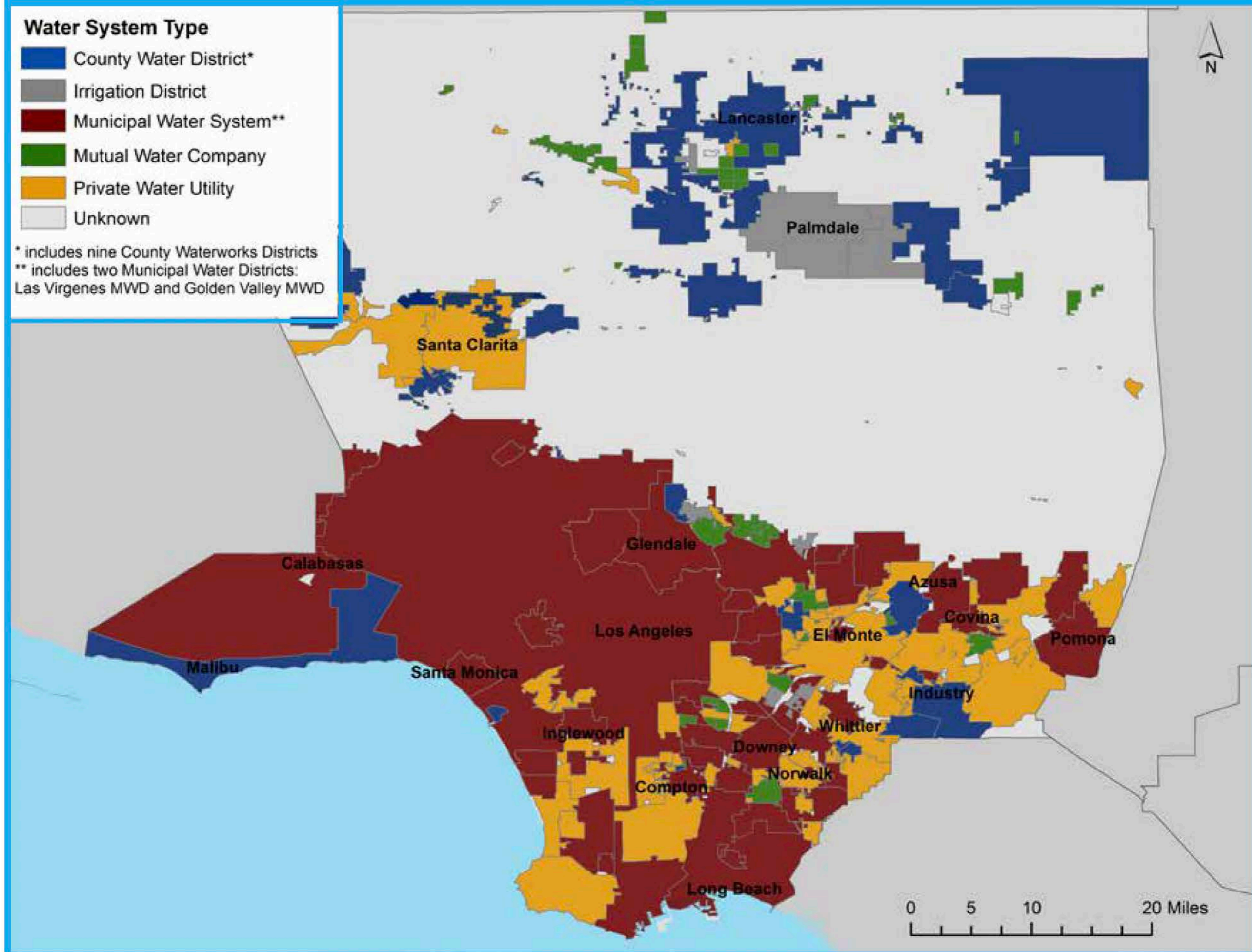
- ❖ Special Districts



### Water System Type

- County Water District\*
- Irrigation District
- Municipal Water System\*\*
- Mutual Water Company
- Private Water Utility
- Unknown

\* includes nine County Waterworks Districts  
\*\* includes two Municipal Water Districts:  
Las Virgenes MWD and Golden Valley MWD



Source: UCLA Luskin Center for Innovation, see Methodology: "Community Water System Boundaries"

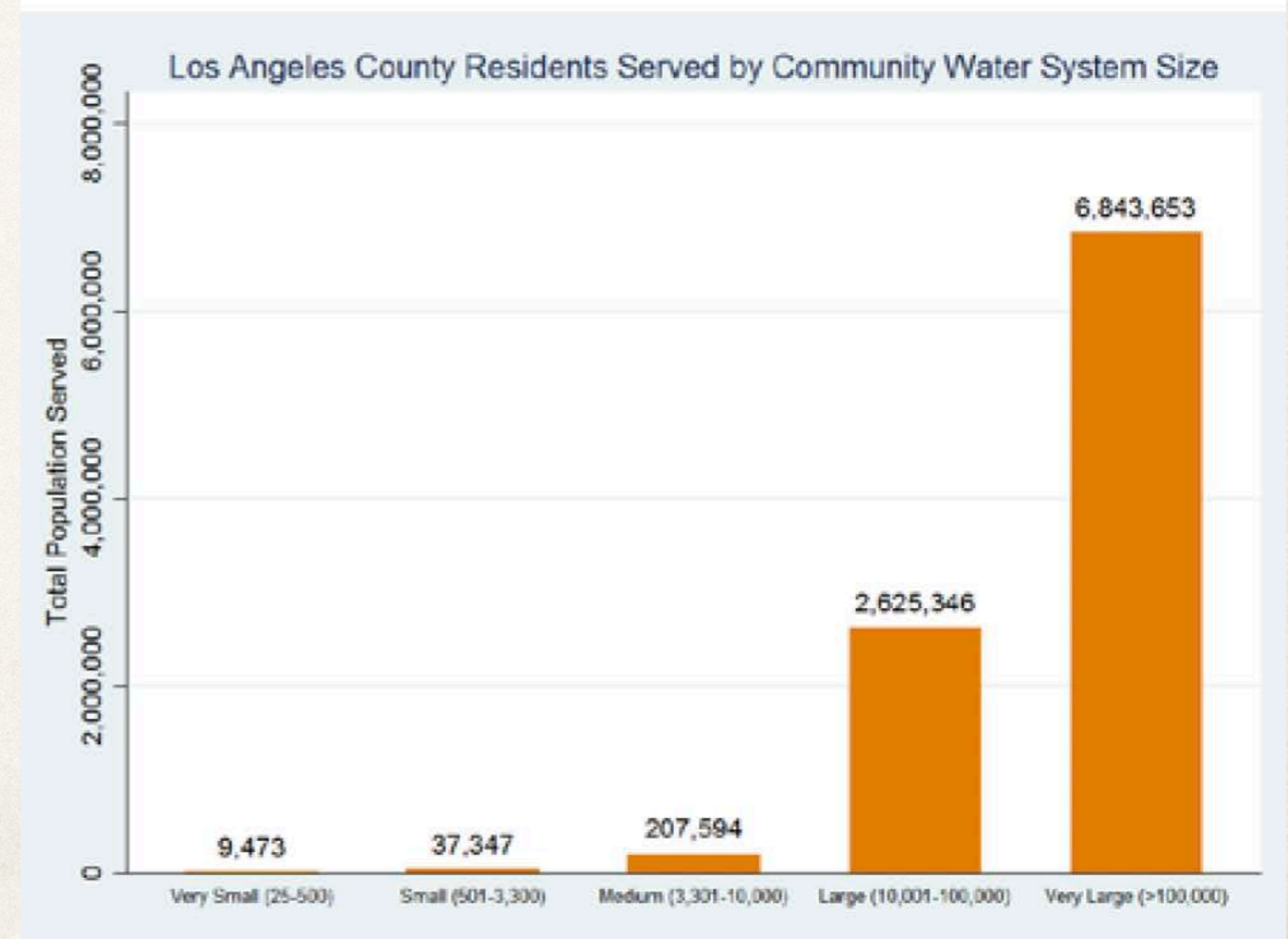
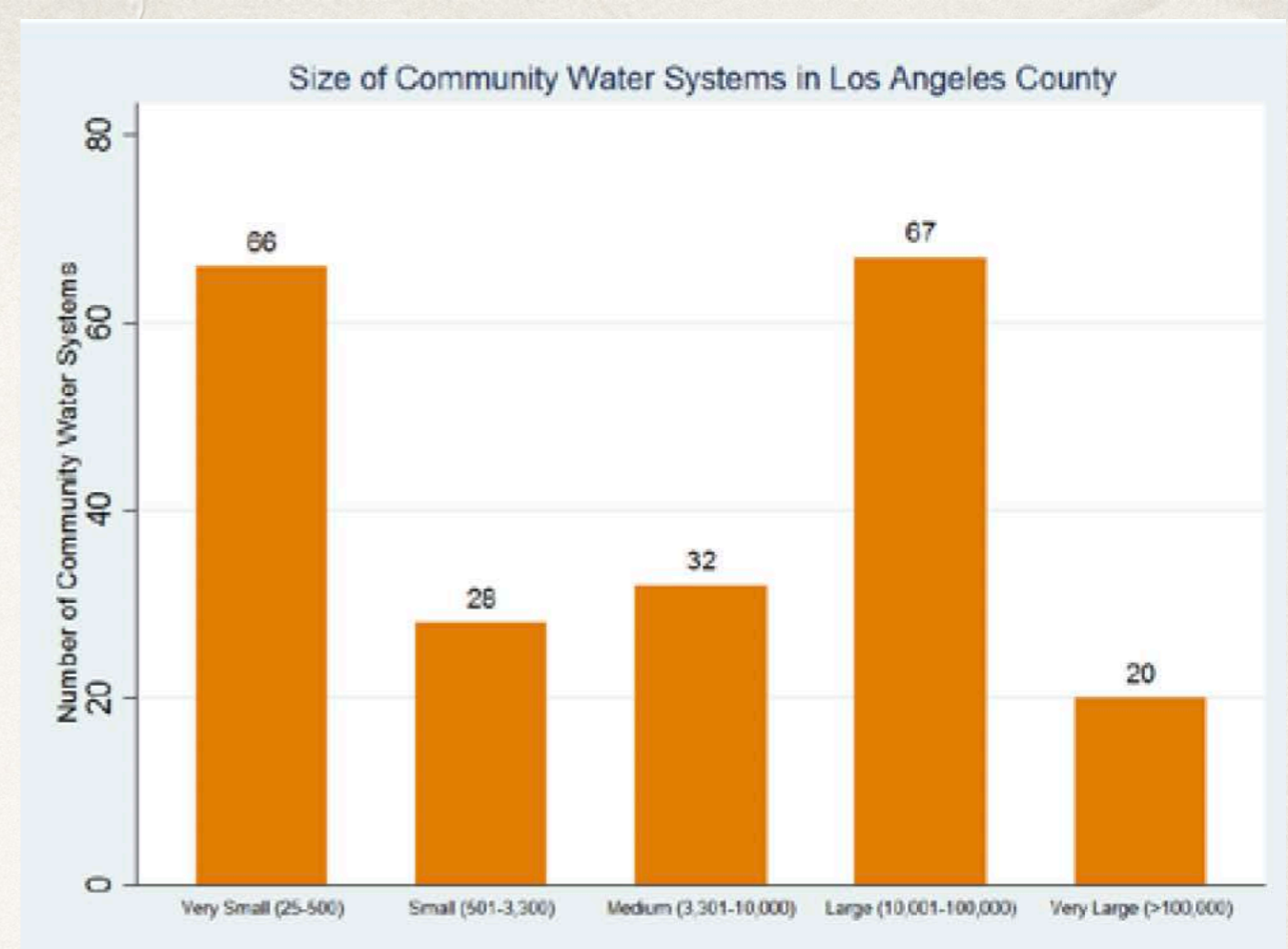


# Size Matters

While many water systems are small, most people are served by a few large and very large systems.

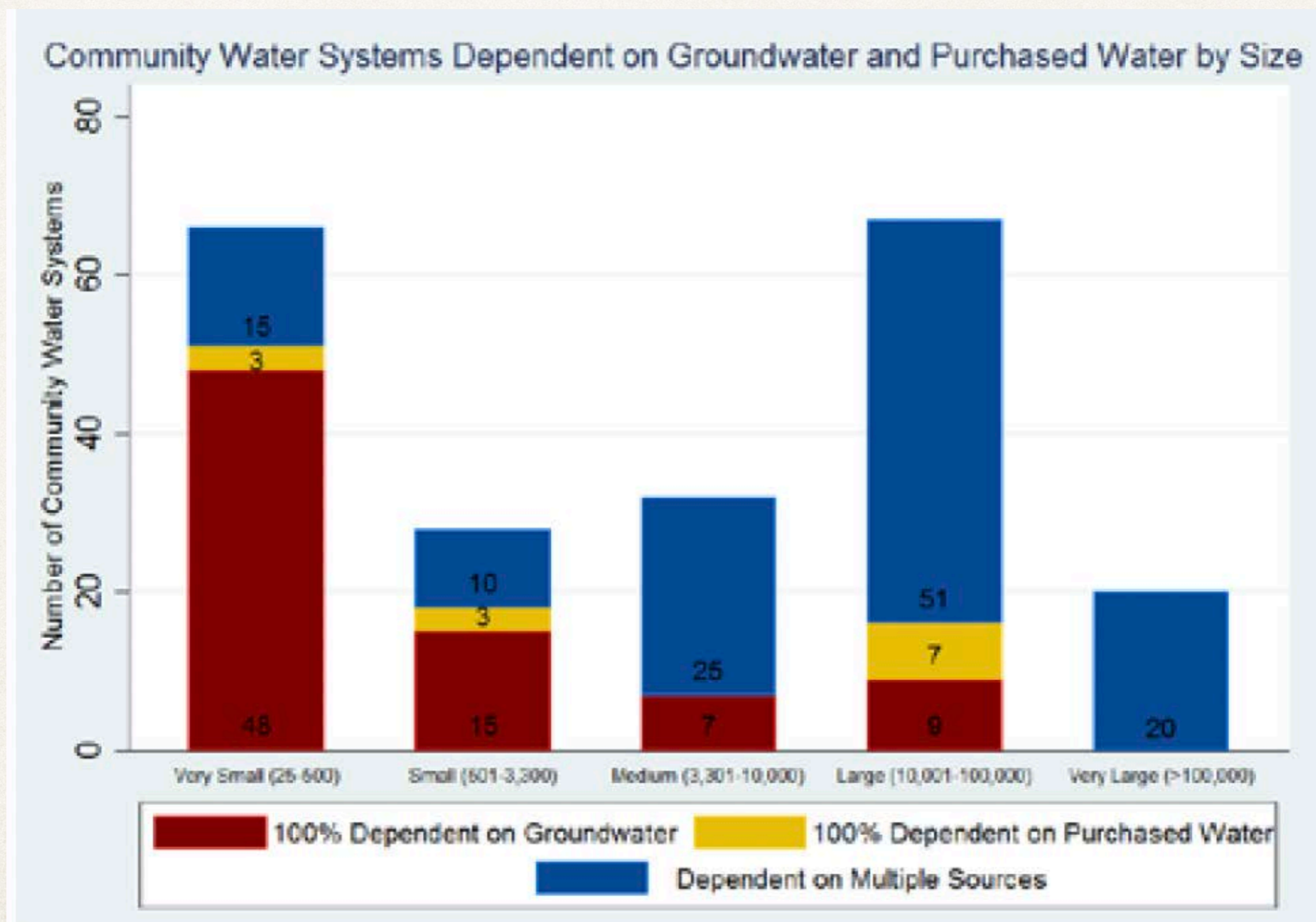
Smaller systems struggle the most to meet quality standards and remain affordable.

Diversification & interconnection bolster resilience.



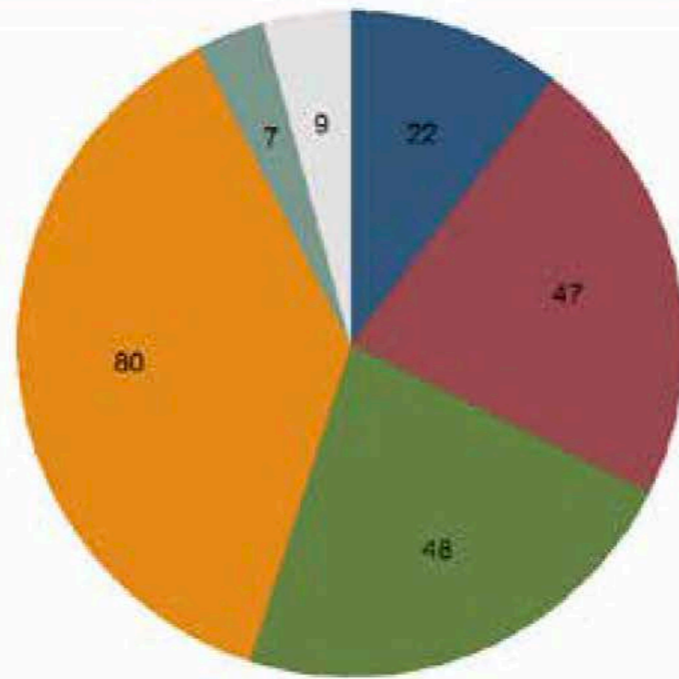


# Larger Systems more Diversified



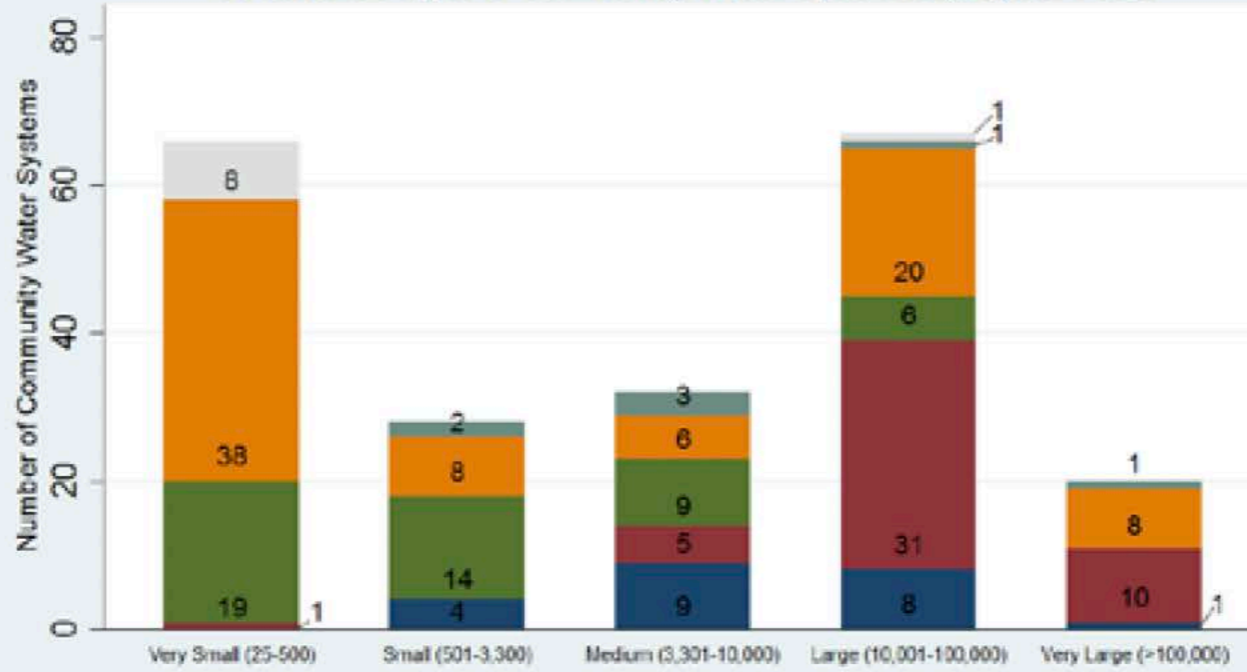


### Community Water Systems by Governance Type



\* includes nine County Waterworks Districts \*\* includes two Municipal Water Districts

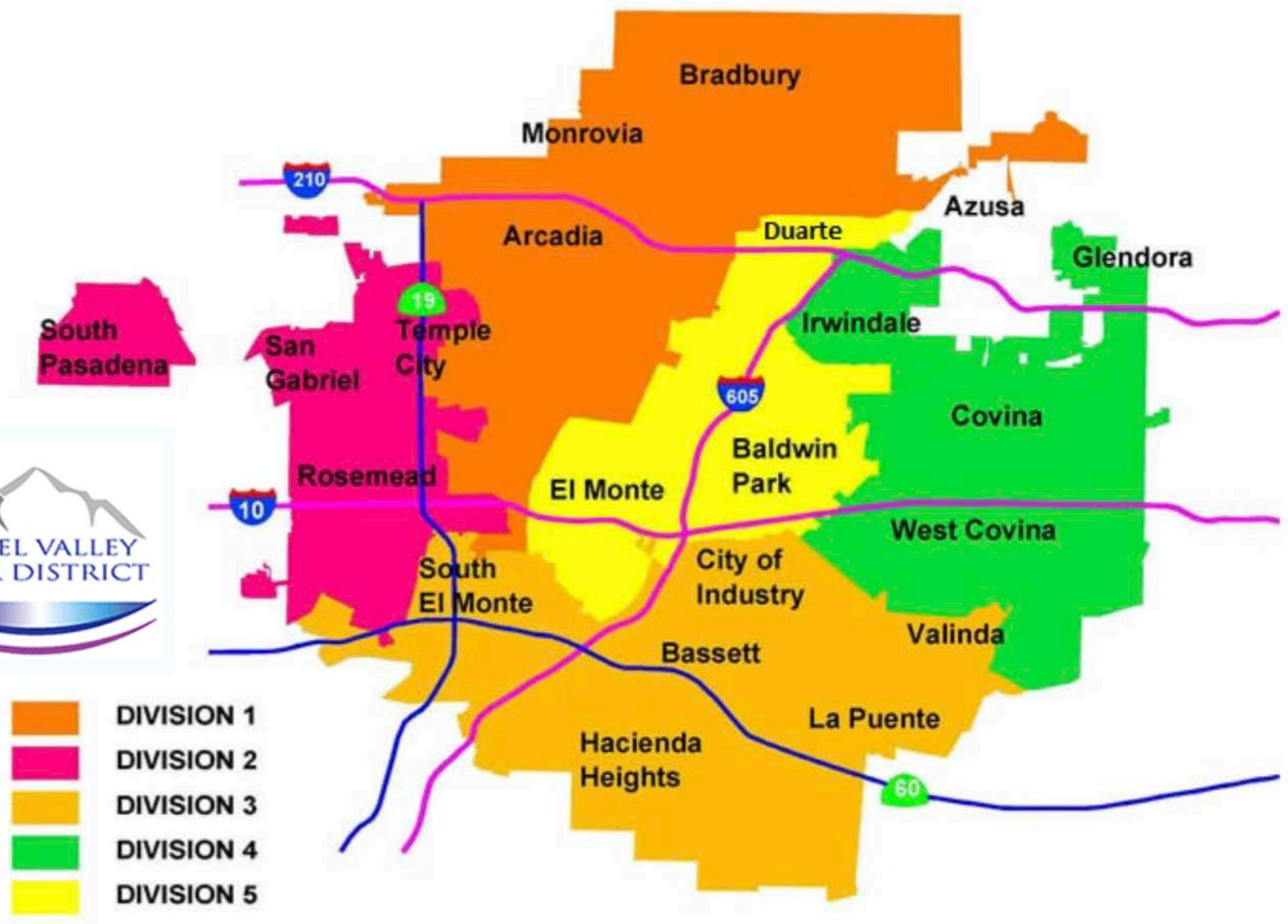
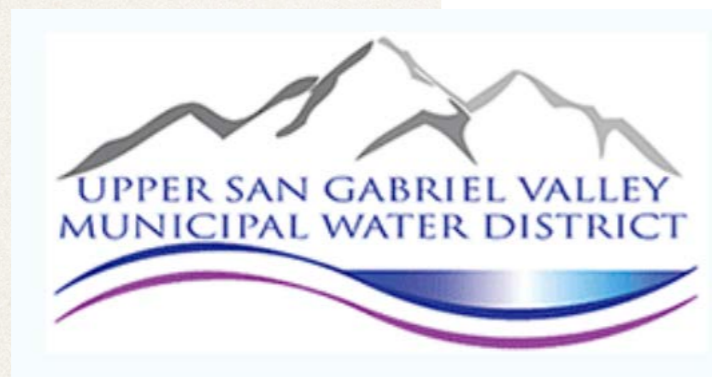
### Governance Type of Community Water Systems by System Size



\* includes nine County Waterworks Districts \*\* includes two Municipal Water Districts



# Upper San Gabriel MWD





# UPPER DISTRICT'S MEMBER AGENCIES



City of Arcadia



City of Azusa



California American Water Company



California Domestic Water Company



City of Covina



Covina Irrigating Company



East Pasadena Water Company



City of El Monte



City of Glendora



Golden State Water Company



City of Industry Public Works



La Puente Valley County Water District



City of Monrovia



San Gabriel County Water District

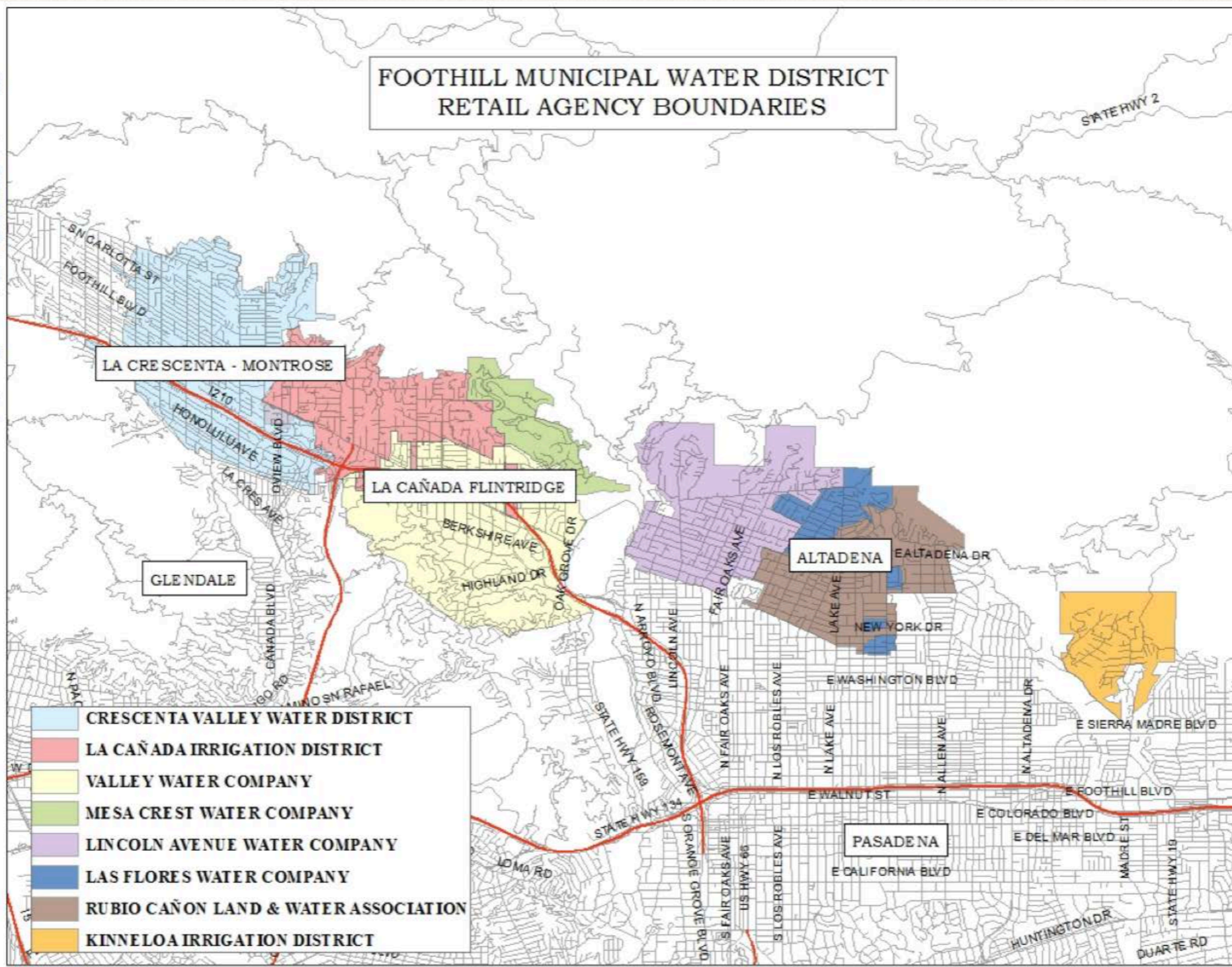


San Gabriel Valley Water Company



# Foothill Municipal WD Agencies

Figure 1.4: FMWD Retail Agency Boundaries





# Foothill MWD Agencies Sales

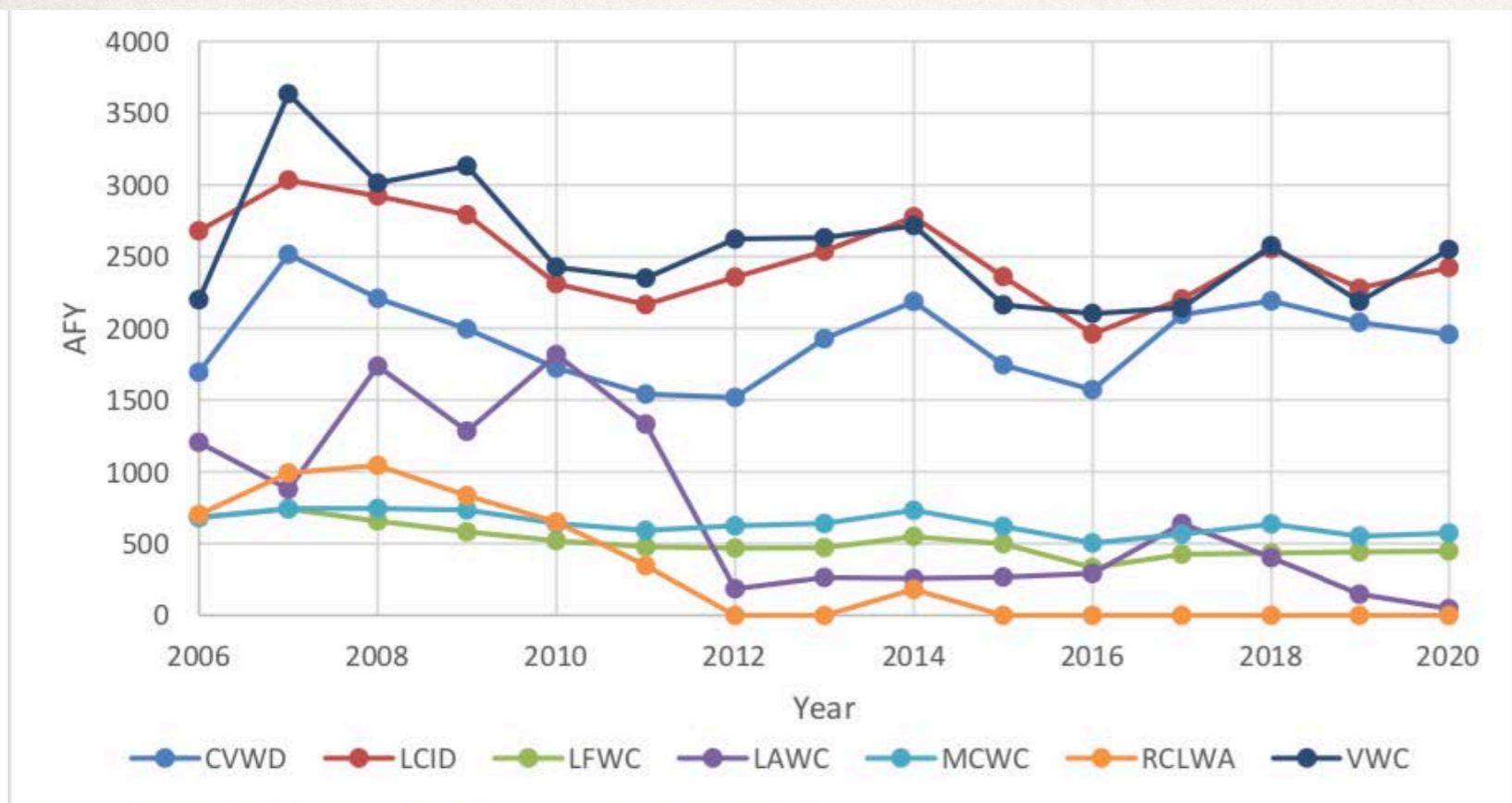


Figure 2.11: FMWD Sales to Member Agencies (2006 - 2020)

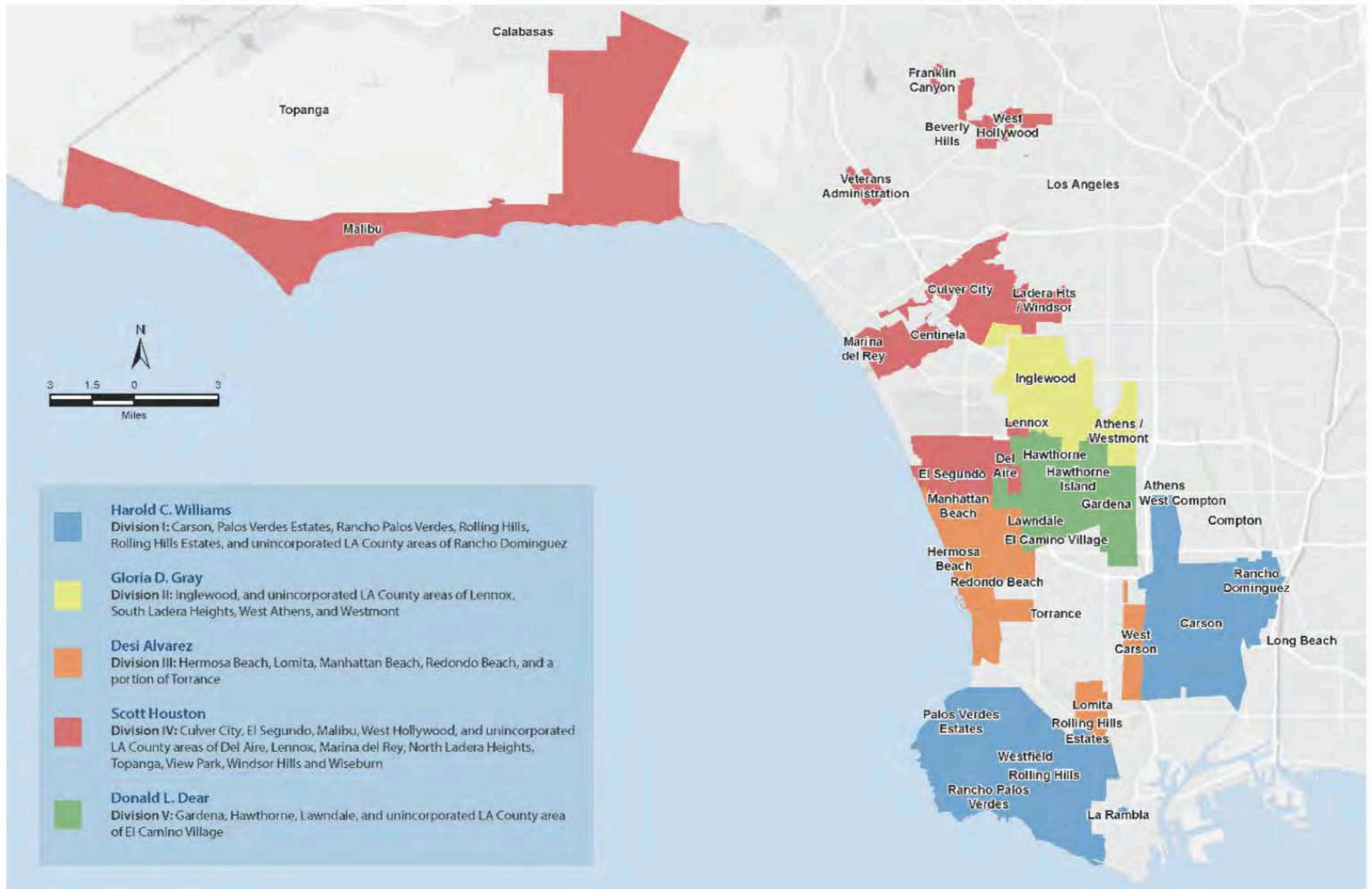
Table 3.3: Water Supplied in the Past Years (AF) (FY 2015-16 to FY 2019-20)

Retail Member	Fiscal Year Ending				
	2016	2017	2018	2019	2020
Crescenta Valley Water District	1,572.5	2,096.4	2,191.6	2,042.1	1,959.0
Kinneloa Irrigation District	-	-	-	-	-
La Cañada Irrigation District	1,961.7	2,205.1	2,554.7	2,279.9	2,424.5
Las Flores Water Company	332.3	426.3	434.5	442.3	448.4
Lincoln Avenue Water Company	292.3	639.8	402.1	147.7	46.7
Liberty Utilities	504.6	566.9	637.0	552.1	573.7
Rubio Cañon Land & Water Association	-	-	-	-	-
Valley Water Company	2,103.1	2,143.5	2,576.8	2,188.6	2,549.9
<b>Total</b>	<b>6,766.5</b>	<b>8,078.0</b>	<b>8,796.7</b>	<b>7,652.7</b>	<b>8,002.2</b>



# West Basin

Figure ES-2: West Basin Service Area





# West Basin

Figure 3-2. West Basin Retail Agencies



Source: West Basin.







# Legacy Groundwater Pumping Rights

**Table 6-1. Groundwater Pumping Rights within West Basin Service Area, AFY**

<b>PUMPER</b>	<b>BASIN</b>	<b>ADJUDICATED RIGHTS</b>
California American Water Co.	Central Basin	2,175
California Water Service – Dominguez	Central Basin	6,480
California Water Service – Dominguez	West Coast Basin	10,417
California Water Service Co. – Hawthorne	West Coast Basin	1,882
California Water Service Co. – Hermosa/Redondo	West Coast Basin	4,070
Golden State Water Co.	West Coast Basin	7,502
City of El Segundo	West Coast Basin	953
City of Inglewood	West Coast Basin	4,450
City of Lomita	West Coast Basin	1,352
City of Manhattan Beach	West Coast Basin	1,131
<b>WEST BASIN RETAIL AGENCIES SUBTOTAL</b>		<b>40,415</b>
Non-Retail Water Pumpers, within West Basin Service Area	West Coast Basin	10,435
<b>WEST BASIN SERVICE AREA SUBTOTAL</b>		<b>50,850</b>

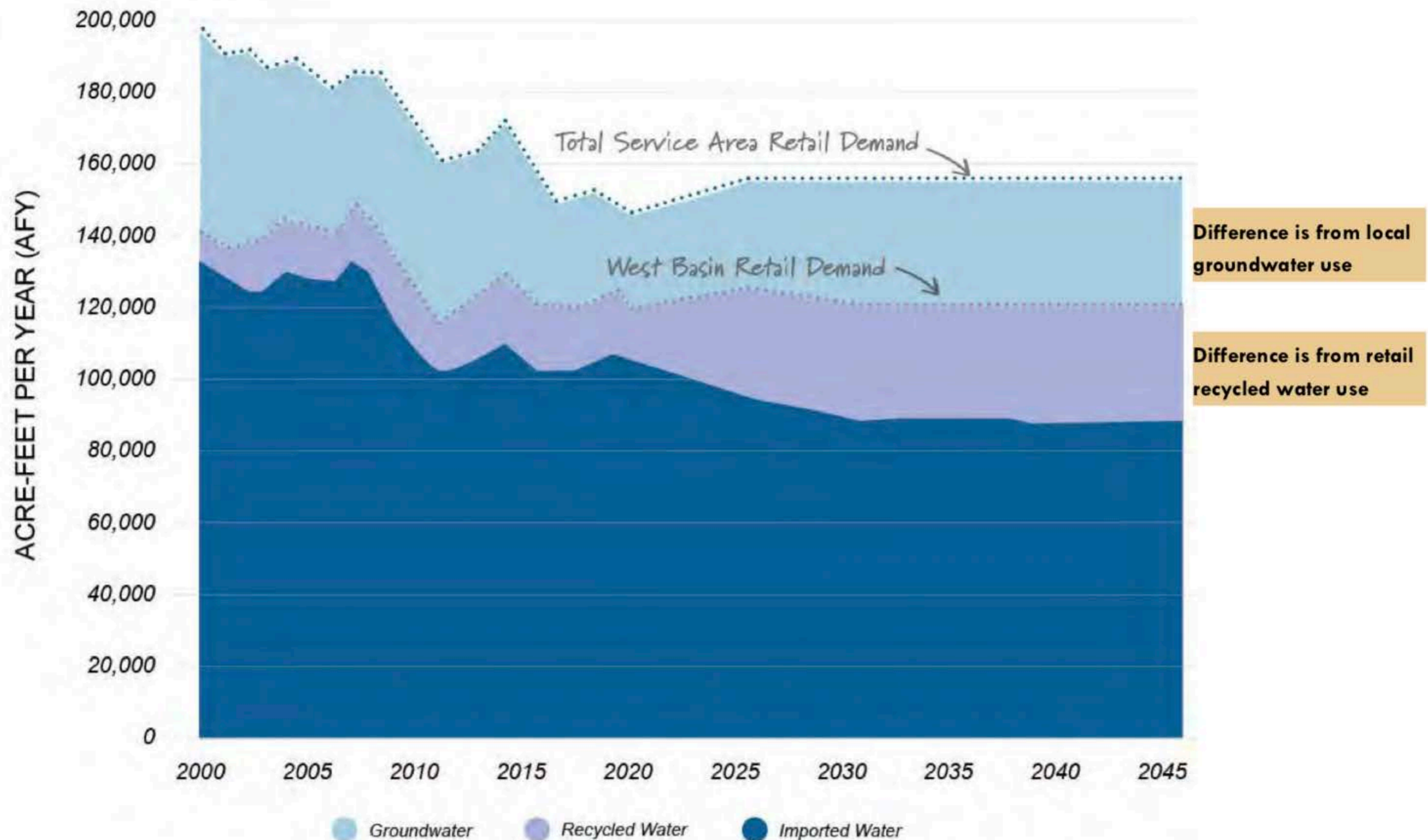
Source: West Coast Basin Watermaster Report, FY 2018-2019 (Water Replenishment District of Southern California, November 2019)



# West Basin Demand Projection

Safer to project flat demand than project future conservation savings

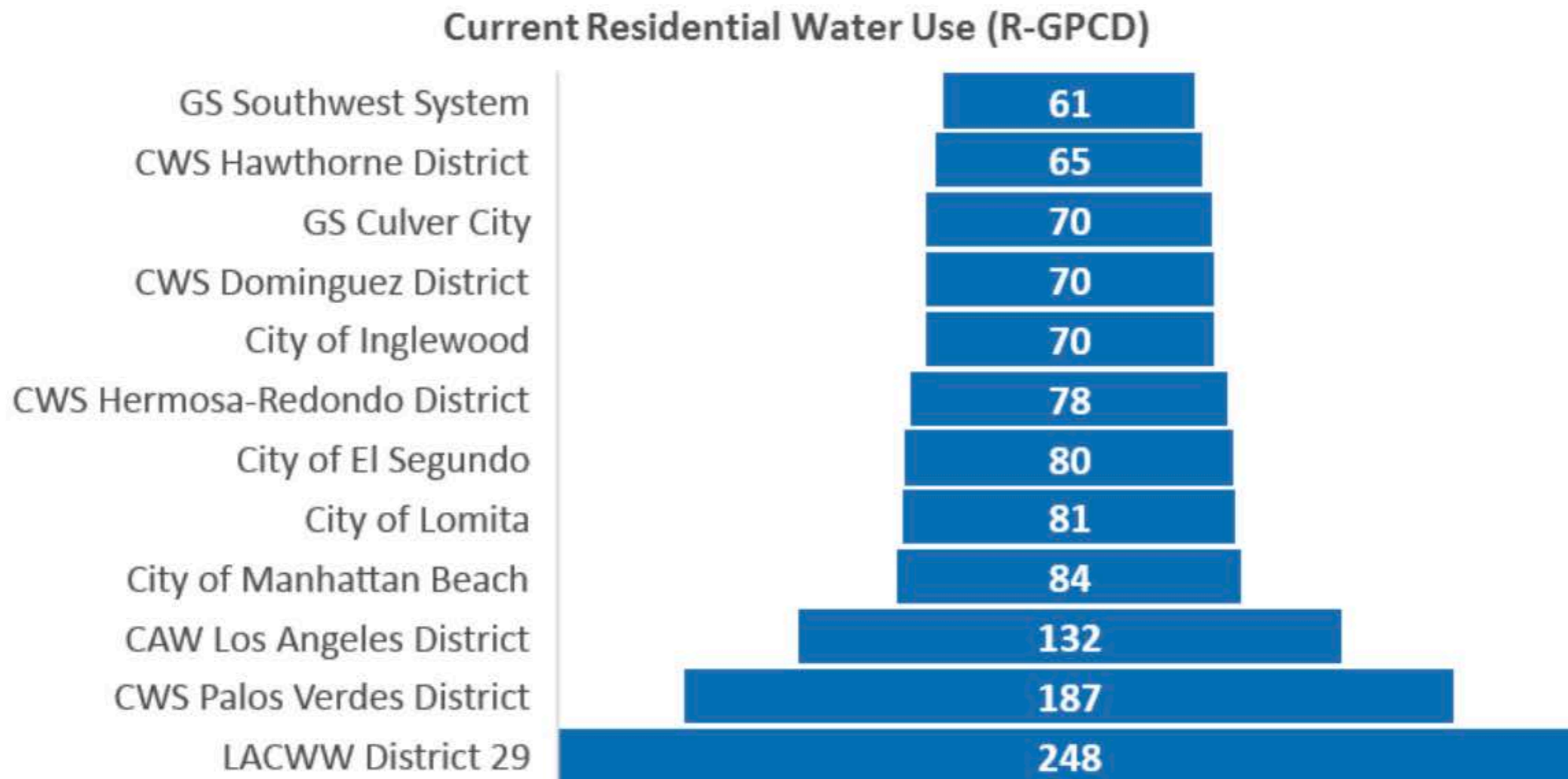
Figure ES-3: Demand Projections: Service Area Retail, West Basin Retail, and West Basin Potable





# Water Use Varies by Area & Income

Large Lot Single Family Homes use the most water, mostly for landscaping

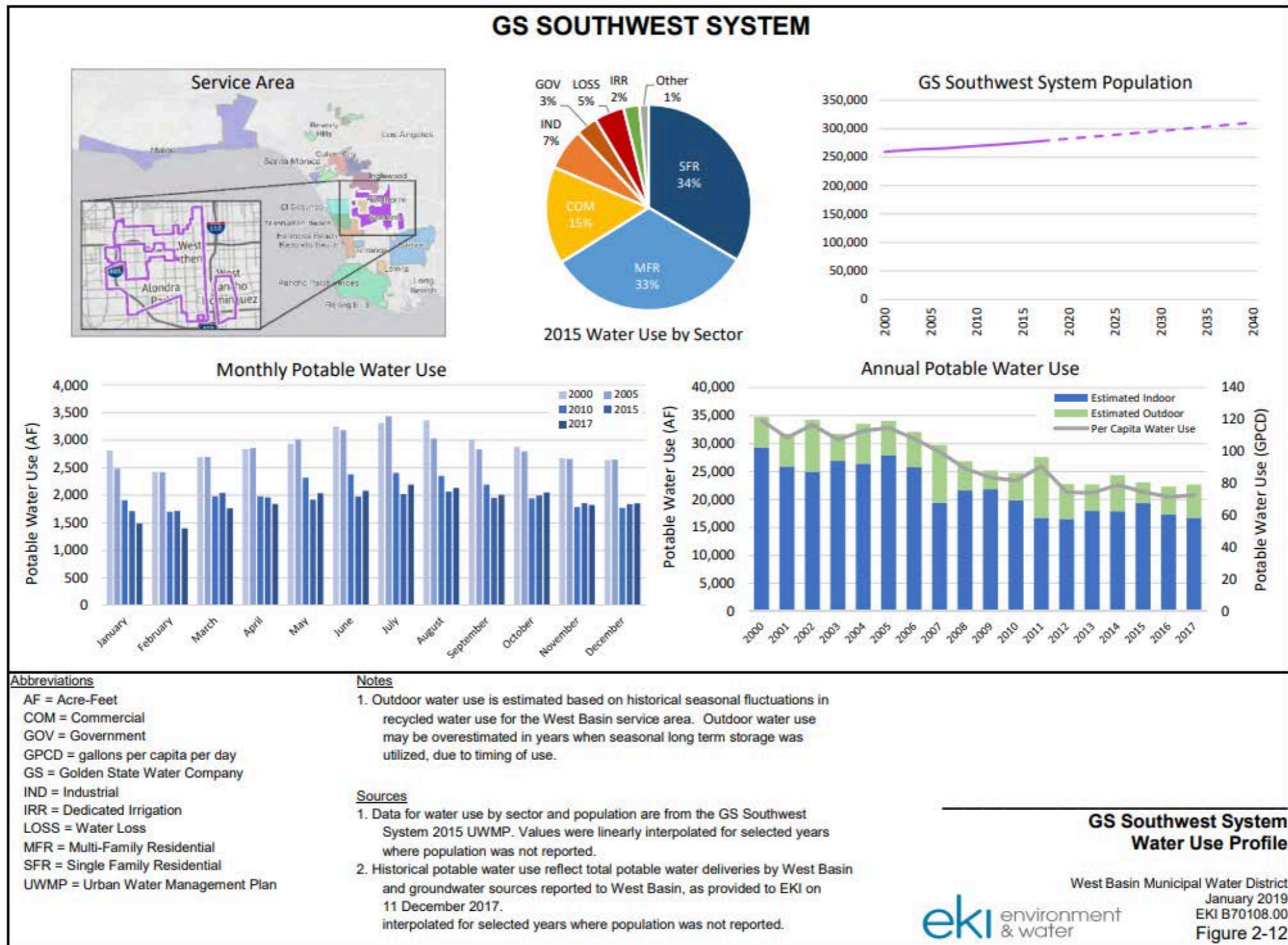


**Figure 6-5.** Current residential water use, from December 2017 through November 2018, based on monthly agency reporting to the SWRCB (June 2014 - November 2018 Urban Water Supplier Report Dataset). CAW Baldwin Hills District values are reported as part of the greater CAW Los Angeles District area.



# Water Use Varies by Area & Income

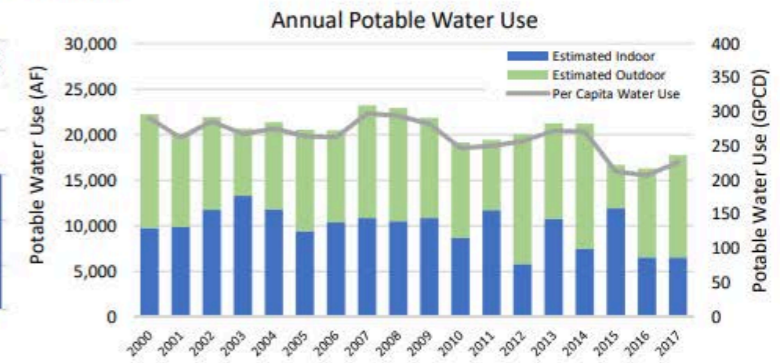
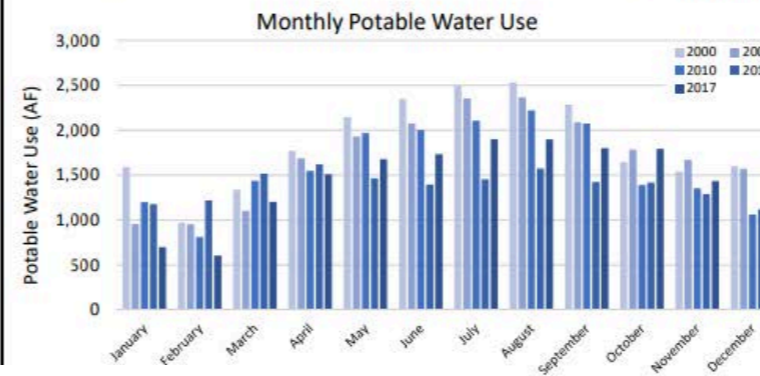
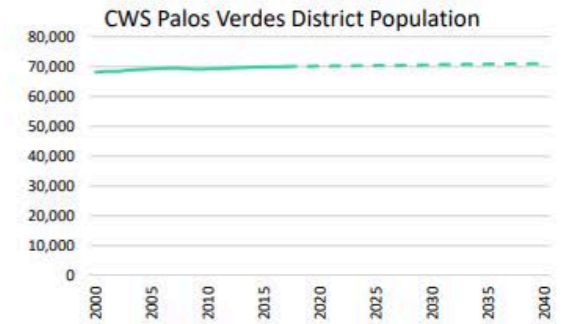
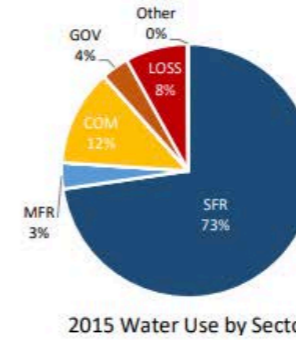
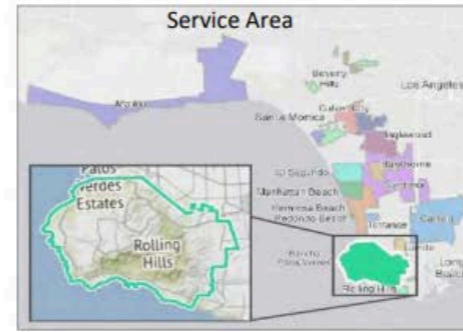
## Working class areas continued to conserve after drought



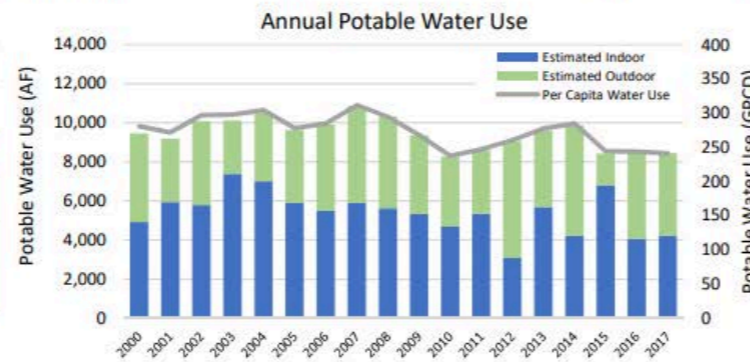
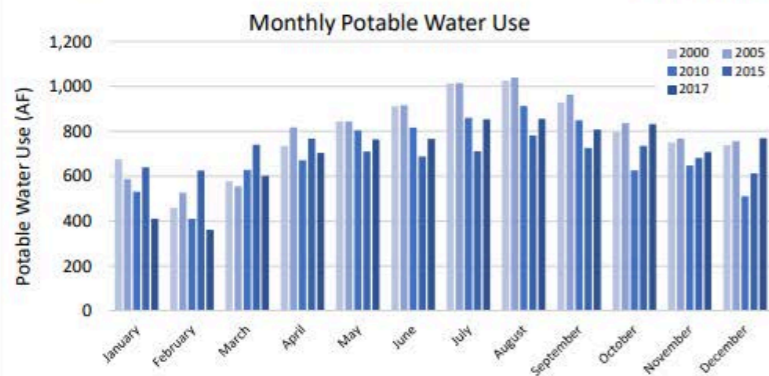
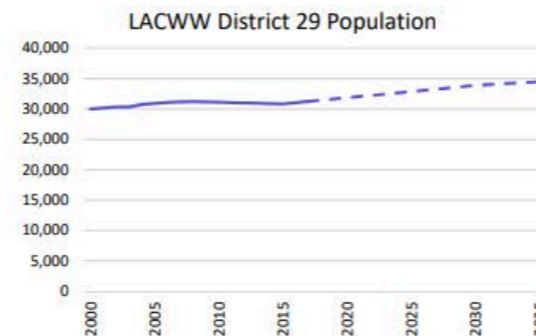
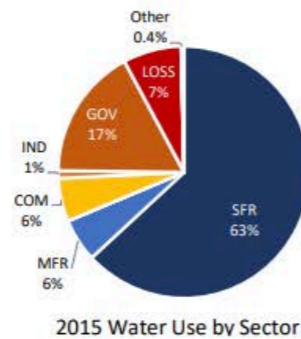


Wealthy areas use 3-8x as much water per capita as poorer ones, mostly outdoor consumptive use so not recoverable via recycling

### CWS PALOS VERDES DISTRICT



### LOS ANGELES COUNTY WATERWORKS DISTRICT 29



or water use is estimated based on historical seasonal fluctuations in cycled water use for the West Basin service area.

or water use by sector and population are from the CWS Palos Verdes District 2015 UWMP. Values were linearly interpolated for selected years where population was not reported. Annual potable water use reflect total potable water deliveries by West Basin groundwater sources reported to West Basin, as provided to EKI on December 2017.

#### CWS Palos Verdes District Water Use Profile

West Basin Municipal Water District  
January 2019  
EKI B70108.00  
Figure 2-5



Wealthy areas conserved during drought but then reverted to prior usage afterwards. Percentage decrease targets are unjust.

### Los Angeles County Waterworks District 29 Water Use Profile

West Basin Municipal Water District  
January 2019  
EKI B70108.00  
Figure 2-8



- Abbreviations**
- AF = Acre-Feet
  - COM = Commercial
  - GOV = Government
  - GPCD = gallons per capita per day
  - IND = Industrial
  - LACWW = Los Angeles County Waterworks
  - LOSS = Water Loss
  - MFR = Multi-Family Residential
  - SFR = Single Family Residential
  - UWMP = Urban Water Management Plan

- Notes**
- Outdoor water use is estimated based on historical seasonal fluctuations in recycled water use for the West Basin service area.
- Sources**
- Data for water use by sector and population are from the LACWW District 29 2015 UWMP. Values were linearly interpolated for selected years where population was not reported.
  - Historical potable water use reflect total potable water deliveries by West Basin and groundwater sources reported to West Basin, as provided to EKI on 11 December 2017.



# Central Basin Municipal WD

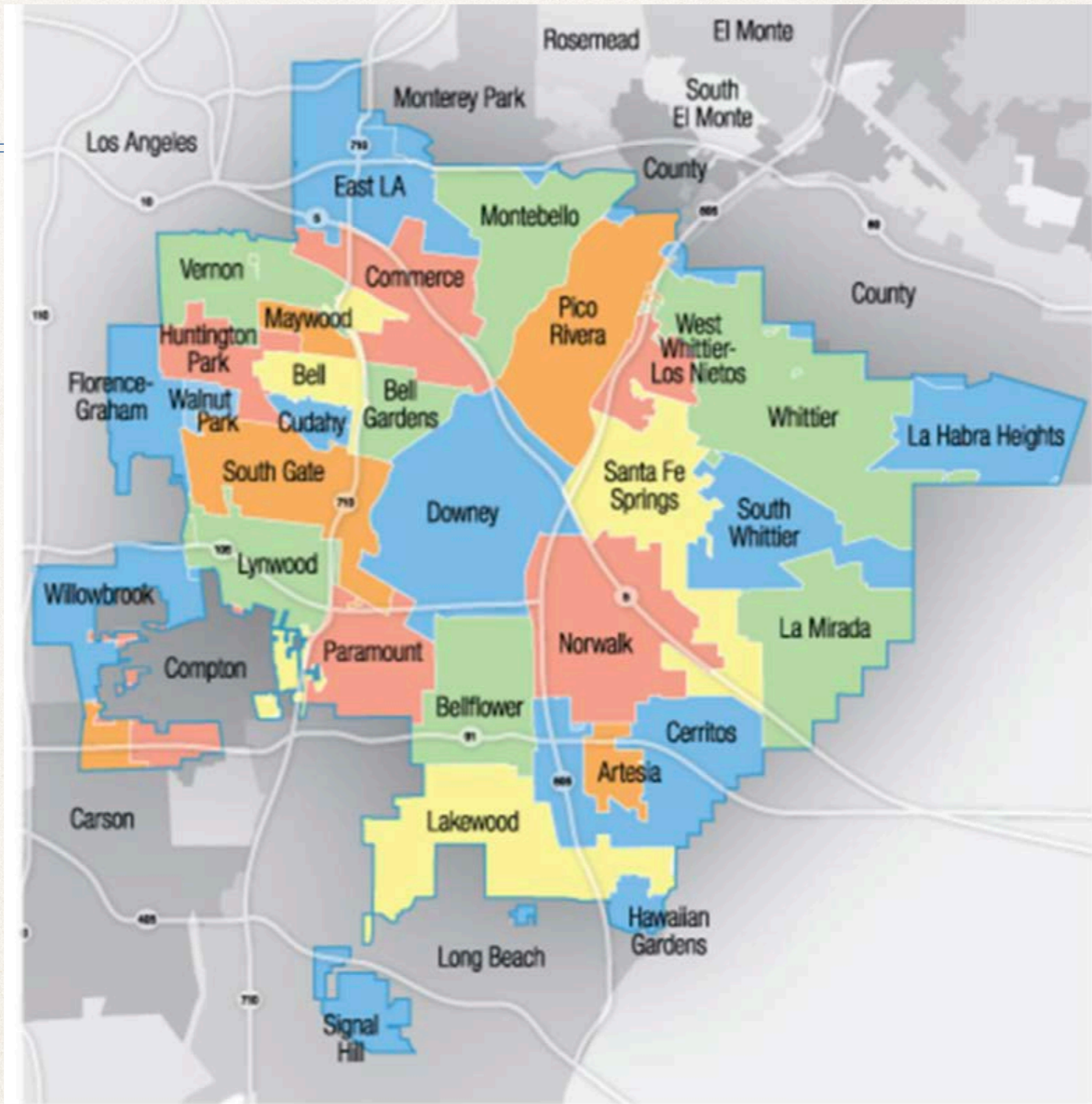


Figure 1.3: CBMWD Retail Agency Boundaries



# Central Basin MWD Sales & Supplies

Table 2.4: CBMWD Sales to Retail Agencies (AF) (2015 – 2020)

Retail Agency	Fiscal Year Ending					
	2015	2016	2017	2018	2019	2020
<b>Potable Water</b>						
City of Bell Gardens	243	92	47	23	34	440
Bellflower-Somerset Mutual Water Co	1	8	-	-	-	-
California Water Service Co - Commerce	347	165	444	394	352	694
California Water Service Co - East LA	7,577	4,297	5,329	4,793	4,534	4,384
City of Cerritos	652	1,188	-	-	3	83
City of Downey	-	-	-	-	-	-
City of Huntington Park	1,232	1,391	726	386	894	1,336
La Habra Heights County Water District	283	108	195	79	2	7
City of Lakewood	-	-	-	-	-	12
City of Lynwood	15	339	388	5	-	-
Maywood Mutual Water Company #1	105	171	396	16	-	6
Maywood Mutual Water Company #2	-	76	4	204	92	193
Maywood Mutual Water Company #3	-	-	-	-	-	-
City of Montebello	1,163	789	-	-	-	28
City of Norwalk	271	226	435	750	769	398
Orchard Dale Water District	-	-	109	-	-	-
City of Paramount	584	625	96	558	468	214
Liberty Utilities	7,163	4,963	6,098	4,275	1,411	2,371
Rancho Los Amigos – LA County	-	-	-	-	-	-
San Gabriel Valley Water Co	-	-	-	-	-	2
City of Santa Fe Springs	3,273	2,306	3,252	2,967	3,000	2,580
City of Signal Hill	337	67	249	344	13	1
Golden State Water Company	6,041	4,206	3,651	2,730	2,286	3,095
City of South Gate	-	-	-	-	-	-
Suburban Water Systems	23	6	22	79	219	62
City of Vernon	1,034	992	715	498	643	536
Walnut Park Mutual Water Co	-	-	-	-	-	-
<b>Subtotal</b>	<b>30,345</b>	<b>21,945</b>	<b>22,157</b>	<b>18,101</b>	<b>14,721</b>	<b>16,441</b>
<b>Raw Water (Untreated)</b>						
Water Replenishment District	25,015	19,635	32,689	9,792	5,340	-
<b>Subtotal</b>	<b>25,015</b>	<b>19,635</b>	<b>32,689</b>	<b>9,792</b>	<b>5,340</b>	<b>-</b>
<b>Total Sales</b>	<b>55,360</b>	<b>41,580</b>	<b>54,846</b>	<b>27,892</b>	<b>20,060</b>	<b>16,441</b>

Table 3.2: CBMWD Supplies (AF) (DWR Table 6-8 Wholesale)

Water Supply	Additional Detail on Water Supply	2020	
		Actual Volume	Water Quality
Purchased or Imported Water	Retail Agencies	16,441	Drinking Water
Purchased or Imported Water	WRD	0	Raw Water
Other	GW Production	165,619	Drinking Water
Recycled Water	Municipal, Industrial, and Agricultural Use	4,491	Recycled Water
Other	GW Recharge /Montebello Forebay	53,988	Recycled Water
<b>Total</b>		<b>242,765</b>	



# Central Basin MWD

Imports trending down. Groundwater highly variable.

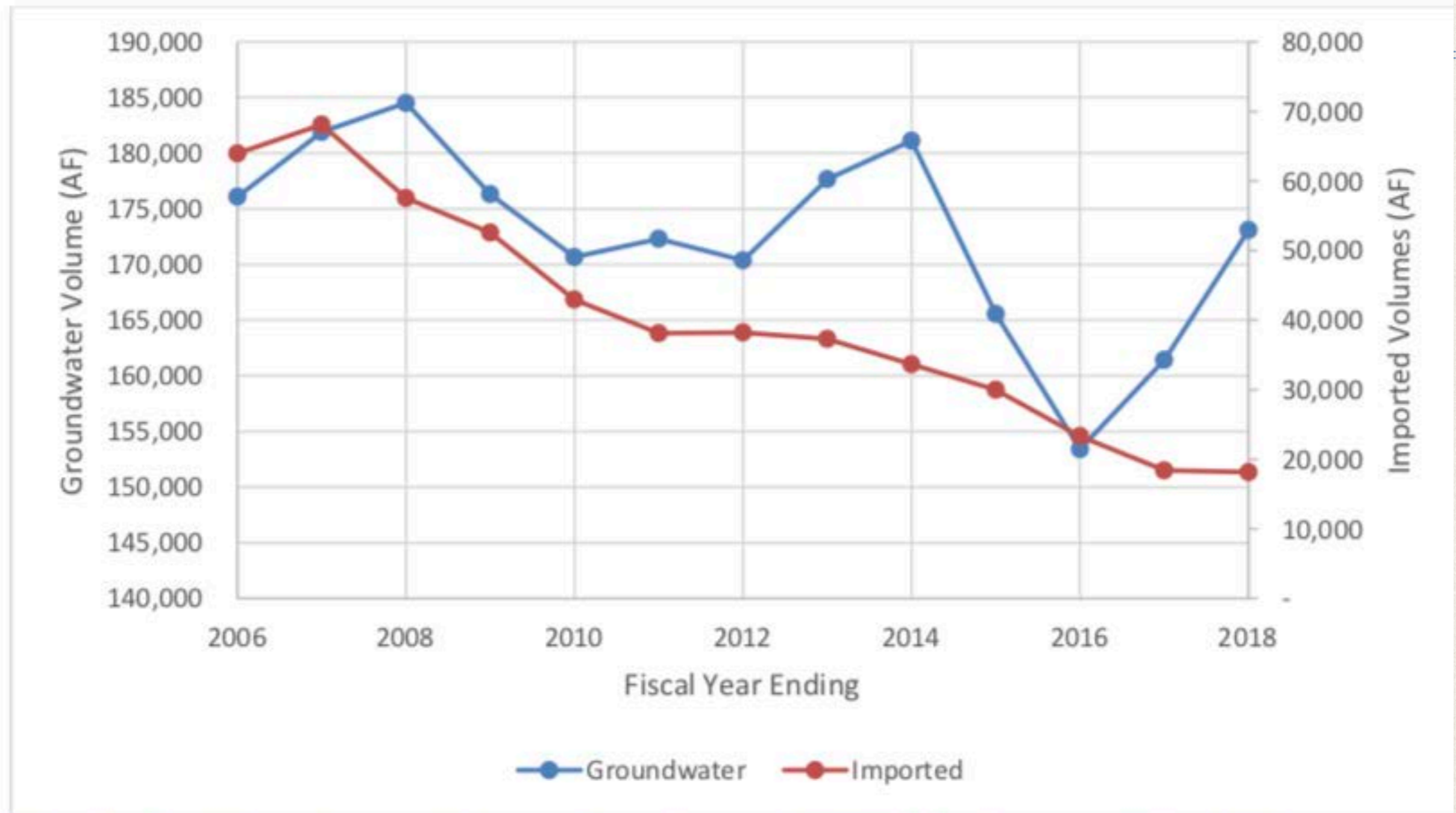


Figure 2.6: Total Groundwater and Imported Water Usage by CBMWD Retail Agencies (2006 - 2018)



# Water Supply Governance 1

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- ❖ State Law

- ❖ Water Code sets out scope of powers and authorities for Metropolitan, Water Replenishment District, Orange County Water District, municipal water districts and other agencies

- ❖ State Water Resources Control Board: appointed by Governor

- ❖ Water rights division oversees surface water rights and diversions including env. water

- ❖ California Public Utilities Commission (CPUC): appointed by Governor

- ❖ Holds water rate hearings for investor-owned utilities



# Water Supply Governance 2

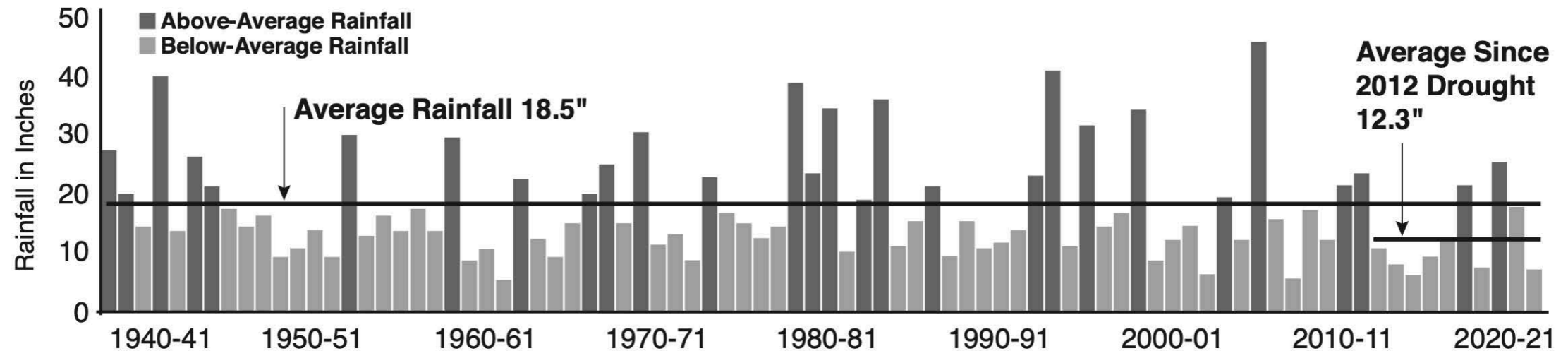
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- ❖ Met Board of Directors: each member agency appoints representatives
  - ❖ Makes decisions on investments & programs, sets water rate structure & rates
- ❖ Public Water District Boards & City Councils: members are publicly elected
  - ❖ Makes decisions on investments & programs, sets water rate structure & rates
- ❖ Groundwater Basin Managers / Watermasters: some appointed by rights holders, some publicly elected, some appointed by Court
  - ❖ Administers adjudications or other governance structure for groundwater basins and rivers
  - ❖ Makes decisions for sustainability of water levels: restrictions on pumping, purchase of imported water, establishment of fees

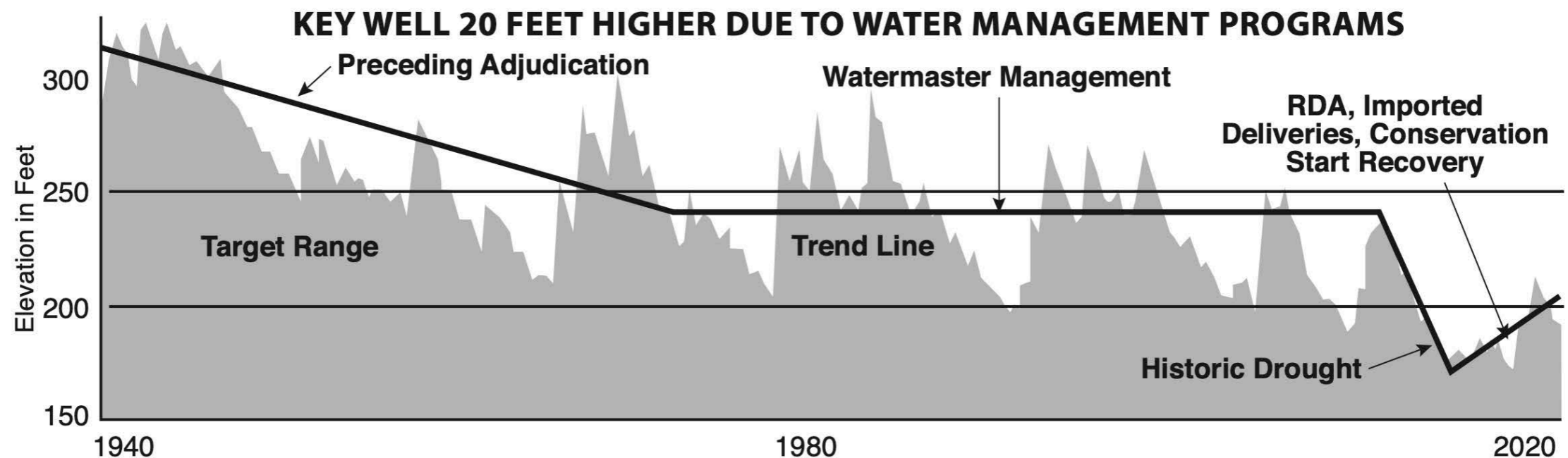


# Main San Gabriel Watermaster

## BELOW-AVERAGE RAINFALL IN 18 OF THE PAST 25 YEARS



*The rainfall statistics are bleak. Last year brought only 6.1" of rain, about one-third of average. Eight of the previous ten years received below-average rainfall.*



*Without Watermaster's management programs (e.g., RDA, imported deliveries), the Key Well would have fallen from the current 191.3 feet to about 172 feet. On June 30, 2020, the Key Well elevation was 203.1 feet—11.8 feet higher than on the same date this year in spite of dramatically lower than average rainfall.*



# WHAT'S NEXT...

# WIN 4 ALL

## THE 2040 PLAN FOR REGIONAL WATER INDEPENDENCE

In 2019, the WRD Board updated its Strategic Plan and 5-Year Capital Improvement Plan and for the first time, formally introduced the goal of “WIN for All,” an expansion of WRD’s WIN objectives to further offset the region’s imported water use. WRD’s WIN 4 ALL program will aim to increase resiliency in our replenishment operations and expand extraction capacity in the basins to ensure that the pumping community sees the full benefit of existing pumping rights. In addition, WIN 4 ALL will aim to take advantage of available local recycled water and stormwater resources to recharge available groundwater basin storage space and provide another avenue for increased regional reliance on local water supplies.

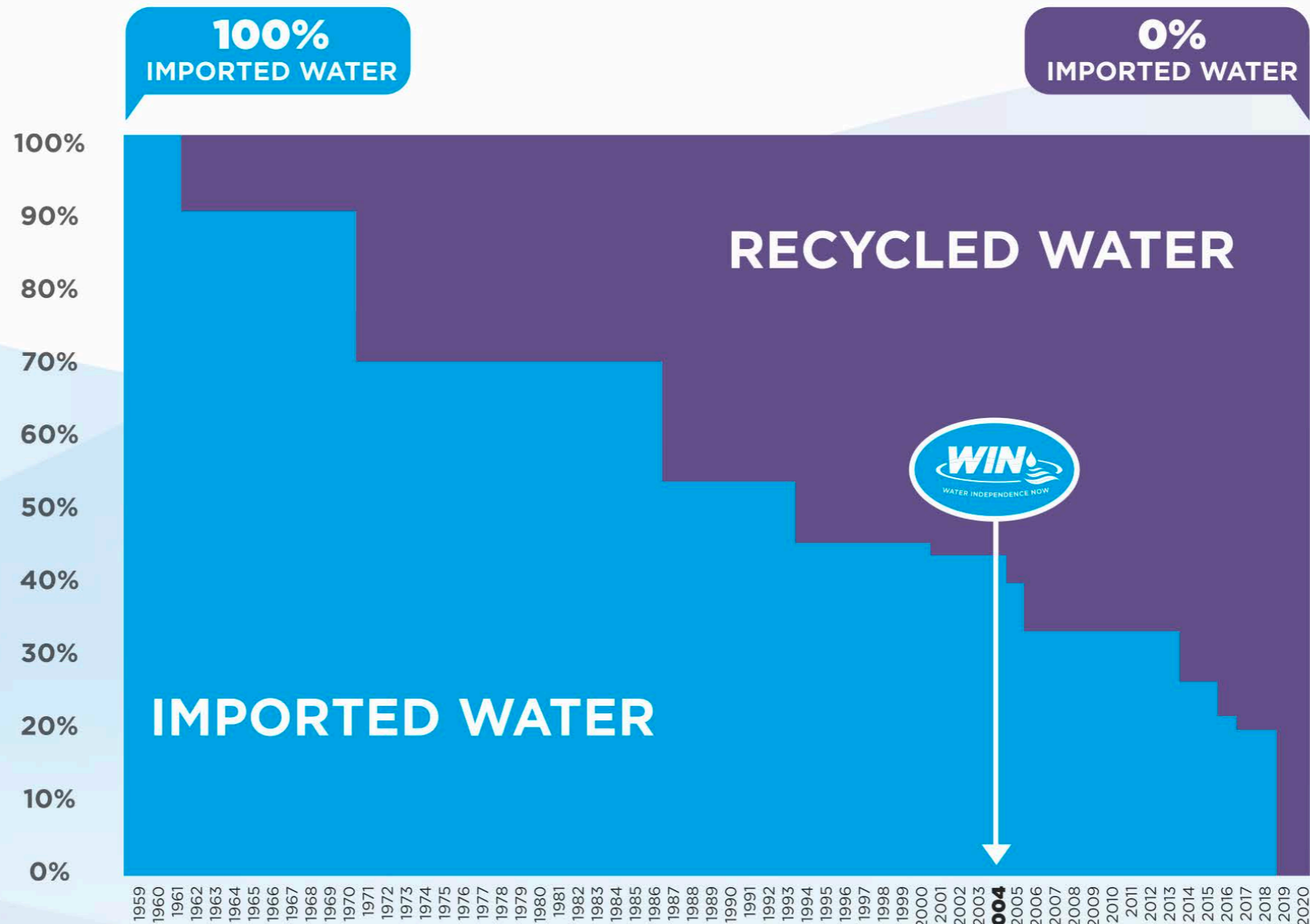




# Water Replenishment District (WRD) West Basin + Central Basin MWDs

## WRD'S REPLENISHMENT SOURCE WATER PORTFOLIO FROM 1959-2020

### HISTORIC DEVELOPMENT OF RECYCLED WATER FOR GROUNDWATER REPLENISHMENT





# Water Goes Down the Drain Then Where?

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Basics: more details to follow



# Waste Water to Recycled Water

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- ❖ LA Co Sanitation Districts

- ❖ 11 water reclamation plants (WRPs), combined capacity 650.8 mgd

- ❖ 1400 miles of sewer trunklines

- ❖ 850 square miles, 78 cities, 5.6 million people

- ❖ City of Los Angeles Sanitation District

- ❖ 4 water reclamation plants, combined capacity 625 mgd

- ❖ 503 square miles, 4 million people



# LA Co Sanitation WRPs

## **WASTEWATER FACILITIES**

<b>Facility</b>	<b>Placed in Operation</b>	<b>Permitted Capacity</b>	<b>Area in Acres</b>
JWPCP	2/4/1928	400 mgd	381
Long Beach WRP	5/22/1973	25 mgd	17
Los Coyotes WRP	10/14/1970	37.5 mgd	36
Whittier Narrows WRP	7/27/1962	15 mgd	27
San Jose Creek WRP	6/29/1971	100 mgd	51
Pomona WRP	4/15/1954	15 mgd	12
La Canada WRP	11/2/1962	0.2 mgd	0
Valencia WRP	3/25/1966	21.6 mgd	26
Saugus WRP	7/1/1962	6.5 mgd	4
Palmdale WRP	11/28/1952	12 mgd	278
Lancaster WRP	10/1/1959	18 mgd	1,392



# SANITATION DISTRICTS OF LOS ANGELES COUNTY



VENTURA COUNTY

CALABASAS LANDFILL  
Calabasas Gas-to-Energy Facility

SANTA MONICA MOUNTAINS

MALIBU

SANTA MONICA BAY

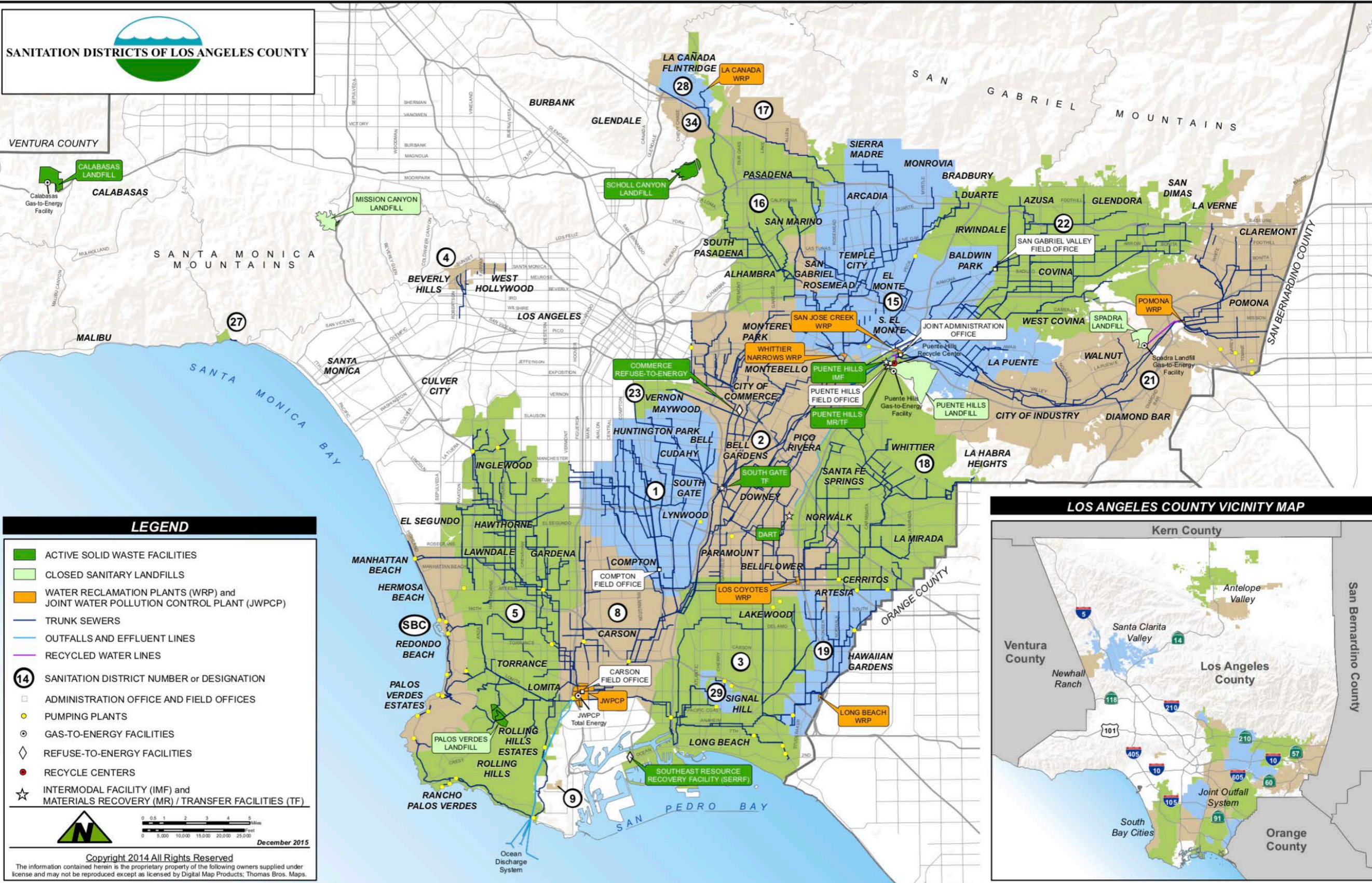
## LEGEND

- ACTIVE SOLID WASTE FACILITIES
- CLOSED SANITARY LANDFILLS
- WATER RECLAMATION PLANTS (WRP) and JOINT WATER POLLUTION CONTROL PLANT (JWPCP)
- TRUNK SEWERS
- OUTFALLS AND EFFLUENT LINES
- RECYCLED WATER LINES
- 14 SANITATION DISTRICT NUMBER or DESIGNATION
- ADMINISTRATION OFFICE AND FIELD OFFICES
- PUMPING PLANTS
- GAS-TO-ENERGY FACILITIES
- REFUSE-TO-ENERGY FACILITIES
- RECYCLE CENTERS
- INTERMODAL FACILITY (IMF) and MATERIALS RECOVERY (MR) / TRANSFER FACILITIES (TF)

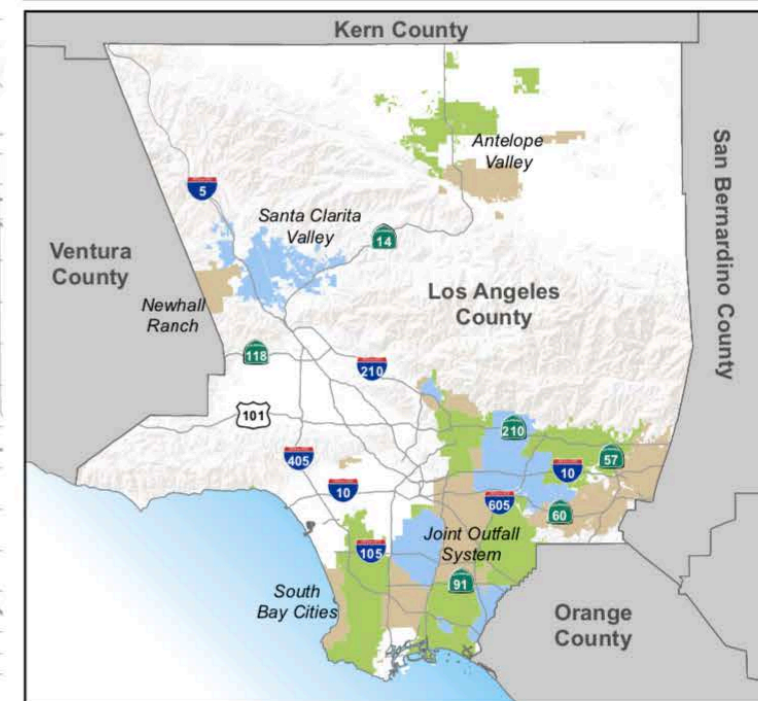


December 2015

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## LOS ANGELES COUNTY VICINITY MAP





# City of Los Angeles WRRPs

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- ❖ Hyperion

- ❖ 600 square miles, 4 million people
- ❖ Average flow 260mgd, 220 mgd discharged to SM Bay, rest recycled by West Basin

- ❖ Tillman

- ❖ capacity of 80 mgd, serves San Fernando Valley

- ❖ Los Angeles-Glendale

- ❖ capacity of 80 mgd, serves San Fernando Valley

- ❖ Terminal Island

- ❖ capacity of 15 mgd, 12 mgd to seawater barrier

- ❖ LA City Goal: recycle 59,000 AFY ( 52.6 mgd) by 2035



# Recycled Water

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- ❖ NOT drinking water (regulatory standards & water purity not equivalent)
- ❖ Different levels of treatment and quality
- ❖ Current uses of recycled water
  - ❖ spreading for groundwater recharge (indirect potable reuse)
  - ❖ injection to seawater barriers
  - ❖ industrial processes (eg refineries, power plants)
  - ❖ irrigation of golf courses and landscaping
- ❖ Potential future use: Direct potable reuse



# Conclusions

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- ❖ Local water supplies include imported, surface, groundwater, and recycled water
- ❖ Each retail water supplier has a unique mix of water supplies
- ❖ Recycled water is a growing supply
- ❖ Variety of supplies increases reliability
- ❖ Decisions made by the state, regional, wholesale and retail water suppliers and managers affect the price and reliability of your water supply