

Upper San Gabriel Valley Municipal Water District

2025 Urban Water Management Plan - Vol. II



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Appendix A

DWR Standardized Tables

Submittal Table 2-2: Plan Identification		
Select One	Type of Plan	Name of Regional Alliance or RUWMP (Drop Down List)
☒	Individual UWMP	
	If Water Supplier is also a member of a SB X7-7 Regional Alliance, select name from the drop-down.	
☐	Regional Urban Water Management Plan (RUWMP)	
	If Supplier selected RUWMP, select name from the drop-down.	
NOTES:		

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☒	Supplier is a wholesale supplier
☐	Supplier is a retail supplier
Fiscal or Calendar Year (select one)	
☐	UWMP Tables are in calendar years
☒	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
7/1	
Units of measure used in UWMP (Select from the drop down list).	
Unit	AF
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.	
NOTES:	

Submittal Table 2-4 Wholesale: Water Supplier Information Exchange Water Code Section 10631(h)	
☒	Check the box if the Supplier has informed more than 10 other water suppliers of water supplies available. Completion of the table below is optional. If not completed, include a list of the water suppliers that were informed.
10-3, 10-4	Provide page number for location of the list.
☐	Check the box if the Supplier has informed 10 or fewer other water suppliers of water supplies available. Complete the table below.
Water Supplier Name	
Add additional rows as needed	
NOTES:	

10631(h) ... The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five year increments, and during various water-year types in accordance with subdivision (f).

Submittal Table 3-1 Wholesale: Population - Current and Projected Water Code Section 10631(a)						
Population Served	2025	2030	2035	2040	2045	2050(opt)
	855,010	867,835	882,604	886,994	889,824	887,954
NOTES:						

CWC 10631(a) describe the current and projected population of the service area...

Optional Submittal Table 4-1 Wholesale: Total Uses for Potable and Non-Potable Water — Actual
Water Code Section 10631(d)(1)

Use Type	Additional Description (as needed)	2025 Actual Water Use	
Drop down list May select each use multiple times These are the only use types that will be recognized by the WUEdata online submittal tool		Potable or Non-Potable (OPTIONAL) Drop down list	Volume (AF)
Add additional rows as needed			
Sales to other agencies	USG-3, CenB-48, Canyon Basin	Non-Potable	29,466
Sales to other agencies	USG-1, USG-2, USG-4, USG-5, USG-6, USG-7, USG-8, USG-9	Potable	3,374
Sales to other agencies	Recycled Water Direct Use	Non-Potable	2,148
Subtotal Potable			3,374
Subtotal Non-Potable			31,614
Total			34,988
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.			
NOTES:			

10631(d) (1) for an urban **retail** water supplier, quantify to the extent records are available, past and current water use...

Optional Submittal Table 4-2 Wholesale: Total Uses for Potable and Non-Potable Water — Projected
Water Code Section 10631(d)(1)

Use Type	Additional Description (as needed)	Projected Water Use (Report To the Extent that Records are Available)					
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool.		Potable or Non-Potable (OPTIONAL) Drop down list	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 opt (AF)
Add additional rows as needed							
Sales to other agencies	Untreated Imported for Replenishment	Non-Potable	40,000	22,500	5,000	5,000	5,000
Sales to other agencies	Treated Imported	Potable	5,000	5,000	5,000	5,000	5,000
Sales to other agencies	Pure Water for Replenishment	Non-Potable	0	17,500	35,000	35,000	35,000
Sales to other agencies	Recycled Water Direct Use	Non-Potable	2,157	2,157	2,157	2,157	2,157
Subtotal Potable			5,000	5,000	5,000	5,000	5,000
Subtotal Non-Potable			42,157	42,157	42,157	42,157	42,157
Total			47,157	47,157	47,157	47,157	47,157
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.							
NOTES:							

Submittal Table 6-1 Wholesale: Groundwater Volume Pumped							
☒	Check the box if the Supplier does not pump groundwater.						
☐	Check the box if all or part of the groundwater described below is desalinated. (OPTIONAL)						
Groundwater Type Drop Down List May use each category multiple times	Potable or Non-Potable (OPTIONAL) Drop down list	Location or Basin Name	2021 (AF)	2022 (AF)	2023 (AF)	2024 (AF)	2025 (AF)
Add additional rows as needed							
Total			0	0	0	0	0
DWR NOTES:							
NOTES:							

10631(4) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following

(C) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

Submittal Table 6-3 Wholesale: Wastewater Treatment and Discharge Within Service Area														
Water Code Section 10633(b)														
☐	Check the box if the Wholesale Supplier neither distributes nor provides supplemental treatment to recycled water. Proceed to the next table.													
Wastewater Treatment Plant Name and Place ID Number Drop down list	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area? (OPTIONAL) Drop down list	2025 Volume of Wastewater Received from UWMP Service Area (AF)	Total 2025 Volume of Water Treated (AF)	2025 Outcomes of Treated Wastewater										
				Water Recycled Within UWMP Service Area (enter data as applicable)		Water Recycled Outside of UWMP Service Area (enter data as applicable)		Effluent Discharge that is not a Permitted Recycled Water Use (enter data as applicable)		Required Discharge for Instream Flow (enter data as applicable)		Delivered to Another Entity for Additional Treatment (enter data as applicable)		
				Treatment Level Drop down list	Volume (AF)	Treatment Level Drop down list	Volume (AF)	Treatment Level Drop down list	Volume (AF)	Treatment Level Drop down list	Volume (AF)	Treatment Level Drop down list	Volume (AF)	Name of other entity
Add additional rows as needed.														
San Jose Creek Water	Yes	57456	57456	Tertiary	5,400	Tertiary	52,056	Tertiary	0					
Whittier Narrows Water	Yes	8618	8618	Tertiary	1,490	Tertiary	7,126	Tertiary	2					
Total		66074	66074		6,890		59,182		2		0		0	
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3. IPR: Indirect Potable Reuse would have the treatment level of its end use requirement in the Level of Treatment drop-down. Additional Guidance: See Appendix M, Section M.21 for detailed guidance on this table.														
NOTES: 														

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. ...and shall include all of the following:
(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

Submittal Table 6-4 Wholesale: Current and Projected Recycled Water Uses
Water Code Section 10633(c),(d),(e)

☐ Check box if recycled water is not used and is not planned for use within the service area of the supplier. The supplier will only complete the column on "Potential Recycled Water Use" and submit an accompanying narrative on the feasibility of that potential recycled water use.										
Name(s) of Facility/ies Producing (Treating) the Recycled Water (OPTIONAL) :										
Name of Supplier Operating the Recycled Water Distribution System (OPTIONAL) :										
Volume of Supplemental Water Added in 2025 (OPTIONAL) :										
Source of 2025 Supplemental Water (OPTIONAL) :										
Name of Receiving Supplier or Direct Use by Wholesale Supplier	Potable or Non-Potable (after treatment if treated) (OPTIONAL) Drop down list	Additional Information (as needed)	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)	Potential Recycled Water Use	
									Volume (AF)	Narrative page number (OPTIONAL)
Add additional rows as needed										
La Puente Valley County Water District	Non-Potable	Tertiary	8	15	15	15	15	15		
San Gabriel Valley Water Company (South El Monte Expansion)	Non-Potable	Tertiary	60	71	71	71	71	71		
San Gabriel Valley Water Company (Phase 1)	Non-Potable	Tertiary	34	31	31	31	31	31		
San Gabriel Valley Water Company (Phase IIA)	Non-Potable	Tertiary	1507	1368	1368	1368	1368	1368		
Golden State Water Company (Phase IIA)	Non-Potable	Tertiary	2	2	2	2	2	2		
Suburban Water System (City of Industry Regional Recycled Water System, Phase IIB)	Non-Potable	Tertiary	514	650	650	650	650	650		
Valencia Heights Water Company (City of Industry Regional Recycled Water System, Phase IIB)	Non-Potable	Tertiary	23	20	20	20	20	20		
Pure Water Southern California	Non-Potable	Advanced	0	0	17500	35000	35000	35000		
Subtotal Potable			0	0	0	0	0	0	0	
Subtotal Non-Potable			2,148	2,157	19,657	37,157	37,157	37,157	0	
Total			2148	2157	19657	37157	37157	37157	0	0
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table reports the unit of measure selected in Submittal Table 2-3. Additional Guidance: See Appendix M, Section M.21 for detailed guidance on this table. Potential recycled water use: a description of the feasibility of these uses must be included in the narrative. Multiple Producers: If you have multiple recycled water producers, submit a separate table for each.										
NOTES:										

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier... and shall include...

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use

d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

**Submittal Table 6-5 Wholesale: 2020 UWMP Recycled Water Use Projection
Compared to 2025 Actual
Water Code Section 10633(e)**

☐

Check the box if recycled water was not used or distributed by the supplier in 2025, nor projected for use or distribution in 2020.
Proceed to the next table.

Name of Receiving Supplier or Direct Use by Wholesale Supplier	2020 Projection for 2025 (AF)	2025 Actual Use (AF)
Add additional rows as needed		
Direct Use Recycled Water Program	2,085	1,611
Total	2,085	1,611
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3. Additional Guidance: See Appendix M, Section M.21 for detailed guidance on this table.		
NOTES:		

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following: (e) ...a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision

Submittal Table 6-7 Wholesale: Expected Future Water Supply Projects or Programs Water Code Section 10631(f)							
☐	Check the box if there are no expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Proceed to the next table.						
☐	Check the box if some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.						
6-48 to 6-50	Provide page location of narrative in the UWMP						
Name of Future Projects or Programs	Joint Project with other suppliers?		Additional Description (as needed)	Potable or Non-Potable (after treatment if treated) (OPTIONAL) Drop down list	Planned Implementation Year	Planned for Use in Year Type Drop Down list	Expected Increase in Water Supply to Supplier (This may be a range) (AF)
	Drop Down List (yes/no)	If Yes, Supplier Name					
Add additional rows as needed							
Pure Water Southern California	Yes	Metropolitan Water District of Southern California; Three Valleys MWD, San Gabriel District MWD			2035	All Year Types	35,000
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure reported in Submittal Table 2-3.							
NOTES:							

10631 (f) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in normal and single-dry water years and for a period of drought lasting five consecutive water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

Submittal Table 6-8 Wholesale: Water Supplies — Actual Water Code Section 10631(b)				
Water Supply	Additional Description (as needed)	2025		
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Potable or Non-Potable (after treatment if treated) (OPTIONAL) Drop Down list	Actual Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)
Add additional rows as needed				
Purchased or Imported Water	Upper District receives treated imported surface water from Metropolitan.	Potable	3,374	
Purchased or Imported Water	Upper District receives untreated imported surface water from Metropolitan for groundwater replenishment.	Non-Potable	29,466	
Recycled Water	Direct Use	Non-Potable	2,148	
Subtotal Potable			3,374	0
Subtotal Non-Potable			31,614	0
Total			34,988	0
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3. Total Entitlement: e.g. Water Right, Groundwater Allocation, Contracted Amount.				
NOTES:				

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following... (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information

Submittal Table 6-9 Wholesale: Water Supplies — Projected Water Code Section 10631 (b)							
Water Supply			Projected Water Supply (Report to the Extent Practicable)				
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool	Additional Detail on Water Supply	Potable or Non-Potable (after treatment if treated) (OPTIONAL) Drop Down list	2030	2035	2040	2045	2050 (opt)
			Reasonably Available Volume (AF)	Reasonably Available Volume (AF)	Reasonably Available Volume (AF)	Reasonably Available Volume (AF)	Reasonably Available Volume (AF)
Add additional rows as needed							
Purchased or Imported Water	Treated Imported Water from Metropolitan	Potable	26,739	27,639	27,732	27,556	27,240
Purchased or Imported Water	Untreated Imported Water (Raw Water) from Metropolitan for Groundwater Replenishment	Non-Potable	40,000	22,500	5,000	5,000	5,000
Recycled Water	Pure Water from Metropolitan for Groundwater Replenishment	Non-Potable	0	17,500	35,000	35,000	35,000
Recycled Water	Direct Use	Non-Potable	2,157	2,157	2,157	2,157	2,157
Subtotal Potable			26,739	27,639	27,732	27,556	27,240
Subtotal Non-Potable			42,157	42,157	42,157	42,157	42,157
Total			68,896	69,796	69,889	69,713	69,397
DWR NOTES:							
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in a Submittal Table 2-3.							
NOTES:							

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following... (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information...

OPTIONAL Submittal Table 7-1 Wholesale: Basis of Water Year Data (Reliability Assessment)

Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2024-2025, use 2025	Available Supplies if Year Type Repeats	
		☐	Check the box if quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location: [insert location from UWMP]
		Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available (AF)	% of Average Supply
Average Year	2020	36739	100%
Single-Dry Year	2018	25666	68%
Consecutive Dry Years 1st Year	2012	27888	73%
Consecutive Dry Years 2nd Year	2013	19243	45%
Consecutive Dry Years 3rd Year	2014	43712	115%
Consecutive Dry Years 4th Year	2015	54033	151%
Consecutive Dry Years 5th Year	2016	29032	77%

DWR NOTES: Supplier may use multiple versions of Submittal Table 7-1 W if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Submittal Table 7-1 W, in the "Note" section of each submittal table, state that multiple versions of Submittal Table 7-1 W are being used and identify the particular water source that is being reported in each submittal table.

Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table reports the unit of measure selected in Submittal Table 2-3.

NOTES:

Submittal Table 7-2 Wholesale: Normal Year Supply and Use Comparison
Water Code Section 10635 (a)

	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)
Supply totals (autofill from Submittal Table 6-9 W)	68,896	69,796	69,889	69,713	69,397
Use totals (see OPTIONAL Submittal Table 4-2 W)	47,157	47,157	47,157	47,157	47,157
Surplus/(shortfall)	21,739	22,639	22,732	22,556	22,240

DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.

NOTES:

**Submittal Table 7-3 Wholesale: Single Dry Year Supply and Use Comparison
Water Code Section 10635(a)**

	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)
Supply totals	72,748	73,645	73,737	73,561	73,248
Use totals	68,686	69,583	69,675	69,499	69,186
Surplus/(shortfall)	4,062	4,062	4,062	4,062	4,062

OPTIONAL Planned WSCP Actions

WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.

NOTES:

Submittal Table 7-4 Wholesale: Multiple Dry Years Supply and Use Comparison
Water Code Section 10635(a)

		2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)
First year	Supply totals	58,038	73,969	74,391	74,322	74,060
	Use totals	53,976	69,907	70,329	70,260	69,998
	Surplus/(shortfall)	4,062	4,062	4,062	4,062	4,062
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Second year	Supply totals	58,038	73,969	74,391	74,322	74,060
	Use totals	53,976	69,907	70,329	70,260	69,998
	Surplus/(shortfall)	4,062	4,062	4,062	4,062	4,062
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Third year	Supply totals	58,038	73,969	74,391	74,322	74,060
	Use totals	53,976	69,907	70,329	70,260	69,998
	Surplus/(shortfall)	4,062	4,062	4,062	4,062	4,062
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fourth year	Supply totals	58,038	73,969	74,391	74,322	74,060
	Use totals	53,976	69,907	70,329	70,260	69,998
	Surplus/(shortfall)	4,062	4,062	4,062	4,062	4,062
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fifth year	Supply totals	58,038	73,969	74,391	74,322	74,060
	Use totals	53,976	69,907	70,329	70,260	69,998
	Surplus/(shortfall)	4,062	4,062	4,062	4,062	4,062
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.						
NOTES:						

Submittal Table 7-5 Wholesale: Five-Year Drought Risk Assessment Water Code Section 10635(b)(3)	
2026	Total
Total Water Use (AF)	27,888
Total Supplies (AF)	27,888
Surplus/Shortfall w/o WSCP Action	0
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2027	Total
Total Water Use (AF)	19,243
Total Supplies (AF)	19,243
Surplus/Shortfall w/o WSCP Action	0
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2028	Total
Total Water Use (AF)	43,712
Total Supplies (AF)	43,712
Surplus/Shortfall w/o WSCP Action	0
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2029	Total
Total Water Use (AF)	54,033
Total Supplies (AF)	54,033
Surplus/Shortfall w/o WSCP Action	0
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2030	Total
Total Water Use (AF)	29,032
Total Supplies (AF)	29,032
Surplus/Shortfall w/o WSCP Action	0
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.	

NOTES:

10635 (b) Every urban water supplier shall include, as part of its urban water management plan, a **drought risk assessment** for its water service... The drought risk assessment shall include each of the following:

(1) A description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive water years, starting from the year following when the assessment is conducted.

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.

(4) Considerations of the historical drought hydrology, ...

(2) A determination of the reliability of each source of supply under a variety of water shortage conditions. This may include a determination that a particular source of water supply is fully reliable under most, if not all, conditions.

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.

Submittal Table 8-1: Cross-reference for Standard vs Supplier Shortage Levels
Water Code Section 10632(a)(3)(B)

☒	Check the box if the Supplier uses the Standard six levels of water shortage. Proceed to the next table.		
Standard Shortage Levels	Percent Shortage Range	Suppliers Shortage Levels	Percent Shortage Range
1	Up to 10%	1	Up to 10%
2	Up to 20%	2	10% to 20%
3	Up to 30%	3	20% to 30%
4	Up to 40%	4	30% to 40%
5	Up to 50%	5	40% to 50%
6	>50%	6	More than 50%
NOTES:			

10632 (a) Every urban water supplier shall prepare and adopt a water shortage contingency plan as part of its urban water management plan that consists of each of the following elements:

(3)(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. **Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use.** Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

Submittal Table 8-2 Wholesale: Supply Augmentation and Other Actions Water Code Section 10632(a)(4)(A),(C) and (E)				
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier Drop down list These are the only categories that will be accepted by the WUEdata online submittal tool	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)	
Add additional rows as needed				
1	Other Actions (describe)	Percentage	0	Not applicable. See Notes.
2	Other Actions (describe)	Percentage	0	Not applicable. See Notes.
3	Other Actions (describe)	Percentage	0	Not applicable. See Notes.
4	Other Actions (describe)	Percentage	0	Not applicable. See Notes.
5	Other Actions (describe)	Percentage	0	Not applicable. See Notes.
6	Other Actions (describe)	Percentage	0	Not applicable. See Notes.
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.				
NOTES: Upper Water relies on Metropolitan for imported water supplies and consequently relies on Metropolitan's supply augmentation actions during a water shortage. Upper Water does not anticipate augmenting water supplies.				

- 10632(a)(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:
- (A) Locally appropriate supply augmentation actions.
 - (C) Locally appropriate operational changes.
 - (E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

Submittal Table 8-3 Wholesale: Demand Reduction Actions Water Code Section 10632(a)(4)(B) and (E)				
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)			
Shortage Level	Demand Reduction Actions Drop down list These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)	
Add additional rows as needed				
Shortage Level 1	Expand Public Information Campaign	Percentage	Assumed to be effective at reducing demands by 5% to 10%	
Shortage Level 1	Other Actions (describe)	Percentage	Assumed to be effective at reducing demands by 5% to 10%. Shortage gap to be reduced by retailers.	Provide Rebates on Plumbing Fixtures and Devices
Shortage Level 1	Other Actions (describe)	Percentage	Assumed to be effective at reducing demands by 5% to 10%. Shortage gap to be reduced by retailers.	Provide Rebates for Landscaping Irrigation Efficiency
Shortage Level 1	Other Actions (describe)	Percentage	Assumed to be effective at reducing demands by 5% to 10%. Shortage gap to be reduced by retailers.	Provide Rebates for Turf Replacement
Shortage Level 1	Other Actions (describe)	Percentage	Assumed to be effective at reducing demands by 5% to 10%. Shortage gap to be reduced by retailers.	Offer Water Use Surveys
Shortage Level 2	Other Actions (describe)	Percentage	Assumed to be effective at reducing demands by 10% to 20%. Shortage gap to be reduced by retailers.	All actions under Shortage Level 1
Shortage Level 3	Other Actions (describe)	Percentage	Assumed to be effective at reducing demands by 20% to 30%. Shortage gap to be reduced by retailers.	All actions under Shortage Level 2
Shortage Level 4	Other Actions (describe)	Percentage	Assumed to be effective at reducing demands by 30% to 40%. Shortage gap to be reduced by retailers.	All actions under Shortage Level 3
Shortage Level 5	Other Actions (describe)	Percentage	Assumed to be effective at reducing demands by 40% to 50%. Shortage gap to be reduced by retailers.	All actions under Shortage Level 4
Shortage Level 6	Other Actions (describe)	Percentage	Assumed to be effective at reducing demands greater than 50%. Shortage gap to be reduced by retailers.	All actions under Shortage Level 5
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.				
NOTES:				

10632(a)(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

Submittal Table 10-1 Wholesale: Notification to Cities and Counties Water Code Section 10621(b) and 10642		
☒	Check the box if the Supplier has notified more than 10 cities or counties. Completion of the table below is not required. Provide a separate list of the cities and counties that were notified.	
10-3, 10-4, App. D	Provide the page or location of this list in the UWMP.	
☐	Check the box if the Supplier has notified 10 or fewer cities or counties. Complete the table below.	
City Name	60 Day Notice Drop Down (yes/no)	Notice of Public Hearing Drop Down (yes/no)
Add additional rows as needed		
County Name Drop Down List	60 Day Notice Drop Down (yes/no)	Notice of Public Hearing Drop Down (yes/no)
Add additional rows as needed		
NOTES:		

CWC 10621 (b) Notify at least 60 days prior to the public hearing any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

CWC 10642 The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.

Appendix B

Completed Plan Checklist

Retail (x = required)	Wholesale (x = required)	Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
x	x	1	Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and overview	n/a	Chapter 1 Lay Description
x	x	1	Chapter 1	10630.5	Each plan shall include a simple description of the Supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a Supplier may also choose to include a simple description at the beginning of each chapter.	Plan preparation	n/a	Beginning of each Chapter
x	x	2.1	Section 2.1	10620(b)	Every person that becomes a Supplier shall adopt UWMP within one year after it has become a Supplier.	Plan preparation	n/a	Section 2.1
x	n/a	2.5	Section 2.5	10644	Supplier shall report the Public Water Systems number, volume of delivered water, and number of connections that are included in this UWMP.	Plan preparation	2-1	Not Applicable for Wholesalers
x	x	2.5	Section 2.5	10644	Supplier shall report if this UWMP is an individual UWMP and whether the Supplier belongs to a regional UWMP or regional alliance.	Plan preparation	2-2	Sections 2.2 and 2.5
x	x	2.5	Section 2.5	10644	Supplier shall report whether the data is in fiscal or calendar years and the units of measure used for reporting water volumes.	Plan preparation	2-3	Sections 2.3 and 2.5
x	x	2.4	Section 2.4	10642	Provide supporting documentation that the Supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan preparation	n/a	Section 2.4
x	x	2.4	Section 2.4.2	10620(d)(3)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other Suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan preparation	n/a	Section 2.4.2
x	n/a	2.4	Section 2.4.1	10631(h)	Retail Suppliers will include documentation that they have provided their Wholesale Supplier(s)—if any—with water use projections from that source.	Plan preparation	2-4 R	Not Applicable for Wholesalers
n/a	x	2.4	Section 2.4.1	10631(h)	Wholesale Suppliers will provide their Suppliers with identification and quantification of the existing and planned sources of water available from the Wholesale Supplier to the Supplier during various water year types.	Plan preparation	2-4 W	Section 2.4.1
x	x	3	Chapter 3.0	10631(a)	Describe the Supplier service area.	System description	n/a	Section 3.1 and 3.2
x	x	3.3	Section 3.3	10631(a)	Describe the climate of the Supplier's service area.	System description	n/a	Section 3.3
x	x	3.4	Section 3.4.1	10631(a)	Provide the current and projected service area populations for 2030, 2035, 2040, 2045 and optionally 2050.	System description	3-1	Sections 3.4 and 3.6
x	x	3.4	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the Supplier's water management planning.	System description	n/a	Section 3.4.2
x	x	3.5	Section 3.5	10631(a)	Describe the land uses within the service area... include the current and projected land uses within the existing or anticipated service area affecting the Supplier's water management planning. Describe the land uses within the service area.	System description and baselines	n/a	Section 3.5
x	Optional	4.2	Sections 4.2.3 and 4.2.4	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System water use	4-1 and 4-2	Sections 4.2 and 4.4
x	Optional	4.3	Section 4.3.1	10631(d)(3)(A)	Report the distribution system water loss for each of the five years preceding the plan update.	System water use	4-5	Sections 4.3 and 4.4
x	n/a	4.3	Section 4.3.2	10631(d)(3)(C)	Retail Suppliers shall provide data to show the distribution loss standards were met.	System water use	4-6	Not Applicable for Wholesalers
x	n/a	4.2	Section 4.2.5.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the Supplier.	System water use	4-3	Not Applicable for Wholesalers
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System water use	4-3	Not Applicable for Wholesalers
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System water use	4-3	Not Applicable for Wholesalers
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(B)(ii)	To the extent that a Supplier reports the information described in subparagraph (A), an urban water Supplier shall... Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.	System water use	4-3	Not Applicable for Wholesalers
x	x	4.2	Section 4.2.5.6	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System water use	n/a	Section 4.2.4.2
n/a	x	5.1	Section 5.1	10608.36	Wholesale Suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their Retail Suppliers achieve targeted water use reductions.	Baselines and targets	n/a	Section 5.1
x	n/a	5.2	Section 5.2	10608.4	Retail Suppliers shall report on their compliance in meeting their water use targets. Reporting requirements will vary depending on whether the Supplier: - Was considered an urban retail water supplier in 2020, - Met its 2020 target in 2020, or - Was part of a merger or consolidation since 2020. Chapter 5 Subsections 5.2.1, 5.2.2, and 5.2.3 address each of these situations.	Baselines and targets	5-1	Not Applicable for Wholesalers
x	x	6.1	Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System supplies	n/a	Sections 6.1 and 6.2
x	x	6.1	Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, including changes in supply due to climate change.	System supplies	n/a	Sections 6.1, 6.2, 7.1, and 7.2
x	x	6.2	Section 6.2.2	10631(b)(4)(C)	Indicate whether groundwater is an existing or planned source of water available to the Supplier. If groundwater is identified as an existing or planned source of water... (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	Water supplies and recycled water	6-1	Sections 6.2.2 and 6.4
x	x	6.2	Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the Supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System supplies	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System supplies	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the Supplier has the legal right to pump.	System supplies	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	For unadjudicated basins... (include) information as to whether DWR has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin...	Water supplies and recycled water	n/a	Section 6.2.2

x	x	6.2	Section 6.2.2	10631(b)(4)(B)	For adjudicated basins... describe efforts by the Supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	Water supplies and recycled water	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2.	10631(b)(4)(C)	If groundwater is identified as an existing or planned source of water... (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	System supplies	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System supplies	6-9	Section 6.2.2
x	x	6.1	Section 6.1	10631(b)	Identify and quantify the existing and planned sources of water available for 2025, 2030, 2035, 2040, 2045 and optionally 2050.	System supplies	6-8 and 6-9	Section 6.4
x	x	6.2	Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System supplies	n/a	Section 6.2.7
x	n/a	6.2	Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the Supplier's service area with quantified amount of collection and treatment and the disposal methods.	System supplies (recycled water)	6-2	Not Applicable for Wholesalers
x	x	6.2	Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System supplies (recycled water)	6-3	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the Supplier's service area.	System supplies (recycled water)	6-4	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System supplies (recycled water)	6-4	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.5	10633(e)	Describe the projected use of recycled water within the Supplier's service area at the end of 5, 10, 15, and 20 years, and describe the actual use of recycled water in comparison to uses previously projected.	System supplies (recycled water)	6-4 and 6-5	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.5	10633(f)	Describe the actions that may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System supplies (recycled water)	6-6	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the Supplier's service area.	System supplies (recycled water)	n/a	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System supplies	6-7	Section 6.2.6
x	x	6.2	Section 6.2.10	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water Supplier to address water supply reliability in average, single-dry, and for a period of drought lasting five consecutive water years.	System supplies	6-7	Sections 6.2.10 and 6.4
x	x	6.3	Section 6.3 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a Supplier can readily obtain.	System supplies, energy intensity	0-1A, 0-1B, 0-1C, and 0-2	Section 6.3
x		7.1	Section 7.1	10634	Provide information on the quality of existing sources of water available to the Supplier and the manner in which water quality affects water management strategies and supply reliability.	Water supply reliability assessment	n/a	Section 7.1
x	x	7.2	Section 7.2	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the Supplier with the total projected water use over the next 20 years.	Water supply reliability assessment	7-2, 7-3, and 7-4	Section 7.2
x	x	7.2	Section 7.2.3	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water supply reliability assessment	n/a	Section 7.2.3
x	x	7.3	Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water supply reliability assessment	n/a	Section 7.3
x	x	7.3	Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive years.	Water supply reliability assessment	n/a	Section 7.3
x	x	7.3	Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water supply reliability assessment	n/a	Section 7.3
x	x	7.3	Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the Supplier with the total projected water use for the drought period.	Water supply reliability assessment	7-5	Section 7.3
x	x	7.3	Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water supply reliability assessment	n/a	Section 7.3
x	x	8	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water shortage contingency planning	n/a	Chapter 8
x	x	8	Chapter 8	10632(a)(1)	Provide an analysis of water supply reliability (from Guidebook Chapter 7) in the WSCP.	Water shortage contingency planning	n/a	Chapter 8
x	x	8.2	Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the Supplier will use each year to determine its water reliability.	Water shortage contingency planning	n/a	Section 8.2
x	x	8.2	Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the Supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water shortage contingency planning	n/a	Section 8.2
x	x	8.3	Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10%, 20%, 30%, 40%, 50% shortage, and greater than 50% shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water shortage contingency planning	n/a	Section 8.3
x	x	8.3	Section 8.3	10632(a)(3)(B)	Suppliers with an existing WSCP that uses different water shortage levels must cross reference their categories with the six standard categories.	Water shortage contingency planning	8-1	Sections 8.3 and 8.14
x	x	8.4	Section 8.4	10632(a)(4)(A)	Suppliers with WSCPs that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water shortage contingency planning	8-2	Sections 8.4.1 and 8.14
x	x	8.4	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water shortage contingency planning	8-3	Sections 8.4.2 and 8.14
x	x	8.4	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water shortage contingency planning	8-2	Section 8.4.3
x	x	8.4	Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to State mandated prohibitions are appropriate to local conditions.	Water shortage contingency planning	Table 8-3	Section 8.4.4
x	x	8.4	Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water shortage contingency planning	8-2 and 8-3	Sections 8.4.7 and 8.14
x	x	8.4	Section 8.4.6	10632.5	The UWMP shall include a seismic risk assessment and mitigation plan.	Water shortage contingency plan	n/a	Section 8.4.6
x	x	8.5	Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water shortage contingency planning	n/a	Section 8.5
x	x	8.5	Section 8.5	10632(a)(5)(B), 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water shortage contingency planning	n/a	Section 8.5

x	n/a	8.6	Section 8.6	10632(a)(6)	Retail Supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water shortage contingency planning	n/a	Not Applicable for Wholesalers
x	x	8.7	Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the Supplier to enforce shortage response actions.	Water shortage contingency planning	n/a	Section 8.7
x	x	8.7	Section 8.7	10632(a)(7)(B)	Provide a statement that the Supplier will declare a water shortage emergency per Water Code Chapter 3, <i>Water Shortage Emergencies</i> .	Water shortage contingency planning	n/a	Section 8.7
x	x	8.7	Section 8.7	10632(a)(7)(C)	Provide a statement that the Supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water shortage contingency planning	n/a	Section 8.7
x	x	8.8	Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	Section 8.8
x	x	8.8	Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	Section 8.8
x	n/a	8.8	Section 8.8	10632(a)(8)(C)	Retail Suppliers must describe the cost of compliance with Water Code Chapter 3.3, <i>Excessive Residential Water Use During Drought</i> .	Water shortage contingency planning	n/a	Not Applicable for Wholesalers
x	n/a	8.9	Section 8.9	10632(a)(9)	Retail Suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data are collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water shortage contingency planning	n/a	Not Applicable for Wholesalers
x	x	8.10	Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the WSCP to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water shortage contingency planning	n/a	Section 8.10
x	n/a	8.11	Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water shortage contingency planning	n/a	Not Applicable for Wholesalers
x	x	8.12	Section 8.12	10632(c)	Make available the WSCP to customers and any city or county where it provides water within 30 days after adoption of the plan.	Water shortage contingency planning	n/a	Sections 8.12 and 10.6
x	n/a	9.1	Sections 9.1	10631(e)(1)	Retail Suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand management measures	n/a	Not Applicable for Wholesalers
n/a	x	9.2	Sections 9.2	10631(e)(2)	Wholesale Suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and Supplier assistance program.	Demand management measures	n/a	Section 9.2
x	n/a	10	Chapter 10	10608.26(a)	Retail Suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan adoption, submittal, and implementation	n/a	Not Applicable for Wholesalers
x	x	10.2	Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the Supplier provides water that the Supplier will be reviewing the UWMP and considering amendments or changes to the plan.	Plan adoption, submittal, and implementation	10-1	Section 10.2
x	x	10.4	Section 10.4	10621(f)	Each urban water Supplier shall update and submit its 2025 plan to DWR by July 1, 2026.	Plan adoption, submittal, and implementation	n/a	Section 10.5
x	x	10.2	Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the Supplier made the UWMP and WSCP available for public inspection, published notice of the public hearing, and held a public hearing about the UWMP and WSCP.	Plan adoption, submittal, and implementation	n/a	Sections 10.2, 10.3, and 10.4
x	x	10.2	Section 10.2.2	10642	The Supplier is to provide the time and place of the hearing to any city or county within which the Supplier provides water.	Plan adoption, submittal, and implementation	10-1	Section 10.3
x	x	10.3	Section 10.3.2	10642	Provide supporting documentation that the UWMP and WSCP has been adopted as prepared or modified.	Plan adoption, submittal, and implementation	n/a	Sections 10.4 and 10.9
x	x	10.4	Section 10.4	10644(a)	Provide supporting documentation that the Supplier has submitted their UWMP to the California State Library.	Plan adoption, submittal, and implementation	n/a	Section 10.5.3
x	x	10.4	Section 10.4	10644(a)(1)	Provide supporting documentation that the Supplier has submitted their UWMP to any city or county within which the Supplier provides water no later than 30 days after adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.5.4
x	x	10.4	Sections 10.4.1 and 10.4.2	10644(a)(2)	The UWMP, or amendments to the UWMP, submitted to DWR shall be submitted electronically.	Plan adoption, submittal, and implementation	n/a	Sections 10.5 and 10.9
x	x	10.7	Section 10.7.2	10644(b)	If revised, submit a copy of the WSCP to DWR within 30 days of adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.9
x	x	10.5	Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its UWMP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Section 10.6
x	x	10.5	Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its WSCP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Section 10.6
x	x	10.6	Section 10.6	10621(c)	If Supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan adoption, submittal, and implementation	n/a	Section 10.7

Appendix C

Demonstration of Reduced Reliance

**DEMONSTRATION OF CONSISTENCY WITH THE DELTA PLAN FOR
PARTICIPANTS IN COVERED ACTIONS
(2015 THROUGH 2050)
UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT**

Introduction

Pursuant to the California Department of Water Resources (DWR), an urban water supplier that anticipates participating in or receiving water from a proposed project (or “covered action”) such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Sacramento-San Joaquin Delta (Delta) should provide information in their 2015, 2020, and 2025 Urban Water Management Plans (UWMPs) for use in demonstrating consistency with Delta Plan Policy WR P1, “*Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance*”. In addition, pursuant to California Code of Regulations, Title 23, § 5003:

(c)(1) Water suppliers that have done all of the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:

(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;

(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and

(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water

efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).

Upper San Gabriel Valley Municipal Water District (Upper Water), which in turn is a member agency of the Metropolitan Water District of Southern California (MWD). As noted in MWD's 2025 Regional UWMP, Appendix 10 (provided as Attachment 1 below), "... Metropolitan and its members as well as their customers are measurably reducing reliance on the Delta and improving regional self-reliance, both as an amount of water used and as a percentage of water used."

In addition, MWD's 2025 Regional UWMP indicates "...in accordance with UWMP requirements, Metropolitan's member agencies and their customers (many of them, retail agencies) also report demands and supplies for their service areas in their respective UWMPs. The data reported by those agencies are not additive to the regional totals shown in Metropolitan's UWMP; rather, their reporting represents subtotals of the regional total and should be considered as such for the purposes of determining reduced reliance on the Delta...While the demands that Metropolitan's member agencies and their customers report in their UWMPs are a good reflection of the demands in their respective service areas, they do not adequately represent each water supplier's contributions to reduced reliance on the Delta. In order to calculate and report their reliance on water supplies from the Delta watershed, water suppliers that receive water from the Delta through other regional or wholesale water suppliers would need to determine the amount of Delta water that they receive from the regional or wholesale supplier. Two specific pieces of information are needed to accomplish this: first is the quantity of demands on the regional or wholesale water supplier that accurately reflect a supplier's contributions to reduced reliance on the Delta, and second is the quantity of a supplier's demands on the regional or wholesale water supplier that are met by supplies from the Delta watershed...For water suppliers that make investments in regional projects or programs it may be infeasible to quantify their demands on the regional or wholesale water supplier in a way that accurately reflects their individual contributions to reduced reliance on the

Delta.” Nonetheless, Upper Water has taken proactive measures to help reduce regional reliance on imported water supplies and is discussed in the following sections.

Reduced Reliance Calculation Tables

Pursuant to DWR guidance, Tables C-1 through C-4 were prepared to show the potential reduction of reliance on imported water supplies for Upper Water. Upper Water has used these tables to demonstrate its reduced regional reliance on imported water supplies, but not specifically Delta Watershed supplies. For each of the tables, a “Baseline year” was selected. Water demands during subsequent years (from 2015 through 2050 in five-year increments) were compared to water demands during the Baseline year. Table C-1 considers the population and service area water demands, and a demand in gallons per capita per day (GPCD) water use rate was calculated for each of the years following the Baseline year. The calculated reduction in GPCD from the Baseline year was then translated to an estimated amount of water saved as a result of water conservation measures. Table C-2 references the estimated amount of water saved from Table C-1 and shows Upper Water’s water demand without water use efficiency in effect.

A method of showing reduced regional reliance on imported water supplies is to show increased regional self-reliance. Table C-3 lists water supply sources that contribute to regional self-reliance, including water use efficiency (from Table C-1 and C-2) and groundwater recharge activities. Regional self-reliance is expressed both in terms of acre feet (AF) and as a percentage.

The calculation of reduced regional reliance on imported water supplies is shown on Table C-4. Table C-4 also shows the percent change in imported water supplies relative to Upper Water’s total supply. A negative percent change of imported water supplies indicates Upper Water has reduced regional reliance on imported water supplies.

Since the Baseline year, Upper Water has decreased its reliance on imported water supplies in 2015, 2020, and 2025. As discussed in Upper Water's 2025 UWMP, a Water Resource Development Assessment (RDA II) was established by the Main Basin Watermaster to help manage and maintain Main Basin groundwater supplies under a "worst case" hydrologic condition, which was assumed to be two additional consecutive five-year droughts, using the same hydrologic conditions as the FY 2011-12 through 2015-16 severe drought. Based upon ten (10) additional consecutive years of drought, the RDA II Program is intended to purchase imported replenishment water (when available), for stormwater augmentation, to maintain the groundwater elevation measured at the Baldwin Park Key Well (Key Well) above 180 feet. The RDA II is a management tool to manage local water supply until the Regional Recycled Water Program (discussed in detail below) is implemented. The projected quantities shown on Tables C1 through C4 are for a "worst case" scenarios; however, the projected quantities could be less depending on hydrology. Nonetheless, funding under the RDA II is based on assessments of groundwater produced. Consequently, although the RDA II is a relatively new program, the amount of groundwater produced could have been higher but for the reduced GPCD resulting from water use efficiency and conservation measures in place.

Upper Water has reduced its reliance on imported water supply through the following:

- The collective demand in GPCD from its sub-agencies for the "Baseline year" was compared to the GPCD in subsequent years (from 2015 through 2050, in five-year increments). The reduced GPCD multiplied by the collective population within the area served by Upper Water in actual demand years is indicative of the potential reduced regional reliance on imported water supplies and is included in Table C-1. The projected quantities shown on Tables C1 through C4 are for a "worst case" maximum scenarios, although the projected quantities could be less depending on hydrology.
- Upper Water is involved in a regional program to deliver recycled water to the San Gabriel Valley to replenish the Main San Gabriel Basin.

These categories of reduced regional reliance on imported water supplies are discussed below. The sum of the increased regional self-reliance and the sum of the reduced regional reliance on imported water resulting from these categories is reflected on Table C-3 and Table C-4, respectively, and is reflective of Upper Water's overall reduced reliance.

Reduced GPCD

Section 6.2.2 of the 2025 UWMP describes the management of the Main Basin. Upper Water's member agencies rely on groundwater produced from the Main Basin, which is adjudicated and managed by the Main Basin Watermaster. To the extent these agencies produce groundwater in excess of its water rights, these agencies have paid assessments to the Main Basin Watermaster which are then used to purchase untreated imported water from the Upper Water, which is in turn purchased water from MWD. The untreated imported water subsequently is delivered to replenish the Main Basin and to supplement local storm water replenishment.

Chapter 9 of the 2025 UWMP describes the Demand Management Measures which Upper Water has implemented to reduce the amount water used by its member agencies. In addition, Chapter 6 of the 2025 UWMP describes the groundwater basin management measures implemented by the Main Basin Watermaster. Collectively these actions translate to a reduction in the GPCD usage rate. These actions directly impact total water demands, and consequently, the quantity of imported water which may be required. Absent the proactive measures taken by Upper Water, it is anticipated there may have been a greater demand on imported water.

Pursuant to DWR guidance, reduced regional reliance on imported water supplies can be demonstrated by first selecting a "Baseline" water demand, represented by total potable water demands from its sub-agencies during 2010. Table C-1 summarizes the "Baseline" water usage by Upper Water in 2010 (assuming demand reduction efforts had not been implemented); actual water usage in 2015, 2020 and 2025; and projected water usage

through 2050 in five-year increments. Table C-2 demonstrates that if water conservation measures had not been implemented by Upper Water's sub-agencies there may have been a greater reliance on untreated and/or treated imported water supplies during subsequent years as compared to the Baseline year. As discussed below, and shown in Table C-1, the reduced water demands have resulted in reduced regional reliance on imported water supplies as compared to the Baseline year.

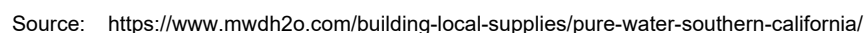
Upper Water's potable water demand during 2010, along with the corresponding service area population, were used to determine the Baseline GPCD. Subsequently, the actual demands for 2015, 2020, and 2025 were compared to the calculated population to obtain the recent GPCD which includes the water conservations measures which have been implemented (those demand management measures are described in Chapter 9 of the 2025 UWMP). The "Water Supplies Contributing to Regional Self-Reliance" are also provided in Table C-3. The differences between the Baseline GPCD and the 2015, 2020, and 2025 GPCDs are effectively considered a demonstration of the reduced regional reliance on imported water supplies with the understanding that any potential increased demand by Upper Water's member agencies resulting from increased population could have been required from imported water supplies, absent Upper Water's conservation efforts which contribute to self-reliance.

Recycled Water Use

Upper Water has also constructed infrastructure to deliver recycled water to its member agencies to reduce the use of potable water supplies. The historical recycled water demands for 2015, 2020, and 2025, along with the projected recycled water demands (2025 UWMP Table 4-2) are incorporated in Table C-1. These quantities are in addition to the reduced demand resulting from decreased GPCD.

Recycled Water for Groundwater Replenishment

Regional Recycled Water Program Location



MWD began construction of a \$17 million small-scale demonstration plant (0.5 MGD) in late 2017 which was completed in October 2019. The results of the demonstration plant will allow MWD and others to determine whether expansion to a full-scale plant is beneficial. Once approved the full-scale plant, associated pipelines and ancillary facilities would take approximately 11 years to construct at an estimated cost of over \$3 billion.

Pursuant to MWD's "*Regional Recycled Water Program Conceptual Planning Studies Report*", February 2019, the proposed Pure Water project would potentially provide 60,000 to 80,000 AFY to replenish the Main Basin. A portion of the replenished recycled water may be designated as Replacement Water (see Section 6.2.2 of the 2025 UWMP) and will offset all State Water Project water (on an AF for AF basis) which historically has been used to replenish the Main Basin groundwater supplies and is essential to sound basin management. Furthermore, some of the replenished recycled water may be used for general Basin benefit which will result in higher groundwater levels and potentially enable the Operating Safe Yield to be established at a higher amount than had no deliveries occurred. For the Main Basin, MWD has entered into a letter of intent with Upper San Gabriel Valley Municipal Water District for at least 35,000 AFY, with San Gabriel Valley Municipal Water District for at least 6,000 AFY, and with Three Valleys Municipal Water District for at least 6,500 AFY, and will potentially provide up to 60,000 to 80,000 AFY, collectively.

Metropolitan Water District of Southern California

In addition, as the wholesale provider, the Metropolitan Water District of Southern California has included a detailed discussion regarding measurable reduction in Delta reliance in Appendix 10 of its 2025 Regional Urban Water Management Plan. That discussion is included by reference and also included in Attachment 1 of this Plan.

Table C-1: Optional Calculation of Water Use Efficiency -To be completed if Water Supplier does not specifically estimate Water Use Efficiency as a supply

Service Area Water Use Efficiency Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	40,988	27,167	49,024	38,810	47,157	47,157	47,157	47,157	47,157
Non-Potable Water Demands	1,918	3,219	2,543	1,432	2,157	2,157	2,157	2,157	2,157
Potable Service Area Demands with Water Use Efficiency Accounted For	39,070	23,948	46,481	37,378	45,000	45,000	45,000	45,000	45,000

Total Service Area Population	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Population	859,557	865,598	876,069	855,010	867,835	882,604	886,994	889,824	887,954

Water Use Efficiency Since Baseline (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Per Capita Water Use (GPCD)	41	25	47	39	46	46	45	45	45
Change in Per Capita Water Use from Baseline (GPCD)		(16)	7	(2)	6	5	5	5	5
Estimated Water Use Efficiency Since Baseline		15,397	(6,660)	1,485	(5,554)	(4,882)	(4,683)	(4,554)	(4,639)

Table C-2: Calculation of Service Area Water Demands Without Water Use Efficiency

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	40,988	27,167	49,024	38,810	47,157	47,157	47,157	47,157	47,157
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline		15,397	(6,660)	1,485	(5,554)	(4,882)	(4,683)	(4,554)	(4,639)
Service Area Water Demands without Water Use Efficiency Accounted For	40,988	42,564	42,364	40,295	41,603	42,275	42,474	42,603	42,518

Table C-3: Calculation of Supplies Contributing to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Use Efficiency	-	15,397	(6,660)	1,485	(5,554)	(4,882)	(4,683)	(4,554)	(4,639)
Water Recycling	1,918	3,219	2,543	1,432	2,157	2,157	2,157	2,157	2,157
Stormwater Capture and Use									
Advanced Water Technologies (Pure Water - Main Basin) ¹	-	-	-	-	-	17,500	35,000	35,000	35,000
Conjunctive Use Projects									
Local and Regional Water Supply and Storage Projects									
Other Programs and Projects the Contribute to Regional Self-Reliance									
Water Supplies Contributing to Regional Self-Reliance	1,918	18,616	(4,117)	2,917	(3,397)	14,775	32,474	32,603	32,518

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	40,988	42,564	42,364	40,295	41,603	42,275	42,474	42,603	42,518

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Supplies Contributing to Regional Self-Reliance	1,918	18,616	(4,117)	2,917	(3,397)	14,775	32,474	32,603	32,518
Change in Water Supplies Contributing to Regional Self-Reliance		16,698	(6,035)	999	(5,315)	12,857	30,556	30,685	30,600

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Percent of Water Supplies Contributing to Regional Self-Reliance	4.7%	43.7%	-9.7%	7.2%	-8.2%	34.9%	76.5%	76.5%	76.5%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance		39.1%	-14.4%	2.6%	-12.8%	30.3%	71.8%	71.8%	71.8%

Table C-4: Calculation of Reliance on Water Supplies from the Delta Watershed

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
CVP/SWP Contract Supplies									
Delta/Delta Tributary Diversions									
Transfers and Exchanges									
Other Water Supplies from the Delta Watershed (Untreated)	39,070	23,948	46,481	37,378	45,000	27,500	10,000	10,000	10,000
Total Water Supplies from the Delta Watershed	39,070	23,948	46,481	37,378	45,000	27,500	10,000	10,000	10,000

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	40,988	42,564	42,364	40,295	41,603	42,275	42,474	42,603	42,518

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Supplies from the Delta Watershed	39,070	23,948	46,481	37,378	45,000	27,500	10,000	10,000	10,000
Change in Water Supplies from the Delta Watershed		(15,122)	7,411	(1,692)	5,930	(11,570)	(29,070)	(29,070)	(29,070)

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Percent of Water Supplies from the Delta Watershed	95.3%	56.3%	109.7%	92.8%	108.2%	65.1%	23.5%	23.5%	23.5%
Change in Percent of Water Supplies from the Delta Watershed		-39.1%	14.4%	-2.6%	12.8%	-30.3%	-71.8%	-71.8%	-71.8%

¹ The Pure Water Southern California Project is anticipated to meet all of Upper Water's member agencies' water replenishment obligations in the Main Basin. It is assumed that 50% of the recharged water will be available in 2035 before Pure Water is fully operational in 2040.

Attachment 1

Appendix 10

QUANTIFYING REGIONAL SELF-RELIANCE AND REDUCED RELIANCE ON WATER SUPPLIES FROM THE DELTA WATERSHED

Appendix 10

METROPOLITAN'S REDUCED DELTA RELIANCE REPORTING

A.10.1 Background

Under the Sacramento-San Joaquin Delta Reform Act of 2009, state and local public agencies proposing a covered action in the Delta,¹ prior to initiating the implementation of that action, must prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with applicable Delta Plan policies and submit that certification to the Delta Stewardship Council.² Anyone may appeal a certification of consistency, and if the Delta Stewardship Council grants the appeal, the covered action may not be implemented until the agency proposing the covered action submits a revised certification of consistency, and either no appeal is filed, or the Delta Stewardship Council denies the subsequent appeal.³

An urban water supplier that anticipates participating in or receiving water from a proposed covered action such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta should provide information in their 2015 and subsequent Urban Water Management Plans (UWMPs) that can then be used in the covered action process to demonstrate consistency with Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (WR P1).⁴

WR P1 details what is needed for a covered action to demonstrate consistency with reduced reliance on the Delta and improved regional self-reliance. WR P1 subsection (a) states that:

- (a) Water shall not be exported from, transferred through, or used in the Delta if all of the following apply:
 - (1) *One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);*
 - (2) *That failure has significantly caused the need for the export, transfer, or use; and*
 - (3) *The export, transfer, or use would have a significant adverse environmental impact in the Delta.*

WR P1 subsection (c)(1) further defines what adequately contributing to reduced reliance on the Delta means in terms of (a)(1) above.

¹ Water Code, § 85057.5; Cal. Code Regs. tit. 23, § 5001.

² Water Code, § 85225; Delta Plan, App. D.

³ Water Code, §§ 85225.10-85225.25; Delta Plan, App. D.

⁴ Cal. Code Regs., tit. 23, § 5003.

(c)(1) Water suppliers that have done all the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:

- (A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;*
- (B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and*
- (C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).*

The analysis and documentation provided below include all of the elements described in WR P1(c)(1) that need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action.

A.10.2 Summary of Expected Outcomes for Reduced Reliance on the Delta

As stated in WR P1(c)(1)(C), the policy requires that, commencing in 2015, UWMPs include expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance. WR P1 further states that those outcomes shall be reported in the UWMP as the reduction in the amount of water used, or in the percentage of water used, from the Delta.

The expected outcomes for Metropolitan's Delta reliance and regional self-reliance were developed using the approach and guidance described in Appendix C of DWR's Urban Water Management Plan Guidebook 2025 (Guidebook Appendix C) issued in 2025.

The data used in this analysis represent the total regional efforts of Metropolitan and its member agencies and their customers (many of them, retail agencies) and were developed in conjunction with Metropolitan's member agencies as part of the UWMP coordination process as described in Chapter 5 of Metropolitan's UWMP. In accordance with UWMP requirements, Metropolitan's member agencies and their customers (many of them, retail agencies) also report demands and supplies for their service areas in their respective UWMPs. The data reported by those agencies are not additive to the regional totals shown in Metropolitan's UWMP; rather, their reporting represents subtotals of the regional total and should be considered as such for the purposes of determining reduced reliance on the Delta.

While the demands that Metropolitan's member agencies and their customers report in their UWMPs are a good reflection of the demands in their respective service areas, they do not adequately represent each water supplier's contributions to reduced reliance on the Delta. In order to calculate and report their reliance on water supplies from the Delta watershed, water suppliers that receive water from the Delta through other regional or wholesale water suppliers would need to determine the amount of Delta water that they receive from the regional or wholesale supplier. Two specific pieces of information are needed to accomplish this: first is the quantity of demands on the regional or wholesale water supplier that accurately reflect a supplier's contributions to reduced reliance on the Delta, and second is the quantity of a supplier's demands on the regional or wholesale water supplier that are met by supplies from the Delta watershed.

For water suppliers that make investments in regional projects or programs it may be infeasible to quantify their demands on the regional or wholesale water supplier in a way that accurately reflects their individual contributions to reduced reliance on the Delta. Due to the extensive, long-standing and successful implementation of regional demand management and local resource incentive programs in Metropolitan's service area, this infeasibility holds true for Metropolitan's members as well as their customers. For Metropolitan's service area, reduced reliance on supplies from the Delta watershed can only be accurately accounted at the regional level, as is demonstrated in this analysis.

The following provides a summary of the near-term (2030) and long-term (2050) expected outcomes for Metropolitan's Delta reliance and regional self-reliance. The results show that as a region, Metropolitan and its members as well as their customers are measurably reducing reliance on the Delta and improving regional self-reliance, both as an amount of water used and as a percentage of water used.

Expected Outcomes for Regional Self-Reliance

- Near-term (2030) – Normal water year regional self-reliance is expected to increase by 601 TAF from the 2010 baseline; this represents an increase of almost 20 percent of 2030 normal water year retail demands (Table A.10-2).
- Long-term (2050) – Normal water year regional self-reliance is expected to increase by more than 1.02 MAF from the 2010 baseline, this represents an increase of more than 20 percent of 2050 normal water year retail demands (Table A.10-2).

Expected Outcomes for Reduced Reliance on Supplies from the Delta Watershed

- Near-term (2030) – Normal water year reliance on supplies from the Delta watershed decreased by 466 TAF from the 2010 baseline, this represents a decrease of more than 6 percent of 2030 normal water year retail demands (Table A.10-3).
- Long-term (2050) – Normal water year reliance on supplies from the Delta watershed decreased by 537 TAF from the 2010 baseline, this represents a decrease of just over 9 percent of 2050 normal water year retail demands (Table A.10-3).

A10.3 Demonstration of Reduced Reliance on the Delta

The methodology used to determine Metropolitan's reduced Delta reliance and improved regional self-reliance is consistent with the approach detailed in DWR's UWMP Guidebook Appendix C, including the use of narrative justifications for the accounting of supplies and

the documentation of specific data sources. Some of the key assumptions underlying Metropolitan's demonstration of reduced reliance include:

- All data were obtained from the current 2025 UWMP or previously adopted UWMPs and represent average or normal water year conditions.
- All analyses were conducted at the service area level, and all data reflect the total contributions of Metropolitan and its members as well as their customers.
- No projects or programs that are described in the UWMPs as "Projects Under Development" were included in the accounting of supplies.

Baseline and Expected Outcomes

In order to calculate the expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance, a baseline is needed to compare against. This analysis uses a normal water year representation of 2010 as the baseline, which is consistent with the approach described in the Guidebook Appendix C. Data for the 2010 baseline were taken from Metropolitan's 2005 UWMP as the UWMPs generally do not provide normal water year data for the year that they are adopted (i.e., 2005 UWMP forecasts begin in 2010, 2010 UWMP forecasts begin in 2015, and so on).

Consistent with the 2010 baseline data approach, the expected outcomes for reduced Delta reliance and improved regional self-reliance for 2015, 2020, and 2025 were taken from Metropolitan's 2010, 2015, and 2020 UWMPs respectively. Expected outcomes for 2030-2050 are from the current 2025 UWMP. Documentation of the specific data sources and assumptions are included in the discussions below.

Service Area Demands Without Water Use Efficiency

In alignment with the Guidebook Appendix C, this analysis uses normal water year demands, rather than normal water year supplies to calculate expected outcomes in terms of the percentage of water used. Using normal water year demands serves as a proxy for the amount of supplies that would be used in a normal water year, which helps alleviate issues associated with how supply capability is presented to fulfill requirements of the Act versus how supplies might be accounted for to demonstrate consistency with WR P1.

Because WR P1 considers water use efficiency savings a source of water supply, water suppliers such as Metropolitan that explicitly calculate and report water use efficiency savings in their UWMP will need to make an adjustment to properly reflect normal water year demands in the calculation of reduced reliance. As explained in the Guidebook Appendix C, water use efficiency savings must be added back to the normal year demands to represent demands without water use efficiency savings accounted for; otherwise the effect of water use efficiency savings on regional self-reliance would be overestimated. Table A.10-1 shows the results of this adjustment for Metropolitan. Supporting narratives and documentation for all of the data shown in Table A.10-1 are provided below.

**Table A.10-1
Demands without Water Use Efficiency Accounted For**

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
Service Area Demands with Water Use Efficiency Accounted For	4,628,000	4,563,000	4,163,000	3,763,000	3,798,000	3,879,000	3,920,000	3,945,000	3,972,000
Reported Water Use Efficiency	865,000	936,000	1,056,000	1,162,000	1,171,000	1,223,000	1,289,000	1,357,000	1,419,000
Service Area Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,925,000	4,969,000	5,102,000	5,209,000	5,302,000	5,391,000

Service Area Demands without Water Use Efficiency

The service area demands shown in Table A.10-1 represent the total retail water demands for Metropolitan's service area and include municipal and industrial demands, agricultural demands, seawater barrier demands, and storage replenishment demands. These demand types and the modeling methodologies used to calculate them are described in Chapter 2.2 and Appendix 1 of Metropolitan's UWMP.

Water Use Efficiency

The water use efficiency numbers shown in Table A.10-1 represent the total water use efficiency savings (conservation) for Metropolitan's region, including savings from active, code-based, price-effect and pre-1990 sources. These sources of water use efficiency and the methodologies used to calculate them are described in Chapter 2.2, Chapter 3.4, Chapter 3.7 and Appendix 1 of Metropolitan's UWMP.

The demand and water use efficiency data shown in Table A.10-1 were collected from the following sources:

- Baseline (2010) values – Metropolitan's 2005 UWMP, Table 2-6: Metropolitan Regional Water Demand Average Year
- 2015 values – Metropolitan's 2010 UWMP, Table 2-8: Metropolitan Regional Water Demands Average Year
- 2020 values – Metropolitan's 2015 UWMP, Table 2-3: Metropolitan Regional Water Demands Average Year
- 2025 values – Metropolitan's 2020 UWMP, Table 2-3: Metropolitan Regional Water Demands Normal Water Year
- 2030-2050 values – Metropolitan's 2025 UWMP, Table 2-1: Metropolitan Regional Water Demands Normal Water Year

Supplies Contributing to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) states that water suppliers must report the expected outcomes for measurable improvement in regional self-reliance. Table A.10-2 shows expected outcomes for supplies contributing to regional self-reliance both in amount and as a percentage. The numbers shown in Table A.10-2 represent efforts to improve regional self-reliance for Metropolitan's entire service area and include the total contributions of Metropolitan and its members as

well as their customers. Supporting narratives and documentation for the all of the data shown in Table A.10-2 are provided below.

The results shown in Table A.10-2 demonstrate that Metropolitan's service area is measurably improving its regional self-reliance. In the near-term (2030), the expected outcome for normal water year regional self-reliance increases by 601 TAF from the 2010 baseline; this represents an increase of almost 20 percent of 2030 normal water year retail demands. In the long-term (2050), normal water year regional self-reliance is expected to increase by more than 1.0 MAF from the 2010 baseline; this represents an increase of 20 percent of 2050 normal water year retail demands.

**Table A.10-2
Supplies Contributing to Regional Self-Reliance**

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
Water Use Efficiency	865,000	936,000	1,056,000	1,162,000	1,171,000	1,223,000	1,289,000	1,357,000	1,419,000
Water Recycling	316,000	348,000	436,000	550,000	520,000	608,000	641,000	648,000	656,000
Stormwater Capture and Use	100,000	103,000	110,000	80,000	76,000	73,000	70,000	71,000	72,000
Advanced Water Technologies	111,000	101,000	194,000	194,000	200,000	215,000	218,000	220,000	222,000
Conjunctive Use Projects	1,416,000	1,429,000	1,303,000	1,255,000	1,222,000	1,239,000	1,244,000	1,243,000	1,242,000
Local and Regional Water Supply and Storage Projects	252,000	224,000	261,000	257,000	97,000	96,000	96,000	95,000	94,000
Other Programs and Projects that Contribute to Regional Self-Reliance	875,000	1,250,000	1,200,000	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Water Supplies Contributing to Regional Self-Reliance	3,935,000	4,391,000	4,560,000	4,748,000	4,536,000	4,704,000	4,808,000	4,884,000	4,955,000

Service Area Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
Service Area Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,925,000	4,969,000	5,102,000	5,209,000	5,302,000	5,391,000

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
Water Supplies Contributing to Regional Self-Reliance	3,935,000	4,391,000	4,560,000	4,748,000	4,536,000	4,704,000	4,808,000	4,884,000	4,955,000
Change in Supplies Contributing to Regional Self-Reliance	NA	456,000	625,000	813,000	601,000	769,000	873,000	949,000	1,020,000

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
Percent of Supplies Contributing to Regional Self-Reliance	71.6%	79.9%	87.4%	96.4%	91.3%	92.2%	92.3%	92.1%	91.9%
Change in Percent of Supplies Contributing to Regional Self-Reliance	NA	8.2%	15.7%	24.8%	0	20.6%	20.7%	20.5%	0

Water Use Efficiency

The water use efficiency information shown in Table A.10-2 is taken directly from Table A.10-1 above.

Water Recycling

The water recycling values shown in Table A.10-2 reflect the total recycled water production in Metropolitan's service area as described in Chapter 3.5 and Appendix 2 of Metropolitan's UWMP.

Stormwater Capture and Use

The stormwater capture and use data shown in Table A.10-2 include supplies from local surface water production as described in Chapter 1.4 and Appendix 2 of Metropolitan's UWMP.

These values do not include production from regional storage reservoirs; storage in these reservoirs is comprised of previously stored water from sources already reflected in

Tables A.10-2 and A.10-3. These regional storage resources are generally used to provide additional regional self-reliance in dry years, which is not reflected in this normal water year analysis. The regional storage reservoirs and their yields are described in Chapter 3.6, Appendix 2 and Appendix 3 of Metropolitan's UWMP.

The stormwater capture and use values shown in Table A.10-2 also do not include stormwater capture that is used to recharge local groundwater basins. Stormwater capture for groundwater recharge supports production of groundwater in the region, and for the purposes of this analysis that production is already captured in Table A.10-2 under conjunctive use projects.

Advanced Water Technologies

The advanced water technologies data shown in Table A.10-2 include total groundwater recovery and seawater desalination production in Metropolitan's service area as described in Chapter 3.5 and Appendix 2 of Metropolitan's UWMP.

Conjunctive Use Projects

The values for conjunctive use projects shown in Table A.10-2 represent total groundwater production in the region as described in Chapter 1.4 and Appendix 2 of Metropolitan's UWMP.

The conjunctive use projects numbers shown in Table A.10-2 do not include production from regional groundwater conjunctive use programs. As described in the stormwater capture and use discussion above, these regional storage programs rely on previously stored water from sources already reflected in Tables A.10-2 and A.10-3 and are generally used to provide additional regional self-reliance in dry years. The regional groundwater conjunctive use programs and their yields are described in Chapter 3.6 and Appendix 3.

Local and Regional Water Supply and Storage Programs

The data for local and regional water supply and storage programs shown in Table A.10-2 include supplies from the Los Angeles Aqueduct. This supply is described in Chapter 1.4 and Appendix 2 of Metropolitan's UWMP.

The local and regional supply numbers shown in Table A.10-2, except for "Other Programs and Projects that Contribute to Regional Self-Reliance" which is discussed below, were obtained from the following sources:

- Baseline (2010) values – Metropolitan's 2005 UWMP, Table 2-6: Metropolitan Regional Water Demand Average Year
- 2015 values – Metropolitan's 2010 UWMP, Table 2-8: Metropolitan Regional Water Demands Average Year
- 2020 values – Metropolitan's 2015 UWMP, Table 2-3: Metropolitan Regional Water Demands Average Year
- 2025 values – Metropolitan's 2020 UWMP, Table 2-3: Metropolitan Regional Water Demands Normal Water Year
- 2030-2050 values – Metropolitan's 2025 UWMP, Table 2-1: Metropolitan Regional Water Demands Normal Water Year

Other Programs and Projects that Contribute to Regional Self-Reliance

Other programs and projects that contribute to regional self-reliance shown in Table A.10-2 include current programs from the Colorado River Aqueduct. Colorado River supplies include Metropolitan's basic Colorado River apportionment, as well as supplies that result from existing and committed programs, including those from the IID-MWD Conservation Program, the implementation of the Quantification Settlement Agreement (QSA), related agreements, and the exchange agreement with SDCWA. Colorado River Aqueduct supplies and programs are described in Chapter 3.1 and Appendix 3 of Metropolitan's UWMP.

The values shown in Table A.10-2 for other programs and projects that contribute to regional self-reliance come from the following sources:

- Baseline (2010) values – Metropolitan's 2005 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Year 2010 (Average Year)
- 2015 values – Metropolitan's 2010 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Year 2015 (Average Year)
- 2020 values – Metropolitan's 2015 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Year 2020 (Average Year)
- 2025 values – Metropolitan's 2020 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Year 2025 (Normal Water Year)
- 2030-2050 values – Metropolitan's 2025 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Years 2030, 2035, 2040, 2045, 2050 (Normal Water Year)

Reliance on Water Supplies from the Delta Watershed

In order for a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) requires that water suppliers report the expected outcomes for measurable reductions in supplies from the Delta watershed either as an amount or as a percentage. This analysis provides both calculations. Based on the methodology described in Guidebook Appendix C, and consistent with the approach of this analysis in not including projects under development, this accounting does not include any supplies from potential future covered actions. Table A.10-3 shows the expected outcomes for reliance on supplies from the Delta watershed for Metropolitan's service area. Supporting narratives and documentation for the all of the data shown in Table A.10-3 are provided below.

The results shown in Table A.10-3 demonstrate that Metropolitan's service area is measurably reducing its Delta reliance. In the near-term (2030), the expected outcome for normal water year reliance on supplies from the Delta watershed decreased by 466 TAF from the 2010 baseline; this represents a decrease of 6 percent of 2030 normal water year retail demands. In the long-term (2050), normal water year reliance on supplies from the Delta watershed decreased by 537 TAF from the 2010 baseline; this represents a decrease of just over 9 percent of 2050 normal water year retail demands.

**Table A.10-3
Reliance on Water Supplies from the Delta Watershed**

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
CVP/SWP Contract Supplies	1,472,000	1,029,000	984,000	1,133,000	949,000	924,000	901,000	877,000	877,000
Delta/Delta Tributary Diversions	-	-	-	-	-	-	-	-	-
Transfers and Exchanges of Supplies from the Delta Watershed	20,000	44,000	91,000	58,000	77,000	77,000	78,000	78,000	78,000
Other Water Supplies from the Delta Watershed	-	-	-	-	-	-	-	-	-
Total Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,026,000	1,001,000	979,000	955,000	955,000

Service Area Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
Service Area Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,925,000	4,969,000	5,102,000	5,209,000	5,302,000	5,391,000

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,026,000	1,001,000	979,000	955,000	955,000
Change in Supplies from the Delta Watershed	NA	(419,000)	(417,000)	(301,000)	(466,000)	(491,000)	(513,000)	(537,000)	(537,000)

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
Percent of Supplies from the Delta Watershed	27.2%	19.5%	20.6%	24.2%	20.6%	19.6%	18.8%	18.0%	17.7%
Change in Percent of Supplies from the Delta Watershed	NA	-7.6%	-6.6%	-3.0%	-6.5%	-7.5%	-8.4%	-9.1%	-9.4%

CVP/SWP Contract Supplies

The CVP/SWP contract supplies shown in Table A.10-3 include Metropolitan's SWP Table A and Article 21 supplies. These supplies are described in Chapter 3.2 and Appendix 3 of Metropolitan's UWMP.

The values shown in Table A.10-3 do not include Desert Water Agency/Coachella Valley Water District SWP contract supplies. These supplies are exchanged with Desert Water Agency and Coachella Valley Water District for an equal amount of Colorado River water, which is reflected in the Colorado River Aqueduct supplies shown in Table A.10-2. In addition, Desert Water Agency and Coachella Valley Water District should include their SWP contract supplies in their own accountings of reduced reliance. Additional information on these exchange agreements can be found in Chapter 3.2 and Appendix 3 of Metropolitan's UWMP.

These values also do not include supplies from San Luis Carryover storage or Central Valley storage programs because storage in these programs comprises previously stored water from sources already reflected in Table A.10-3. These storage programs are generally used to provide additional regional self-reliance in dry years, which is not reflected in this normal water year analysis. The Central Valley storage projects and their yields are described in Chapter 3.3, and Appendix 3. San Luis Carryover storage is described in Chapter 3.2 and Appendix 3.

Transfers and Exchanges of Supplies from the Delta Watershed

The transfers and exchanges of supplies from the Delta watershed shown in Table A.10-3 include supplies from the San Bernardino Valley MWD Program, Yuba River Accord Purchase Program, the San Gabriel Valley MWD Program, Irvine Ranch Water District Storage and Exchange Program, and other generic SWP and Central Valley transfers and exchanges. These programs are described in Chapter 3.2 and Appendix 3 of Metropolitan's UWMP.

Supplies from the Delta Watershed shown in Table A.10-3 are from the following sources:

- Baseline (2010) values – Metropolitan’s 2005 UWMP, Table A.3-7: California Aqueduct Program Capabilities Year 2010 (Average Year)
- 2015 values – Metropolitan’s 2010 UWMP, Table A.3-7: California Aqueduct Program Capabilities Year 2015 (Average Year)
- 2020 values – Metropolitan’s 2015 UWMP, Table A.3-7: California Aqueduct Program Capabilities Year 2020 (Average Year)
- 2025 values – Metropolitan’s 2020 UWMP, Table A.3-7: California Aqueduct Program Capabilities Year 2025 (Normal Water Year)
- 2030-2050 values – Metropolitan’s 2025 UWMP, Table A.3-7: California Aqueduct Program Capabilities Years 2030, 2035, 2040, 2045, 2050 (Normal Water Year)

A.10.4 UWMP Implementation

In addition to the analysis and documentation described above, WR P1 subsection (c)(1)(B) requires that all programs and projects included in the UWMP that are locally cost-effective and technically feasible, which reduce reliance on the Delta, are identified, evaluated, and implemented consistent with the implementation schedule. WR P1 (c)(1)(B) states that:

(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta[.]

In accordance with Water Code Chapter 10631(f), water suppliers must already include in their UWMP a detailed description of expected future projects and programs that they may implement to increase the amount of water supply available to them in normal and single-dry water years and for a period of drought lasting five consecutive years. The UWMP description must also identify specific projects, include a description of the increase in water supply that is expected to be available from each project, and include an estimate regarding the implementation timeline for each project or program.

Chapter 3 of Metropolitan’s UWMP summarizes the implementation plan and continued progress in developing a diversified water portfolio to meet the region’s water needs.

Water Use Efficiency

The water use efficiency numbers used in this analysis include the total water use efficiency savings (conservation) for the service area, including savings from active, code-based, price-effect and pre-1990 savings. The specific water use efficiency programs and their implementation are described in Chapter 3.4 of Metropolitan’s UWMP.

Water Recycling

The water recycling values used in this analysis reflect the total recycled water production in Metropolitan’s service area. Water recycling programs and implementation are discussed in Chapter 3.5 of Metropolitan’s UWMP. In addition, individual project-level details are provided in Appendix 5.

Stormwater Capture and Use

The stormwater capture and use data used in this analysis include supplies from local surface water production. Local surface water production and its implementation are discussed in Appendix 2 of Metropolitan's UWMP.

Advanced Water Technologies

The advanced water technologies data used in this analysis include total groundwater recovery and seawater desalination production in Metropolitan's service. Groundwater recovery and seawater desalination programs and implementation are described in Chapter 3.5 of Metropolitan's UWMP. In addition, individual project-level details are provided in Appendix 5.

Conjunctive Use Projects

The values for conjunctive use projects used in this analysis represent total groundwater production in the region. Groundwater production and its implementation are discussed in Appendix 2 of Metropolitan's UWMP.

Local and Regional Water Supply and Storage Programs

The data for local and regional water supply and storage programs shown in this analysis include supplies from the Los Angeles Aqueduct. This program and its implementation are described in Appendix 2 of Metropolitan's UWMP.

Other Programs and Projects that Contribute to Regional Self-Reliance

Other programs and projects that contribute to regional self-reliance used in this analysis include current programs from the Colorado River Aqueduct. Colorado River supplies include Metropolitan's basic Colorado River apportionment, as well as supplies that result from existing and committed programs, including those from the IID-MWD Conservation Program, the implementation of the Quantification Settlement Agreement (QSA), related agreements, and the exchange agreement with SDCWA. Colorado River Aqueduct programs and their implementation are described in Chapter 3.1 and Appendix 3 of Metropolitan's UWMP.

CVP/SWP Contract Supplies

The CVP/SWP contract supplies shown in this analysis include Metropolitan's SWP Table A and Article 21 supplies. These supplies and their implementation are described in Chapter 3.2 and Appendix 3 of Metropolitan's UWMP.

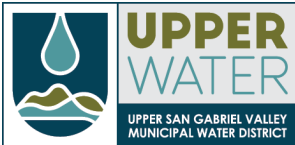
Transfers and Exchanges of Supplies from the Delta Watershed

The transfers and exchanges of supplies from the Delta watershed shown in this analysis include supplies from the San Bernardino Valley MWD Program, Yuba River Accord Purchase Program, the San Gabriel Valley MWD Program, Irvine Ranch Water District Storage and Exchange Program, and other generic SWP and Central Valley transfers and exchanges. These programs and their implementation are described in Chapter 3.2 and Appendix 3 of Metropolitan's UWMP.

Appendix D

Notification Letters and Notices of Public Hearing

Notification Letters



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

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E: info@usgvmwd.org

Board of Directors

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January 12, 2025

Adams Ranch Mutual Water Company
Attn: Victor Ybarra, General Manager
9227 Pitkin St.
Rosemead, CA 91770

SUBJECT: 2025 Urban Water Management Plan Update

Dear Victor Ybarra,

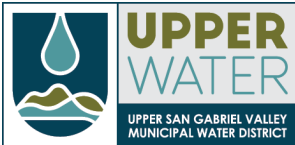
Upper San Gabriel Valley Municipal Water District is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2025 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. Upper San Gabriel Valley Municipal Water District is currently in the process of preparing the 2025 UWMP Update.

As an urban water supplier, Upper San Gabriel Valley Municipal Water District is required pursuant to Section 10620(d)(3) of the California Water Code to coordinate with water management agencies, relevant public agencies, and other water suppliers regarding the preparation of the UWMP. Pursuant to Section 10621(b) of the California Water Code, Upper San Gabriel Valley Municipal Water District will be reviewing the UWMP and will make amendments or changes, as appropriate. Upper San Gabriel Valley Municipal Water District invites you to submit comments in anticipation of the development of our 2025 UWMP Update. Please provide written comments within the next 30 days to Upper San Gabriel Valley Municipal Water District.

For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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January 12, 2025

Amarillo Mutual Water Company
Attn : Ernest Martinez, President
P.O. Box 1667
Rosemead, CA 91770

SUBJECT: 2025 Urban Water Management Plan Update

Dear Ernest Martinez,

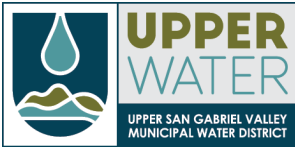
Upper San Gabriel Valley Municipal Water District is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2025 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. Upper San Gabriel Valley Municipal Water District is currently in the process of preparing the 2025 UWMP Update.

As an urban water supplier, Upper San Gabriel Valley Municipal Water District is required pursuant to Section 10620(d)(3) of the California Water Code to coordinate with water management agencies, relevant public agencies, and other water suppliers regarding the preparation of the UWMP. Pursuant to Section 10621(b) of the California Water Code, Upper San Gabriel Valley Municipal Water District will be reviewing the UWMP and will make amendments or changes, as appropriate. Upper San Gabriel Valley Municipal Water District invites you to submit comments in anticipation of the development of our 2025 UWMP Update. Please provide written comments within the next 30 days to Upper San Gabriel Valley Municipal Water District.

For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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January 12, 2025

Azusa Light and Water
Attn: Melissa Barbosa, Assistant General Manager, Water Operations
729 N. Azusa Ave.
Azusa, CA 91702

SUBJECT: 2025 Urban Water Management Plan Update

Dear Melissa Barbosa,

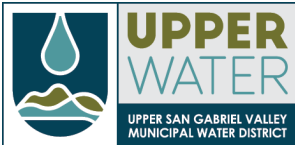
Upper San Gabriel Valley Municipal Water District is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2025 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. Upper San Gabriel Valley Municipal Water District is currently in the process of preparing the 2025 UWMP Update.

As an urban water supplier, Upper San Gabriel Valley Municipal Water District is required pursuant to Section 10620(d)(3) of the California Water Code to coordinate with water management agencies, relevant public agencies, and other water suppliers regarding the preparation of the UWMP. Pursuant to Section 10621(b) of the California Water Code, Upper San Gabriel Valley Municipal Water District will be reviewing the UWMP and will make amendments or changes, as appropriate. Upper San Gabriel Valley Municipal Water District invites you to submit comments in anticipation of the development of our 2025 UWMP Update. Please provide written comments within the next 30 days to Upper San Gabriel Valley Municipal Water District.

For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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January 12, 2025

Azusa Light and Water
Attn: Tikan Singh, General Manager
729 N. Azusa Ave.
Azusa, CA 91702

SUBJECT: 2025 Urban Water Management Plan Update

Dear Tikan Singh,

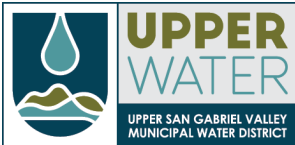
Upper San Gabriel Valley Municipal Water District is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2025 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. Upper San Gabriel Valley Municipal Water District is currently in the process of preparing the 2025 UWMP Update.

As an urban water supplier, Upper San Gabriel Valley Municipal Water District is required pursuant to Section 10620(d)(3) of the California Water Code to coordinate with water management agencies, relevant public agencies, and other water suppliers regarding the preparation of the UWMP. Pursuant to Section 10621(b) of the California Water Code, Upper San Gabriel Valley Municipal Water District will be reviewing the UWMP and will make amendments or changes, as appropriate. Upper San Gabriel Valley Municipal Water District invites you to submit comments in anticipation of the development of our 2025 UWMP Update. Please provide written comments within the next 30 days to Upper San Gabriel Valley Municipal Water District.

For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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January 12, 2025

California American Water Company
Attn: Brian Barreto, External Affairs
8657 Grand Ave.
Rosemead, CA 90609

SUBJECT: 2025 Urban Water Management Plan Update

Dear Brian Barreto,

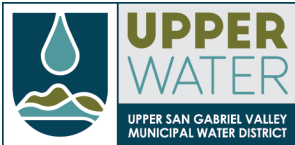
Upper San Gabriel Valley Municipal Water District is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2025 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. Upper San Gabriel Valley Municipal Water District is currently in the process of preparing the 2025 UWMP Update.

As an urban water supplier, Upper San Gabriel Valley Municipal Water District is required pursuant to Section 10620(d)(3) of the California Water Code to coordinate with water management agencies, relevant public agencies, and other water suppliers regarding the preparation of the UWMP. Pursuant to Section 10621(b) of the California Water Code, Upper San Gabriel Valley Municipal Water District will be reviewing the UWMP and will make amendments or changes, as appropriate. Upper San Gabriel Valley Municipal Water District invites you to submit comments in anticipation of the development of our 2025 UWMP Update. Please provide written comments within the next 30 days to Upper San Gabriel Valley Municipal Water District.

For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Jennifer Santana
Division 5

January 12, 2025

California American Water Company
Attn: Garry Hofer, Vice President of Operations
8657 Grand Ave.
Rosemead, CA 90609

SUBJECT: 2025 Urban Water Management Plan Update

Dear Garry Hofer,

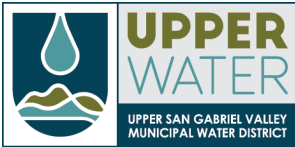
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Division 5

January 12, 2025

California Domestic Water Company
Attn: Lynda Noriega, President
P.O. Box 1338
Whittier, CA 90609

SUBJECT: 2025 Urban Water Management Plan Update

Dear Lynda Noriega,

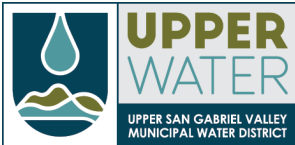
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Division 5

January 12, 2025

City of Arcadia
Attn: Paul Cranmer, Public Works Director
P.O. Box 60021
Arcadia, CA 91066

SUBJECT: 2025 Urban Water Management Plan Update

Dear Paul Cranmer,

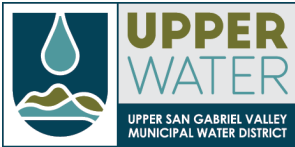
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January 12, 2025

City of Baldwin Park
Attn: Manny Carillo, Chief Executive Officer
14403 E. Pacific Ave.
Baldwin Park, CA 91706

SUBJECT: 2025 Urban Water Management Plan Update

Dear Manny Carillo,

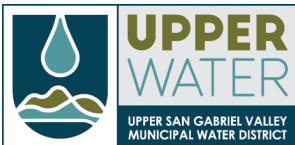
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January 12, 2025

City of Covina
Rafael Fajardo, Public Works Director
125 E. College Street
Covina, CA 91723

SUBJECT: 2025 Urban Water Management Plan Update

Dear Rafael Fajardo,

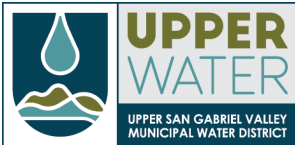
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January 12, 2025

City of Duarte
Attn: Stephanie Sandoval, Public Works Manager
1600 Huntington Dr.
Duarte, CA 91010

SUBJECT: 2025 Urban Water Management Plan Update

Dear Stephanie Sandoval,

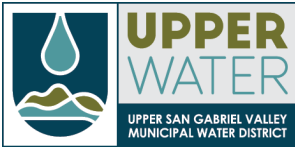
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January 12, 2025

City of El Monte
Attn: Jerry Moreno, Public Works Director
11333 Valley Blvd.
El Monte, CA 91731

SUBJECT: 2025 Urban Water Management Plan Update

Dear Jerry Moreno,

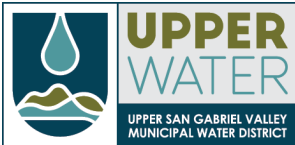
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January 12, 2025

City of San Gabriel
Attn: Mark Lazzaretto, City Manager
425 S. Mission Dr.
San Gabriel, CA 91776

SUBJECT: 2025 Urban Water Management Plan Update

Dear Mark Lazzaretto,

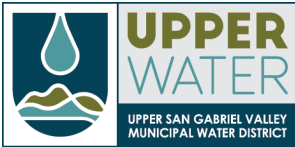
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January 12, 2025

City of Glendora
Attn: Paul Zampielo, Assistant Director of Public Works (Water Division)
116 E. Foothill Blvd.
Glendora, CA 91741

SUBJECT: 2025 Urban Water Management Plan Update

Dear Paul Zampielo,

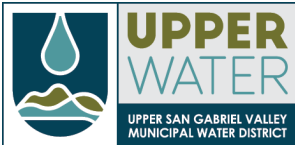
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Division 5

January 12, 2025

City of Irwindale
Attn: Julian Miranda, City Manager
5050 N. Irwindale Ave.
Irwindale, CA 91706

SUBJECT: 2025 Urban Water Management Plan Update

Dear Julian Miranda,

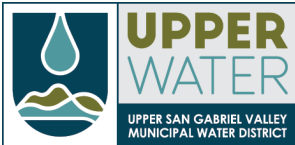
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January 12, 2025

City of La Puente
Attn: Bob Lindsey, City Manager
15900 E. Main St.
La Puente, CA 91744

SUBJECT: 2025 Urban Water Management Plan Update

Dear Bob Lindsey,

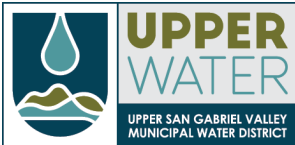
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January 12, 2025

City of Monrovia
Attn: Alex Tachiki, Director of Public Works
600 S. Mountain Ave.
Monrovia, CA 91016

SUBJECT: 2025 Urban Water Management Plan Update

Dear Alex Tachiki,

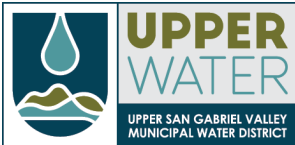
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January 12, 2025

City of Rosemead
Attn: Ben Kim, City Manager
8838 E. Valley Blvd.
Rosemead, CA 91770

SUBJECT: 2025 Urban Water Management Plan Update

Dear Ben Kim,

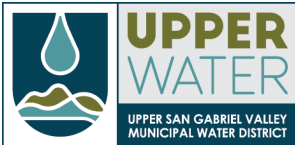
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E: info@usgvmwd.org

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January 12, 2025

City of South El Monte
Attn: Rene Salas, City Manager
1415 Santa Anita Ave.
South El Monte, CA 91733

SUBJECT: 2025 Urban Water Management Plan Update

Dear Rene Salas,

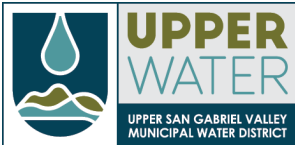
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For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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January 12, 2025

City of South Pasadena
Attn: Julian Lee, Public Works Director
1414 Mission Street, 2nd Floor
South Pasadena, CA 91030

SUBJECT: 2025 Urban Water Management Plan Update

Dear Julian Lee,

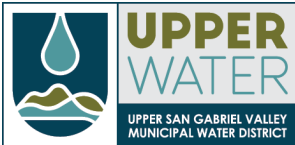
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January 12, 2025

City of South Pasadena
Attn: Anteneh Tesfaye, Deputy Director of Public Works
1414 Mission Street, 2nd Floor
South Pasadena, CA 91030

SUBJECT: 2025 Urban Water Management Plan Update

Dear Anteneh Tesfaye,

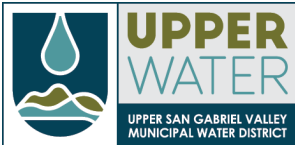
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January 12, 2025

City of Temple City
Attn: Bryan Cook, City Manager
9701 Las Tunas Dr.
Temple City, CA 91780

SUBJECT: 2025 Urban Water Management Plan Update

Dear Bryan Cook,

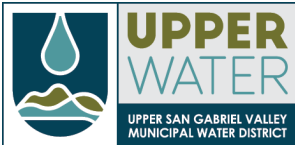
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Upper San Gabriel Valley MWD



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January 12, 2025

City of West Covina
Attn: Milan Mrakich, Acting City Manager
1444 W. Garvey Ave S, Room 305
West Covina, CA 91790

SUBJECT: 2025 Urban Water Management Plan Update

Dear Milan Mrakich,

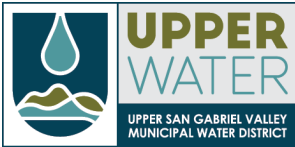
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January 12, 2025

City of Whittier
Kyle Carson, Public Works Director
13230 Penn St.
Whittier, CA 90601

SUBJECT: 2025 Urban Water Management Plan Update

Dear Kyle Carson,

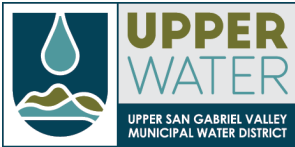
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Upper San Gabriel Valley MWD



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January 12, 2025

County of Los Angeles (Waterworks)
Attn: Carolina Hernandez

SUBJECT: 2025 Urban Water Management Plan Update

Dear Carolina Hernandez,

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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD

January 12, 2025

Del Rio Mutual Water Company
Attn: Jose Alejandro, General Manager
12419 Clinton St.
El Monte, CA 91734

SUBJECT: 2025 Urban Water Management Plan Update

Dear Jose Alejandro,

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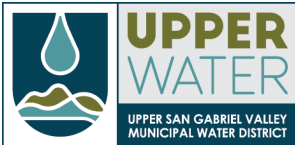
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Upper San Gabriel Valley MWD



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January 12, 2025

Golden State Water Company
Attn: Paul Rowley, Senior Vice President

SUBJECT: 2025 Urban Water Management Plan Update

Dear Paul Rowley,

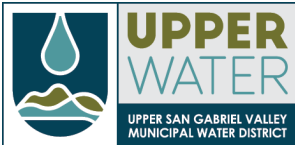
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January 12, 2025

Golden State Water Company
Attn: Toby Moore, Water Resource Manager

SUBJECT: 2025 Urban Water Management Plan Update

Dear Toby Moore,

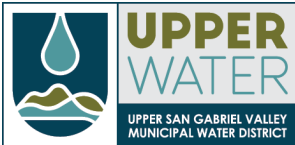
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January 12, 2025

Hemlock Mutual Water Company
Attn: Robert McClung, General Manager
12066 Celine Street
El Monte, CA 91732

SUBJECT: 2025 Urban Water Management Plan Update

Dear Robert McClung,

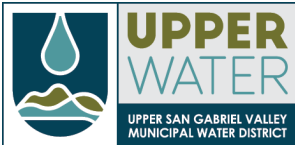
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January 12, 2025

Hemlock Mutual Water Company
Attn: Blanca Becerra
11828 Hemlock St.
El Monte, CA 91732

SUBJECT: 2025 Urban Water Management Plan Update

Dear Blanca Becerra,

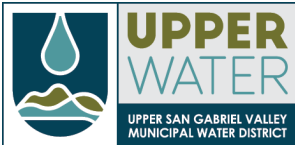
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January 12, 2025

La Puente Valley County Water District
Attn: Roy Frausto, General Manager
P.O. Box 3136
La Puente, CA 91744

SUBJECT: 2025 Urban Water Management Plan Update

Dear Roy Frausto,

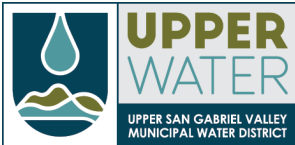
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January 12, 2025

Industry Public Works C/O La Puente Valley County Water District
Attn: Joshua Nelson, City Manager
15625 Mayor Dave Way
City of Industry, CA 91744

SUBJECT: 2025 Urban Water Management Plan Update

Dear Joshua Nelson,

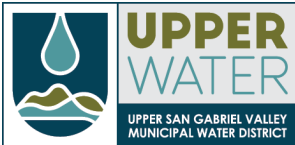
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For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Jennifer Santana
Division 5

January 12, 2025

Main San Gabriel Basin Watermaster
Attn: Kelly Gardner, Executive Officer
P.O. Box 1329
Azusa, CA 91702

SUBJECT: 2025 Urban Water Management Plan Update

Dear Kelly Gardner,

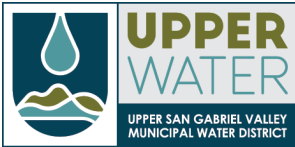
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January 12, 2025

Rurban Homes Mutual Water Company
Attn: Michael Cox

SUBJECT: 2025 Urban Water Management Plan Update

Dear Michael Cox,

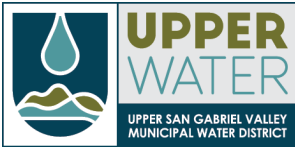
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General Manager
Upper San Gabriel Valley MWD



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Division 5

January 12, 2025

San Gabriel County Water District
Attn: James Prior, General Manager
8366 Grand Ave.
Rosemead, CA 91770

SUBJECT: 2025 Urban Water Management Plan Update

Dear James Prior,

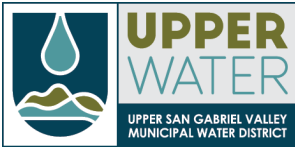
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Division 5

January 12, 2025

San Gabriel Valley Water Company
Attn: Robert Diprimio, Vice President
P.O. Box 6010
El Monte, CA 91734

SUBJECT: 2025 Urban Water Management Plan Update

Dear Robert Diprimio,

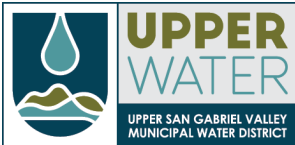
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Division 5

January 12, 2025

Sterling Mutual Water Company
Attn: Beverly Dominguez
11922 Lambert Ave.
El Monte, CA 91732

SUBJECT: 2025 Urban Water Management Plan Update

Dear Beverly Dominguez,

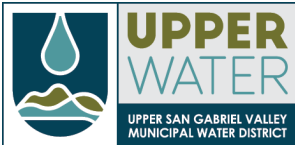
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General Manager
Upper San Gabriel Valley MWD



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January 12, 2025

Suburban Water Systems
Craig Gott, General Manager
1325 N. Grand Avenue Suite 100
Covina, CA 91724

SUBJECT: 2025 Urban Water Management Plan Update

Dear Craig Gott,

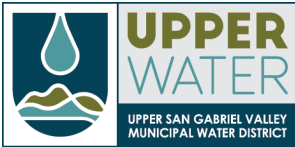
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January 12, 2025

Sunny Slope Water Company
Attn: Ken Tcheng, General Manager/Vice President
1040 El Campo Drive
Pasadena, CA 91107

SUBJECT: 2025 Urban Water Management Plan Update

Dear Ken Tcheng,

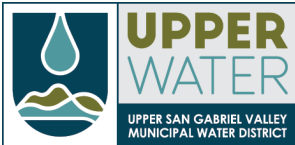
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General Manager
Upper San Gabriel Valley MWD



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Division 5

January 12, 2025

Valley County Water District
Attn: Jose Martinez, General Manager
14521 E. Ramona Blvd.
Baldwin Park, CA 91706

SUBJECT: 2025 Urban Water Management Plan Update

Dear Jose Martinez,

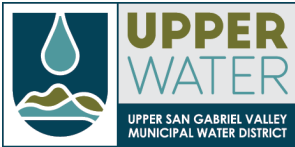
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General Manager
Upper San Gabriel Valley MWD



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Division 5

January 12, 2025

Valley View Mutual Water Company
Attn: Sukie Madrid, General Manager
13730 E. Los Angeles Street
Baldwin Park, CA 91706

SUBJECT: 2025 Urban Water Management Plan Update

Dear Sukie Madrid,

Upper San Gabriel Valley Municipal Water District is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2025 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. Upper San Gabriel Valley Municipal Water District is currently in the process of preparing the 2025 UWMP Update.

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Upper San Gabriel Valley MWD

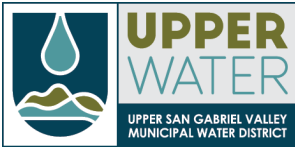
Public Hearing Notices in Newspaper and Letters

NOTICE OF PUBLIC HEARING

The Upper San Gabriel Valley Municipal Water District (Upper Water) will hold a public hearing to review and adopt their Water Shortage Contingency Plan and Urban Water Management Plan 2025 Update, on June 10, 2026 at the hour of 4:30 p.m. at the District Office at 248 E. Foothill Blvd., Room 103, Monrovia, CA 91016.

The Final Draft Urban Water Management Plan and Water Shortage Contingency Plan is available at www.upperwater.org for review.

Thomas A. Love, General Manager
Upper San Gabriel Valley Municipal Water District
248 E. Foothill Blvd., Suite 200, Monrovia, CA 91016
San Gabriel Valley Tribune
Published: 5/27, 6/3/26



248 E. Foothill Blvd., Suite 200
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May 26, 2026

Adams Ranch Mutual Water Company
Attn: Victor Ybarra, General Manager
9227 Pitkin St.
Rosemead, CA 91770

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Victor Ybarra,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

The 2025 Urban Water Management Plan and Water Shortage Contingency Plan were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an Urban Water Management Plan, including the Water Shortage Contingency Plan, and periodically update the Urban Water Management Plan at least once every five years, in years ending in six and one.

Information regarding Upper San Gabriel Valley Municipal Water District's PUBLIC HEARING follows:

Date: June 10, 2026

Time: 4:30 p.m.

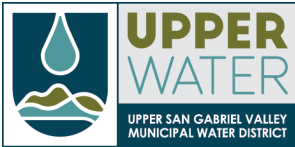
Place: 248 E. Foothill Blvd., Suite 200, Monrovia, CA 91016

Upper San Gabriel Valley Municipal Water District invites all interested entities to attend and present their comments. A copy of the draft 2025 Urban Water Management Plan and Water Shortage Contingency Plan will be available at Upper San Gabriel Valley Municipal Water District's website. Please provide written comments by 5 p.m. on June 5, 2026 to Upper San Gabriel Valley Municipal Water District.

For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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Jennifer Santana
Division 5

May 26, 2026

Amarillo Mutual Water Company
Attn: Ernest Martinez, President
P.O. Box 1667
Rosemead, CA 91770

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Ernest Martinez,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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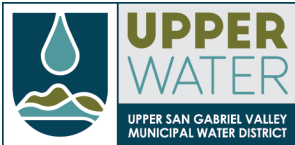
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General Manager
Upper San Gabriel Valley MWD



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Jennifer Santana
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May 26, 2026

Azusa Light and Water
Attn: Melissa Barbosa, Assistant General Manager, Water Operations
729 N. Azusa Ave.
Azusa, CA 91702

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Melissa Barbosa,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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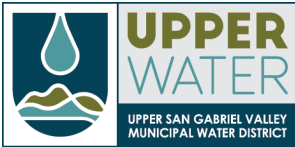
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General Manager
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Division 5

May 26, 2026

Azusa Light and Water
Attn: Tikan Singh, General Manager
729 N. Azusa Ave.
Azusa, CA 91702

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Tikan Singh,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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Information regarding Upper San Gabriel Valley Municipal Water District's PUBLIC HEARING follows:

Date: June 10, 2026

Time: 4:30 p.m.

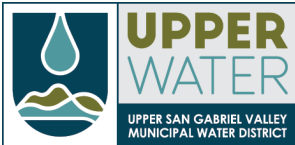
Place: 248 E. Foothill Blvd., Suite 200, Monrovia, CA 91016

Upper San Gabriel Valley Municipal Water District invites all interested entities to attend and present their comments. A copy of the draft 2025 Urban Water Management Plan and Water Shortage Contingency Plan will be available at Upper San Gabriel Valley Municipal Water District's website. Please provide written comments by 5 p.m. on June 5, 2026 to Upper San Gabriel Valley Municipal Water District.

For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Division 4

Jennifer Santana
Division 5

May 26, 2026

California American Water Company
Attn: Brian Barreto, External Affairs
8657 Grand Ave.
Rosemead, CA 90609

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Brian Barreto,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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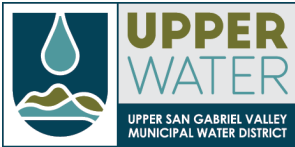
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Sincerely,

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General Manager
Upper San Gabriel Valley MWD



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Jennifer Santana
Division 5

May 26, 2026

California American Water Company
Attn: Garry Hofer, Vice President of Operations
8657 Grand Ave.
Rosemead, CA 90609

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Garry Hofer,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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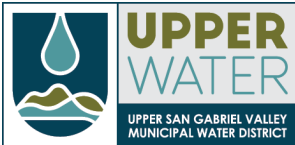
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Sincerely,

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General Manager
Upper San Gabriel Valley MWD



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May 26, 2026

California Domestic Water Company
Attn: Lynda Noriega, President
P.O. Box 1338
Whittier, CA 90609

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Lynda Noriega,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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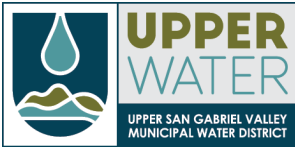
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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May 26, 2026

City of Arcadia
Attn: Paul Cranmer, Public Works Director
P.O. Box 60021
Arcadia, CA 91066

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Paul Cranmer,,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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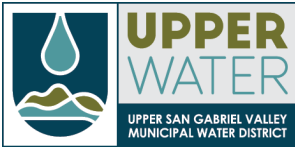
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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E: info@usgvmwd.org

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Jennifer Santana
Division 5

May 26, 2026

City of Baldwin Park
Attn: Manny Carillo, Chief Executive Officer
14403 E. Pacific Ave.
Baldwin Park, CA 91706

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Manny Carillo,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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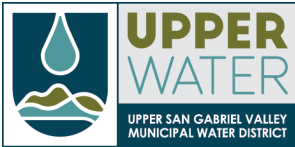
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Division 5

May 26, 2026

City of Covina
Attn: Rafael Fajardo, Public Works Director
125 E. College Street
Covina, CA 91723

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Rafael Fajardo,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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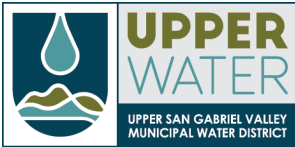
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Jennifer Santana
Division 5

May 26, 2026

City of Duarte
Attn: Stephanie Sandoval, Public Works Manager
1600 Huntington Dr.
Duarte, CA 91010

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Stephanie Sandoval,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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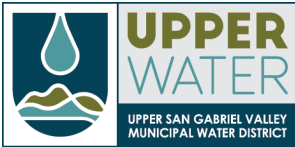
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

Board of Directors

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Division 2

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Division 4

Jennifer Santana
Division 5

May 26, 2026

City of El Monte
Attn: Jerry Moreno, Public Works Director
11333 Valley Blvd.
El Monte, CA 91731

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Jerry Moreno,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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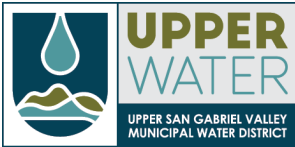
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General Manager
Upper San Gabriel Valley MWD



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Jennifer Santana
Division 5

May 26, 2026

City of San Gabriel
Attn: Mark Lazzaretto, City Manager
425 S. Mission Dr.
San Gabriel, CA 91776

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mark Lazzaretto,

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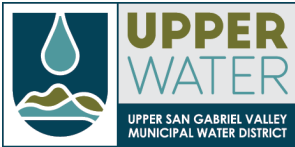
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Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Division 5

May 26, 2026

City of Glendora
Attn: Paul Zampielo, Assistant Director of Public Works (Water Division)
116 E. Foothill Blvd.
Glendora, CA 91741

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Paul Zampielo,

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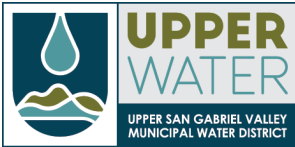
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General Manager
Upper San Gabriel Valley MWD



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E: info@usgvmwd.org

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Ed Chavez
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Division 4

Jennifer Santana
Division 5

May 26, 2026

City of Irwindale
Attn: Julian Miranda, City Manager
5050 N. Irwindale Ave.
Irwindale, CA 91706

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Julian Miranda,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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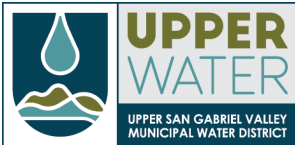
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

Board of Directors

Anthony R. Fellow, Ph.D.
Division 1

Charles M. Treviño
Division 2

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Division 3

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Division 4

Jennifer Santana
Division 5

May 26, 2026

City of La Puente
Attn: Bob Lindsey, City Manager
15900 E. Main St.
La Puente, CA 91744

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Bob Lindsey,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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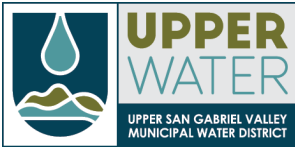
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Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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May 26, 2026

City of Monrovia
Attn: Alex Tachiki, Director of Public Works
600 S. Mountain Ave.
Monrovia, CA 91016

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Alex Tachiki,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

The 2025 Urban Water Management Plan and Water Shortage Contingency Plan were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an Urban Water Management Plan, including the Water Shortage Contingency Plan, and periodically update the Urban Water Management Plan at least once every five years, in years ending in six and one.

Information regarding Upper San Gabriel Valley Municipal Water District's PUBLIC HEARING follows:

Date: June 10, 2026

Time: 4:30 p.m.

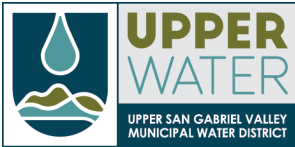
Place: 248 E. Foothill Blvd., Suite 200, Monrovia, CA 91016

Upper San Gabriel Valley Municipal Water District invites all interested entities to attend and present their comments. A copy of the draft 2025 Urban Water Management Plan and Water Shortage Contingency Plan will be available at Upper San Gabriel Valley Municipal Water District's website. Please provide written comments by 5 p.m. on June 5, 2026 to Upper San Gabriel Valley Municipal Water District.

For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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May 26, 2026

City of Rosemead
Attn: Ben Kim, City Manager
8838 E. Valley Blvd.
Rosemead, CA 91770

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Ben Kim,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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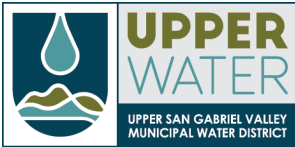
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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May 26, 2026

City of South El Monte
Attn: Rene Salas, City Manager
1415 Santa Anita Ave.
South El Monte, CA 91733

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Rene Salas,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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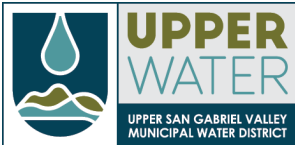
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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May 26, 2026

City of South Pasadena
Attn: Julian Lee, Public Works Director
1414 Mission Street, 2nd Floor
South Pasadena, CA 91030

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Julian Lee,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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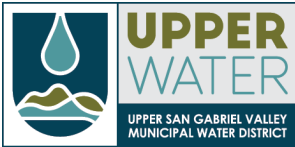
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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May 26, 2026

City of South Pasadena
Attn: Anteneh Tesfaye, Deputy Director of Public Works
1414 Mission Street, 2nd Floor
South Pasadena, CA 91030

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Anteneh Tesfaye,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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Time: 4:30 p.m.

Place: 248 E. Foothill Blvd., Suite 200, Monrovia, CA 91016

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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD

May 26, 2026

City of Temple City
Attn: Bryan Cook, City Manager
9701 Las Tunas Dr.
Temple City, CA 91780

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Bryan Cook,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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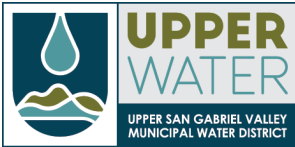
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Sincerely,



Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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May 26, 2026

City of West Covina
Attn: Milan Mrakich, Acting City Manager
1444 W. Garvey Ave S, Room 305
West Covina, CA 91790

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Milan Mrakich,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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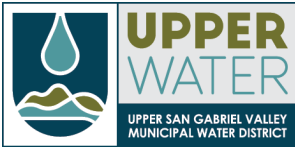
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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May 26, 2026

City of Whittier
Attn: Kyle Carson, Public Works Director
13230 Penn St.
Whittier, CA 90601

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Kyle Carson,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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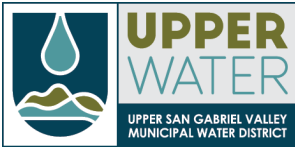
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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Jennifer Santana
Division 5

May 26, 2026

County of Los Angeles (Waterworks)
Attn: Carolina Hernandez

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Carolina Hernandez,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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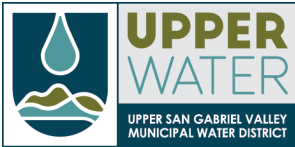
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Sincerely,

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General Manager
Upper San Gabriel Valley MWD



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May 26, 2026

Del Rio Mutual Water Company
Attn: Jose Alejandro, General Manager
12419 Clinton St.
El Monte, CA 91734

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Jose Alejandro,

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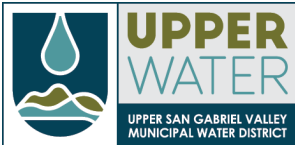
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



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May 26, 2026

Golden State Water Company
Attn: Paul Rowley, Senior Vice President

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Paul Rowley,

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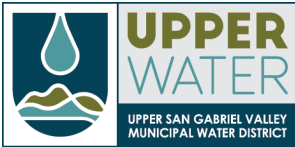
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General Manager
Upper San Gabriel Valley MWD



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May 26, 2026

Golden State Water Company
Attn: Toby Moore, Water Resource Manager

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Toby Moore,

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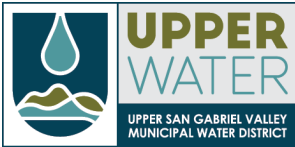
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General Manager
Upper San Gabriel Valley MWD



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May 26, 2026

Hemlock Mutual Water Company
Attn: Robert McClung, General Manager
12066 Celine Street
El Monte, CA 91732

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Robert McClung,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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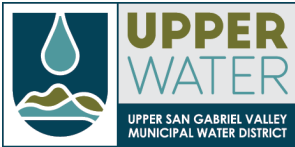
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General Manager
Upper San Gabriel Valley MWD



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Division 2

Ed Chavez
Division 3

Katarina Garcia
Division 4

Jennifer Santana
Division 5

May 26, 2026

Hemlock Mutual Water Company
Attn: Blanca Becerra
11828 Hemlock St.
El Monte, CA 91732

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Blanca Becerra,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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Information regarding Upper San Gabriel Valley Municipal Water District's PUBLIC HEARING follows:

Date: June 10, 2026

Time: 4:30 p.m.

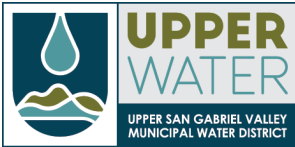
Place: 248 E. Foothill Blvd., Suite 200, Monrovia, CA 91016

Upper San Gabriel Valley Municipal Water District invites all interested entities to attend and present their comments. A copy of the draft 2025 Urban Water Management Plan and Water Shortage Contingency Plan will be available at Upper San Gabriel Valley Municipal Water District's website. Please provide written comments by 5 p.m. on June 5, 2026 to Upper San Gabriel Valley Municipal Water District.

For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgymwd.org. You may also contact Katherine Vazquez at Katherine@usgymwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Division 5

May 26, 2026

La Puente Valley County Water District
Attn: Roy Frausto, General Manager
P.O. Box 3136
La Puente, CA 91744

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Roy Frausto,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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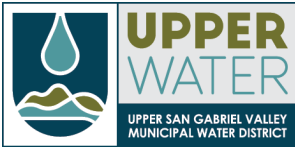
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For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Division 5

May 26, 2026

Industry Public Works C/O La Puente Valley County Water District
Attn: Joshua Nelson, City Manager
P.O. Box 3136
La Puente, CA 91744

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Joshua Nelson,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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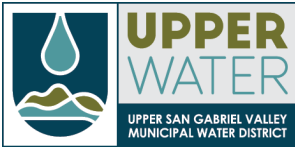
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For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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May 26, 2026

Main San Gabriel Basin Watermaster
Attn: Kelly Gardner, Executive Officer
P.O. Box 1329
Azusa, CA 91702

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Kelly Gardner,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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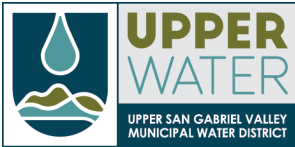
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For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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May 26, 2026

Rurban Homes Mutual Water Company
Attn: Michael Cox

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Michael Cox,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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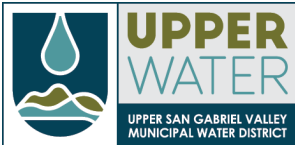
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For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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May 26, 2026

San Gabriel County Water District
Attn: James Prior, General Manager
8366 Grand Ave.
Rosemead, CA 91770

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear James Prior,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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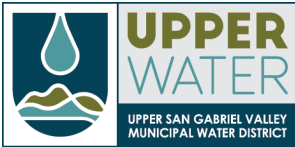
Place: 248 E. Foothill Blvd., Suite 200, Monrovia, CA 91016

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For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Division 5

May 26, 2026

San Gabriel Valley Water Company
Attn: Robert Diprimio, Vice President
P.O. Box 6010
El Monte, CA 91734

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Robert Diprimio,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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Date: June 10, 2026

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For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD

May 26, 2026

Sterling Mutual Water Company
Attn: Beverly Dominguez
11922 Lambert Ave.
El Monte, CA 91732

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Beverly Dominguez,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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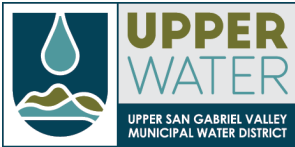
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Sincerely,



Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Anthony R. Fellow, Ph.D.
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Jennifer Santana
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May 26, 2026

Suburban Water Systems
Craig Gott, General Manager
1325 N. Grand Avenue Suite 100
Covina, CA 91724

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Craig Gott,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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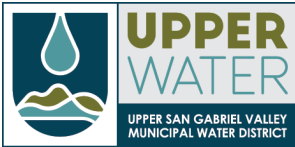
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Jennifer Santana
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May 26, 2026

Sunny Slope Water Company
Attn: Ken Tcheng, General Manager/Vice President
1040 El Campo Drive
Pasadena, CA 91107

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Ken Tcheng,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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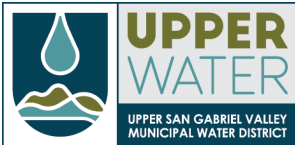
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Division 4

Jennifer Santana
Division 5

May 26, 2026

Valley County Water District
Attn: Jose Martinez, General Manager
14521 E. Ramona Blvd.
Baldwin Park, CA 91706

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Jose Martinez,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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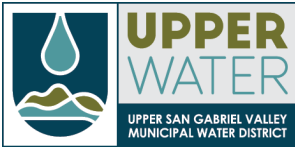
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Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD



248 E. Foothill Blvd., Suite 200
Monrovia, CA, 91016

P: 626-443-2297

E: info@usgvmwd.org

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Anthony R. Fellow, Ph.D.
Division 1

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Division 2

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Division 3

Katarina Garcia
Division 4

Jennifer Santana
Division 5

May 26, 2026

Valley View Mutual Water Company
Attn: Sukie Madrid, General Manager
13730 E. Los Angeles Street
Baldwin Park, CA 91706

SUBJECT: Notice of Public Hearing for 2025 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Sukie Madrid,

Upper San Gabriel Valley Municipal Water District will hold a PUBLIC HEARING on June 10, 2026, for the purposes of adopting its 2025 Urban Water Management Plan and its Water Shortage Contingency Plan. Upper San Gabriel Valley Municipal Water District's 2025 Urban Water Management Plan incorporates Upper San Gabriel Valley Municipal Water District's Water Shortage Contingency Plan.

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For questions, please contact Thomas Love at (626) 443-2297 or Tom@usgvmwd.org. You may also contact Katherine Vazquez at Katherine@usgvmwd.org

Sincerely,

Thomas A. Love
General Manager
Upper San Gabriel Valley MWD

Appendix E

Climate Change Considerations

(Cal- Adapt Data)

MAIN SAN GABRIEL BASIN

MODELED ANNUAL AVERAGE PRECIPITATION

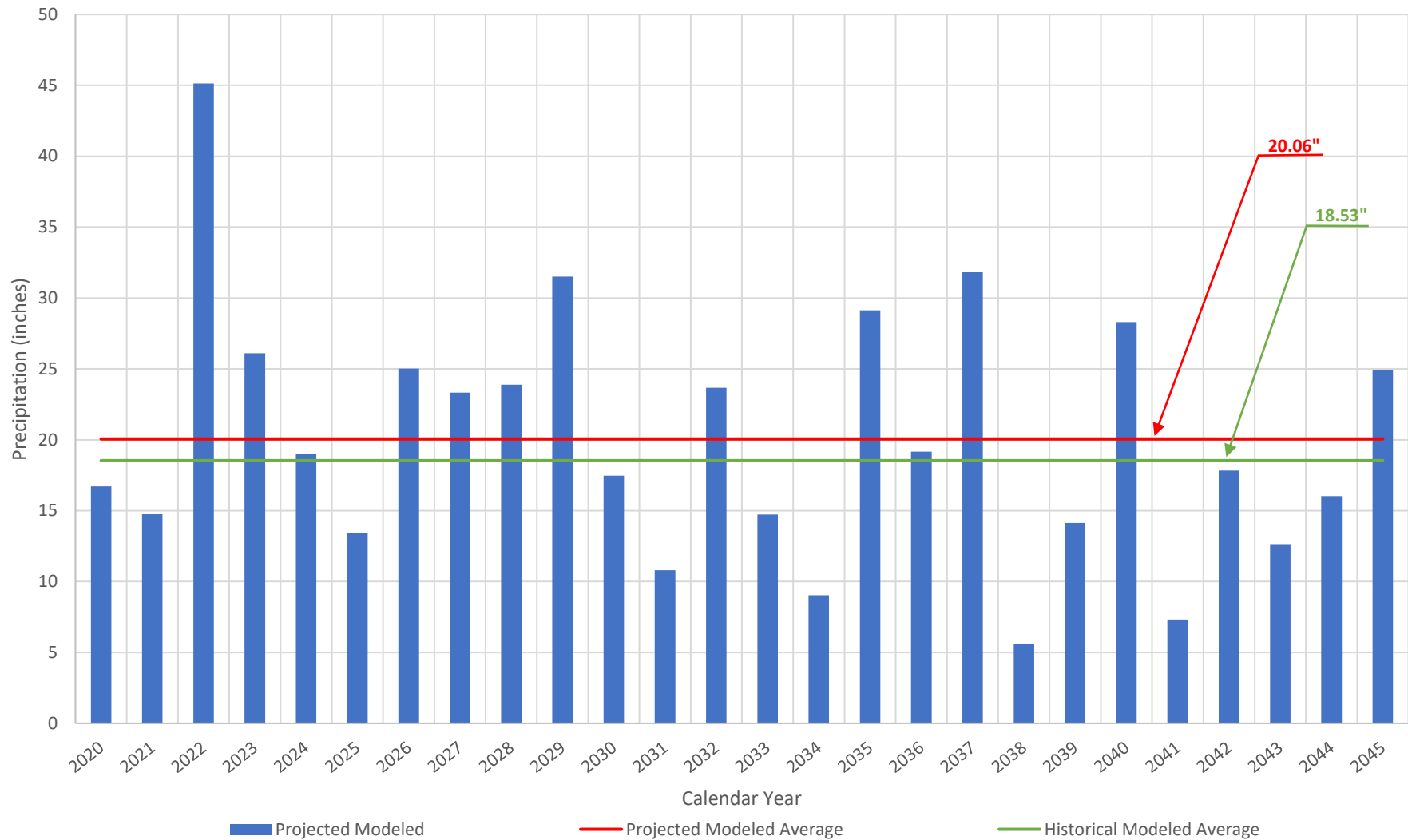
CAL-ADAPT METHOD: RCP 4.5 (CANESM2)

CAL-ADAPT DATA

Main San Gabriel Basin

Modeled Annual Average Precipitation

Cal-Adapt Method: RCP 4.5 (CanESM2)



Data Source: Cal-Adapt

Notes:

Projected Modeled Average includes modeled years 2020 through 2045

Historical Modeled Average includes modeled years 1950 through 2019

Cal-Adapt defines the general circulation model (GCM) CanESM2 as an "average simulation"

Cal-Adapt defines RCP 4.5 as a scenario in which emissions peak around 2040, then decline

Cal-Adapt
Annual Averages Tool - Precipitation
Main San Gabriel Basin

location User Defined Boundary - Main San Gabriel Basin
climate variable Precipitation
units inches
scenario rcp45

Projected Modeled Average: 20.0572 [inches]
Historical Modeled Average: 18.53087 [inches]

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Sun Jan 01 1950 00:00:00 GMT-0800 (Pacific Standard Time)	1950			4.685112
CanESM2	Mon Jan 01 1951 00:00:00 GMT-0800 (Pacific Standard Time)	1951			23.05413
CanESM2	Tue Jan 01 1952 00:00:00 GMT-0800 (Pacific Standard Time)	1952			20.42137
CanESM2	Thu Jan 01 1953 00:00:00 GMT-0800 (Pacific Standard Time)	1953			13.47978
CanESM2	Fri Jan 01 1954 00:00:00 GMT-0800 (Pacific Standard Time)	1954			21.54391
CanESM2	Sat Jan 01 1955 00:00:00 GMT-0800 (Pacific Standard Time)	1955			34.92821
CanESM2	Sun Jan 01 1956 00:00:00 GMT-0800 (Pacific Standard Time)	1956			9.049924
CanESM2	Tue Jan 01 1957 00:00:00 GMT-0800 (Pacific Standard Time)	1957			15.43256
CanESM2	Wed Jan 01 1958 00:00:00 GMT-0800 (Pacific Standard Time)	1958			7.710687
CanESM2	Thu Jan 01 1959 00:00:00 GMT-0800 (Pacific Standard Time)	1959			12.81114
CanESM2	Fri Jan 01 1960 00:00:00 GMT-0800 (Pacific Standard Time)	1960			16.98388
CanESM2	Sun Jan 01 1961 00:00:00 GMT-0800 (Pacific Standard Time)	1961			18.55097
CanESM2	Mon Jan 01 1962 00:00:00 GMT-0800 (Pacific Standard Time)	1962			29.2631
CanESM2	Tue Jan 01 1963 00:00:00 GMT-0800 (Pacific Standard Time)	1963			5.927427
CanESM2	Wed Jan 01 1964 00:00:00 GMT-0800 (Pacific Standard Time)	1964			32.98481
CanESM2	Fri Jan 01 1965 00:00:00 GMT-0800 (Pacific Standard Time)	1965			40.77049
CanESM2	Sat Jan 01 1966 00:00:00 GMT-0800 (Pacific Standard Time)	1966			16.54101
CanESM2	Sun Jan 01 1967 00:00:00 GMT-0800 (Pacific Standard Time)	1967			23.49777
CanESM2	Mon Jan 01 1968 00:00:00 GMT-0800 (Pacific Standard Time)	1968			18.14894
CanESM2	Wed Jan 01 1969 00:00:00 GMT-0800 (Pacific Standard Time)	1969			38.02022
CanESM2	Thu Jan 01 1970 00:00:00 GMT-0800 (Pacific Standard Time)	1970			15.76751
CanESM2	Fri Jan 01 1971 00:00:00 GMT-0800 (Pacific Standard Time)	1971			5.570342
CanESM2	Sat Jan 01 1972 00:00:00 GMT-0800 (Pacific Standard Time)	1972			19.00945
CanESM2	Mon Jan 01 1973 00:00:00 GMT-0800 (Pacific Standard Time)	1973			14.41861
CanESM2	Tue Jan 01 1974 00:00:00 GMT-0800 (Pacific Standard Time)	1974			39.83373
CanESM2	Wed Jan 01 1975 00:00:00 GMT-0800 (Pacific Standard Time)	1975			10.39996
CanESM2	Thu Jan 01 1976 00:00:00 GMT-0800 (Pacific Standard Time)	1976			17.88769
CanESM2	Sat Jan 01 1977 00:00:00 GMT-0800 (Pacific Standard Time)	1977			21.0267
CanESM2	Sun Jan 01 1978 00:00:00 GMT-0800 (Pacific Standard Time)	1978			13.26527
CanESM2	Mon Jan 01 1979 00:00:00 GMT-0800 (Pacific Standard Time)	1979			11.84687
CanESM2	Tue Jan 01 1980 00:00:00 GMT-0800 (Pacific Standard Time)	1980			7.246671
CanESM2	Thu Jan 01 1981 00:00:00 GMT-0800 (Pacific Standard Time)	1981			16.32265
CanESM2	Fri Jan 01 1982 00:00:00 GMT-0800 (Pacific Standard Time)	1982			27.32421
CanESM2	Sat Jan 01 1983 00:00:00 GMT-0800 (Pacific Standard Time)	1983			16.94291
CanESM2	Sun Jan 01 1984 00:00:00 GMT-0800 (Pacific Standard Time)	1984			19.3673
CanESM2	Tue Jan 01 1985 00:00:00 GMT-0800 (Pacific Standard Time)	1985			46.4508
CanESM2	Wed Jan 01 1986 00:00:00 GMT-0800 (Pacific Standard Time)	1986			9.421445
CanESM2	Thu Jan 01 1987 00:00:00 GMT-0800 (Pacific Standard Time)	1987			21.04764
CanESM2	Fri Jan 01 1988 00:00:00 GMT-0800 (Pacific Standard Time)	1988			12.02208
CanESM2	Sun Jan 01 1989 00:00:00 GMT-0800 (Pacific Standard Time)	1989			20.08803
CanESM2	Mon Jan 01 1990 00:00:00 GMT-0800 (Pacific Standard Time)	1990			23.1006
CanESM2	Tue Jan 01 1991 00:00:00 GMT-0800 (Pacific Standard Time)	1991			20.80475
CanESM2	Wed Jan 01 1992 00:00:00 GMT-0800 (Pacific Standard Time)	1992			19.87184
CanESM2	Fri Jan 01 1993 00:00:00 GMT-0800 (Pacific Standard Time)	1993			17.11653
CanESM2	Sat Jan 01 1994 00:00:00 GMT-0800 (Pacific Standard Time)	1994			19.46629
CanESM2	Sun Jan 01 1995 00:00:00 GMT-0800 (Pacific Standard Time)	1995			14.83353
CanESM2	Mon Jan 01 1996 00:00:00 GMT-0800 (Pacific Standard Time)	1996			14.38013
CanESM2	Wed Jan 01 1997 00:00:00 GMT-0800 (Pacific Standard Time)	1997			49.37126
CanESM2	Thu Jan 01 1998 00:00:00 GMT-0800 (Pacific Standard Time)	1998			10.23361
CanESM2	Fri Jan 01 1999 00:00:00 GMT-0800 (Pacific Standard Time)	1999			10.75915
CanESM2	Sat Jan 01 2000 00:00:00 GMT-0800 (Pacific Standard Time)	2000			9.683032
CanESM2	Mon Jan 01 2001 00:00:00 GMT-0800 (Pacific Standard Time)	2001			11.97161
CanESM2	Tue Jan 01 2002 00:00:00 GMT-0800 (Pacific Standard Time)	2002			14.37179

Cal-Adapt
Annual Averages Tool - Precipitation
Main San Gabriel Basin

location User Defined Boundary - Main San Gabriel Basin
climate variable Precipitation
units inches
scenario rcp45

Projected Modeled Average: 20.0572 [inches]
Historical Modeled Average: 18.53087 [inches]

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Wed Jan 01 2003 00:00:00 GMT-0800 (Pacific Standard Time)	2003			18.01362
CanESM2	Thu Jan 01 2004 00:00:00 GMT-0800 (Pacific Standard Time)	2004			19.62679
CanESM2	Sat Jan 01 2005 00:00:00 GMT-0800 (Pacific Standard Time)	2005			30.46913
CanESM2	Sun Jan 01 2006 00:00:00 GMT-0800 (Pacific Standard Time)	2006			16.2498
CanESM2	Mon Jan 01 2007 00:00:00 GMT-0800 (Pacific Standard Time)	2007			4.687571
CanESM2	Tue Jan 01 2008 00:00:00 GMT-0800 (Pacific Standard Time)	2008			16.07958
CanESM2	Thu Jan 01 2009 00:00:00 GMT-0800 (Pacific Standard Time)	2009			13.77223
CanESM2	Fri Jan 01 2010 00:00:00 GMT-0800 (Pacific Standard Time)	2010			15.8131
CanESM2	Sat Jan 01 2011 00:00:00 GMT-0800 (Pacific Standard Time)	2011			25.053
CanESM2	Sun Jan 01 2012 00:00:00 GMT-0800 (Pacific Standard Time)	2012			7.777958
CanESM2	Tue Jan 01 2013 00:00:00 GMT-0800 (Pacific Standard Time)	2013			9.874859
CanESM2	Wed Jan 01 2014 00:00:00 GMT-0800 (Pacific Standard Time)	2014			10.21487
CanESM2	Thu Jan 01 2015 00:00:00 GMT-0800 (Pacific Standard Time)	2015			28.73597
CanESM2	Fri Jan 01 2016 00:00:00 GMT-0800 (Pacific Standard Time)	2016			42.6728
CanESM2	Sun Jan 01 2017 00:00:00 GMT-0800 (Pacific Standard Time)	2017			13.03285
CanESM2	Mon Jan 01 2018 00:00:00 GMT-0800 (Pacific Standard Time)	2018			6.677918
CanESM2	Tue Jan 01 2019 00:00:00 GMT-0800 (Pacific Standard Time)	2019	18.53086914		13.37936
CanESM2	Wed Jan 01 2020 00:00:00 GMT-0800 (Pacific Standard Time)	2020	18.53086914	20.05720069	16.71917
CanESM2	Fri Jan 01 2021 00:00:00 GMT-0800 (Pacific Standard Time)	2021	18.53086914	20.05720069	14.74009
CanESM2	Sat Jan 01 2022 00:00:00 GMT-0800 (Pacific Standard Time)	2022	18.53086914	20.05720069	45.12891
CanESM2	Sun Jan 01 2023 00:00:00 GMT-0800 (Pacific Standard Time)	2023	18.53086914	20.05720069	26.10602
CanESM2	Mon Jan 01 2024 00:00:00 GMT-0800 (Pacific Standard Time)	2024	18.53086914	20.05720069	18.97621
CanESM2	Wed Jan 01 2025 00:00:00 GMT-0800 (Pacific Standard Time)	2025	18.53086914	20.05720069	13.43139
CanESM2	Thu Jan 01 2026 00:00:00 GMT-0800 (Pacific Standard Time)	2026	18.53086914	20.05720069	25.02212
CanESM2	Fri Jan 01 2027 00:00:00 GMT-0800 (Pacific Standard Time)	2027	18.53086914	20.05720069	23.33611
CanESM2	Sat Jan 01 2028 00:00:00 GMT-0800 (Pacific Standard Time)	2028	18.53086914	20.05720069	23.89469
CanESM2	Mon Jan 01 2029 00:00:00 GMT-0800 (Pacific Standard Time)	2029	18.53086914	20.05720069	31.50682
CanESM2	Tue Jan 01 2030 00:00:00 GMT-0800 (Pacific Standard Time)	2030	18.53086914	20.05720069	17.46751
CanESM2	Wed Jan 01 2031 00:00:00 GMT-0800 (Pacific Standard Time)	2031	18.53086914	20.05720069	10.80211
CanESM2	Thu Jan 01 2032 00:00:00 GMT-0800 (Pacific Standard Time)	2032	18.53086914	20.05720069	23.66535
CanESM2	Sat Jan 01 2033 00:00:00 GMT-0800 (Pacific Standard Time)	2033	18.53086914	20.05720069	14.72254
CanESM2	Sun Jan 01 2034 00:00:00 GMT-0800 (Pacific Standard Time)	2034	18.53086914	20.05720069	9.037275
CanESM2	Mon Jan 01 2035 00:00:00 GMT-0800 (Pacific Standard Time)	2035	18.53086914	20.05720069	29.13842
CanESM2	Tue Jan 01 2036 00:00:00 GMT-0800 (Pacific Standard Time)	2036	18.53086914	20.05720069	19.16849
CanESM2	Thu Jan 01 2037 00:00:00 GMT-0800 (Pacific Standard Time)	2037	18.53086914	20.05720069	31.82107
CanESM2	Fri Jan 01 2038 00:00:00 GMT-0800 (Pacific Standard Time)	2038	18.53086914	20.05720069	5.600583
CanESM2	Sat Jan 01 2039 00:00:00 GMT-0800 (Pacific Standard Time)	2039	18.53086914	20.05720069	14.14258
CanESM2	Sun Jan 01 2040 00:00:00 GMT-0800 (Pacific Standard Time)	2040	18.53086914	20.05720069	28.30963
CanESM2	Tue Jan 01 2041 00:00:00 GMT-0800 (Pacific Standard Time)	2041	18.53086914	20.05720069	7.330622
CanESM2	Wed Jan 01 2042 00:00:00 GMT-0800 (Pacific Standard Time)	2042	18.53086914	20.05720069	17.83167
CanESM2	Thu Jan 01 2043 00:00:00 GMT-0800 (Pacific Standard Time)	2043	18.53086914	20.05720069	12.63815
CanESM2	Fri Jan 01 2044 00:00:00 GMT-0800 (Pacific Standard Time)	2044	18.53086914	20.05720069	16.03419
CanESM2	Sun Jan 01 2045 00:00:00 GMT-0800 (Pacific Standard Time)	2045	18.53086914	20.05720069	24.91551
CanESM2	Mon Jan 01 2046 00:00:00 GMT-0800 (Pacific Standard Time)	2046	18.53086914	20.05720069	34.01642
CanESM2	Tue Jan 01 2047 00:00:00 GMT-0800 (Pacific Standard Time)	2047	18.53086914		28.53796
CanESM2	Wed Jan 01 2048 00:00:00 GMT-0800 (Pacific Standard Time)	2048	18.53086914		26.78511
CanESM2	Fri Jan 01 2049 00:00:00 GMT-0800 (Pacific Standard Time)	2049	18.53086914		11.3078
CanESM2	Sat Jan 01 2050 00:00:00 GMT-0800 (Pacific Standard Time)	2050	18.53086914		13.96474
CanESM2	Sun Jan 01 2051 00:00:00 GMT-0800 (Pacific Standard Time)	2051	18.53086914		9.066945
CanESM2	Mon Jan 01 2052 00:00:00 GMT-0800 (Pacific Standard Time)	2052	18.53086914		34.64868
CanESM2	Wed Jan 01 2053 00:00:00 GMT-0800 (Pacific Standard Time)	2053	18.53086914		13.88863
CanESM2	Thu Jan 01 2054 00:00:00 GMT-0800 (Pacific Standard Time)	2054	18.53086914		15.31696
CanESM2	Fri Jan 01 2055 00:00:00 GMT-0800 (Pacific Standard Time)	2055	18.53086914		12.39008

Cal-Adapt
Annual Averages Tool - Precipitation
Main San Gabriel Basin

location User Defined Boundary - Main San Gabriel Basin
climate variable Precipitation
units inches
scenario rcp45

Projected Modeled Average: 20.0572 [inches]
Historical Modeled Average: 18.53087 [inches]

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Sat Jan 01 2056 00:00:00 GMT-0800 (Pacific Standard Time)	2056	18.53086914		21.90416
CanESM2	Mon Jan 01 2057 00:00:00 GMT-0800 (Pacific Standard Time)	2057	18.53086914		20.30997
CanESM2	Tue Jan 01 2058 00:00:00 GMT-0800 (Pacific Standard Time)	2058	18.53086914		9.836494
CanESM2	Wed Jan 01 2059 00:00:00 GMT-0800 (Pacific Standard Time)	2059	18.53086914		33.08858
CanESM2	Thu Jan 01 2060 00:00:00 GMT-0800 (Pacific Standard Time)	2060	18.53086914		33.62924
CanESM2	Sat Jan 01 2061 00:00:00 GMT-0800 (Pacific Standard Time)	2061	18.53086914		8.842443
CanESM2	Sun Jan 01 2062 00:00:00 GMT-0800 (Pacific Standard Time)	2062	18.53086914		15.38017
CanESM2	Mon Jan 01 2063 00:00:00 GMT-0800 (Pacific Standard Time)	2063	18.53086914		5.381668
CanESM2	Tue Jan 01 2064 00:00:00 GMT-0800 (Pacific Standard Time)	2064	18.53086914		11.33596
CanESM2	Thu Jan 01 2065 00:00:00 GMT-0800 (Pacific Standard Time)	2065	18.53086914		17.17056
CanESM2	Fri Jan 01 2066 00:00:00 GMT-0800 (Pacific Standard Time)	2066	18.53086914		19.50667
CanESM2	Sat Jan 01 2067 00:00:00 GMT-0800 (Pacific Standard Time)	2067	18.53086914		26.77193
CanESM2	Sun Jan 01 2068 00:00:00 GMT-0800 (Pacific Standard Time)	2068	18.53086914		19.72816
CanESM2	Tue Jan 01 2069 00:00:00 GMT-0800 (Pacific Standard Time)	2069	18.53086914		32.26327
CanESM2	Wed Jan 01 2070 00:00:00 GMT-0800 (Pacific Standard Time)	2070	18.53086914		31.96877
CanESM2	Thu Jan 01 2071 00:00:00 GMT-0800 (Pacific Standard Time)	2071	18.53086914		26.69731
CanESM2	Fri Jan 01 2072 00:00:00 GMT-0800 (Pacific Standard Time)	2072	18.53086914		8.450815
CanESM2	Sun Jan 01 2073 00:00:00 GMT-0800 (Pacific Standard Time)	2073	18.53086914		30.79085
CanESM2	Mon Jan 01 2074 00:00:00 GMT-0800 (Pacific Standard Time)	2074	18.53086914		20.17345
CanESM2	Tue Jan 01 2075 00:00:00 GMT-0800 (Pacific Standard Time)	2075	18.53086914		25.51862
CanESM2	Wed Jan 01 2076 00:00:00 GMT-0800 (Pacific Standard Time)	2076	18.53086914		14.19568
CanESM2	Fri Jan 01 2077 00:00:00 GMT-0800 (Pacific Standard Time)	2077	18.53086914		29.56606
CanESM2	Sat Jan 01 2078 00:00:00 GMT-0800 (Pacific Standard Time)	2078	18.53086914		24.46505
CanESM2	Sun Jan 01 2079 00:00:00 GMT-0800 (Pacific Standard Time)	2079	18.53086914		25.2602
CanESM2	Mon Jan 01 2080 00:00:00 GMT-0800 (Pacific Standard Time)	2080	18.53086914		57.17352
CanESM2	Wed Jan 01 2081 00:00:00 GMT-0800 (Pacific Standard Time)	2081	18.53086914		21.9062
CanESM2	Thu Jan 01 2082 00:00:00 GMT-0800 (Pacific Standard Time)	2082	18.53086914		18.22665
CanESM2	Fri Jan 01 2083 00:00:00 GMT-0800 (Pacific Standard Time)	2083	18.53086914		18.06925
CanESM2	Sat Jan 01 2084 00:00:00 GMT-0800 (Pacific Standard Time)	2084	18.53086914		25.73052
CanESM2	Mon Jan 01 2085 00:00:00 GMT-0800 (Pacific Standard Time)	2085	18.53086914		10.181
CanESM2	Tue Jan 01 2086 00:00:00 GMT-0800 (Pacific Standard Time)	2086	18.53086914		30.50838
CanESM2	Wed Jan 01 2087 00:00:00 GMT-0800 (Pacific Standard Time)	2087	18.53086914		12.39789
CanESM2	Thu Jan 01 2088 00:00:00 GMT-0800 (Pacific Standard Time)	2088	18.53086914		42.97672
CanESM2	Sat Jan 01 2089 00:00:00 GMT-0800 (Pacific Standard Time)	2089	18.53086914		20.78388
CanESM2	Sun Jan 01 2090 00:00:00 GMT-0800 (Pacific Standard Time)	2090	18.53086914		14.76388
CanESM2	Mon Jan 01 2091 00:00:00 GMT-0800 (Pacific Standard Time)	2091	18.53086914		8.306978
CanESM2	Tue Jan 01 2092 00:00:00 GMT-0800 (Pacific Standard Time)	2092	18.53086914		6.183673
CanESM2	Thu Jan 01 2093 00:00:00 GMT-0800 (Pacific Standard Time)	2093	18.53086914		34.21679
CanESM2	Fri Jan 01 2094 00:00:00 GMT-0800 (Pacific Standard Time)	2094	18.53086914		19.27144
CanESM2	Sat Jan 01 2095 00:00:00 GMT-0800 (Pacific Standard Time)	2095	18.53086914		8.465535
CanESM2	Sun Jan 01 2096 00:00:00 GMT-0800 (Pacific Standard Time)	2096	18.53086914		13.83576
CanESM2	Tue Jan 01 2097 00:00:00 GMT-0800 (Pacific Standard Time)	2097	18.53086914		20.09841
CanESM2	Wed Jan 01 2098 00:00:00 GMT-0800 (Pacific Standard Time)	2098	18.53086914		27.06357
CanESM2	Thu Jan 01 2099 00:00:00 GMT-0800 (Pacific Standard Time)	2099	18.53086914		14.23975
CanESM2	Fri Jan 01 2100 00:00:00 GMT-0800 (Pacific Standard Time)	2100	18.53086914		20.92701

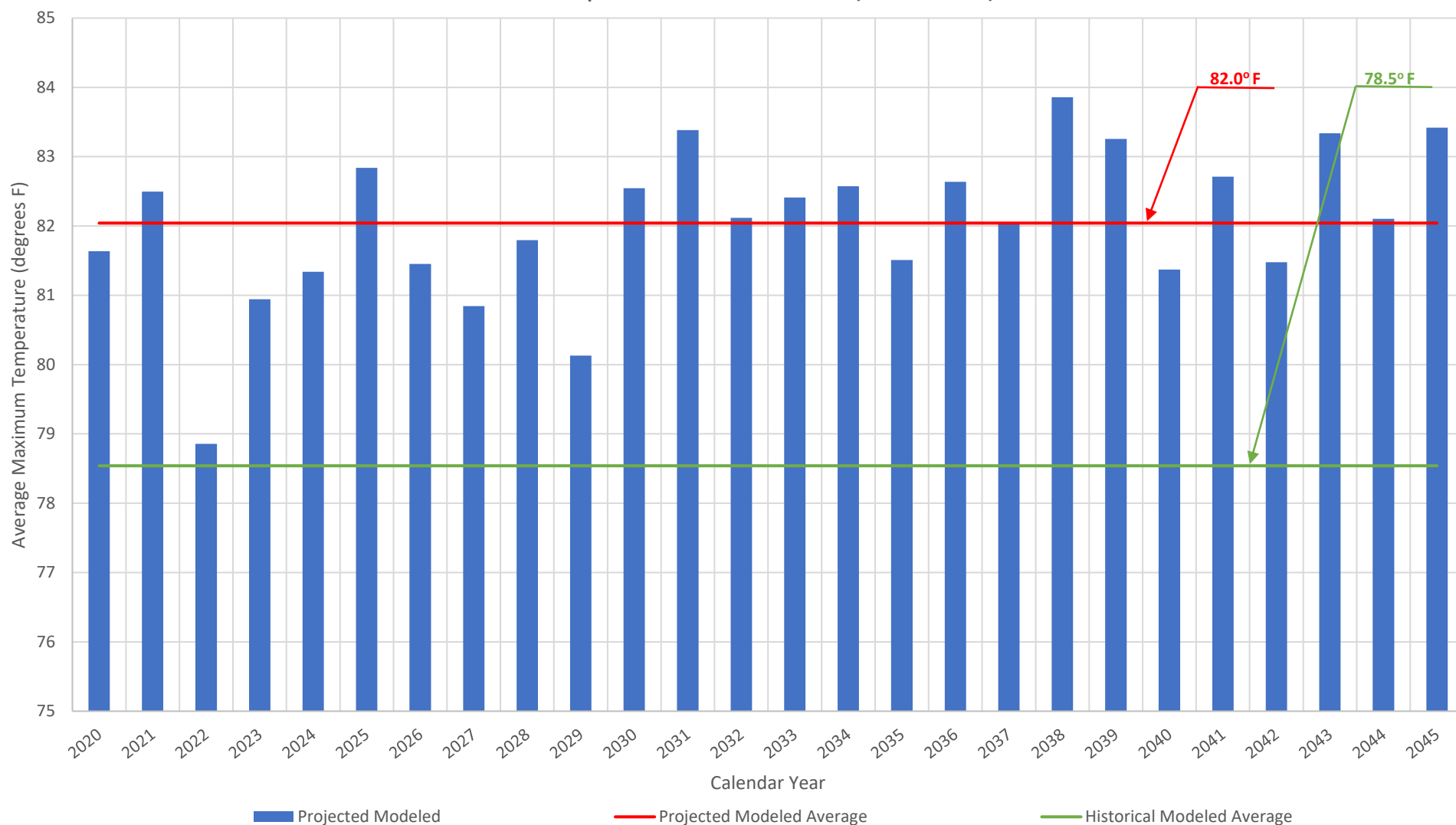
MAIN SAN GABRIEL BASIN

MODELED ANNUAL AVERAGE TEMPERATURE

CAL-ADAPT METHOD: RCP 4.5 (CANESM2)

CAL-ADAPT DATA

Main San Gabriel Basin Modeled Annual Average Maximum Temperature Cal-Adapt Method: RCP 4.5 (CanESM2)



Data Source: Cal-Adapt

Notes:

Projected Modeled Average includes modeled years 2020 through 2045

Historical Modeled Average includes modeled years 1950 through 2019

Cal-Adapt defines the general circulation model (GCM) CanESM2 as an "average simulation"

Cal-Adapt defines RCP 4.5 as a scenario in which emissions peak around 2040, then decline

Cal-Adapt
Annual Averages Tool - Maximum Temperature
Main San Gabriel Basin

location User Defined Boundary - Main Basin
climate variable Maximum Temperature
units °F
scenario rcp45

Projected Modeled Average: 82.04186 °F
Historical Modeled Average: 78.54023 °F

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Sun Jan 01 1950 00:00:00 GMT-0800 (Pacific Standard Time)	1950			80.06415
CanESM2	Mon Jan 01 1951 00:00:00 GMT-0800 (Pacific Standard Time)	1951			77.93532
CanESM2	Tue Jan 01 1952 00:00:00 GMT-0800 (Pacific Standard Time)	1952			77.11396
CanESM2	Thu Jan 01 1953 00:00:00 GMT-0800 (Pacific Standard Time)	1953			78.03756
CanESM2	Fri Jan 01 1954 00:00:00 GMT-0800 (Pacific Standard Time)	1954			76.96433
CanESM2	Sat Jan 01 1955 00:00:00 GMT-0800 (Pacific Standard Time)	1955			76.20169
CanESM2	Sun Jan 01 1956 00:00:00 GMT-0800 (Pacific Standard Time)	1956			78.11666
CanESM2	Tue Jan 01 1957 00:00:00 GMT-0800 (Pacific Standard Time)	1957			77.99814
CanESM2	Wed Jan 01 1958 00:00:00 GMT-0800 (Pacific Standard Time)	1958			78.08364
CanESM2	Thu Jan 01 1959 00:00:00 GMT-0800 (Pacific Standard Time)	1959			79.05052
CanESM2	Fri Jan 01 1960 00:00:00 GMT-0800 (Pacific Standard Time)	1960			78.46333
CanESM2	Sun Jan 01 1961 00:00:00 GMT-0800 (Pacific Standard Time)	1961			76.70129
CanESM2	Mon Jan 01 1962 00:00:00 GMT-0800 (Pacific Standard Time)	1962			77.91644
CanESM2	Tue Jan 01 1963 00:00:00 GMT-0800 (Pacific Standard Time)	1963			80.78967
CanESM2	Wed Jan 01 1964 00:00:00 GMT-0800 (Pacific Standard Time)	1964			76.23539
CanESM2	Fri Jan 01 1965 00:00:00 GMT-0800 (Pacific Standard Time)	1965			74.57061
CanESM2	Sat Jan 01 1966 00:00:00 GMT-0800 (Pacific Standard Time)	1966			76.53852
CanESM2	Sun Jan 01 1967 00:00:00 GMT-0800 (Pacific Standard Time)	1967			77.90928
CanESM2	Mon Jan 01 1968 00:00:00 GMT-0800 (Pacific Standard Time)	1968			77.45104
CanESM2	Wed Jan 01 1969 00:00:00 GMT-0800 (Pacific Standard Time)	1969			76.68153
CanESM2	Thu Jan 01 1970 00:00:00 GMT-0800 (Pacific Standard Time)	1970			76.1629
CanESM2	Fri Jan 01 1971 00:00:00 GMT-0800 (Pacific Standard Time)	1971			77.70073
CanESM2	Sat Jan 01 1972 00:00:00 GMT-0800 (Pacific Standard Time)	1972			78.13608
CanESM2	Mon Jan 01 1973 00:00:00 GMT-0800 (Pacific Standard Time)	1973			77.27467
CanESM2	Tue Jan 01 1974 00:00:00 GMT-0800 (Pacific Standard Time)	1974			77.9264
CanESM2	Wed Jan 01 1975 00:00:00 GMT-0800 (Pacific Standard Time)	1975			79.59348
CanESM2	Thu Jan 01 1976 00:00:00 GMT-0800 (Pacific Standard Time)	1976			77.95787
CanESM2	Sat Jan 01 1977 00:00:00 GMT-0800 (Pacific Standard Time)	1977			76.79797
CanESM2	Sun Jan 01 1978 00:00:00 GMT-0800 (Pacific Standard Time)	1978			79.15042
CanESM2	Mon Jan 01 1979 00:00:00 GMT-0800 (Pacific Standard Time)	1979			79.12715
CanESM2	Tue Jan 01 1980 00:00:00 GMT-0800 (Pacific Standard Time)	1980			80.66491
CanESM2	Thu Jan 01 1981 00:00:00 GMT-0800 (Pacific Standard Time)	1981			80.06922
CanESM2	Fri Jan 01 1982 00:00:00 GMT-0800 (Pacific Standard Time)	1982			76.46474
CanESM2	Sat Jan 01 1983 00:00:00 GMT-0800 (Pacific Standard Time)	1983			77.53236
CanESM2	Sun Jan 01 1984 00:00:00 GMT-0800 (Pacific Standard Time)	1984			76.96061
CanESM2	Tue Jan 01 1985 00:00:00 GMT-0800 (Pacific Standard Time)	1985			76.16432
CanESM2	Wed Jan 01 1986 00:00:00 GMT-0800 (Pacific Standard Time)	1986			78.05146
CanESM2	Thu Jan 01 1987 00:00:00 GMT-0800 (Pacific Standard Time)	1987			76.91432
CanESM2	Fri Jan 01 1988 00:00:00 GMT-0800 (Pacific Standard Time)	1988			77.69031
CanESM2	Sun Jan 01 1989 00:00:00 GMT-0800 (Pacific Standard Time)	1989			76.83007
CanESM2	Mon Jan 01 1990 00:00:00 GMT-0800 (Pacific Standard Time)	1990			77.79703
CanESM2	Tue Jan 01 1991 00:00:00 GMT-0800 (Pacific Standard Time)	1991			78.64903
CanESM2	Wed Jan 01 1992 00:00:00 GMT-0800 (Pacific Standard Time)	1992			75.7116
CanESM2	Fri Jan 01 1993 00:00:00 GMT-0800 (Pacific Standard Time)	1993			79.53212
CanESM2	Sat Jan 01 1994 00:00:00 GMT-0800 (Pacific Standard Time)	1994			76.21768
CanESM2	Sun Jan 01 1995 00:00:00 GMT-0800 (Pacific Standard Time)	1995			79.34579
CanESM2	Mon Jan 01 1996 00:00:00 GMT-0800 (Pacific Standard Time)	1996			79.82844
CanESM2	Wed Jan 01 1997 00:00:00 GMT-0800 (Pacific Standard Time)	1997			77.41789
CanESM2	Thu Jan 01 1998 00:00:00 GMT-0800 (Pacific Standard Time)	1998			79.26016
CanESM2	Fri Jan 01 1999 00:00:00 GMT-0800 (Pacific Standard Time)	1999			80.09215
CanESM2	Sat Jan 01 2000 00:00:00 GMT-0800 (Pacific Standard Time)	2000			79.98756
CanESM2	Mon Jan 01 2001 00:00:00 GMT-0800 (Pacific Standard Time)	2001			80.0572

Cal-Adapt
Annual Averages Tool - Maximum Temperature
Main San Gabriel Basin

location User Defined Boundary - Main Basin
climate variable Maximum Temperature
units °F
scenario rcp45

Projected Modeled Average: 82.04186 °F
Historical Modeled Average: 78.54023 °F

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Tue Jan 01 2002 00:00:00 GMT-0800 (Pacific Standard Time)	2002			80.04846
CanESM2	Wed Jan 01 2003 00:00:00 GMT-0800 (Pacific Standard Time)	2003			78.1036
CanESM2	Thu Jan 01 2004 00:00:00 GMT-0800 (Pacific Standard Time)	2004			79.46905
CanESM2	Sat Jan 01 2005 00:00:00 GMT-0800 (Pacific Standard Time)	2005			79.15846
CanESM2	Sun Jan 01 2006 00:00:00 GMT-0800 (Pacific Standard Time)	2006			78.98276
CanESM2	Mon Jan 01 2007 00:00:00 GMT-0800 (Pacific Standard Time)	2007			80.43446
CanESM2	Tue Jan 01 2008 00:00:00 GMT-0800 (Pacific Standard Time)	2008			80.3906
CanESM2	Thu Jan 01 2009 00:00:00 GMT-0800 (Pacific Standard Time)	2009			80.93891
CanESM2	Fri Jan 01 2010 00:00:00 GMT-0800 (Pacific Standard Time)	2010			80.2581
CanESM2	Sat Jan 01 2011 00:00:00 GMT-0800 (Pacific Standard Time)	2011			80.59334
CanESM2	Sun Jan 01 2012 00:00:00 GMT-0800 (Pacific Standard Time)	2012			81.51284
CanESM2	Tue Jan 01 2013 00:00:00 GMT-0800 (Pacific Standard Time)	2013			82.46792
CanESM2	Wed Jan 01 2014 00:00:00 GMT-0800 (Pacific Standard Time)	2014			79.49625
CanESM2	Thu Jan 01 2015 00:00:00 GMT-0800 (Pacific Standard Time)	2015			79.43042
CanESM2	Fri Jan 01 2016 00:00:00 GMT-0800 (Pacific Standard Time)	2016			78.62877
CanESM2	Sun Jan 01 2017 00:00:00 GMT-0800 (Pacific Standard Time)	2017			80.36357
CanESM2	Mon Jan 01 2018 00:00:00 GMT-0800 (Pacific Standard Time)	2018			82.64362
CanESM2	Tue Jan 01 2019 00:00:00 GMT-0800 (Pacific Standard Time)	2019	78.54022879		81.00517
CanESM2	Wed Jan 01 2020 00:00:00 GMT-0800 (Pacific Standard Time)	2020	78.54022879	82.04185826	81.63505
CanESM2	Fri Jan 01 2021 00:00:00 GMT-0800 (Pacific Standard Time)	2021	78.54022879	82.04185826	82.4973
CanESM2	Sat Jan 01 2022 00:00:00 GMT-0800 (Pacific Standard Time)	2022	78.54022879	82.04185826	78.85515
CanESM2	Sun Jan 01 2023 00:00:00 GMT-0800 (Pacific Standard Time)	2023	78.54022879	82.04185826	80.94436
CanESM2	Mon Jan 01 2024 00:00:00 GMT-0800 (Pacific Standard Time)	2024	78.54022879	82.04185826	81.33806
CanESM2	Wed Jan 01 2025 00:00:00 GMT-0800 (Pacific Standard Time)	2025	78.54022879	82.04185826	82.83773
CanESM2	Thu Jan 01 2026 00:00:00 GMT-0800 (Pacific Standard Time)	2026	78.54022879	82.04185826	81.45215
CanESM2	Fri Jan 01 2027 00:00:00 GMT-0800 (Pacific Standard Time)	2027	78.54022879	82.04185826	80.8432
CanESM2	Sat Jan 01 2028 00:00:00 GMT-0800 (Pacific Standard Time)	2028	78.54022879	82.04185826	81.79438
CanESM2	Mon Jan 01 2029 00:00:00 GMT-0800 (Pacific Standard Time)	2029	78.54022879	82.04185826	80.13166
CanESM2	Tue Jan 01 2030 00:00:00 GMT-0800 (Pacific Standard Time)	2030	78.54022879	82.04185826	82.54669
CanESM2	Wed Jan 01 2031 00:00:00 GMT-0800 (Pacific Standard Time)	2031	78.54022879	82.04185826	83.38219
CanESM2	Thu Jan 01 2032 00:00:00 GMT-0800 (Pacific Standard Time)	2032	78.54022879	82.04185826	82.11577
CanESM2	Sat Jan 01 2033 00:00:00 GMT-0800 (Pacific Standard Time)	2033	78.54022879	82.04185826	82.40953
CanESM2	Sun Jan 01 2034 00:00:00 GMT-0800 (Pacific Standard Time)	2034	78.54022879	82.04185826	82.5733
CanESM2	Mon Jan 01 2035 00:00:00 GMT-0800 (Pacific Standard Time)	2035	78.54022879	82.04185826	81.50974
CanESM2	Tue Jan 01 2036 00:00:00 GMT-0800 (Pacific Standard Time)	2036	78.54022879	82.04185826	82.63633
CanESM2	Thu Jan 01 2037 00:00:00 GMT-0800 (Pacific Standard Time)	2037	78.54022879	82.04185826	82.04893
CanESM2	Fri Jan 01 2038 00:00:00 GMT-0800 (Pacific Standard Time)	2038	78.54022879	82.04185826	83.85755
CanESM2	Sat Jan 01 2039 00:00:00 GMT-0800 (Pacific Standard Time)	2039	78.54022879	82.04185826	83.25626
CanESM2	Sun Jan 01 2040 00:00:00 GMT-0800 (Pacific Standard Time)	2040	78.54022879	82.04185826	81.37234
CanESM2	Tue Jan 01 2041 00:00:00 GMT-0800 (Pacific Standard Time)	2041	78.54022879	82.04185826	82.71309
CanESM2	Wed Jan 01 2042 00:00:00 GMT-0800 (Pacific Standard Time)	2042	78.54022879	82.04185826	81.47676
CanESM2	Thu Jan 01 2043 00:00:00 GMT-0800 (Pacific Standard Time)	2043	78.54022879	82.04185826	83.33871
CanESM2	Fri Jan 01 2044 00:00:00 GMT-0800 (Pacific Standard Time)	2044	78.54022879	82.04185826	82.10259
CanESM2	Sun Jan 01 2045 00:00:00 GMT-0800 (Pacific Standard Time)	2045	78.54022879	82.04185826	83.41948
CanESM2	Mon Jan 01 2046 00:00:00 GMT-0800 (Pacific Standard Time)	2046			82.19345
CanESM2	Tue Jan 01 2047 00:00:00 GMT-0800 (Pacific Standard Time)	2047			81.80828
CanESM2	Wed Jan 01 2048 00:00:00 GMT-0800 (Pacific Standard Time)	2048			82.53622
CanESM2	Fri Jan 01 2049 00:00:00 GMT-0800 (Pacific Standard Time)	2049			82.59787
CanESM2	Sat Jan 01 2050 00:00:00 GMT-0800 (Pacific Standard Time)	2050			83.39278
CanESM2	Sun Jan 01 2051 00:00:00 GMT-0800 (Pacific Standard Time)	2051			83.25383
CanESM2	Mon Jan 01 2052 00:00:00 GMT-0800 (Pacific Standard Time)	2052			81.90969
CanESM2	Wed Jan 01 2053 00:00:00 GMT-0800 (Pacific Standard Time)	2053			83.5093

Cal-Adapt
Annual Averages Tool - Maximum Temperature
Main San Gabriel Basin

location User Defined Boundary - Main Basin
climate variable Maximum Temperature
units °F
scenario rcp45

Projected Modeled Average: 82.04186 °F
Historical Modeled Average: 78.54023 °F

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Thu Jan 01 2054 00:00:00 GMT-0800 (Pacific Standard Time)	2054			84.87219
CanESM2	Fri Jan 01 2055 00:00:00 GMT-0800 (Pacific Standard Time)	2055			85.72188
CanESM2	Sat Jan 01 2056 00:00:00 GMT-0800 (Pacific Standard Time)	2056			83.39512
CanESM2	Mon Jan 01 2057 00:00:00 GMT-0800 (Pacific Standard Time)	2057			82.98915
CanESM2	Tue Jan 01 2058 00:00:00 GMT-0800 (Pacific Standard Time)	2058			85.69518
CanESM2	Wed Jan 01 2059 00:00:00 GMT-0800 (Pacific Standard Time)	2059			83.21553
CanESM2	Thu Jan 01 2060 00:00:00 GMT-0800 (Pacific Standard Time)	2060			82.18014
CanESM2	Sat Jan 01 2061 00:00:00 GMT-0800 (Pacific Standard Time)	2061			84.84519
CanESM2	Sun Jan 01 2062 00:00:00 GMT-0800 (Pacific Standard Time)	2062			84.83427
CanESM2	Mon Jan 01 2063 00:00:00 GMT-0800 (Pacific Standard Time)	2063			85.35199
CanESM2	Tue Jan 01 2064 00:00:00 GMT-0800 (Pacific Standard Time)	2064			85.46047
CanESM2	Thu Jan 01 2065 00:00:00 GMT-0800 (Pacific Standard Time)	2065			83.49666
CanESM2	Fri Jan 01 2066 00:00:00 GMT-0800 (Pacific Standard Time)	2066			82.91767
CanESM2	Sat Jan 01 2067 00:00:00 GMT-0800 (Pacific Standard Time)	2067			81.27336
CanESM2	Sun Jan 01 2068 00:00:00 GMT-0800 (Pacific Standard Time)	2068			82.66496
CanESM2	Tue Jan 01 2069 00:00:00 GMT-0800 (Pacific Standard Time)	2069			83.59694
CanESM2	Wed Jan 01 2070 00:00:00 GMT-0800 (Pacific Standard Time)	2070			82.88289
CanESM2	Thu Jan 01 2071 00:00:00 GMT-0800 (Pacific Standard Time)	2071			83.17364
CanESM2	Fri Jan 01 2072 00:00:00 GMT-0800 (Pacific Standard Time)	2072			85.82475
CanESM2	Sun Jan 01 2073 00:00:00 GMT-0800 (Pacific Standard Time)	2073			82.79203
CanESM2	Mon Jan 01 2074 00:00:00 GMT-0800 (Pacific Standard Time)	2074			86.0182
CanESM2	Tue Jan 01 2075 00:00:00 GMT-0800 (Pacific Standard Time)	2075			84.03681
CanESM2	Wed Jan 01 2076 00:00:00 GMT-0800 (Pacific Standard Time)	2076			84.4686
CanESM2	Fri Jan 01 2077 00:00:00 GMT-0800 (Pacific Standard Time)	2077			84.84473
CanESM2	Sat Jan 01 2078 00:00:00 GMT-0800 (Pacific Standard Time)	2078			83.43061
CanESM2	Sun Jan 01 2079 00:00:00 GMT-0800 (Pacific Standard Time)	2079			84.88868
CanESM2	Mon Jan 01 2080 00:00:00 GMT-0800 (Pacific Standard Time)	2080			83.44685
CanESM2	Wed Jan 01 2081 00:00:00 GMT-0800 (Pacific Standard Time)	2081			83.66876
CanESM2	Thu Jan 01 2082 00:00:00 GMT-0800 (Pacific Standard Time)	2082			85.102
CanESM2	Fri Jan 01 2083 00:00:00 GMT-0800 (Pacific Standard Time)	2083			83.15845
CanESM2	Sat Jan 01 2084 00:00:00 GMT-0800 (Pacific Standard Time)	2084			83.51298
CanESM2	Mon Jan 01 2085 00:00:00 GMT-0800 (Pacific Standard Time)	2085			84.14847
CanESM2	Tue Jan 01 2086 00:00:00 GMT-0800 (Pacific Standard Time)	2086			83.72618
CanESM2	Wed Jan 01 2087 00:00:00 GMT-0800 (Pacific Standard Time)	2087			85.61758
CanESM2	Thu Jan 01 2088 00:00:00 GMT-0800 (Pacific Standard Time)	2088			83.88857
CanESM2	Sat Jan 01 2089 00:00:00 GMT-0800 (Pacific Standard Time)	2089			83.97964
CanESM2	Sun Jan 01 2090 00:00:00 GMT-0800 (Pacific Standard Time)	2090			83.7759
CanESM2	Mon Jan 01 2091 00:00:00 GMT-0800 (Pacific Standard Time)	2091			83.36398
CanESM2	Tue Jan 01 2092 00:00:00 GMT-0800 (Pacific Standard Time)	2092			85.05015
CanESM2	Thu Jan 01 2093 00:00:00 GMT-0800 (Pacific Standard Time)	2093			83.5979
CanESM2	Fri Jan 01 2094 00:00:00 GMT-0800 (Pacific Standard Time)	2094			82.23664
CanESM2	Sat Jan 01 2095 00:00:00 GMT-0800 (Pacific Standard Time)	2095			84.63882
CanESM2	Sun Jan 01 2096 00:00:00 GMT-0800 (Pacific Standard Time)	2096			84.08234
CanESM2	Tue Jan 01 2097 00:00:00 GMT-0800 (Pacific Standard Time)	2097			84.17547
CanESM2	Wed Jan 01 2098 00:00:00 GMT-0800 (Pacific Standard Time)	2098			83.17665
CanESM2	Thu Jan 01 2099 00:00:00 GMT-0800 (Pacific Standard Time)	2099			84.83184
CanESM2	Fri Jan 01 2100 00:00:00 GMT-0800 (Pacific Standard Time)	2100			85.60704

Appendix F

Long Beach Judgment

Superior Court of the State of California
For the County of Los Angeles

BOARD OF WATER COMMISSIONERS OF
THE CITY OF LONG BEACH, et al.,

Plaintiffs

vs.

SAN GABRIEL VALLEY WATER COMPANY,
et al.,

Defendants

No. 722647

**SETTLEMENT
DOCUMENTS**

STIPULATION FOR JUDGMENT

JUDGMENT

MAP OF WHITTIER NARROWS
ENGINEERING APPENDIX
REIMBURSEMENT CONTRACT

*Approved by Joint Negotiating
Committees July 6, 1964.*

EXHIBIT NO. 7

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SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF LOS ANGELES

BOARD OF WATER COMMISSIONERS OF THE CITY
OF LONG BEACH, a municipal corporation;
CENTRAL BASIN MUNICIPAL WATER DISTRICT,
a municipal water district; and CITY OF
COMPTON, a municipal corporation,

Plaintiffs,

vs.

SAN GABRIEL VALLEY WATER COMPANY, a cor-
poration; AZUSA AGRICULTURAL WATER
COMPANY, a corporation; AZUSA VALLEY
WATER COMPANY, a corporation; CALIFORNIA
WATER & TELEPHONE COMPANY, a corporation;
THE COLUMBIA LAND AND WATER COMPANY, a
corporation; COVINA IRRIGATING COMPANY, a
corporation; CROSS WATER COMPANY, a cor-
poration; DUARTE WATER COMPANY, a corpora-
tion; EAST PASADENA WATER CO. LTD., a
corporation; GLENDORA IRRIGATING COMPANY,
a corporation; SAN DIMAS WATER COMPANY, a
corporation; SOUTHERN CALIFORNIA WATER
COMPANY, a corporation; SUBURBAN WATER
SYSTEMS, a corporation; SUNNY SLOPE WATER
CO., a corporation; VALLECITO WATER CO.,
a corporation; CITY OF ALHAMBRA, a munici-
pal corporation; CITY OF ARCADIA, a
municipal corporation; CITY OF AZUSA, a
municipal corporation; CITY OF COVINA, a
municipal corporation; CITY OF EL MONTE,
a municipal corporation; CITY OF GLENDORA,
a municipal corporation; CITY OF MONROVIA,
a municipal corporation; CITY OF MONTEREY
PARK, a municipal corporation; CITY OF
SOUTH PASADENA, a municipal corporation;
BALDWIN PARK COUNTY WATER DISTRICT, a
county water district; and SAN GABRIEL
COUNTY WATER DISTRICT, a county water
district,

Defendants,

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER

NO. 722,647

STIPULATION FOR
JUDGMENT

1 DISTRICT, a municipal water district, and)
2 CALIFORNIA DOMESTIC WATER COMPANY, a)
3 corporation,)
4 Intervenor.)

5 Plaintiffs Central Basin Municipal Water District, a
6 municipal water district (herein sometimes referred to as Central
7 Municipal); City of Long Beach, a municipal corporation, acting
8 by and through the Board of Water Commissioners of the City of
9 Long Beach; and City of Compton, a municipal corporation; and
10 defendants City of Alhambra, a municipal corporation; City of
11 Arcadia, a municipal corporation; City of Azusa, a municipal
12 corporation; Azusa Agricultural Water Company, a corporation, sued
13 herein as DOE 1; Azusa Valley Water Company, a corporation, for
14 itself and as successor by merger to Azusa Irrigating Company, a
15 corporation; Baldwin Park County Water District, a county water
16 district; California Water and Telephone Company, a corporation;
17 Columbia Land and Water Company, a corporation; City of Covina, a
18 municipal corporation; Covina Irrigating Company, a corporation;
19 Cross Water Company, a corporation, sued herein as DOE 2; Duarte
20 Water Company (formerly Duarte Domestic Water Company), a corpora-
21 tion; East Pasadena Water Company, Ltd., a corporation, for itself
22 and as successor by merger to California-Michigan Land and Water
23 Company, a corporation; City of El Monte, a municipal corporation;
24 City of Glendora, a municipal corporation; Glendora Irrigating
25 Company, a corporation; City of Monrovia, a municipal corporation;
26 City of Monterey Park, a municipal corporation; San Dimas Water
27 Company, a corporation, sued herein as DOE 3; San Gabriel County
28 Water District, a county water district; San Gabriel Valley Water
29 Company, a corporation; Southern California Water Company, a cor-
30 poration; City of South Pasadena, a municipal corporation; Subur-
31 ban Water Systems, a corporation; Sunny Slope Water Company, a
32 corporation; and Vallecito Water Company, a corporation; and

1 intervening defendant Upper San Gabriel Valley Municipal Water
2 District, a municipal water district (herein sometimes referred
3 to as Upper District); and intervening defendant California
4 Domestic Water Company, a corporation; stipulate and agree as
5 follows:

6 1. A Judgment in the form attached hereto as Exhibit
7 I may be made and entered by the Court in the above-entitled
8 action.

9 2. The following facts, considerations and objectives,
10 among others, provide the basis for this Stipulation for
11 Judgment:

12 (a) By their complaint plaintiffs seek a
13 determination of the rights of the defendants,
14 other than Upper District, in and to the waters
15 of the San Gabriel River System and further
16 seek to restrain defendants, other than Upper
17 District, from an alleged interference with the
18 rights of plaintiffs and persons represented by
19 Central Municipal in and to said waters.

20 (b) At the present time, and for some time
21 prior to the commencement of this action, the
22 water supply of the San Gabriel River System has
23 been inadequate to supply the diversions and
24 extractions of both plaintiffs and defendants
25 other than Central Municipal and Upper District
26 but including the persons represented by Central
27 Municipal and by Upper District, and as a result
28 said diversions and extractions have exceeded,
29 and still exceed, the natural replenishment of
30 the water supply of the San Gabriel River System.

31 (c) The parties recognize and agree that
32 the natural outflow from the San Gabriel Valley

1 to the Lower Area as defined in the Judgment has
2 varied, and will vary from year to year,
3 depending on the amount of precedent rainfall
4 and other conditions.

5 (d) The parties recognize and agree that
6 there is a need for a declaration of rights and
7 a physical solution for the problems resulting
8 from the inadequate and varying water supplies
9 of the San Gabriel River System.

10 (e) The parties agree that the physical
11 solution contained in said Judgment will bring
12 about a fair division of the water of the San
13 Gabriel River System as between plaintiffs and
14 defendants other than Central Municipal and
15 Upper District but including the persons
16 represented by Central Municipal and by Upper
17 District.

18 (f) The parties recognize that it may be
19 necessary for defendants or some of them to use
20 supplemental water in order to comply with the
21 obligations imposed under said physical solution.

22 (g) Defendant Upper District is now a
23 member unit of The Metropolitan Water District of
24 Southern California, which will be supplied with
25 water from sources in northern California under
26 an existing contract with the State of California.
27 Certain of the defendants not within the area of
28 defendant Upper District are within the area of
29 San Gabriel Valley Municipal Water District, which
30 district also has contracted with the State of
31 California for delivery of water from sources in
32 northern California. It is anticipated that the

1 importation of this water will augment the natural
2 supply of ground water within Upper Area as defined
3 in the Judgment. Defendant Upper District intends
4 to replenish the San Gabriel Valley with
5 supplemental supplies.

6 3. The parties hereto hereby waive any and all Findings
7 of Fact, Conclusions of Law, and any and all notice of the making
8 or entry herein of the attached form of Judgment, and all rights
9 of appeal, if any, from such Judgment.

10 4. Plaintiffs and defendants agree that during the
11 period prior to entry of the attached form of Judgment, they will
12 cooperate in endeavoring to collect such information as the
13 Watermaster would obtain if the attached form of Judgment had
14 been entered and the Watermaster had been appointed by the Court
15 pursuant to paragraph 6 of the Judgment, which information is
16 herein referred to as "said information." To that end, the parties
17 hereto hereby agree that promptly following the complete
18 execution of this stipulation by all parties, Upper District and
19 Central Municipal shall each notify the other in writing as to
20 the identity of the person who it expects will be nominated as
21 the representative of Upper Area Parties or Lower Area Parties,
22 as the case may be, under paragraph 6 of the Judgment. Upon
23 receiving such notice, Upper District and Central Municipal shall
24 each instruct its designated nominee that until the attached form
25 of Judgment is entered and the Watermaster has been appointed
26 pursuant to paragraph 6 of the Judgment he shall in cooperation
27 with the other designated nominee do all things reasonably
28 necessary to obtain such of said information as is available from
29 the parties hereto or any public agency.

30 5. Judgment shall not be rendered pursuant hereto
31 unless and until the execution of this stipulation by Central
32 Basin Municipal Water District and by Upper San Gabriel Valley

1 Municipal Water District shall have been validated by a decree
2 or decrees rendered in a proceeding or proceedings instituted
3 in a court of competent jurisdiction of the State of California,
4 and either such decree or decrees shall have become final or
5 both of said Districts shall have further stipulated that said
6 Judgment shall be rendered.

7 6. This stipulation may be executed in counterparts
8 (each counterpart being an exact copy or duplicate of the
9 original) and all counterparts collectively shall be considered
10 as constituting one complete Stipulation for Judgment.

11 DATED: _____, 1964.

12
13 Attorneys
14 (for the respective party
15 listed opposite and to the
right of the respective
attorneys listed below)

Signature of Stipulating Party
and Its Designation of Mailing
Address

16 Leonard Putnam
17 City Attorney
18 Clifford E. Hayes
19 Principal Deputy City
Attorney
City of Long Beach

Board of Water Commissioners of
the City of Long Beach

By _____
Its _____ President

20 By _____

By _____
Its _____ Secretary

21
22 Burris & Lagerlof
23 Stanley C. Lagerlof
24 H. Jess Senecal
Jack T. Swafford

1800 East Wardlow Road
Long Beach 7, California

25 By _____
26
27
28
29
30
31
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1	Burris & Lagerlof	Central Basin Municipal Water
2	Stanley C. Lagerlof	District
3	H. Jess Senecal	
4	Jack T. Swafford	By _____
5		Its President
6	By _____	By _____
7		Its Secretary
8		7439 East Florence Avenue
9		Downey, California
10		
11	Lloyd A. Bulloch	City of Compton
12	City Attorney	
13	City of Compton	By _____
14	_____	Its Mayor
15	Burris & Lagerlof	205 South Willowbrook Avenue
16	Stanley C. Lagerlof	Compton, California
17	H. Jess Senecal	
18	Jack T. Swafford	
19	By _____	
20		
21	Don D. Bercu	City of Alhambra
22	City Attorney	
23	City of Alhambra	By _____
24	_____	Its Mayor
25	Taylor & Smith	City Hall
26	By _____	111 South First Street
27		Alhambra, California
28		
29		
30		
31		
32		

1	James A. Nicklin	City of Arcadia
2	City Attorney	By _____
	City of Arcadia	
3	_____	Its Mayor
4	Surr & Hellyer	City Hall
5		Arcadia, California
6	By _____	
7	Clayson, Stark, Rothrock	
8	& Mann	
9	By _____	
10		
11	Harry C. Williams	City of Azusa
12	City Attorney	By _____
	City of Azusa	
13	_____	Its Mayor
14	Taylor & Smith	City Hall
15		213 East Foothill Boulevard
16	By _____	Azusa, California
17		
18	Taylor & Smith	Azusa Agricultural Water Company
19	By _____	By _____
20		Its ____ President
21		By _____
22		Its _____ Secretary
23		18352 East Foothill Boulevard
24		Azusa, California
25	Surr & Hellyer	Azusa Valley Water Company
26	By _____	By _____
27		Its ____ President
28	Clayson, Stark, Rothrock	By _____
	& Mann	
29	By _____	Its _____ Secretary
30		P. O. Box "W"
31		Azusa, California
32		

1	Surr & Hellyer	Baldwin Park County Water District
2	By _____	By _____
3		Its _____ President
4	Clayson, Stark, Rothrock & Mann	By _____
5	By _____	Its _____ Secretary
6		14521 East Ramona Boulevard
7		Baldwin Park, California
8		
9	Bacigalupi, Elkus & Salinger	California Water & Telephone Company
10	By _____	By _____
11		Its _____ President
12	Surr & Hellyer	By _____
13	By _____	Its _____ Secretary
14		
15	Clayson, Stark, Rothrock & Mann	300 Montgomery Street
16	By _____	San Francisco, California
17		
18		
19	Allard, Shelton & O'Connor	Columbia Land & Water Company
20	By _____	By _____
21		Its _____ President
22	Surr & Hellyer	By _____
23	By _____	Its _____ Secretary
24		
25	Clayson, Stark, Rothrock & Mann	P. O. Box 296
26	By _____	San Dimas, California
27		
28		
29		
30		
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32		

1	Allard, Shelton & O'Connor	City of Covina
2	By _____	By _____
3	Surr & Hellyer	Its Mayor
4	By _____	City Hall
5		Covina, California
6	Clayson, Stark, Rothrock	
7	& Mann	
8	By _____	
9	Kerckhoff & Kerckhoff	Covina Irrigating Company
10	By _____	By _____
11	Surr & Hellyer	Its ____ President
12	By _____	By _____
13	Clayson, Stark, Rothrock	Its _____ Secretary
14	& Mann	146 East College Street
15	By _____	Covina, California
16	George C. Gillette	Cross Water Company
17	_____	By _____
18		Its ____ President
19		By _____
20		Its _____ Secretary
21		15825 East Main Street
22		La Puente, California
23	Henry W. Shatford	Duarte Water Company
24	Shatford & Shatford	By _____
25	By _____	Its ____ President
26	Surr & Hellyer	By _____
27	By _____	Its _____ Secretary
28		1101 South Oak Avenue
29	Clayson, Stark, Rothrock	Duarte, California
30	& Mann	
31	By _____	
32		

1	Gray & Maddox	East Pasadena Water Company, Ltd.
2	By _____	By _____
3		Its _____ President
4	Surr & Hellyer	By _____
5	By _____	Its _____ Secretary
6	Clayson, Stark, Rothrock	269 South Rosemead
7	& Mann	Pasadena, California
8	By _____	
9		
10	James A. Nicklin	City of El Monte
11	City Attorney	By _____
12	City of El Monte	Its Mayor
13	_____	City Hall
14	Surr & Hellyer	El Monte, California
15	By _____	
16	Clayson, Stark, Rothrock	
17	& Mann	
18	By _____	
19		
20		
21	Leonard A. Shelton	City of Glendora
22	City Attorney	By _____
23	City of Glendora	Its Mayor
24	_____	City Hall
25	Surr & Hellyer	Glendora, California
26	By _____	
27	Clayson, Stark, Rothrock	
28	& Mann	
29	By _____	
30		
31		
32		

1	Allard, Shelton & O'Connor	Glendora Irrigating Company
2	By _____	By _____
3		Its _____ President
4	Surr & Hellyer	By _____
5	By _____	Its _____ Secretary
6	Clayson, Stark, Rothrock	224 North Michigan Avenue
7	& Mann	Glendora, California
8	By _____	
9		
10		
11	Homer H. Bell	City of Monrovia
12	City Attorney	By _____
13	City of Monrovia	Its Mayor
14	_____	
15	Surr & Hellyer	City Hall
16	By _____	Monrovia, California
17	Clayson, Stark, Rothrock	
18	& Mann	
19	By _____	
20		
21		
22	Charles R. Martin	City of Monterey Park
23	City Attorney	By _____
24	City of Monterey Park	Its Mayor
25	_____	
26	Taylor & Smith	City Hall
27	By _____	320 West Newmark Avenue
28		Monterey Park, California
29		
30		
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1	Allard, Shelton & O'Connor	San Dimas Water Company
2	By _____	By _____
3		Its ____ President
4	Surr & Hellyer	By _____
5	By _____	Its _____ Secretary
6	Clayson, Stark, Rothrock	P. O. Box 181
7	& Mann	San Dimas, California
8	By _____	
9		
10	Surr & Hellyer	San Gabriel County Water District
11	By _____	By _____
12		Its ____ President
13	Clayson, Stark, Rothrock	By _____
14	& Mann	Its _____ Secretary
15	By _____	8229 East Las Tunas Drive
16		San Gabriel, California
17		
18	J. E. Skelton	San Gabriel Valley Water Company
19	_____	By _____
20		Its ____ President
21	Surr & Hellyer	By _____
22	By _____	Its _____ Secretary
23	Clayson, Stark, Rothrock	11142 Garvey Avenue
24	& Mann	El Monte, California
25	By _____	
26		
27		
28		
29		
30		
31		
32		

1	O'Melveny & Myers	Southern California Water Company
2	By _____	By _____
3		Its ____ President
4	Surr & Hellyer	
5	By _____	By _____
6		Its _____ Secretary
7	Clayson, Stark, Rothrock & Mann	11911 South Vermont Avenue Los Angeles 44, California
8	By _____	
9		
10	Charles R. Martin City Attorney City of South Pasadena	City of South Pasadena
11		By _____
12		Its Mayor
13	Surr & Hellyer	825 Mission Street South Pasadena, California
14	By _____	
15		
16	Clayson, Stark, Rothrock & Mann	
17	By _____	
18		
19	Frank E. Gray	Suburban Water Systems
20		By _____
21	Surr & Hellyer	Its ____ President
22	By _____	By _____
23		Its _____ Secretary
24	Clayson, Stark, Rothrock & Mann	16340 East Maplegrove Street La Puente, California
25	By _____	
26		
27	Hahn & Hahn	Sunny Slope Water Company
28	By _____	By _____
29		Its ____ President
30		By _____
31		Its _____ Secretary
32		1040 El Campo Drive Pasadena, California

1	Surr & Hellyer	Vallecito Water Company
2	By _____	By _____
3		Its ____ President
4	Clayson, Stark, Rothrock & Mann	By _____
5	By _____	Its _____ Secretary
6		749 South Ninth Avenue
7		City of Industry, California
8		
9	Stearns, Gross and Moore	California Domestic Water Company
10	By _____	By _____
11		Its ____ President
12		By _____
13		Its _____ Secretary
14		P. O. Box 1026, Perry Annex
15		Whittier, California
16		
17	Ralph B. Helm	Upper San Gabriel Valley
18	_____	Municipal Water District
19		By _____
20		Its ____ President
21		By _____
22		Its _____ Secretary
23		11229 East Valley Boulevard
24		El Monte, California
25		
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SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF LOS ANGELES

BOARD OF WATER COMMISSIONERS OF THE CITY
OF LONG BEACH, a municipal corporation;
CENTRAL BASIN MUNICIPAL WATER DISTRICT,
a municipal water district; and CITY OF
COMPTON, a municipal corporation,

Plaintiffs,

vs.

NO. 722,647

SAN GABRIEL VALLEY WATER COMPANY, a cor-
poration; AZUSA AGRICULTURAL WATER
COMPANY, a corporation; AZUSA VALLEY
WATER COMPANY, a corporation; CALIFORNIA
WATER & TELEPHONE COMPANY, a corporation;
THE COLUMBIA LAND AND WATER COMPANY, a
corporation; COVINA IRRIGATING COMPANY, a
corporation; CROSS WATER COMPANY, a cor-
poration; DUARTE WATER COMPANY, a corpora-
tion; EAST PASADENA WATER CO. LTD., a
corporation; GLENDORA IRRIGATING COMPANY,
a corporation; SAN DIMAS WATER COMPANY, a
corporation; SOUTHERN CALIFORNIA WATER
COMPANY, a corporation; SUBURBAN WATER
SYSTEMS, a corporation; SUNNY SLOPE WATER
CO., a corporation; VALLECITO WATER CO.,
a corporation; CITY OF ALHAMBRA, a municipi-
pal corporation; CITY OF ARCADIA, a
municipal corporation; CITY OF AZUSA, a
municipal corporation; CITY OF COVINA, a
municipal corporation; CITY OF EL MONTE,
a municipal corporation; CITY OF GLENDORA,
a municipal corporation; CITY OF MONROVIA,
a municipal corporation; CITY OF MONTEREY
PARK, a municipal corporation; CITY OF
SOUTH PASADENA, a municipal corporation;
BALDWIN PARK COUNTY WATER DISTRICT, a
county water district; and SAN GABRIEL
COUNTY WATER DISTRICT, a county water
district,

Defendants,

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER

JUDGMENT

1 DISTRICT, a municipal water district, and)
2 CALIFORNIA DOMESTIC WATER COMPANY, a)
3 corporation,)
4 Intervenor.)

5 The original complaint herein was filed by Plaintiffs on
6 May 12, 1959, and an amended complaint was filed herein on June
7 8, 1961. Each Defendant in this action filed an answer to the
8 amended complaint denying the material allegations therein. On
9 _____, 1964, and _____, 1964,
10 respectively, Upper San Gabriel Valley Municipal Water District,
11 a municipal water district, and California Domestic Water
12 Company, a corporation, intervened in the action as Defendants.
13 On _____, 1964, there was filed herein a
14 Stipulation for Judgment signed by all of the parties to this
15 action.

16 After due examination and consideration of the
17 pleadings, said Stipulation for Judgment and other documents and
18 papers on file herein, it appears to the Court that:

19 (a) In bringing and maintaining this action, plaintiff
20 Central Basin Municipal Water District, a municipal water
21 district, has done so as a representative of and for the benefit
22 of all owners of water rights within, all owners of land within,
23 and all inhabitants of, the district, except to the extent that
24 defendant California Domestic Water Company is representing
25 itself.

26 (b) In intervening in this action, defendant Upper
27 San Gabriel Valley Municipal Water District, a municipal water
28 district, has done so as representative of and for the benefit
29 of all owners of water rights within, all owners of land within,
30 and all inhabitants of, the district, except to the extent that
31 other Defendants who are within the district are representing
32 themselves.

1 (c) There is a need for a physical solution to the
2 complex water problems which have given rise to this action.

3 (d) The physical solution embodied in this Judgment
4 is a feasible, equitable and just resolution of the issues
5 presented by the amended complaint and answers thereto on file
6 herein, and it will bring about a fair division of the water
7 supply of the San Gabriel River System between Upper Area and
8 Lower Area, as those terms are hereinafter defined.

9 (e) On the basis of the Stipulation for Judgment filed
10 herein and the consent of all Plaintiffs and Defendants it is in
11 the interests of justice and in furtherance of the water policy
12 of the State of California to proceed without trial and to
13 make and enter this Judgment.

14 Now, therefore, it is hereby ORDERED, ADJUDGED AND
15 DECREED:

16 JURISDICTION

17 1. The Court has jurisdiction of the subject
18 matter of this action and of the Upper Area
19 Parties and Lower Area Parties, as those terms are
hereinafter defined.

20 EXHIBITS

21 2. The following Exhibits marked A and B, are
22 attached to this Judgment and made a part hereof:

23 (a) Exhibit A -- Map entitled "Rio Hondo and
24 San Gabriel River in Vicinity of Whittier
Narrows Dam".

25 (b) Exhibit B -- Engineering Appendix.

26 DEFINITIONS

27 3. As used in this Judgment, the following terms
shall have the meanings assigned to them:

28 (a) Central Municipal -- Central Basin
29 Municipal Water District.

30 (b) Upper District -- Upper San Gabriel
31 Valley Municipal Water District.

32 (c) Lower Area Parties -- the Plaintiffs, and

1 all persons, firms and corporations, public
2 or private, who are represented by Central
3 Municipal.

4 (d) Upper Area Parties -- the Defendants,
5 and all persons, firms and corporations,
6 public or private, who are represented by
7 Upper District.

8 (e) Upper Area -- the area (exclusive of the
9 Raymond Basin and the portion of San Gabriel
10 Mountains tributary thereto) wherein surface
11 and subsurface waters are tributary to
12 Whittier Narrows upstream from the common
13 boundary of Upper District and Central
14 Municipal through Whittier Narrows.

15 (f) Lower Area -- the area which lies down-
16 stream from the common boundary of Central
17 Municipal and Upper District through
18 Whittier Narrows and which is included
19 within the incorporated limits of the
20 Plaintiffs.

21 (g) Whittier Narrows -- a gap between Merced
22 Hills and Puente Hills shown on Exhibit A.

23 (h) Montebello Forebay -- the area designated
24 as such on Exhibit A.

25 (i) Export to Lower Area -- water diverted
26 from surface streams in Upper Area or pumped
27 or developed from underground sources in
28 Upper Area, and in either case conveyed by
29 conduit through Whittier Narrows.

30 (j) Subsurface Flow -- all water which passes
31 as ground water through Whittier Narrows at
32 the "narrowest section" as shown on Exhibit A.

1 (k) Surface Flow -- all water other than
2 Export to Lower Area and Subsurface Flow,
3 which passes from Upper Area to Lower Area
4 through Whittier Narrows.

5 (l) Usable Water -- all Surface Flow, Subsur-
6 face Flow and Export to Lower Area, but
7 excluding:

8 (1) that portion of Surface Flow, if any,
9 which crosses the southerly boundary of
10 Montebello Forebay as surface runoff less
11 the amount of Surface Flow which has been
12 caused to flow out of Montebello Forebay
13 as surface runoff by any spreading of
14 water in Montebello Forebay by or on behalf
15 of Lower Area Parties, or any of them;

16 (2) water imported by or on behalf of Lower
17 Area Parties from outside of the watershed
18 of the San Gabriel River System;

19 (3) Reclaimed Water, as defined in subpara-
20 graph (o) herein, provided, however, that
21 Reclaimed Water (other than that reclaimed
22 by or on behalf of Lower Area Parties)
23 which is percolated and commingled with
24 ground water in Upper Area shall be deemed
25 Subsurface Flow, Surface Flow, or Export to
26 Lower Area as the case may be, when and if
27 it passes through Whittier Narrows;

28 (4) that portion, if any, of Export to
29 Lower Area which in any Water Year after
30 September 30, 1966, exceeds 23,395 acre-
31 feet;

32 (5) Make-up Water, as defined in subpara-

graph (m) herein; and

(6) any water whether flowing on the surface or beneath the surface of the ground which has passed any of the points of surface measurement in Whittier Narrows shown on Exhibit B and prior to its passing from Upper Area to Lower Area is intercepted and returned upstream by conduit or otherwise so that it could again pass any such points of measurement.

(m) Make-up Water -- water of usable quality for ground water recharge required to be delivered to Lower Area under terms of paragraph 5 of this Judgment.

(n) Water Year -- October 1 through the following September 30.

(o) Reclaimed Water -- water reclaimed from sewage generated in the watershed of the San Gabriel River System above Whittier Narrows.

DECLARATION
OF RIGHT

4. Lower Area Parties have rights in the water supply of the San Gabriel River System. The nature and extent of such rights is not known; however, Lower Area Parties and all other persons downstream from Whittier Narrows who receive water from the San Gabriel River System or have rights in and to such water, shall have, as against Upper Area Parties and all other pumpers of water in the San Gabriel Valley, a right to receive from Upper Area an average annual usable supply of ninety-eight thousand four hundred fifteen (98,415) acre-feet of water over a long-term period of normal rainfall derived as set forth in Exhibit B, consisting

1 of Surface Flow, Subsurface Flow, Export to Lower
2 Area and Make-up Water. If in the future a court
3 of competent jurisdiction shall decree that any
4 person downstream from Whittier Narrows within
5 Central and West Basin Water Replenishment District
6 who is not bound by this Judgment, shall have, as
7 against Upper Area Parties and substantially all
8 other pumpers in the San Gabriel Valley, a right
9 to receive from Upper Area a stated amount of
10 usable supply consisting of Surface Flow, Sub-
11 surface Flow, Export to Lower Area or Make-up
12 Water, which right arose out of and is based upon
13 the ownership of land or the production of water
14 downstream from Whittier Narrows and within Central
15 and West Basin Water Replenishment District, then
16 and in that event the stated amount of such right
17 so decreed shall not increase the declared rights
18 as set forth in this paragraph 4.

19 PHYSICAL
20 SOLUTION

21 5. In recognition of the complexities of annual
22 supply and demand and variations in the components
23 thereof, the Court hereby declares the following
24 physical solution to be a fair and equitable basis
25 for satisfaction of the declared right set forth
26 in paragraph 4 hereof. Compliance with this
27 paragraph 5 shall constitute full and complete
28 satisfaction of said declared right.

29 AVERAGE
30 ANNUAL
31 ENTITLEMENT

(a) It is determined that the amount of Lower
Area average annual entitlement to Usable Water
is ninety-eight thousand four hundred fifteen
(98,415) acre-feet.

32 BASIS OF
ANNUAL
ENTITLEMENT

(b) The outflow of water from Upper Area
through Whittier Narrows to Lower Area has

1 varied from year to year and will vary from
2 year to year in the future depending on
3 changing conditions of supply and demand; and
4 as to any Water Year, the average annual
5 rainfall for the San Gabriel Valley during
6 the ten (10) consecutive Water Years ending
7 with that Water Year, is a reasonable basis
8 for determining the entitlement of Lower Area
9 to Usable Water for such Water Year.

10 DETERMINATION
11 OF RAINFALL

(c) The rainfall in each Water Year for the
San Gabriel Valley shall be determined by
application of the procedures described in
Exhibit B.

14 RAINFALL
15 ADJUSTMENT
16 TABLE

(d) The quantity of water which Lower Area
is entitled to receive in any Water Year
(hereinafter called Lower Area Annual Entitle-
ment) shall be determined in accordance with
the following table, except that no determina-
tion of Lower Area Annual Entitlement shall
be made for the last year of any Long-term
Accounting Period as hereinafter defined.

TABLE A
LOWER AREA ANNUAL ENTITLEMENT
BASED ON 10-YEAR AVERAGE RAINFALL
FOR SAN GABRIEL VALLEY

(In Acre-feet)

Inches of Rain- fall	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
14	64,200	64,900	65,700	66,500	67,200	68,000	68,700	69,500	70,300	71,100
15	71,800	72,600	73,400	74,100	74,900	75,600	76,400	77,200	77,900	78,700
16	79,500	80,200	81,000	81,800	82,600	83,300	84,000	84,800	85,600	86,400
17	87,100	87,900	88,700	89,400	90,200	91,000	91,500	92,500	93,200	94,000
18	94,800	95,300	96,200	96,900	97,600	98,300	98,800	99,500	100,100	100,800
19	101,400	102,000	102,700	103,300	103,900	104,500	105,100	105,700	106,300	107,000
20	107,600	108,200	108,800	109,400	110,100	110,700	111,300	111,900	112,500	113,100
21	113,700	114,300	115,000	115,600	116,200	116,800	117,400	118,100	118,600	119,300
22	119,900	120,400	121,000	121,600	122,200	122,700	123,300	123,900	124,400	125,000
23	125,500	126,100	126,700	127,200	127,800	128,400	128,900	129,500	130,100	130,600
24	131,200	131,700	132,200	132,700	133,100	133,700	134,100	134,700	135,100	135,600

DETERMINATION
OF ACCRUED
DEBIT OR
CREDIT

(e) The difference between the aggregate of water entitlements determined as provided in this Judgment and the aggregate of Usable Water and delivered Make-up Water shall be computed as of the end of each Water Year. Any excess of water entitlements over the quantity of Usable Water and Make-up Water received by Lower Area after September 30, 1963, is hereinafter referred to as Accrued Debit of Upper Area. Any excess of Usable Water and Make-up Water received by Lower Area after September 30, 1963, over water entitlements, is hereinafter referred to as Accrued Credit of Upper Area.

1 ACCRUED
2 DEBIT

(f) If at the end of any Water Year it is determined pursuant to subparagraph (e) of this paragraph 5 that there is an Accrued Debit of Upper Area, then Upper District shall cause Make-up Water to be delivered to Lower Area during the following Water Year in an amount not less than the sum of (1) one-third of such Accrued Debit of Upper Area, and (2) that portion, if any, of such Accrued Debit of Upper Area over 25,000 acre-feet which remains after deducting said one-third. If Upper District shall fail to deliver Make-up Water as next above provided and Plaintiffs shall have diligently pursued their legal and equitable remedies to cause Upper District to so deliver, and either: (1) it shall be finally determined that Upper District is not obligated to so deliver, or (2) it shall appear that Upper District will not thereafter deliver Make-up Water, then Defendants and any successor or successors in interest by title to a Defendant's water right in Upper Area shall be obligated to so deliver Make-up Water. The provisions of this paragraph are subject to the provisions of paragraph 5(h) below.

26 ACCRUED
27 CREDIT

(g) If at the end of any Water Year it is determined pursuant to subparagraph (e) of this paragraph 5 that there is an Accrued Credit of Upper Area, then there shall be no obligation to deliver Make-up Water to Lower Area during the following Water Year.

1 LONG-TERM
2 ACCOUNTING

3 (h) Following September 30, 1963, a Long-term
4 Accounting shall be made from time to time but
5 not sooner than at the end of 15 Water Years,
6 nor later than 25 Water Years after September
7 30, 1963, or after the last such accounting,
8 whichever is later. A Long-term Accounting
9 shall be made sooner than said 25-year period
10 whenever the average annual rainfall in the
11 San Gabriel Valley for a period of 15 Water
12 Years or more after September 30, 1963, or
13 after the last such accounting, whichever is
14 later, is at least 18 inches but not more than
15 19 inches.

16 In making such Long-term Accounting for any
17 such period (herein called Long-term
18 Accounting Period), the aggregate of all
19 Usable Water and Make-up Water received by
20 Lower Area during such period shall be deter-
21 mined and (a) there shall be deducted from said
22 aggregate the amount of Make-up Water, if any,
23 delivered during such period by reason of the
24 existence of an Accrued Debit of Upper Area
25 at the end of the immediately preceding Long-
26 term Accounting Period, or (b) there shall be
27 added to said aggregate the amount of any
28 Accrued Credit of Upper Area determined to
29 exist at the end of the immediately preceding
30 Long-term Accounting Period. The net
31 aggregate amount of Usable Water and Make-up
32 Water so computed shall be compared to the
result to be obtained by (1) multiplying the
98,415 acre-feet of water to be received by

1 Lower Area as its average annual usable supply
2 by the number of Water Years in the Long-term
3 Accounting Period, and (2) adjusting the
4 product by the percentage by which the average
5 annual rainfall (to the nearest one hundredth
6 of an inch) for the Long-term Accounting
7 Period involved exceeds or is less than 18.52
8 inches. (i.e.:

9 98,415 x (number of Water Years in
10 Period) x $\frac{\text{(average rainfall for the Period)}}{18.52}$.)

11 If as a result of such comparison it is deter-
12 mined that there is a deficiency in the net
13 aggregate amount of Usable Water and Make-up
14 Water received during the Long-term Accounting
15 Period, then such deficiency shall be compen-
16 sated in the following Water Year by delivery
17 of Make-up Water to Lower Area in the manner
18 and by the means provided herein. If it is
19 determined as a result of such comparison that
20 there is an excess of net aggregate Usable
21 Water and Make-up Water received, then the
22 amount of such excess shall be carried forward
23 as an Accrued Credit of Upper Area.

24 MAKE-UP
25 WATER
26 DELIVERY

(i) Make-up Water which Defendants are
obligated to deliver through Upper District
may be delivered by any one or more of the
following means:

28 SURFACE FLOW DELIVERY

29 (1) By causing water other than Reclaimed
30 Water to flow on the surface into Monte-
31 bello Forebay by any means and from any
32 source, provided that such deliveries shall

1 be at such rates or flows and at such times
2 as may be scheduled by the Watermaster.

3 RECLAIMED WATER CREDIT

4 (2) By paying to Central Municipal for
5 the benefit of all Lower Area Parties the
6 total amount or any portion of the total
7 amount which Central and West Basin Water
8 Replenishment District or any Plaintiff
9 shall have expended in reclaiming water or
10 for the purchase of Reclaimed Water in the
11 preceding Water Year, and which water when
12 so reclaimed or purchased shall have been
13 passed through Whittier Narrows to Lower
14 Area. Upon written request made by Upper
15 District not later than three months after
16 the end of a Water Year, Central Municipal
17 shall give a written notice to Upper District
18 and the Watermaster of the total number of
19 acre-feet of such Reclaimed Water so
20 reclaimed or purchased during the preceding
21 Water Year and of the cost per acre-foot
22 therefor at the existing Whittier Narrows
23 Water Reclamation Plant for reclamation of
24 waste water, and at any future additions
25 thereto, and payment therefor at said cost,
26 or costs, may be made not later than one
27 year after receipt of such written notice.
28 Such payment shall be made for the total
29 production of Reclaimed Water from the
30 existing plant in the preceding Water Year
31 before Upper District shall be entitled to
32 make payment for all, or any portion of,

1 Reclaimed Water produced in that year by
2 any future addition to that plant. Such
3 payment by Upper District on behalf of
4 Defendants shall be deemed a delivery of
5 Make-up Water equal to the quantity of
6 Reclaimed Water for which the expenditure
7 of a like sum would have paid at the cost,
8 or costs, per acre-foot so paid for such
9 Reclaimed Water. In no event, however,
10 shall any payment by Upper District under
11 this subparagraph (i)(2) be deemed a
12 delivery of Make-up Water in excess of
13 14,735 acre-feet in any Water Year during
14 which the amount of Make-up Water required
15 to be furnished by Upper Area is available
16 to it at ground water replenishment rates
17 for delivery to Lower Area, except with
18 the prior written consent of Plaintiffs.

19 DIRECT DELIVERY

20 (3) By delivering, or causing to be deli-
21 vered, water to any of Lower Area Parties
22 with consent of Plaintiffs for use in
23 Lower Area.

24 WATER
25 RIGHTS
26 BOUND

27 (j) It is further determined and adjudicated
28 that the obligations provided above in sub-
29 paragraphs (f) and (h) of this paragraph 5
30 for each Defendant shall constitute and be a
31 servitude upon the existing water rights of
32 each Defendant in and to the water supply of
the San Gabriel River System upstream from
Lower Area and shall run with and forever bind
said water rights for the benefit of the water

1
2 TRANSFER OF
3 WATER RIGHTS
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rights of Lower Area Parties.

(k) If any Defendant, other than Upper District, shall desire to transfer all or any of its said water rights to a person, firm or corporation, public or private, who or which is not then bound by this Judgment as a Defendant, such Defendant shall as a condition to being discharged as hereinafter provided cause such transferee to appear in this action and file a valid and effective express assumption of the obligations imposed upon such Defendant under this Judgment as to such transferred water rights. Such appearance and assumption of obligations shall include the filing of a designation of the address to which shall be mailed all notices, requests, objections, reports and other papers permitted or required by the terms of this Judgment.

If any Defendant shall have transferred all of its said water rights and each transferee not theretofore bound by this Judgment as a Defendant shall have appeared in this action and filed a valid and effective express assumption of the obligations imposed upon such Defendant under this Judgment as to such transferred water rights, such transferring Defendant shall thereupon be discharged from all obligations hereunder. If any Defendant other than Upper District shall cease to own any rights in and to the water supply of the San Gabriel River System upstream from Lower Area, and shall have caused the appearance

1 and assumption provided for in the third
2 preceding sentence with respect to each
3 voluntary transfer, then upon application to
4 this Court and after notice and hearing such
5 Defendant shall thereupon be relieved and
6 discharged from all further obligations here-
7 under. Any such discharge of any Defendant
8 hereunder shall not impair the aggregate rights
9 of Lower Area Parties or the responsibility
10 hereunder of the remaining Defendants or any
11 of the successors.

12 WATERMASTER PROVISIONS

13 WATERMASTER
14 APPOINTMENT

15 6. A Watermaster comprised of three persons to be
16 nominated as hereinafter provided shall be appointed
17 by and serve at the pleasure of and until further
18 order of this Court. One shall be a representative
19 of Upper Area Parties nominated by and through
20 Upper District, one shall be a representative of
21 Lower Area Parties nominated by and through
22 Central Municipal, and one shall be jointly
23 nominated by Upper District and Central Municipal.
24 If a dispute arises in choosing the joint appointee,
25 the Court shall make the appointment. If Central
26 Municipal or Upper District shall at any time or
27 times nominate a substitute appointee in place
28 of the appointee last appointed to represent
29 Lower Area Parties, in the case of Central
30 Municipal, or to represent Upper Area Parties,
31 in the case of Upper District, or if Central
32 Municipal and Upper District shall at any time
or times jointly nominate a substitute appointee
in place of the joint appointee last appointed,

1 such substitute appointee shall be appointed by
2 the Court in lieu of such last appointee or joint
3 appointee. Each such nomination shall be made in
4 writing, served upon the other parties to this
5 action and filed with the Court. The Watermaster
6 when so appointed shall administer and enforce
7 the provisions of this Judgment and the instructions
8 and subsequent orders of this Court.

9 POWERS
10 AND
11 DUTIES

7. The Watermaster shall have the following powers
and duties and shall take all steps necessary to
make the following determinations for each Water
Year promptly after the end of such Water Year:

- 13 (a) the amount of Surface Flow,
- 14 (b) the amount of Subsurface Flow,
- 15 (c) the amount of Export to Lower Area,
- 16 (d) the amount of water which passed as Surface
17 Flow or Subsurface Flow across the boundary
18 between Upper Area and Lower Area through
19 Whittier Narrows and which was imported by or
20 on behalf of Lower Area Parties from outside of
21 the watershed of the San Gabriel River System
22 above Whittier Narrows,
- 23 (e) the amount and quality of Reclaimed Water
24 reclaimed by or on behalf of Lower Area,
- 25 (f) the total amount of Make-up Water delivered
26 to Lower Area, together with the respective
27 amounts delivered by each method specified in
28 paragraph 5 of this Judgment,
- 29 (g) the amount of Usable Water received by
30 Lower Area,
- 31 (h) the amount of local storm inflow,
32 originating in Lower Area, to the channel of

each of Rio Hondo and San Gabriel River within Montebello Forebay,

(i) the surface outflow from Montebello Forebay in the channel of each of the Rio Hondo and San Gabriel River,

(j) the number of inches of depth of average rainfall in the San Gabriel Valley,

(k) the average annual rainfall in the San Gabriel Valley for the ten consecutive Water Years just ended,

(l) Lower Area Annual Entitlement or the entitlement for the Long-term Accounting Period, determined pursuant to subparagraph (d) or (h), respectively, of paragraph 5 of this Judgment,

(m) Accrued Debit of Upper Area, if any, or Accrued Credit of Upper Area, if any, as it exists at the end of such Water Year, and

(n) the amount, if any, of Make-up Water which Upper District is obligated to deliver during the following Water Year.

DETERMINATIONS
TO BE BASED ON
EXHIBIT B

8. Each of the above required determinations shall be based on and conform to the procedures specified in this Judgment and in Exhibit B insofar as said exhibit provides a procedure.

REPORTS
MEASUREMENTS
AND DATA

9. The Watermaster shall report to the Court and to each party in writing at the same time and not more than five months after the end of each Water Year the determinations required by paragraph 7 above.

The Watermaster shall cause to be installed and maintained in good working order such measuring

1 devices in Whittier Narrows and elsewhere as are
2 necessary or required and not otherwise available
3 for the making of the determinations required by
4 paragraph 7 above.

5 The Watermaster shall collect and assemble
6 from each of the parties, and the parties shall
7 make available to the Watermaster, such records,
8 reports and other data as may reasonably be
9 required in the making of the determinations
10 required of the Watermaster under paragraph 7 above.
11 All records, reports and data received, maintained
12 or compiled by the Watermaster shall be open to
13 inspection by any party or its representative.

14 OBJECTIONS

15 10. Any party who objects to any determination
16 made by the Watermaster pursuant to paragraph 7
17 above, may make such objection in writing to the
18 Watermaster within thirty (30) days after the
19 Watermaster gives the required written notice of
20 such determination. Within thirty (30) days after
21 expiration of the time within which objection may
22 be made to such determination, the Watermaster
23 shall consider all objections thereto and shall
24 amend, modify or affirm the determination and
25 give notice thereof at the same time to all parties
26 and shall file a copy of such final determination
27 with the Court. If the Watermaster denies any
28 objection in whole or in part, the party whose
29 objection was so denied may within thirty (30)
30 days after service of the final determination
31 upon it, make written objection to such denial
32 by filing its objections with the Court after first
mailing a copy of such objections to the

1 Watermaster and to each party, and such party shall
2 bring its objections on for hearing before the
3 Court upon notice and motion and at such time as
4 the Court may direct. If the Watermaster shall
5 change or modify any determination, then any party
6 may within fifteen (15) days after service of such
7 final determination upon it object to such change
8 or modification by following the procedure
9 prescribed above in the case of a denial of an
10 objection to the first determination. If objection
11 to a final determination is filed with the Court
12 as herein provided and brought on for hearing,
13 then such final determination may be confirmed or
14 modified in whole or in part as the Court may deem
15 proper.

16 CHANGE IN
17 METHOD OF
18 MEASUREMENT

11. If the Watermaster shall deem it advisable to
make a change in the method of making any measure-
ment required under the terms of this Judgment,
the Watermaster shall notify all parties of such
proposed change, and if within sixty (60) days of
such notification no party shall file written
objections to such change with the Watermaster,
the Watermaster may put such proposed change into
effect. If, however, any party files its written
objection to the proposed change, it shall by
notice of motion filed not later than fifteen
(15) days after the expiration of said 60-day
period and served on the Watermaster and all parties
bring its objection on for hearing before the Court
at such time as the Court may direct, and the
Court shall rule on whether the Watermaster may
make such proposed change.

BUDGET

12. In addition to the above-specified administrative powers and duties, the Watermaster shall prepare a tentative budget for each Water Year, stating the estimated expense for discharging the duties of the Watermaster set forth in this Judgment. The Watermaster shall mail a copy of the tentative budget to each of the parties at the same time at least sixty (60) days before the beginning of each Water Year. However, with respect to the first Water Year following the entry of this Judgment, the tentative budget shall be mailed not later than one hundred and twenty (120) days from the entry of this Judgment. If any party has an objection to a tentative budget, or any suggestions with respect thereto, that party shall present the same in writing to the Watermaster within fifteen (15) days after service of the tentative budget upon it. If no objections are received, the tentative budget shall become the final budget. If objections to the tentative budget are received, the Watermaster shall, within fifteen (15) days after the expiration of the time for presenting objections, consider all such objections, prepare a final budget, and mail a copy thereof to each party, together with a statement of the amount assessed, if any, to each party, computed as provided in paragraph 13. If the Watermaster denies any objection in whole or in part, the party whose objection was so denied may, within fifteen (15) days after service of the final budget upon it, make written objection to such denial by filing

1 its objections with the Court after first
2 mailing a copy of such objections to each
3 party, and such party shall bring its objections
4 on for hearing before the Court upon notice and
5 motion and at such time as the Court may direct.
6 If the Watermaster makes a change in the tentative
7 budget, then any party may within fifteen (15)
8 days after service of the final budget upon it
9 object to any such change by following the
10 procedure prescribed above in the case of a denial
11 of an objection to the tentative budget. If
12 objection to the final budget is filed with the
13 Court as herein provided and brought on for
14 hearing, then such final budget may be confirmed
15 or adjusted in whole or part as the Court may deem
16 proper.

17 FEES AND
18 EXPENSES

13. The fees, compensation and expenses of the
Watermaster hereunder shall be borne by the parties
in the following proportions: 50% by Upper
District, 41.2% by Central Municipal, 7.125% by
the City of Long Beach, and 1.675% by the City of
Compton, or such other division among the Plaintiffs
as they may agree upon in writing and file with
the Watermaster.

Payment of the amount assessed to a party,
whether or not subject to adjustment by the Court
as provided in paragraph 12, shall be paid on or
prior to the beginning of the Water Year to which
the final budget and statement of assessed costs
is applicable. If such payment by any party is
not made on or before said date, the Watermaster
shall add a penalty of 5% thereof to such party's

1 statement. Payment required of any party here-
2 under may be enforced by execution issued out of
3 this Court, or as may be provided by order here-
4 inafter made by this Court. All such payments
5 and penalties received by the Watermaster shall
6 be expended by him for the administration of this
7 Judgment. Any money remaining at the end of any
8 Water Year shall be available for use in the
9 following Water Year.

10 SUCCESSOR
11 OF UPPER
12 DISTRICT

13 14. If a public agency or district shall be
14 formed hereafter which shall include the present
15 area of Upper District and shall have ability
16 equal to or greater than that which Upper District
17 now has to perform the obligations under this
18 Judgment, and shall appear in this action and
19 file a valid and effective assumption of such
20 obligations, then Upper District upon application
21 to this Court, and after notice and hearing, shall
22 thereupon be relieved and discharged from all
23 further obligations hereunder.

24 CONTINUING
25 JURISDICTION
26 OF THE COURT

27 15. Full jurisdiction, power and authority is
28 retained and reserved by the Court for the purpose
29 of enabling the Court upon application of any
30 party by motion and upon at least thirty (30)
31 days notice thereof, and after hearing thereon
32 (i) to make such further or supplemental orders
or directions as may be necessary or appropriate
for the construction, enforcement or carrying out
of this Judgment, and (ii) to modify, amend or
amplify any of the provisions of this Judgment
whenever substantial developments affecting the
physical, hydrological or other conditions dealt

1 with herein may, in the Court's opinion, justify
2 or require such modification, amendment or
3 amplification.

4 If at any time Plaintiffs and at least two-
5 thirds of the Defendants including any two of the
6 cities of Alhambra, Azusa and Monterey Park, shall
7 file with the Court a written stipulation (i) that
8 henceforth in determining any one or more of the
9 component parts of Usable Water received by Lower
10 Area in any Water Year, the Watermaster shall not
11 use the method specified in this Judgment but
12 shall use instead a new, different or altered
13 method as specified and described in such
14 stipulation, and (ii) that such new, different or
15 altered method or methods shall be applied to
16 redetermine the average annual amount of Usable
17 Surface Flow, Subsurface Flow and Export to Lower
18 Area which Lower Area received each Water Year
19 during the period October 1, 1934 to September
20 30, 1959, referred to as the base period, and
21 that on the basis of such redetermination the
22 Court may modify paragraphs 4 and 5 of this
23 Judgment to establish a new and different water
24 entitlement and yearly adjustment thereto which
25 shall thereafter control, then and in that event,
26 after hearing pursuant to motion and notice to
27 all parties, held at such time as the Court may
28 direct, the Court may deny the motion or it may
29 grant it and (a) approve the future use of the
30 stipulated new, different or altered method or
31 methods, by the Watermaster, and (b) by use of the
32 stipulated new, different or altered method or

1 methods, redetermine the average annual amount of
2 Usable Surface Flow, Subsurface Flow and Export
3 to Lower Area received each Water Year during the
4 base period, and on the basis thereof modify
5 paragraphs 4 and 5 of this Judgment to provide for
6 a new and different water entitlement and yearly
7 adjustment thereto, which modifications shall be
8 effective and control commencing with the Water
9 Year following the entry of the order so modifying
10 paragraphs 4 and 5.

11 REPORT OF
12 TRANSFER
13 OF WATER
14 RIGHTS

15 16. Every transfer of any of those water rights of
16 Defendants which are the subject of Paragraph 5(j)
17 of this Judgment, whether such transfer is volun-
18 tary or involuntary, shall be reported promptly
19 in writing by the transferor to the Watermaster;
20 and the Watermaster shall give prompt written
21 notice of such transfer to each party and to each
22 transferee involved in every other transfer of any
23 of those water rights. Such report by the
24 transferor and notice by the Watermaster shall
25 contain the following information as to each such
26 transfer:

- 27 (a) The identity of the transferor;
- 28 (b) The identity of the transferee;
- 29 (c) The effective date of the transfer;
- 30 (d) A brief description of the document by
31 which such transfer is made, and the
32 recording data, if any;
- (e) A statement as to whether the transfer
was voluntary or involuntary;
- (f) A statement whether or not after such
transfer the transferor still has or

1 claims to have any of the water rights
2 which are the subject of Paragraph 5(j)
3 of this Judgment.

4 NOTICES

5 17. All notices, requests, objections, reports
6 and other papers permitted or required by the
7 terms of this Judgment shall be given or made by
8 written document and shall be served by mail on
9 each party and on each transferee of water rights
10 who has appeared and filed the assumption of
11 obligations required by paragraph 5(k) of this
12 Judgment, and where required or appropriate, on
13 the Watermaster. For all purposes of this
14 paragraph the mailing address of each party shall
15 be that set forth below its signature to the
16 Stipulation for Judgment, and the mailing address
17 of each transferee of water rights shall be that
18 set forth in the appearance and assumption of
19 obligations required by paragraph 5(k) of this
20 Judgment, until changed as provided below. No
21 further notice of any kind as to any matter
22 arising hereunder, including notice to attorneys
23 of record for any party or such transferee, need
24 be given, made or served.

25 If any party or any such transferee of water
26 rights shall desire to change its designation of
27 mailing address, it shall file a written notice
28 of such change with the clerk of this court and
29 shall serve a copy thereof by mail on the
30 Watermaster. Upon the receipt of any such notice
31 the Watermaster shall promptly give written
32 notice thereof to each party and to each
transferee of water rights.

1 EFFECTIVE
2 DATE

18. The rights decreed and the obligations
imposed by this Judgment shall be effective
October 1, 1963, and shall accrue from that
date.

5 COSTS

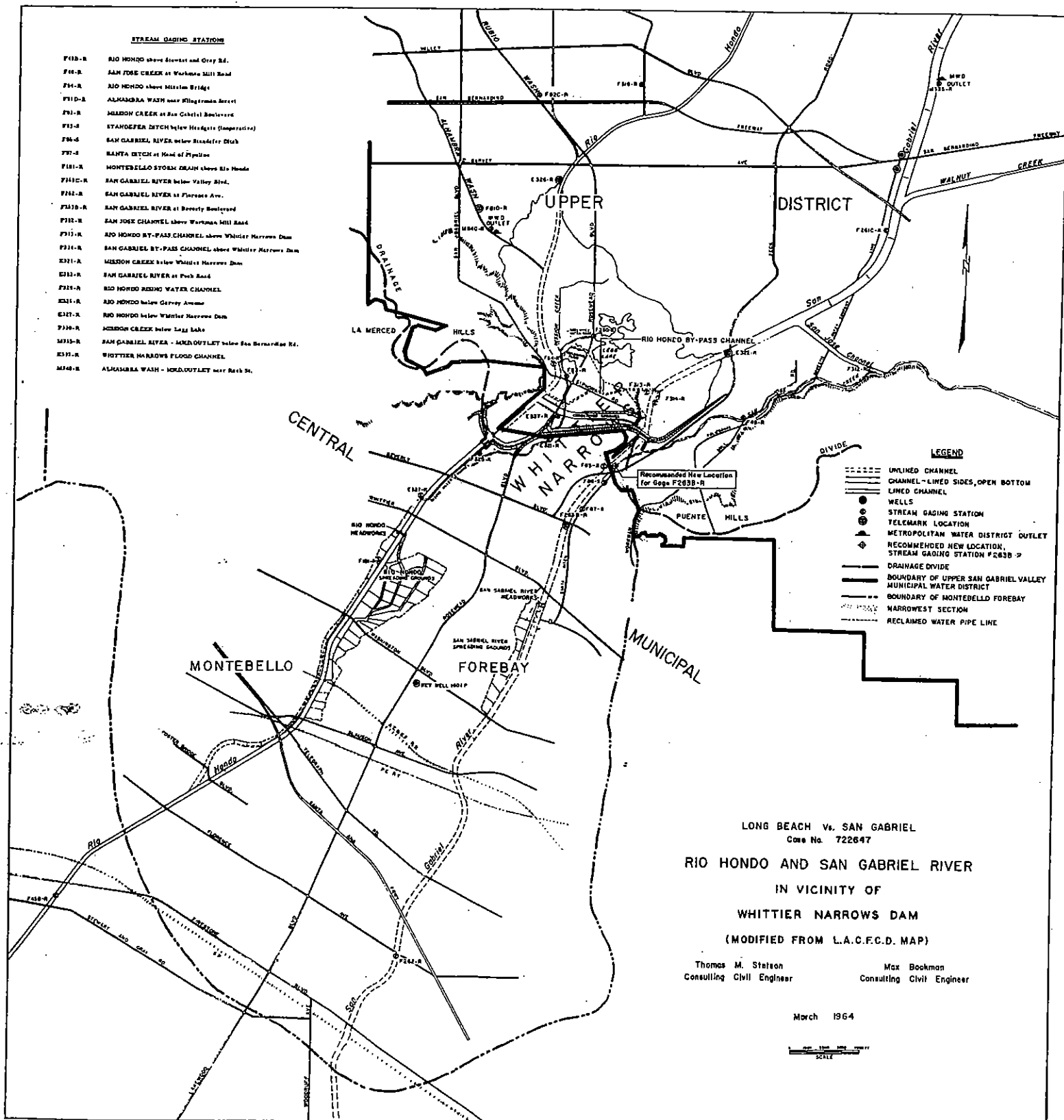
19. None of the parties shall recover any costs
from any other party.

8 Dated: _____, 1964.

11 _____
12 Judge

STREAM GAGING STATIONS

F113-R	RIO HONDO above Stewart and Gray Rd.
F114-R	SAN JOSE CREEK at Workman Mill Road
F114-R	RIO HONDO above Mission Bridge
F115-R	ALHAMBRA WASH near El Estero de San Jose
F116-R	MILSON CREEK at San Gabriel Boulevard
F117-R	STANDEFER DITCH below Headgate (Imperial)
F118-R	SAN GABRIEL RIVER below Headgate Ditch
F119-R	SANTA DITCH at Head of Pipeline
F120-R	MONTEBELLO STORM DRAIN above Rio Hondo
F121-R	SAN GABRIEL RIVER below Valley Blvd.
F122-R	SAN GABRIEL RIVER at Florence Ave.
F123-R	SAN GABRIEL RIVER at Beverly Boulevard
F124-R	SAN JOSE CHANNEL above Workman Mill Road
F125-R	RIO HONDO BY-PASS CHANNEL above Whittier Narrows Dam
F126-R	SAN GABRIEL BY-PASS CHANNEL above Whittier Narrows Dam
E371-R	MILSON CREEK below Whittier Narrows Dam
E372-R	SAN GABRIEL RIVER at Park Road
F127-R	RIO HONDO RISING WATER CHANNEL
E373-R	RIO HONDO below Garvey Avenue
E374-R	RIO HONDO below Whittier Narrows Dam
F128-R	MILSON CREEK below Logg Lake
F129-R	SAN GABRIEL RIVER - MONDOUTLET below San Bernardino Rd.
E375-R	WHITTIER NARROWS FLOOD CHANNEL
F130-R	ALHAMBRA WASH - MONDOUTLET near Beth St.



LONG BEACH vs. SAN GABRIEL
Case No. 722647
RIO HONDO AND SAN GABRIEL RIVER
IN VICINITY OF
WHITTIER NARROWS DAM
(MODIFIED FROM L.A.C.F.C.D. MAP)

Thomas M. Stetson
Consulting Civil Engineer
Max Bookman
Consulting Civil Engineer

March 1964

SCALE

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LONG BEACH v. SAN GABRIEL

ENGINEERING APPENDIX

EXHIBIT B

ENGINEERING APPENDIX

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ENGINEERING APPENDIX

INTRODUCTION

Pursuant to the declaration of rights contained in paragraph 4 of the Judgment and the physical solution contained in paragraph 5 of the Judgment, the purpose of this exhibit is to establish the basis for calculations and measurements to provide for operation of the Judgment in the future.

Unless otherwise provided in this exhibit, all terms used herein are used in the same sense as defined or used in the Judgment.

The derivation of the Lower Area average annual entitlement is based upon the data presented herein covering the base period. However, if a more accurate method of determining Subsurface Flow is developed at some future time, it will be acceptable for use in carrying out the terms of this Judgment so long as it can also apply to the base period and to the years over which the Judgment shall have operated to that time.

I. DERIVATION OF LOWER AREA AVERAGE ANNUAL ENTITLEMENT

The Lower Area average annual entitlement is stipulated in paragraph 5 (a) of the Judgment to be 98,415 acre-feet. It was derived from three components of water supply over the base period, October 1, 1934, through September 30, 1959. Said components were: (1) Usable Surface Flow, (2) Subsurface Flow, and (3) Export to Lower Area.

A. Usable Surface Flow

For the base period, Usable Surface Flow was calculated as that portion of Surface Flow which percolated

1 in Montebello Forebay, less the calculated amounts of Lower Area
2 Replenishment Water (hereby defined as water imported from outside
3 of the watershed of the San Gabriel River system by or on behalf
4 of Lower Area Parties for replenishment of Montebello Forebay
5 and passing from Upper Area to Lower Area), and less one-half
6 of the Raymond Basin sewage discharged in Upper Area from the
7 Tri-City Sewage Treatment Plant.

8 Table 1 presents the calculation of Usable Surface
9 Flow during the base period. The average annual quantity was
10 calculated to be 51,620 acre-feet. Its derivation is summarized
11 in the following tabulation.

		Average annual quantity in acre- feet
14	1. Surface Flow	108,560
15	2. Montebello Forebay surface	
16	outflow	45,000
17	3. Local storm inflow within	
18	Montebello Forebay	<u>1,660</u>
19	4. Portion of Surface Flow	
20	leaving Montebello	
21	Forebay (2 minus 3)	43,340
22	5. Surface Flow percolated in	
23	Montebello Forebay	
24	(1 minus 4)	65,220
25	6. Lower Area Replenishment Water	
26	(Colorado River water)	
27	passing through Whittier	
28	Narrows	11,870
29	7. One-half of Raymond Basin	
30	sewage discharged in	
31	Upper Area	1,730
32	8. Usable Surface Flow	
	(5 minus 6 minus 7)	51,620

TABLE 1
CALCULATION OF USABLE SURFACE FLOW
DURING BASE PERIOD
(Acres-Feet)

(1)	Surface Flow						Montebello Forebay surface outflow					(12)	(13)	(14)	(15)	(16)
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)						
Water Year	Rio Hondo F-64	Mission Creek F-83	Rio Hondo Bypass F-313	Sycamore Canyon	San Gabriel River at maximum rising water	Total (2+3+4+5+6)	Rio Hondo F-45	San Gabriel River F-262	Subtotal (8+9)	Montebello Storm Drain F-181	Outflow of Surface Flow (10-11)	Surface Flow percolated in Montebello Forebay (7-12)	Colorado River water passing Whittier Narrows	One-half of Raymond Basin sewage discharged in Upper Area	Usable Surface Flow (13-14-15)	
1934-35	29,230	9,140	0	390	22,410	61,170	6,000	4,700	10,700	1,650	9,050	52,120		2,650	49,470	
36	20,700	9,810	0	70	16,140	46,720	4,220	1,750	5,970	890	5,080	41,640		2,735	38,905	
37	50,900	10,840	0	260	47,750	109,750	26,870	21,000	47,870	2,170	45,700	64,050		2,865	61,185	
38	209,330	14,700	0	510	109,120	333,660	172,100	60,000	232,100	2,050	230,050	103,610		2,960	100,650	
39	30,650	16,330	0	200	38,380	85,560	9,540	2,540	12,080	980	11,100	74,460		2,970	71,490	
1939-40	27,660	16,210	0	110	29,510	73,490	4,850	1,900	6,750	890	5,860	67,630		2,985	64,645	
41	130,650	18,120	0	1,070	112,440	262,280	93,260	75,780	169,040	4,090	164,950	97,330		3,205	94,125	
42	28,810	18,740	0	80	43,770	91,400	6,730	13,570	20,300	960	19,340	72,060		3,140	68,920	
43	59,470	17,410	0	150	222,670	299,700	41,910	186,420	228,330	2,580	225,750	73,950		3,235	70,715	
44	51,390	18,850	0	220	121,420	191,880	26,820	79,930	106,750	2,390	104,360	87,520		3,545	83,975	
1944-45	32,300	18,020	0	70	57,130	107,520	8,460	26,110	34,570	770	33,800	73,720		3,490	70,230	
46	43,160	15,630	0	70	51,580	110,440	11,280	16,480	27,760	870	26,890	83,550		3,635	79,915	
47	48,410	14,230	0	110	56,790	119,540	16,030	27,650	43,680	1,350	42,330	77,210		3,785	73,425	
48	25,370	12,670	0	20	20,970	59,030	3,510	0	3,510	910	2,600	56,430		2,065	54,365	
49	11,100	10,640	0	40	13,590	35,370	1,490	0	1,490	860	630	34,740		0	34,740	
1949-50	12,280	8,780	0	110	11,780	32,950	2,840	0	2,840	1,240	1,600	31,350		0	31,350	
51	7,880	6,700	0	0	8,420	23,000	780	0	780	890	-110	23,110		0	23,110	
52	34,570	6,090	0	530	56,800	97,990	26,040	24,250	50,290	3,330	46,960	51,030		0	51,030	
53	16,120	6,210	0	50	22,350	44,730	3,450	980	4,430	1,430	3,000	41,730		0	41,730	
54	23,390	3,580	7,230	100	18,130	52,430	10,760	3,790	14,550	2,190	12,360	40,070	15,690	0	24,380	
1954-55	11,350	3,100	9,730	70	14,630	38,880	8,000	1,000	9,000	1,210	7,790	31,090	23,130	0	7,960	
56	16,180	2,310	14,990	150	28,930	62,560	14,540	10,360	24,900	2,110	22,790	39,770	42,870	0	-3,100	
57	16,840	1,840	20,400	50	22,220	61,350	4,640	1,390	6,030	1,120	4,910	56,440	51,870	0	4,570	
58	119,320	2,660	15,300	540	91,320	229,140	30,260	23,960	54,220	3,250	50,970	178,170	103,900	0	74,270	
1958-59	39,800	3,920	0	10	39,790	83,520	3,900	3,130	7,030	1,230	5,800	77,720	59,390	0	18,330	
TOTALS	1,096,860	266,530	67,650	4,980	1,278,040	2,714,060	538,280	586,690	1,124,970	41,410	1,083,560	1,630,500	296,850	43,265	1,290,385	
Averages	43,870	10,660	2,710	200	51,120	108,560	21,530	23,470	45,000	1,660	43,340	65,220	11,870	1,730	51,620	

1 B. Subsurface Flow

2 The State of California, Department of Water
3 Resources, published in April 1962, Appendix B, "Safe Yield
4 Determinations", of Bulletin No. 104, a report entitled "Planned
5 Utilization of the Ground Water Basins of the Coastal Plain of
6 Los Angeles County". That report included estimates of the
7 seasonal Subsurface Flow through Whittier Narrows for each Water
8 Year during the period 1934-35 through 1956-57. By applying
9 the same methods of computation, the estimates have been
10 extended through the Water Year 1958-59 and a 25-year average
11 of 28,400 acre-feet derived.

12 Table 2 sets out the Subsurface Flow for each Water
13 Year in the base period and the average annual Subsurface Flow
14 during the base period.

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TABLE 2
SUBSURFACE FLOW
DURING BASE PERIOD

<u>Water Year</u>	<u>Acre-Feet</u>
1934-35	33,500
36	33,500
37	31,100
38	25,600
39	25,000
1939-40	23,900
41	23,300
42	21,800
43	21,900
44	23,700
1944-45	23,500
46	23,100
47	22,400
48	25,700
49	30,300
1949-50	34,000
51	32,800
52	32,100
53	32,800
54	33,200
1954-55	33,600
56	32,200
57	32,600
58	30,500
1958-59	<u>27,800</u>
TOTAL	709,900
Average	28,400

1 C. Export to Lower Area

2 During the base period there were a number of water
3 producers or water service agencies which produced water by
4 surface diversions or wells in Upper Area and exported it to
5 Lower Area. At the present time, and for the past several
6 years, all such water has been pumped from wells in Upper Area.

7 There are four water service agencies which
8 currently so export water. They are the Rincon Ditch Company,
9 California Domestic Water Company, Suburban Water Systems, and
10 the City of Whittier.

11 Table 3 sets forth Export to Lower Area for each
12 Water Year during the base period and the average annual Export
13 to Lower Area during the base period.
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TABLE 3

EXPORT TO LOWER AREA
DURING BASE PERIOD

<u>Water Year</u>	<u>Acre-Feet</u>
1934-35	15,049
35-36	21,644
36-37	22,668
37-38	25,151
38-39	27,532
1939-40	22,566
40-41	24,191
41-42	27,514
42-43	30,484
43-44	31,182
1944-45	25,953
45-46	27,456
46-47	29,877
47-48	30,165
48-49	25,515
1949-50	18,363
50-51	21,651
51-52	16,302
52-53	18,141
53-54	18,360
1954-55	18,796
55-56	20,728
56-57	19,686
57-58	22,031
58-59	23,881
TOTAL	584,886
Average	23,395

1 D. Derivation of Lower Area Average Annual Entitlement

2 Table 4 presents the derivation of the Lower Area
3 average annual entitlement.

4
5 TABLE 4
6 LOWER AREA AVERAGE ANNUAL ENTITLEMENT
7 (In acre-feet for base period)
8

9 Usable Surface Flow (Table 1)	51,620
10 Subsurface Flow (Table 2)	28,400
11 Export to Lower Area (Table 3)	<u>23,395</u>
12 Sub-total	103,415
13 Stipulated deduction	<u>5,000</u>
14 Lower Area average annual entitlement	98,415

15
16 II. DETERMINATION OF FUTURE LOWER AREA ANNUAL ENTITLEMENT

17 In determining a future Lower Area Annual Entitlement,
18 as set forth in paragraph 5 (d) of the Judgment, the annual
19 rainfall for San Gabriel Valley shall be determined in
20 accordance with procedures set forth below, which are those
21 presently utilized by the Los Angeles County Flood Control
22 District. The 90-year (1872-73 through 1961-62) average
23 rainfall for San Gabriel Valley has been calculated by said
24 District to be eighteen and fifty-two one-hundredths (18.52)
25 inches. For purposes of this Judgment, this quantity shall
26 be the long-term average annual rainfall for San Gabriel Valley
27 and shall not be subject to change.

28 The arithmetic average of the annual rainfall
29 recorded at the four precipitation stations listed below shall
30 constitute the rainfall for San Gabriel Valley for the
31 respective Water Year.
32

<u>Station No.</u>	<u>Location</u>
95	114 East First Street, San Dimas
102C	19711 East Valley Blvd., Walnut
108C	119 South Hoyt Avenue, El Monte
610B	City Hall, Pasadena

Table 5 presents the annual rainfall for San Gabriel Valley for the Water Years 1954-55 through 1962-63.

TABLE 5
ANNUAL RAINFALL FOR SAN GABRIEL VALLEY

<u>Water Year</u>	<u>Rainfall, Inches</u>
1954-55	13.9
56	16.7
57	13.7
58	30.2
59	8.5
1959-60	10.6
61	5.9
62	22.4
63	12.3

The average rainfall in inches for the ten (10) consecutive Water Years ending with the year for which entitlement is being calculated shall be used as the basis for determining Lower Area Annual Entitlement.

Lower Area Annual Entitlements have been computed for 10-year average rainfall in increments of one-tenth (0.1) inch between fourteen (14) and twenty-five (25) inches and are set forth in Table A in paragraph 5 (d) of the Judgment. The following outlines the procedure for determining Lower Area Annual Entitlement from Table A:

- (1) Derive the 10-year average rainfall for San Gabriel Valley to the nearest one-tenth (0.1) inch;
- (2) Enter Table A in left-hand column at whole number of inches of rainfall; and

1 (3) Read horizontally to the vertical column
2 representing the appropriate tenth of
3 an inch of rainfall to obtain the
4 quantity of Lower Area Annual Entitlement
5 in acre-feet.
6

7 III. FUTURE MEASUREMENTS

8 It will be necessary to maintain records of measurement
9 of stream flow, flow in pipelines, rainfall and depth to ground
10 water at a number of locations. The purpose of this Part III is
11 to locate and identify those measurement stations and to specify
12 the manner in which the measurements are to be used in the future
13 operation of the Judgment. The line through Whittier Narrows
14 shown on Exhibit A as "narrowest section" is the line at which
15 accounting shall be made of the water to be received in the
16 future by Lower Area Parties. The Watermaster shall, insofar as
17 practicable, utilize measurement data available from existing
18 sources. When such data are not available the Watermaster may
19 make such measurements as may be necessary or reasonably required
20 for the purposes of this Judgment. The Watermaster is hereby
21 authorized to re-establish, rebuild or replace measuring
22 stations whenever necessary for the operation of this Judgment.
23

24 A. Surface Water Measurements and Calculations.

25 There may be several categories of water flowing on
26 the surface through Whittier Narrows. Among them may be local
27 stream flow, Lower Area Replenishment Water, Reclaimed Water
28 and Make-up Water. The Watermaster shall have the responsibility
29 of determining the quantities of each category of water flowing
30 through Whittier Narrows in the future.
31

32 The approximate locations of stream measuring stations
in and near Whittier Narrows are shown on Exhibit A. The surface

1 water measurements and calculations shall include the following:

2 1. Measurements of Surface Flow.

3 a. Rio Hondo above Mission Bridge,
4 Station F64-R.

5 b. Mission Creek at San Gabriel
6 Boulevard, Station F83-R.

7 c. Rio Hondo By-pass Channel,
8 Station F313-R.

9 d. Whittier Narrows Flood Channel,
10 Station E337-R.

11 e. Calculation of Sycamore Canyon runoff
12 based on annual rainfall to nearest
13 inch at Station 170-C as shown on
14 Table 6.

15 f. San Gabriel River near Parkway Bridge.
16 This is to be a new station to replace
17 the existing station on San Gabriel
18 River at Beverly Boulevard, Station
19 F263B-R.

20 g. The portion of Reclaimed Water from
21 Whittier Narrows Reclamation Plant
22 diverted to Rio Hondo.

23 2. Measurement of local storm inflow to the channel
24 of each of the Rio Hondo and San Gabriel River
25 within Montebello Forebay.

26 a. Montebello storm drain, Station F181-R.

27 b. Calculation of unmeasured local storm
28 inflow.

29 3. Measurements of diversions to spreading grounds
30 Montebello Forebay.

31 4. Measurement of surface outflow from Montebello
32 Forebay in the channel of each of Rio Hondo and

San Gabriel River.

a. Rio Hondo above Stewart and Gray
Road, Station F45B-R.

b. San Gabriel River at Florence
Avenue, Station F262-R.

5. Measurement of Lower Area Replenishment Water
imported to Upper Area from outside the water-
shed of the San Gabriel River system.

a. Rio Hondo By-pass Channel,
Station F313-R.

b. San Gabriel By-pass Channel,
Station F314-R.

c. San Gabriel River MWD Outlet,
Station M335-R.

d. Alhambra Wash MWD Outlet,
Station M340-R.

e. Any other measuring point or points
in Upper Area at which such replen-
ishment water is released.

6. Measurement of total Reclaimed Water from Whittier
Narrows Reclamation Plant reclaimed by or on
behalf of Lower Area Parties.

In the event that any of the aforementioned gaging
stations are inoperative for any reason and for any period of
time the Watermaster shall estimate the quantity that would
have been measured at the station had it been operative. The
estimate shall be based on correlation to nearby operative
measuring stations or on other reasonable engineering methods.

TABLE 6

RAINFALL - RUNOFF RELATIONSHIP OF SYCAMORE CANYON*

Annual rainfall, in inches at Precipitation Station No. 170-C	Estimated runoff in acre-feet
6	5
7	10
8	15
9	25
10	35
11	45
12	60
13	75
14	90
15	105
16	125
17	145
18	170
19	200
20	240
21	275
22	315
23	355
24	400
25	445
26	490
27	535
28	580
29	630
30	685

Extrapolate for rainfall values in excess of 30 inches.

* Located on Westerly side of Whittier Narrows, upstream from dam and downstream from stream gaging Station F64-R. Approximate drainage area is 2.77 square miles.

B. Subsurface Flow

The determination of Subsurface Flow involves certain measurements and procedures which are set forth in this section. In connection with a recent comprehensive study made by the State of California, Department of Water Resources, for Bulletin No. 104, "Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County", estimates were made of Subsurface Flow through Whittier Narrows. The State concluded that a reasonable method of determining Subsurface Flow was by the transmissibility method, which is based on Darcy's Law applied

1 at the location shown on Exhibit A as "narrowest section".

2 Darcy's Law states that $Q = PIA$, in which

3 $Q =$ Subsurface Flow

4 $P =$ Permeability, in gallons per day per
5 square foot under unit hydraulic gradient

6 $I =$ Slope of water table

7 $A =$ Cross-sectional area

8 Under this Judgment calculations shall be made by the
9 Watermaster for the spring and fall of each year and because of
10 slight variations due to the nature of the data available,
11 Subsurface Flow for any one year will be equal to the tri-annual
12 average of the quantities calculated for the three years ending
13 with the year of calculation. In this manner, annual Subsurface
14 Flow shall be based on the average of six calculations, the
15 first of which shall be the spring of 1962.

16 The elevation of the ground surface at the "narrowest
17 section" of Whittier Narrows is deemed to be 208 feet above
18 sea level, and the width of the section is deemed to be 7,900
19 feet. Water levels fluctuate at Whittier Narrows and the
20 cross-sectional area of the ground water at Whittier Narrows
21 will vary with fluctuations in ground water elevation.

22 It should be noted that $T = PD$, where $T =$
23 transmissibility in gallons per day per foot of width under
24 unit hydraulic gradient and $D =$ saturated depth in feet.
25 Therefore $PA = TW$ and $Q = PAI = TWI$. The product TW (or PA)
26 for the entire cross-sectional area was determined to be
27 4,739.5 x 1,000,000 gallons per day, or 7,333.6 cfs. The
28 actual slope of the water table, I , would then be applied to
29 the calculated quantity of TW (or PA).

30 The average permeability of the material to a depth
31 of 100 feet below the ground surface has been determined to
32 be equal to 2,000 gallons per day per square foot, which is

1 equal to .003095 cubic feet per second per square foot. This
2 represents the average permeability in the zone of water level
3 fluctuation.

4 In order to correct for the unsaturated depth, the
5 equation $Q = TWI$ is modified to $Q = (TW - C)I$ where

6 $C = P_1 W d,$

7 C = The flow which would occur in the unsaturated
8 section if it were saturated, in cubic feet
per second under unit hydraulic gradient.

9 P_1 = Average permeability for a distance of 100
10 feet below the ground surface.

11 W = The cross-sectional width, or 7,900 feet.

12 d = The distance from the water surface to the
13 top of the ground, or 208 feet minus ground
water elevation.

14 Utilizing the values of permeability shown above, then

15 $C = 24.45 d$, in cubic feet per second, for values
16 of " d " to a depth of 100 feet below the
ground surface.

17 The "effective transmissibility" is equal to the total
18 transmissibility times the width at the narrowest section minus
19 C , or,

20 $Tw_e = TW - C$

21 $Tw_e = 7,334 - C$, in cubic feet per second.

22 Subsurface Flow is equal to the effective transmissi-
23 bility times the average slope of the water table. The formula
24 derived from the foregoing, may be stated as follows:

25 $Q = 724 I [7,334 - 24.45 (208 - E)]$

26 Where: Q = Subsurface Flow in acre-feet per year,

27 I = Average adjusted slope of ground water
28 surface at narrowest section, and

29 E = Ground water elevation of the water
30 surface in feet above sea level at the
narrowest cross-section.

31 The detailed steps to be carried out by the Watermaster
32 are as follows:

- 1 (1) Ground water level contour maps in the vicinity of Whittier
2 Narrows are drawn on the basis of water level measurements.
- 3 (2) A line representing the narrowest cross-section is drawn on
4 the ground water contour maps.
- 5 (3) This line is subdivided into four equal lengths.
- 6 (4) The average slope of the water table at each of the three
7 points within the narrowest section is determined along a line
8 perpendicular to the ground water contours in the manner hereto-
9 fore used by the State of California, Department of Water
10 Resources.
- 11 (5) Adjustment is made to the ground water slope at each of the
12 three points so that it is perpendicular to the narrowest section
13 by:
- 14 (a) measuring the angle, in degrees, between the
15 line representing the narrowest cross-section and
16 the tangent to the flow line at the narrowest
17 cross-section,
- 18 (b) applying the sine of that angle to the previously
19 determined slope to determine the adjusted slope, and
20 (c) obtaining an average of the three adjusted slopes
21 to represent the average slope through the narrowest
22 cross-section.
- 23 (6) The elevation of the water surface at the narrowest cross-
24 section is determined by interpolating between the ground water
25 contours.
- 26 (7) The distance to the ground water surface is computed from
27 the top of the ground by the formula: $d = 208 - E$, where E
28 represents the average water level elevation of the narrowest
29 cross-section, in feet.
- 30 (8) The correction factors for the transmissibility for the
31 area from the top of ground to the water surface is computed by
32 the formula $C = 24.45 d$, in cubic feet per second.

(9) The effective transmissibility is computed by the formula
 $Tw_e = 7,334 - C$, in cubic feet per second.

(10) Subsurface Flow is computed by multiplying the effective transmissibility by the average adjusted slope.

(11) The computed Subsurface Flow, in cubic feet per second, is converted to acre-feet per year by multiplying it by 724.

The selected wells within the vicinity of Whittier Narrows which have been used for drawing the ground water contours are as follows:

<u>Location No.</u>	<u>State No.</u>
2927B	2S 11W 06M01S
2927D	06K01S
2928	07B01S
2936	06A01S
2936A	1S 11W 31J03S
2938A	2S 11W 07H1S
2938D	05N05S
2939	08N01S
2939B	18B01S
2939G	07R01S
2947C	-
2947F	05L01S
2947N	05P01S
2948	05N04S
2948E	08B02S
2948F	08L03S
2957H	-

The Watermaster shall obtain measurements of ground water elevations in the spring and fall of each year when they are at their approximate high and low levels, respectively. Such measurements may be made at, but need not be limited to, all of the above listed wells.

C. Export to Lower Area

If present measuring devices on existing conduits are inadequate, the Watermaster shall install or cause to be installed adequate measuring devices to determine the amount of Export to Lower Area.

1 IV. ACCOUNTING

2 Utilizing the appropriate measurements described in
3 the previous portion of this Exhibit B, the Watermaster shall
4 maintain accounts for the determination of Lower Area Annual
5 Entitlement, the annual amount of Usable Water, Make-up Water
6 to be delivered, Make-up Water received, the annual total amount
7 of Usable Water and Make-up Water, the accumulated Lower Area
8 Annual Entitlements, the accumulated amounts of Usable Water and
9 Make-up Water received subsequent to September 30, 1963, Accrued
10 Debit of Upper Area or Accrued Credit of Upper Area, and records
11 necessary for accomplishing the Long-term Accounting.

12 In maintaining the accounting records listed above,
13 the Watermaster shall establish the necessary accounting
14 procedures to accomplish the recordation of data and required
15 calculations for accomplishment of the provisions set forth in
16 paragraph 5 of the Judgment.

17
18 A. Components of Usable Water

19 1. Surface Flow. Surface Flow shall be measured as
20 set forth in Part III.A. of this exhibit to include all water
21 other than Export to Lower Area and Subsurface Flow which passes
22 from Upper Area to Lower Area through Whittier Narrows. When
23 the new station to be constructed on the San Gabriel River near
24 Parkway Bridge is completed, it shall replace the gaging station
25 on the San Gabriel River at Beverly Boulevard, Station F263B-R.
26 Until such new station is in operation, Surface Flow as
27 measured at Station F263B-R shall be increased by the amount
28 of Surface Flow which has percolated or been diverted between
29 Station F263B-R and the point of maximum rising water. The
30 Watermaster shall determine the quantity so percolated or
31 diverted based upon available measurements by the Los Angeles
32 County Flood Control District.

1 2. Subsurface Flow. Subsurface Flow shall be
2 calculated in accordance with the procedures heretofore set
3 forth.

4 3. Export to Lower Area. The Watermaster shall
5 reduce to acre-feet the meter readings on each of the conduits
6 transporting through Whittier Narrows water diverted from surface
7 streams in Upper Area or pumped or developed from underground
8 sources in Upper Area. These quantities shall be used to
9 determine Export to Lower Area except that after September 30,
10 1966, Export to Lower Area used for determination of Usable
11 Water shall not exceed 23,395 acre-feet per year. (Paragraph
12 3(1) of this Judgment.)

13
14 B. Calculation of Usable Water

15 After determining the amounts of Surface Flow, Sub-
16 surface Flow and Export to Lower Area during a Water Year, as
17 provided above, the Watermaster, in order to determine the extent
18 to which such water constitutes the receipt of Usable Water by
19 Lower Area during such Water Year, shall deduct from the total
20 of such amounts, the following:

21 1. Lower Area Replenishment Water. An amount equal
22 to the total quantity of Lower Area Replenishment Water released
23 in Upper Area in each Water Year subsequent to September 30,
24 1963, less such amount, if any, as the Watermaster determines
25 to be lost due to evaporation or transpiration prior to the
26 receipt of such water in Lower Area;

27 2. Reclaimed Water. An amount equal to the total
28 quantity of Reclaimed Water which is reclaimed by or on behalf
29 of Lower Area Parties;

30 3. Make-up Water. An amount equal to the quantity of
31 Make-up Water delivered to Lower Area during such Water Year,
32 calculated as hereafter provided, to the extent included in

1 Surface Flow or Export to Lower Area;

2 4. Paragraph 3(1)(6) Water. An amount equal to the
3 quantity of any water which falls within the scope of paragraph
4 3(1)(6) of the Judgment; and

5 5. Unusable Surface Flow. An amount equal to the
6 quantity of Unusable Surface Flow, which is determined by
7 deducting from the total outflow as measured at Stations F45B-R
8 and F262-R: (1) Local Storm Outflow and (2) the portion of
9 Surface Flow which has been caused to pass said stations by
10 reason of any spreading of water in Montebello Forebay by or on
11 behalf of Lower Area Parties.

12 Local Storm Outflow is a portion of local storm inflow
13 originating in Montebello Forebay upstream from said measuring
14 stations, the amount of which outflow is to be determined as
15 hereinafter provided. When actual measurements of local storm
16 inflow are not available, the amount thereof discharging to the
17 channels of Rio Hondo or San Gabriel River within Montebello
18 Forebay upstream from stations F45B-R and F262-R shall be
19 estimated by correlation with the local storm inflow measured
20 at Montebello Storm Drain, Station F181-R. Such quantities shall
21 be estimated on the basis of the individual drainage areas of
22 storm drain projects and the runoff per unit area determined
23 from the Montebello Storm Drain, Station F181-R, during the
24 particular time interval under consideration. When water is
25 flowing out of Montebello Forebay on the surface in the Rio Hondo
26 or San Gabriel River channels, the Watermaster shall determine
27 Local Storm Outflow as follows:

28 a. Local Storm Outflow from Rio Hondo. When outflow
29 occurs at Station F45B-R, all local storm inflow, both measured
30 and estimated, which enters the Rio Hondo channel between that
31 station and Upper Area shall constitute Local Storm Outflow from
32 Rio Hondo, but the amount thereof shall not exceed the amount of

1 outflow at Station F45B-R for such periods.

2 b. Local Storm Outflow from San Gabriel River. At
3 such times as local storm inflow does not join Surface Flow in
4 San Gabriel River, the portion of such local storm inflow passing
5 Station F262-R shall constitute Local Storm Outflow. In addition,
6 at such times as Surface Flow in the San Gabriel River commingles
7 with the local storm inflow, then the Watermaster shall determine
8 Local Storm Outflow as follows:

9 (1) Calculate the total amount of local
10 storm inflow to the San Gabriel River during
11 such times, but such amount to be used in the
12 determination of Local Storm Outflow shall not
13 exceed the amount of San Gabriel River outflow
14 passing Station F262-R during such periods.

15 (2) Calculate the Local Storm Outflow
16 passing Station F262-R during such times, which
17 calculation shall be based on the Surface Flow
18 and local storm inflow to the San Gabriel River
19 channel, giving appropriate weight to the
20 quantities involved and the distance the
21 respective quantities of water traverse
22 Montebello Forebay in said channel.

23 (3) These two calculations shall then be
24 averaged arithmetically and the resulting amount
25 shall be Local Storm Outflow from San Gabriel
26 River.

27
28 C. Determination and Delivery of Make-up Water

29 1. By Additions to Surface Flow (paragraph 5(i)(1) of
30 Judgment). The determination of the amount of Make-up Water
31 which is delivered to Lower Area as an addition to Surface Flow
32 shall be based upon (a) measurements of Make-up Water at the

1 delivery outlet of such water upstream from Whittier Narrows,
2 (b) measurements of water consisting in whole or in part of
3 Make-up Water passing the applicable stations listed in Part
4 III.A.1. of this Exhibit B, and (c) such deductions from the
5 measurements of Make-up Water at said stations so listed as are
6 necessary to take into account (i) the amount of any water other
7 than Make-up Water included in the measurements at said stations
8 so listed, (ii) any losses due to evaporation or transpiration
9 of Make-up Water after such measurement and prior to its receipt
10 in Lower Area, and (iii) any percolation of Make-up Water after
11 such measurement and prior to the time it reaches the "narrowest
12 section" in Whittier Narrows.

13 As changing conditions may require, the Watermaster
14 shall change the points of measurement of Make-up Water in order
15 to obtain those measurements necessary to determine the amount
16 of Make-up Water delivered to Lower Area Parties by means of
17 increasing Surface Flow.

18 2. By Payment for Reclaimed Water (paragraph 5(i)(2)
19 of the Judgment). The Watermaster shall determine (a) the
20 quantity of Reclaimed Water reclaimed at the Whittier Narrows
21 Water Reclamation Plant as it existed October 1, 1963, and which
22 when so reclaimed shall have been passed through Whittier
23 Narrows, and (b) the quantity, if any, of Reclaimed Water
24 reclaimed at any future additions to said plant after September
25 30, 1963, and which when so reclaimed shall have been passed
26 through Whittier Narrows. Such quantities shall be ascertained
27 from the records of Los Angeles County Flood Control District.

28 Upon being advised that a payment has been made by
29 Upper District or Defendants to Central Municipal pursuant to
30 the provisions of paragraph 5(i)(2) of the Judgment, the
31 Watermaster shall credit Upper Area Parties with the delivery of
32 Make-up Water computed according to said paragraph of the

1 Judgment.

2 3. By Deliveries to a Lower Area Party (paragraph
3 5(i)(3) of the Judgment). Any Make-up Water delivered directly
4 to a Lower Area Party with the consent of Plaintiffs shall be
5 metered and the meter records reduced to acre-feet per year.
6 Upon being advised that a Lower Area Party has received a direct
7 delivery of Make-up Water pursuant to the provisions of paragraph
8 5(i)(3) of the Judgment, the Watermaster shall credit Upper Area
9 Parties with delivery of such Make-up Water in the Water Year in
10 which it was so delivered.

11
12 D. Long-term Accounting

13 The Watermaster shall maintain a record of the annual
14 rainfall in the San Gabriel Valley, including a running average
15 of such rainfall, so that the Watermaster will be informed when
16 a Long-term Accounting shall be carried out as specified in
17 paragraph 5(h) of the Judgment, and shall thereafter perform
18 the necessary calculations for accomplishment of the adjust-
19 ment, if any, between the aggregate amount of water received
20 compared to the aggregate entitlement for the period.

21
22 E. Water Usable for Ground Water Replenishment

23 With respect to any delivery of Make-up Water the
24 Watermaster shall determine the suitability of such water for
25 ground water replenishment. The Watermaster shall gather,
26 insofar as readily available from public and private agencies,
27 data relating to the quality of all categories of water,
28 Surface Flow, Subsurface Flow, Export to Lower Area, Reclaimed
29 Water, Lower Area Replenishment Water and Make-up Water.
30
31
32

REIMBURSEMENT CONTRACT

LONG BEACH v. SAN GABRIEL

d.

REIMBURSEMENT CONTRACT

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ed.

REIMBURSEMENT CONTRACT

THIS CONTRACT is made by and between UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT, herein called "Upper District", and the cities of ALHAMBRA, ARCADIA, AZUSA, COVINA, EL MONTE, GLENDORA, MONTEREY PARK, MONROVIA, SOUTH PASADENA, and WHITTIER; BALDWIN PARK COUNTY WATER DISTRICT, and SAN GABRIEL COUNTY WATER DISTRICT; AZUSA AGRICULTURAL WATER COMPANY, AZUSA VALLEY WATER COMPANY, CALIFORNIA DOMESTIC WATER COMPANY, CALIFORNIA WATER & TELEPHONE COMPANY, COLUMBIA LAND AND WATER COMPANY, COVINA IRRIGATING COMPANY, CROSS WATER COMPANY, DUARTE WATER COMPANY, EAST PASADENA WATER COMPANY, LTD., GLENDORA IRRIGATING COMPANY, SAN DIMAS WATER COMPANY, SAN GABRIEL VALLEY WATER COMPANY, SOUTHERN CALIFORNIA WATER COMPANY, SUBURBAN WATER SYSTEMS, SUNNYSLOPE WATER COMPANY, and VALLECITO WATER COMPANY, corporations, herein collectively called "Pumpers."

ed.

RECITALS

1. The Action. In the matter of Board of Water Commissioners of the City of Long Beach, et al. v. San Gabriel Valley Water Company, et al., (L. A. Superior Court No. 722,647) the water rights of substantially all major water producers in the main San Gabriel Valley are sought to be restricted.

2. Judgment. The parties named above, except City

of Whittier, are concurrently executing a Stipulation that a Judgment substantially in the form annexed hereto shall be rendered and it is anticipated that such Judgment will be rendered in the action.

3. Public Interest in Settlement. It is in the best interests of the Pumpers and in the best interests of the water users and taxpayers within the corporate boundaries of those Pumpers which are public agencies, of the consumers of those Pumpers which are utilities or mutual water companies, and of all residents and taxpayers of Upper District, that said action be settled and disposed of in accordance with the terms of said judgment in order to preserve the water supplies within Upper Area.

DEFINITIONS

1. "Contract Costs" -- All costs hereafter paid by Upper District:

ed. (a) In providing Make-up Water under the terms of the judgment. In computing such cost of providing Make-up Water, any cost which Upper District shall pay which it would have paid even though it had not provided Make-up Water shall be excluded; and particularly but not exclusively, no amount which shall be paid to The Metropolitan Water District of Southern California as a condition to any past or future annexation shall be

deemed a cost of providing Make-up Water. Such costs may include interest paid by Upper District upon money borrowed for advancements made by it or interest which would have been received by the District, but which it lost by reason of making such advancements.

(b) In complying with the terms of said judgment.

(c) In keeping the records, making the determinations and collecting the moneys required by the later provisions of this contract.

2. "Assessable Pumpage" -- The amount of ground water produced in the applicable calendar year by or on behalf of any Pumper by pumping or extraction thereof from the Upper Area, including ground water produced under rights hereafter acquired from any source.

ed. 3. Common Terms With Judgment -- All terms specially defined in said judgment are used herein in the sense in which they are therein defined, and said special definitions are incorporated herein by this reference.

OPERATIVE PROVISIONS

1. Consideration for Execution. The great majority of the defendants in the action are situated in whole or in part within Upper District and pump water therein. Certain defendants, including the Cities of Alhambra, Azusa and

Monterey Park, as well as the City of Whittier which is not a defendant, lie outside Upper District. Execution of this agreement by all parties to it is essential to induce each party hereto to execute this agreement, and likewise, execution of the Stipulation for Judgment by all defendants in the action is necessary to induce each party hereto to execute this contract. Each party executes this contract in consideration of its execution by the other parties, and in consideration of the execution of the Stipulation by the parties thereto. Moreover, by this contract each party other than City of Whittier waives its right to cross-complain in the action so as to bring City of Whittier into the action as a party.

2. Intervention by Upper District. In consideration of the execution of this contract by Pumpers and to contribute to the physical solution of providing adequate ed. water for its inhabitants, Upper District has intervened as a defendant in the action and agrees to execute the stipulation for said judgment.

3. Administration. Upper District shall administer the provisions of Paragraphs 6 through 9, below, as to all Pumpers, including additional parties hereto mentioned in Paragraph 16.

4. Covenant to Reimburse. Each Pumper hereby agrees to pay to Upper District such Pumper's share of Contract

Costs allocated and determined as provided below.

5. Allocation of Costs Among Pumpers. Pumpers agree among themselves, each for the benefit of all other Pumpers, to share and participate in the payment of any sums due Upper District hereunder in such proportion as the Assessable Pumpage of each Pumper bears to the total Assessable Pumpage of all Pumpers for the applicable period covered by any assessment as hereinafter provided, subject to the provisions of Paragraph 9 below.

6. Reports by Pumpers. Pumpers shall file under penalty of perjury the reports hereinafter specified in the form provided by Upper District, as follows:

(a) Time and Procedure for Filing. Each year, on or before March 1, each Pumper shall file with Upper District a written report of its extractions of water from Upper Area for the preceding calendar year containing the information set forth in subparagraph (b) of this paragraph.

(b) Contents of the Report. Such annual reports to Upper District shall set forth:

(1) The name and address of the Pumper;
and

(2) The number of acre feet of water which was pumped or extracted from Upper Area by or on behalf of the Pumper during

the calendar year covered.

(c) Determination in Lieu of Report. In the event any Pumper fails to so file such report, Upper District may make a determination of the Assessable Pumpage of such Pumper, which determination shall be final and binding.

7. Notice of Assessment. On or before June 1 of each year, Upper District shall serve a Notice of Assessment on each Pumper covering the preceding calendar year which will contain a statement of:

(a) The amount of Assessable Pumpage by each Pumper;

(b) A detailed statement of Contract Costs during the preceding calendar year, if any; and

(c) A statement of the amount of such Contract Costs which are assessable to and payable by the Pumper to whom such notice is sent.

8. Payment--Delinquency and Default. All assessments herein provided for shall be due and payable on the following July 31. In the event of nonpayment of any assessment, Upper District may bring an action and shall have the right to recover such assessment, together with interest thereon at the rate of 7% per annum from the date of delinquency and costs of suit, including any reasonable attorneys' fees incurred.

If, after due diligence, Upper District is unable to collect a Pumper's allocated cost, such uncollectible amount (including interest, costs and attorneys' fees) shall be prorated among and paid by the other Pumpers in the same proportions as they paid assessments for the year or years in question. Said proration shall be billed and payable with the next succeeding assessment.

9. Redetermination of Assessable Pumpage. Any Pumper may at any time within 90 days after receipt of any Notice of Assessment request a redetermination of the Assessable Pumpage of such Pumper or of any other Pumper or Pumpers reflected in such notice. Such request shall be addressed in writing to Upper District and shall set forth the basis of the requesting Pumper's belief that such data are incorrect. Upon the receipt of any request, the following procedures shall be undertaken by Upper District:

(a) Notice of Request for Redetermination.

Upper District shall forthwith notify in writing any Pumper whose Assessable Pumpage has been questioned, of the fact of such request and the name of the requesting Pumper. Notice shall further be sent to all Pumpers that procedures will be undertaken pursuant to this paragraph, and shall state briefly the issues to be determined.

(b) Availability of Records. Subsequent to such notice, the records of the Pumper whose Assessable Pumpage is subject to a request for redetermination shall be made available at reasonable hours and upon reasonable demand to Upper District, insofar as such records are relevant to a determination of the Assessable Pumpage of the Pumper during the period involved.

(c) Investigation and Notice of Hearing. Upper District shall conduct an investigation and shall by written decision served on all Pumpers redetermine or affirm such Assessable Pumpage. Upper District may at its option set a date for hearing. In such event, at least ten days' notice in writing of said hearing date shall be given to all Pumpers.

ed.

(d) Conduct of Hearing and Decision. If hearing be held, Upper District shall not be bound therein by strict rules of evidence, but may rely on any evidence which it deems of probative value. Any Pumper may present evidence and arguments thereat. The written decision of Upper District, with or without such hearing, shall be served on all Pumpers and shall be conclusive for purposes of this contract, unless said issue is submitted

to a court of competent jurisdiction within 90 days from notice of such decision.

(e) Reallocation of Contract Costs. If Assessable Pumpage is modified by any such decision, Contract Costs shall be reallocated in accordance therewith. Said reallocation shall be billed and payable with the next succeeding assessment.

10. Water Rights Unaffected. This contract relates solely to the equitable allocation of Contract Costs and does not involve or constitute an admission or agreement as to the water rights of any Pumpers. Execution of this contract shall not prevent any party hereto from bringing or maintaining any action or proceeding to determine rights to pump, extract or store water, or to limit or curtail any pumping, extraction or storage of water in or from Upper Area or elsewhere, except as limited by Paragraphs 1 and 16 of the Operative Provisions hereof.

ed.

11. Changed Conditions. It is recognized that conditions in Upper Area may hereafter change to such an extent that it may become equitable to modify either the total obligation of Pumpers to Upper District hereunder or the allocation of Contract Costs. While this contract is entered into to assure Upper District of reimbursement of an amount up to its entire Contract Costs, it is not intended hereby, and this contract shall not be deemed, to prevent Upper District

from modifying and reducing such obligation or from applying other relief which may reduce the burden on Pumpers. Without limitation upon the power of Upper District to otherwise reduce the aggregate amount payable under this contract, the following specific instances of changed conditions are contemplated:

(a) Allocation of Portion of Burden to Taxes.

It may at some future date appear equitable and fair to allocate all or a portion of Contract Costs to ad valorem taxes or other revenues of Upper District. In such event, Upper District may, in the discretion of its Board of Directors, allocate all or a portion of Contract Costs to such revenue sources and the remainder, if any, thereof, shall be payable under the terms of this contract.

ed.

(b) Imposition of Pump Tax. If Upper District should acquire and exercise the right to levy a tax upon the pumping or extraction of ground water, then the aggregate of such tax shall be credited proportionally amongst Pumpers with respect to Assessable Pumpage within Upper District.

(c) Adjudication of Rights. If all or substantially all of the water rights within Upper Area shall be adjudicated (including the rights of all Pumpers), and its natural and safe yield

determined, then this contract shall be deemed modified to the extent that Assessable Pumpage shall include only that amount of water produced over and above the safe yield portion of adjudicated rights owned by any Pumper; provided that this subparagraph (c) shall not apply to any year in which the aggregate of all Assessable Pumpage as so modified is less than 25,000 acre feet.

12. Effective Date. This contract shall be effective ten (10) days after notice in writing of execution thereof by all parties, which notice shall be given to all Pumpers by Upper District, but shall cease and terminate on July 1, 1966, unless by said date (a) this contract shall have been validated as provided below, and (b) the Judgment shall have been rendered.

ed. 13. Validation. Within four months after this contract becomes effective, a proceeding or proceedings shall be instituted by Upper District in a court of competent jurisdiction by an appropriate action or actions for determination of the validity of this contract.

14. Term. The term of this contract shall commence upon its effective date and continue so long as the Judgment, as entered or as modified, shall remain in effect, subject, however, to the provisions of Paragraph 12 above.

15. Notices. Any notice to be served upon any party hereunder may be served either personally or by mail. If served by mail, such notice shall be mailed in the County of Los Angeles, State of California, by certified mail, postage prepaid, return receipt requested, or by registered mail, and shall be addressed to the party to be served at its address as set forth below, or (in the case of Upper District) at such other address as it may have last specified in writing to the Pumper or Pumpers involved for the service of notices hereunder, or (in the case of a Pumper) at such other address as it may have last specified in writing to Upper District for the service of notices hereunder. Any notice so served by mail shall be deemed to have been served upon the first business day (excluding Saturdays, Sundays and holidays) after such mailing.

ed.

16. Additional Parties. In addition to Pumpers and their successors and assigns referred to in Paragraph 17 below, any other person or entity who or which shall pump or extract water in or from Upper Area (herein referred to as an "additional party"), may become a party to this contract, provided (a) Upper District shall give its written consent thereto, and (b) no Pumper or additional party shall serve upon Upper District its written objection thereto. If Upper District shall give its written consent to execution of this contract by an applying additional party, it shall

then give written notice of such application and consent by Upper District to each Pumper and each additional party, and if within thirty (30) days after such notice no Pumper or additional party shall have served upon Upper District its written objection to execution of this contract by the applying additional party, such additional party's application shall be deemed to have been accepted and it may become a party to this contract by delivery to Upper District of a duly executed instrument in writing stating that such person or entity joins in and becomes a party to this contract.

Any additional party so joining shall become bound by all obligations of this contract, becoming due or which should be performed within the terms of this contract on and after the ensuing January 1. Such obligations include the duty to make the report of extractions during the preceding calendar year (i.e., the year in which the contract is executed) required by Paragraph 6, and to make the payment based upon such extractions as required by Paragraph 5, provided, however, that such additional party shall have no liability under Paragraph 8 with respect to any nonpayments of an assessment based upon extractions by a Pumper or other additional party prior to the year in which such additional party joins in this contract.

As to each Pumper who executes this contract after it becomes effective, Upper District agrees that for a

period of 90 days after giving its said written consent, it will bring no action against such additional party to limit or define its rights to pump water in or from Upper Area. Further, if more than one such Pumper shall become a party to this agreement at the same time as any other pumper, each will execute and shall be deemed to have executed this contract and to have joined therein in consideration of the joinder in this contract by the other or others concurrently joining in this contract.

Any such additional party shall be deemed a Pumper for all purposes of this agreement.

17. Successors and Assigns. This contract shall inure to the benefit of and bind the successors in ownership of the water rights of the parties. If any Pumper shall sell or transfer or agree to sell or transfer its water rights in Upper Area or any part of such water rights, such Pumper shall require as a condition of any such sale, transfer or agreement that the purchaser or transferee, if not already a party to this contract, shall execute this contract and become a party thereto. Upon a full transfer of such rights by a Pumper and assumption by the assignee as above provided, the assigning Pumper shall be discharged of obligation hereunder. If such Pumper fails to obtain such assumption (except in cases of a transfer under order of court or by operation of law) the assigning Pumper shall

remain bound by the contract and production of water by said assignee by the exercise of the right assigned shall be treated as production by such Pumper.

18. Execution in Counterparts. This contract may be executed in counterparts (each counterpart being an exact copy or duplicate of the original) and all counterparts collectively shall be considered as constituting one complete contract.

IN WITNESS WHEREOF this contract is executed by the undersigned by its duly authorized officer.

Dated: _____.

(SEAL)

By _____

By _____

ed.

Appendix G

Main San Gabriel Basin Judgment

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11 SUPERIOR COURT OF THE STATE OF CALIFORNIA
12 FOR THE COUNTY OF LOS ANGELES

13 Upper San Gabriel Valley)

Case No.: 924128

14 Municipal Water District,)

AMENDED JUDGMENT

Plaintiff,)

(And Exhibits Thereto)

16 vs.)

17 City of Alhambra, et al,)

18 Defendants)
19
20
21
22

23 HONORABLE MAUREEN DUFFY-LEWIS

24 Assigned Judge Presiding

25 DEPARTMENT 38

26 June 21, 2012

27 (This version includes prior Amendments
28 and updated Exhibits through June 21, 2012.)

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EXHIBITS

- “A” – Map entitled, “San Gabriel River Watershed Tributary to Whittier Narrows”
- “B” – Boundaries of Relevant Watershed
- “C” – Table Showing Base Annual Diversion Rights of Certain Diverters
- “D” – Table Showing Prescriptive Pumping Rights and Pumper’s Share of Each Pumper
- “E” – Table Showing Production Rights of Each Integrated Producer
- “F” – Table Showing Special Category Rights
- “G” – Table Showing Non-consumptive Users
- “H” – Watermaster Operating Criteria
- “J” – Puente Narrows Agreement
- “K” – Overlying Rights
(Exhibit “K” Includes - Nature of Overlying Right, Description of Overlying Lands To Which Overlying Rights Are Appurtenant, Producers Entitled To Exercise Overlying Rights and Their Respective Consumptive Use Portions, and Map of Overlying Lands.)
- “L” – List of Producers and Other Parties and Their Designees (June 2012) (New)
- “M” – Watermaster Members, Officers, and Staff, Including Calendar Year 2012 (New)

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SUPERIOR COURT OF CALIFORNIA, COUNTY OF LOS ANGELES

11 Upper San Gabriel Valley
12 Municipal Water District,
13 Plaintiff,
14 vs.
15 City of Alhambra, et al,
16 Defendant

Case No.: 924128

AMENDED JUDGMENT

Hearing: June 21, 2012
Department 38, 9:30 A.M.

18 The Petition of the MAIN SAN GABRIEL BASIN WATERMASTER for this
19 AMENDED JUDGMENT herein, came on regularly for hearing in this Court before the
20 **HONORABLE MAUREEN DUFFY-LEWIS**, ASSIGNED JUDGE PRESIDING, on June 21,
21 2012; Frederic A. Fudacz appeared as attorney for Watermaster - Petitioner; and good cause
22 appearing, the following **ORDER** and **AMENDED JUDGMENT** are, hereby, made:

I. INTRODUCTION

24 1. Pleadings, Parties, and Jurisdiction. The complaint herein was filed on January 2,
25 1968, seeking an adjudication of water rights. By amendment of said complaint and dismissals
26 of certain parties, said adjudication was limited to the Main San Gabriel Basin and its Relevant
27 Watershed. Substantially all defendants and the cross-defendant have appeared herein, certain
28 defaults have been entered, and other defendants dismissed. By the pleadings herein and by

1 Order of this Court, the issues have been made those of a full inter se adjudication of water
2 rights as between each and all of the parties. This Court has jurisdiction of the subject matter of
3 this action and of the parties herein.

4 2. Stipulation for Entry of Judgment. A substantial majority of the parties, by
5 number and by quantity of rights herein Adjudicated, Stipulated for entry of a Judgment in
6 substantially the form of the original Judgment herein.

7 3. Lis Pendens. (New) A Lis Pendens was recorded August 20, 1970, as Document
8 2650, in Official Records of Los Angeles County, California, in Book M 3554, Page 866.

9 4. Findings and Conclusions. (Prior Judgment Section 3) Trial was had before the
10 Court, sitting without a jury, John Shea, Judge Presiding, commencing on October 30, 1972, and
11 Findings of Fact and Conclusions of Law have been entered herein.

12 5. Judgment. (New) Judgment (and Exhibits Thereto), Findings of Fact and
13 Conclusions of Law (and Exhibits Thereto), Order Appointing Watermaster, and Initial
14 Watermaster Order were signed and filed December 29, 1972, and Judgment was entered
15 January 4, 1973, in Book 6791, Page 197.

16 6. Intervention After Judgment. (New) Certain defendants have, pursuant to the
17 Judgment herein and the Court's continuing jurisdiction, intervened and appeared herein after
18 entry of Judgment.

19 7. Amendments of Judgment. (New) The original Judgment herein was previously
20 amended on March 29 1979, by: (1) adding definition (r [1]) thereto, (2) amending definition
21 (bb) therein, (3) adding Exhibit "K" thereto, (4) adding Sections 14.5 and 16.5 thereto, and (5)
22 amending Sections 37(b), 37(c), 37(d), and Section 47 therein; it was again amended on
23 December 21, 1979, by amending Section 38(c) thereof; again amended on February 21, 1980,
24 by amending Section 24 thereof; again amended on September 12, 1980, by amending Sections
25 35(a), 37(a), and 38(a); again amended on December 22, 1987, by adding Section 37(e) thereto;
26 amended again on July 22, 1988 by amending Section 37(e) thereof and Ordering an Amended
27 Judgment herein; again amended on January 29, 1991, by amending Sections 10(j), 40, and by
28 adding Sections 40(a), 40(b), 40(c), 40(d), 40(e) and 40(f); again amended on April 2, 1991, by

1 amending Sections 10(ff), 10(jj), and 34(h); again amended on February 24, 1992, by amending
2 Section 40(b); again amending Appendices in 2000; and again on June 21, 2012 by amending
3 Sections 10(ff), 26, 29(d), 34(b), 34(c), 34(g), 34(h), 34(j), 36, 42, 44, 45, 46(a), 47, 50, 54,
4 Exhibit H Sections 2, 3(d), 4; adding Sections 34(p), 34(q), 34(r); and deleting Section 53
5 entirely.

6 8. Transfers. (New) Since the entry of Judgment herein there have been numerous
7 transfers of Adjudicated water rights. To the date hereof, said transfers are reflected in Exhibits
8 "C", "D", and "E".

9 9. Producers and Their Designees. (New) The current status of Producers and their
10 Designees is shown on Exhibit "L".

11 10. Definitions. (Prior Judgment Section 4) As used in this Judgment, the following
12 terms shall have the meanings herein set forth:

13 (a) Base Annual Diversion Right – The average annual quantity of water which
14 a Diverter is herein found to have the right to Divert for Direct Use.

15 (b) Direct Use – Beneficial use of water other than for spreading or Ground
16 Water recharge.

17 (c) Divert or Diverting – To take waters of any surface stream within the
18 Relevant Watershed.

19 (d) Diverter – Any party who Diverts.

20 (e) Elevation – Feet above mean sea level.

21 (f) Fiscal Year – A period July 1 through June 30, following.

22 g) Ground Water – Water beneath the surface of the ground and within the zone
23 of saturation.

24 (h) Ground Water Basin – An interconnected permeable geologic formation
25 capable of storing a substantial Ground Water supply.

26 (i) Integrated Producer – Any party that is both a Pumper and a Diverter, and
27 has elected to have its rights adjudicated under the optional formula provided in Section
18 of this Judgment.

1 (j) In-Lieu Water Cost – The differential between a particular Producer's cost of
2 Watermaster directed produced, treated, blended, substituted, or Supplemental Water
3 delivered or substituted to, for, or taken by, such Producer in-lieu of his cost of otherwise
4 normally Producing a like amount of Ground Water from the Basin. (Amended 1/29/91)

5 (k) Key Well – Baldwin Park Key Well, being elsewhere designated as State
6 Well No. 1S/10W-7R2, or Los Angeles County Flood Control District Well No. 3030-F.
7 Said well has a ground surface Elevation of 386.7.

8 (l) Long Beach Case – Los Angeles Superior Court Civil Action No. 722647,
9 entitled, "Long Beach, et al., v. San Gabriel Valley Water Company, et al."

10 (m) Main San Gabriel Basin or Basin – The Ground Water Basin underlying the
11 area shown as such on Exhibit "A".

12 (n) Make-Up Obligation – The total cost of meeting the obligation of the Basin
13 to the area at or below Whittier Narrows, pursuant to the Judgment in the Long Beach
14 Case.

15 (o) Minimal Producer – Any party whose Production in any Fiscal Year does
16 not exceed five (5) acre-feet. (Prior to June 21, 2012)

17 (p) Natural Safe Yield – The quantity of natural water supply which can be
18 extracted annually from the Basin under conditions of long term average annual supply,
19 net of the requirement to meet downstream rights as determined in the Long Beach Case
20 (exclusive of Pumped export), and under cultural conditions as of a particular year.

21 (q) Operating Safe Yield – The quantity of water which the Watermaster
22 determines hereunder may be Pumped from the Basin in a particular Fiscal Year, free of
23 the Replacement Water Assessment under the Physical Solution herein.

24 (r) Overdraft – A condition wherein the total annual Production from the Basin
25 exceeds the Natural Safe Yield thereof.

26 (s) Overlying Rights – (Prior Judgment Section 4(r)[1]) The right to Produce
27 water from the Basin for use on Overlying Lands, which rights are exercisable only on
28 specifically defined Overlying Lands and which cannot be separately conveyed or

1 transferred apart therefrom.

2 (t) Physical Solution – (Prior Judgment Section 4(s)) The Court decreed method
3 of managing the waters of the Basin so as to achieve the maximum utilization of the
4 Basin and its water supply, consistent with the rights herein declared.

5 (u) Prescriptive Pumping Right – (Prior Judgment Section 4(t)) The highest
6 continuous extractions of water by a Pumper from the Basin for beneficial use in any five
7 (5) consecutive years after commencement of Overdraft and prior to filing of this action,
8 as to which there has been no cessation of use by that Pumper during any subsequent
9 period of five (5) consecutive years, prior to the said filing of this action.

10 (v) Produce or Producing – (Prior Judgment Section 4(u)) To Pump or Divert
11 Water.

12 (w) Producer – (Prior Judgment Section 4(v)) A party who Produces water.

13 (x) Production – (Prior Judgment Section 4(w)) The annual quantity of water
14 Produced, stated in acre feet.

15 (y) Pump or Pumping – (Prior Judgment Section 4(x)) To extract Ground Water
16 from the Basin by Pumping or any other method.

17 (z) Pumper – (Prior Judgment Section 4(y)) Any party who Pumps water.

18 (aa) Pumper's Share – (Prior Judgment Section 4(z)) A Pumper's right to a
19 percentage of the entire Natural Safe Yield, Operating Safe Yield and appurtenant
20 Ground Water storage.

21 (bb) Relevant Watershed – (Prior Judgment Section 4(aa)) That portion of the
22 San Gabriel River watershed tributary to Whittier Narrows which is shown as such on
23 Exhibit "A", and the exterior boundaries of which are described in Exhibit "B".

24 (cc) Replacement Water – (Prior Judgment Section 4(bb)) Water purchased by
25 Watermaster to replace: (1) Production in excess of a Pumper's Share of Operating Safe
26 Yield; (2) The consumptive use portion resulting from the exercise of an Overlying
27 Right; and (3) Production in excess of a Diverter's right to Divert for Direct Use.

28 (dd) Responsible Agency – (Prior Judgment Section 4(cc)) The municipal water

1 district which is the normal and appropriate source from whom Watermaster shall
2 purchase Supplemental Water for replacement purposes under the Physical Solution,
3 being one of the following:

4 (1) Upper District – Upper San Gabriel Valley Municipal Water District,
5 a member public agency of the Metropolitan Water District of Southern
6 California (MWD).

7 (2) San Gabriel District – San Gabriel Valley Municipal Water District,
8 which has a direct contract with the State of California for State Project Water.

9 (3) Three Valleys District – Three Valleys Municipal Water District,
10 formerly, “Pomona Valley Municipal Water District”, a member public agency of
11 MWD.

12 (ee) Stored Water – (Prior Judgment Section 4(dd)) Supplemental Water stored in
13 the Basin pursuant to a contract with Watermaster as authorized by Section 34(n).

14 (ff) Supplemental Water – (Prior Judgment Section 4(ee)) Nontributary water
15 imported through a Responsible Agency and reclaimed water or water obtained from
16 other available sources when water is not available in a timely fashion from a
17 Responsible Agency. (Amended 6/21/12)

18 (gg) Transporting Parties – (Prior Judgment Section 4(ff)) Any party presently
19 transporting water (i.e., during the 12 months immediately preceding the making of the
20 findings herein) from the Relevant Watershed or Basin to an area outside thereof, and
21 any party presently or hereafter having an interest in lands or having a service area
22 outside the Basin or Relevant Watershed contiguous to lands in which it has an interest
23 or a service area within the Basin or Relevant Watershed. Division by a road, highway,
24 or easement shall not interrupt contiguity. Said term shall also include the City of Sierra
25 Madre, or any party supplying water thereto, so long as the corporate limits of said City
26 are included within one of the Responsible Agencies and if said City, in order to supply
27 water to its corporate area from the Basin, becomes a party to this action bound by this
28 Judgment.

1 (hh) Water Level – (Prior Judgment Section 4(gg)) The measured Elevation of
2 water in the Key Well, corrected for any temporary effects of mounding caused by
3 replenishment or local depressions caused by Pumping.

4 (ii) Year – (Prior Judgment Section 4(hh)) A calendar year, unless the context
5 clearly indicates a contrary meaning.

6 (jj) Reclaimed Water – Water which, as a result of treatment of waste, is suitable
7 for a direct beneficial use or a controlled use that would not otherwise occur. (Amended
8 4/2/91)

9 11. Exhibits. (Prior Judgment Section 5) The following exhibits are attached to this
10 Judgment and incorporated herein by this reference:

11 Exhibit “A” – Map entitled, “San Gabriel River Watershed Tributary to Whittier
12 Narrows”, showing the boundaries and relevant geologic and hydrologic features in the
13 portion of the watershed of the San Gabriel River lying upstream from Whittier Narrows.

14 Exhibit “B” – Boundaries of Relevant Watershed.

15 Exhibit “C” – Table Showing Base Annual Diversion Rights of Certain Diverters.

16 Exhibit “D” – Table Showing Prescriptive Pumping Rights and Pumper’s Share
17 of Each Pumper.

18 Exhibit “E” – Table Showing Production Rights of Each Integrated Producer.

19 Exhibit “F” – Table Showing Special Category Rights.

20 Exhibit “G” – Table Showing Non-consumptive Users.

21 Exhibit “H” – Watermaster Operating Criteria.

22 Exhibit “J” – Puente Narrows Agreement.

23 Exhibit “K” – Overlying Rights, Nature of Overlying Right, Description of
24 Overlying Lands to which Overlying Rights are Appurtenant, Producers Entitled to
25 Exercise Overlying Rights and their Respective Consumptive Use Portions, and Map of
26 Overlying Lands.

27 Exhibit “L” – (New) List of Producers And Their Designees, as of June 2012.

28 Exhibit “M” – (New) Watermaster Members, Officers and Staff, Including

1 Calendar Year 2012.

2 **II. DECREE**

3 **NOW, THEREFORE, IT IS HEREBY DECLARED, ORDERED, ADJUDGED**
4 **AND DECREED:**

5 **A. DECLARATION OF HYDROLOGIC CONDITIONS**

6 12. Basin as Common Source of Supply. (Prior Judgment Section 6) The area
7 shown on Exhibit "A" as Main San Gabriel Basin overlies a Ground Water basin. The Relevant
8 Watershed is the watershed area within which rights are herein adjudicated. The waters of the
9 Basin and Relevant Watershed constitute a common source of natural water supply to the parties
10 herein.

11 13. Determination of Natural Safe Yield. (Prior Judgment Section 7) The Natural
12 Safe Yield of the Main San Gabriel Basin is found and declared to be one hundred fifty-two
13 thousand seven-hundred (152,700) acre-feet under Calendar Year 1967 cultural conditions.

14 14. Existence of Overdraft. (Prior Judgment Section 8) In each and every Calendar
15 year commencing with 1953, the Basin has been and is in Overdraft.

16 **B. DECLARATION OF RIGHTS**

17 15. Prescription. (Prior Judgment Section 9) The use of water by each and all parties
18 and their predecessors in interest has an open, notorious, hostile, adverse, under claim of right,
19 and with notice of said overdraft continuously from January 1, 1953 to January 4, 1973. The
20 rights of each party herein declared are prescriptive in nature. The following aggregate
21 consequences of said prescription within the Basin and Relevant Watershed are hereby declared:

22 (a) Prior Prescription. Diversions within the Relevant Watershed have created
23 rights for direct consumptive use within the Basin, as declared and determined in
24 Sections 16 and 18 hereof, which are of equal priority inter se, but which are prior and
25 paramount to Pumping Rights in the Basin.

26 (b) Mutual Prescription. The aggregate Prescriptive Pumping Rights of the
27 parties who are Pumpers now exceed, and for many years prior to filing of this action,
28 have exceeded, the Natural Safe Yield of the Basin. By reason of said condition, all

1 rights of said Pumpers are declared to be mutually prescriptive and of equal priority,
2 inter se.

3 (c) Common Ownership of Safe Yield and Incidents Thereto. By reason of said
4 Overdraft and mutual Prescription, the entire Natural Safe Yield of the Basin, the
5 Operating Safe Yield thereof and the appurtenant rights to Ground Water storage
6 capacity of the Basin are owned by Pumpers in undivided Pumpers' Shares as hereinafter
7 individually declared, subject to the control of Watermaster, pursuant to the Physical
8 Solution herein decreed. Nothing herein shall be deemed in derogation of the rights to
9 spread water pursuant to rights set forth in Exhibit "G".

10 16. Surface Rights. (Prior Judgment Section 10) Certain of the aforesaid prior and
11 paramount prescriptive water rights of Diverters to Divert for Direct Use stream flow within the
12 Relevant Watershed are hereby declared and found in terms of Base Annual Diversion Right as
13 set forth in Exhibit "C". Each Diverter shown on Exhibit "C" shall be entitled to Divert for
14 Direct Use up to two hundred percent (200%) of said Base Annual Diversion Right in any one
15 (1) Fiscal Year; provided that the aggregate quantities of water Diverted in any consecutive ten
16 (10) Fiscal Year period shall not exceed ten (10) times such Diverter's Base Annual Diversion
17 Right.

18 17. Ground Water Rights. (Prior Judgment Section 11) The Prescriptive Pumping
19 Right of each Pumper, who is not an Integrated Producer, and his Pumper's Share are declared
20 as set forth in Exhibit "D".

21 18. Optional Integrated Production Rights. (Prior Judgment Section 12) Those
22 parties listed on Exhibit "E" have elected to be treated as Integrated Producers. Integrated
23 Production Rights have two (2) historical components:

- 24 (1) a fixed component based upon historic Diversions for Direct Use; and
25 (2) a mutually prescriptive Pumper's Share component based upon Pumping
26 during the period 1953 through 1967.

27 Assessment and other Watermaster regulation of the rights of such parties shall relate to
' and be based upon each such component. So far as future exercise of such rights is concerned,

1 however, the gross quantity of the aggregate right in any Fiscal Year may be exercised, in the
2 sole discretion of such party, by either Diversion or Pumping or any combination or
3 apportionment thereof; provided, that for Assessment purposes the first water Produced in any
4 Fiscal Year (other than "Carry-over", under Section 49 hereof) shall be deemed an exercise of
5 the Diversion Component, and any Production over said quantity shall be deemed Pumped
6 water, regardless of the actual method of Production.

7 19. Special Category Rights. (Prior Judgment Section 13) The parties listed on
8 Exhibit "F" have water rights in the Relevant Watershed which are not ordinary Production
9 rights. The nature of each such right is as described in Exhibit "F".

10 20. Non-consumptive Practices. (Prior Judgment Section 14) Certain Producers
11 have engaged in Water Diversion and spreading practices which have caused such Diversions to
12 have a non-consumptive or beneficial impact upon the aggregate water supply available in the
13 Basin. Said parties, and a statement of the nature of their rights, uses and practices, are set forth
14 in Exhibit "G". The Physical Solution decreed herein, and particularly its provisions for
15 Assessments, shall not apply to such non-consumptive uses. Watermaster may require reports
16 on the operations of said parties.

17 21. Overlying Rights. (Prior Judgment Section 14.5) Producers listed in Exhibit "K"
18 hereto were not parties herein at the time of the original entry of Judgment herein. They have
19 exercised in good faith Overlying Rights to Produce water from the Basin during the periods
20 subsequent to the entry of Judgment herein and have by self-help initiated or maintained
21 appurtenant Overlying Rights. Such rights are exercisable without quantitative limit only on
22 specifically described Overlying Land and cannot be separately conveyed or transferred apart
23 therefrom. As to such rights and their exercise, the owners thereof shall become parties to this
24 action and be subject to Watermaster Replacement Water assessments under Section 45(b)
25 hereof, sufficient to purchase Replenishment Water to offset the net consumptive use of such
26 Production and practices. In addition, the gross amount of such Production for such overlying
27 use shall be subject to Watermaster Administration Assessments under Section 45(a) hereof and
the consumptive use portion of such Production for overlying use shall be subject to

1 Watermaster's In-Lieu Water Cost Assessments under Section 45(d) hereof. The Producers
2 presently entitled to exercise Overlying Rights, a description of the Overlying Land to which
3 Overlying Rights are appurtenant, the nature of use and the consumptive use portion thereof are
4 set forth in Exhibit "K" hereto. Watermaster may require reports and make inspections of the
5 operations of said parties for purposes of verifying the uses set forth in said Exhibit "K", and, in
6 the event of a material change, to redetermine the net amount of consumptive use by such parties
7 as changed, in the exercise of such Overlying Rights.

8 Annually, during the first two (2) weeks of June in each calendar year, such Overlying
9 Rights Producers shall submit to Watermaster a verified statement as to the nature of the then
10 current uses of said Overlying Rights on said Overlying Lands for the next ensuing Fiscal Year,
11 whereupon Watermaster shall either affirm the prior determination or redetermine the net
12 amount of the consumptive use portion of the exercise of such Overlying Right by said
13 Overlying Rights Producer.

14 C. INJUNCTION

15 22. Injunction Against Unauthorized Production. (Prior Judgment Section 15)
16 Effective July 1, 1973, each and every party, its officers, agents, employees, successors and
17 assigns, to whom rights to waters of the Basin or Relevant Watershed have been declared and
18 decreed herein is **ENJOINED AND RESTRAINED** from Producing water for Direct Use from
19 the Basin or the Relevant Watershed except pursuant to rights and Pumpers' Shares herein
20 decreed or which may hereafter be acquired by transfer pursuant to Section 55, or under the
21 provisions of the Physical Solution in this Judgment and the Court's continuing jurisdiction,
22 provided that no party is enjoined from Producing up to five (5) acre feet per Fiscal Year.

23 23. Injunction re Non-consumptive Uses. (Prior Judgment Section 16) Each party
24 listed in Exhibit "G", its officers, agents, employees, successors and assigns, is **ENJOINED**
25 **AND RESTRAINED** from materially changing said non-consumptive method of use.

26 24. Injunction re Change in Overlying Use Without Notice Thereof to Watermaster.
27 (Prior Judgment Section 16.5) Each party listed in Exhibit "K", its officers, agents, employees,
successors and assigns, is **ENJOINED AND RESTRAINED** from materially changing said

1 overlying uses at any time without first notifying Watermaster of the intended change of use, in
2 which event Watermaster shall promptly redetermine the consumptive use portion thereof to be
3 effective after such change.

4 25. Injunction Against Unauthorized Recharge. (Prior Judgment Section 17) Each
5 party, its officers, agents, employees, successors and assigns, is **ENJOINED AND**
6 **RESTRAINED** from spreading, injecting or otherwise recharging water in the Basin except
7 pursuant to: (a) an adjudicated non-consumptive use, or (b) consent and approval of or Cyclic
8 Storage Agreement with Watermaster, or (c) subsequent order of this Court.

9 26. Injunction Against Transportation from Basin or Relevant Watershed. (Prior
10 Judgment Section 18) Except upon further order of Court and except as provided in section
11 34(r) herein, all parties, other than Transporting Parties and MWD in its exercise of its Special
12 Category Rights, to the extent authorized therein, are **ENJOINED AND RESTRAINED** from
13 transporting water hereafter Produced from the Relevant Watershed or Basin outside the areas
14 thereof. For purposes of this Section, water supplied through a city water system which lies
15 chiefly within the Basin shall be deemed entirely used within the Basin. Transporting Parties
16 are entitled to continue to transport water to the extent that any Production of water by any such
17 party does not violate the injunctive revisions contained in Section 22 hereof; provided that said
18 water shall be used within the present service areas or corporate or other boundaries and
19 additions thereto so long as such additions are contiguous to the then existing service area or
20 corporate or other boundaries; except that a maximum of ten percent (10%) of use in any Fiscal
21 Year may be outside said then existing service areas or corporate or other boundaries.
22 Notwithstanding the foregoing and without in any way changing or limiting the Transporting
23 Parties' entitlement to transport water as set forth herein, any party may enter into an agreement
24 with Watermaster to store Supplemental Water and export said stored Supplemental Water
25 under specific terms and conditions approved by Watermaster. Such storage and export shall be
26 subject to (1) a determination by Watermaster that no material injury to the Basin or parties will
27 result therefrom; (2) execution of an agreement with Watermaster setting forth the terms and
3 conditions upon which water may be stored in or exported from the Basin; and (3) compliance

1 with Watermaster Rules and Regulations respecting Basin storage and export. (Amended
2 6/21/12)

3 **D. CONTINUING JURISDICTION**

4 27. Jurisdiction Reserved. (Prior Judgment Section 19) Full jurisdiction, power and
5 authority are retained by and reserved to the Court for purposes of enabling the Court upon
6 application of any party or of the Watermaster, by motion and upon at least thirty (30) days
7 notice thereof, and after hearing thereon, to make such further or supplemental orders or
8 directions as may be necessary or appropriate for interim operation before the Physical Solution
9 is fully operative, or for interpretation, enforcement or carrying out of this Judgment, and to
10 modify, amend or amplify any of the provisions of this Judgment or to add to the provisions
11 thereof consistent with the rights herein decreed. Provided, that nothing in this paragraph shall
12 authorize:

13 (1) modification or amendment of the quantities specified in the declared rights
14 of any party;

15 (2) modification or amendment of the manner of exercise of the Base Annual
16 Diversion Right or Integrated Production Right of any party; or

17 (3) the imposition of an injunction prohibiting transportation outside the
18 Relevant Watershed or Basin as against any Transporting Party transporting in
19 accordance with the provisions of this Judgment or against MWD as to its Special
20 Category Rights.

21 **E. WATERMASTER**

22 28. Watermaster to Administer Judgment. (Prior Judgment Section 20) A
23 Watermaster comprised of nine (9) persons, to be nominated as hereinafter provided and
24 appointed by the Court, shall administer and enforce the provisions of this Judgment and any
25 subsequent instructions or orders of the Court thereunder.

26 29. Qualification, Nomination and Appointment. (Prior Judgment Section 21) The
27 nine (9) member Watermaster shall be composed of six (6) Producer representatives and three
28 (3) public representatives qualified, nominated and appointed as follows:

1 (a) Qualification. Any adult citizen of the State of California shall be eligible to
2 serve as Watermaster; provided, however, that no officer, director, employee or agent of
3 Upper District or San Gabriel District shall be qualified as a Producer member of
4 Watermaster.

5 (b) Nomination of Producer Representatives. A meeting of all parties shall be
6 held at the regular meeting of Watermaster in November of each year, at the offices of
7 Watermaster. Nomination of the six (6) Producer representatives shall be by cumulative
8 voting, in person or by proxy, with each Producer entitled to one (1) vote for each one
9 hundred (100) acre-feet, or portion thereof, of Base Annual Diversion Right or
10 Prescriptive Pumping Right or Integrated Production Right.

11 (c) Nomination of Public Representatives. On or before the regular meeting of
12 Watermaster in November of each year, the three (3) public representatives shall be
13 nominated by the boards of directors of Upper District (which shall select two [2]) and
14 San Gabriel District (which shall select one [1]). Said nominees shall be members of the
15 board of directors of said public districts.

16 (d) Appointment. All Watermaster nominations shall be promptly certified to
17 the Court, which will in ordinary course confirm the same by an appropriate order
18 appointing said Watermaster; provided, however, that the Court at all times reserves the
19 right and power to refuse to appoint, or to remove, any member of Watermaster.
20 Notwithstanding section 27 herein, Watermaster nominations may be promptly certified
21 by the Court upon 10 calendar days' notice thereof, plus the time prescribed by statute
22 for service by mail, e-mail or other electronic means. (Amended 6/21/12)

23 30. Term and Vacancies. (Prior Judgment Section 22) Each member of Watermaster
24 shall serve for a one (1) year term commencing on January 1, following his appointment, or until
25 his successor is appointed. In the event of a vacancy on Watermaster, a successor shall be
26 nominated at a special meeting to be called by Watermaster within ninety (90) days (in the case
27 of a Producer representative) or by action of the appropriate district board of directors (in the
28 case of a public representative).

1 31. Quorum. (Prior Judgment Section 23) Five (5) members of the Watermaster
2 shall constitute a quorum for the transaction of affairs of the Watermaster. Action by the
3 affirmative vote of five (5) members shall constitute action by Watermaster, except that the
4 affirmative vote of six (6) members shall be required:

5 (a) to approve the purchase, spreading or injection of water for Ground Water
6 recharge, or

7 (b) to enter in any Agreement pursuant to Section 34 (n) hereof.

8 32. Compensation. (Prior Judgment Section 24) Each Watermaster member shall
9 receive compensation of One Hundred Dollars (\$100.00) per day for each day's attendance at
10 meetings of Watermaster or for each day's service rendered as a Watermaster member at the
11 request of Watermaster, together with any expenses incurred in the performance of his duties
12 required or authorized by Watermaster. No member of the Watermaster shall be employed by or
13 compensated for professional services rendered by him to Watermaster, other than the
14 compensation herein provided, and any authorized travel or related expense.

5 33. Organization. (Prior Judgment Section 25) At its first meeting in each year,
16 Watermaster shall elect a chairman and a vice chairman from its membership. It shall also select
17 a secretary, a treasurer and such assistant secretaries and assistant treasurers as may be
18 appropriate, any of whom may, but need not be, members of Watermaster.

19 (a) Minutes. Minutes of all Watermaster meetings shall be kept, which shall
20 reflect all actions taken by Watermaster. Draft copies thereof shall be furnished to any
21 party who files a request therefor in writing with Watermaster. Said draft copies of
22 minutes shall constitute notice of any Watermaster action therein reported; failure to
23 request copies thereof shall constitute waiver of notice.

24 (b) Regular Meetings. Watermaster shall hold regular meetings at places and
25 times to be specified in Watermaster's rules and regulations to be adopted by
26 Watermaster. Notice of the scheduled or regular meetings of Watermaster and of any
27 changes in the time or place thereof shall be mailed to all parties who shall have filed a
3 request therefor in writing with Watermaster.

1 (c) Special Meetings. Special meetings of Watermaster may be called at any
2 time by the chairman or vice chairman or by any three (3) members of Watermaster by
3 written notice delivered personally or mailed to each member of Watermaster and to
4 each party requesting notice, at least twenty-four (24) hours before the time of each such
5 meeting in the case of personal delivery, and forty-eight (48) hours prior to such meeting
6 in the case of mail. The calling notice shall specify the time and place of the special
7 meeting and the business to be transacted at such meeting. No other business shall be
8 considered at such meeting.

9 (d) Adjournments. Any meeting of Watermaster may be adjourned to a time
10 and place specified in the order of adjournment. Less than a quorum may so adjourn
11 from time to time. A copy of the order or notice of adjournment shall be conspicuously
12 posted on or near the door of the place where the meeting was held within twenty-four
13 (24) hours after adoption of the order of adjournment.

14 34. Powers and Duties. (Prior Judgment Section 26) Subject to the continuing
15 supervision and control of the Court, Watermaster shall have and may exercise the following
16 express powers, and shall perform the following duties, together with any specific powers,
17 authority and duties granted or imposed elsewhere in this Judgment or hereafter ordered or
18 authorized by the Court in the exercise of its continuing jurisdiction.

19 (a) Rules and Regulations. To make and adopt any and all appropriate rules and
20 regulations for conduct of Watermaster affairs. A copy of said rules and regulations and
21 any amendments thereof shall be mailed to all parties.

22 (b) Acquisition of Facilities. To purchase, own, lease, acquire and hold, as
23 trustee for the benefit of the Parties, all necessary personal property and equipment, and
24 such limited real property such as office quarters, monitoring wells, the key well, and
25 other facilities necessary to fulfill Watermaster's basin management responsibilities
26 under this Judgment. (Amended 6/21/12)

27 (c) Employment of Experts and Agents. To employ such administrative
3 personnel, engineering, geologic, accounting, legal, public policy education or other

1 specialized services (but not including registered lobbyists) and consulting assistants as
2 may be deemed appropriate in the carrying out of its powers and to require appropriate
3 bonds from all officers and employees handling Watermaster funds. (Amended 6/21/12)

4 (d) Measuring Devices, etc. To cause parties, pursuant to uniform rules, to
5 install and maintain in good operating condition, at the cost of each party, such necessary
6 measuring devices or meters as may be appropriate; and to inspect and test any such
7 measuring device as may be necessary.

8 (e) Assessments. To levy and collect all Assessments specified in the Physical
9 Solution.

10 (f) Investment of Funds. To hold and invest any and all funds which
11 Watermaster may possess in investments authorized from time to time for public
12 agencies in the State of California.

13 (g) Borrowing. To borrow in anticipation of receipt of Assessment proceeds an
14 amount not to exceed the annual amount of Assessments levied but uncollected, or in
15 accordance with the provisions of Sections 45 and 46 hereto. Upon approval by the
16 Watermaster at its regularly scheduled public meeting, when necessary to secure
17 Supplemental Water, Watermaster may borrow funds in excess of the annual amount of
18 Assessments levied but uncollected. Prior to borrowing funds, Watermaster shall meet
19 and confer with Responsible Agencies and seek their input. Watermaster shall adopt
20 Rules and Regulations specifying: (i) how debt repayment will be allocated among the
21 Parties; (ii) that Watermaster obtain prior approval of the Court before incurring debt that
22 exceeds the total of one year's levied Assessments; and (iii) such other matters as
23 Watermaster deems appropriate for Rules and Regulations respecting the purchase of
24 Supplemental Water using debt. (Amended 6/21/12)

25 (h) Purchase of and Recharge with Supplemental Water. To purchase
26 Supplemental Water and to introduce the same into the Basin, including Reclaimed
27 Water, for replenishment, Replacement Water, and cyclic storage purposes in the Basin
subject to the affirmative vote of six (6) members of Watermaster, provided, the

1 California Department of Public Health and the Los Angeles Regional Water Quality
2 Control Board have approved such Reclaimed Water for said uses, Watermaster has
3 given prior notice to all parties of its intention to use said Reclaimed Water for such
4 purposes, held noticed hearings thereon, and approves such uses. Reclaimed Water used
5 by Watermaster as Supplemental Water for said purposes shall not be a violation of
6 Sections 3(b) or 3(c) of Exhibit "H" hereto. (Amended 4/2/91 and 6/21/12)

7 (i) Contracts. To enter into contracts for the performance of any administrative
8 powers herein granted, subject to approval of the Court.

9 (j) Cooperation with Existing Agencies. To act jointly or cooperate with
10 agencies of the United States and the State of California or any political subdivision,
11 municipality or district to the end that the purposes of the Physical Solution may be fully
12 and economically carried out. (Amended 6/21/12)

13 (k) Assumption of Make-Up Obligation. Watermaster shall assume the Make-
14 Up Obligation for and on behalf of the Basin.

15 (m) Water Quality. Water quality in the Basin shall be a concern of
16 Watermaster, and all reasonable steps shall be taken to assist and encourage appropriate
17 regulatory agencies to enforce reasonable water quality regulations affecting the Basin,
18 including regulation of solid and liquid waste disposal.

19 (n) Cyclic Storage Agreements. To enter into appropriate contracts, to be
20 approved by the Court, for utilization of Ground Water storage capacity of the Basin for
21 cyclic or regulatory storage of Supplemental Water by parties and non-parties, for
22 subsequent recovery or Watermaster credit by the storing entity, pursuant to uniform
23 rules and conditions, which shall include provision for:

24 (1) Watermaster control of all spreading or injection and extraction
25 scheduling and procedures for such stored water;

26 (2) calculation by Watermaster of any special costs, damages or burdens
27 resulting from such operations;

3 (3) determination by Watermaster of, and accounting for, all losses in

1 stored water, assuming that such stored water floats on top of the Ground Water
2 supplies, and accounting for all losses of water which otherwise would have
3 replenished the Basin, with priorities being established as between two or more
4 such contractors giving preference to parties over non-parties; and

5 (4) payment to Watermaster for the benefit of the parties hereto of all
6 special costs, damages or burdens incurred (without any charge, rent, assessment
7 or expense as to parties hereto by reason of the adjudicated proprietary character
8 of said storage rights, nor credit or offset for benefits resulting from such
9 storage); provided, that no party shall have any direct interest in or control over
10 such contracts or the operation thereof by reason of the adjudicated right of such
11 party, the Watermaster having sole custody and control of all Ground Water
12 storage rights in the Basin pursuant to the Physical Solution herein, and subject to
13 review of the Court.

14 (o) Notice List. Maintain a current list of party designees to receive notice
15 hereunder, in accordance with Section 54 hereof.

16 (p) Authority to Sue. To prosecute litigation, engage in dispute resolution and
17 file amicus curiae briefs in the furtherance of Watermaster's responsibilities under this
18 Judgment. (Amended 6/21/12)

19 (q) Public Policy Education. To perform public policy education activities in
20 furtherance of Watermaster's responsibilities under this Judgment. (Amended 6/21/12)

21 (r) Export Agreements. Watermaster may fix terms and conditions under which
22 parties and non-parties may store Supplemental Water in and export said stored
23 Supplemental Water from the Basin. (Amended 6/21/12)

24 35. Policy Decisions – Procedure. (Prior Judgment Section 27) It is contemplated
25 that Watermaster will exercise discretion in making policy decisions relating to Basin
26 management under the Physical Solution decreed herein. In order to assure full participation
27 and opportunity to be heard for those affected, no policy decision shall be made by Watermaster
until thirty (30) days after the question involved has been raised for discussion at a Watermaster

meeting and noted in the draft of minutes thereof.

2 36. Reports. (Prior Judgment Section 28) Watermaster shall annually file with the
3 Court and mail to the parties a report of all Watermaster activities during the preceding year,
4 including an audited statement of all accounts and financial activities of Watermaster, summary
5 reports of Diversions and Pumping, and all other pertinent information. To the extent practical,
6 said report shall be mailed to all parties on or before November 1. The tables set forth in
7 Exhibits C, D, E, K, L and M are listed for reference purposes only. Future updates to those
8 exhibits shall be set forth in the Watermaster annual report. In lieu of mailing the annual report,
9 Watermaster in its discretion may post the report on its website, mail or e-mail a notice of
10 availability to the parties, and/or provide a hard copy of the report upon request. If a party does
11 not have a valid e-mail address or internet access, that party shall identify an alternative method
12 of service to be approved by Watermaster in its sole discretion. (Amended 6/21/12)

13 37. Review Procedures. (Prior Judgment Section 29) Any action, decision, rule or
14 procedure of Watermaster (other than a decision establishing Operating Safe Yield, see Section
15 43(c)) shall be subject to review by the Court on its own motion or on timely motion for an
16 Order to Show Cause by any party, as follows:

17 (a) Effective Date of Watermaster Action. Any order, decision or action of
18 Watermaster shall be deemed to have occurred on the date that written notice thereof is
19 mailed. Mailing of draft copies of Watermaster minutes to the parties requesting the
20 same shall constitute notice to all such parties.

21 (b) Notice of Motion. Any party may, by a regularly noticed motion, petition
22 the Court for review of said Watermaster's action or decision. Notice of such motion
23 shall be mailed to Watermaster and all parties. Unless so ordered by the Court, such
24 petition shall not operate to stay the effect of such Watermaster action.

25 (c) Time for Motion. Notice of motion to review any Watermaster action or
26 decision shall be served and filed within ninety (90) days after such Watermaster action
27 or decision.

28 (d) De Novo Nature of Proceeding. Upon filing of such motion for hearing, the

1 Court shall notify the parties of a date for taking evidence and argument, and shall
2 review de novo the question at issue on the date designated. The Watermaster decision
3 or action shall have no evidentiary weight in such proceeding.

4 (e) Decision. The decision of the Court in such proceeding shall be an
5 appealable Supplemental Order in this case. When the same is final, it shall be binding
6 upon the Watermaster and the parties.

7 **F. PHYSICAL SOLUTION**

8 38. Purpose and Objective. (Prior Judgment Section 30) Consistent with the
9 California Constitution and the decisions of the Supreme Court, the Court hereby adopts and
10 Orders the parties to comply with this Physical Solution. The purpose and objective of these
11 provisions is to provide a legal and practical means for accomplishing the most economic, long
12 term, conjunctive utilization of surface, Ground Water, Supplemental Water and Ground Water
13 storage capacity to meet the needs and requirements of the water users dependent upon the Basin
14 and Relevant Watershed, while preserving existing equities.

15 39. Need for Flexibility. (Prior Judgment Section 31) In order that Watermaster may
16 be free to utilize both existing and new and developing technological, social and economic
17 concepts for the fullest benefit of all those dependent upon the Basin, it is essential that the
18 Physical Solution hereunder provide for maximum flexibility and adaptability. To that end, the
19 Court has retained continuing jurisdiction to supplement the broad discretion herein granted to
20 the Watermaster.

21 40. Watermaster Control. (Prior Judgment Section 32) In order to develop an
22 adequate and effective program of Basin management, it is essential that Watermaster have
23 broad discretion in the making of Basin management decisions within the ambit hereinafter set
24 forth. The maintenance, improvement, and control of the water quality and quantity of the
25 Basin, withdrawal and replenishment of supplies of the Basin and Relevant Watershed, and the
26 utilization of the water resources thereof, must be subject to procedures established by
27 Watermaster in implementation of the provisions of this Judgment. Both the quantity and
28 quality of said water resource are thereby preserved and its beneficial utilization maximized.

1 (Amended 1/29/91)

2 (a) Watermaster shall develop an adequate and effective program of Basin
3 management. The maintenance, improvement, and control of the water quality and
4 quantity of the Basin, withdrawal and replenishment of supplies of the Basin and
5 Relevant Watershed, and the utilization of the water resources thereof, must be subject to
6 procedures established by Watermaster in implementation of the Physical Solution
7 provisions of this Judgment. All Watermaster programs and procedures shall be adopted
8 only after a duly noticed public hearing pursuant to Section 37 and 40 of the Amended
9 Judgment herein. (Amended 1/29/91)

10 (b) Watermaster shall have the power to control pumping in the Basin by water
11 Producers therein for Basin cleanup and water quality control so that specific well
12 production can be directed as to a lesser amount, to total cessation, as to an increased
13 amount, and even to require pumping in a new location in the Basin. Watermaster's
14 right to regulate pumping activities of Producers shall be subordinate to any conflicting
15 Basin cleanup plan established by the EPA or other public governmental agency with
16 responsibility for ground water management or clean up, whether existing at the time of
17 this Judgment or subsequent hereto. (Amended 2/24/92)

18 (c) Watermaster may act individually or participate with others to carry on
19 technical and other necessary investigations of all kinds and collect data necessary to
20 carry out the herein stated purposes. It may engage in contractual relations with the EPA
21 or other agencies in furtherance of the clean up of the Basin and enter into contracts with
22 agencies of the United States, the State of California, or any political subdivision,
23 municipality, or district thereof, to the extent allowed under the applicable federal or
24 state statutes. Any cooperative agreement between the Watermaster and EPA shall
25 require the approval of the appropriate Agency(s) of the State of California. (Amended
26 1/29/91)

27 (d) For the regulation and control of pumping activity in the Basin, Watermaster
28 shall adopt Rules and Regulations and programs to promote, manage and accomplish

1 clean up of the Basin and its waters, including, but not limited to, measures to confine,
2 move, and remove contaminants and pollutants. Such Rules and Regulations and
3 programs shall be adopted only after a duly Noticed Public Hearing by Watermaster and
4 shall be subject to Court review pursuant to Section 37 of the Amended Judgment herein.
5 (Amended 1/29/91)

6 (e) Watermaster shall determine whether funds from local, regional, state or
7 federal agencies are available for regulating pumping and the various costs associated
8 with, or arising from such activities. If no public funds are available from local,
9 regional, state, or federal agencies, the costs shall be obtained and paid by way of an In-
10 Lieu Assessment by Watermaster pursuant to Section 10(j) of the Amended Judgment
11 herein. Provided such In-Lieu Assessments become necessary, the costs shall be borne
12 by all Basin Producers. (Amended 1/29/91)

13 (f) Watermaster is a Court empowered entity with limited powers, created
14 pursuant to the Court's Physical Solution Jurisdiction under Article X, Section 2 of the
15 California Constitution. None of the powers granted herein to Watermaster shall be
16 construed as designating Watermaster a political subdivision of the State of California or
17 authorizing Watermaster to act as "lead agency" to administer the federal Superfund for
18 clean up of the Basin. (Amended 1/29/91)

19 41. General Pattern of Contemplated Operations. (Prior Judgment Section 33) In
20 general outline (subject to the specific provisions hereafter and to Watermaster Operating
21 Criteria set forth in Exhibit "H"), Watermaster will determine annually the Operating Safe Yield
22 of the Basin and will notify each Pumper of his share thereof, stated in acre feet per Fiscal Year.
23 Thereafter, no party may Produce in any Fiscal Year an amount in excess of the sum of his
24 Diversion Right, if any, plus his Pumper's Share of such Operating Safe Yield, or his Integrated
25 Production Right, or the terms of any Cyclic Storage Agreement, without being subject to
26 Assessment for the purpose of purchasing Replacement Water. In establishing the Operating
27 Safe Yield, Watermaster shall follow all physical, economic, and other relevant parameters
; provided in the Watermaster Operating Criteria. Watermaster shall have Assessment powers to

1 raise funds essential to implement the management plan in any of the several special
2 circumstances herein described in more detail.

3 42. Basin Operating Criteria. (Prior Judgment Section 34) Until further order of the
4 Court, Watermaster shall recharge Replacement Water in accordance with the Watermaster
5 Operating Criteria and, insofar as practicable, to maintain the water level at the Key Well above
6 Elevation two hundred (200). (Amended 6/21/12)

7 43. Determination of Operating Safe Yield. (Prior Judgment Section 35)
8 Watermaster shall annually determine the Operating Safe Yield applicable to the succeeding
9 Fiscal Year and estimate the same for the next succeeding four (4) Fiscal Years. In making such
10 determination, Watermaster shall be governed in the exercise of its discretion by the
11 Watermaster Operating Criteria. The procedures with reference to said determination shall be as
12 follows:

13 (a) Preliminary Determination. On or before Watermaster's first meeting in
14 April of each year, Watermaster shall make a Preliminary Determination of the
15 Operating Safe Yield of the Basin for each of the succeeding five Fiscal Years. Said
16 determination shall be made in the form of a report containing a summary statement of
17 the considerations, calculations and factors used by Watermaster in arriving at said
18 Operating Safe Yield.

19 (b) Notice and Hearing. A copy of said Preliminary Determination and report
20 shall be mailed to each Pumper and Integrated Producer at least ten (10) days prior to a
21 hearing to be held at Watermaster's regular meeting in May, of each year, at which time
22 objections or suggested corrections or modifications of said determinations shall be
23 considered. Said hearing shall be held pursuant to procedures adopted by Watermaster.

24 (c) Watermaster Determination and Review Thereof. Within thirty (30) days
25 after completion of said hearing, Watermaster shall mail to each Pumper and Integrated
26 Producer a final report and determination of said Operating Safe Yield for each such
27 Fiscal Year, together with a statement of the Producer's entitlement in each such Fiscal
28 Year stated in acre-feet. Any affected party, within thirty (30) days of mailing of notice

1 of said Watermaster determination, may, by a regularly noticed motion, petition the
2 Court for an Order to Show Cause for review of said Watermaster finding, and thereupon
3 the Court shall hear such objections and settle such dispute. Unless so ordered by the
4 Court, such petition shall not operate to stay the effect of said report and determination.
5 In the absence of such review proceedings, the Watermaster determination shall be final.

6 44. Reports of Pumping and Diversion. (Prior Judgment Section 36) Each party
7 shall file with the Watermaster quarterly, on or before the last day of January, April, July and
8 October, a report on a form to be prescribed by Watermaster showing the total Pumping and
9 Diversion (separately for Direct Use and for non-consumptive use, if any) of such party during
10 the preceding calendar quarter.

11 45. Assessments – Purpose. (Prior Judgment Section 37)

12 (a) Statement of Authority and Need for Flexibility: Watermaster shall have the
13 power to levy and collect Assessments from the parties (other than non-consumptive
14 users, or Production under Special Category Rights or Cyclic Storage Agreements) based
15 upon Production during the preceding Fiscal Year. Assessments on Minimal Producers
16 will apply only to (1) existing parties who become Minimal Producers in the future; and
17 (2) Minimal Producers who intervene after June 21, 2012. Because Supplemental Water
18 may not be available for extended periods of time, Watermaster requires flexibility with
19 respect to the procedures for purchasing Supplemental Water supplies, as and when those
20 supplies become available. This Judgment is a Physical Solution entered pursuant to
21 California Constitution Article X, Section 2, which recognizes that the timing and
22 amount of Watermaster Assessments for Replacement Water costs must be determined in
23 light of this uncertainty. This Judgment therefore grants Watermaster the flexibility and
24 discretion necessary to purchase and pre-purchase Supplemental Water and levy
25 assessments in an appropriate and equitable manner and amount to maximize the
26 opportunities to secure necessary Supplemental Waters in the best interest of the parties
27 and the long-term sustainability of the Basin. In accordance with Rules and Regulations
adopted by Watermaster, to further enhance flexibility, Watermaster may borrow money

1 from any available fund maintained by it for purposes other than Replacement Water
2 purchases, or use accrued funds, to purchase Supplemental Water. (Amended 6/21/12)

3 (b) Authorized Assessments: Said Assessments may be for one or more of the
4 following purposes:

5 (1) Watermaster Administration Costs. (Former Section 45(a)) Within
6 thirty (30) days after completion of the hearing on the Preliminary Determination
7 of the Operating Safe Yield of the Basin and Watermaster's determination
8 thereof, pursuant to Section 43 hereof, Watermaster shall adopt a proposed
9 budget for the succeeding Fiscal Year and shall mail a copy thereof to each party,
10 together with a statement of the level of Administration Assessment levied by
11 Watermaster which will be collected for purposes of raising funds for said
12 budget. Said Assessment shall be uniformly applicable to each acre-foot of
13 Production. (Amended 6/21/12)

14 (2) Replacement Water Costs. (Former Section 45(b)) Replacement
15 Water Assessments shall be collected from each party on account of such party's
16 Production in excess of its Diversion Rights, Pumper's Share or Integrated
17 Production Right, and on account of the consumptive use portion of Overlying
18 Rights, computed at the applicable rate established by Watermaster consistent
19 with the Watermaster Operating Criteria, and other relevant factors, including the
20 projected cost and availability of Supplemental Water supplies. Subject to Rules
21 and Regulations adopted by Watermaster, Watermaster Replacement Water
22 Assessment rates may be in an amount calculated to allow Watermaster to
23 purchase more than one acre-foot of Supplemental Water for each acre-foot of
24 excess Production to which such Assessment applies, when such purchases are
25 necessary to secure Supplemental Water supplies for the benefit of the Basin and
26 parties. (Amended 6/21/12)

27 (3) Make-Up Obligation. (Former Section 45(c)) An Assessment shall
28 be collected equally on account of each acre-foot of Production, which does not

1 bear a Replacement Assessment hereunder, to pay all necessary costs of
2 Administration and satisfaction of the Make-Up Obligation. Such Assessment
3 shall not be applicable to water Production for an Overlying Right.

4 (4) In-Lieu Water Cost. (Former Section 45(d)) Watermaster may levy
5 an Assessment against all Pumping to pay reimbursement for In-Lieu Water
6 Costs except that such Assessment shall not be applicable to the non-consumptive
7 use portion of an Overlying Right.

8 (5) Basin Water Quality Improvement. (Former Section 45(e)) For
9 purposes of testing, protecting or improving the water quality in the Basin,
10 Watermaster may, after a noticed hearing thereon, fix terms and conditions under
11 which it may waive all or any part of its Assessments on such ground water
12 Production and if such Production, in addition to his other Production, does not
13 exceed such Producer's Share or entitlement for that Fiscal Year, such stated
14 Production shall be allowed to be carried over for a part of such Producer's next
15 Fiscal Year's Producer's Share or entitlement. In connection therewith,
16 Watermaster may also waive the provisions of Section 25, 26 and 57 hereof,
17 relating to Injunction Against Unauthorized Recharge, Injunction Against
18 Transportation From Basin or Relevant Watershed, and Intervention After
19 Judgment, respectively. Nothing in this Judgment is intended to allow an
20 increase in any Producer's annual entitlement nor to prevent Watermaster, after
21 hearing thereon, from entering into contracts to encourage, assist and accomplish
22 the clean up and improvement of degraded water quality in the Basin by non-
23 parties herein. Such contracts may include the exemption of the Production of
24 such Basin water therefor from Watermaster Assessments and, in connection
25 therewith, the waiver of the provisions of Judgment Sections 25, 26, and 57
26 hereof.

27 (6) Export and Storage. Watermaster shall levy an assessment to account
for costs, burdens or losses incurred in connection with such exported or stored

1 water, including a fee for storage administration. Such storage or export shall be
2 subject to (1) a determination by Watermaster that no material injury to the Basin
3 or parties will result therefrom; (2) execution of an agreement with Watermaster
4 setting forth the terms and conditions upon which water may be stored in or
5 exported from the Basin; and (3) compliance with Watermaster Rules and
6 Regulations respecting Basin storage and export. (Amended 6/21/12)

7 (7) Water Resource Development Assessment. Watermaster may levy an
8 Assessment on all Pumping, as determined through Rules and Regulations to be
9 adopted by the Watermaster, to support the purchase, financing, and/or
10 development of new or additional Supplemental Water sources, in cooperation
11 with one or more Responsible Agencies as appropriate. (Amended 6/21/12)

12 46. Assessments – Procedure. (Prior Judgment Section 38) Assessments herein
13 provided for shall be levied and collected as follows:

14 (a) Levy and Notice of Assessment. Within thirty (30) days of Watermaster's
15 annual determination of Operating Safe Yield of the Basin for each Fiscal Year and
16 succeeding four (4) Fiscal Years, and at such other time[s] of the year as determined by
17 Watermaster, Watermaster shall levy applicable Administration Assessments,
18 Replacement Water Assessments, Make-Up Water Assessments, In-Lieu Water
19 Assessments, and Water Resource Development Assessments, if any. Watermaster shall
20 give written notice of all applicable Assessments to each party on or before August 15,
21 of each year, and at such other time[s] as determined by Watermaster. To provide
22 flexibility and maximize the opportunity to secure Replacement Water supplies when
23 available, in accordance with criteria set forth in the Watermaster Rules and Regulations,
24 Watermaster may levy supplemental assessments as necessary to create sufficient funds
25 to purchase and pre-purchase such Replacement Water supplies for the benefit of the
26 Basin and parties. (Amended 6/21/12)

27 (b) Payment. Each Assessment shall be payable, and each party is Ordered to
pay the same, on or before September 20, following such Assessment, subject to the

rights reserved in Section 37 hereof.

(c) Delinquency. Any Assessment which becomes delinquent after January 1, 1980, shall bear interest at the annual prime rate plus one percent (1%) in effect on the first business day of August of each year. Said prime interest rate shall be that fixed by the Bank of America NT&SA for its preferred borrowing customers on said date. Said prime interest rate plus one percent (1%) shall be applicable to any said delinquent Assessment from the due date thereof until paid. Provided, however, in no event shall any said delinquent Assessment bear interest at a rate of less than ten percent (10%) per annum. Such delinquent Assessment and interest may be collected in a Show Cause proceeding herein or any other legal proceeding instituted by Watermaster, and in such proceeding the Court may allow Watermaster its reasonable costs of collection, including attorney's fees.

47. Availability of Supplemental Water from Responsible Agencies. (Prior Judgment Section 39) If any Responsible Agency shall, for any reason, be unable to deliver Supplemental Water to Watermaster in a timely fashion when needed, Watermaster may (1) collect funds at an appropriate level and hold them in trust, together with interest accrued thereon, for purchase of such water when available; (2) purchase water from the remaining Responsible Agencies which are the most beneficial and appropriate sources observing all legal and contractual constraints on the availability of such water; or (3) purchase Supplemental Water from any other available source. Watermaster shall consult with the Responsible Agencies involved and in good faith shall determine the appropriate source of Supplemental Water under such circumstances. Should Watermaster arrange to purchase Supplemental Water from a source not involving a Responsible Agency, Watermaster shall provide the Responsible Agencies an opportunity to provide said Supplemental Water or comparable water supplies on comparable terms. (Amended 6/21/12)

48. Accumulation of Replacement Water Assessment Proceeds. (Prior Judgment Section 40) In order to minimize fluctuation in Assessments and to give Watermaster flexibility in Basin management, Watermaster may make reasonable accumulations of Replacement Water

1 Assessments. Such moneys and any interest accrued thereon shall only be used for the purchase
2 of Replacement Water.

3 49. Carry-over of Unused Rights. (Prior Judgment Section 41) Any Pumper's Share
4 of Operating Safe Yield, and the Production right of any Integrated Producer, which is not
5 Produced in a given Fiscal Year may be carried over and accumulated for one Fiscal Year,
6 pursuant to reasonable rules and procedures for notice and accounting which shall be adopted by
7 Watermaster. The first water Produced in the succeeding Fiscal Year shall be deemed Produced
8 pursuant to such Carry-over Rights.

9 50. Minimal Producers. (Prior Judgment Section 42) In the interest of Justice,
10 Minimal Producers who initiated production on or before June 21, 2012, are exempted from the
11 operation of this Physical Solution, so long as such party's annual Production does not exceed
12 five (5) acre-feet. Watermaster may require, and Minimal Producers shall furnish, specific
13 periodic reports. In addition, Watermaster may conduct such investigation of future operations
14 of any Minimal Producer as may be appropriate. As of June 21, 2012, there shall be no new
15 Minimal Producers, and any new Producer shall be subject to all provisions of the Judgment.
16 (Amended 6/21/12)

17 51. Effective Date. (Prior Judgment Section 43) The effective date for commencing
18 accounting and operation under this Physical Solution, other than for Replacement Water
19 Assessments, shall be July 1, 1972. The first Assessment for Replacement Water shall be
20 payable on September 20, 1974, on account of Fiscal Year 1973-74 Production.

21 **G. MISCELLANEOUS PROVISIONS**

22 52. Puente Narrows Flow. (Prior Judgment Section 44) The Puente Basin is
23 tributary to the Main San Gabriel Basin. All Producers within said Puente Basin have been
24 dismissed herein, based upon the Puente Narrows Agreement (Exhibit "J"), whereby Puente
25 Basin Water Agency agreed not to interfere with surface inflow and to assure continuance of
26 historic subsurface contribution of water to Main San Gabriel Basin. The Court declares said
27 Agreement to be reasonable and fair and in full satisfaction of claims by Main San Gabriel Basin
; for natural water from Puente Basin.

53. Deleted Section (Amended 6/21/12)

54. Service Upon and Delivery to Parties of Various Papers. (Prior Judgment Section

46) Service of the Judgment on those parties who have executed the Stipulation for Judgment shall be made by first class mail, postage prepaid, addressed to the Designee and at the address designated for that purpose in the executed and filed counterpart of the Stipulation for Judgment, or in any substitute designation filed with the Court.

Each party who has not heretofore made such a designation shall, within thirty (30) days after the Judgment shall have been served upon that party, file with the Court, with proof of service of a copy thereof upon Watermaster, a written designation of the person to whom and the address at which all future notices, determinations, requests, demands, objections, reports and other papers and processes to be served upon that party or delivered to that party are to be so served or delivered.

A later substitute designation filed and served in the same manner by any party shall be effective from the date of filing as to the then future notices, determinations, requests, demands, objections, reports and other papers and processes to be served upon or delivered to that party.

Delivery to or service upon any party by Watermaster, by any other party, or by the Court, of any item required to be served upon or delivered to a party under or pursuant to the Judgment may be made by deposit thereof (or by copy thereof) in the mail, first class, postage prepaid, addressed to the Designee of the party and at the address shown in the latest designation filed by that party. In lieu of mailing any item required to be served under this Judgment, Watermaster may serve such item by electronic service, which may include posting the document to Watermaster's website, sending an e-mail of the document to that party, or sending a notice of availability to that party indicating the document's availability for viewing on the Watermaster website. If a party does not have a valid e-mail address or internet access, that party shall identify an alternative method of service to be approved by Watermaster in its sole discretion.

Any party desiring to be relieved of receiving notices of Watermaster activity may file a waiver of notice on a form to be provided by Watermaster. Thereafter such party shall be

1 removed from the active party service list and not receive any notices required under this
2 Judgment. The parties have a duty to keep Watermaster informed of their current e-mail and
3 mailing addresses. If mail or e-mail is returned undeliverable to Watermaster for an incorrect
4 address, Watermaster in its sole discretion may remove that party from the active party service
5 list. (Amended 6/21/12)

6 55. Assignment, Transfer, etc., of Rights. (Prior Judgment Section 47) Any rights
7 Adjudicated herein except Overlying Rights, may be assigned, transferred, licensed or leased by
8 the owners thereof; provided however, that no such assignment shall be complete until the
9 appropriate notice procedures established by Watermaster have been complied with. No water
10 Produced pursuant to rights assigned, transferred, licensed, or leased may be transported outside
11 the Relevant Watershed except by:

12 (1) a Transporting Party, or

13 (2) a successor in interest immediate or mediate to a water system on lands or
14 portion thereof, theretofore served by such a Transporting Party, for use by such
15 successor in accordance with limitations applicable to Transporting Parties, or

16 (3) a successor in interest to the Special Category rights of MWD.

17 The transfer and use of Overlying Rights shall be limited, as provided in Section 21
18 hereof, as exercisable only on the specifically defined Overlying Lands and they cannot be
19 separately conveyed or transferred apart therefrom.

20 56. Abandonment of Rights. (Prior Judgment Section 48) It is in the interest of
21 reasonable beneficial use of the Basin and its water supply that no party be encouraged to take
22 and use more water in any Fiscal Year than is actually required. Failure to Produce all of the
23 water to which a party is entitled hereunder shall not, in and of itself, be deemed or constitute an
24 abandonment of such party's right, in whole or in part. Abandonment and extinction of any
25 right herein Adjudicated shall be accomplished only by:

26 (1) a written election by the party, filed in this case, or

27 (2) upon noticed motion of Watermaster, and after hearing.

3 In either case, such abandonment shall be confirmed by express subsequent order of this

1 Court.

2 57. Intervention After Judgment. (Prior Judgment Section 49) Any person who is
3 not a party or successor to a party and who proposes to Produce water from the Basin or
4 Relevant Watershed, may seek to become a party to this Judgment through a Stipulation For
5 Intervention entered into with Watermaster. Watermaster may execute said Stipulation on
6 behalf of the other parties herein but such Stipulation shall not preclude a party from opposing
7 such Intervention at the time of the Court hearing thereon. Said Stipulation For Intervention
8 must thereupon be filed with the Court, which will consider an order confirming said
9 Intervention following thirty (30) days' notice to the parties. Thereafter, if approved by the
10 Court, such Intervenor shall be a party bound by this Judgment and entitled to the rights and
11 privileges accorded under the Physical Solution herein.

12 58. Judgment Binding on Successors, etc. (Prior Judgment Section 50) Subject to
13 specific provisions hereinbefore contained, this Judgment and all provisions thereof are
14 applicable to and binding upon and inure to the benefit of not only the parties to this action, but
15 as well to their respective heirs, executors, administrators, successors, assigns, lessees, licensees
16 and to the agents, employees and attorneys in fact of any such persons.

17 59. Water Rights Permits. (Prior Judgment Section 51) Nothing herein shall be
18 construed as affecting the relative rights and priorities between MWD and San Gabriel Valley
19 Protective Association under State Water Rights Permits Nos. 7174 and 7175, respectively.

20 60. Costs. (Prior Judgment Section 52) No party shall recover any costs in this
21 proceeding from any other party.

22 61. Entry of Judgment. (New) The Clerk shall enter this Judgment.

23
24 DATED: June 21, 2012

25 s/ Maureen Duffy-Lewis
26 Maureen Duffy-Lewis, Judge
27 Specially Assigned

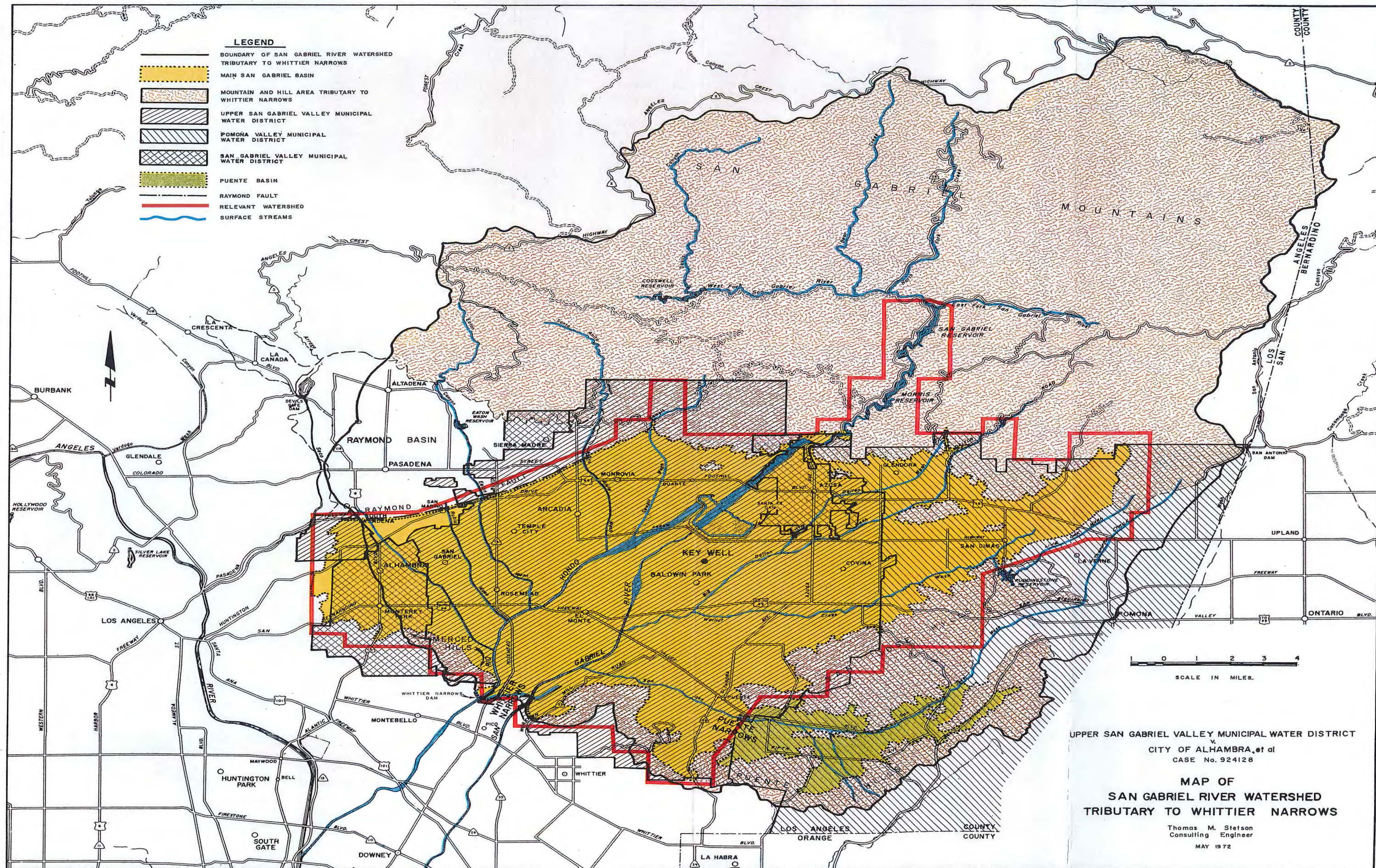


EXHIBIT "B"

BOUNDARIES OF RELEVANT WATERSHED

The following described property is located in Los Angeles County, State of California:

Beginning at the Southwest corner of Section 14, Township 1 North, Range 11 West, San Bernardino Base and Meridian;

Thence Northerly along the West line of said Section 14 to the Northwest corner of the South half of said Section 14;

Thence Easterly along the North line of the South half of Section 14 to the East line of said Section 14;

Thence Northerly along the East line of said Section 14, Township 1 North, Range 11 West and continuing Northerly along the East line of Section 11 to the Northeast corner of said Section 11;

Thence Easterly along the North line of Section 12 to the Northeast corner of said Section 12;

Thence Southerly along the East line of said Section 12 and continuing Southerly along the East line of Section 13 to the Southeast corner of said Section 13, said corner being also the Southwest corner of Section 18, Township 1 North, Range 10 West;

Thence Easterly along the South line of Sections 18, 17, 16 and 15 of said Township 1 North, Range 10 West to the Southwest corner of Section 14;

Thence Northerly along the West line of Section 14 to the Northwest corner of the South half of Section 14;

Thence Easterly along the North line of the South half of Section 14 to the East line of said section;

Thence Northerly along the East line of said Section 14, and continuing Northerly along the West line of Section 12 of said Township 1 North, Range 10 West to the North line of said Section 12;

Thence Easterly along the North line of said Section 12, to the Northeast corner of said Section 12, said corner being also the Southwest corner of Section 6, Township 1 North, Range 9 West;

Thence Northerly along the West line of said Section 6 and continuing Northerly along West line of Sections 31 and 30, Township 2 North, Range 9 West to the Westerly prolongation of the North line of said Section 30;

Thence Easterly along said Westerly prolongation of the North line of said Section 30 and continuing Easterly along the North line of Section 29 to the Northeast corner of said Section 29;

Thence Southerly along the East line of said Section 29 and continuing Southerly along the East line of Section 32, Township 2 North, Range 9 West, and thence continuing Southerly along the East line of Section 5, Township 1 North, Range 9 West to the Southeast corner of said Section 5;

Thence Westerly along the South line of said Section 5 to the Southwest corner of said Section 5, said point being also the Northwest corner of Section 8;

Thence Southerly along the West line of said Section 8 and continuing Southerly along the West line of Section 17, to the Southwest corner of said Section 17, said corner being also the Northwest corner of Section 20;

Thence Easterly along the North line of Sections 20 and 21 to the Northwest corner of Section 22, said corner being also the Southwest corner of Section 15;

Thence Northerly along the West line of said Section 15 to the Northwest corner of the South half of said Section 15;

Thence Easterly along the North line of said South half of Section 15 to the Northeast corner of said South half of Section 15;

Thence Southerly along the East line of Section 15 and continuing Southerly along the East line of Section 22 to the Southeast corner of said Section 22, said point being also the Southwest corner of Section 23;

Thence Easterly along the South line of Sections 23 and 24 to the East line of the West half of said Section 24;

Thence Northerly along said East line of the West half of Section 24 to the North line thereof;

Thence Easterly along said North line of Section 24 to the Northeast corner thereof, said point also being the Northwest corner of Section 19, Township 1 North, Range 8 West;

Thence continuing Easterly along the North line of Section 19 and Section 20 of said Township 1 North, Range 8 West to the Northeast corner of said Section 20;

Thence Southerly along the East line of Sections 20, 29 and 32 of said Township 1 North, Range 8 West to the Southeast corner of said Section 32;

Thence Westerly along the South line of Section 32 to the Northwest corner of the East half of Section 5, Township 1 South, Range 8 West;

Thence Southerly along the West line of the East half of said Section 5 to the South line of said Section 5;

Thence West to the East line of the Northerly prolongation of Range 9 West;

EXHIBIT "C"

**TABLE SHOWING BASE
ANNUAL DIVERSION RIGHTS
OF CERTAIN DIVERTERS
AS OF JUNE 21, 2012**

DIVERTER	BASE ANNUAL DIVERSION RIGHT (ACRE-FEET)
Covell, Ralph	2.12
(Successor to Rittenhouse, Catherine and Rittenhouse, James) ¹	
(Transferred to Aqua Capital Management LP) ²	<u>-2.12</u>
	<u>0.00</u>
Maddock, A. G.	3.40
(Transferred to San Gabriel Valley Water Company) ²	<u>-3.40</u>
	<u>0.00</u>
Rittenhouse, Catherine	0.00
(Transferred to Covell, Ralph) ¹	
Rittenhouse, James	0.00
(Transferred to Covell, Ralph) ¹	
Ruebhausen, Arline	18.34
(Held in common with Ruebhausen, Victor)	
(Transferred to City of Glendora) ²	<u>-18.34</u>
	<u>0.00</u>
Ruebhausen, Victor	--
(See Ruebhausen, Arline)	
TOTAL	<u>0.00</u>

1/ Permanent transfer of rights as recorded at entry of Judgment.

2/ Permanent transfer of rights after entry of Judgment.

3/ Intervenor after Judgment.

EXHIBIT "D"

**TABLE SHOWING RIGHTS
AND PUMPER'S SHARE OF EACH PUMPER
AS OF JUNE 21, 2012**

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
6W Farms, Inc.	1,217.40	0.61599
(Formerly Woodland Farms, Inc.)		
(Transferred to:		
Miller Brewing Company	-919.50	-0.46526
Richard J. Woodland) ²	<u>-297.90</u>	<u>-0.15073</u>
	0.00	0.00000
Adams Ranch Mutual Water Company	100.00	0.05060
A & E Plastik Pak Co., Inc.	0.00	0.00000
(Transferred to Industry Properties, Ltd.) ¹		
Alhambra, City of	8,812.05	4.45876
Amarillo Mutual Water Company	709.00	0.35874
American Sheds, Inc. ³		
(Successor to Southwestern Portland Cement Company) ²	742.00	0.37544
(Transferred to USA Waste of California, Inc.) ²	<u>-742.00</u>	<u>-0.37544</u>
	0.00	0.00000
Anchor Plating Co., Inc. ³		
(Successor to Bodger & Sons, DBA Bodger Seeds Ltd.) ²	10.00	0.00506
(Transferred to Crown City Plating Co.) ²	<u>-10.00</u>	<u>-0.00506</u>
	0.00	0.00000
Anderson Family Marital Trust ³		
(Successor to Anderson, Ray L. and Helen T.) ²	50.16	0.02538
(Transferred to:		
Brondino, Jeanne	-25.08	-0.01269
Heinrich, Carolyn) ²	<u>-25.08</u>	<u>-0.01269</u>
	0.00	0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Anderson, Ray³ (Successor to Covina Valley Unified School District) ² (Transferred to Anderson, Ray L. and Helen T.) ²	50.16 <u>-50.16</u> 0.00	0.02538 <u>-0.02538</u> 0.00000
Anderson, Ray L. and Helen T.³ (Successor to Anderson, Ray) ² (Transferred to Anderson Family Marital Trust) ²	50.16 <u>-50.16</u> 0.00	0.02538 <u>-0.02538</u> 0.00000
Andrade, Macario and Consuelo; and Andrade, Robert and Jayne³ (Successor to J. F. Isbell Estate, Inc.) ² (Transferred to Susan Andrade) ²	8.36 <u>-8.36</u> 0.00	0.00423 <u>-0.00423</u> 0.00000
Andrade, Susan³ (Successor to Andrade, Macario and Consuelo; and Andrade, Robert and Jayne) ²	<u>8.36</u> 8.36	<u>0.00423</u> 0.00423
Arcadia, City of (Successor to First National Finance Corporation) ² (Transferred to City of Monrovia) ²	9,252.00 60.90 <u>-951.00</u> 8,361.90	4.68137 0.03081 <u>-0.48119</u> 4.23099
Associated Southern Investment Company (Transferred to Southern California Edison Company) ²	16.50 <u>-16.50</u> 0.00	0.00335 <u>-0.00335</u> 0.00000
AZ-Two, Inc.³ (See Southdown, Inc.)	--	--
Azusa Associates, LLC³ (Successor to Snyder, Esther) ² (Transferred to Aqua Capital Management LP) ²	18.51 <u>-18.51</u> 0.00	0.00937 <u>-0.00937</u> 0.00000
Azusa-Western Inc. (Transferred to Southwestern Portland Cement Co.) ²	742.00 <u>-742.00</u> 0.00	0.37544 <u>-0.37544</u> 0.00000
Bahnsen & Beckman Ind., Inc. (Transferred to Woodland, Richard) ²	840.50 <u>-840.50</u> 0.00	0.42528 <u>-0.42528</u> 0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Bahnsen, Betty M. (Transferred to Dawes, Mary Kay) ²	441.90 <u>-441.90</u> 0.00	0.22359 <u>-0.22359</u> 0.00000
Baldwin Park County Water District (See Valley County Water District)	--	--
Bandel Family Trust ³ (Successor to Garnier, Camille A, Deceased, Estate of) ²	<u>16.70</u> 16.70	<u>0.00845</u> 0.00845
Banks, Gale C. and Vicki Lynn ³ (Successor to Doyle, Mr. and Mrs.; and Madruga, Mr. and Mrs.) ²	<u>50.00</u> 50.00	<u>0.02530</u> 0.02530
Base Line Water Company (Transferred to Hughes Development Corporation) ²	430.20 <u>-430.20</u> 0.00	0.21767 <u>-0.21767</u> 0.00000
Beverly Acres Mutual Water Company (See Beverly Acres Mutual Water Users Association)	--	--
Beverly Acres Mutual Water Users Association (Formerly Beverly Acres Mutual Water Company) (Transferred to: San Gabriel Valley Water Company; Nicholson Trust) ²	93.00 <u>-50.00</u> <u>-43.00</u> 0.00	0.04706 <u>-0.02530</u> <u>-0.02176</u> 0.00000
Birenbaum, Max (Held in common with Birenbaum, Sylvia; Schneiderman, Alan; Schneiderman, Lydia; Wigodsky, Bernard; Wigodsky, Estera) (Transferred to City of Whittier) ²	6.00 <u>-6.00</u> 0.00	0.00304 <u>-0.00304</u> 0.00000
Birenbaum, Sylvia (See Birenbaum, Max)	--	--
Blue Diamond Concrete Materials Div., The Flintkote Company (Transferred to Sully-Miller Contracting Co.) ²	1,399.33 <u>-1,399.33</u> 0.00	0.70804 <u>-0.70804</u> 0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Bodger & Sons DBA Bodger Seeds Ltd. (Transferred to Anchor Plating Co., Inc.) ²	10.00 <u>-10.00</u> 0.00	0.00506 <u>-0.00506</u> 0.00000
Botello Water Company	0.00	0.00000
Brezina, Raymond W. and Susan W. Trust 2001³	0.00	0.00000
Brondino, Jeanne³ (Successor to Anderson Family Marital Trust) ²	<u>25.08</u> 25.08	<u>0.01269</u> 0.01269
Burbank Development Company (Transferred to Wright, Darrell A., Wright, Merle M. & Carlson, Jeanne W.) ²	50.85 <u>-50.85</u> 0.00	0.02563 <u>-0.02563</u> 0.00000
Cadway, Inc.³ (Successor to: Corcoran, Jack S. and R. L. Corcoran, Jack S. and R. L. Corcoran, Jack S. and R. L. Corcoran, Jack S. and R. L. Garnier, Janus Sloan Ranches Corcoran, Jack S. and R.L.) ² (Transferred to: California Domestic Water Company California Domestic Water Company California Domestic Water Company) ²	100.00 100.00 273.50 30.00 203.00 129.60 243.50 -243.50 -129.60 <u>-63.30</u> 643.20	0.05060 0.05060 0.13839 0.01518 0.10272 0.06558 0.12320 -0.12321 -0.06558 <u>-0.03203</u> 0.32545
Cal Fin (Transferred to Suburban Water Systems) ²	118.10 <u>-118.10</u> 0.00	0.05976 <u>-0.05976</u> 0.00000
California-American Water Company (San Marino System)	7,868.70	3.98144
California Country Club³ (Formerly CCC Management)	0.00	0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
California Domestic Water Company	11,024.82	5.57839
(Successor to:		
Cantrill Mutual Water Company ¹	42.50	0.02150
Industry Properties, Ltd. ²	73.50	0.03719
Modern Accent Corporation ²	256.86	0.12997
Fisher, Russell ²	19.00	0.00961
Graveline, George Wayne and Alexis June, Trust ²	216.60	0.10959
Cadway, Inc. ²	243.50	0.12321
Cadway, Inc. ²	129.60	0.06558
Cadway, Inc. ²)	<u>63.30</u>	<u>0.03203</u>
	12,069.68	6.10707
California Materials Company	0.00	0.00000
CalMat	--	--
(Formerly Conrock Company)		
(See Vulcan Materials Company)		
Cantrill Mutual Water Company	0.00	0.00000
(Transferred to California Domestic Water Company) ¹		
Canyon Water Company³		
(Successor to McIntyre, William) ²	<u>1.00</u>	<u>0.00051</u>
	1.00	0.00051
Canyon Water & Development Corporation³	0.00	0.00000
CCC Management³	--	--
(See California Country Club)		
Cedar Avenue Mutual Water Company	121.10	0.06127
(Transferred to San Gabriel Valley Water Company) ²	<u>-121.10</u>	<u>-0.06127</u>
	0.00	0.00000
CEMEX California Aggregates, Inc.³	--	--
(Formerly Southdown)		
Champion Mutual Water Company	147.68	0.07472
Chevron U.S.A.	2.00	0.00101
(Formerly Standard Oil of California)		
Chronis, Christine³	--	--
(See Polopolus, et al.)		

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Clayton Manufacturing Company (Transferred to City of Glendora) ²	511.80 <u>-511.80</u> 0.00	0.25896 <u>-0.25896</u> 0.00000
Coiner, James W., dba Coiner Nursery ³	--	--
Collison, E. O.	0.00	0.00000
Comby, Erma M. (See Wilmott, Erma M.)	--	--
Conrock Company (See CalMat) (Formerly Consolidated Rock Products Co.)	--	--
Consolidated Rock Products Co. (See Conrock Company)	--	--
Corcoran, Jack S. (Held in common with Corcoran, R. L.) (Transferred to: Cadway, Inc. Cadway, Inc. Cadway, Inc. Cadway, Inc. Cadway, Inc.) ²	747.00 -100.00 -100.00 -273.50 -30.00 <u>-243.50</u> 0.00	0.37797 -0.05060 -0.05060 -0.13839 -0.01518 <u>-0.12320</u> 0.00000
Corcoran, R. L. (See Corcoran, Jack S.)	--	--
County Sanitation District No. 18 of Los Angeles County	4.50	0.00228

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Covell, et al.	111.05	0.05619
(Successor to Rittenhouse, Catherine and Rittenhouse, James) ¹		
(Held in common with Tate, Phillip G. and Sieglinde A.; Goedert, Lillian E.; Goedert, Marion W.; Lakin, Kendall R.; Lakin, Kelly R.; Snyder, Harry; Snyder, Esther)		
(Transferred to:		
Lakin, Kelly R.	-9.26	-0.00468
Goedert, Lillian E.	-9.26	-0.00468
Tate, Phillip G. and Sieglinde A.	-57.83	-0.02926
Snyder, Esther	-18.51	-0.00937
Aqua Capital Management LP) ²	<u>-16.19</u>	<u>-0.00820</u>
	0.00	0.00000
Covina, City of	2,507.89	1.26895
(Transferred to:		
Covina Irrigating Company	-1,734.00	-0.87737
Covina Irrigating Company) ²	<u>-300.00</u>	<u>-0.15179</u>
	473.89	0.23979
Covina-Valley Unified School District	50.16	0.02538
(Transferred to Anderson, Ray) ²	<u>-50.16</u>	<u>-0.02538</u>
	0.00	0.00000
Crevolin, A. J.	2.25	0.00114
Crocker National Bank, Executor of the Estate of A. V. Handorf	0.00	0.00000
(Transferred to Modern Accent Corp.) ¹		
Cross Water Company	1,103.00	0.05581
(Transferred to Industry Waterworks System, City of) ²	<u>-1,103.00</u>	<u>-0.05581</u>
	0.00	0.00000
Crown City Plating Company	190.00	0.09614
(Successor to Anchor Plating Co., Inc.) ²	10.00	0.00506
(Transferred to Valencia Heights Water Company) ²	<u>-200.00</u>	<u>-0.10120</u>
	0.00	0.00000
Davidson Optronics, Inc.	22.00	0.01113
(Transferred to Covina Irrigating Company) ²	<u>-22.00</u>	<u>-0.01113</u>
	0.00	0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Dawes, Mary Kay³ (Successor to Bahnsen, Betty M.) ²	441.90	0.22359
Del Rio Mutual Water Company	199.00	0.10069
Denton, Kathryn W., Trustee for San Jose Ranch Company	185.50	0.09386
(Transferred to White, June G., Trustee of the June G. White share of the Garnier Trust) ²	<u>-185.50</u> 0.00	<u>-0.09386</u> 0.00000
Doyle, Mr. and Mrs.; and Madruga, Mr. and Mrs.³ (Successor to Sawpit Farms, Limited) ² (Transferred to Banks, Gale C. and Vicki Lynn) ²	50.00 <u>-50.00</u> 0.00	0.02530 <u>-0.02530</u> 0.00000
Driftwood Dairy	163.80	0.08288
Duhalde, L. (Transferred to El Monte Union High School District) ¹	0.00	0.00000
Dunning, George (Held in common with Dunning, Vera H.) (Successor to Vera H. Dunning) ² (Transferred to Dunning Trust, George A. V.) ²	324.00 <u>-324.00</u> 0.00	0.16394 <u>-0.16394</u> 0.00000
Dunning Trust, George A. V.³ (Successor to Dunning, George) ² (Transferred to Loyola Marymount University) ²	324.00 <u>-324.00</u> 0.00	0.16394 <u>-0.16394</u> 0.00000
Dunning, Vera H. (See Dunning, George) (Transferred to Dunning, George) ²	324.00 <u>-324.00</u> 0.00	0.16394 <u>-0.16394</u> 0.00000
Durfee Property, LLC³ (Successor to Texaco, Inc.) ² (Transferred to San Gabriel Valley Water Company) ²	50.00 <u>-50.00</u> 0.00	0.02530 <u>-0.02530</u> 0.00000
East Pasadena Water Company, Ltd.	1,407.69	0.71227

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Eckis, Rollin³		
(Successor to Sawpit Farms, Limited) ²	123.00	0.06224
(Transferred to City of Monrovia) ²	<u>-123.00</u>	<u>-0.06224</u>
	0.00	0.00000
El Encanto Properties	33.40	0.01690
(Transferred to La Puente Valley County Water District) ²	<u>-33.40</u>	<u>-0.01690</u>
	0.00	0.00000
El Monte, City of	2,784.23	1.40878
(Successor to W. E. Hall Company) ²	<u>0.20</u>	<u>0.00010</u>
	2,784.43	1.40888
El Monte Cemetery Association	18.50	0.00936
El Monte Union High School District	9.80	0.00496
(Successor to Duhalde, L.) ¹	6.40	0.00324
(Transferred to City of Whittier) ²	<u>-16.20</u>	<u>-0.00820</u>
	0.00	0.00000
Everett, Mrs. Alda B.	0.00	0.00000
(Held in common with Everett, W.B., Executor of the Estate of I. Worth Everett)		
Everett, W.B., Executor of the Estate of I. Worth Everett	--	--
(See Everett, Mrs. Alda B.)		
Faix, Incorporated	0.00	0.00000
(Successor to Frank F. Pellissier & Sons, Inc.) ¹		
(Transferred to Faix, Ltd.) ¹		
Faix, Ltd.	6,490.00	3.28384
(Successor to Faix, Incorporated) ¹		
(Transferred to Pellissier Irrevocable QTIP Trust, et al, Laurence R., Co-tenancy of) ²	<u>-6,490.00</u>	<u>-3.28384</u>
	0.00	0.00000
First National Finance Corporation	60.90	0.03081
(Transferred to City of Arcadia) ²	<u>-60.90</u>	<u>-0.03081</u>
	0.00	0.00000
Fisher, Russell	19.00	0.00961
(Held in common with Hauch, Edward and Warren, Clyde)		
(Transferred to California Domestic Water Company) ²	<u>-19.00</u>	<u>-0.00961</u>
	0.00	0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Fox Family Trust Michael Edward Fox and Crystal Marie Fox, Trustees³ (Successor to Maggiore, Valarie; Fox, Crystal; and Kirklen, Jeffery) ²	145.83	0.07378
Frank F. Pellissier & Sons, Inc. (Transferred to Faix, Incorporated) ¹	0.00	0.00000
Fruit Street Water Company (Transferred to: Gifford, Brooks, Jr., City of La Verne) ²	207.00 -101.29 <u>-105.71</u> 0.00	0.10474 -0.05125 <u>-0.05349</u> 0.00000
Garnier, Anton C. and Anita, Family Trust³ (Successor to: South Covina Water Service Garnier, Camille A., Deceased, Estate of Garnier, Janus) ²	203.00 8.30 <u>3.00</u> 214.30	0.10271 0.00420 <u>0.00152</u> 0.10843
Garnier, Camille A., Deceased, Estate of³ (Successor to South Covina Water Service) ² (Transferred to: The Ruth Elaine Ailor Garnier Trust The George Wayne and Alexis June Graveline Trust The Anton C. and Anita Garnier Family Trust Janus Garnier The Bandel Family Trust) ²	83.30 -41.70 -8.30 -8.30 -8.30 <u>-16.70</u> 0.00	0.04215 -0.02110 -0.00420 -0.00420 -0.00420 <u>-0.00845</u> 0.00000
Garnier, Janus³ (Successor to : Garnier, Camille A. Deceased, Estate of South Covina Water Service) ² (Transferred to: George Wayne and Alexis June Graveline Trust The Anton C. and Anita Garnier Family Trust Cadway, Inc.) ²	8.30 203.00 -5.30 -3.00 <u>-203.00</u> 0.00	0.00420 0.10272 -0.00268 -0.00152 <u>-0.10272</u> 0.00000
Garnier, Ruth Elaine Ailor, Trust³ (Successor to Garnier, Camille A. Deceased, Estate of) ²	<u>41.70</u> 41.70	<u>0.02110</u> 0.02110

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Gates, James Richard³	0.00	0.00000
Gifford, Brooks, Jr.³ (Successor to: Fruit Street Water Company, Mission Gardens Mutual Water Company) ² (Transferred to City of Whittier) ²	101.29 96.96 <u>-198.25</u> 0.00	0.05125 0.04906 <u>-0.10031</u> 0.00000
Gilkerson, Frank B. (Formerly part of Covell, et al.) (Transferred interest in Covell, et al. to Jobe, Darr) ²	--	--
Glendora Unified High School District (Transferred to City of Glendora) ²	99.00 <u>-99.00</u> 0.00	0.05009 <u>-0.05009</u> 0.00000
Goedert, Lillian E. (See Covell, et al.) (Successor to Covell, et al.) ² (Transferred to Covina Irrigating Co.) ²	9.26 <u>-7.00</u> 2.26	0.00468 <u>-0.00354</u> 0.00114
Goedert, Marion W. (See Covell, et al.)	--	--
Golden State Water Company, San Gabriel Valley District (Formerly Southern California Water Company)	5,773.00	2.92105
Graham, William (Formerly part of Covell, et al.) (Transferred interest in Covell et al. to Jobe, Darr) ²	--	--
Graveline, George Wayne and Alexis June, Trust³ (Successor to: South Covina Water Service Garnier, Camille A., Deceased, Estate of Garnier, Janus) ² (Transferred to California Domestic Water Company) ²	203.00 8.30 5.30 <u>-216.60</u> 0.00	0.10271 0.00420 0.00268 <u>-0.10959</u> 0.00000
Green, Walter	71.70	0.03628

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Grizzle, Lissa B. (Held in common with Grizzle, Mervin A.; Wilson, Harold R.; Wilson, Sarah C.) (Transferred to City of Whittier) ²	184.00 <u>-184.00</u> 0.00	0.09310 <u>-0.09310</u> 0.00000
Grizzle, Mervin A. (See Grizzle, Lissa B.)	--	--
Hansen, Alice	0.75	0.00038
Hanson Aggregates West, Inc. ³ (Successor to: Livingston-Graham, Inc. Sully-Miller Contracting Company) ²	1,824.40 <u>489.77</u> 2,314.17	0.92312 <u>0.24782</u> 1.17094
Hartley, David ³	0.00	0.00000
Hauch, Edward (See Fisher, Russell)	--	--
Heinrich, Carolyn ³ (Successor to Anderson Family Marital Trust) ²	<u>25.08</u> 25.08	<u>0.01269</u> 0.01269
Hemlock Mutual Water Company	166.00	0.08399
Hollenbeck Street Water Company (Transferred to Suburban Water Systems) ¹	0.00	0.00000
Hughes Development Corporation ³ (Successor to Base Line Water Company) ² (Transferred to: San Gabriel County Water District San Gabriel County Water District) ²	430.20 -400.00 <u>-30.20</u> 0.00	0.21767 -0.20239 <u>-0.01528</u> 0.00000
Hunter, Lloyd F. ³ (Successor to Wade, R.) ² (Transferred to Covina Irrigating Company) ²	4.40 <u>-4.40</u> 0.00	0.00223 <u>-0.00223</u> 0.00000
Hydro-Conduit Corporation	0.00	0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Industry Waterworks System, City of³ (Successor to Cross Water Company) ²	<u>1,103.00</u> 1,103.00	<u>0.55810</u> 0.55810
Industry Properties, Ltd. (Successor to A & E Plastik Pak Co., Inc.) ¹ (Transferred to California Domestic Water Co.) ²	73.50 <u>-73.50</u> 0.00	0.03719 <u>-0.03719</u> 0.00000
Irwindale, City of³ (Successor to United Concrete Pipe Corporation) ²	<u>376.00</u> 376.00	<u>0.19025</u> 0.19025
J. F. Isbell Estate, Inc. (Transferred to Andrade, Macario and Consuelo; and Andrade, Robert and Jayne) ²	8.36 <u>-8.36</u> 0.00	0.00423 <u>-0.00423</u> 0.00000
Jerris, Helen³ (See Polopolus, et al.)	--	--
Jobe, Darr³ (Formerly part of Covell, et al.) (Successor to: Gilkerson, Frank B. interest in Covell et al. Graham, William interest in Covell et al.) ² (Transferred interest in Covell et al. to Tate, Phillip G. and Sieglinde A.) ²	--	--
Kirklen Family Trust³ (Formerly Kirklen, Dawn L.) (Held in common with Kirklen, William R.) (Successor to San Dimas-La Verne Recreational Facilities Authority) ² (Transferred to Maggiore, Valarie; Fox, Crystal; and Kirklen, Jeffery) ²	375.00 62.50 <u>-437.50</u> 0.00	0.18974 0.03162 <u>-0.22136</u> 0.00000
Kirklen, Dawn L. (See Kirklen Family Trust)	--	--
Kirklen, Jeffery³ (Successor to Maggiore, Valarie; Fox, Crystal; and Kirklen, Jeffery) ²	145.84	0.07379
Kirklen, William R. (See Kirklen, Dawn L.)	--	--

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Kiyan Farms	30.00	0.01518
(Formerly Kiyan, Hideo)		
(Transferred to West Covina Venture, Ltd.) ²	<u>-30.00</u>	<u>-0.01518</u>
	0.00	0.00000
Kiyan, Hideo	--	--
(See Kiyan Farms)		
(Held in common with Kiyan, Hiro)		
Kiyan, Hiro	--	--
(See Kiyan, Hideo)		
Knight, Kathryn M. ³		
(Successor to Knight, William) ²	227.88	0.11530
(Transferred to Knight, William) ²	<u>-227.88</u>	<u>-0.11530</u>
	0.00	0.00000
Knight, William	227.88	0.11530
(Transferred to Knight, Kathryn M.) ²	<u>-227.88</u>	<u>-0.11530</u>
(Successor to Knight, Kathryn M.) ²	<u>227.88</u>	<u>0.11530</u>
	227.88	0.11530
Lakin, Kelly R. ³		
(See Covell, et al.)		
(Successor to Covell, et al.) ²	9.26	0.00468
(Transferred to:		
Covina Irrigating Co.	-6.03	-0.00305
Covina Irrigating Co.) ²	<u>-3.23</u>	<u>-0.00163</u>
	0.00	0.00000
Lakin, Kendall R. ³	--	--
(See Covell, et al.)		
Landeros, John	0.75	0.00038
La Grande Source Water Company	0.00	0.00000
(Transferred to Suburban Water Systems) ¹		
Lang, Frank	0.00	0.00000
(Transferred to San Dimas-La Verne Recreational Facilities Authority) ¹		
La Puente Cooperative Water Co.	0.00	0.00000
(Transferred to Suburban Water Systems) ¹		

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
La Puente Valley County Water District (Successor to El Encanto Properties) ²	1,097.00 <u>33.40</u> 1,130.40	0.55507 <u>0.01690</u> 0.57197
La Verne, City of (Successor to Fruit Street Water Co.) ² (Transferred to Covina Irrigating Co.) ²	250.00 105.71 <u>-355.71</u> 0.00	0.12650 0.05349 <u>-0.17999</u> 0.00000
Lee, Paul M. and Ruth A.; Nasmyth, Virginia; Nasmyth, John ³	0.00	0.00000
Little John Dairy	0.00	0.00000
Livingston-Graham, Inc. (Transferred to Hanson Aggregates West, Inc.) ²	1,824.40 <u>-1,824.40</u> 0.00	0.92312 <u>-0.92312</u> 0.00000
Los Flores Mutual Water Company (Transferred to City of Monterey Park) ²	26.60 <u>-26.60</u> 0.00	0.01346 <u>-0.01346</u> 0.00000
Loucks, David	3.00	0.00152
Lovelady, June G., Trustee ³ (Successor to White, June G., Trustee of the June G. White Share of the Garnier Trust) ²	<u>185.50</u> 185.50	<u>0.09386</u> 0.09386
Loyola Marymount University ³ (Successor to George A.V. Dunning Trust) ² (Transferred to City of Glendora) ²	324.00 <u>-324.00</u> 0.00	0.16394 <u>-0.16394</u> 0.00000
Maggiore, Valarie ³ (Successor to Maggiore, Valarie; Fox, Crystal; and Kirklen, Jeffrey) ²	145.83	0.07379
Maggiore, Valarie; Fox, Crystal; and Kirklen, Jeffery ³ (Successor to Kirklen Family Trust) ² (Transferred to: (Maggiore, Valarie; Kirklen, Jeffery; Fox Family Trust, Michael Edward Fox and Crystal Marie Fox, Trustees) ²	437.50 -145.83 -145.84 <u>-145.83</u> 0.00	0.22136 -0.07379 -0.07379 <u>-0.07378</u> 0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Manning Bros. Rock & Sand Co. (Transferred to Conrock Company) ²	328.00 <u>-328.00</u> 0.00	0.16596 <u>-0.16596</u> 0.00000
Maple Water Company (Transferred to Southwest Water Co.) ²	118.50 <u>-118.50</u> 0.00	0.05996 <u>-0.05996</u> 0.00000
Martinez, Frances Mercy (Held in common with Martinez, Jaime)	0.75	0.00038
Martinez, Jaime (See Martinez, Frances Mercy)	--	--
Massey-Ferguson Company	0.00	0.00000
McIntyre, William³ (Successor to West Covina Venture, Ltd.) ² (Transferred to Canyon Water Company) ²	30.00 <u>-1.00</u> 29.00	0.01518 <u>-0.00051</u> 0.01467
Miller Brewing Company (Successor to: Maechtlen, Estate of J.J. Phillips, Alice B., et al. South Covina Water Service Woodland Farms Woodland, Richard) ² (Transferred to Miller Breweries West, L.P.) ²	111.01 151.50 50.00 300.00 919.50 840.50 <u>-2,372.51</u> 0.00	0.05617 0.07666 0.02530 0.15180 0.46526 0.42528 <u>-1.20047</u> 0.00000
Miller Breweries West, L.P.³ (Successor to Miller Brewing Company) ² (Transferred to MillerCoors LLC) ²	2,372.51 <u>-2,372.51</u> 0.00	1.20047 <u>-1.20047</u> 0.00000
MillerCoors LLC³ (Successor to Miller Breweries West, L.P.) ²	2,372.51	1.20047
Mission Gardens Mutual Water Company (Transferred to Gifford, Brooks, Jr.) ²	96.96 <u>-96.96</u> 0.00	0.04906 <u>-0.04906</u> 0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Modern Accent Corporation		
(Successor to Crocker National Bank, Executor of the Estate of A. V. Handorf) ¹	256.86	0.12997
(Transferred to California Domestic Water Co.) ²	<u>-256.86</u>	<u>-0.12997</u>
	0.00	0.00000
Monterey Park, City of	6,677.48	3.37870
(Successor to Los Flores Mutual Water Co.) ²	<u>26.60</u>	<u>0.01346</u>
	6,704.08	3.39216
Munoz, Ralph E. ³	0.00	0.00000
Murphy Ranch Mutual Water Company	223.23	0.11295
(Transferred to Southwest Suburban Water) ²	<u>-223.23</u>	<u>-0.11295</u>
	0.00	0.00000
Namimatsu Farms	196.00	0.09917
(Transferred to California Cities Water Co.) ²	<u>-196.00</u>	<u>-0.09917</u>
	0.00	0.00000
Nick Tomovich & Sons	0.02	0.00001
Nicholson Trust ³		
(Successor to Beverly Acres Mutual Water Users Association) ²	43.00	0.02176
(Transferred to: Nicholson Family Trust	-7.00	-0.00354
Nicholson Trust, Helene S.) ²	<u>-12.00</u>	<u>-0.00607</u>
	24.00	0.01215
Nicholson Family Trust ³		
(Successor to Nicholson Trust) ²	<u>7.00</u>	<u>0.00354</u>
	7.00	0.00354
Nicholson Trust, Helene S. ³		
(Successor to Nicholson Trust) ²	12.00	0.00607
(Transferred to San Gabriel Valley Water Co.) ²	<u>-12.00</u>	<u>-0.00607</u>
	0.00	0.00000
New Owl Rock Products ³		
(Successor to Owl Rock Products Co.) ²	715.60	0.36208
(Transferred to Robertson's Ready Mix, Ltd.) ²	<u>-715.60</u>	<u>-0.36208</u>
	0.00	0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
No. 17 Walnut Place Mutual Water Co.	21.50	0.01088
(Transferred to San Gabriel Valley Water Co.) ²	<u>-21.50</u>	<u>-0.01088</u>
	0.00	0.00000
Orange Production Credit Association³	0.00	0.00000
Owl Rock Products Co.	715.60	0.36208
(Transferred to New Owl Rock Products) ²	<u>-715.60</u>	<u>-0.36208</u>
	0.00	0.00000
Pacific Rock & Gravel Co.	408.00	0.20644
(Transferred to:	-208.00	-0.10524
City of Whittier,	<u>-200.00</u>	<u>-0.10120</u>
Rose Hills Memorial Park Association) ²	0.00	0.00000
Park Water Company	184.01	0.09311
(Transferred to Valley County Water District) ²	<u>-184.01</u>	<u>-0.09311</u>
	0.00	0.00000
Parton Family Trust³	46.20	0.02338
(Formerly Via, H., Trust of) ²		
(Transferred to San Gabriel Valley Water Company) ²	<u>-46.20</u>	<u>-0.02338</u>
	0.00	0.00000
Pellissier Irrevocable QTIP Trust, et al, Laurence R., Co-tenancy of³		
(Successor to Faix, Ltd) ²	<u>6,490.00</u>	<u>3.28384</u>
	6,490.00	3.28384
Penn, Margaret³	--	--
(See Polopolus, et al.)		
Pico County Water District	0.75	0.00038
Polopolus, John³	--	--
(See Polopolus, et al.)		
Polopolus, et al.³		
(Successor to Polopolus, Steve) ²	<u>22.50</u>	<u>0.01138</u>
(Held in common with Chronis, Christine; Jerris, Helen; Penn, Margaret; Polopolus, John)	22.50	0.01138
Polopolus, Steve	22.50	0.01138
(Transferred to Polopolus, et al.) ²	<u>-22.50</u>	<u>-0.01138</u>
	0.00	0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Rados, Alexander (Held in common with Rados, Stephen and Rados, Walter)	43.00	0.02176
Rados, Stephen (See Rados, Alexander)	--	--
Rados, Walter (See Rados, Alexander)	--	--
Richwood Mutual Water Company (Transferred to San Gabriel Valley Water Company) ²	192.60 <u>-192.60</u> 0.00	0.09745 <u>-0.09745</u> 0.00000
Rincon Ditch Company (Transferred to Workman Mill Investment Company) ²	628.00 <u>-628.00</u> 0.00	0.31776 <u>-0.31776</u> 0.00000
Rincon Irrigation Company (Transferred to Workman Mill Investment Company) ²	314.00 <u>-314.00</u> 0.00	0.15888 <u>-0.15888</u> 0.00000
Rio Hondo Memorial Foundation, The ³ (Formerly Rose Hills Foundation, The) (See Rose Hills Foundation, The)	--	--
Rittenhouse, Catherine (Transferred to Covell, Ralph) ¹	0.00	0.00000
Rittenhouse, James (Transferred to Covell, Ralph) ¹	0.00	0.00000
Robertson's Ready Mix, Ltd. ³ (Successor to New Owl Rock Products) ² (Transferred to San Gabriel County Water District) ²	715.60 <u>-715.60</u> 0.00	0.36208 <u>-0.36208</u> 0.00000
Rose Hills Memorial Park Association (See Rose Hills Foundation, The)	--	--

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Rose Hills Foundation, The ³ (Formerly Rose Hills Memorial Park Association) (See Rio Hondo Memorial Foundation, The) (Formerly Rio Hondo Memorial Foundation, The) (Successor to Pacific Rock & Gravel Co.) ² (Transferred to: Workman Mill Investment Co. Workman Mill Investment Co.) ²	594.00 200.00 -594.00 <u>-200.00</u> 0.00	0.30055 0.10120 -0.30055 <u>-0.10120</u> 0.00000
Rosemead Development, Ltd. ³ (Successor to Thompson, Earl W.) ²	<u>1.00</u> 1.00	<u>0.00051</u> 0.00051
Rurban Homes Mutual Water Company	217.76	0.11018
Ruth, Roy	0.75	0.00038
San Dimas Golf Inc. DBA Via Verde County Club ³	0.00	0.00000
San Dimas-La Verne Recreational Facilities Authority (Successor to Lang, Frank) ¹ (Transferred to Kirklen, Dawn L. and William R.) ²	62.50 <u>-62.50</u> 0.00	0.03162 <u>-0.03162</u> 0.00000
San Gabriel Country Club	286.10	0.14476
San Gabriel County Water District (Successor to: Hughes Development Corporation Hughes Development Corporation Robertson's Ready Mix, Ltd.) ²	4,250.00 400.00 30.20 <u>715.60</u> 5,395.80	2.15044 0.20239 0.01528 <u>0.36208</u> 2.73019
San Gabriel Valley Municipal Water District	0.00	0.00000
Sawpit Farms, Limited (Transferred to: Eckis, Rolin Doyle and Madruga) ²	173.00 -123.00 <u>-50.00</u> 0.00	0.08754 -0.06224 <u>-0.02530</u> 0.00000
Schneiderman, Alan (See Birenbaum, Max)	--	--

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Schneiderman, Lydia (See Birenbaum, Max)	--	--
Security Pacific National Bank, Co-trustee for the Estate of Winston F. Stoody (See Stoody, Virginia A.) (Transferred to City of Whittier) ²	38.70 <u>-38.70</u> 0.00	0.01958 <u>-0.01958</u> 0.00000
Sierra La Verne Country Club³	0.00	0.00000
Sierra Madre, City of	0.00	0.00000
Sloan Ranches (Transferred to Cadway, Inc.) ²	129.60 <u>-129.60</u> 0.00	0.06558 <u>-0.06558</u> 0.00000
Smith, Charles³	0.00	0.00000
Snyder, Esther³ (Successor to Covell, et al) ² (Transferred to Azusa Associates, LLC) ²	18.51 <u>-18.51</u> 0.00	0.00937 <u>-0.00937</u> 0.00000
Snyder, Harry (See Covell, et al.)	--	--
Sonoco Products Company	311.60	0.15766
South Covina Water Service (Transferred to: Miller Brewing Company Anton C. and Anita Garnier Family Trust The George Wayne and Alexis June Graveline Trust The Estate of Camille A. Garnier, Deceased Garnier, Janus) ²	992.30 -300.00 -203.00 -203.00 -83.30 <u>-203.00</u> 0.00	0.50209 -0.15180 -0.10271 -0.10271 -0.04215 <u>-0.10272</u> 0.00000
Southdown, Inc.³ (Formerly AZ-Two, Inc.) (See CEMEX California Aggregates, Inc.)	--	--
Southern California Edison Company (Successor to Associated Southern Investment Company) ²	155.25 <u>16.50</u> 171.75	0.07855 <u>0.00835</u> 0.08690

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Southern California Water Company, San Gabriel Valley District (See Golden State Water Company, San Gabriel Valley District)	--	--
South Pasadena, City of	3,567.70	1.80520
Southwest Suburban Water (See Suburban Water Systems)	--	--
Southwest Water Company³ (Successor to Maple Water Company) ²	<u>118.50</u> 118.50	<u>0.05996</u> 0.05996
Southwestern Portland Cement Company³ (Successor to Azusa Western, Inc.) ² (Transferred to American Sheds, Inc.) ²	742.00 <u>-742.00</u> 0.00	0.37544 <u>-0.37544</u> 0.00000
Speedway 605, Inc.³	0.00	0.00000
Standard Oil Company of California (See Chevron U.S.A.)	--	--
Sterling Mutual Water Company	120.00	0.06072
Stoody, Virginia A., Co-trustee for the	--	--
Stoody, Winston F., Estate of (See Security Pacific National Bank, Co-trustee)	--	--
Suburban Water Systems (Formerly Southwest Suburban Water) (Successor to:	20,462.47	10.35370
Hollenbeck Street Water Company ¹	646.39	0.32706
La Grande Source Water Company ¹	1,078.00	0.54545
La Puente Cooperative Water Co. ¹	1,210.90	0.61270
Valencia Valley Water Company ¹	651.50	0.32965
Victoria Mutual Water Company ¹	469.60	0.23761
Cal Fin ²	118.10	0.05976
Murphy Ranch Mutual Water Co. ²)	<u>223.23</u>	<u>0.11295</u>
	24,860.19	12.57888

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Sully-Miller Contracting Company ³ (Successor to Blue Diamond Concrete Materials Div., The Flintkote Company) ² (Transferred to: United Rock Products Corporation Hanson Aggregates West, Inc.) ²	1,399.33 -909.56 <u>-489.77</u> 0.00	0.70804 -0.46022 <u>-0.24782</u> 0.00000
Sunny Slope Water Company	2,228.72	1.12770
Tate, Phillip G. and Sieglinde A. ³ (See Covell, et al.) (Successor to Jobe, Darr interest in Covell, et al.) ² (Successor to Covell, et al.) ²	57.83	0.02926
Taylor Herb Garden (Transferred to Covina Irrigating Company) ²	6.00 <u>-6.00</u> 0.00	0.00304 <u>-0.00304</u> 0.00000
Texaco, Inc. (Chevron U.S.A., Inc.) (Transferred to Durfee Property, LLC) ²	50.00 <u>-50.00</u> 0.00	0.02530 <u>-0.02530</u> 0.00000
Thompson, Earl W. (Held in common with Thompson, Mary) (Transferred to Rosemead Development, Ltd.) ²	1.00 <u>-1.00</u> 0.00	0.00051 <u>-0.00051</u> 0.00000
Thompson, Mary (See Thompson, Earl W.)	--	--
Tran, Hieu ³	0.00	0.00000
Tyler Nursery	3.21	0.00162
United Concrete Pipe Corporation (Transferred to Irwindale, City of) ²	376.00 <u>-376.00</u> 0.00	0.19025 <u>-0.19025</u> 0.00000
United Rock Products Corporation ³ (Successor to: Sully Miller Contracting Company) ²	<u>909.56</u> 909.56	<u>0.46022</u> 0.46022
USA Waste of California, Inc. ³ (Successor to American Sheds, Inc.) ² (Transferred to Aqua Capital Management LP) ²	742.00 <u>-742.00</u> 0.00	0.37544 <u>-0.37544</u> 0.00000

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
U.S. Pipe & Foundry Company³ (See United Concrete Pipe Corporation)	--	--
Valencia Heights Water Company (Successor to Crown City Plating Company) ²	861.00 <u>200.00</u> 1,061.00	0.43565 <u>0.10120</u> 0.53685
Valencia Valley Water Company (Transferred to Suburban Water Systems) ¹	0.00	0.00000
Vallecito Water Company (Transferred to San Gabriel Valley Water Company) ²	2,867.00 <u>-2,867.00</u> 0.00	1.45066 <u>-1.45066</u> 0.00000
Valley County Water District (Formerly Baldwin Park County Water District) (Successor to Park Water Company) ²	5,775.00 <u>184.01</u> 5,959.01	2.92206 <u>0.09311</u> 3.01517
Valley Crating Company	0.00	0.00000
Valley View Mutual Water Company	616.00	0.31169
Via, H. (See Via, H., Trust of)	--	--
Via, H., Trust of (Formerly Via, H.) (See Parton Family Trust)	--	--
Victoria Mutual Water Company (Transferred to Suburban Water Systems) ¹	0.00	0.00000
Vietnamese American Buddhist Temple Congregation³	0.00	0.00000
Vulcan Materials Company (Formerly CalMat) (Successor to Manning Bros. Rock & Sand Co.) ²	<u>1,793.35</u> 1,793.35	<u>0.90740</u> 0.90740
Wade, R. (Transferred to Hunter, Lloyd F.) ²	4.40 <u>-4.40</u> 0.00	0.00223 <u>-0.00223</u> 0.00000
Ward Duck Company (See Woodland Farms, Inc.)	--	--

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Warren, Clyde (See Fisher, Russell)	--	--
W. E. Hall Company (Transferred to City of El Monte) ²	0.20 <u>-0.20</u> 0.00	0.00010 <u>-0.00010</u> 0.00000
West Covina Venture, Ltd. ³ (Successor to Kiyan Farms) ² (Transferred to McIntyre, William) ²	30.00 <u>-30.00</u> 0.00	0.01518 <u>-0.01518</u> 0.00000
White, June G., Trustee of the June G. White Share of the Garnier Trust ³ (Successor to Denton, Kathryn W., Trustee for the San Jose Ranch Company) ² (Transferred to Lovelady, June G., Trustee) ²	185.50 <u>-185.50</u> 0.00	0.09386 <u>-0.09386</u> 0.00000
Whittier, City of (Successor to: Grizzle, Lissa B. Pacific Rock and Gravel Co. Security Pacific National Bank, Co-trustee for the Estate of Winston F. Stooddy El Monte Union High School District Gifford, Brooks, Jr. Birenbaum, Max) ²	7,620.23 184.00 208.00 38.70 16.20 198.25 <u>6.00</u> 8,271.38	3.85572 0.09310 0.10524 0.01958 0.00820 0.10031 <u>0.00304</u> 4.18519
Wigodsky, Bernard (See Birenbaum, Max)	--	--
Wigodsky, Estera (See Birenbaum, Max)	--	--
Wilmott, Erma M. (Formerly Comby, Erma M.)	0.75	0.00038
Wilson, Harold R. (See Grizzle, Lissa B.)	--	--
Wilson, Sarah C. (See Grizzle, Lissa B.)	--	--

PUMPER	PRESCRIPTIVE PUMPING ACRE-FEET	PUMPER'S SHARE %
Woodland Farms, Inc. (See 6W Farms, Inc.) (Formerly Ward Duck Company)	--	--
Woodland, Frederick G.³	--	--
Woodland, Richard³ (Successor to Bahnsen & Beckman Ind., Inc.) ² (Transferred to Miller Brewing Company) ² (Successor to 6W Farms, Inc.) ² (Transferred to Aqua Capital Management LP) ²	840.50 -840.50 297.90 <u>-297.90</u> 0.00	0.42528 -0.42528 0.15073 <u>-0.15073</u> 0.00000
Workman Mill Investment Company³ (Successor to: Rincon Ditch Company Rincon Irrigation Company Rose Hills Memorial Park Association Rose Hills Foundation, The) ²	628.00 314.00 594.00 <u>200.00</u> 1,736.00	0.31776 0.15888 0.30055 <u>0.10120</u> 0.87839
Wright, Darrell A., Wright, Merle M. & Carlson, Jeanne W.³ (Successor to Burbank Development Co.) ² (Transferred to San Gabriel Valley Water Company) ²	50.65 <u>-50.65</u> 0.00	0.02563 <u>-0.02563</u> 0.00000
Totals for Exhibit "D"	129,765.87	65.65953
Totals for Exhibit "E"	67,868.56	34.34047
GRAND TOTALS	<u>197,634.43</u>	<u>100.00000</u>

1/ Permanent transfer of rights as recorded at entry of Judgment.

2/ Permanent transfer of rights after entry of Judgment.

3/ Intervenor after Judgment.

EXHIBIT "E"

**TABLE SHOWING PRODUCTION
RIGHT OF EACH INTEGRATED PRODUCER
AS OF JUNE 21, 2012**

INTEGRATED PRODUCER	DIVERSION COMPONENT ACRE-FEET	PRESCRIPTIVE PUMPING COMPONENT ACRE-FEET	PUMPING COMPONENT SHARE %
Aqua Capital Management LP³			
(Successor to:			
Covell, Ralph	2.12	0.00	0.00000
Covell et al.	0.00	16.19	0.00820
Azusa Associates, LLC	0.00	18.51	0.00937
USA Waste of California, Inc.	0.00	742.00	0.37544
Richard Woodland) ²	<u>0.00</u>	<u>297.90</u>	<u>0.15073</u>
	2.12	1,074.60	0.54374
Azusa, City of	0.00	3,655.99	1.84988
(Successor to Monrovia Nursery Company) ²	<u>363.00</u>	<u>0.00</u>	<u>0.00000</u>
	363.00	3,655.99	1.84988
Azusa Agricultural Water Company	1,000.00	1,732.20	0.87647
(Transferred to:			
Azusa Valley Water Company	-830.00	-1,437.73	-0.72747
Azusa Valley Water Company) ²	<u>-170.00</u>	<u>-294.47</u>	<u>-0.14900</u>
	0.00	0.00	0.00000
Azusa Foot-Hill Citrus Company	718.50	0.00	0.00000
(Transferred to Monrovia Nursery Company) ²	<u>-718.50</u>	<u>0.00</u>	<u>0.00000</u>
	0.00	0.00	0.00000
Azusa Valley Water Company	2,422.00	8,274.00	4.18652
(Successor to:			
Azusa Agricultural Water Company	830.00	1,437.73	0.72747
Azusa Agricultural Water Company) ²	<u>170.00</u>	<u>294.47</u>	<u>0.14900</u>
	3,422.00	10,006.20	5.06299
Brierly, Susan K.³			
(Successor to Monrovia Nursery Company) ²	24.00	0.00	0.00000
(Transferred to Miles R. Rosedale) ²	<u>-8.00</u>	<u>0.00</u>	<u>0.00000</u>
	16.00	0.00	0.00000
California-American Water Company	1,672.00	3,649.00	1.84634
(Duarte System)			

INTEGRATED PRODUCER	DIVERSION COMPONENT ACRE-FEET	PRESCRIPTIVE PUMPING COMPONENT ACRE-FEET	PUMPING COMPONENT SHARE %

California Cities Water Company
(See Southern California Water
Company, San Dimas District)

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Covina Irrigating Company

2,514.00

4,140.00

2.09478

(Successor to:

City of Covina

1,734.00

0.87737

City of Covina

300.00

0.15179

Taylor Herb Garden

6.00

0.00304

La Verne, City of

355.71

0.17999

Davidson Optronics, Inc.

22.00

0.01113

Goedert, Lillian

7.00

0.00354

Lakin, Kelly R.

6.03

0.00305

Hunter, Lloyd F.

4.40

0.00223

Lakin, Kelly R.)²

3.23

0.00163

2,514.00

6,578.37

3.32855

CV Glendora 3 Site, LLC)³

(Successor to:

Rosedale, Miles R.

184.00

0.00

0.00000

Monrovia Nursery Company)²

10.00

0.00

0.00000

194.00

0.00

0.00000

DeFalco, John and Carole³

(Successor to Nickowitz, at al.)²

1.49

0.00

0.00000

1.49

0.00

0.00000

Glendora, City of

17.00

8,258.00

4.17842

(Successor to:

Maechtlen, Estate of J. J.

150.00

0.07590

Maechtlen, Trust of P. A.

50.00

0.02530

Ruebhausen, Arline

18.34

Glendora Unified High School District

99.00

0.05009

Loyola Marymount University

324.00

0.16394

Clayton Manufacturing Company)²

511.80

0.25896

35.34

9,392.80

4.75261

Golden State Water Company,

500.00

3,242.53

1.64067

San Dimas District³

(Formerly California Cities Water Company)

(Successor to Namimatsu Farms)²

196.00

0.09917

500.00

3,438.53

1.73984

INTEGRATED PRODUCER	DIVERSION COMPONENT ACRE-FEET	PRESCRIPTIVE PUMPING COMPONENT ACRE-FEET	PUMPING COMPONENT SHARE %
JUH#1³			
(Successor to Monrovia Nursery Company) ²	48.00	0.00	0.00000
(Transferred to Miles R. Rosedale) ²	<u>-16.00</u>		
	32.00	0.00	0.00000
Los Angeles, County of	310.00	3,721.30	1.88292
Maechtlen, Estate of J. J., Trustee for the Estate of P.A. Maechtlen	0.00	301.50	0.15256
(Transferred to: City of Glendora Miller Brewing Company) ²		-150.00	-0.07590
	<u>0.00</u>	<u>-151.50</u>	<u>-0.07666</u>
	0.00	0.00	0.00000
Maechtlen, Trust of J. J.³	1.49	0.00	0.00000
(Transferred to Otting, David; Otting, Larry; and Webster, Scott) ²	-1.49	0.00	0.00000
(Successor to Otting, David; Otting, Larry; and Webster, Scott) ²	1.49	0.00	0.00000
(Transferred to Nikowitz, et al) ²	<u>-1.49</u>	<u>0.00</u>	<u>0.00000</u>
	0.00	0.00	0.00000
Maechtlen, Trust of P. A.³	0.50	100.50	0.05085
(Transferred to: City of Glendora Alice B. Phillips, et al.) ²		-50.00	-0.02530
	<u>-0.50</u>	<u>-50.50</u>	<u>-0.02555</u>
	0.00	0.00	0.00000
The Metropolitan Water District of of Southern California	9.59	165.00	0.08349
Monrovia, City of	1,098.00	5,042.22	2.55129
(Successor to: Eckis, Rollin City of Arcadia) ²		123.00	0.06224
	<u>1,098.00</u>	<u>951.00</u>	<u>0.48119</u>
	1,098.00	6,116.22	3.09472

INTEGRATED PRODUCER	DIVERSION COMPONENT ACRE-FEET	PRESCRIPTIVE PUMPING COMPONENT ACRE-FEET	PUMPING COMPONENT SHARE %
Monrovia Nursery Company	239.50	0.00	0.00000
(Successor to Azusa Foothill Citrus Company) ²	718.50	0.00	0.00000
(Transferred:			
City of Azusa	-363.00	0.00	0.00000
Brierly, Susan K.	-24.00	0.00	0.00000
Rosedale, Miles R.	-191.00	0.00	0.00000
VanLandingham, Richard	-21.00	0.00	0.00000
JUH#1	-48.00	0.00	0.00000
Rosedale, Lance	-32.00	0.00	0.00000
CV Glendora 3 Site, LLC) ²	<u>-10.00</u>	<u>0.00</u>	<u>0.00000</u>
	269.00	0.00	0.00000
Nikowitz, et al³			
(Successor to Maechtlen, Trust of J. J.) ²	1.49	0.00	0.00000
(Held in common with Nikowitz, Sheryl M. and Walter P.; Pellegrino, Mark and Roxanne; Verdegem, Thomas and Sandra B.)			
(Transferred to DeFalco, John and Carole) ²	<u>-1.49</u>	<u>0.00</u>	<u>0.00000</u>
	0.00	0.00	0.00000
Otting, David; Otting, Larry; and Webster, Scott³			
(Successor to Maechtlen, Trust of J. J.) ²	1.49	0.00	0.00000
(Transferred to Maechtlen, Trust of J. J.) ²	<u>-1.49</u>	<u>0.00</u>	<u>0.00000</u>
	0.00	0.00	0.00000
Phillips, Alice B., et al.³			
(Successor to Maechtlen, Trust of P. A.) ²	0.50	50.50	0.02555
(Transferred to Miller Brewing Co.) ²	<u>0.50</u>	<u>-50.00</u>	<u>-0.02530</u>
	0.50	0.50	0.00025
Rosedale, Lance³			
(Successor to Monrovia Nursery Company) ²	32.00	0.00	0.00000
Rosedale, Miles R.³			
(Successor to Monrovia Nursery Company) ²	191.00	0.00	0.00000
(Transferred to CV Glendora 3 Site, LLC) ²	-184.00	0.00	0.00000
(Successor to:			
Susan K. Brierly	8.00	0.00	0.00000
JUH#1) ²	<u>16.00</u>	<u>0.00</u>	<u>0.00000</u>
	31.00	0.00	0.00000

INTEGRATED PRODUCER	DIVERSION COMPONENT ACRE-FEET	PRESCRIPTIVE PUMPING COMPONENT ACRE-FEET	PUMPING COMPONENT SHARE %
San Gabriel Valley Water Company	0.00	16,659.00	8.42920
(Successor to:			
Vallecito Water Co.		2,867.00	1.45066
No. 17 Walnut Place Mutual Water Co.		21.50	0.01088
Cedar Avenue Mutual Water Company		121.10	0.06127
Beverly Acres Mutual Water Users Association		50.00	0.02530
Richwood Mutual Water Company		192.60	0.09745
Nicholson Trust, Helene S.		12.00	0.00607
Durfee Property, LLC		50.00	0.02530
Wright, Darrell A., Wright, Merle M. and Carlson, Jeanne W.		50.65	0.02563
Parton Family Trust		46.20	0.02338
Maddock, A.G.) ²	<u>3.40</u>		
	3.40	20,070.05	10.15514
VanLandingham, Richard³			
(Successor to Monrovia Nursery Company) ²	<u>21.00</u>	<u>0.00</u>	<u>0.00000</u>
TOTAL	10,526.44	67,868.56	34.34047

1/ Permanent transfer of rights as recorded at entry of Judgment.

2/ Permanent transfer of rights after entry of Judgment.

3/ Intervenor after Judgment.

EXHIBIT "F"

TABLE SHOWING SPECIAL CATEGORY RIGHTS

PARTY

*The Metropolitan Water District
of Southern California

*Transferred to the San Gabriel
Valley Protective Association 05/07/1996.

Los Angeles County Flood
Control District (now Los Angeles
County Department of Public Works)

NATURE OF RIGHT

Morris Reservoir Storage and Withdrawal

(a) A right to divert, store and use San
Gabriel River Water, pursuant to
Permit No. 7174.

(b) Prior and paramount right to divert
72 acre-feet annually to offset Morris
Reservoir evaporation and seepage
losses and to provide the water
supply necessary for presently
existing incidental Morris Dam
facilities.

Puddingstone Reservoir

Prior Prescriptive right to divert
water from San Dimas Wash for
storage in Puddingstone Reservoir in
quantities sufficient to offset annual
evaporation and seepage losses of the
reservoir at approximate elevation
942.

EXHIBIT "G"

TABLE SHOWING NON-CONSUMPTIVE USERS

<u>PARTY</u>	<u>NATURE OF RIGHT</u>
Covina Irrigating Company Azusa Valley Water Company Azusa Agricultural Water Co. Azusa Foot-Hill Citrus Co. Monrovia Nursery	<u>"Committee-of-Nine" Spreading Right</u> To continue to divert water from the San Gabriel River pursuant to the 1888 Settlement, and to spread in spreading grounds within the Basin all water thus diverted without the right to recapture water in excess of said parties' rights as adjudicated in exhibit "E".
California-American Water Company (Duarte System)	<u>Spreading Right</u> To continue to divert water from the San Gabriel River pursuant to the 1888 Settlement, and to continue to divert water from Fish Canyon and to spread said waters in its spreading grounds in the Basin without the right to recapture water in excess of said party's rights as adjudicated in Exhibit "E".
City of Glendora	<u>Spreading Right</u> To continue to spread the water of Big and Little Dalton Washes, pursuant to License No. 2592 without the right to recapture water in excess of said party's rights as adjudicated in Exhibit "E".
San Gabriel Valley Protective Association	<u>Spreading Right</u> To continue to spread San Gabriel River water pursuant to License Nos. 9991 and 12,209, without the right to recapture said water.
Golden State Water Company (formerly <i>California Cities Water Company</i>)	<u>Spreading Right</u> To continue to spread waters from San Dimas Wash without the right to recapture water in excess of said party's rights as adjudicated in Exhibit "E".
Los Angeles County Flood Control District	<u>Temporary storage</u> of storm flow for regulatory purposes; <u>Spreading</u> and conservation for general benefit in streambeds, reservoirs and spreading grounds without the right to recapture said water. <u>Maintenance and operation</u> of dams and other flood control works.

EXHIBIT "H"
WATERMASTER OPERATING CRITERIA

1. **Basin Storage Capacity.** The highest water level at the end of a water year during the past 40 years was reached at the Key Well on September 30, 1944 (elevation 316). The State of California, Department of Water Resources, estimates that as of that date, the quantity of fresh water in storage in the Basin was approximately 8,600,000 acre-feet. It is also estimated by said Department that by September 30, 1960, the quantity of fresh water in storage had decreased to approximately 7,900,000 acre-feet (elevation 237 at the Key Well).

The lowest water level at the end of a water year during the past 40 years was reached at the Key Well on September 30, 1965 (elevation 209). It is estimated that the quantity of fresh water in storage in the Basin on that date was approximately 7,700,000 acre-feet.

Thus, the maximum utilization of Basin storage was approximately 900,000 acre-feet, occurring between September 30, 1944, and September 30, 1965 (between elevations 316 and 209 at the Key Well). This is not to say that more than 900,000 acre-feet of storage space below the September 30, 1944 water levels cannot be utilized. However, it demonstrates that pumpers have deepened their wells and lowered their pumps so that such 900,000 acre-feet of storage can be safely and economically utilized.

The storage capacity of the Basin between elevations of 200 and 250 at the Key Well represents a usable volume of approximately 400,000 acre-feet of water.

2. **Operating Safe Yield and Spreading.** Watermaster in determining Operating Safe Yield and the importation of Replacement Water shall be guided by water level elevations in the Basin. He shall give recognition to, and base his operations on, the following general objectives insofar as practicable and subject to Section 47 of the Judgment (Amended 6/21/12):

- (a) The replenishment of ground water from sources of supplemental water should not cause excessively high levels of ground water and such replenishment should not cause undue waste of local water supplies.
- (b) Certain areas within the Basin are not at the present time capable of being recharged with supplemental water. Efforts should be made to provide protection to such areas from excessive ground water lowering either through the "in lieu" provisions of the

Judgment or by other means.

- (c) Watermaster shall consider and evaluate the long-term consequences on ground water quality, as well as quantity, in determining and establishing Operating Safe Yield. Recognition shall be given to the enhancement of ground water quality insofar as practicable, especially in the area immediately upstream of Whittier Narrows where degradation of water quality may occur when water levels at the Key Well are maintained at or below elevation 200.
- (d) Watermaster shall take into consideration the comparative costs of supplemental and Make-up Water in determining the savings on a present value basis of temporary or permanent lowering or raising of water levels and other economic data and analyses indicating both the short-term and long-term propriety of adjusting Operating Safe Yield in order to derive optimum water levels during any period. Watermaster shall utilize the provisions in the Long Beach Judgment which will result in the least cost of delivering Make-up Water.

3. **Replacement Water -- Sources and Recharge Criteria.** The following criteria shall control purchase of Replacement Water and Recharge of the Basin by Watermaster.

- (a) **Responsible Agency From Which to Purchase.** Watermaster, in determining the Responsible Agency from which to purchase supplemental water for replacement purposes, shall be governed by the following:
 - (1) **Place of Use of Water** which is used primarily within the Basin or by cities within San Gabriel District in areas within or outside the Basin shall control in determining the Responsible Agency. For purposes of this subparagraph, water supplied through a municipal water system which lies chiefly within the Basin shall be deemed entirely used within the Basin; and
 - (2) **Place of production of water** shall control in determining the Responsible Agency as to water exported from the Basin, except as to use within San Gabriel District.

Any Responsible Agency may, at the request of Watermaster, waive its right to act as the source for such supplemental water, in which case Watermaster shall be free to purchase such water from the

remaining Responsible Agencies which are the most beneficial and appropriate sources; provided, however, that a Responsible Agency shall not authorize any sale of water in violation of the California Constitution.

- (b) **Water Quality.** Watermaster shall purchase the best quality of supplemental water available for replenishment of the Basin, pursuant to subsection (a) hereof.
- (c) **Reclaimed Water.** It is recognized that the technology and economic and physical necessity for utilization of reclaimed water is increasing. The purchase of reclaimed water in accordance with the Long Beach Judgment to satisfy the Make-up Obligation is expressly authorized. At the same time, water quality problems involved in the reuse of water within the Basin pose serious questions of increased costs and other problems to the pumpers, their customers and all water users. Accordingly, Watermaster is authorized to gather information, make and review studies, and make recommendations on the feasibility of the use of reclaimed water for replacement purposes; provided that no reclaimed water shall be recharged in the Basin by Watermaster without the prior approval of the court, after notice to all parties and hearing thereon.
- (d) **Purchased Water Plan.** On or before November 1 of each year, Watermaster shall prepare and distribute to the Responsible Agencies a three-year projection of its Supplemental Water purchases from each agency. Watermaster shall, to the extent feasible, coordinate the tentative schedule for delivery and payment of those purchases with each agency. (Amended 6/21/12)

4. **Replacement Assessment Rates.** The Replacement Assessment rates may be in an amount calculated to allow Watermaster to purchase more than one acre-foot of Supplemental Water for each acre-foot of excess Production to which such Assessment applies, when such purchases are prudent in order to secure necessary Supplemental Water supplies for the benefit of the Basin and parties. In accordance with Rules and Regulations adopted by Watermaster, to the extent Watermaster purchases more than one acre-foot of Supplemental Water for each acre-foot of excess Production to which such Assessment applies, a credit shall be issued to the affected Producers at the time such excess water is purchased. (Amended 6/21/12)

EXHIBIT "J"

PUENTE NARROWS AGREEMENT

THIS AGREEMENT is made and entered into as of the 8th day of May, 1972, by and between PUENTE BASIN WATER AGENCY, herein called "Puente Agency", and UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT, herein called "Upper District".

A. RECITALS

1. Puente Agency. Puente Agency is a joint powers agency composed of Walnut Valley Water District, herein called "Walnut District", and Rowland Area County Water District, herein called "Rowland District". Puente Agency is formed for the purpose of developing and implementing a ground water basin management program for Puente Basin. Pursuant to said purpose, said Agency is acting as a representative of its member districts and of the water users and water right claimants therein in the defense and maintenance of their water rights within Puente Basin.

2. Upper District. Upper District is a municipal water district overlying a major portion of the Main San Gabriel Basin. Upper District is plaintiff in the San Gabriel Basin Case, wherein it seeks to adjudicate rights and implement a basin management plan for the Main San Gabriel Basin.

3. Puente Basin is a ground water basin tributary to the Main San Gabriel Basin. Said area was included within the scope of the San Gabriel Basin Case and substantially

all water rights claimants within Puente Basin were joined as defendants therein. The surface contribution to the Main San Gabriel Basin from Puente Basin is by way of the paved flood control channel of San Jose Creek, which passes through Puente Basin from the Pomona Valley area. Subsurface outflow is relatively limited and moves from the Puente Basin to the Main San Gabriel Basin through Puente Narrows.

4. Intent of Agreement. Puente Agency is prepared to assure Upper District that no activity within Puente Basin will hereafter be undertaken which will (1) interfere with surface flows in San Jose Creek, or (2) impair the subsurface flow from Puente Basin to the Main San Gabriel Basin. Walnut District and Rowland District, by operation of law and by express assumption endorsed hereon, assume the covenants of this agreement as a joint and several obligation. Based upon such assurances and the covenants hereinafter contained in support thereof, Upper District consents to the dismissal of all Puente Basin parties from the San Gabriel Basin Case. By reason of said dismissals, Puente Agency will be free to formulate a separate water management program for Puente Basin.

B. DEFINITIONS AND EXHIBITS

5. Definitions. As used in this Agreement, the following terms shall have the meanings herein set forth:

(a) Annual or Year refers to the fiscal year July 1 through June 30.

(b) Base Underflow. The underflow through

Exhibit "J"

Puente Narrows which Puente Agency agrees to maintain, and on which accrued debits and credits shall be calculated.

(c) Make-up Payment. Make-up payments shall be an amount of money payable to the Watermaster appointed in the San Gabriel Basin Case, sufficient to allow said Watermaster to purchase replacement water on account of any accumulated deficit as provided in Paragraph 9 hereof.

(d) Puente Narrows. The subsurface geologic constriction at the downstream boundary of Puente Basin, located as shown on Appendix "B".

(e) Main San Gabriel Basin, the ground water basin shown and defined as such in Exhibit "A" to the Judgment in the San Gabriel Basin Case.

(f) San Gabriel Basin Case. Upper San Gabriel Valley Municipal Water District v. City of Alhambra, et al., L. A. Sup. Ct. No. 924128, filed January 2, 1968.

6. Appendices. Attached hereto and by this reference made a part hereof are the following appendices:

"A" -- Location Map of Puente Basin, showing major geographic, geologic, and hydrologic features.

"B" -- Map of Cross-Section Through Puente Narrows, showing major physical features and location of key wells.

Exhibit "J"

"C" -- Engineering Criteria, being a description of a method of measurement of subsurface outflow to be utilized for Watermaster purposes.

C. COVENANTS

7. Watermaster. There is hereby created a two member Watermaster service to which each of the parties to this agreement shall select one consulting engineer. The respective representatives on said Watermaster shall serve at the pleasure of the governing body of each appointing party and each party shall bear its own Watermaster expense.

a. Organization. Watermaster shall perform the duties specified herein on an informal basis, by unanimous agreement. In the event the two representatives are unable to agree upon any finding or decision, they shall select a third member to act, pursuant to the applicable laws of the State of California. Thereafter, until said issue is resolved, said three shall sit formally as a board of arbitration. Upon resolution of the issue in dispute, the third member shall cease to function further.

b. Availability of Information. Each party hereto shall, for itself and its residents and water users, use its best efforts to furnish all appropriate information to the Watermaster in order that the required determination can be made.

Exhibit "J"

c. Cooperation With Other Watermasters. Watermaster hereunder shall cooperate and coordinate activities with the Watermasters appointed in the San Gabriel Basin Case and in Long Beach v. San Gabriel Valley Water Company, et al.

d. Determination of Underflow. Watermaster shall annually determine the amount of underflow from Puente Basin to the San Gabriel Basin, pursuant to Engineering Criteria.

e. Perpetual Accounting. Watermaster shall maintain a perpetual account of accumulated base underflow, accumulated subsurface flow, any deficiencies by reason of interference with surface flows, and the offsetting credit for any make-up payments. Said account shall annually show the accumulated credit or debit in the obligation of Puente Agency to Upper District.

f. Report. Watermaster findings shall be incorporated in a brief written report to be filed with the parties and with the Watermaster in the San Gabriel Basin Case. Said report shall contain a statement of the perpetual account heretofore specified.

8. Base Underflow. On the basis of a study and review of historic underflow from Puente Basin to the Main San Gabriel Basin, adjusted for the effect of the paved flood control channel and other relevant considerations, it is

mutually agreed by the parties that the base underflow is and shall be 580 acre feet per year, calculated pursuant to Engineering Criteria.

9. Puente Agency's Obligation. Puente Agency covenants, agrees and assumes the following obligation hereunder:

a. Noninterference with Surface Flow. Neither Puente Agency nor any persons or entities within the corporate boundaries of Walnut District or Rowland District will divert or otherwise interfere with or utilize natural surface runoff now or hereafter flowing in the storm channel of San Jose Creek; provided, however, that this covenant shall not prevent the use, under Watermaster supervision, of said storm channel by the Puente Agency or Walnut District or Rowland District for transmission within Puente Agency of supplemental or reclaimed water owned by said entities and introduced into said channel solely for transmission purposes. In the event any unauthorized use of surface flow in said channel is made contrary to the covenant herein provided, Puente Agency shall compensate Upper District by utilizing any accumulated credit or by make-up payment in the same manner as is provided for deficiencies in subsurface outflow from Puente Basin.

b. Subsurface Outflow. To the extent that

Exhibit "J"

the accumulated subsurface outflow falls below the accumulated base underflow and the result thereof is an accumulated deficit in the Watermaster's annual accounting, Puente Agency agrees to provide make-up payments during the next year in an amount not less than one-third of the accumulated deficit.

c. Purchase of Reclaimed Water. To the extent that Puente Agency or Walnut District or Rowland District may hereafter purchase reclaimed water from the facilities of Sanitation District 21 of Los Angeles County, such purchaser shall use its best efforts to obtain waters originating within San Gabriel River Watershed.

10. Puente Basin Parties Dismissal. In consideration of the assumption of the obligation hereinabove provided by Puente Agency, Upper District consents to entry of dismissals as to all Puente Basin parties in San Gabriel Basin Case. This agreement shall be submitted for specific approval by the Court and a finding that it shall operate as full satisfaction of any and all claims by the parties within Main San Gabriel Basin against Puente Basin parties by reason of historic surface and subsurface flow.

Exhibit "J"

IN WITNESS WHEREOF the parties hereto have caused
this Agreement to be executed as of the day and date first
above written.

Approved as to form:

CLAYSON, STARK, ROTHROCK & MANN

By

Charles A. Stark
Attorneys for Puente Agency

PUENTE BASIN AGENCY

By

Edmond M. Biederman
EDMOND M. BIEDERMAN
President

Approved as to form:

By

Nash B. Arden
Attorney for Upper District

UPPER SAN GABRIEL VALLEY
MUNICIPAL WATER DISTRICT

By

Howard H. Hawkins
Howard H. Hawkins
President

The foregoing agreement is approved and accepted, and
the same is acknowledged as the joint and several obligation
of the undersigned.

Approved as to form:

W. W. Hawley
Attorney for Walnut District

WALNUT VALLEY WATER DISTRICT

By

J. P. Bourdet
J. P. BOURDET
Vice President

Approved as to form:

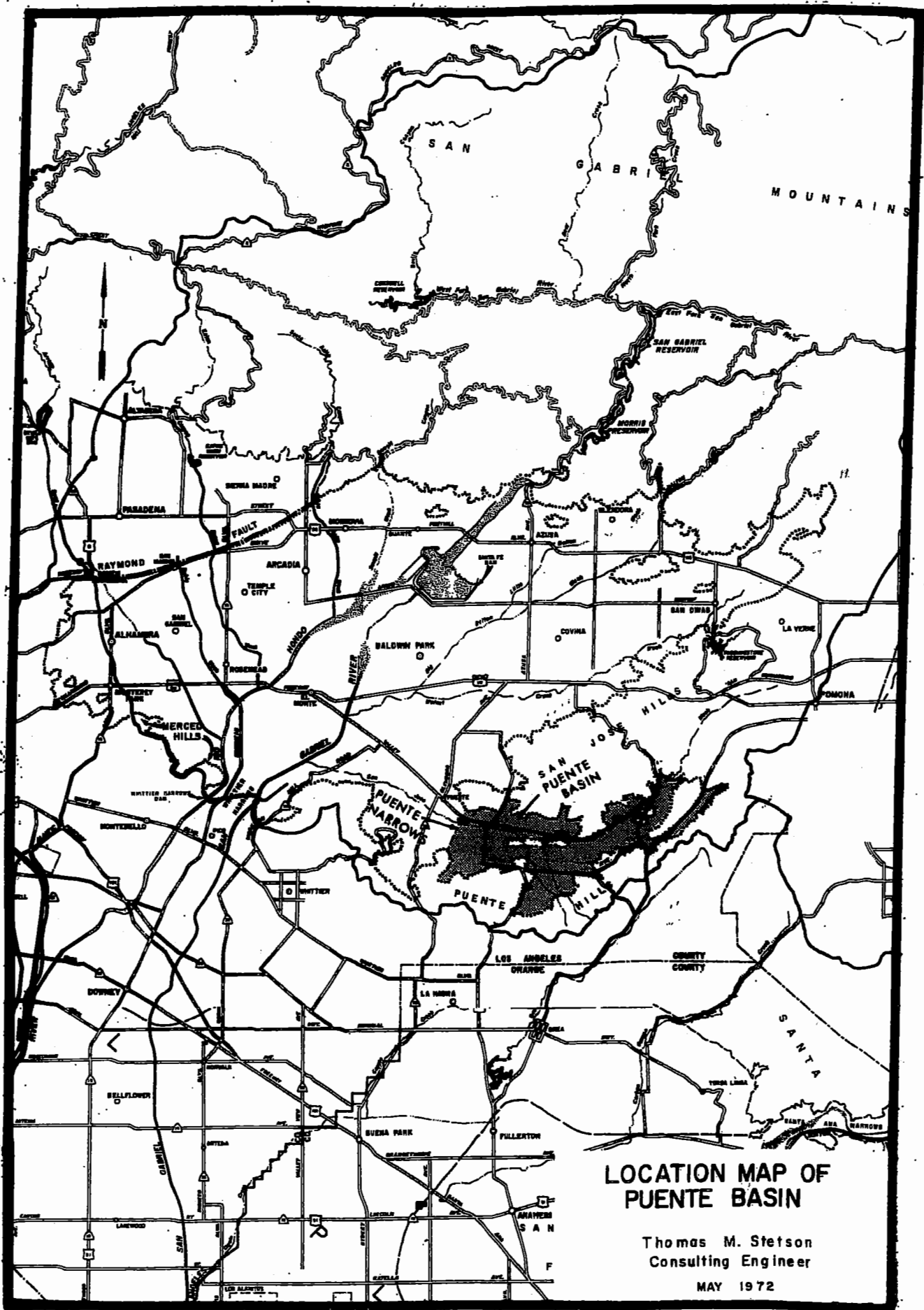
Leona D. Smith
Attorneys for Rowland District

ROWLAND AREA COUNTY WATER
DISTRICT

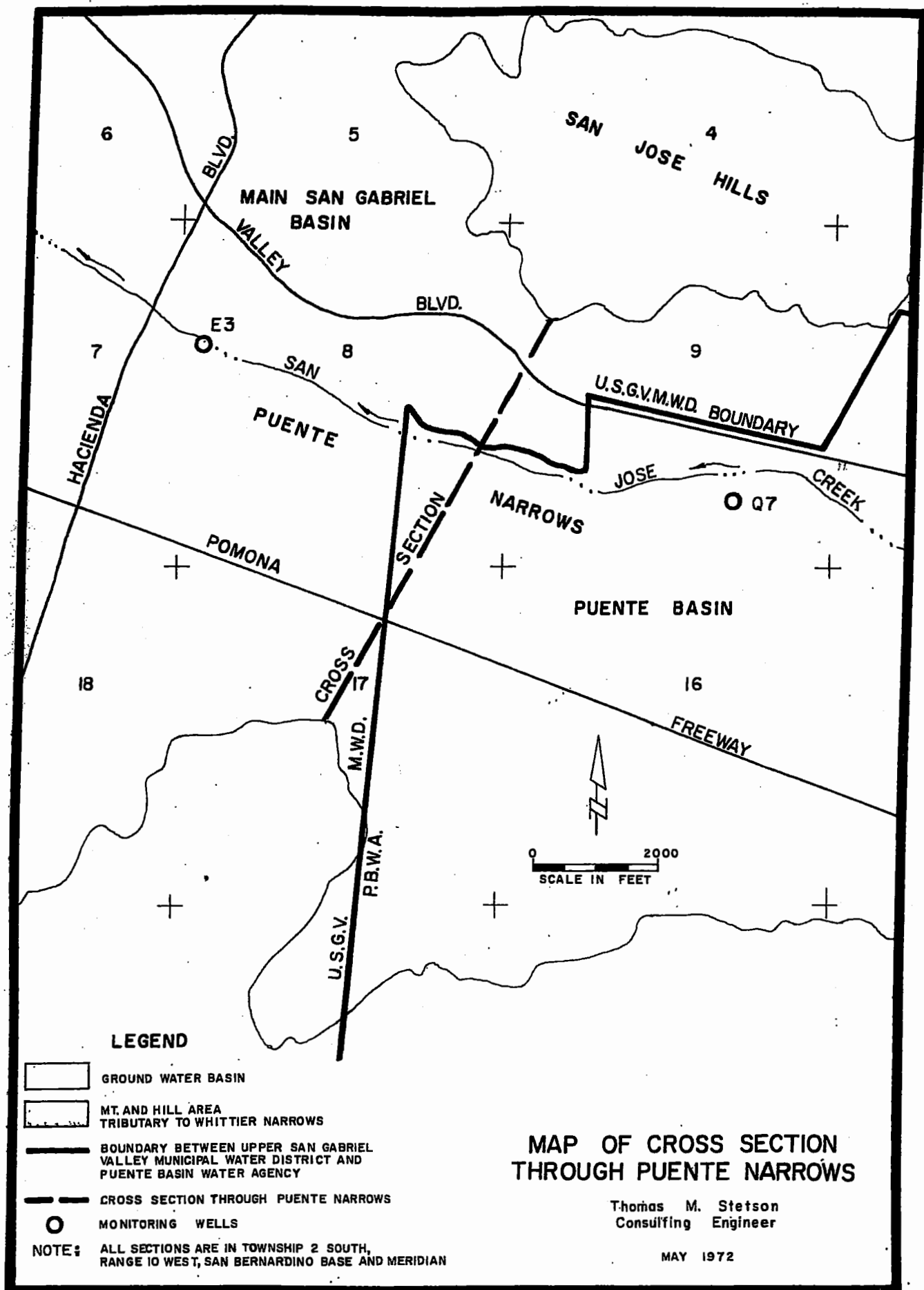
By

W. A. Simmons
President
Wm. A. Simmons

Exhibit "J"



APPENDIX "A"
EXHIBIT "J"



MAP OF CROSS SECTION THROUGH PUENTE NARROWS

Thomas M. Stetson
Consulting Engineer

MAY 1972

APPENDIX "B"
EXHIBIT "J"

ENGINEERING CRITERIA

APPENDIX "C"

1. Monitoring Wells. The wells designated as State Wells No. 2S/10W-9Q7 and 2S/10W-8E3 and Los Angeles County Flood Control District Nos. 3079M and 3048B, respectively, shall be used to measure applicable ground water elevations. In the event either monitoring well should fail or become unrepresentative, a substitute well shall be selected or drilled by Watermaster. The cost of drilling a replacement well shall be the obligation of the Puente Agency.

2. Measurement. Each monitoring well shall be measured and the ground water elevation determined semi-annually on or about April 1 and October 1 of each year. Prior to each measurement, the pump shall be turned off for a sufficient period to insure that the water table has recovered to a static or near equilibrium condition.

3. Hydraulic Gradient. The hydraulic gradient, or slope of the water surface through Puente Narrows, shall be calculated between the monitoring wells as the difference in water surface elevation divided by the distance, approximately 9,000 feet, between the wells. The hydraulic gradient shall be determined for the spring and fall and the average hydraulic gradient calculated for the year.

4. Ground Water Elevation at Puente Narrows Cross Section. The ground water elevation at the Puente Narrows

APPENDIX "C"

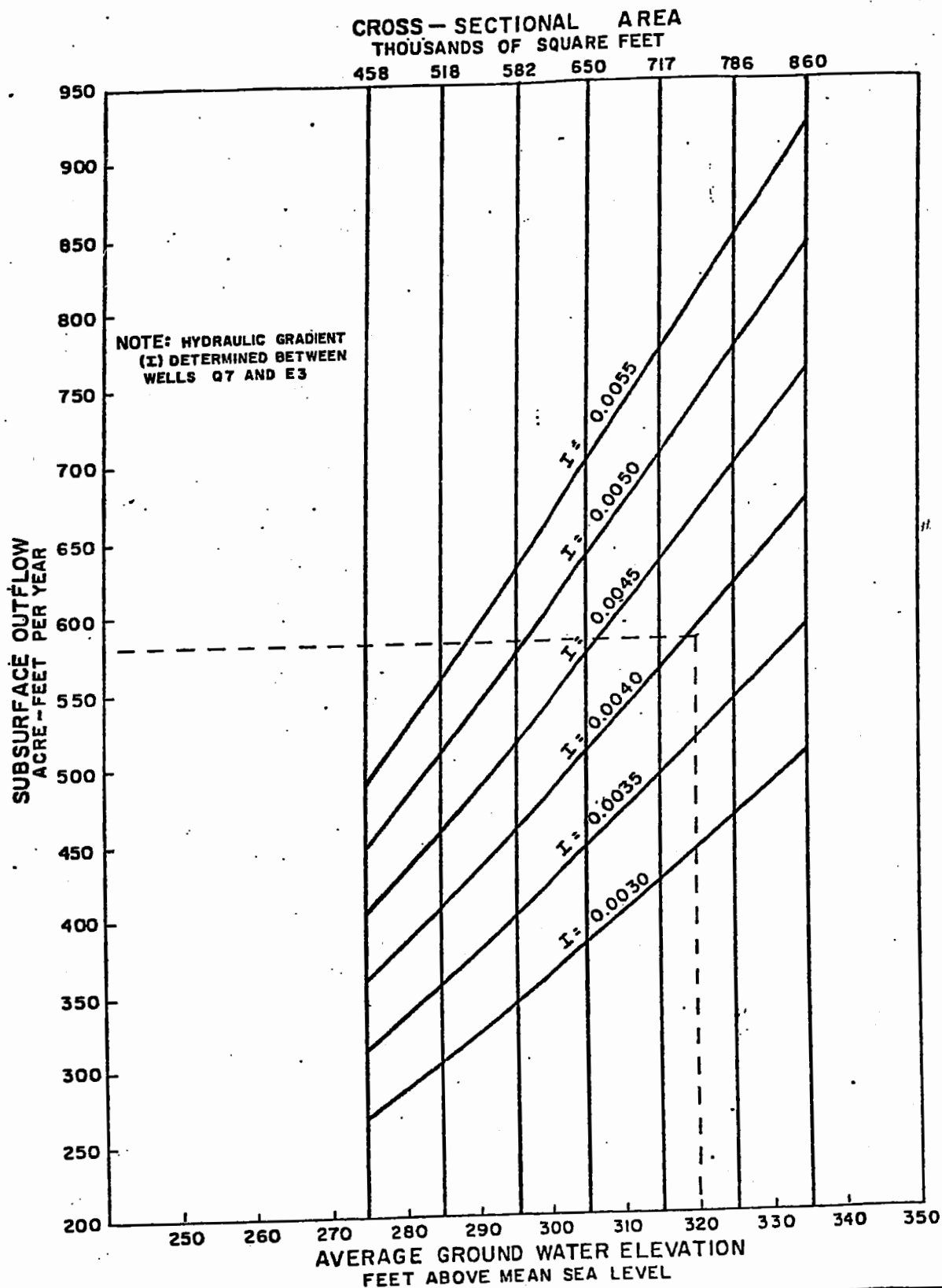
Exhibit "J"

cross section midway between the monitoring wells shall be the average of the ground water elevation at the two wells. This shall be determined for the spring and fall and the average annual ground water elevation calculated for the year.

5. Determination of Underflow. The chart attached is a photo-reduction of a full scale chart on file with the Watermaster. By applying the appropriate average annual hydraulic gradient (I) to the average annual ground water elevation at the Puente Narrows cross section (involving the appropriate cross-sectional area [A]), it is possible to read on the vertical scale the annual acre feet of underflow.

APPENDIX "C"

Exhibit "J"



RELATIONSHIP OF AVERAGE GROUND WATER ELEVATION AT PUENTE NARROWS
AND APPLICABLE CROSS-SECTIONAL AREA WITH SUBSURFACE OUTFLOW
THROUGH PUENTE NARROWS FOR VARIOUS HYDRAULIC GRADIENTS

Thomas M. Stetson
Consulting Engineer
MAY 1972

EXHIBIT "J"

EXHIBIT "K"

OVERLYING RIGHTS

I. NATURE OF OVERLYING RIGHT

An "Overlying Right" is the right to Produce water from the Main San Gabriel Basin for use on the overlying lands hereinafter described. Such rights are exercisable without quantitative limit only on said overlying land and cannot be separately conveyed or transferred apart therefrom. The exerciser of such right is assessable by Watermaster as provided in Paragraph 21 of the Amended Judgment herein (prior Paragraph 14.5 of the Judgment herein) and is subject to the other provisions of said Paragraph.

II. OVERLYING LANDS (Description)

The overlying lands to which Overlying Rights are appurtenant are described as follows:

"Those portions of Lots 1 and 2 of the lands formerly owned by W.A. Church, in the Rancho San Francisquito, in the City of Irwindale, County of Los Angeles, State of California, as shown on recorder's filed map No. 509, in the office of the County Recorder of said County, lying northeasterly of the northeasterly line and its southeasterly prolongation of Tract 1888, as shown on map recorded in Book 21 page 183 of Maps, in the office of the County Recorder of said County.

"EXCEPT the portions thereof lying northerly and northwesterly of the center line of Arrow Highway described 'Sixth' and the center line of Live Oak Avenue described 'Third' in a final decree of condemnation, a certified copy of which was recorded August 18, 1933 as Instrument No. 354, in Book 12289, Page 277, Official Records.

"ALSO EXCEPT that portion of said land described in the final decree of condemnation entered in Los Angeles County Superior Court Case No. 805008, a certified copy of which was recorded September 21, 1964, as Instrument No. 3730 in Book D-2634, Page 648, Official Records."

III. PRODUCERS ENTITLED TO EXERCISE OVERLYING RIGHTS AND THEIR RESPECTIVE CONSUMPTIVE USE PORTIONS

The persons entitled to exercise Overlying Rights are both the owners of Overlying Rights and persons and entities licensed by such owners to exercise such Overlying Rights. The persons entitled to exercise Overlying Rights and their respective Consumptive Use portions are as follows:

OWNER PRODUCERS

BROOKS GIFFORD, SR.
BROOKS GIFFORD, JR.
PAUL MNOIAN
JOHN MGRDICHIAN
J. EARL GARRETT

CONSUMPTIVE USE PORTION

3.5 acre-feet per year

Present User:

Nu-Way Industries

PRODUCERS UNDER LICENSE

A. WILLIAM C. THOMAS
and EVELYN F. THOMAS,
husband and wife, and
MALCOLM K. GATHERER
and JACQUELINE GATHERER,
husband and wife, doing business
by and through B & B
REDI-I-MIX CONCRETE,
INC., a corporation

45.6 acre-feet per year

B. PRE-STRESS CRANE RIGGING &
TRUCK CO., INC.,
a corporation

1.0 acre-foot per year

Present Users:

Pre-Stress Crane Rigging &
Truck Co., Inc., a corporation

TOTAL

50.1 acre-feet per year

**IV. ANNUAL GROSS AMOUNT OF
PRODUCTION FROM WHICH
CONSUMPTIVE USE PORTIONS
WERE DERIVED**

183.65 acre-feet

EXHIBIT "K"

CONSUMPTIVE USE PORTIONS OF PRODUCERS WITH OVERLYING RIGHTS AS OF JUNE 30, 2013

OVERLYING PRODUCER	CONSUMPTIVE USE PORTION (ACRE-FEET)

1. Mnoian-Gifford Interests

Owner Producers

Paul Mnoian³

Brooks Gifford, Sr.³

Brooks Gifford, Jr.³

John Mgrdichian³

J. Earl Garrett³

Present User: Nu-Way Industries

3.5

Producers Under License

William C. Thomas³

Evelyn F. Thomas³

Malcolm K. Gatherer³

Jacqueline Gatherer³

Present User: B & B Red-I-Mix Concrete, Inc.

45.6

Pre-Stress Crane Rigging and Truck, Co., Inc.³

1.0

50.1

2. Attalla, Phillip Y. and Mary L.³

29.9

3. Citrus Valley Medical Center, Queen of the Valley Campus.³

4.5

(Formerly Queen of the Valley Hospital.³)

4. S.L.S & N. Inc.³

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TOTAL

84.5

1/ Permanent transfer of rights as recorded within Exhibits "C", "D", and "E" of Judgment.

2/ Permanent transfer of rights after entry of Judgment.

3/ Intervenor after Judgment.

EXHIBIT "L"

LIST OF PRODUCERS AND THEIR DESIGNEES

June 21, 2012

PRODUCER	DESIGNEE
Adams Ranch Mutual Water Company	Domenic T. Cimarusti
Alhambra, City of	Mary Chavez
Amarillo Mutual Water Company	John Holzinger
Anderson Family Marital Trust	Carolyn Heinrich
Andrade, Susan	Susan Andrade
Aqua Capital Management LP	David L. Penrice
Arcadia, City of	Tom Tait
Azusa, City of	Chet Anderson
Azusa Agricultural Water Company	Chet Anderson
Azusa Valley Water Company	Chet Anderson
Bandel Family Trust	Candace Garnier Bandel
Banks, Gale C. and Vicki L.	Gale and Vicki Banks
Brezina Trust 2001, Raymond W. and Susan W.	Raymond W. Brezina
Brierly, Susan K.	Reiner Kruger
Brondino, Jeanne	Jeanne Brondino
Cadway, Inc.	James M. Byerrum
California-American Water Company (Duarte System)	Todd Brown
California-American Water Company (San Marino System)	Todd Brown
California Domestic Water Company	James M. Byerrum
Canyon Water Company	William McIntyre
Canyon Water & Development Corporation	Chet Anderson
Champion Mutual Water Company	Bryan P. Hellein
Chevron U.S.A.	Leon F. Drozd, Esq.
Citrus Valley Medical Center, Queen of the Valley Campus	Gregory J. Landers
Coiner, James W., dba Coiner Nursery	James W. Coiner
County Sanitation District No. 18	Raymond Tremblay
Covina, City of	Daryl Parrish
Covina Irrigating Company	David D. De Jesus
Crevolin, A. J.	A. J. Crevolin
CV Glendora 3 Site, LLC	Bill McReynolds
Dawes, Mary Kay	Mary Kay Partridge
DeFalco, John and Carole	John and Carole DeFalco
Del Rio Mutual Water Company	Dario Herrera
Driftwood Dairy	David Trenkenschuh

PRODUCER	DESIGNEE
East Pasadena Water Company El Monte, City of El Monte Cemetery Association	Lawrence M. Morales Rene Bobadilla Todd Brown
Fox Family Trust Michael Edward Fox and Crystal Marie Fox, Trustees	Michael and Crystal Fox
Garnier Family Trust, Anton C. and Anita Garnier, Ruth Elaine Ailor Trust Gates, James Richard Glendora, City of Golden State Water Company - San Dimas District Golden State Water Company - San Gabriel Valley District Green, Walter	Anton C. and Anita Garnier Renee Garnier Poivre James Richard Gates Steve Patton Patrick Scanlon Benjamin Lewis, Jr. Dr. Walter Green
Hanson Aggregates West, Inc. Heinrich, Carolyn Hemlock Mutual Water Company	Michael Rogers Carolyn Heinrich Robert McClung
Industry Waterworks Systems, City of Irwindale, City of	Gregory B. Galindo Sol Benudiz
JUH #1	Reiner Kruger
Kirklen, Jeffery B. Knight, William J.	Jeffery B. Kirklen William J. Knight
Landeros, John La Puente Valley County Water District Lovelady, June G., Trustee Los Angeles, County of Loucks, David	John Landeros Gregory B. Galindo June G. Lovelady Robert Maycumber David Loucks
Maddock, A.G. Maggiore, Valarie McIntyre, William Metropolitan Water District of Southern California Miller Coors LLC Monrovia, City of Monrovia Nursery Monterey Park, City of Munoz, Ralph Nicholson Trust, The Nicholson Family Trust, The	S. Joellen Maddock Valarie Maggiore William McIntyre Lorraine Aoys Jeffrey D. Arbour Ron Bow Reiner Kruger Elias Saykali Ralph Munoz M. L. Whitehead M. L. Whitehead

PRODUCER	DESIGNEE
Parton Family Trust	Vernal O. and Marverna Parton
Pellissier Irrevocable QTIP Trust, et al, Laurence R., Co-tenancy of Pico County Water District Polopolus, et. Al	James M. Byerrum
Rados Brothers Rosedale, Lance Rosedale, Miles R. Rosemead Development LTD. Rurban Homes Mutual Water Company Ruth, Roy	Mark Grajeda Helen Gaskins
San Gabriel Country Club San Gabriel County Water District San Gabriel Valley Municipal Water District San Gabriel Valley Water Company Sierra La Verne Country Club Sierra Madre, City of Sonoco Products Company South Pasadena, City of Southern California Edison Company Southwest Water Company Sterling Mutual Water Company Suburban Water Systems Sunny Slope Water Company	Alexander S. Rados Reiner Kruger Reiner Kruger John W. Lloyd George W. Bucey Roy Ruth
Tate, Phillip G. and Sieglinde A. Three Valleys Municipal Water District Tomovich, Nick and Sons Hieu Tran Tyler Nursery	Eddie Villanueva Barbara A. Carrera Darin Kasamoto
USA Waste of California, Inc. United Rock Products Corporation Upper San Gabriel Valley Municipal Water District	Michael L. Whitehead Donald Johnson Bruce Inman Khaleda Hamid Marcelino Aguilar Jorge A. Rosa, Jr. Richard J. Rich Joy Ann Burt Michael Quinn Ken Tcheng
Valencia Heights Water Company Valley County Water District Valley View Mutual Water Company VanLandingham, Richard Vietnamese American Buddhist Temple Congregation Vulcan Materials Company	Phillip Tate Richard W. Hansen Nick Tomovich Hieu Tran Fumiko Kishi
	Joseph J. Cassin Russ Caruso Steven P. O'Neill
	P. David Michalko Lynda A. Noriega Sukie Madrid Reiner Kruger Thích Viên Ly
	Robert W. Bowcock

PRODUCER	DESIGNEE

Whittier, City of
Wilmott, Erma M.
Woodland, Richard
Workman Mill Investment Company

Daniel Wall
Erma M. Wilmott
Richard J. Woodland
Bruce A. Lazenby

EXHIBIT "M"

WATERMASTER MEMBERS

FOR CALENDAR YEAR 1973

ROBERT T. BALCH (Producer Member), Chairman
LINN E. MAGOFFIN (Producer Member), Vice Chairman
RICHARD L. ROWLAND (Producer Member), Secretary
BOYD KERN (Public Member), Treasurer
WALKER HANNON (Producer Member)
HOWARD H. HAWKINS (Public Member)
M.E. MOSLEY (Producer Member)
CONRAD T. REIBOLD (Public Member)
HARRY C. WILLS (Producer Member)

STAFF

Carl Fossette, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1974

ROBERT T. BALCH (Producer Member), Chairman
LINN E. MAGOFFIN (Producer Member), Vice Chairman
RICHARD L. ROWLAND (Producer Member), Secretary
BOYD KERN (Public Member), Treasurer
WALKER HANNON (Producer Member)
BURTON E. JONES (Public Member)
M.E. MOSLEY (Producer Member)
CONRAD T. REIBOLD (Public Member)
HARRY C. WILLS (Producer Member)

STAFF

Carl Fossette, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1975

ROBERT T. BALCH (Producer Member), Chairman
LINN E. MAGOFFIN (Producer Member), Vice Chairman
HARRY C. WILLS (Producer Member), Secretary
BOYD KERN (Public Member), Treasurer
WALKER HANNON (Producer Member)
BURTON E. JONES (Public Member)
D.J. LAUGHLIN (Producer Member)
M.E. MOSLEY (Producer Member)
CONRAD T. REIBOLD (Public Member)

STAFF

Carl Fossette, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1976

ROBERT T. BALCH (Producer Member), Chairman
LINN E. MAGOFFIN (Producer Member), Vice Chairman
HARRY C. WILLS (Producer Member), Secretary
BOYD KERN (Public Member), Treasurer
WALKER HANNON (Producer Member)
BURTON E. JONES (Public Member)
D.J. LAUGHLIN (Producer Member)
M.E. MOSLEY (Producer Member)
CONRAD T. REIBOLD (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1977

ROBERT T. BALCH (Producer Member), Chairman
LINN E. MAGOFFIN (Producer Member), Vice Chairman
HARRY C. WILLS (Producer Member), Secretary
CONRAD T. REIBOLD (Public Member), Treasurer
WALKER HANNON (Producer Member)
BURTON E. JONES (Public Member)
BOYD KERN (Public Member)
D.J. LAUGHLIN (Producer Member)
R.H. NICHOLSON, JR. (Producer Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1978

ROBERT T. BALCH (Producer Member), Chairman
LINN E. MAGOFFIN (Producer Member), Vice Chairman
D.J. LAUGHLIN (Producer Member), Secretary
CONRAD T. REIBOLD (Public Member), Treasurer
WALKER HANNON (Producer Member)
BURTON E. JONES (Public Member)
L.E. MOELLER (Producer Member)
R.H. NICHOLSON, JR. (Producer Member)
WILLIAM M. WHITESIDE (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1979

LINN E. MAGOFFIN (Producer Member), Chairman
R.H. NICHOLSON, JR. (Producer Member), Vice Chairman
WILLIAM M. WHITESIDE (Public Member), Secretary
CONRAD T. REIBOLD (Public Member), Treasurer
ROBERT T. BALCH (Producer Member)
ROBERT G. BERLIEN (Producer Member)*
ANTON C. GARNIER (Producer Member)
D.J. LAUGHLIN (Producer Member)**
TRAVIS L. MANNING (Public Member)
L.E. MOELLER (Producer Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

- * Elected March 1979 to replace D.J. Laughlin, following his resignation.
- ** Resigned from Watermaster in February 1979.

FOR CALENDAR YEAR 1980

LINN E. MAGOFFIN (Producer Member), Chairman
R.H. NICHOLSON, JR. (Producer Member), Vice Chairman
WILLIAM M. WHITESIDE (Public Member), Secretary
CONRAD T. REIBOLD (Public Member), Treasurer
ROBERT T. BALCH (Producer Member)
ROBERT G. BERLIEN (Producer Member)
ANTON C. GARNIER (Producer Member)
TRAVIS L. MANNING (Public Member)
L.E. MOELLER (Producer Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
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Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1981

LINN E. MAGOFFIN (Producer Member), Chairman
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WILLIAM M. WHITESIDE (Public Member), Secretary
CONRAD T. REIBOLD (Public Member), Treasurer
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L.E. MOELLER (Producer Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1982

LINN E. MAGOFFIN (Producer Member), Chairman
R.H. NICHOLSON, JR. (Producer Member), Vice Chairman
WILLIAM M. WHITESIDE (Public Member), Secretary
CONRAD T. REIBOLD (Public Member), Treasurer
ROBERT T. BALCH (Producer Member)
ROBERT G. BERLIEN (Producer Member)
ANTON C. GARNIER (Producer Member)
L.E. MOELLER (Producer Member)
ALFRED F. WITTIG (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1983

LINN E. MAGOFFIN (Producer Member), Chairman
R.H. NICHOLSON, JR. (Producer Member), Vice Chairman
ROBERT G. BERLIEN (Producer Member), Secretary
CONRAD T. REIBOLD (Public Member), Treasurer
ROBERT T. BALCH (Producer Member)
DONALD F. CLARK (Public Member)
ANTON C. GARNIER (Producer Member)
L.E. MOELLER (Producer Member)
ALFRED F. WITTIG (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1984

LINN E. MAGOFFIN (Producer Member), Chairman
R.H. NICHOLSON, JR. (Producer Member), Vice Chairman
ROBERT G. BERLIEN (Producer Member), Secretary
CONRAD T. REIBOLD (Public Member), Treasurer
ROBERT T. BALCH (Producer Member)
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ANTON C. GARNIER (Producer Member)
L.E. MOELLER (Producer Member)
ALFRED F. WITTIG (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1985

LINN E. MAGOFFIN (Producer Member), Chairman
R.H. NICHOLSON, JR. (Producer Member), Vice Chairman
ROBERT G. BERLIEN (Producer Member), Secretary
CONRAD T. REIBOLD (Public Member), Treasurer
ROBERT T. BALCH (Producer Member)
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ANTON C. GARNIER (Producer Member)
L.E. MOELLER (Producer Member)
ALFRED F. WITTIG (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1986

LINN E. MAGOFFIN (Producer Member), Chairman
R.H. NICHOLSON, JR. (Producer Member), Vice Chairman
ROBERT G. BERLIEN (Producer Member), Secretary
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L.E. MOELLER (Producer Member)
REGINALD A. STONE (Producer Member)
ALFRED F. WITTIG (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1987

LINN E. MAGOFFIN (Producer Member), Chairman
REGINALD A. STONE (Producer Member), Vice Chairman
L.E. MOELLER (Producer Member), Secretary
ALFRED F. WITTIG (Public Member), Treasurer
ROBERT T. BALCH (Producer Member)
GERALD J. BLACK (Producer Member)
DONALD F. CLARK (Public Member)
EDWARD R. HECK (Producer Member)
JOHN E. MAULDING (Public Member)

STAFF

Robert G. Berlien, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1988

LINN E. MAGOFFIN (Producer Member), Chairman
REGINALD A. STONE (Producer Member), Vice Chairman
L.E. MOELLER (Producer Member), Secretary
ALFRED F. WITTIG (Public Member), Treasurer
ROBERT T. BALCH (Producer Member)
GERALD J. BLACK (Producer Member)
DONALD F. CLARK (Public Member)
EDWARD R. HECK (Producer Member)
JOHN E. MAULDING (Public Member)

STAFF

Robert G. Berlien, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1989

LINN E. MAGOFFIN (Producer Member), Chairman
REGINALD A. STONE (Producer Member), Vice Chairman
GERALD J. BLACK (Producer Member), Secretary
ALFRED F. WITTIG (Public Member), Treasurer
ROBERT T. BALCH (Producer Member)*
DONALD F. CLARK (Public Member)
EDWARD R. HECK (Producer Member)
BURTON E. JONES (Public Member)
NELS PALM (Producer Member)**
THOMAS E. SHOLLENBERGER (Producer Member)

STAFF

Robert G. Berlien, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

* DECEASED APRIL 25, 1989

** Appointed August 24, 1989, for the balance of the calendar year term, to replace deceased member, Robert T. Balch.

FOR CALENDAR YEAR 1990

LINN E. MAGOFFIN (Producer Member), Chairman
REGINALD A. STONE (Producer Member), Vice Chairman
GERALD J. BLACK (Producer Member), Secretary
ALFRED F. WITTIG (Public Member), Treasurer
DONALD F. CLARK (Public Member)
EDWARD R. HECK (Producer Member)
BURTON E. JONES (Public Member)
NELS PALM (Producer Member)
THOMAS E. SHOLLENBERGER (Producer Member)

STAFF

Robert G. Berlien, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1991

LINN E. MAGOFFIN (Producer Member), Chairman
REGINALD A. STONE (Producer Member), Vice Chairman
GERALD J. BLACK (Producer Member), Secretary
NELS PALM (Producer Member), Treasurer
ROYALL K. BROWN (Public Member)
MARVIN JOE CICHY (Public Member)
EDWARD R. HECK (Producer Member)
C. ROBER KEISER (Public Member)
ANDREW A. KRUEGER (Producer Member)

STAFF

John E. Maulding, Executive Officer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1992

LINN E. MAGOFFIN (Producer Member), Chairman
REGINALD A. STONE (Producer Member), Vice Chairman
GERALD J. BLACK (Producer Member), Secretary
NELS PALM (Producer Member), Treasurer
ROYALL K. BROWN (Public Member)
RICHARD W. CANTWELL (Producer Member)
BURTON E. JONES (Public Member)
C. ROBER KEISER (Public Member)
ANDREW A. KRUEGER (Producer Member)

STAFF

John E. Maulding, Executive Officer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1993

LINN E. MAGOFFIN (Producer Member), Chairman
REGINALD A. STONE (Producer Member), Vice Chairman
GERALD J. BLACK (Producer Member), Secretary
NELS PALM (Producer Member), Treasurer
RICHARD W. CANTWELL (Producer Member)
MARVIN JOE CICHY (Public Member)
FRANK F. FORBES (Public Member)
ANDREW A. KRUEGER (Producer Member)
LEROY E. MOELLER (Public Member)

STAFF

John E. Maulding, Executive Officer
Frederic A. Fudacz, Attorney (Effective February 1993)
Ralph B. Helm, Attorney (Retired January 1993)
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1994

LINN E. MAGOFFIN (Producer Member), Chairman*****
REGINALD A. STONE (Producer Member), Vice Chairman
RICHARD W. CANTWELL (Producer Member), Secretary***
STANLEY D. YARBROUGH (Producer Member), Treasurer
GERALD J. BLACK (Producer Member)*
MARVIN JOE CICHY (Public Member)
FRANK F. FORBES (Public Member)
MANNY J. MAGANA (Producer Member)
P. GEOFFREY NUNN (Producer Member)*****
LEROY E. MOELLER (Public Member)
MICHAEL L. WHITEHEAD (Producer Member)**

STAFF

John E. Maulding, Executive Officer****
Carol Williams, Executive Officer*****
Frederic A. Fudacz, Attorney
Thomas M. Stetson, Engineer

* Mr. Black resigned from Watermaster on February 4, 1994
** Mr. Whitehead was nominated to Watermaster on March 2, 1994
*** Mr. Cantwell was elected as Watermaster Secretary on May 4, 1994
**** Mr. Maulding passed away on March 13, 1994
***** Ms. Williams was appointed Executive Officer on August 3, 1994
***** Mr. Magoffin resigned from Watermaster on August 3, 1994
***** Mr. Nunn was nominated to Watermaster on August 8, 1994

FOR CALENDAR YEAR 1995

REGINALD A. STONE (Producer Member), Chairman

RICHARD W. CANTWELL (Producer Member), Vice Chairman

MANNY J. MAGANA (Producer Member), Secretary

MICHAEL L. WHITEHEAD (Producer Member), Treasurer

JUDITH L. ALMOND (Producer Member)

ROBERT W. BOWCOCK (Producer Member)

MARVIN JOE CICHY (Public Member)

FRANK F. FORBES (Public Member)

LEROY E. MOELLER (Public Member)

STAFF

Carol Williams, Executive Officer

Frederic A. Fudacz, Attorney

Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1996

REGINALD A. STONE (Producer Member), Chairman

RICHARD W. CANTWELL (Producer Member), Vice Chairman

MANNY J. MAGANA (Producer Member), Secretary

MICHAEL L. WHITEHEAD (Producer Member), Treasurer

JUDITH L. ALMOND (Producer Member)

ROBERT W. BOWCOCK (Producer Member)

MARVIN JOE CICHY (Public Member)

FRANK F. FORBES (Public Member)

LEROY E. MOELLER (Public Member)

STAFF

Carol Williams, Executive Officer

Frederic A. Fudacz, Attorney

Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1997

REGINALD A. STONE (Producer Member), Chairman
RICHARD W. CANTWELL (Producer Member), Vice Chairman
MANNY J. MAGANA (Producer Member), Secretary
MICHAEL L. WHITEHEAD (Producer Member), Treasurer
JUDITH L. ALMOND (Producer Member)
ROBERT W. BOWCOCK (Producer Member)
MARVIN JOE CICHY (Public Member)
FRANK F. FORBES (Public Member)
LEROY E. MOELLER (Public Member)

STAFF

Carol Williams, Executive Officer
Frederic A. Fudacz, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1998

REGINALD A. STONE (Producer Member), Chairman
RICHARD W. CANTWELL (Producer Member), Vice Chairman
MANNY J. MAGANA (Producer Member), Secretary
MICHAEL L. WHITEHEAD (Producer Member), Treasurer
JUDITH L. ALMOND (Producer Member)
ROBERT W. BOWCOCK (Producer Member)
MARVIN JOE CICHY (Public Member)
FRANK F. FORBES (Public Member)
LEROY E. MOELLER (Public Member)

STAFF

Carol Williams, Executive Officer
Frederic A. Fudacz, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1999

REGINALD A. STONE (Producer Member), Chairman
RICHARD W. CANTWELL (Producer Member), Vice Chairman
MANNY J. MAGANA (Producer Member), Secretary
MICHAEL L. WHITEHEAD (Producer Member), Treasurer
ROBERT W. BOWCOCK (Producer Member)
MARVIN JOE CICHY (Public Member)
FRANK F. FORBES (Public Member)
JAMES B. GALLAGHER (Producer Member)
LEROY E. MOELLER (Public Member)

STAFF

Carol Williams, Executive Officer
Frederic A. Fudacz, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 2000

REGINALD A. STONE (Producer Member), Chairman
RICHARD W. CANTWELL (Producer Member), Vice Chairman
MANNY J. MAGANA (Producer Member), Secretary
MICHAEL L. WHITEHEAD (Producer Member), Treasurer
ROBERT W. BOWCOCK (Producer Member)
MARVIN JOE CICHY (Public Member)
FRANK F. FORBES (Public Member)
JAMES B. GALLAGHER (Producer Member)
LEROY E. MOELLER (Public Member)

STAFF

Carol Williams, Executive Officer
Frederic A. Fudacz, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 2001

REGINALD A. STONE (Producer Member), Chairman
RICHARD W. CANTWELL (Producer Member), Vice Chairman
MANNY J. MAGANA (Producer Member), Secretary
MICHAEL L. WHITEHEAD (Producer Member), Treasurer
ROBERT W. BOWCOCK (Producer Member)
MARVIN JOE CICHY (Public Member)
FRANK F. FORBES (Public Member)
JAMES B. GALLAGHER (Producer Member)
LEROY E. MOELLER (Public Member)

STAFF

Carol Williams, Executive Officer
Frederic A. Fudacz, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 2002

REGINALD A. STONE (Producer Member), Chairman
RICHARD W. CANTWELL (Producer Member), Vice Chairman
MANNY J. MAGANA (Producer Member), Secretary
MICHAEL L. WHITEHEAD (Producer Member), Treasurer
ROBERT W. BOWCOCK (Producer Member)
MARVIN JOE CICHY (Public Member)
FRANK F. FORBES (Public Member)
JAMES B. GALLAGHER (Producer Member)
CAROL A. MONTANO (Public Member)

STAFF

Carol Williams, Executive Officer
Frederic A. Fudacz, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 2003

REGINALD A. STONE (Producer Member), Chairman
RICHARD W. CANTWELL (Producer Member), Vice Chairman
JAMES B. GALLAGHER (Producer Member), Secretary
ROBERT W. NICHOLSON (Producer Member), Treasurer
ROBERT W. BOWCOCK (Producer Member)
ALFONSO CONTRERAS (Public Member)
FRANK F. FORBES (Public Member)
THOMAS LOVE (Public Member)
CHARLES SHAW (Producer Member)

STAFF

Carol Williams, Executive Officer
Frederic A. Fudacz, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 2004

PAUL S. CARVER (Producer Member), Chairman
JAMES B. GALLAGHER (Producer Member), Vice Chairman
ROBERT W. BOWCOCK (Producer Member), Secretary
ROBERT W. NICHOLSON (Producer Member), Treasurer
RICHARD W. CANTWELL (Producer Member)
ALFONSO CONTRERAS (Public Member)
FRANK F. FORBES (Public Member)
THOMAS LOVE (Public Member)
CHARLES E. SHAW (Producer Member)

STAFF

Carol Williams, Executive Officer
Frederic A. Fudacz, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 2005

PAUL S. CARVER (Producer Member), Chairman
JAMES B. GALLAGHER (Producer Member), Vice Chairman
ROBERT W. BOWCOCK (Producer Member), Secretary
ROBERT W. NICHOLSON (Producer Member), Treasurer
RICHARD W. CANTWELL (Producer Member)
ALFONSO CONTRERAS (Public Member)
LEON M.N. GARCIA (Public Member)
THOMAS LOVE (Public Member)
CHARLES E. SHAW (Producer Member)

STAFF

Carol Williams, Executive Officer
Frederic A. Fudacz, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 2006

PAUL S. CARVER (Producer Member), Chairman
JAMES B. GALLAGHER (Producer Member), Vice Chairman
ROBERT W. BOWCOCK (Producer Member), Secretary
ROBERT W. NICHOLSON (Producer Member), Treasurer
RICHARD W. CANTWELL (Producer Member)
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Carol Thomas Williams, Executive Officer

Frederic A. Fudacz, Attorney

Thomas M. Stetson, Engineer*

Stephen B. Johnson, Engineer**

* Thomas M. Stetson passed away 4/14/2011

** Stephen B. Johnson replaced Mr. Stetson

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STAFF

Carol Thomas Williams, Executive Officer *

Anthony C. Zampello, Executive Officer**

Frederic A. Fudacz, Attorney

Stephen B. Johnson, Engineer

* Carol Thomas Williams resigned on 5/12/12

** Anthony C. Zampello appointed to Executive Officer 9/26/12

FOR CALENDAR YEAR 2013

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Anthony C. Zampello, Executive Officer
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Stephen B. Johnson, Engineer

Appendix H

Policy No. 9-00-8

POLICY NO. 9-00-8

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT

Policy Regarding the Participation of the District in the funding of Wellhead Treatment and Groundwater Remediation Projects in the Main San Gabriel Groundwater Basin

I. Purpose

The purpose of this policy is to set forth criteria and conditions by which the Board of Directors of the Upper San Gabriel Valley Municipal Water District will consider providing funding, exclusively or in cooperation with the San Gabriel Basin Water Quality Authority (WQA), Main San Gabriel Basin Watermaster (Watermaster) and other interested parties, for wellhead treatment and/or groundwater remediation projects in the Main San Gabriel Groundwater Basin. This policy also establishes the general manner and methodology by which such funding can be distributed by the District for approved projects and programs.

II. Statement of Facts

The primary duty of the District is to provide a safe and reliable supplemental water supply for the San Gabriel Valley water agencies. The water supplied by the District is utilized by retail water purveyors to supplement the naturally occurring groundwater pumped from the Basin. The District principally relies on imported sources of water (Sacramento Delta and Colorado River) to satisfy local demand for supplemental water supply.

The annual demand on the District for untreated and treated supplemental water has been as high as 60,000 acre feet. Treated water is used for direct municipal and industrial applications and untreated water is used to augment natural groundwater basin recharge and help mitigate basin over-draft.

As a founding member of the WQA, the District recognizes and supports WQA's §406 Plan ("Plan") (Exhibit A) which provides prescriptive remedies for groundwater contamination in the San Gabriel Valley. In recognition of the Plan and its purpose, the District will work in concert with the WQA to implement the Plan thereby strengthening its position in potentially recovering the funds provided under this policy.

III. Issues

Historic commercial and residential land uses in the San Gabriel Valley have caused the introduction of a wide variety of regulated pollutants to the groundwater basin. In some cases, beneficial use of groundwater is precluded in those areas of the basin where contamination is sufficiently pervasive. Contaminant migration and the discovery of new pollutant species is further limiting the production of groundwater from the basin.

~~High capital costs create a disincentive for retail water purveyors to construct treatment facilities necessary to keep contaminated wells in operation. As a consequence, opportunities will be lost to remediate the groundwater basin by extracting and treating contaminated water at those impacted sites. Additionally, the deactivation of contaminated wells may cause the contaminants to migrate to otherwise uncontaminated areas of the basin. Further, as the basin water quality continues to degrade, retail purveyors will likely become more reliant on imported water supplies to meet the needs of their customers.~~

Due to greater competition and higher unit price for imported water supplies, shifting production off the basin carries significant ramifications for the San Gabriel Valley. Such a shift away from groundwater use will effect unfavorable economic and water supply reliability consequences for both residential and commercial customers alike. Thus, the Board of Directors find that it is within the District's scope of responsibility and in the best interest of the public to enact programs that will preserve and optimize the use of the groundwater resources of the San Gabriel Valley.

IV. Policy Objectives

Within the precincts of its statutory authority, budgetary limitations and policy objectives, the District will provide financial assistance for the procurement and/or construction of treatment facilities at contaminated well sites in the San Gabriel Valley. The principle objectives of this program, in no particular order, are:

1. Optimize local utilization of groundwater resources.
2. Reduce or eliminate local reliance on treated, non-interruptible imported water supplies.
3. Maximize local water supply reliability.
4. Provide for wholesale water supply price efficiency.
5. Protect public health and safety.

V. Policy Guidelines

Projects to be considered for approval by the Board must meet the guidelines of this program and satisfy certain criteria to qualify for funding under this program. That criteria is listed as follows:

1. The project must be located within the boundaries of the USGVMWD.
2. The project must be constructed in a manner so as to reactivate, or maintain operation of, an existing well that otherwise could not continue operation because of excessive contamination.
3. The project must be designed such that its operation presents a significant water supply benefit to the public served.
4. The project must be designed such that its operation provides a significant groundwater remediation benefit.

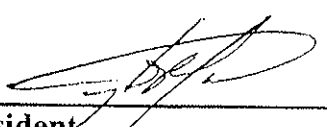
5. The project must employ proven or DHS certified treatment technology to allow for a high probability of success.
6. The project must be structured such that either the District has a reasonable probability of substantial cost recovery from parties responsible for groundwater contamination, or it addresses an urgent and immediate public health and safety crisis that cannot be resolved in a more efficient and effective manner.
7. The project must be reviewed by the District Engineer.

Funding can be provided in several forms depending upon the circumstances surrounding the project. When structuring the distribution of funds, factors such as the likelihood of cost recovery, the future availability of other sources of funding and the primary goals of the project will be considered. To maximize the potential for cost recovery and securing funding from other sources, District project funds will be distributed through the WQA's project accounts where possible.

VI. Implementation Procedure

1. The project proponent will submit a funding request for a conceptual or specific project.
2. Staff will review the request for policy compliance and forward the request to the District Engineer for appraisal.
3. Staff and Engineer will meet with project proponent to resolve any outstanding issues and finalize application materials.
4. Staff and Engineer will consult and coordinate with Watermaster and the WQA to develop a draft implementation plan for the project.
5. Staff and Engineer will prepare a recommendation regarding the proposed project for consideration by the Board of Directors.
6. The Board of Directors will provide staff and Engineer specific direction regarding the proposed project.

Dated this 19th of September, 2000.



President



Secretary

Appendix I

Main San Gabriel Basin Watermaster Five Year Water Quality and Supply Plan

Five-Year Water Quality and Supply Plan



Main San Gabriel Basin
WATERMASTER

2025–26 to 2029–30

DRAFT

“ To assure that pumping does not lead to further degradation of water quality in the Basin, a Five-Year Water Quality and Supply Plan must be prepared and updated annually by Watermaster...”

Section 28 of Watermaster's Rules and Regulations

Five-Year Water Quality and Supply Plan

November 2025



**Main San Gabriel Basin
WATERMASTER**

Telephone (626) 815-1300 • Fax (626) 815-1303
725 North Azusa Avenue • Azusa, California 91702
www.watermaster.org

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Appendix J

Metropolitan Supply and
Demand Comparison Tables

Draft

(March 19, 2026)

Upper San Gabriel Valley Municipal Water District*Normal Year*

(Average of 1922-2021 Hydrology)

Demographics¹	2030	2035	2040	2045	2050
Total Population	867,835	882,604	886,994	889,824	887,954
Household Population	857,772	872,205	876,881	879,916	878,354
Occupied Housing Units	274,065	282,402	285,989	288,075	288,603
<i>Single Family</i>	<i>194,011</i>	<i>196,383</i>	<i>196,589</i>	<i>197,100</i>	<i>197,423</i>
<i>Multi-Family</i>	<i>80,055</i>	<i>86,018</i>	<i>89,400</i>	<i>90,975</i>	<i>91,180</i>
Persons Per Household	3.13	3.09	3.07	3.05	3.04
Urban Employment	369,843	376,268	384,406	383,195	382,682

Conservation	2030	2035	2040	2045	2050
Conservation ²	29,871	32,104	34,955	37,904	40,755
Installed Active Device Through FY2024/25	1,754	780	522	398	93
Code-Based and Price-Effect Savings	28,117	31,323	34,433	37,506	40,662

Total Demands After Conservation	2030	2035	2040	2045	2050
Total Demand	197,759	200,010	199,998	199,320	198,459
Retail Municipal and Industrial ³	157,759	160,010	159,998	159,320	158,459
Retail Agricultural	0	0	0	0	0
Seawater Barrier	0	0	0	0	0
Groundwater Replenishment	40,000	40,000	40,000	40,000	40,000

Local Supplies	2030	2035	2040	2045	2050
Total Local Supplies	131,021	132,371	132,267	131,764	131,219
Groundwater Production	117,048	118,398	118,294	117,791	117,246
Surface Production	7,754	7,754	7,754	7,754	7,754
Los Angeles Aqueduct	0	0	0	0	0
Seawater Desalination	0	0	0	0	0
Groundwater Recovery	0	0	0	0	0
Recycling	6,219	6,219	6,219	6,219	6,219
<i>M&I and Agricultural</i>	<i>6,219</i>	<i>6,219</i>	<i>6,219</i>	<i>6,219</i>	<i>6,219</i>
<i>Groundwater Replenishment</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Seawater Barrier</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Other Non-Metropolitan Imports	0	0	0	0	0

Demands on Metropolitan	2030	2035	2040	2045	2050
Total Metropolitan Demands ⁴	66,739	67,639	67,732	67,556	67,240
Consumptive Use	26,739	27,639	27,732	27,556	27,240
Seawater Barrier	0	0	0	0	0
Replenishment Water	40,000	40,000	40,000	40,000	40,000

All units are acre-feet except in Demographics Section. Totals may not foot due to rounding.

1. Based on SCAG's 2024 Regional Transportation Plan.

2. Includes code-based, price-effect and existing active savings through fiscal year 2024/25.

Does not include future active conservation savings. Conservation is 1990 base year.

3. Retail M&I projections include conservation.

4. Replenishment water includes direct and in-lieu replenishment.

Draft

(March 19, 2026)

Upper San Gabriel Valley Municipal Water District*Single Dry-Year*

(Repeat of 1977 Hydrology)

Demographics¹	2030	2035	2040	2045	2050
Total Population	867,835	882,604	886,994	889,824	887,954
Household Population	857,772	872,205	876,881	879,916	878,354
Occupied Housing Units	274,065	282,402	285,989	288,075	288,603
<i>Single Family</i>	<i>194,011</i>	<i>196,383</i>	<i>196,589</i>	<i>197,100</i>	<i>197,423</i>
<i>Multi-Family</i>	<i>80,055</i>	<i>86,018</i>	<i>89,400</i>	<i>90,975</i>	<i>91,180</i>
Persons Per Household	3.13	3.09	3.07	3.05	3.04
Urban Employment	369,843	376,268	384,406	383,195	382,682

Conservation	2030	2035	2040	2045	2050
Conservation ²	29,871	32,104	34,955	37,904	40,755
Installed Active Device Through FY2024/25	1,754	780	522	398	93
Code-Based and Price-Effect Savings	28,117	31,323	34,433	37,506	40,662

Total Demands After Conservation	2030	2035	2040	2045	2050
Total Demand	197,035	199,275	199,264	198,588	197,731
Retail Municipal and Industrial ³	157,035	159,275	159,264	158,588	157,731
Retail Agricultural	0	0	0	0	0
Seawater Barrier	0	0	0	0	0
Groundwater Replenishment	40,000	40,000	40,000	40,000	40,000

Local Supplies	2030	2035	2040	2045	2050
Total Local Supplies	130,506	131,850	131,746	131,246	130,703
Groundwater Production	116,533	117,877	117,773	117,273	116,730
Surface Production	7,754	7,754	7,754	7,754	7,754
Los Angeles Aqueduct	0	0	0	0	0
Seawater Desalination	0	0	0	0	0
Groundwater Recovery	0	0	0	0	0
Recycling	6,219	6,219	6,219	6,219	6,219
<i>M&I and Agricultural</i>	<i>6,219</i>	<i>6,219</i>	<i>6,219</i>	<i>6,219</i>	<i>6,219</i>
<i>Groundwater Replenishment</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Seawater Barrier</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Other Non-Metropolitan Imports	0	0	0	0	0

Demands on Metropolitan	2030	2035	2040	2045	2050
Total Metropolitan Demands ⁴	66,529	67,426	67,518	67,342	67,029
Consumptive Use	26,529	27,426	27,518	27,342	27,029
Seawater Barrier	0	0	0	0	0
Replenishment Water	40,000	40,000	40,000	40,000	40,000

All units are acre-feet except in Demographics Section. Totals may not foot due to rounding.

1. Based on SCAG's 2024 Regional Transportation Plan.

2. Includes code-based, price-effect and existing active savings through fiscal year 2024/25.

Does not include future active conservation savings. Conservation is 1990 base year.

3. Retail M&I projections include conservation.

4. Replenishment water includes direct and in-lieu replenishment.

Draft

(March 19, 2026)

Upper San Gabriel Valley Municipal Water District*Drought Lasting Five Consecutive Years*

(Repeat of 1988-1992 Hydrology)

Demographics¹	2030	2035	2040	2045	2050
Total Population	867,835	882,604	886,994	889,824	887,954
Household Population	857,772	872,205	876,881	879,916	878,354
Occupied Housing Units	274,065	282,402	285,989	288,075	288,603
<i>Single Family</i>	<i>194,011</i>	<i>196,383</i>	<i>196,589</i>	<i>197,100</i>	<i>197,423</i>
<i>Multi-Family</i>	<i>80,055</i>	<i>86,018</i>	<i>89,400</i>	<i>90,975</i>	<i>91,180</i>
Persons Per Household	3.13	3.09	3.07	3.05	3.04
Urban Employment	369,843	376,268	384,406	383,195	382,682

Conservation	2030	2035	2040	2045	2050
Conservation ²	29,871	32,104	34,955	37,904	40,755
Installed Active Device Through FY2024/25	1,754	780	522	398	93
Code-Based and Price-Effect Savings	28,117	31,323	34,433	37,506	40,662

Total Demands After Conservation	2030	2035	2040	2045	2050
Total Demand	180,013	200,737	201,644	201,229	200,433
Retail Municipal and Industrial ³	152,813	160,737	161,644	161,229	160,433
Retail Agricultural	0	0	0	0	0
Seawater Barrier	0	0	0	0	0
Groundwater Replenishment	27,200	40,000	40,000	40,000	40,000

Local Supplies	2030	2035	2040	2045	2050
Total Local Supplies	128,195	132,987	133,472	133,126	132,592
Groundwater Production	114,222	119,014	119,499	119,153	118,619
Surface Production	7,754	7,754	7,754	7,754	7,754
Los Angeles Aqueduct	0	0	0	0	0
Seawater Desalination	0	0	0	0	0
Groundwater Recovery	0	0	0	0	0
Recycling	6,219	6,219	6,219	6,219	6,219
<i>M&I and Agricultural</i>	<i>6,219</i>	<i>6,219</i>	<i>6,219</i>	<i>6,219</i>	<i>6,219</i>
<i>Groundwater Replenishment</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Seawater Barrier</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Other Non-Metropolitan Imports	0	0	0	0	0

Demands on Metropolitan	2030	2035	2040	2045	2050
Total Metropolitan Demands ⁴	51,819	67,750	68,172	68,103	67,841
Consumptive Use	24,619	27,750	28,172	28,103	27,841
Seawater Barrier	0	0	0	0	0
Replenishment Water	27,200	40,000	40,000	40,000	40,000

All units are acre-feet except in Demographics Section. Totals may not foot due to rounding.

1. Based on SCAG's 2024 Regional Transportation Plan.

2. Includes code-based, price-effect and existing active savings through fiscal year 2024/25.

Does not include future active conservation savings. Conservation is 1990 base year.

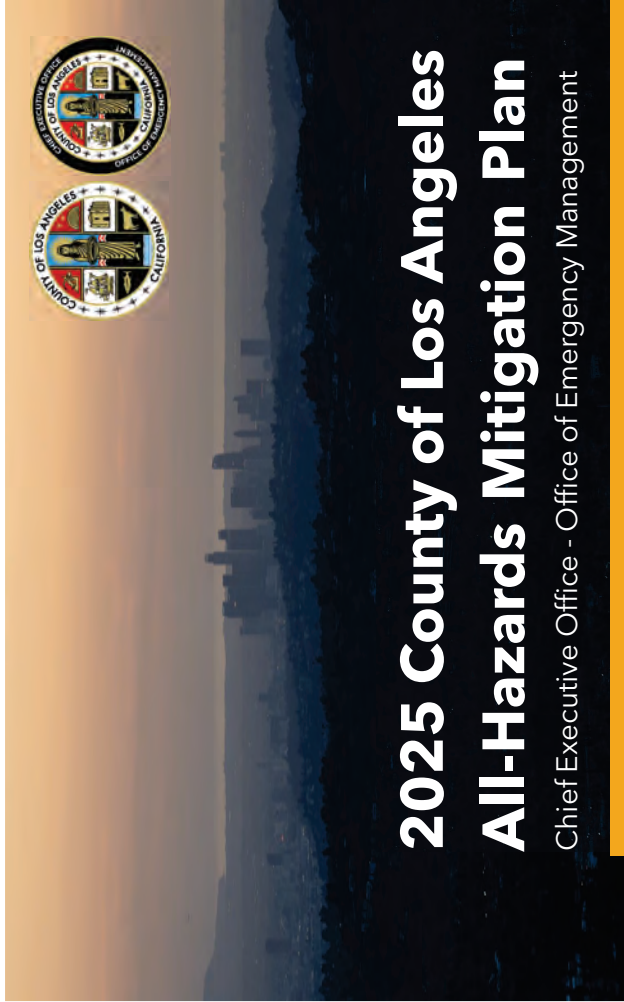
3. Retail M&I projections include conservation.

4. Replenishment water includes direct and in-lieu replenishment.

Appendix K

County of Los Angeles

All- Hazards Mitigation Plan



Acknowledgement

The Los Angeles County Board of Supervisors gratefully acknowledges the following agencies/jurisdictions who contributed to the development of this plan.

County Departments

Aging and Disabilities	Public Health
Chief Executive Office	Public Social Services
Chief Sustainability Office	Public Works
Beaches and Harbors	Regional Planning
Economic Opportunity	Fire (LACoFD)
Health Services	Internal Services
Human Resources	Sheriff (LASD)
Parks and Recreation	

Disaster Management Area Coordinators

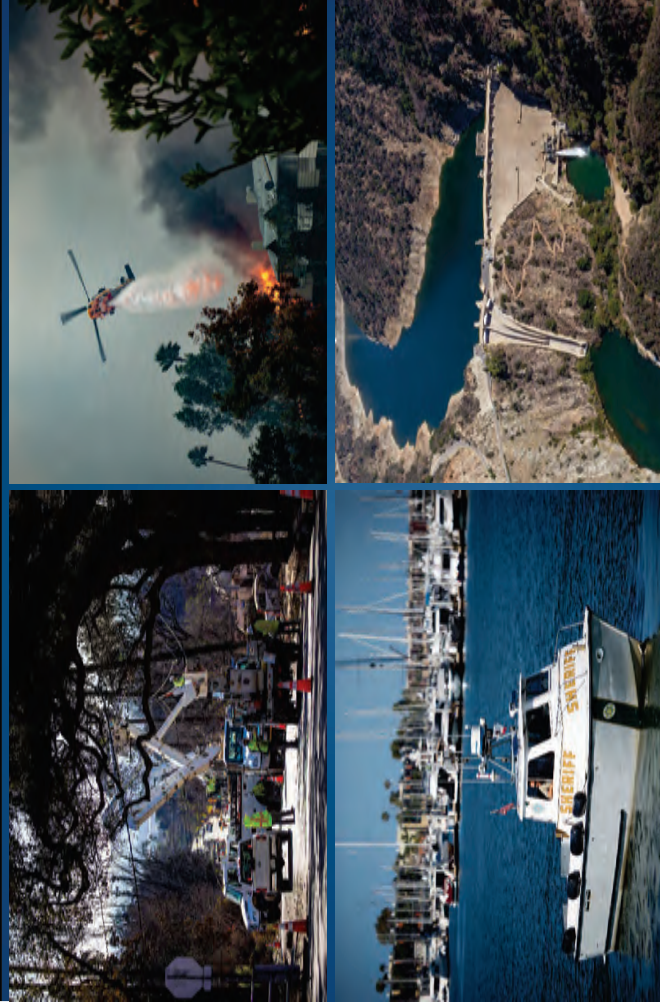
State of California

California Governor's Office of Emergency Services (Cal OES)
California State Council on Developmental Disabilities (SCDD)

External Partners

Access Services	Lanternman Regional Center
Alzheimer's Association	Los Angeles County Office of Education
Catholic Charities	Los Angeles County Sanitation Districts
City of Beverly Hills	Los Angeles County Metropolitan Transportation Authority
City of Long Beach	Los Angeles Regional Food Bank
Disability Community Resource Center	Neighborhood Legal Services of Los Angeles County
Eastern Los Angeles Regional Center	Puente Hills Habitat Preservation Authority
Emergency Network Los Angeles	South Central Los Angeles Regional Center
Habitat for Humanity	Westside Regional Center
Harbor Regional Center	

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Letter of Promulgation

To: Residents, Officials, and Employees of Los Angeles County

Preservation of life and property is an inherent responsibility of local, state, and federal government. The County of Los Angeles produced this updated 2025 All-Hazard Mitigation Plan (AHMP) to delineate mitigation responsibilities of County departments and describe mitigation support to communities.

While no plan can guarantee prevention of death and destruction, a well-developed AHMP can guide mitigation efforts aimed at decreasing the amount of loss experienced after an emergency. The Federal Disaster Mitigation Act of 2000 (DMA 2000) requires that local jurisdictions have an updated mitigation plan in order to be eligible for mitigation project activities. The intent of the 2025 AHMP also ensures that mitigation actions are based on sound planning processes that account for the risks and capabilities of communities within Los Angeles County of Mitigation plans are strategic and policy level documents, forming the foundation of a community's long-term strategy to reduce disaster losses.

The AHMP should be reviewed on an annual basis and approved every five years. The AHMP conforms to the requirements set forth by the Federal Emergency Management Agency (FEMA) and the California Governor's Office of Emergency Services (Cal OES). The Los Angeles County Board of Supervisors gives its full support to the 2025 All-Hazards Mitigation Plan and urges all residents, officials, and employees to collectively share in our commitment to hazard mitigation.

This letter promulgates the 2025 All-Hazards Mitigation Plan which becomes effective upon approval by the Los Angeles County Board of Supervisors.


Kathryn Barger, Chair
Los Angeles County Board of Supervisors

9/9/25
Date

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1.1 Purpose

The 2025 All-Hazard Mitigation Plan (AHMP) was developed in collaboration with a wide range of stakeholders representing County Departments and other external stakeholders from cities, local utilities, non-governmental organizations, and state agencies. The purpose of this AHMP is to form the strategic-level foundation for hazard mitigation efforts undertaken by the County of Los Angeles. The 2025 AHMP is an update to the 2020 version of the plan and seeks to maintain the County's continuing commitment to hazard mitigation as a critical step in reducing hazard risks, making communities safer, and building countywide resilience.

1.2 Scope

Hazard mitigation is defined in the Code of Federal Regulations (CFR) as "any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards." This AHMP identifies and profiles hazards, analyzes the people and critical infrastructure at risk, and provides a series of mitigation strategies aimed at reducing hazard risk. The plan also describes actions to integrate vulnerable communities including people with Access and Functional Needs (AFN) into hazard mitigation planning and other efforts. The AHMP is intended to function as a strategic plan for hazard mitigation and, while not an emergency plan, complements the Los Angeles County Operational Area Emergency Operations Plan. This plan contains mitigation strategies for County-owned facilities or other areas under the jurisdiction of the County of Los Angeles. Hazard mitigation strategies for incorporated cities within Los Angeles County may be found in that city's hazard mitigation plan.

1.3 Legal Authority and Requirements

Historically local hazard mitigation planning has been driven by federal law. The Disaster Mitigation Act (DMA) of 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 with new requirements for hazard mitigation. The DMA of 2000 emphasized the need for state, tribal, and local entities to closely coordinate on hazard mitigation efforts and formed the legal basis for the Federal Emergency Management Agency's (FEMA) current mitigation plan requirements in order to utilize Hazard Mitigation Assistance grant programs. This plan was prepared

1 Introduction, Purpose, and Scope

pursuant to the requirements set forth in the DMA of 2000 and other FEMA hazard mitigation policy guidance.

1.4 Plan Organization

The AHMP is organized into nine (9) sections, excluding the Appendices, including:

1. **Introduction:** Discusses the purpose, scope, and legal authority of the plan.
2. **Planning Process:** Describes the planning process that was undertaken by the Hazard Mitigation Planning Committee to create this updated 2025 AHMP.
3. **Community Profile:** Overviews the unique geographic, climatic, environmental, and socioeconomic factors that make up Los Angeles County and their implications for hazard mitigation planning.
4. **Climate Change:** Outlines the impacts of climate change in Los Angeles County and potential mitigation and adaptation measures.
5. **Integrating AFN into Hazard Mitigation:** Discusses strategies for integrating people with Access and Functional Needs (AFN) into prevention and hazard mitigation efforts.
6. **Hazard Identification and Risk Assessment:** Identifies and profiles nine (9) natural and four (4) human-caused hazards that may impact Los Angeles County including: wildfire, earthquake, extreme heat, drought, flooding, dam failure, land movement, tsunami, severe wind and tornado, mass violence, cybersecurity incidents, transportation incidents, and public health emergencies.
7. **Mitigation Strategy:** Delineates the overall strategy for the County's hazard mitigation efforts including goals and objectives, existing mitigation capabilities, and an analysis of mitigation actions.
8. **Plan Maintenance:** Outlines how the plan will be maintained annually ahead of the next full plan update in five years.
9. **Plan Adoption:** Discusses updates to the plan and implementation following plan adoption.

Following these sections, there are an additional six (6) appendices with supporting materials such as hazard maps, meeting minutes from planning meetings, and information about the public engagement efforts during the planning process.

2 Planning Process

2.1 Overview of the Planning Process

The 2025 Los Angeles County All-Hazard Mitigation Plan (AHMP) update builds upon the robust all-hazard planning framework established by the 2020 All-Hazards Mitigation Plan, while incorporating new methodologies, stakeholder engagement, and compliance requirements. The planning process for this update emphasized inclusivity, transparency, and the integration of emerging climate adaptation considerations.

This planning process followed a structured, phased approach aligned with FEMA's Local Mitigation Planning Policy Guide (2022), 44 CFR requirements, and guidance from the California Governor's Office of Emergency Services (Cal OES). This approach began with project initiation where the scope, timeline, and stakeholders were defined. Stakeholder and public engagement were prioritized to ensure representation from diverse groups, including historically underrepresented communities and climate-vulnerable populations.

Data collection and analysis leveraged updated hazard, climate, and vulnerability data from local, state, and federal sources, providing a foundation for enhanced risk and vulnerability assessments. Hazard profiles were updated to include climate projections and cascading impact scenarios. Mitigation strategies were revised and prioritized with a renewed focus on climate resilience and nature-based solutions. Strategies were also developed incorporating people with access and functional needs throughout each component of the AHMP. Finally, methods for monitoring and evaluation of mitigation efforts were defined in the plan maintenance and implementation strategy. Table 2-1 provides a timeline of the major plan update tasks and milestones over the planning process.

Table 2-1 AHMP Planning Timeline

Date	Tasks	People Involved
February 2025	Reviewed the 2020 AHMP and identified components that require update.	OEM AHMP Project Team
	Collected and reviewed existing documents, including the Threat and Hazard Identification and Risk Assessment (THIRA) along with resources for people with access and functional	OEM AHMP Project Team

Date	Tasks	People Involved
February 2025	needs and people experiencing homelessness.	
	Met with state Hazard Mitigation Planning Team.	OEM AHMP Project Team, Cal OES Mitigation Division
	Identified the initial list of stakeholders and ensured organizations that work with and represent people with access and functional needs were engaged in the planning process. External stakeholders include neighboring communities, local and regional agencies, and others.	OEM AHMP Project Team
	Conducted 2025 AHMP Kickoff Meetings with internal stakeholders.	OEM AHMP Project Team, Internal County Stakeholder Group, Cal OES Mitigation Division
	Determined hazards to be profiled including both natural (i.e., wildland fire, earthquake, etc.) and human-caused (i.e., cybersecurity, terrorism, etc.).	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group
	Drafted initial sections of the 2025 AHMP.	OEM AHMP Project Team
	Shared drafts of initial sections with internal and external stakeholders for their review.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division
	Met with internal and external stakeholders to obtain feedback on draft plan elements.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division

Date	Tasks	People Involved
March 2025	Developed the Public Outreach Engagement Plan to collect feedback from the public on the public draft of the 2025 AHMP.	OEM AHMP Project Team, Cal OES Mitigation Division
	Drafted subsequent sections of the 2025 AHMP including updating existing mitigation actions and developing new mitigation actions as needed.	OEM AHMP Project Team
	Shared drafts of the subsequent sections with internal and external stakeholders for their review.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division
	Met with internal and external stakeholders to obtain feedback on subsequent draft plan elements.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division
April/May 2025	Drafted final sections of the 2025 AHMP and produced a Final Draft AHMP.	OEM AHMP Project Team
	Shared Final Draft of the AHMP with internal and external stakeholders for their review.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division
	Met with internal and external stakeholders to obtain feedback on subsequent Final Draft AHMP.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division
	Produced Final AHMP.	OEM AHMP Project Team

2.2 Stakeholder Engagement

Inclusive stakeholder involvement was essential to the planning process. The County ensured broad representation and participation, consistent with the "Whole Community Approach" outlined in the 2023 Operational Area Emergency Operations Plan (OAEOP). Key stakeholders that comprised the Hazard Mitigation Advisory Committee included:

- County departments such as, but not limited to, Public Works, Public Health, and Regional Planning.
- Cities within the operational area (OA) and neighboring communities through Disaster Management Area Coordinators (DMACs) and city representation.
- Non-governmental organizations (NGOs), including environmental and disability advocacy groups.
- Special District partners managing critical infrastructure.
- Representatives of academia and school districts.
- Community representatives from Access and Functional Needs (AFN) populations and historically underrepresented populations.

Regular meetings, workshops, and focus groups were held to gather input and refine mitigation strategies. Stakeholders were contacted and invited to participate in the 2025 AHMP planning process through email (please see email template in Appendix B-3). Stakeholder feedback was documented and incorporated into the plan, ensuring diverse perspectives informed the process. Tables 2-2 and 2-3 includes a list of representatives of each agency that contributed to the planning process.

Table 2-2 Hazard Mitigation Advisory Committee - Internal Stakeholder Group

Department/ Agency	Name	Title	Planning Contribution
Los Angeles County Office of Emergency Management (OEM AHMP Project Team)	Michael Morin	Emergency Management Coordinator	Functioned as lead planners, led planning meetings, drafted plan, reviewed mitigation actions submitted by departments.
	Matthew Topoozian	Emergency Management Coordinator	

Department/ Agency	Name	Title	Planning Contribution
	Karen Haro	Emergency Management Coordinator	
	Girma Wollala	Emergency Management Coordinator	
Los Angeles County Department of Aging and Disabilities	Mike Tsao	Administrative Deputy	Attended planning meetings, reviewed section drafts, and provided feedback.
	Henry Lopez	Program Manager	
	Carin Anderson	Administrative Services Manager	
	Keilah Kelso	Administrative Services Manager	
Los Angeles County Chief Executive Office - Anti- Racism, Diversity, and Inclusion Initiative	Cesar Sanchez	Senior Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Chief Executive Office - Homeless Initiative	Onnie Williams III	Principal Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Chief Sustainability Office	Matthew Gosner	Climate Resilience Officer	Attended planning meetings, reviewed section drafts, and provided feedback.

Department/ Agency	Name	Title	Planning Contribution
Los Angeles County Department of Beaches and Harbors	Katharine de la Cruz	Administrative Services Manager	Attended planning meetings, reviewed section drafts, and provided feedback.
	Vanessa Huerta	Safety Officer	
Los Angeles County Department of Economic Opportunity	Maritza Dubie	Human Services Administrator	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Department of Health Services	Elaine Forsyth	Senior Nursing Instructor	Attended planning meetings, reviewed section drafts, and provided feedback.
	Isabel Sanchez	Disaster Services Specialist	
Los Angeles County Department of Human Resources	Kevin Halbritter	Deputy Compliance Officer	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Department of Parks and Recreation	Ramon Bernal	Disaster Services Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Department of Public Health	Elizabeth Rubin	Epidemiologist	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Department of Public Social Services	Manuel Gutierrez	Disaster Services Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.

Department/ Agency	Name	Title	Planning Contribution
Los Angeles County Department of Public Works	Joseph Marble	Disaster Services Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.
	Loni Eazell	Disaster Services Specialist	
Los Angeles County Department of Regional Planning	Thuy Hua	Supervising Planner	Attended planning meetings, reviewed section drafts, and provided feedback.
	Edgar De La Torre	Principal Regional Planner	
Los Angeles County Fire Department	Nick Duvally	Deputy Fire Chief	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Internal Services Department	Juan-Raul Cardenas	GIS Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Sheriff's Department	Jordan Kennedy	Sergeant	Attended planning meetings, reviewed section drafts, and provided feedback.

Table 2-3 Hazard Mitigation Advisory Committee - External Stakeholder Group

Department/Agency	Planning Contribution
Access Services	Attended planning meetings, reviewed section drafts, and provided feedback.
Alzheimer's Association California	Attended planning meetings, reviewed section drafts, and provided feedback.
California Governor's Office of Emergency Services	Attended planning meetings, reviewed section drafts, and provided feedback.
Catholic Charities	Attended planning meetings, reviewed section drafts, and provided feedback.

Department/Agency	Planning Contribution
City of Beverly Hills Emergency Management Division	Attended planning meetings, reviewed section drafts, and provided feedback.
City of Long Beach Disaster Preparedness & Emergency Communications	Attended planning meetings, reviewed section drafts, and provided feedback.
City of Los Angeles Emergency Management Department	Attended planning meetings, reviewed section drafts, and provided feedback.
Disability Community Resource Center	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area A	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area B	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area C	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area D	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area E	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area F	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area G	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area H	Attended planning meetings, reviewed section drafts, and provided feedback.
Eastern Los Angeles Regional Center	Attended planning meetings, reviewed section drafts, and provided feedback.
Emergency Network Los Angeles	Attended planning meetings, reviewed section drafts, and provided feedback.
Habitat for Humanity	Attended planning meetings, reviewed section drafts, and provided feedback.

Department/Agency	Planning Contribution
Harbor Regional Center	Attended planning meetings, reviewed section drafts, and provided feedback.
Lanterman Regional Center	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Office of Education	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Sanitation Districts	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles Metropolitan Transportation Authority	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles Regional Food Bank	Attended planning meetings, reviewed section drafts, and provided feedback.
Neighborhood Legal Services of Los Angeles County	Attended planning meetings, reviewed section drafts, and provided feedback.
Puente Hills Habitat Preservation Authority	Attended planning meetings, reviewed section drafts, and provided feedback.
South Central Los Angeles Regional Center	Attended planning meetings, reviewed section drafts, and provided feedback.
Westside Regional Center	Attended planning meetings, reviewed section drafts, and provided feedback.

2.3 Public Involvement and Outreach

Public outreach efforts aimed to foster transparency, inclusivity, and fortify public trust. The County engaged the public during the planning process through multiple media formats to share information and collect feedback taking into account language and other access and functional needs. A rolling outreach strategy was used to ensure that as each section was drafted and reviewed by planning stakeholders, it was concurrently made available for public commentary. To accomplish this, each section was posted to the Los Angeles County Hazard Mitigation Program website as it was completed by the planning team. A survey designed to gauge community perceptions of hazard risks and mitigation priorities was used on the website (Appendix D). This approach ensured that the public was a key partner in every step of the planning process and had a voice as

each section was being developed by the planning team. A social media campaign using all LA County OEM social media channels was initiated to direct the public to the survey.

To address equity, targeted outreach efforts focused on engaging historically underrepresented communities and AFN populations, using multilingual and accessible materials and culturally appropriate techniques. Aside from public outreach, stakeholders that work with or represent people with access and functional needs, people experiencing homelessness, and a diverse array of cultural groups were targeted to participate in the Hazard Mitigation Advisory Committee. These measures ensured that the public had meaningful opportunities to participate in shaping the plan.

2.4 Review and Incorporation of Existing Plans and Reports

The planning process included a comprehensive review of existing documents and protocols to ensure consistency and alignment. The 2020 All-Hazards Mitigation Plan served as the foundational document for this update. Additionally, key concepts from the 2023 Operational Area Emergency Operations Plan (OAEOP), such as Emergency Support Functions (ESFs) and disaster management areas, were integrated. The Los Angeles County Climate Vulnerability Assessment provided valuable insights into climate risks and social sensitivity, while local Climate Action Plans ensured alignment with municipal climate adaptation initiatives. Furthermore, the 2021 UASI THIRA (Threat and Hazard Identification and Risk Assessment) provided critical data for identifying evolving threats and capability targets, enhancing the accuracy and relevance of the plan. The demographic data from the 2020 U.S. Census was utilized to ensure an accurate representation of Los Angeles County's population, now estimated at over 10 million residents. The demographic breakdown includes 48% Hispanic or Latino, 26% White, 15% Asian, 8% African American, and 3% other, with over 40% speaking a language other than English at home, emphasizing the need for multilingual and culturally appropriate outreach.

Table 2-4 Existing Plans, Maps, and Reports

Plan, Map, or Report	Information to be Incorporated into the 2025 Updated AHMP
Los Angeles County Operational Area Emergency Operations Plan (2023)	Used to inform Section 6: Hazard Identification and Risk Assessment and Section 7: Mitigation Strategy
Los Angeles County 2035 General Plan (2024)	Safety element mitigation policies used to inform Section 7 – Mitigation Strategy
Los Angeles County Comprehensive Floodplain Management Plan (2021)	Used to inform Section 6: Hazard Identification and Risk Assessment and Section 7: Mitigation Strategy for elements related to flood hazards
County of Los Angeles Floodplain Management Plan Progress Report from (2024)	Used to inform Section 6: Hazard Identification and Risk Assessment and Section 7: Mitigation Strategy for elements related to flood hazards
County of Los Angeles Repetitive Loss Area Analysis Progress Report (2021)	Used to inform Section 6: Hazard Identification and Risk Assessment and Section 7: Mitigation Strategy for elements related to flood hazards
Los Angeles County 2045 Climate Action Plan (2024)	Used to inform Section 6: Hazard Identification and Risk Assessment, Section 7: Mitigation Strategy, and Section 4: Climate Change for elements related to hazard risk posed by climate change
Los Angeles County Fire Department Fire Plan (2023)	Used to inform Section 6: Hazard Identification and Risk Assessment and Section 7: Mitigation Strategy for elements related to wildfire fire hazards
Our County: Los Angeles Countywide Sustainability Plan (2019)	Used to inform Section 6: Hazard Identification and Risk Assessment, Section 7: Mitigation Strategy, and Section 4: Climate Change for elements related to hazard risk posed by climate change
Los Angeles County Homeless Initiative Strategy Plan (2022)	Used to inform vulnerable populations information across all sections of the plan.
Disability Among Adults in Los Angeles County (2019)	Used to inform vulnerable populations information across all sections of the plan.
Southern California Earthquake Data Center's Earthquake Catalogs (Current as of 2025)	Historical seismic information used in Section 6: Hazard Identification and Risk Assessment.

Plan, Map, or Report	Information to be Incorporated into the 2025 Updated AHMP
Maritime Tsunami Response Playbooks: Background Information and Guidance for Response and Hazard Mitigation Use (2016)	Historical tsunami information used in Section 6: Hazard Identification and Risk Assessment.
FEMA Flood Insurance Study, Los Angeles County, California (2020)	Historical flood information used in Section 6: Hazard Identification and Risk Assessment.
U.S. Geological Survey (USGS): Rainfall and Landslides in Southern California (2015)	Historical landslide information used in Section 6: Hazard Identification and Risk Assessment.
Burn Scar Information and Maps	Historical fire information used in Section 6: Hazard Identification and Risk Assessment.

3 Community Profile

3.1 Los Angeles County Overview

Los Angeles County is the most populous county in the United States, encompassing a diverse array of communities, landscapes, and infrastructure. According to the most recent census data, Los Angeles County has a population of approximately 10 million residents of which more than 1 million reside in unincorporated areas. The County's demographics, geographic features, and economic activities present both unique opportunities and significant challenges for hazard mitigation planning. This updated community profile integrates insights from the 2023 Operational Area Emergency Operations Plan (OAEOP) and reflects changes in population trends, infrastructure development, and climate risks.



The County Operational Area (OA) consists of all political subdivisions within the geographical boundaries of Los Angeles County. It encompasses five supervisorial districts, eight Disaster Management Areas (DMAs), 88 incorporated cities, 80 school districts, and approximately 142 special districts.

3.2 Geography and Land Use



Spanning over 4,000 square miles, Los Angeles County features diverse terrain, including coastal plains, valleys, mountains, islands, and deserts. The County's varied geography includes multiple microclimates that influence its exposure to natural hazards, such as earthquakes, tsunamis, wildfires, floods, and landslides. Urban areas, particularly the City of Los Angeles and its surrounding metropolitan region, are densely populated and heavily developed. In contrast, rural and unincorporated areas often face unique vulnerabilities due to limited infrastructure and resources. Rural areas include the Angeles and Los Padres National Forests, which have small communities, campgrounds, and day use areas. There are also two islands within the County, Santa Catalina and San Clemente. The County also includes a significant amount of Wildland Urban Interface (WUI) areas where residential and commercial development meets underdeveloped wildland with vegetative fuels. Land use within the County is equally diverse, with a mix of residential, commercial, industrial, agricultural, and open spaces. Recent urban development in densely populated areas has increased impervious surfaces like concrete and asphalt, which retain heat and create urban heat islands (UHI) that are much hotter than nearby rural areas. This phenomenon elevates temperatures, especially in low-income communities lacking green spaces for cooling. Additionally, urbanization affects stormwater management by reducing natural drainage and exacerbating flooding risks in low-lying areas.

These trends underscore the need for sustainable planning strategies, such as promoting green infrastructure, enhancing stormwater systems, and mitigating heat islands through tree planting and reflective materials. The County's diverse land use must be carefully managed to reduce vulnerabilities while supporting economic growth and environmental sustainability.

3.3 Social Vulnerability

Social vulnerability is a crucial component to Los Angeles County's hazard mitigation planning. The County is home to a diverse population with disparities in income, housing stability, and access to resources. The Los Angeles County Anti-Racism, Diversity, and Inclusion (ARDI) Initiative created a comprehensive Equity Explorer, which is a geospatial tool that explores multiple equity data points across Los Angeles County. The ARDI Equity Explorer includes various layers that visualize social equity, economic opportunity, housing and homelessness, health, justice, built environment, and disaster recovery data. The public can access this data at ceo.lacounty.gov/ardi/tools. Maps created using data from the ARDI Equity Explorer are in Appendix A-8.

The US Centers for Disease Control and Prevention (CDC) defines social vulnerability as a community's capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters to human caused threats. The CDC's Social Vulnerability Index (Figure 3.1) is designed to identify and quantify communities experiencing social vulnerability.

The most recent CDC Social Vulnerability Index score from 2022 for Los Angeles County indicated a high level of vulnerability across four themes: socioeconomic status, household characteristics, racial and ethnic minority status, and housing type/transportation.

Vulnerable populations identified for Los Angeles County that will be considered in the AHMP include:

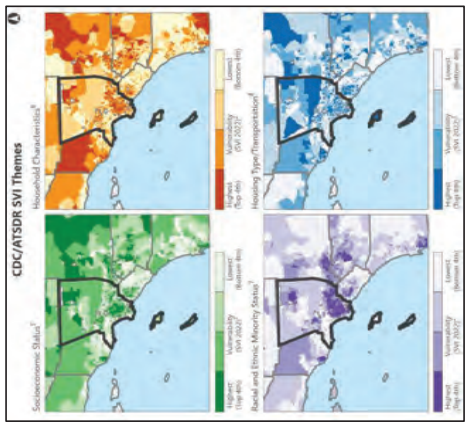


Figure 3.1 CDC Social Vulnerability Index (CDC 2022)

• **Low-income Residents:**

Individuals living below or near the poverty line are often disproportionately affected by disasters due to limited financial resources for emergency preparedness, response, and recovery.

• **People with Access and Functional Needs (AFN):**

Individuals with Access and Functional Needs have increased challenges in preparedness, evacuation, sheltering, accessing emergency services and recovery. Access and Functional Needs include but are not limited to people who have any combination in varying degree of: physical disabilities, intellectual disabilities, developmental disabilities, mental health-related issues, visual impairments, hearing impairments/deaf, mobility impairments, or chronic conditions. AFN also include older adults, infants and children, people living in institutionalized settings, people living below the poverty line or experiencing homelessness, people with limited English proficiency or are non-English speakers, or people who are transportation disadvantaged.

- **People Experiencing Homelessness (PEH):** With an estimated over 75,000 individuals experiencing homelessness, this population is particularly at risk during extreme weather events and other disasters.
- **Immigration Status:** Fear of engaging with government services based on immigration status can prevent residents from accessing critical resources.

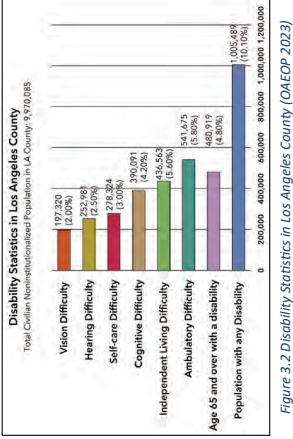


Figure 3.2 Disability Statistics in Los Angeles County (OAEOP 2023)

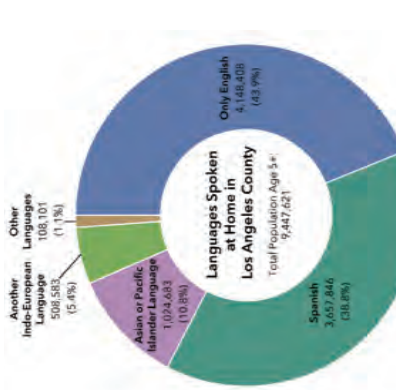


Figure 3.3 Breakdown of Language at Home in Los Angeles County (OAEOP 2023)

- **Limited English Proficiency:** Over 40% of residents speak a language other than English at home, highlighting the need for multilingual and culturally appropriate outreach efforts. Language accessibility is critical to ensure all residents and visitors can obtain information and services during a disaster. See Figure 3.3 for a breakdown of languages spoken at home in Los Angeles County not including American Sign Language.

The figure below highlights certain variables in Los Angeles County that may increase vulnerability to emergencies and disasters. To address these vulnerabilities, the County's mitigation planning includes equitable strategies designed to reduce risk and enhance resilience among these populations. Targeted outreach, improved access to resources, preparedness education events, and collaboration with community organizations are integral to these efforts.

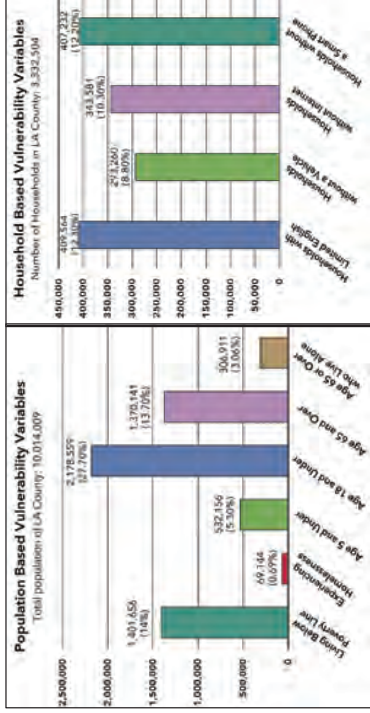


Figure 3.4 Los Angeles County Vulnerability Variables (OAEOP 2023)

The Federal Emergency Management Agency (FEMA) maintains the National Risk Index, a mapping tool that assesses 18 possible hazards a jurisdiction is susceptible to in combination with the amount of loss that could result from those hazards. Los Angeles County ranks as the community with the most risk in the United States according to the FEMA National Risk Index. According to the National Risk Index, hazards with the highest risk for Los Angeles County include earthquake, wildfires, extreme heat, flooding, high winds, and landslides.

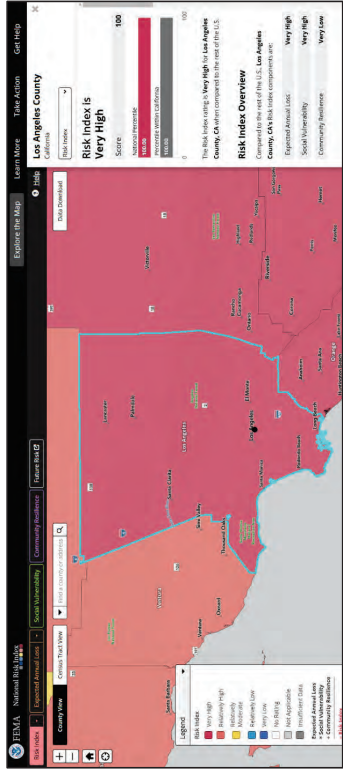


Figure 3.5 FEMA National Risk Index (2025)

3.4 Economy and Critical Infrastructure

Los Angeles County is a global economic hub, hosting industries such as entertainment, technology, manufacturing, and international trade. The Port of Los Angeles and the Port of Long Beach collectively form one of the world's busiest trade gateways, underscoring the importance of protecting critical infrastructure from hazards including those exacerbated by climate change. Critical facilities provide services and functions essential to a community, especially during and after a disaster. Common types of critical facilities include but are not limited to fire stations, police stations, hospitals, schools, and utilities. Critical facilities may also include places that can be used for sheltering, cooling centers, staging purposes, or other large public gathering spots such as community centers and libraries. Critical facilities include those operated by non-governmental and business partners vital for redevelopment or

economic security. When these are affected by a disaster, the County provides businesses and workers impacted by the disaster with vital information and resources. This allows them to maneuver effectively through disaster response toward recovery using its network of job centers and business hubs.

Other critical infrastructure includes the facilities and industries that enable all facets of society to function, including but not limited to the following community lifelines:

- **Safety and Security:** The myriad of local law enforcement, fire and rescue, emergency management, schools, and other government services that maintain public safety and security.
- **Communications:** The interconnected network of infrastructure owners and operators of communications systems such as internet, telephone, cellular and other communications towers, cable, satellite, and more.
- **Transportation Networks:** The County's extensive network of roadways, highways, railways, transit systems, and airports is essential for daily operations and disaster response.
- **Energy Systems:** Power generation facilities, energy distribution networks, and pipelines are vulnerable to multiple types of hazards and threats.
- **Water and Wastewater Systems:** Drought conditions and aging infrastructure at the over 220 different water agencies in Los Angeles County pose risks to water availability and quality.
- **Healthcare Facilities:** Over 100 hospitals and numerous clinics serve the County, requiring robust contingency plans to maintain operations during disasters.
- **Food and Shelter:** The vast system of food production (i.e., agriculture), distribution, and retail along with community housing or sheltering.

3.5 Climate and Environmental Conditions

Los Angeles County faces escalating risks from climate change, significantly impacting its environment, economy, and communities. These challenges include rising temperatures, prolonged droughts, more frequent and severe extreme weather events, and their cascading effects. These risks highlight the critical need for adaptive planning to protect vulnerable populations, infrastructure, and natural resources. Key climate-

related considerations referenced in the Los Angeles County Climate Action Plan that will be addressed in this AHMP include, but are not limited to:

- **Extreme Weather Events:** Extreme temperatures in the Los Angeles region are expected to increase. Both dry and wet extremes are projected to intensify, leading to longer dry periods than historically experienced. These dry periods are expected to be followed by significantly wetter conditions, including atmospheric rivers bringing more intense rainfall. This pattern may result in increased water scarcity, mudslides, and flooding.
- **Sea-Level Rise:** Coastal communities are at heightened risk of flooding and erosion, threatening homes, businesses, and critical infrastructure. Sea level rise can exacerbate the impacts of high tides, storm surges, and heavy precipitation, and can lead to increased coastal flooding and shoreline erosion.
- **Increasing Wildfire Risk:** Climate change has intensified wildfire seasons, particularly in the County's mountainous, wildland urban interface (WUI), and new and undeveloped regions. Wildfires are projected to increase in frequency and intensity including in some areas not historically impacted by wildfire.

In response, the County has prioritized integrating climate adaptation strategies into its hazard mitigation planning, as outlined in the Climate Vulnerability Assessment and the OAEOP.

3.6 Regional Collaboration and Planning Efforts

Los Angeles County's size and complexity necessitates collaboration with numerous jurisdictions, agencies, and community organizations. The County is designated as the Operational Area Coordinator and functions as an intermediate level in the State of California's Standardized Emergency Management System (SEMS). In accordance with SEMS, the County serves as the communications and coordination link between local governments within Los Angeles County and the state government. Partnerships with academic institutions, non-profits, and private sector stakeholders support data collection, public engagement, and innovative mitigation strategies. Additionally, the County has also adopted Emergency Support Functions (ESFs) as the primary emergency management coordination structure. ESFs group function-specific stakeholders who will coordinate throughout all phases of emergency management,

including function-specific mitigation activities. For more information on regional emergency management collaboration and planning, reference the OAEOP.

3.7 Implications for Hazard Mitigation Planning

Understanding the community is a critical aspect in hazard mitigation planning. This community profile will inform key considerations in subsequent sections of the AHMP including but not limited to the following:

- **Targeted Outreach:** Include vulnerable populations and the business community in the planning process through equitable public outreach.
- **Infrastructure Resilience:** Prioritize the protection of critical infrastructure, including ports and transportation networks, energy systems, and water and wastewater systems, among others.
- **Climate Adaptation:** Develop strategies to mitigate the impacts of climate change, focusing on urban heat islands, sea-level rise, and wildfire risks.
- **Regional Coordination:** Strengthen direct collaboration within the OA between the County, local jurisdictions, special districts, unified school districts, the business community and cross-sector non-governmental partners to enhance awareness, preparedness, and response capabilities.
- **Transparent & Open Communication:** Ensure communications are accessible, and clear to advance public trust and safety. Develop dashboards to demonstrate progress.

4 Climate Change

4.1 Climate Change Overview

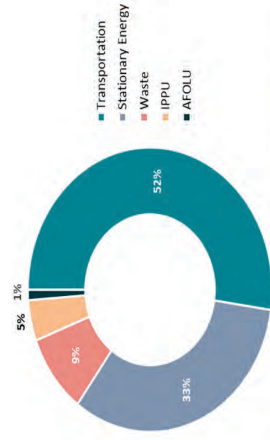
Climate change refers to the changing effect of the Earth's climate system over time, including changes in temperature, precipitation, and wind patterns. Climate change had significant impacts on Los Angeles County, affecting various aspects of life, environment, infrastructure, and sustainable development, and presents increasing risks from amplified hazards and changing baselines (e.g., sea level) into the future. The rate of climate change has significantly accelerated over the last three decades and trends continues. This plan addresses the effects of climate change related to disasters within the County and strategies to mitigate risks, focusing on preparedness, resilience and equity.

Climate change contributes to more frequent and intense disasters, such as floods, wildfires, drought and excessive heat. Rising temperatures and changing weather patterns pose health risks, like heat-related illnesses, respiratory issues, and the spread of diseases. Hazard mitigation efforts aim to reduce the impacts and effects of greater hazards due to climate change. The economic impact of climate change has been substantial, affecting industries such as agriculture, tourism, and insurance with increasing risks due to accelerating climate changes.

Greenhouse Gas (GHG) emissions are the main driver of climate change, which causes increased frequency, duration, and severity of extreme weather and climate-related disasters. Climate change exacerbates air pollution, leading to poor air quality and health issues. GHG emissions from residential buildings, commercial and institutional facilities, manufacturing industries and construction, energy industries, oil and natural gas systems, transportation, fossil energy, wildfires and other sources contribute to increased particulate matter and other pollutants in the air.

4.2 Integrating Climate Change into Hazard Profiles

Integrating climate change into hazard profiles involves assessing the current and future impacts of climate change on various hazards and incorporating this information into planning and mitigation strategies. This section highlights how climate change relates to these hazards and how the county is addressing climate change through hazard mitigation efforts which help protect the county's residents and economies from the adverse effects of climate changes and climate-amplified events.



Abbreviations: AFOLU = agriculture, forestry, and other land use; IPPU = industrial processes and product use
Figure 4.1 Sources of GHG Emissions from within Los Angeles County (LA County 2024; 2045 Climate Action Plan)

4.2.1 Extreme Heat

Increasing temperatures and high heat events is one of the most conspicuous results of and a direct correlation between GHG pollution and climate change. Excessive temperatures in the Los Angeles region are expected to increase significantly more very hot days and warm nights. In addition to increasing baseline temperatures and extreme heat due to climate change, heat islands exacerbate temperatures and high heat events. As development occurs and darker paved surfaces replace open land and vegetation, these areas become warmer forming an "island" of heat. Los Angeles County experiences more frequent and excessive heat due to climate change. This is currently a major risk and with unmitigated GHG emissions increasing heat will lead to even greater health issues, increased energy demand for cooling, and other strains on infrastructure.

4.2.2 Flooding

Flooding in Los Angeles County occurs due to extreme rainfall events causing flash floods, riverine flooding, and increased surface water. Coastal areas in Los Angeles County are vulnerable to sea-level rise (SLR), which exacerbates coastal hazards like floods, storm surges, and chronic erosion. Other related hazards include flooding near

the mouths of streams and channels, landslides, and seawater well intrusion. SLR exacerbates the impacts of high tides, storm surges, and heavy precipitation flooding, and continued SLR will lead to more life safety concerns and increased damage to property and infrastructure.

4.2.3 Drought

Prolonged droughts have become more common, affecting the water supply, agriculture, and ecosystems of Los Angeles County. Dry and wet extremes are projected to increase and are likely to cause drier periods than what the region has historically experienced.

Southern California projected to get drier, while Northern California will increase in temperature. This will result in loss of snowpack within the Sierra Nevada Mountain range, meaning less water for all Californians including farmers, residents, and utilities. The State Water Resource Control Board proclaimed several water conservation emergency regulations due to severe drought conditions that requires commercial, industrial, and residential conservation efforts. Proclamations include:

- **January 4, 2022:** State Water Board adopted the prohibited wasteful water uses emergency regulation
- **May 24, 2022:** the State Water Board adopted the emergency regulation to ban decorative grass watering like non-functional turf irrigation
- **December 7, 2022:** the State Water Board readopted the prohibited wasteful water uses emergency regulation,
- **May 26, 2023:** the State Water Board readopted the emergency regulation to ban decorative grass watering.

4.2.4 Wildfire

A wildfire is an unplanned and uncontrolled fire in an area of combustible vegetation. These fires can easily spread beyond the natural areas primarily involving and have a potential to cause damages outside of the perimeter. Wildfire probability depends on local weather conditions, outdoor activities and any preceding conditions (e.g., lots of rain leading to vegetation growth and then drying conditions), and a potential ignition (e.g., lightning strike, arson, debris burning, electrical equipment failure, car tailpipe, etc.). The frequency and intensity of wildfires has increased driven by higher

temperatures, lower precipitation, lower relative humidity, and prolonged droughts. These events have caused loss of life, destroy and/or damage to property, infrastructure, the environment and pose greater risks due to historical development patterns. The timeline of major wildfire events and acreage burned in Los Angeles County is listed at Section 6.2 of the plan.

4.3 Climate Mitigation Strategies

Los Angeles County is actively addressing climate change and implementing hazard mitigation strategies to reduce its impacts and build long-term resilience. The County faces increasing risks from excessive heat, wildfires, droughts, floods, and sea-level rise, all of which threaten communities, infrastructure, and natural resources.

To address many of these challenges, the County has developed comprehensive climate plans and strategies that integrate climate adaptation, sustainable land use, emergency preparedness, and environmental conservation. By enforcing building codes, investing in green infrastructure, and strengthening community preparedness, Los Angeles County aims to minimize risks and enhance disaster resilience. These efforts align with state and federal climate policies and are designed to protect both current and future generations while encouraging a more sustainable and livable environment for all.

4.3.1 Climate Resilience Plans and Actions

- **Los Angeles County 2045 Climate Action Plan (2045 CAP):** Establishes aggressive targets to reduce greenhouse gas emissions and achieve carbon neutrality by 2045.
- **Water Conservation & Drought Resilience Measures:** Implements mandatory water restrictions, promotes rainwater harvesting, and expands groundwater recharge and water recycling projects.
- **Wildfire Mitigation & Vegetation Management Programs:** Enforces Wildland Urban Interface (WUI) codes, increases forest management techniques, aligned with Traditional Ecological Knowledge (TEK) principles and practices of our native indigenous communities, and strengthens fire-resistant building and landscape requirements.

- **Green Infrastructure & Urban Cooling Initiatives:** Expands tree planting aligned with TEK principles and practices, investigates removing hard (paved) surfaces, and planting groundcover, utilizes and promotes public cooling centers and home heat preparedness, and encourages the use of reflective "cool" roofing and surfaces to mitigate the urban heat island (UHI) effect.
- **Heat Action Plan:** Develops strategies to reduce the adverse health impacts of excessive heat through public shade structures, cooling centers, building codes, and increased public awareness campaigns for all susceptible to extreme heat.

These strategic actions reflect Los Angeles County's commitment to tackling climate change. By integrating proactive policies, indigenous-informed practices, community-driven solutions, and resilient infrastructure, Los Angeles County, is not only mitigating current risks but also preparing for a future where communities can thrive in an ever-changing dynamic environment.

4.4 Climate Change Conclusion

Through proactive policies and community engagement, Los Angeles County strives to navigate the complexities of a changing climate and safeguard its people, environment, infrastructure and economies. This approach helps minimize the risks and impacts associated with climate-related hazards. Addressing climate change in hazard mitigation help enhance safer, healthier, and more sustainable communities.

5.1 AFN Introduction

Modern hazard mitigation planning increasingly recognizes that resilient communities must address the needs of all residents –including those with access and functional needs (AFN). Historically, individuals with disabilities (i.e. including but not limited to, youth, those economically depressed, pregnant, etc.), chronic health conditions, language barriers, or transportation disadvantages have been underrepresented in emergency planning. As evidenced by the best practices for stakeholder inclusion and further supported by national preparedness frameworks, integrating AFN considerations leads to plans that are more inclusive and effective. By proactively engaging AFN populations and support agencies in every phase, from preparedness through recovery, a hazard mitigation plan can reduce losses, improve evacuation and sheltering outcomes, and build trust between emergency management agencies and the communities they serve.

5 Integrating Access and Functional Needs (AFN) into Hazard Mitigation

5.2 Inclusion of AFN and Vulnerable Populations in Planning

A major component of effective mitigation planning is a “whole community” approach. Incorporating AFN voices into the planning process is crucial because these stakeholders offer real-world insights into the challenges they face during emergencies. Key steps to this process include, but are not limited to:

- **Stakeholder Engagement:** Ensure that representatives from disability advocacy groups, community-based organizations, and service providers (such as local health departments and transportation agencies) are engaged early in the planning process. Their firsthand experiences help identify practical barriers that might otherwise be overlooked.
- **Public Participation:** Incorporating public stakeholders through meetings, surveys, and other outreach to capture the diverse needs of AFN populations. This input is vital to overcoming historical marginalization and ensuring that mitigation actions are relevant and equitable to the entire population.
- **Ongoing Interagency Collaboration:** Develop a hazard mitigation planning advisory committee and interagency working groups that include AFN stakeholders. These groups can guide both the planning process and the review of existing plans, ensuring that AFN issues are fully integrated from the outset.

5.2.1 Integrating AFN into the Overall AHMP

Integrating AFN considerations is not a stand-alone task; it must be interlaced throughout the entire hazard mitigation planning process. This includes:

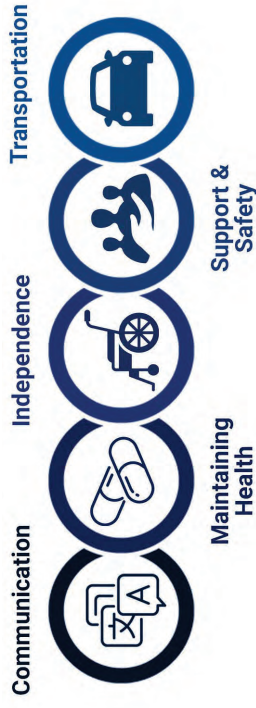
- **Risk Assessments:** Incorporate AFN data into all risk assessments to ensure that the specific vulnerabilities of these populations are reflected in hazard maps and vulnerability index data.
- **Mitigation Strategy Development:** Ensure that every mitigation action is examined for its impact on AFN populations. For example, when planning for flood control or wildfire prevention projects, review how these projects can be improved to meet the needs of people with access and functional needs.
- **Plan Review and Update:** Ensure planning processes include regular AFN review and updates. Includes but not limited to:
 - o Surveys of community needs
 - o Consultations with AFN advisory groups
 - o Integration of new technological or infrastructural solutions
- **Funding and Resource Allocation:** Clearly identify funding streams and resource commitments for AFN-specific projects. This could involve targeted grants from federal programs (e.g., Hazard Mitigation Assistance), state funding dedicated to accessible infrastructure improvements, and local resources such as the Productivity Investment Fund that can be accessed to improve the effectiveness and efficiency of County operations.

5.3 Assessment of AFN Needs

Understanding the specific needs of AFN populations requires both quantitative and qualitative approaches:

- **Data Collection and Risk Assessment:** Use existing resources, community surveys, outreach and risk assessments to help identify the number and types of individuals with AFN at the local community level. Evaluate the regional geographic distribution, vulnerabilities, and specific requirements before and after emergencies.

- **Frameworks for Analysis:** Adopt structured methodologies such as C-MIST (Communication, Maintaining Health, Independence, Support, Safety, and Transportation) to assess/ document AFN requirements.



- **C-MIST Explanation**
 - o **Communication:** Individuals with hearing, vision, cognitive, or speech limitations may require alternative communication methods to receive or express information during emergencies.
 - o **Medical / Health Needs:** People with complex medical conditions rely on medications, medical equipment, or specialized care to maintain their health and prevent complications.
 - o **Independence:** Those who use mobility devices, assistive technology, or service animals need uninterrupted access to maintain their independence and daily functions.
 - o **Supervision & Safety:** Some individuals require continuous support for safety, comfort, or emotional well-being, including those with memory issues, psychiatric conditions, or intellectual disabilities.
 - o **Transportation:** Individuals without personal transportation or with mobility limitations need accessible and reliable options, especially in emergencies and evacuations.
- **Integrating Vulnerability Assessments:** Leverage tools from local climate vulnerability assessments and hazard mitigation plan reviews to identify areas where AFN populations overlap with high-risk zones (e.g., flood plains,

wildfire-prone areas). This integration helps prioritize mitigation actions in regions where vulnerable populations are most exposed.

5.4 Coordination with AFN Support Agencies

Effective mitigation planning requires robust coordination with both governmental and nongovernmental agencies that serve AFN populations. Best practices include:

- **Formal Partnerships:** Establish relationships and partnerships with agencies such as public health departments, social services, transportation authorities, community-based organizations, and disability advocacy organizations. These partnerships ensure that there is clear, ongoing communication and that roles and responsibilities are delineated before, during, and after disasters.
- **Joint Training and Exercises:** Conduct regular joint meetings, and exercises that include AFN components and identify additional resources to support the needs of the AFN community. These actions will help prepare all stakeholders to work together during a crisis and help identify gaps in current plans.
- **Outreach and Information Dissemination:** Ensure that all information, both pre-incident preparedness messages, response measures and post-incident recovery plans are accessible to all audiences. This includes using multiple languages, various communication formats (e.g., large-print, audio, sign-language, and digital formats), and culturally appropriate messaging to reach all segments of the community.

5.5 AFN Conclusion

A hazard mitigation plan builds a foundation for a resilient, inclusive community. By ensuring that AFN and other vulnerable populations are included in every phase of planning, from initial stakeholder engagement to the development of tailored mitigation actions and coordinated response strategies, communities can minimize disaster impacts and foster long-term resilience. Drawing on best practices from national frameworks and local planning guides, and by implementing ADA-compliant shelter operations, emergency managers can create a plan that truly serves every member of the community. This inclusive approach not only saves lives and property during disasters but also strengthens community trust and the overall effectiveness of emergency management efforts.

6 Hazard Identification and Risk Assessment

6.1 Hazard Identification Overview

The hazard identification and risk assessment process provide a foundation for Los Angeles County's hazard mitigation planning efforts by identifying, profiling, and assessing the risks associated with natural, technological, and human-caused hazards. This section builds on the framework established in the 2020 Hazard Mitigation Plan, incorporating insights from the 2023 Operational Area Emergency Operations Plan (OAEOP), the 2024 Los Angeles Threat and Hazard Identification and Risk Assessment (THIRA), the Los Angeles County Climate Vulnerability Assessment, the State of California Hazard Mitigation Plan (SHMP), and the Federal Emergency Management Agency (FEMA) National Risk Index.

Based on these sources hazards were included and addressed in the 2025 AHMP according to their frequency, severity and impact to Los Angeles County, see below Table 6-1. Hazards that did not meet the threshold of moderate risk will not be prioritized within the plan. Additionally, three new natural hazards (Extreme Heat, Drought, and Severe Wind/Tornado) and four human-caused hazards (Mass Violence, Cyber Incidents, Transportation Incidents, and Public Health Emergencies) are included in the 2025 AHMP.

Table 6-1 Hazard Inclusion/ Omission

Hazard	Comment
Earthquake	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County.
Wildfire	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County.
Heat Wave	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County.
Tornado	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County. Tornado is incorporated with the Severe Wind/ Tornado hazard profile.
Land Movement	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County.

Hazard	Comment
Lightning	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County. Lightning is incorporated with the Wildfire and Flooding hazard profiles.
Flooding	Hazard is included in the plan due to its frequency, severity, and impact to Los Angeles County. The Flooding hazard profile incorporates both Riverine and Coastal Flooding.
Drought	Hazard is included in the plan due to its frequency, severity, and impact to Los Angeles County.
Strong Wind	Hazard is included in the plan due to its frequency, severity, and impact to Los Angeles County. Strong Wind is incorporated with the Severe Wind and Tornado hazard profile.
Tsunami	Hazard is included in the plan due to its frequency, severity, and impact to Los Angeles County.
Winter Weather	Hazard is omitted from the plan due to its minimal frequency, severity, and impact to Los Angeles County.
Hail	Hazard is omitted from the plan due to its minimal frequency, severity, and impact to Los Angeles County.
Avalanche	Hazard is omitted from the plan due to its minimal frequency, severity, and impact to Los Angeles County.
Cold Wave	Hazard is omitted from the plan due to its lack of frequency, severity, and impact to Los Angeles County.
Hurricane	Hazard is omitted from the plan due to its lack of frequency, severity, and impact to Los Angeles County.
Ice Storm	Hazard is omitted from the plan due to its lack of frequency, severity, and impact to Los Angeles County.
Volcanic Activity	Hazard is omitted from the plan due to its lack of frequency, severity, and impact to Los Angeles County.

Los Angeles County faces a wide range of hazards due to its geographic diversity, population density, and economic significance. The following hazards were identified and prioritized from the previously mentioned sources based on historical occurrences, potential impacts, and future risks:

1. Wildfire
2. Earthquake
3. Extreme Heat
4. Drought
5. Flooding
6. Dam Failure
7. Land Movement
8. Tsunami
9. Severe Wind and Tornado
10. Mass Violence
11. Cybersecurity Incidents
12. Transportation Incidents
13. Public Health Emergencies

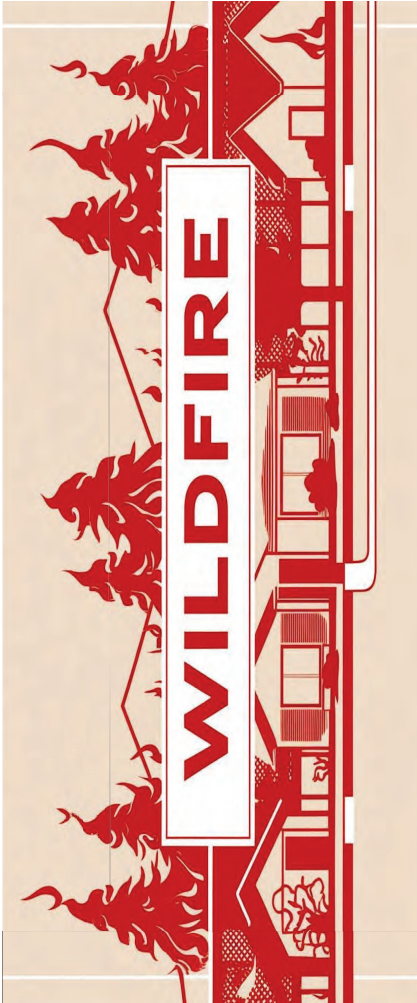
Among these hazards, six were identified to be potentially exacerbated by climate change including wildfire, extreme heat, drought, flooding, land movement, and severe wind and tornadoes. Additional human-caused hazards were included based on the 2024 THIRA including mass violence, cybersecurity incidents, transportation incidents, and public health emergencies. The results of the public Personal Disaster Impact Survey validated that these hazards are of significant concern to county residents. A risk assessment table comparing hazards to critical infrastructure is in Appendix C.

Table 6-2 Changes in Development and Vulnerability

Hazard	Change (Increase/ Decrease)	Reason
Earthquake	No Change	While new construction adheres to modern seismic codes aging infrastructure in high seismic zones remain vulnerable. Continued population growth in older neighborhoods with limited

Hazard	Change (Increase/ Decrease)	Reason
		retrofitting increases overall exposure.
Wildfire (Lightning)	Increase in Vulnerability	Urban expansion into Wildland-Urban Interface (WUI) areas has increased the number of homes at risk. Post 2020 development in high fire severity zones has continued, though defensible space regulations and new fire-safe planning are improving resilience for new builds.
Extreme Heat	Increase in Vulnerability	Population density, urban heat islands, and development in inland valleys increases exposure. Older multi-family units without air conditioning remain a concern. More outdoor workers and people experiencing homelessness (PEH) add to vulnerable population.
Land Movement	Stable to Slight Increase	Most new development avoids known landslide-prone areas due to zoning and geotechnical review. However, climate-driven precipitation variability and wildfires continue to destabilize slopes in developed areas.
Flooding (Lightning)	Increase in Vulnerability	New impervious surfaces from development increase stormwater runoff. Older flood control infrastructure is strained under heavier, more frequent rain events.

Hazard	Change (Increase/Decrease)	Reason
Drought	Increase in Vulnerability	Continued population growth and water demand in arid and semi-arid zones has outpaced gains in conservation. Agricultural vulnerability persists in high desert areas.
Severe Wind and Tornado	Increase in Vulnerability	Los Angeles County is experiencing more frequent and intense wind events, including tornadoes. As urban development expands, tree canopies and overhead utilities in densely developed areas continue to contribute to cascading hazards. In response, efforts are underway to underground utility lines in high-risk areas.
Tsunami	Stable	Revised tsunami inundation maps have refined the at-risk zones. New developments in coastal areas are largely outside the updated hazard areas or comply with stricter coastal building codes.
Dam Failure	Stable/ Slight Increase	While no new major dams have been constructed in recent years, downstream development continues to increase population and critical infrastructure exposure within inundation zones.



6.2 Wildfire

6.2.1 Nature

Wildfires are fast-moving, uncontrolled fires that consume vegetation and rapidly spread, often threatening lives, structures, and infrastructure. These fires can be ignited by natural causes, such as lightning, or human activities, including unattended campfires, downed power lines, and arson. The increasing frequency, duration, and intensity of wildfires in Los Angeles County are possibly linked to the changing climate, with hotter temperatures, prolonged droughts, and reduced humidity levels making the region highly susceptible to fires.

Factors Influencing Wildfire Behavior

- **Topography:** Fires spread more rapidly on steep slopes and are often driven by the Santa Ana winds.
- **Fuel Load:** Dense, dry vegetation and high tree mortality increase fire intensity.
- **Weather Conditions:** High temperatures, strong winds, and low humidity elevate fire risk, with the changing climate contributing to a lengthened fire season.

WILDFIRE KEY POINTS

- 1. Nature**
Wildfires are fast-moving, climate-exacerbated hazards driven by dry vegetation, wind, and terrain, often ignited by lightning or human activity.
- 2. Location**
High-risk wildfire areas are concentrated in the foothill areas and along the wildland-urban interface (WUI) in both SBA and LRA zones.
- 3. Extent**
Over 1,000 square miles in Los Angeles County are classified as Very High Fire Hazard Severity Zones, with wildfires causing widespread secondary hazards.
- 4. Vulnerability**
More than 1.2 million residents—especially in WUI communities with limited evacuation routes—face increased wildfire risk, particularly vulnerable populations.
- 5. Mitigation and Preparedness**
Key strategies include defensible space enforcement, fire-resistant construction, CWPSPs, vegetation management, and coordinated evacuation planning.

Wildfires also create secondary hazards such as poor air quality, landslides, flooding, and debris flows—especially in areas with recent burn scars where vegetation loss increases soil instability.

6.2.2 Location

Los Angeles County is one of the most wildfire-prone regions in the United States. Based on the Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone (FHSZ) maps, significant wildfire risk exists in the Santa Monica Mountains, San Gabriel Mountains, Palos Verdes Hills, and Puente Hills. The 2024 THIRA and Los Angeles County Climate Vulnerability Assessment identify an increasing risk to communities located in or near these high-risk areas.

Los Angeles County has three primary wildfire management zones:

- **Federal Responsibility Areas (FRAs):** Lands administered or controlled by the federal government where federal agencies have administrative and protection responsibility for wildfires.
- **State Responsibility Areas (SRAs):** Wildland areas where CAL FIRE is responsible for suppression efforts.
- **Local Responsibility Areas (LRAs):** Developed regions where local agencies, such as Los Angeles County Fire Department (LACoFD), provide fire protection.

For a better visual representation of this Wildfire Hazard within the LA County planning area, please reference Appendix A. Included in Appendix A are several Fire Hazard Severity Zone maps for reference.

6.2.3 Extent

According to CAL FIRE's Fire Hazard Severity Zone (FHSZ) maps, Los Angeles County contains:

- 386.06 square miles (8.11%) classified as Very High Fire Hazard Severity Zone (FHSZ) in Local Responsibility Areas, LRAs.
- 625.01 square miles (13.13%) classified as Very High (FHSZ) in State Responsibility Areas, SRAs.

Wildfires pose a significant threat not only through the immediate damage they cause to lives, property, and natural resources, but also through the secondary hazards that continue after the flames are extinguished.

In the aftermath of a fire, communities often face increased risks of flash floods, debris flows, and degraded air quality. These post-fire impacts can compound the initial destruction, placing additional strain on infrastructure, health systems, and recovery efforts.

6.2.4 History

Los Angeles County has experienced numerous devastating wildfires in recent decades, including:

- **Canyon Fire (1968)** - Burned 22,000 acres, destroyed 147 homes, and led to mass evacuations.
- **Old Topanga Fire (1993)** - Consumed 16,516 acres, destroying 388 structures and causing three fatalities.
- **Sayre Fire (2008)** - Destroyed 489 structures, including over 600 mobile homes.
- **Station Fire (2009)** - The largest fire in Los Angeles County history, burning 160,577 acres, destroying 209 structures, and causing two firefighter fatalities.
- **Woolsey Fire (2018)** - Burned 96,949 acres, destroyed 1,643 structures, and resulted in three fatalities.
- **Bobcat Fire (2020)** - Scorched 115,796 acres, destroying 171 structures and damaging numerous infrastructures in the Angeles National Forest.
- **Palisades Fire (2025)** - Resulted in significant destruction and loss of life, burning 23,707 acres, destroyed approximately 6,833 structures, and causing 12 civilian fatalities.
- **Eaton Fire (2025)** - Resulted in significant destruction and loss of life, burning 14,021 acres, destroying approximately 9,418 structures, and causing 17 civilian fatalities.

These fires highlight the increasing frequency and intensity of wildfires, emphasizing the urgent need for stronger mitigation and preparedness efforts.

The Los Angeles County area has experienced federally declared wildfires and are shown in the table below. There have been no state proclamations for wildfires in the last five years.

Federally Declared Wildfire/Fire Management Assistance Declaration in Los Angeles County from 1/1/2020 to 3/28/2025			
Date	Incident Name	No.	Category
1/8/2025	California Wildfires and Winds	4856	Federal Declaration
1/8/2025	California Eaton Fire	5550	Fire Management Assistance Declaration
1/8/2025	California Hurst Fire	5551	Fire Management Assistance Declaration
1/7/2025	California Palisades Fire	5549	Fire Management Assistance Declaration
12/10/2024	California Franklin Fire	5548	Fire Management Assistance Declaration
9/11/2024	California Bridge Fire	5537	Fire Management Assistance Declaration
10/16/2020	California Wildfires	4569	Federal Declaration
9/13/2020	California Bobcat Fire	5374	Fire Management Assistance Declaration

6.2.5 Probability

With several guaranteed wildfires each year, the probability of wildfire ignition in Los Angeles County is gradually increasing, driven largely by climate change. There is a 100% chance of a fire occurring each year within the geographic planning area. Historically, wildfires occurred between June and November, but recent years have shown a year-round fire season due to hotter, drier conditions and more intense weather variability.

Longer dry periods, reduced humidity, and increased temperatures, coupled with historic drought and vegetation die-off, have created critically dry fuel beds. These events make even small ignition sources capable of generating major wildfires.

Santa Ana winds continue to serve as a major accelerant, contributing to rapid fire spread and severe fire behavior. When combined with urban encroachment into fire-prone areas, these conditions elevate both the frequency and destructiveness of wildfires.

Projections from the 2024 THIRA and the LA County Climate Vulnerability Assessment confirm that wildfire probability will continue to rise unless significant fuel reduction, land use planning, and climate adaptation strategies are implemented across all jurisdictions.

The 2024 THIRA estimates that:

- Over 1.2 million residents live in high-risk wildfire zones.
- Communities near the Wildland-Urban Interface (WUI) are at the greatest risk, especially those with limited evacuation routes, and the Access and Functional Needs community.
- Vulnerable populations, including seniors, low-income households, and people with disabilities, face heightened challenges during evacuations.

6.2.6 Vulnerability

Los Angeles County faces high wildfire vulnerability due to its extensive Wildland-Urban Interface (WUI), with over 1.2 million residents that live in Very High Fire Hazard Severity Zones (FHSZs). These communities are particularly susceptible because many homes lack defensible space, fire-resistant construction, or adequate emergency access.

Vulnerable populations including (but not limited to): seniors, individuals with disabilities, low-income households, and those dependent on electrical medical equipment, face significant evacuation and health risks during wildfire events, especially in WUI communities with limited ingress/egress and high fuel loads.

SUPERVISORIAL DISTRICT BREAKDOWN		
Supervisory District	Population in High-Risk Wildfire Zones	Percentage of District Population
District 1	150,000	12%
District 2	75,000	6%
District 3	425,000	30%
District 4	250,000	20%
District 5	500,000	32%

Contextual Overview

Very High FHSZ in LRA jurisdiction includes dense hillside residential areas under local fire authority responsibility. These are some of the most vulnerable communities due to terrain, vegetation, and constrained emergency access.

Critical infrastructure is also at risk, with wildfire exposure threatening fire stations, law enforcement facilities, hospitals, utilities, transportation corridors, and emergency communication systems. Disruption to these essential services during wildfire events can compound vulnerabilities and delay response and recovery. For a better understanding of critical infrastructure at risk please see Appendix C.

Total Facilities Affected:

- **Very High LRA:** 120
- **High SRA:** 8
- **Very High SRA:** 76

With the continued expansion of developments into fire-prone areas has significantly increased wildfire risk. Many homes in the WUI lack proper defensible space and fire-resistant building materials, making them particularly vulnerable. Additionally, limited evacuation routes in some WUI communities create challenges for emergency response and evacuations. Stricter zoning laws, building regulations, and vegetation management policies are the best practices to reduce risk.

Department/ Agency	Very High FHSZ (LRA)	High FHSZ (SRA)	Very High FHSZ (SRA)
Animal Care and Control	1	0	1
Fire Department	39	1	14
Health Services	1	0	0
Library	7	1	2
LACMA / NHM	1	0	0
Office of Education	3	0	3
Other County Offices	0	0	0
Parks & Recreation	13	1	12
Public Health	52	4	41
Public Works	0	0	0
Sheriff's Department	3	1	3

Wildfires threaten essential infrastructure, including:

- **Transportation:** Damage to roads and bridges affects evacuation and emergency response.
- **Utilities:** Power lines, gas pipelines, and water infrastructure, including dams, are vulnerable to fire damage.
- **Emergency Services:** Public safety and healthcare facilities near wildfire-prone areas face operational disruptions.
- **Public Services:** Parks, libraries, schools, and other public areas could be lost or damaged.

New emerging patterns suggest that climate change may be influencing wildfire risks in Los Angeles County through:

- **Extending fire seasons:** Historically, peak fire season occurred from June to November, but fires are now starting and burning year-round.
- **Increasing fuel dryness:** Higher temperatures and prolonged droughts reduce vegetation moisture levels, making fires more intense.
- **Raising fire frequency:** Hotter, drier conditions contribute to more frequent ignitions, particularly in WUI areas.

Extent of Exposure

- **Total Area Exposed:** 243.72 sq mi
- **Supervisory Districts (SD) Impacted:**
 - o **SD3:** 117.95 sq mi (27.29%)
 - o **SD5:** 95.61 sq mi (3.36%)
 - o **SD1:** 16.23 sq mi (4.60%)
 - o **SD4:** 9.10 sq mi (4.27%)
 - o **SD2:** 4.83 sq mi (1.33%)

For a better visual representation of this Wildfire Hazard within the LA County planning area, please reference Appendix A for several Fire Hazard Severity Zone maps.

6.2.7 Impacts

Impacts for past fires vary depending on scope and severity, including the January 2025 fires, including the Palisades and Eaton Fires, resulted in widespread destruction across Los Angeles County, burning over 37,000 acres and destroying more than 16,000 structures combined, with nearly 30 civilian fatalities. These events caused cascading impacts such as prolonged power outages, degraded water pressure affecting firefighting and residential supply, and overwhelmed emergency services. Transportation routes and communications infrastructure were disrupted. Communities, especially in the Wildland-Urban Interface (WUI), experienced major economic losses due to the destruction of homes, businesses, and public facilities. Post-fire hazards like debris flows and landslides further compounded recovery challenges, with water infrastructure contamination and sedimentation requiring emergency remediation. The scope and severity of these fires underscore the increasing vulnerability of critical infrastructure and the urgent need for enhanced mitigation strategies across high-risk zones.

Problem Statement

Many hillside communities within LRA Very High FHSZ zones face critical access and water supply issues during fires. These areas often include aging structures and narrow roads, complicating firefighting and evacuation. Investments in defensible space, local code enforcement, and community wildfire protection planning are vital to saving lives and minimizing losses.

6.2.8 Mitigation and Preparedness

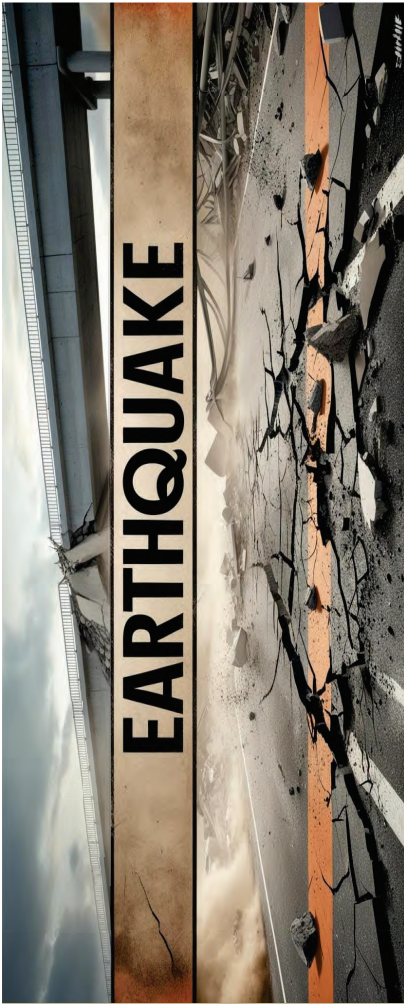
Los Angeles County is implementing a multi-agency approach to mitigate wildfire risks. Key strategies include:

- **Community Wildfire Protection Plans (CWPPs):** Strengthening fire prevention measures in high-risk areas.
- **Community Preparedness:** Educating residents on wildfire readiness through outreach campaigns, emergency alert systems, and neighborhood preparedness programs.
- **Defensible Space Requirements:** Enforcing brush clearance around structures.
- **Enhanced Building Codes:** Promoting fire-resistant materials for new developments.
- **Vegetation Management:** Reducing fuel loads through prescribed burns and hazardous tree removal.
- **Evacuation Planning:** Improving coordination between OEM, LASD, LACoFD, and other jurisdictions to ensure clear evacuation policies and procedures.

Additional details on the County's proactive and ongoing efforts to reduce wildfire risk, including long-term planning, infrastructure hardening, and community-based initiatives, is located in the dedicated section titled "Mitigation Strategies."

6.2.9 Summary

Wildfires remain one of the most significant hazards in Los Angeles County, posing risks to life, property, and critical infrastructure. The expansion of development into WUI areas, increasing fire severity due to climate change, and ongoing challenges with evacuation and mitigation require proactive, coordinated efforts across agencies. Strengthening fire prevention policies, improving emergency response coordination, and integrating climate adaptation measures are essential to enhancing wildfire resilience for Los Angeles County.



6.3 Earthquake

6.3.1 Nature

Earthquakes occur due to the sudden release of energy in the Earth's crust, generating seismic waves that cause ground shaking. These events, often triggered by movement along fault lines, vary in intensity depending on factors such as magnitude, depth, and proximity to populated areas. In addition to the initial shaking, secondary hazards such as surface faulting, liquefaction, landslides, tsunamis, and aftershocks can worsen the damage. Los Angeles County, located in a highly active seismic region, faces significant risks from these natural events, necessitating extensive mitigation efforts and preparedness planning.

- The most common effects of earthquakes include violent shaking, structural damage, and disruptions to infrastructure.
- Secondary effects can include, but are not limited to, utilities outages, traffic congestion and transportation systems being impassable, and an increase of fire risks, from broken gas and water lines.

EARTHQUAKE KEY POINTS

- 1. Nature**
Earthquakes occur when there is a sudden release of energy from the Earth's crust, creating seismic waves.
- 2. Location**
Los Angeles County is in one of the most highly active seismic regions, having multiple active faults.
- 3. Extent**
The San Andreas fault remains the greatest threat, with a high chance of an M 6.7+ occurring.
- 4. Vulnerability**
Residents in high-risk seismic zones could be extremely impacted, along with people experiencing homelessness, low income, and the access and functional needs community.
- 5. Mitigation and Preparedness**
Efforts include strengthening building codes, upgrading critical infrastructure, expanding public education, and enhancing emergency response planning.

- Earthquakes occur with little to no warning, making preparedness essential for minimizing loss of life and property.

6.3.2 Location

Los Angeles County is one of the most seismically active regions in the United States, with multiple active fault systems capable of generating destructive earthquakes.

Major faults include:

- San Andreas Fault – Capable of M 8.0+
- Newport-Inglewood Fault – M 7.4
- Malibu Coast Fault System – M 6.7
- San Fernando Fault – M 6.6
- Santa Monica Fault – M 7.0
- Whittier Fault – M 7.2
- Sierra Madre Fault – M 6.0-7.0

For a better visual representation of this Earthquake Hazard within LA County planning area, please reference Appendix A for earthquake fault maps.

6.3.3 Extent

According to US Geological Survey, there are two types of earthquake measurements, magnitude (Mw) and intensity (i). Magnitude is a measure of the energy released at the source of the earthquake. Intensity scale help measure impact on people and structures.

Earthquake impact is based on magnitude scale is as follows:

- Great—Mw > 8,
- Major—Mw = 7.0 – 7.9
- Strong—Mw = 6.0 – 6.9
- Moderate—Mw = 5.0 – 5.9
- Light—Mw = 4.0 – 4.9
- Minor—Mw = 3.0 – 3.9
- Micro—Mw < 3

Modified Mercalli Intensity Scale is from I to XII, which refers I, as not felt and XII as extreme.

Figure 6.3.1 Modified Mercalli Intensity Scale

CIM Intensity	People's Reaction	Furnishings	Built Environment	Natural Environment
I	Not felt			Changes in level and clarity of well water are occasionally associated with great earthquakes at distances beyond which the earthquakes felt by people.
II	Felt by a few.	Delicately suspended objects may swing.		
III	Felt by several; vibration like passing of truck.	Hanging objects may swing appreciably.		
IV	Felt by many; sensation of heavy body striking building.	Dishes rattle.	Walls creak; window rattle.	
V	Felt by nearly all; frightens a few.	Pictures swing out of place; small objects move a few inches within the community.	A few instances of cracked plaster and cracked windows with the community.	Trees and bushes shaken noticeably.
VI	Frightens many; people move uneasily.	Many objects fall from shelves.	A few instances of fallen plaster, broken windows, and damaged chimneys within the community.	Some fall of tree limbs and tops; isolated rockfalls and landslides, and isolated liquefaction.
VII	Frightens most; some lose balance.	Heavy furniture overturned.	Damage negligible in buildings of good design and construction, but considerable in some poorly built or badly designed structures; weak chimneys broken at roof line, fall of unbraced parapets.	Tree damage, rockfalls, landslides, and liquefaction are more severe and widespread with increasing intensity.
VIII	Many find it difficult to stand.	Very heavy furniture moves conspicuously.	Damage slight in buildings designed to be earthquake resistant, but severe in some poorly built structures. Widespread fall of chimneys and monuments.	
IX	Some fearfully thrown to the ground.		Damage considerable in some buildings designed to be earthquake resistant; buildings shift off foundations if not bolted to them.	
X			Most ordinary masonry structures collapse; damage moderate to severe in many buildings designed to be earthquake resistant.	

Over 75% of unincorporated Los Angeles County is at risk for severe to extreme shaking in a future earthquake.

The region's dense urban environment, combined with aging infrastructure, increases the likelihood of extensive damage and prolonged recovery times.

Faults running beneath critical infrastructure corridors, including freeways and power grids, pose a significant threat to public safety and economic stability of the planning area.

6.3.4 History

Los Angeles County has a long history of destructive earthquakes, with some of the earliest recorded events dating back to the early 19th century. The San Juan Capistrano Earthquake of 1812 (M 7.5) was among the first to be documented, causing the collapse of Mission San Juan Capistrano and resulting in 40 fatalities. Over the years, the county has experienced numerous significant quakes, including the devastating 1857 Fort Tejon Earthquake (M 7.9), the 1971 San Fernando Earthquake (M 6.6), and the infamous 1994 Northridge Earthquake (M 6.7), which caused billions in damages and led to widespread infrastructure failures. There have been no federal declarations or state proclamations for earthquakes in the last five years.

Major Earthquakes in Los Angeles County (1812 - Present)			
Date	Magnitude	Name / Location	Notable Impact
December 8, 1812	7.5	San Juan Capistrano Earthquake	Destroyed Mission San Juan Capistrano, killed 40 people.
December 21, 1812	7.1	West Ventura Earthquake	Caused significant shaking in Southern California.
January 9, 1857	7.9	Fort Tejon Earthquake	Largest earthquake on the San Andreas Fault; ruptured 225 miles.
July 21, 1952	7.5	Kern County Earthquake	Strong shaking felt in Los Angeles; major damage to Bakersfield.
February 9, 1971	6.6	San Fernando Earthquake	65 deaths, \$553 million in damages, collapse of Veterans Hospital.
October 1, 1987	5.9	Whittier Narrows Earthquake	8 deaths, 200 injuries, \$358 million in damages.
February 28, 1990	5.7	Upland Earthquake	30 injuries, \$12.7 million in damages.

June 28, 1991	5.6	Sierra Madre Earthquake	1 death, 100+ injuries, \$40 million in damages.
January 17, 1994	6.7	Northridge Earthquake	57 deaths, 8,700 injuries, \$40 billion in damages, freeways collapsed.
July 29, 2008	5.5	Chino Hills Earthquake	8 injuries, minor structural damage.
March 28, 2014	5.1	La Habra Earthquake	Few injuries, \$10 million in damages.
July 6, 2019	7.1	Ridgecrest Earthquake	Widespread damage in Southern California, infrastructure impacts.

6.3.5 Probability

Trends in Seismic Activity

Over 163 earthquakes of M 5.0 or greater have been recorded in Southern California since 1812.

The San Andreas Fault remains the greatest seismic hazard, with a 59% chance of an M 6.7+ event in the next 30 years.

Future Earthquake Occurrence

The U.S. Geological Survey (USGS) estimates the following probabilities for a major earthquake in Los Angeles County in the next 30 years:

- 60% chance of an M 6.7+ earthquake
- 46% chance of an M 7.0+ earthquake
- 31% chance of an M 7.5+ earthquake

6.3.6 Vulnerability

The county's vulnerability to earthquakes extends beyond physical infrastructure, affecting its residents and essential services. Older buildings, particularly unreinforced masonry and soft-story structures, are at high risk of collapse, posing significant

dangers to residents and businesses. Seismic retrofitting, early warning systems, and stricter building codes have improved resilience, but vulnerabilities remain in older structures and critical infrastructure.

Critical Infrastructure at Risk

- **Highways, bridges, and transportation routes:** A major earthquake could severely disrupt mobility, shipment of goods and services while also delaying emergency response and evacuations. Major highways such as, but not limited to the I-5, I-10, US-101, CA-60, CA-14, I-405, I-710, and I-105 could be impacted.
- **Energy grids and water system:** Disruptions could leave millions without power and clean water.
- **Hospitals and emergency services:** 325 hospitals and 1,299 fire stations in the Los Angeles County could suffer functional impairments.
- **Unreinforced masonry and soft-story buildings:** Many older structures are highly susceptible to collapse during strong ground shaking.

County Specific Critical Facilities Affected:

- Fire Department: 314 facilities (93.18%)
- Public Works: 201 facilities (87.39%)
- Health Services: 56 facilities (85.71%)
- Public Health: 37 facilities (92.50%)
- Libraries: 78 branches (89.66%)
- Parks: 179 (97.79%)
- Education: 70 (85.37%)

Los Angeles County lies at the intersection of multiple major fault lines, including the San Andreas Fault. According to the hazard matrix, the risk of violent ground shaking is prevalent countywide, particularly in urban centers and regions with critical infrastructure. The potential consequences of violent seismic shaking include widespread structural damage, disruption of services, economic losses, and human casualties.

Populations at Risk

- The THIRA estimates over 2 million residents could be significantly impacted in a major seismic event, particularly those in high-risk seismic zones.

- People Experiencing Homelessness (PEH) populations: 75,000+ unhoused individuals in Los Angeles County live in areas at risk of violent shaking.
- Low-income and individuals with access and functional needs (AFN): For more details on impacted population please see Section 5.

Extent of Exposure

- **Total Area Exposed:** 3,041.91 sq mi
- **Supervisory Districts (SD) Impacted:**
 - o **SD5:** 1,950.78 sq mi (69.50%)
 - o **SD3:** 379.41 sq mi (87.99%)
 - o **SD1:** 349.17 sq mi (98.95%)
 - o **SD2:** 362.95 sq mi (99.99%)
 - o **SD4:** 210.92 sq mi (99.10%)

6.3.7 Impacts

Los Angeles County has a long history of experiencing damaging earthquakes due to its location along multiple active fault systems, including the San Andreas, Newport-Inglewood, and Whittier faults. Historic earthquakes such as the 1971 San Fernando (M6.6) and 1994 Northridge (M6.7) events caused catastrophic losses. The San Fernando earthquake resulted in 65 deaths, the collapse of hospital structures, and over \$550 million in damages, while the Northridge earthquake caused 57 deaths, more than 8,700 injuries, and an estimated \$40 billion in economic losses, including widespread infrastructure failures such as collapsed freeways and damaged utility systems.

Impacts from future major seismic events are projected to be even more severe due to population density, aging infrastructure, and increasing development in seismically vulnerable areas. Over 75% of unincorporated Los Angeles County is at risk of severe to extreme ground shaking. Current estimates suggest that a large-magnitude earthquake could displace up to 2.2 million people, injure or kill thousands, and result in over \$200 billion in combined economic losses, including \$113 billion in property damage and \$68 billion in business interruptions.

The County's critical systems; power, water, transportation, healthcare, and communications, are especially vulnerable. A major earthquake could impair up to 325 hospitals and 1,299 fire stations and disrupt critical infrastructure for millions. Populations with heightened vulnerability include the 75,000+ people experiencing homelessness, those with access and functional needs, and residents of older, unreinforced masonry and soft-story structures.

Without sufficient mitigation, a future earthquake could result in cascading failures across multiple sectors and prolong the County's recovery for years. These risks highlight the urgency for continued investment in seismic retrofitting, stricter enforcement of building codes, expanding statewide early warning systems, and equitable preparedness programs targeting at-risk vulnerable populations.

- **Casualties and injuries:** Depending on the time of day and location, thousands could be injured or killed in a severe earthquake.
- **Economic disruption:** A significant earthquake could halt business operations, damage supply chains, and force thousands into unemployment.
- **Housing displacement:** An estimated 2.2 million residents could be displaced, with tens of thousands requiring emergency sheltering.

Economic Impact

A major earthquake in Los Angeles County could result in over \$200 billion in economic losses, with a total of \$118 trillion-dollar exposure. Losses can include:

- \$68 billion in business interruptions
- \$51 billion in lost economic activity
- \$113 billion in property damages

Problem Statement

The pervasive exposure of Los Angeles County to violent earthquake shaking presents a systemic threat to public safety, economic stability, and essential services. Nearly all major departments and infrastructure elements are located within high-shaking hazard zones. The extensive reach across all five Supervisorial Districts (SD) amplifies the challenge, highlighting the urgent need for retrofitting, public education, preparedness programs, and resilient design policies. Failure to address this hazard could lead to catastrophic loss of life and functionality in the event of a major seismic event.

6.3.8 Mitigation and Preparedness

Efforts to reduce earthquake risks in Los Angeles County include strengthening building codes, enhancing emergency preparedness, and retrofitting vulnerable structures.

Key efforts to mitigate earthquake risks include:

- Strengthening building codes and enforcing retrofitting laws
- Upgrading critical infrastructure
- Expanding public education and early warning systems
- Enhancing emergency response planning

By proactively implementing these measures, Los Angeles County aims to reduce casualties, infrastructure damage, and economic losses in future seismic events.

Seismic Retrofitting Programs

- **Soft story retrofit program:** Mandates seismic upgrades for older apartment buildings.
- **Non-ductile concrete building retrofits:** Strengthens older commercial and residential structures.
- **Hospitals and emergency facilities retrofitting:** Ensures critical services remain operational post-earthquake.

Policy and Regulatory Measures

- Assembly Bill (AB) 1857: Strengthens building standards for multi-story structures.
- AB 2681: Requires cities and counties to inventory vulnerable buildings.
- Updated California Building Code (CBC): Enforces stricter seismic design criteria for new construction.
- Public Education: Teaching to Drop, Cover and Hold On; the household preparedness checklist, educate residents on emergency response, retrofitting, and disaster preparedness.
- Early Warning/ShakeAlert System: Provides real-time earthquake early warnings to residents via mobile alerts and public messaging.
- Public earthquake drills: Annual Great California ShakeOut encourages preparedness.

6.3.9 Summary

Los Angeles County remains at high risk for devastating earthquakes, with scientific projections indicating a strong likelihood of a significant seismic event in the coming decades. The region has experienced numerous historic earthquakes, and the potential for future large-scale disasters remains ever-present. While advances in engineering, emergency preparedness, and mitigation efforts have improved resilience, challenges persist, particularly regarding aging infrastructure and vulnerable communities. Continued investments in retrofitting, public education, and early warning systems will be critical in minimizing casualties, economic losses, and recovery challenges in future earthquakes.



6.4 Extreme Heat

6.4.1 Nature

Extreme heat refers to prolonged periods of high temperatures, often accompanied by high humidity, posing significant health risks such as heat exhaustion and heat stroke. The urban heat island (UHI) effect, prevalent in densely built areas like Los Angeles County, intensifies these conditions by absorbing and retaining heat. The changing climate conditions through time in the region exacerbate for the rising of daily temperature and for the increasing of extreme heat days in the County. This leads to health issues, increase energy demand, and strain on infrastructure.

6.4.2 Location

Los Angeles County is particularly susceptible to extreme heat due to its diverse geography and urban density. All of Los Angeles County may experience extreme heat, nonetheless inland regions, including the valleys and high desert areas experience

EXTREME HEAT KEY POINTS

1. Nature

Prolonged periods of high temperatures pose significant health risks such as heat exhaustion and heat stroke. Urban heat island (UHI) is rampant in Los Angeles County.

2. Location

Los Angeles County is vulnerable to extreme heat because of its diverse landscape and urban density.

3. Extent

Predictions show a significant rise in frequency and intensity of heat waves, with inland areas being more susceptible.

4. Vulnerability

Populations most vulnerable to extreme heat are elderly individuals, low-income communities, outdoor workers, people experiencing homelessness, and the access and functional needs community.

5. Mitigation and Preparedness

To manage extreme heat, Los Angeles County has implemented cooling centers, urban greening initiatives, public awareness campaigns, and building codes and regulations.

higher temperatures compared to coastal areas. The urban heat island (UHI) effect can increase temperatures in cities and developed areas than the less developed areas. Urban centers with extensive concrete and asphalt surfaces further amplify heat retention, contributing to elevated temperatures and increased UHI effect in the county.

6.4.3 Extent

The severity of heat events in Los Angeles County has been increasing. Projections indicate a significant rise in the frequency and intensity of heat waves, with inland areas potentially experiencing temperatures exceeding 110°F. The urban heat island effect can cause urban areas to be several degrees warmer than their rural counterparts, exacerbating the impact of heat waves. The chart below shows the levels of heat wave impacts used to measure heatwave severity. HeatRisk, an experimental measure developed by the NWS in collaboration with the CDC, classifies heat events by their impact on human health. It ranges from Green (0) which is little or no risk to Magenta (4), which means extreme heat with no overnight relief.

Figure 6.4.1 Risk of Heat-Related Impacts	
Category	
Green 0	Little to no risk from expected heat.
Yellow 1	Minor - This level of heat affects primarily those individuals extremely sensitive to heat, especially when outdoors without effective cooling and/or adequate hydration.
Orange 2	Moderate - This level of heat affects most individuals sensitive to heat, especially those without effective cooling and/or adequate hydration. Impacts possible in some health systems and in heat-sensitive industries.
Red 3	Major - This level of heat affects anyone without effective cooling and/or adequate hydration. Impacts likely in some health systems, heat-sensitive industries and infrastructure.
Magenta 4	Extreme - This level of rare and/or long-duration extreme heat with little to no overnight relief affects anyone without effective cooling and/or adequate hydration. Impacts likely in most health systems, heat-sensitive industries and infrastructure.

National Weather Service (NWS), 2024

August, being the hottest month of the year that the planning area experiences the Figure 6.4.2 below shows, the average high temperature for August 2024 in Los Angeles County. As shown, the temperature varies by location but remains higher than average monthly temperature.

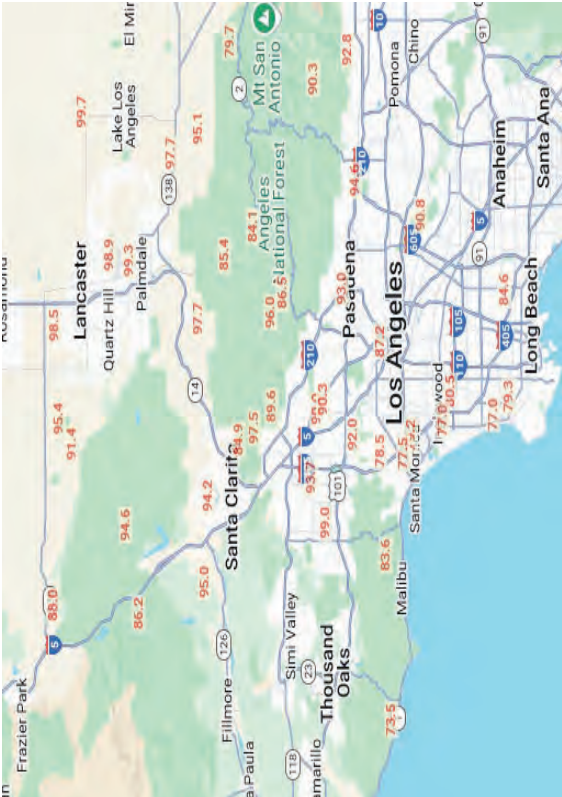


Figure 6.4.2, Mean Max Temperature for August 2024, National Weather Service

6.4.4 History

Because of the changing climate conditions and the geographical location, Los Angeles County has been experiencing extreme heat waves in the past years. It has a history of extreme heat events, with temperatures frequently reaching 100 degrees or more, especially during the summer months. In some cases, these extreme heat events are record-breaking heat waves surpassing their all-time highs.

Extreme Heat events include:

- **August 2020:** A severe heatwave led to widespread power outages, affecting nearly 500,000 residents.

- **September 2020:** The San Fernando Valley recorded a record high temperature of 121°F.
- **August 2022:** A record-breaking heatwave in late summer exceeded 100°F
- **September 2024:** A severe September heatwave pushed temperatures 10-20°F above normal, hitting 109°F in Long Beach

The History of Extreme heat events highlight the increasing trend of extreme heat occurrences in the region. There have been no federal declarations or state proclamations for extreme heat in the last five years. Even though there were no declared extreme heat emergencies, the county has issued several heat alerts and taken measures to protect residents from the impacts of heat waves during these periods.

6.4.5 Probability

Extreme heat events are an annual occurrence in Los Angeles County, though severity of such events vary per year based on other conditions, such as El Niño. Climate models project a substantial increase in the likelihood of extreme heat events in Los Angeles County. By mid-century, the county could experience more than five major heat waves annually, with some models suggesting up to tenfold increases in frequency. This heightened probability necessitates proactive mitigation and adaptation strategies.

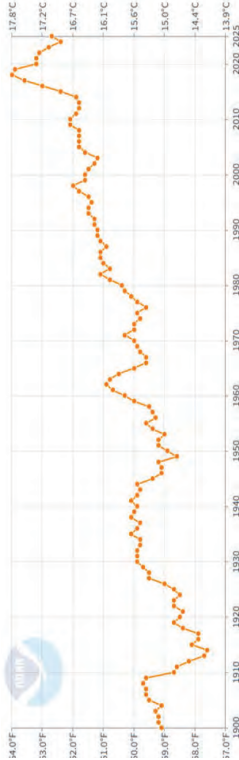


Figure 6.4.3, Average Temperature 1900-2025, NOAA, NCEI, 2025.

6.4.6 Vulnerability

Extreme heat poses a significant and growing threat to Los Angeles County, where rising temperatures, urban heat islands, and widespread social vulnerability intersect. Those most at risk include the elderly, low-income households lacking air conditioning,

people experiencing homelessness (PEH), individuals with access and functional needs (AFN), and the County's large population of outdoor and non-air-conditioned indoor workers. Infrastructure is also strained; electricity demand spikes during heatwaves, often overwhelming the power grid and triggering outages. Water systems experience increased demand and evaporation losses, while roadways and rail lines are subject to buckling or operational delays. In recent years, Los Angeles County has experienced severe consequences from prolonged heat events, reinforcing the urgent need for heat resilience strategies targeting both people and critical services.

Los Angeles County-Specific Impacts and Data

- 491,600 residents experienced power outages during the August 2020 heatwave.
- 96% of the County's 1,000 miles of high-voltage transmission lines are exposed to moderate to high extreme heat risk.
- 1.7 million residents are considered highly vulnerable due to age, income, disability, or chronic health conditions.
- Over 300,000 outdoor workers are at elevated risk for heat-related illness and injury.
- Thousands of heat-related emergency visits occurred during multi-day heat events in 2020 and 2022; especially in neighborhoods with limited shade and high surface temperatures.
- 50+ cooling centers have been activated across the County during recent heatwaves to support at-risk populations.
- High heat contributes to worsened air quality, increased wildfire smoke exposure, and economic losses due to infrastructure damage, productivity decline, and rising healthcare costs.

6.4.7 Impacts

Los Angeles County has faced significant and growing impacts from extreme heatwaves over the past two decades. In August 2020, a prolonged heatwave caused rolling blackouts affecting nearly 500,000 customers, overwhelmed the state's electrical grid, and forced the activation of emergency conservation protocols. That same summer, the San Fernando Valley hit 121°F, leading to widespread strain on

HVAC systems and increased emergency room visits for heat-related illnesses. The 2022 and 2024 heatwaves brought similar conditions—temperatures over 100°F across the region led to localized transformer failures, asphalt buckling, and strain on water delivery systems due to elevated demand. During these events, outdoor workers, the elderly, and low-income residents without access to cooling systems were among the most affected. Economic activity was disrupted, with reports of business closures, service delays, and increased healthcare costs. In 2024, Long Beach reached a record 109°F, causing a spike in electricity demand and triggering emergency energy alerts across Southern California. Heat-related deaths and hospitalizations have also trended upward, particularly in neighborhoods with low tree canopy and high impervious surfaces. These impacts underscore the need for resilient infrastructure and targeted adaptation strategies to safeguard health and essential services.

6.4.8 Mitigation and Preparedness

The most effective way to reduce the negative impacts of an extreme heat event is to develop a comprehensive heat response plan that has individual strategies to effectively manage heatwaves during peak seasons of the year. The plan might include forecasting and monitoring, education and awareness, and heat wave response.

To address extreme heat, Los Angeles County has implemented several measures:

- **Cooling Centers:** Establishment of air-conditioned public spaces where residents can seek relief during heatwaves. These centers are facilities such as libraries, community centers, and senior centers. Residents can locate the nearest cooling center using resources provided by the county. *Additional resources can be found at <https://ready.lacounty.gov/heat/>*
- **Urban Greening Initiatives:** Programs aimed at increasing green spaces, planting trees, and creating parks to provide shade and reduce ambient temperatures. These efforts help mitigate the urban heat island effect.
- **Public Awareness Campaigns:** Educational initiatives to inform residents about heat risks, prevention strategies, and resources available during extreme heat events. These campaigns emphasize the importance of hydration, recognizing heat-related illness symptoms, and utilizing cooling centers.
- **Building Codes and Regulations:** Incorporation of heat-mitigating designs and materials in new constructions and retrofits, such as cool roofs and reflective

pavements, to reduce heat absorption. These measures aim to lower indoor temperatures and decrease reliance on air conditioning.

These strategies are designed to reduce heat exposure, protect vulnerable populations, and enhance community resilience against extreme heat events.

6.4.9 Summary

Extreme heat poses a growing threat to Los Angeles County, with increasing frequency and intensity of heat waves exacerbated by urban heat island (UHI) effects. Understanding these impacts of extreme heat and taking appropriate precautions, residents of Los Angeles County can protect themselves and their communities from this growing climate hazard. The county has undertaken various mitigation efforts, including the establishment of cooling centers, urban greening projects, public education campaigns, and the implementation of heat-conscious building practices. Ongoing adaptation and proactive planning are essential to safeguard public health, infrastructure, and the environment from the adverse effects of extreme heat.



6.5 Drought

6.5.1 Nature

Drought is a prolonged period of below-average precipitation that leads to water shortages, impacting agriculture, ecosystems, and urban water supplies. Unlike other natural disasters, drought develops gradually, making it difficult to predict and mitigate. In Los Angeles County, droughts are a recurring issue due to the region's arid climate and dependence on imported water supplies.

Drought severity is determined by its duration, intensity, geographic extent, and water demand. Climate change is exacerbating these factors, leading to hotter temperatures, reduced precipitation, and increased evaporation rates. Wildfires are also projected to increase in frequency and intensity during drought season.

There are four common classifications of drought:

- **Meteorological Drought:** A prolonged period of below-normal precipitation.

- **Hydrological Drought:** A reduction in surface and groundwater levels due to prolonged precipitation deficits.
- **Agricultural Drought:** A lack of soil moisture that affects crop growth and livestock sustainability.
- **Socioeconomic Drought:** When water shortages impact drinking water supplies, sanitation, public services, and economic activities.

6.5.2 Location

Drought is regional in nature and typically affects the entire Los Angeles County planning area. Given the county's reliance on imported water from the Sierra Nevada snowpack and the Colorado River, reduced availability of these sources significantly increases vulnerability.

6.5.3 Extent

Drought is a recurring natural hazard that can severely impact agriculture, water supply, ecosystems, and communities. To monitor and communicate drought conditions across the United States, the National Drought Mitigation Center (NDMC), in partnership with the U.S. Department of Agriculture (USDA) and the National Oceanic and Atmospheric Administration (NOAA), produces weekly U.S. Drought Monitor maps. These maps categorize drought conditions into five levels based on intensity, duration, and impact on various sectors, including agriculture, water resources, and public health.

Each drought category reflects a different level of severity, from short-term dry conditions that may slow crop growth, to long-term, widespread water shortages that require emergency response. These classifications help decision-makers, farmers, and water managers respond appropriately to emerging or ongoing drought conditions. See Figure 6.5.1 below for more information.



Drought Categories and Associated Impacts:

CATEGORY	DESCRIPTION	POSSIBLE IMPACTS
D4	EXCEPTIONAL DROUGHT	• Exceptional and widespread crop/pasture losses • Critical shortages of water in reservoirs, streams, and wells • Water emergencies and possible mandatory rationing • Severe impacts on ecosystems and wildlife habitats
D3	EXTREME DROUGHT	• Major agricultural losses and pasture failure • Widespread water shortages • Water use restrictions likely enforced • Increased risk of wildfires and heat-related stress
D2	SEVERE DROUGHT	• Crop and pasture losses becoming likely • Water shortages becoming common • Local governments may implement water restrictions • Hydropower generation and irrigation potentially impacted
D1	MODERATE DROUGHT	• Noticeable damage to crops and pastures • Water levels in streams and reservoirs begin to decline • Voluntary water-use restrictions may be requested • Some stress on fish and wildlife populations
D0	ABNORMALLY DRY	• Early signs of drought, with short-term dryness slowing planting and crop growth • If improving lingering water deficits as area recovers from drought • Pastures or vegetation may show signs of delayed recovery

Figure 6.5.1 Drought Categories and Associated Impacts

These classifications not only help guide resources and planning but also raise awareness about the broader consequences of prolonged dryness. Understanding the extent and severity of drought helps ensure timely response and mitigation efforts at local, state, and federal levels.

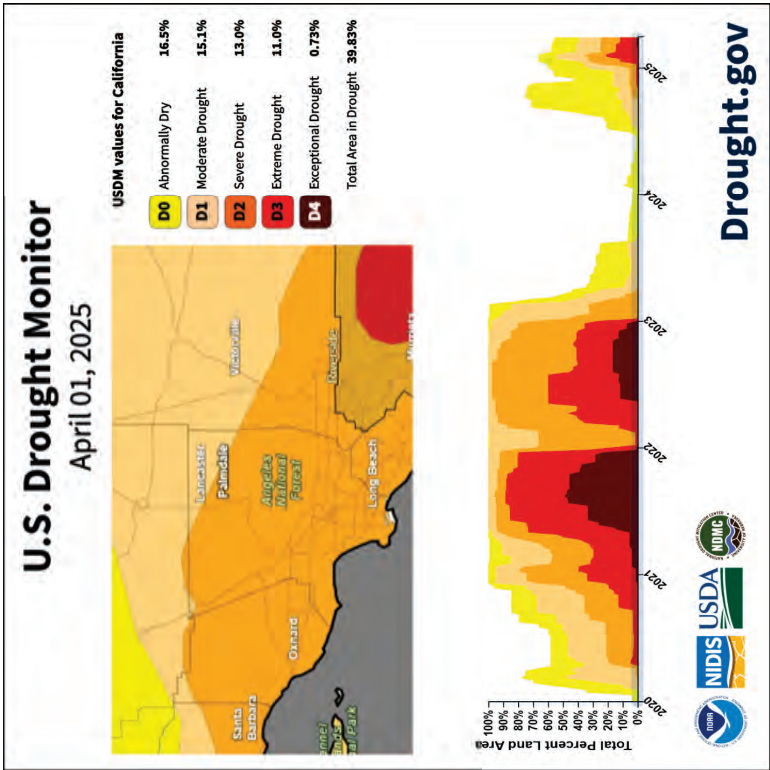


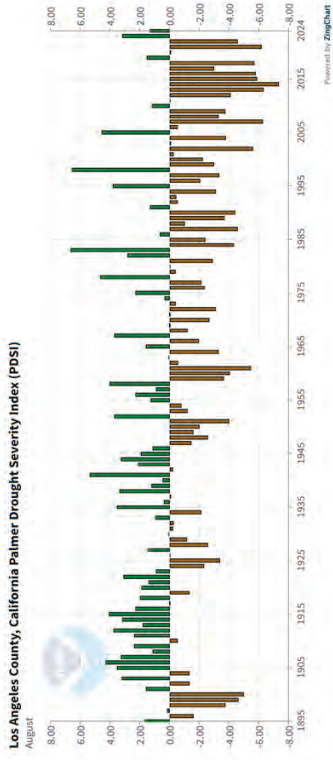
Figure 6.5.2, U.S. Drought Monitor, 2025

6.5.4 History

Los Angeles County has experienced multiple significant droughts, with some lasting several years. There have been no federal declarations or state proclamations for drought in the last five years.

Notable historical drought periods include:

1. 1917-1921 - A widespread drought affecting most of California.
2. 1976-1977 - One of the driest two-year periods in recorded history.
3. 1987-1992 - A six-year drought that severely impacted water supplies and agriculture.
4. 2007-2009 - A prolonged drought leading to state-imposed water restrictions.
5. 2011-2017 - The most severe drought in modern history, resulting in groundwater depletion and mandatory conservation measures.
6. 2020-2022 - California experienced a significant drought, with Los Angeles County experiencing "abnormally dry" conditions.
7. 2024-2025 - Los Angeles County is continuing to experience abnormally dry conditions, with lower average rainfalls and arid conditions.



The chart above, the Palmer Drought Severity Index, shows how drought conditions have been changing since 1895. The Palmer Drought Severity Index measures how dry or wet an area is by comparing rainfall and temperature to long-term averages. It gives a number (positive or negative) showing drought severity or excess moisture.

Los Angeles County was in some form of drought for 376 consecutive weeks from December 20, 2011, until March 14, 2019. The State and the County passed several resolutions and regulations at different times to mitigate drought impacts like water

conservation regulations. There were no federally declared drought disasters in the area in the past five years in the planning area.

6.5.5 Probability

Climate scientists predict that Los Angeles County and the rest of Southern California will get drier, while Northern California will get hotter. Rising temperatures contribute to higher evaporation rates and declining snowpack in the Sierra Nevada, a critical source of water for Southern California. The frequency of extreme droughts is expected to increase, reducing available water resources and heightening competition between urban, agricultural, and environmental needs. Long-term droughts have a 100% of occurring every ten-years, with potential for longer and more destructive drought events due to climate change.

6.5.6 Vulnerability

Los Angeles County's 10 million residents face growing vulnerabilities during prolonged droughts, with over 75% of community water systems exhibiting at least one drought-related risk, such as reliance on a single source or aging infrastructure. The County's dependence on imported water—serving over 60% of residents—increases exposure to supply disruptions from reduced Sierra Nevada snowpack and Colorado River allocations. All residents, and visitors of Los Angeles County are affected by water shortages during a prolonged drought conditions.

Vulnerabilities include:

- **Low-income households**, often lacking water-efficient appliances and cooling systems.
- **Agricultural industry** with over 140,000 acres of irrigated farmland in the County is at risk of reduced water allocation and drying pastures for livestock.
- **Wildland-urban interface (WUI) communities**, where over 1 million residents face heightened wildfire risk due to dry vegetation and limited firefighting water supply.
- **Critical infrastructure** operations may be impacted by a range of factors from reduced hydropower availability when reservoir levels decrease to power station cooling challenges.

These vulnerabilities illustrate the far-reaching, cross-sector impacts of drought on the County's economy, environment, and most at-risk communities.

6.5.7 Impacts

Over the past five years, Los Angeles County has experienced intensifying drought conditions marked by rising temperatures, reduced snowpack, and persistent water shortages. By 2022, 75% of the County's community water systems showed at least one drought vulnerability, including reliance on a single water source or aging infrastructure. Public health impacts have also emerged, with 1,113 cases of Valley fever reported in 2020, linked to dry soil and dust exposure. Hydropower reductions during drought periods increased reliance on natural gas, contributing to elevated energy costs for residents. These compounding impacts have strained water supply, health systems, and infrastructure, reinforcing drought as a major and growing hazard for Los Angeles County.

6.5.8 Mitigation and Preparedness

To combat increasing drought risks, Los Angeles County has implemented water conservation policies; infrastructure investments; and emergency response measures. Key strategies include:

Water Management and Conservation

- Expanding water recycling and desalination programs to reduce reliance on imported water.
- Implementing drought-tolerant landscaping initiatives to lower residential and commercial water use.
- Enforcing water efficiency regulations for new developments and upgrading older properties with water-saving strategies.

Infrastructure Improvements

- Enhancing groundwater recharge projects to increase local water storage.
- Upgrading stormwater capture systems to maximize water retention during rainy seasons.
- Developing new water storage facilities to provide additional supply resilience.

Community Preparedness and Public Awareness

- Launching county-wide conservation campaigns to encourage sustainable water use.
- Increasing financial incentives for water-efficient appliances and irrigation systems.
- Strengthening emergency drought response plans to ensure equitable water distribution during crises.

6.5.9 Summary

Drought remains a persistent and growing threat to Los Angeles County's water security and economic stability. Climate change projections indicate more frequent and severe droughts, placing greater strain on water supply systems, public health, and agriculture. By implementing proactive water management strategies, investing in infrastructure resilience, and promoting community awareness, the County can mitigate the long-term impacts of drought and ensure sustainable water resources for future generations.



6.6 Flooding

6.6.1 Nature

Flooding is a persistent and increasingly severe hazard in Los Angeles County, driven by heavy rainfall, storm surge, stormwater drainage, and rising sea levels. The county's complex hydrology, which includes rivers, creeks, and an extensive urban flood control system, is highly susceptible to overflow events when precipitation exceeds drainage capacity. The effects of climate change are exacerbating flood risks by intensifying storms, altering precipitation patterns, and increasing sea levels, leading to greater coastal inundation and inland flash floods.

Unlike other regions that experience seasonal flooding due to snowmelt, flooding in Los Angeles County primarily occurs during winter storms and atmospheric river events, which bring intense rainfall and lightning over short periods.

- The region's high degree of urbanization contributes to flash flooding, as paved surfaces prevent natural absorption of water, leading to rapid runoff and street flooding.

FLOODING KEY POINTS	
1. Nature	Flooding in Los Angeles County is driven by heavy rainfall, storm surge, stormwater drainage, and rising sea levels.
2. Location	Areas at risk of flooding include communities near rivers, foothills, valleys, coastlines, and recent burn scars.
3. Extent	Approximately 243.32 square miles of Los Angeles County are in a 500-year floodplain.
4. Vulnerability	Residents within floodplains or people experiencing homelessness living near rivers are especially vulnerable to floods.
5. Mitigation and Preparedness	Actions focus on floodplain land use regulations, stormwater management and drainage, and maintaining flood control measures.

- Burn scars from recent wildfires further compound flood risks by reducing vegetation cover, destabilizing hillsides, and increasing the likelihood of land movement.

Flooding also creates secondary hazards, including erosion, infrastructure damage, water contamination, and transportation disruptions. Stormwater runoff can overwhelm wastewater treatment facilities, leading to hazardous spills. Landslides and mudflows in post-wildfire areas pose additional risks to homes, roads, and critical infrastructure. These compounding threats highlight the urgent need for comprehensive flood mitigation efforts to protect communities, infrastructure, and the environment.

6.6.2 Location

Flood hazards are geographically widespread, with more than 240 square miles of land located within the 100- and 500-year floodplains. Historically significant events, such as the 1938 and 1969 floods, as well as more recent storms in 2023 and 2024, have caused substantial damage to infrastructure, triggered evacuations, and challenged long-term recovery efforts. Socially vulnerable populations, including older adults, individuals with access and functional needs, and low-income households, face disproportionate impacts due to limited financial resources, inadequate insurance coverage, and reduced access to services. The County's flood control system includes concrete river channels, levees, storm drains, debris basins and reservoirs; has helped mitigate some flood risks but remains vulnerable to high-intensity storms that exceed design capacities.

Major Flood-Prone Areas:

- Los Angeles River, San Gabriel River, and Santa Clara River: These major waterways are prone to overflow during extreme storm events, particularly during El Niño years.
- Ballona Creek and Malibu Creek: These urban watersheds experience rapid runoff and flash flooding, especially in developed areas.
- Foothills, Valleys, and Recent Burn Scar Areas: Post-wildfire regions face heightened risk of flash floods and debris flows following storms.
- Antelope Valley: In desert regions, stormwater pools into temporary lakes, causing flooded roadways and infrastructure damage.

- Coastal Communities: Rising sea levels and storm surges threaten beachfront properties, harbors, and businesses.

Urban areas are particularly vulnerable due to impervious surfaces and outdated drainage systems. During intense storms, neighborhoods in Downtown Los Angeles, South LA, and the San Fernando Valley frequently experience street flooding and traffic disruptions, demonstrating the limitations of existing infrastructure in handling modern storm events.

For a better visual representation of this Flooding Hazard within the LA County planning area, please reference Appendix A for flood and inundation maps.

6.6.3 Extent

Los Angeles County faces a significant and evolving flood risk, with impacts ranging from localized urban inundation to widespread riverine flooding and destructive debris flows. Although the County has invested heavily in flood control infrastructure; including an extensive network of dams and debris basins; these systems are increasingly strained and cannot fully eliminate the threat. A growing number of residents are exposed to dangerous flooding each year, a situation made worse by the limitations of aging infrastructure and the complexities of urban hydrology. Intense rainfall events, especially those associated with atmospheric rivers, are occurring more frequently and with greater severity, often overwhelming drainage systems and resulting in severe flooding of streets and neighborhoods. Compounding this risk are burn scars from recent wildfires, which heighten the likelihood of mudslides and debris flows that threaten both life and property. As climate patterns shift and extreme weather events become more common, the flood vulnerability of Los Angeles County continues to deepen across its diverse geography.

Flood severity is typically measured using the 100-year and 500-year flood recurrence intervals, which indicate a 1% and 0.2% annual probability of flooding, respectively. These designations guide floodplain management and mitigation efforts.

Key Flood Hazard Statistics in Los Angeles County:

- 243.32 square miles (5.11%) of land have a 0.2% annual flood probability.
- 4.19 square miles (0.09%) have a 1% annual flood probability.

Key Flood Hazard Statistics for Unincorporated Los Angeles County:

- 64.77 square miles (2.13%) have a 0.2% flood probability.
- 1.23 square miles (0.04%) have a 1% flood probability.

As climate change accelerates sea-level rise and extreme rainfall events, these flood-prone areas may expand, affecting more residents, infrastructure, and businesses.

FLOOD IMPACT ON LAND AREA			
Area	0.2% Annual Flood Probability	1% Annual Flood Probability	
Los Angeles County	243.32 sq. mi. (5.11%)	4.19 sq. mi. (0.09%)	
Unincorporated LA County	64.77 sq. mi. (2.13%)	1.23 sq. mi. (0.04%)	

6.6.4 History

Los Angeles County has experienced numerous severe flood events, many of which have caused catastrophic damage to infrastructure, property, and human life. Over the decades, climate variability, rapid urbanization, and an aging flood control system have led to repeated flooding disasters. There have been no federal declarations or state proclamations for earthquakes in the last five years.

Below are some of the most significant historical and recent flood events affecting the region.

Notable Flood and Lightning Events in Los Angeles County:

- **1938 Los Angeles Floods:** One of the deadliest floods in county history, caused by weeks of torrential rainfall, resulting in over 100 deaths, the destruction of thousands of homes, and widespread infrastructure damage, particularly to bridges and roadways.
- **1969 Winter Storms:** Heavy rains led to massive debris flows in the San Gabriel Mountains, severe urban flooding across Los Angeles, and multiple dam breaches, prompting major evacuations.
- **1992-1993 El Niño Floods:** A series of storms triggered landslides, flash flooding, and major coastal erosion, with significant damage to Pacific Coast Highway and residential areas.
- **2017 Winter Storms (DR-4305):** Record-breaking rainfall led to significant urban flooding, road closures, and mudslides, with severe impacts across multiple communities.

- **October 2021:** Los Angeles County experienced a rare and intense thunderstorm with a significant amount of lightning.
- **September 2022 Hurricane Kay:** A Pacific hurricane that caused significant rainfall along with risk of mudflows, coastal flooding, and coastal erosion.
- **January 2023 Atmospheric River Event (DR-4683):** Heavy rainfall overwhelmed storm drains, causing significant flooding in Hollywood, Baldwin Hills, and low-lying inland areas, leading to evacuations and infrastructure damage.
- **February 2023 Los Angeles Floods (DR-4699):** A series of intense storms caused widespread flash flooding, freeway closures, and landslides, demonstrating the increasing vulnerability of the county's urban areas to extreme precipitation events.
- **August 2023 Tropical Storm Hilary (DR-4750):** Several locations in the mountains of Southern California received over 10 inches of rainfall which set daily and/or monthly rainfall records, in many locations in Southern California, including within Los Angeles County. It also created significant threat of flash and riverine flooding prompted the evacuation of numerous vulnerable communities near burn scars in the region.
- **December 2023 Pacific Storm:** Storm surges and extreme coastal flooding led to significant erosion along the coastline, particularly impacting Marina del Rey, Long Beach, and Venice Beach.
- **February - March 2024 Atmospheric River Storm (DR-4769):** One of the most intense rainfall events in recent history, resulting in severe flash floods, mudslides, and power outages, with many homes and businesses sustaining flood damage.

6.6.5 Probability

Flood recurrence in Los Angeles County is influenced by both natural climate variability and the increasing effects of climate change. Historically, severe flooding is most likely during strong El Niño events, which occur approximately every 2 to 7 years and can persist for several months to multiple years. These events bring elevated precipitation levels and increase the likelihood of both inland and coastal flooding.

As climate change accelerates, the frequency and intensity of flood-generating events are expected to increase, altering traditional recurrence intervals and expanding the areas at risk. There is a 95% chance of a flooding event occurring each year within Los Angeles County.

Key climate-related drivers include:

- **Sea-Level Rise:** Projected to rise by 6 inches to over 2 feet by 2050, increasing the risk of tidal and storm surge flooding in coastal communities.
- **Atmospheric River Events:** According to the 2024 THIRA, these events are becoming more frequent and intense, leading to elevated flash flood and debris flow risks.
- **El Niño Cycles:** Still expected every 2 to 7 years, but with increased variability and storm intensity that can overwhelm local drainage and flood control systems.

These evolving conditions challenge existing floodplain maps and design assumptions, highlighting the need for adaptive planning, updated risk models, and continued investment in resilient infrastructure and flood mitigation strategies.

6.6.6 Vulnerability

Los Angeles County faces widespread and layered vulnerabilities to flooding, shaped by a combination of environmental exposure and complex social factors. Physical vulnerability is pronounced in areas located within FEMA-designated Special Flood Hazard Areas (SFHAs), post-wildfire burn scars, and low-lying urban drainage basins that are prone to flooding. However, the degree of risk is significantly heightened for certain populations who may lack the resources or capacity to prepare for, respond to, and recover from flood events. Socially vulnerable groups, including older adults, individuals with disabilities or access and functional needs (AFN), mobile home residents, people experiencing homelessness, and low-income households; are more likely to reside in structurally vulnerable housing.

According to the 2021 Los Angeles County Comprehensive Floodplain Management Plan, more than a quarter of residents living within the 100-year floodplain earn less than \$20,000 annually, underscoring the disproportionate economic burden faced by those least able to absorb the costs of recovery. Climate vulnerability data further demonstrates that marginalized communities in flood-exposed areas face elevated risks due to flooding events. The vulnerability landscape is further complicated by a shortage of affordable flood-resilient structures, and an increasing number of residents living in areas newly exposed due to climate-driven changes in precipitation and runoff patterns.

6.6.7 Impacts

Flooding in Los Angeles County leads to a broad range of direct and cascading impacts on people, infrastructure, environment, and the economy. The County's extensive network of critical facilities, including hospitals, fire stations, wastewater treatment plants, schools, and power substations. These areas face recurring exposure within both 100- and 500-year floodplains. Damage to these facilities not only compromises their physical integrity but also threatens their functionality during emergency response operations.

Flooding often disrupts lifeline services such as electricity, potable water, sanitation, and transportation, with rural and unincorporated areas facing the greatest challenges to rapid restoration. Mobile homes, frequently concentrated in low-lying or under-drained neighborhoods, are especially susceptible to flood damage due to construction limitations and inadequate protective measures. Previous flood events have resulted in significant debris flows, road closures, train stoppages, and damage to public and private structures.

Primary Vulnerabilities & Impacts:

- Over 1,470 structures are estimated to be damaged in a 100-year flood event, with total damages exceeding \$769.7 million in property losses in unincorporated Los Angeles County.
- Additionally, more than 180 critical facilities are exposed in the 500-year floodplain, while 70 are within the 100-year floodplain, including transportation assets, utilities, emergency services, and hazardous materials facilities.
- A 100-year flood event could displace over a thousand people with many requiring sheltering, support and recovery efforts.
- Approximately 19,563 tons of building-related debris could be generated by a 100-year flood event, with clean-up requiring more than 780 truckloads, posing logistical, environmental, and public health challenges.
- 28.6% of households in the 100-year floodplain are economically disadvantaged, earning under \$20,000 per year, limiting their ability to evacuate, recover, or pay for mitigation improvements.
- A large share of flood-prone properties are either uninsured or underinsured. The average flood insurance claim payout is \$7,298, which is only about 1% of the 2019

average replacement cost of structures in the floodplain—indicating significant gaps in financial resilience.

- Wildfire burn scars and post-fire hydrophobic soils significantly increase flood and debris flow risks, particularly in foothill and canyon communities. This hazard continues to grow in severity with climate-driven fire seasons.

Estimated Damage to Critical Facilities in Unincorporated Areas from 100-Year Flood				
Sector	Number of Facilities Affected	Average % of Total Value Damaged		Content
		Structure	Structure	
Safety & Security	1	7.56	10.24	
Food, Water & Sheltering	9	6.72	18.73	
Health & Medical	0	N/A	N/A	
Energy	1	23.90	47.79	
Communications	0	N/A	N/A	
Transportation	59	1.41	8.86	
Hazardous Materials	0	N/A	N/A	
Total/Average	70	9.90	21.40	

Estimated Damage to Critical Facilities in Unincorporated Areas from 500-Year Flood				
Sector	Number of Facilities Affected	Average % of Total Value Damaged		Content
		Structure	Structure	
Safety & Security	4	28.39	37.56	
Food, Water & Sheltering	41	7.73	27.01	
Health & Medical	0	N/A	N/A	
Energy	1	23.90	47.79	
Communications	2	5.00	16.00	
Transportation	107	3.38	19.74	
Hazardous Materials	30	10.00	15.00	
Total/Average	185	13.07	27.18	

Charts Source: LA County Public Works; 2021 County Comprehensive Flood Plan

6.6.8 Mitigation and Preparedness

Los Angeles County's flood mitigation strategy reduces hazard exposure, enhances community resilience, and supports long-term climate adaptation. Grounded in FEMA's National Mitigation Framework, CalOES planning guidance, and local policy, the County implements both structural and non-structural measures to address current and future flood risks. Core actions include regular maintenance and targeted upgrades to

stormwater infrastructure, restoration of floodplains, and integration of flood hazard data into land use planning. The County also prioritizes the protection of critical facilities and vulnerable housing through site retrofits, property acquisition, and elevation programs. Public outreach is conducted through a bilingual, ADA-accessible Program for Public Information, which promotes flood safety awareness, emergency preparedness, and participation in the National Flood Insurance Program (NFIP).

To ensure that mitigation is both data-driven and community-centered, the County utilizes climate projections and FEMA's HAZUS modeling to inform investments, while coordinating with regional partners to align local actions with broader watershed strategies. Key components of the approach include:

- Upgrading culverts, debris basins, and drainage systems to manage increased runoff
- Promoting low-impact development (LID) and incorporating green infrastructure in urban design
- Updating ordinances and the General Plan to discourage development in high-risk areas
- Maintaining inventories of repetitive loss areas and prioritizing resources for the most vulnerable populations

This comprehensive strategy ensures Los Angeles County not only meets federal and state standards but advances flood risk reduction in a way that safeguards people, property, and natural systems for the future.

6.6.9 Summary

Flooding is one of the most persistent and complex natural hazards in Los Angeles County, intensified by climate change, urbanization, and aging infrastructure. The Los Angeles County region experiences a range of flood types, including stormwater runoff, flash flooding, coastal inundation, and post-wildfire debris flows. These events are most common during winter storms and atmospheric river systems. High-density development, extensive paved surfaces, and fire-damaged hillsides contribute to rapid runoff and increased overall flood vulnerability. Areas along (but not limited to) the Los Angeles, San Gabriel, and Santa Clara Rivers, as well as coastal communities and foothill regions, are particularly at risk.

Los Angeles County's mitigation strategy is proactive and multifaceted. It includes infrastructure upgrades, nature-based solutions, land use policy updates, and public education. Core priorities focus on protecting critical facilities, reducing exposure in high-risk housing, and promoting community resilience. Planning efforts are supported by FEMA's HAZUS risk modeling and local climate projections. Despite progress, more than 750,000 residents remain at risk from major flood events, reinforcing the need for continued investment in comprehensive, flood risk reduction across the county.

6.6.10 National Flood Insurance Program (NFIP) Repetitive Loss (RL)

According to the Los Angeles County Public Works, there are 55 Repetitive Loss (RL) properties in 28 RL areas of Unincorporated Los Angeles County as of 2025, and 8 Severe Repetitive Loss Properties (SRLP). A Repetitive Loss (RL) property is any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) in any rolling 10-year period since 1978. Updated location information about RL properties in Unincorporated Los Angeles County were not available during the drafting of this plan, but is being finalized and will be included in subsequent hazard mitigation efforts. Data from 2011 showed that 24 RL properties were located in the SFHA. At the time, the Los Angeles County Public Works stated, "the majority of the repetitive losses are associated with localized urban drainage flood problems, even for properties within a FEMA-designated flood zone." The Los Angeles County Public Works oversees RL mitigation projects.



6.7 Dam Failure

6.7.1 Nature

Dam failure refers to the structural collapse of a dam that results in the sudden and uncontrolled release of stored water. Such failures can occur due to age-related deterioration, inadequate spillway capacity, structural damage from seismic activity or flooding, and poor maintenance. The catastrophic release of water from a dam failure has the potential to cause human casualties, significant economic loss, and environmental destruction. This type of disaster is particularly dangerous because it can occur suddenly, leaving little time for evacuation or emergency response efforts.

The magnitude of flooding from dam failure often exceeds the capacity of downstream channels, causing rapid inundation of surrounding areas. This flooding can lead to extensive property damage, erosion, infrastructure destruction, and contamination of water supplies. Additionally, secondary hazards such as landslides and debris flows can be triggered, compounding the disaster's impact. The structural stress on dams may rise as dams age, and climate variability increases the frequency of extreme precipitation events. Planning efforts include both dams and debris basins. To simplify language of the plan both reservoir dams and storm water debris basins will be referred to as dams.

DAM FAILURE KEY POINTS	
1. Nature Dam failures are a structural collapse of a dam that results in the sudden and uncontrolled release of water.	
2. Location There are over 90 dams in Los Angeles County of which 33 are owned and operated by the County.	
3. Extent 70 dams are classified as high or extremely high hazard dams of which 31 are owned by the County.	
4. Vulnerability High population density communities within potential dam inundation areas are vulnerable to major impacts.	
5. Mitigation and Preparedness Actions focus on structural reinforcements, emergency planning efforts, and implementation of early warning systems.	

6.7.2 Location

Los Angeles County has over 90 dams regulated by the California Department of Water Resources' Division of Safety of Dams (DSOD). Fifteen (15) of these dams and eighteen (18) debris basins are owned and operated by the Los Angeles County Public Works (PW). In 2017, the California Legislature mandated that all state-jurisdictional dams (excluding those classified as Low Hazard) develop dam breach inundation maps and Emergency Action Plans (EAPs) approved by DSOD and Cal OES.

Many of these dams are located near highly populated areas, increasing the potential for human and economic impacts during a failure event. Seventy (70) dams are classified as High or Extremely High hazard potential dams, meaning their failure could result in significant loss of life and widespread property damage.

The Whittier Narrows Dam, reclassified as the U.S. Army Corps of Engineers' (USACE) highest-priority dam safety concern, poses one of the greatest risks due to its potential to flood highly populated areas from Pico Rivera to Long Beach. USACE has determined that an extreme storm event has a 1 in 900 (0.1%) chance of causing catastrophic failure annually. Mitigation actions related to County-owned dams are prioritized based on their hazard level and potential to impact populated areas.

For a better visual representation of this Dam Failure Hazard within the LA County planning area, please reference Appendix A for all the County owned dams and debris basins maps.

6.7.3 Extent

The Federal Guidelines for Inundation Mapping of Flood Risks Associated with Dam Incidents and Failures (FEMA P-946, 2013) categorizes dam hazards into four classifications:

- **Low Hazard:** Minimal damage expected, no loss of life.
- **Significant Hazard:** Potential for property damage and economic disruption.
- **High Hazard:** Likely to result in loss of life and significant damage to critical infrastructure.
- **Extremely High Hazard (DSOD Classification):** Could cause large-scale fatalities and inundate areas with over 1,000 residents.

Given the population density of Los Angeles County, a dam failure classified as High or Extremely High Hazard would likely cause substantial human casualties, displace entire communities, and inflict severe economic and environmental damage. Table 6-3 and 6-4 below shows a list of dams and debris basins owned by PW along with their hazard classifications. Potential mitigation actions described in this AHMP are only applicable to the dams and debris basins owned by PW and implementation of these actions are the responsibility of the PW Stormwater Engineering Division - Dams Section.

Table 6-3: Los Angeles County PW Dam Hazard Status

Dam Name	Hazard Status	Location
Big Dalton	Extremely High	Glendora, CA
Big Santa Anita	Extremely High	Monrovia, CA
Big Tujunga No. 1	Extremely High	Tujunga, CA
Cogswell	Extremely High	Azusa, CA
Devils Gate	Extremely High	LA Canada Flintridge, CA
Live Oak	Extremely High	La Verne, CA
Morris	Extremely High	Azusa, CA
Pacoima	Extremely High	Pacoima, CA
Puddingstone	Extremely High	San Dimas, CA
Puddingstone Diversion	High	La Verne, CA
San Dimas	Extremely High	La Verne, CA
San Gabriel No. 1	Extremely High	Azusa, CA
Sawpit	Extremely High	Monrovia, CA
Sierra Madre	High	Sierra Madre, CA
Thompson Creek	Extremely High	Claremont, CA

Table 6-4: Los Angeles County PW Debris Basin Hazard Status

Debris Basin Name	Hazard Status	Location
Bailey Debris Basin	High	Sierra Madre, CA
Big Dalton Debris Basin	High	Glendora, CA
Blanchard Debris Basin	High	Tujunga, CA
Brand Debris Basin	High	Glendale, CA
Eaton Wash Debris Basin	Extremely High	Pasadena, CA
La Tuna Debris Basin	Extremely High	Sun Valley, CA
Laguna Regulating Basin	Significant	Alhambra, CA
Little Dalton Debris Basin	Extremely High	Glendora, CA
Lower Sunset Debris Basin	High	Burbank, CA
Morgan Debris Basin	High	Glendora, CA
Rubio Debris Basin	High	Altadena, CA
Santa Anita Debris Basin	Low	Arcadia, CA
Sawpit Debris Basin	Extremely High	Monrovia, CA

Debris Basin Name	Hazard Status	Location
Schoolhouse Debris Basin	High	Los Angeles, CA
Sierra Madre Villa	Extremely High	Sierra Madre, CA
Stevenson Ranch	High	Stevenson Ranch, CA
Stough Debris Basin	Extremely High	Burbank, CA
Wilson Debris Basin	High	Los Angeles, CA

6.7.4 History

Los Angeles County has experienced one of the deadliest dam failures in U.S. history:

- St. Francis Dam Failure (March 12-13, 1928):
 - o Released 12.4 billion gallons of water
 - o At least 411 fatalities
 - o Devastated towns from San Francisco Canyon to Ventura County
 - o Resulted in sweeping changes to California dam safety regulations and the creation of state oversight for civil engineers

While no major dam failures have occurred in recent decades, concerns over aging dam infrastructure, seismic risks, and increasing climate variability have raised alarms about future risks. Studies indicate that many California dams, including those in Los Angeles County, require structural updates to withstand modern hydrological conditions and potential seismic activity. There have been no federal declarations or state proclamations for dam failure in the last five years.

6.7.5 Dam Coordination

Los Angeles County Public Works coordinates with local, state, and federal agencies to mitigate flood risk hazards to downstream communities from its dams. At the local level, PW works with cities and public agencies during development of Emergency Action Plans (EAP). This provides local stakeholders with the opportunity to review the EAP, provide feedback, and confirm responsibilities and roles during an EAP activation. At request from local jurisdictions, PW may provide tours of its dam facilities, where information on dam safety and the potential hazards associated with dam failures are shared.

At the state level, PW works with the DSOD to meet compliance with state dam safety standards and flood management at all of PW's dams. This includes annual dam

inspections, review, approval, and oversight of dam construction projects, review of dam safety monitoring, and oversight of other dam safety regulatory activities. PW also coordinates with various state agencies, including DSOD, Cal OES, and Caltrans during development of EAPs.

At the federal level, PW works with the Federal Energy Regulatory Commission (FERC) to meet compliance with state dam federal standards and flood management at PW's San Gabriel Dam, which is under FERC jurisdiction. This includes annual dam inspections, review, approval, and oversight of dam construction projects, review of dam safety monitoring, EAP coordination, and oversight of other dam safety regulatory activities. PW also coordinates with the United States Army Corps of Engineers (USACE) on operations of interconnected dam facilities and emergency response planning for USACE facilities that may be in the pathway of dam failure impacts.

Information Sharing

PW provides critical information to relevant local, state, and federal stakeholders to address hazard mitigation related to dam safety. This includes:

- **Emergency Action Plans (EAPs):** EAPs outline the roles, responsibilities, and procedures to follow in the event of a dam emergency. The EAPs include inundation maps, which show areas that would be affected by a dam failure, helping to identify populations at risk. These plans are shared with stakeholders to ensure a coordinated response. Due to the sensitive nature of information contained within the EAPs, they are confidential and not released to the general public.
- **Inundation Maps:** Inundation maps are critical tools for identifying areas and populations at risk in the event of a dam failure. They also indicate potential impacts on critical infrastructure facilities such as hospitals, schools, and transportation networks. These maps are shared with relevant stakeholders recognized in the EAP and are available to the general public through the DSOD Dam Breach Inundation Map Web Publisher.

6.7.6 Probability

Los Angeles County contains over 90 state-jurisdictional dams, with approximately 70 classified as High or Extremely High Hazard by the California Division of Safety of Dams (DSOD), meaning their failure could result in loss of life and significant property damage.

Although comprehensive failure probabilities are not published for each dam, FEMA and DSOD guidance suggest that the general annual probability of failure for High Hazard dams nationwide ranges from 0.01% to 0.1% (or 1 in 10,000 to 1 in 1,000) depending on maintenance, age, seismic vulnerability, and other site-specific factors.

Applying this range to Los Angeles County:

- The aggregate annual probability of a significant dam failure event in the county—across one or more of the 70 high-risk dams—is estimated at between 0.1% and 0.5% annually, factoring cumulative exposure and different hazard classifications. (Such as earthquake or flood related)
- Climate change, aging infrastructure, and seismic activity in Los Angeles County increase systemic risk across multiple structures simultaneously.

In summary, while the individual likelihood of failure for any one dam is very low, the overall countywide probability of at least one major dam failure event is low but still warrants continued vigilance, maintenance, and emergency planning.

6.7.7 Vulnerability

A catastrophic dam failure in Los Angeles County could have severe consequences for hundreds of thousands of residents. The densely populated nature of the county, combined with the location of several large dams near residential and commercial areas, increases the potential for widespread displacement, loss of life, and economic damage. The 2024 THIRA identifies multiple high-risk zones where dam failure could result in extensive flooding and mass evacuations.

- High-risk dams, among others, pose a significant threat to densely populated communities. A breach in any of these dams could inundate entire neighborhoods, affecting more than 500,000 residents in low-lying areas and floodplains.
- Socially vulnerable populations, including elderly individuals, the AFN community, people experiencing homelessness, low-income communities, and non-English-speaking residents face heightened risks during evacuations and recovery due to limited mobility, financial constraints, and access to resources.
- Educational and healthcare institutions are at risk, with several schools, hospitals, and long-term care facilities located in flood-prone areas. A major dam failure could result in school closures, displacement of students, and disruption of healthcare services.

- Evacuation and emergency sheltering demands would be substantial, requiring the rapid mobilization of resources to support displaced residents. Temporary shelters, emergency medical services, and logistical support would need to be activated to accommodate evacuees.

Los Angeles County relies heavily on dams and reservoirs for water storage, flood control, and supply regulation. Catastrophic dam failure poses an acute threat to life and property, especially in low-lying, highly populated downstream areas.

Extent of Exposure

- **Total Area Exposed:** 490.64 sq mi
- **Supervisory Districts (SD) Impacted:**
 - o **SD5:** 223.88 sq mi (7.97%)
 - o **SD1:** 162.25 sq mi (45.98%)
 - o **SD2:** 66.57 sq mi (18.32%)
 - o **SD3:** 25.76 sq mi (5.97%)
 - o **SD4:** 12.17 sq mi (5.72%)
- **Critical Facilities Affected:**
 - o Fire Department: 112 (33.22%)
 - o Public Works: 92 (40.00%)
 - o Health Services: 29 (44.62%)
 - o Public Health: 17 (42.50%)
 - o Libraries: 30 (34.48%)
 - o Parks: 65 (35.50%)
 - o Education: 34 (41.46%)

Problem Statement

Dam failure, while rare, can have catastrophic consequences in densely populated downstream areas. With significant portions of critical infrastructure exposed—particularly in SD1 and SD5—planning for emergency evacuations, early warning systems, infrastructure hardening, and downstream development regulation is critical to saving lives and reducing loss.

A failure or breach of a High Hazard Potential Dam (HHPD) in Los Angeles County would result in catastrophic consequences for downstream communities, with the greatest vulnerabilities concentrated in densely populated urban areas. Rapid and massive flooding would likely inundate residential neighborhoods, commercial districts, and industrial zones within minutes to hours, depending on proximity and topography. Critical infrastructure—including hospitals, fire and police stations, schools, and major transportation corridors—would be severely impacted, disrupting emergency services and evacuation routes. Thousands of people, including vulnerable populations such as those with Access and Functional Needs (AFN), elderly residents, and low-income households, would face immediate life-threatening conditions, displacement, and limited access to medical care or shelter. Economic losses would be compounded by damage to utilities, including power substations and water systems, potentially leaving large swaths of the region without essential services. The sheer scale of devastation from a dam failure, especially at facilities such as Whittier Narrows or Castaic Dam, underscores the critical importance of continued risk reduction, early warning systems, and dam rehabilitation efforts.

6.7.8 Data Limitations

A limitation of this AHMP is that planning efforts only covered PW-owned dams in Los Angeles County. Future mitigation planning should include other dam owners and operators in Los Angeles County such as the US Army Corps of Engineers. The data on high-hazard dams reviewed during the 2025 AHMP planning process was generally suitable for the analysis required. Future opportunities for obtaining additional data to be considered in the next update to the plan should:

- Incorporate more current information as it becomes available.
- Assess any new or updated EAPs for dams owned by Los Angeles County.
- Identify and review more current structural or condition assessment data to inform future risk assessments.
- Involve other dam owners within Los Angeles County in future planning efforts.

6.7.9 Impacts

A dam failure in Los Angeles County would have catastrophic and immediate consequences for life, property, and critical infrastructure, particularly in the densely populated downstream areas. The sudden release of impounded water from a High or Extremely High Hazard dam could inundate neighborhoods within minutes, allowing little to no time for evacuation. More than 500,000 residents live within identified dam inundation zones, many of whom are in socially vulnerable populations—including

individuals with limited mobility, low-income households, and people experiencing homelessness—making rapid evacuation and sheltering especially challenging. County-owned high hazard potential dams and their locations are listed in Table 6-3. Inundation maps for County-owned high hazard potential dams are listed in Appendix A-7.

Critical infrastructure is also at significant risk. Hospitals, fire stations, law enforcement facilities, emergency operations centers, schools, and wastewater treatment plants located in downstream zones may be damaged or rendered inoperable, severely disrupting emergency response and life-sustaining services. Major transportation routes such as interstates, rail lines, and arterial roads could be submerged or washed out, impeding rescue and recovery efforts. Additionally, power substations, water distribution networks, and telecommunications infrastructure could suffer cascading failures, contributing to widespread outages and prolonged recovery periods.

The economic consequences of dam failure would be immense. Beyond property damage, business operations in inundated areas would halt, leading to loss of employment, tax revenue, and economic activity. Industrial zones (especially those near major flood control reservoirs or channels) could potentially release hazardous materials if overwhelmed, posing secondary environmental and public health hazards. Debris accumulation, sedimentation, and contamination could severely impact ecosystems, water quality, and flood control infrastructure downstream, complicating both emergency cleanup and long-term environmental recovery.

Given the scale of potential impacts, dam failure is considered a stable low-probability but high-consequence hazard in Los Angeles County, requiring continued investment in structural mitigation, emergency preparedness, and public awareness to reduce the severity of its effects.

6.7.10 High Hazard Potential Dams Goals

Goal 1: Enhance resilience across dam/debris basin infrastructure, including high-hazard potential dams, and other critical facilities within dam inundation zones.

Goal 2: Encourage structural reinforcement or retrofits for aging and vulnerable dams.

Goal 3: Ensure all dams/ debris basins have updated Emergency Action Plans (where applicable) and updated dam inundation mapping consistent with state standards.

6.7.11 Mitigation and Preparedness

Los Angeles County and state agencies have implemented various mitigation efforts to reduce the risks associated with dam failures:

- **Structural Reinforcements:** Upgrading spillways, strengthening earthen dams, and implementing seismic retrofitting measures.
- **Emergency Action Plans (EAPs):** Mandated by DSOD for all High and Extremely High hazard dams to guide evacuation and response efforts.
- **Early Warning Systems:** Improved flood monitoring and automated alert systems to notify at-risk communities in real-time.

6.7.12 High Hazard Potential Dam Prioritization

The risk assessment within the 2025 AHMP considers the county planning areas vulnerability and potential impacts related to HHPDs. Mitigation actions and planning efforts that are related to mitigating long-term vulnerabilities to County-owned HHPDs will automatically be given a HIGH priority as described in the overall mitigation action prioritization criteria in Section 7.6. The County Departments responsible for implementing the associated mitigation actions, along with the priority, potential funding source, and expected time frame are listed in Section 7.8.

6.7.13 Summary

Los Angeles County has 90 state-jurisdictional dams, with 70 classified as High or Extremely High hazard, meaning their failure could result in widespread loss of life and economic devastation. While regulatory oversight has improved dam safety, aging infrastructure, seismic threats, and increased storm intensity remain challenges. Continued investment in retrofits, early warning systems, and emergency planning is essential to mitigating the risk of catastrophic dam failures.



LAND MOVEMENT

6.8 Land Movement

6.8.1 Nature

Land movement refers to the downward movement of rock, soil, or debris along a slope due to gravity. This process can occur suddenly or gradually over time, depending on contributing factors such as soil composition, slope stability, and external triggers. Land movement encompass a variety of movement types including mudflows, rockfalls, debris flows, land slumps, land subsidence, and soil movement. In Los Angeles County, the diverse topography and geological formations make certain areas more prone to land movement, particularly during periods of intense precipitation, seismic activity, or human land-use modifications.

Climate change exacerbates land movement by increasing the frequency and intensity of extreme weather events, such as heavy rainfall and flooding, which can lead to accelerated erosion and heightened landslide risks.

LAND MOVEMENT KEY POINTS

1. Nature

Land movement is the downward movement of rock, soil, or debris due to gravity.

2. Location

Hillside, canyon, and coastal bluff communities along with areas near recent burn scars are at particular risk.

3. Extent

Approximately 750 square miles (15.75%) of Los Angeles County are within high-risk landslide zones.

4. Vulnerability

Approximately 1.2 million residents in Los Angeles County could be affected by land movement.

5. Mitigation and Preparedness

Actions focus on regulating land use and strengthening infrastructure resilience.

Land movement often occur in conjunction with other natural hazards, exacerbating their impact. Some of the primary contributing factors include:

- **Seismic Activity:** Earthquakes can destabilize slopes, leading to land movement and rockfalls. The force of seismic shaking can cause sudden failures, particularly in areas with pre-existing instability.
- **Heavy Rainfall and Flooding:** The likelihood of land movement increases after successive storms. Prolonged or intense rainfall saturates soil, reducing its cohesion and triggering slope failures.
- **Coastal Erosion:** Waves and storm surge erode coastal cliffs, leading to instability and eventual collapse, particularly in areas such as County beaches and coastal communities, many of which have previously experienced significant erosion.
- **Wildfires:** Loss of vegetation due to fires reduces the soil's ability to retain moisture, making slopes more susceptible to erosion and land movement during subsequent rain events.
- **Burn Scars:** Wildfire burn scars significantly elevate the risk of land movement by stripping the land of stabilizing vegetation. Areas affected by major fires such as the Woolsey Fire (2018), Bobcat Fire (2020), Bridge Fire (2024), Eaton Fire (2025), and Palisades Fire (2025) have shown increased susceptibility to land movement due to reduced soil stability and rapid runoff during rainstorms.

6.8.2 Location

Los Angeles County is home to multiple regions susceptible to land movement due to steep slopes, unstable geology, and weather patterns. The California Geological Survey (CGS) Landslide Susceptibility Map highlights high-risk areas. For a better visual representation of the Land Movement Hazard within the LA County planning area, please reference Appendix A for maps that show areas that are susceptible to land movement and recent burn scars.

Potential land movement areas include (but are not limited to):

- Santa Monica Mountains
- San Gabriel Mountains
- Sierra Pelona Mountains
- Baldwin Hills
- Puente Hills
- Palos Verdes Hills

These areas are particularly vulnerable due to their steep terrains, weak rock formations, and history of slope movement. Additionally, human activities such as grading, excavation, and construction in these regions can further destabilize the ground, increasing the likelihood of land movement. Areas impacted by past wildfires, known as burn scars, are also highly susceptible to land movement, as the loss of vegetation reduces soil stability and increases erosion risks during heavy rains. This is particularly concerning in wildfire-prone areas such as the Santa Monica Mountains and the foothills of the San Gabriel Mountains, where post-fire land movement have historically caused significant damage.

6.8.3 Extent

The extent of land movement in Los Angeles is significant and varied, influenced by its unique geological setting. According to the 2011 CGS Landslide Susceptibility Map, approximately 750 square miles (15.75%) of Los Angeles County fall within high-risk landslide zones. The highest concentrations of deep-seated landslide susceptibility are distributed as follows:

Table 6-5 Landslide Susceptibility Map

Area	High-Risk Landslide Zones (sq. miles)	Percentage of Total Land Area
Los Angeles County	750.02	15.75%
Unincorporated Areas	577.63	18.99%
Supervisory District 1	17.29	7.02%
Supervisory District 2	2.73	1.68%
Supervisory District 3	114.61	26.58%
Supervisory District 4	105.12	23.89%
Supervisory District 5	509.31	18.14%

6.8.4 History

Land movement have historically caused significant damage in Los Angeles County, often resulting in property destruction, infrastructure damage, and road closures. There have been no federal declarations or state proclamations for dam failure in the last five years. Some of the most notable events include:

- **1956 - Portuguese Bend Landslide:** A massive landslide on the Palos Verdes Peninsula began in 1956 and remains active today. The movement of land has displaced homes and infrastructure, highlighting the region's ongoing geologic instability.
- **1994 - Northridge Earthquake-Induced Land movement:** The earthquake triggered more than 11,000 moving events, primarily in the Santa Susana Mountains and San Gabriel Mountains, causing extensive road and structural damage.
- **March 1995 - Pacific Palisades Landslide:** Heavy rains weakened the coastal bluffs, leading to a 300-foot-wide collapse that buried part of the Pacific Coast Highway under 30 feet of debris.
- **March 2005 - Sunset Mesa Landslide:** A slope failure near Malibu caused over 20,000 cubic yards of debris to block roadways and damage property.
- **July 2023 - Peartree Lane Land Movement (Rolling Hills Estates):** A sudden slope failure resulted in the displacement of 12 homes, which were red-tagged due to structural instability.
- **September 2024 - Accelerated Land Movement in Rancho Palos Verdes:** A significant increase in land movement, with certain areas shifting up to four inches per week toward the ocean, threatening roads and over 250 residential properties.

6.8.5 Types of Land Movement

Debris Flow/ Mudflow/ Soil Movement

Debris flow involves the rapid movement of a dense mixture of water, soil, rock, and organic material down a slope. This process can have significant impacts on landscapes, ecosystems, and human infrastructure.

Debris flows are characterized by their fluid-like behavior and ability to transport large objects, such as boulders and trees. They can travel at high speeds making them highly destructive. The composition of a debris flow can vary, but it typically includes:

- **Water:** A crucial component that facilitates movement.
- **Soil and Rock:** These provide the bulk of the material in a debris flow.
- **Organic Material:** Includes vegetation and other natural debris that get caught in the flow.

Mudflows are rapid movements of water-saturated earth materials that can cause significant damage to both natural environments and human settlements. Mudflows are characterized by their fluid-like motion, which occurs when soil, rocks, and debris become saturated with water. This saturation reduces the friction between particles, allowing the mass to move downhill under the influence of gravity. Key characteristics include:

- **Speed and Volume:** Mud flows can travel at speeds up to 35 miles per hour and can carry large volumes of material, including rocks, trees, and even vehicles.
- **Consistency:** The consistency of a mud flow can vary from a thick, viscous slurry to a watery flow. This depends on the proportion of water to solid materials.
- **Path:** Mud flows typically follow existing drainage patterns, such as river channels and valleys, but can also carve new paths, leading to unpredictable and widespread damage.

Soil movement is a natural process that significantly impacts the environment and human activities. It involves the displacement of soil particles due to various natural and human caused factors. Key characteristics include:

- **Landslides:** Often occurring in hilly areas, landslides involve the downward movement of rock and soil. They can be sudden and fast-moving, making them particularly dangerous.
- **Soil Creep:** This is a slow and gradual movement of soil down a slope, often unnoticed until significant damage occurs.
- **Soil Liquefaction:** During an earthquake, saturated soil can temporarily lose its strength and behave like a liquid, causing structures to sink or tilt.

Causes

In Los Angeles County, several factors contribute to the occurrence of debris flows/mudflows/ soil movement:

- **Heavy Rainfall and Storm Events:** Intense and prolonged rainfall, often associated with storms, can saturate the soil, reducing its stability and triggering debris flows.

The region's Mediterranean climate, with wet winters and dry summers, creates conditions conducive to such events.

- **Wildfires:** Los Angeles County frequently experiences wildfires, which can burn and destabilize vegetation that normally helps hold soil in place. The loss of vegetation increases the risk of soil erosion and, consequently, debris flows during subsequent rainfalls.
- **Steep Terrain:** The county's mountainous terrain, including areas like County mountainous areas, is particularly prone to debris flow. The steep slopes facilitate the rapid movement of debris downhill.
- **Soil Composition:** Certain soil types, such as clay-rich soils, can become highly unstable when saturated with water, making them more susceptible to debris flow.
- **Human Activity:** Urban development, road construction, and deforestation can alter natural landscapes and exacerbate conditions that lead to debris flow.
- **Seismic Activity:** Los Angeles County is situated in a highly active seismic zone, making it prone to earthquakes. Seismic activity can lead to soil liquefaction, landslides, and ground shaking, all contributing to soil displacement.

Land Subsidence

Land subsidence is a gradual settling or sudden sinking of the Earth's surface due to various natural and human-induced factors. This hazard can have significant impacts on the environment, infrastructure, and communities.

A reduction in land elevation is one of the most noticeable features of land subsidence, leading to significant changes in the landscape. This phenomenon can occur due to natural processes, such as the dissolution of limestone, as well as human activities like the excessive extraction of groundwater, oil, or natural gas. Furthermore, land subsidence increases the risk of flooding because the lower elevation can lead to poor drainage and water accumulation. As the ground sinks, it often results in the formation of depressions, fissures, and sinkholes, which can dramatically alter the geography and infrastructure of the area.

- **Depressions:** Are sunken or low-lying areas on the Earth's surface, often formed by natural or man-made processes.
- **Fissures:** Are a long, narrow crack or linear opening in the Earth's crust.
- **Sinkholes:** Are holes in the ground caused by the collapse or sinking of surface material into an underlying void.

Causes

- **Groundwater Extraction:** One of the primary causes of land subsidence in Los Angeles County is the excessive extraction of groundwater. As water is pumped out of underground aquifers, the ground above can sink or settle, leading to subsidence.
- **Oil and Gas Extraction:** The removal of oil and natural gas from beneath the earth's surface also contributes to land subsidence. This extraction can create voids and reduce pressure in subterranean layers, causing the ground to sink.
- **Natural Soil Compaction:** Over time, natural processes such as soil compaction can lead to gradual subsidence. In areas with loose or unconsolidated soils, the weight of overlying materials compacts the ground, resulting in a lowering of the land surface.

Rock Falls

Rock falls are a natural geological phenomenon where rock fragments break free from a steep slope or cliff and tumble downward. These events can range from small pebbles dislodging to massive boulders crashing down with significant force and impact.

Rock falls are characterized by:

- **Speed and Suddenness:** Rock falls occur quickly and without much warning, making them particularly dangerous.
- **Varied Sizes:** The size of the falling material can range from small pebbles to large boulders, impacting the severity of the event.
- **Path Predictability:** While the initial trigger point is often identifiable, the path of descent can be unpredictable due to varying terrain and obstacles.

Causes

The primary causes of rock falls include:

- **Weathering and Erosion:** Over time, weathering processes such as freeze-thaw cycles, chemical weathering, and the action of water can weaken rock structures. Erosion can undermine the base of slopes, making rocks more susceptible to falling.
- **Seismic Activity:** Los Angeles County is located in a seismically active region. Earthquakes can dislodge rocks from cliffs and steep slopes, triggering rock falls.

- **Heavy Rainfall:** Intense or prolonged rainfall can saturate the ground, increasing the weight and pressure on rock faces. This saturation can lead to the loosening and collapse of rocks.
- **Human Activity:** Construction, mining, and other human activities can destabilize rock formations. The vibrations from heavy machinery and blasting can initiate rock falls.

6.8.6 Probability

Landslides and other land movement events happen in Los Angeles County fairly often, especially after heavy rain or in areas that recently had wildfires or are prone to sliding.

- Small landslides (like debris flows) are most likely during years with heavy rain, especially El Niño years. These happen every 2 to 7 years; there is 14% to 50% chance each year during those cycles.
- In high-risk zones (like steep mountain slopes with a history of movement), probability is 1-2% chance per year, especially following multi-year wet periods or major wildfires.
- Some areas of the County have been experiencing continuous sliding.

6.8.7 Vulnerability

Land movement pose risks to life, property, and essential infrastructure. The 2024 THIRA projects that approximately 1.2 million residents in Los Angeles County could be directly or indirectly affected by land movement. The most at-risk populations include:

- Residents of hillside and canyon communities such as Malibu, Topanga, and the Palos Verdes Peninsula.
- Homeowners in coastal bluff areas that are facing erosion-driven slope failures.
- Communities in wildfire burn scar areas, where the loss of vegetation increases landslide probability during heavy rains.
- The Access and Functional Needs (AFN) community who may face challenges in evacuating or leaving landslide-prone areas.

Contextual Overview

Los Angeles County's diverse topography includes many hillside communities susceptible to deep-seated landslides, especially after wildfire or heavy rain. These hazards can isolate communities, damage property, and disrupt lifelines.

Extent of Exposure

- **Total Area Exposed:** 284.57 sq mi
- **Supervisory Districts (SD) Impacted:**
 - o **SD5:** 151.96 sq mi (5.41%)
 - o **SD3:** 90.23 sq mi (20.93%)
 - o **SD4:** 25.94 sq mi (12.20%)
 - o **SD1:** 13.77 sq mi (3.90%)
 - o **SD2:** 2.68 sq mi (0.74%)
- **Critical Facilities Affected:**
 - o Fire Department: 41 (12.17%)
 - o Public Works: 32 (13.91%)
 - o Health Services: 12 (18.46%)
 - o Public Health: 4 (10.00%)
 - o Libraries: 9 (10.34%)
 - o Parks: 27 (14.92%)
 - o Education: 8 (9.76%)

Problem Statement

Landslides pose a serious risk to hillside communities and access routes, especially in areas recovering from wildfire. Current development and road infrastructure may not be resilient against slope failure. Mitigation actions should include slope stabilization, targeted buyouts or relocations, and early warning systems.

6.8.8 Impacts

Los Angeles County's diverse landscape and dense population make it highly susceptible to the effects of land movement, affecting critical infrastructure and raising significant economic, social, and safety concerns.

Transportation Networks

Los Angeles County's extensive transportation network is vital for daily commutes, goods transport, and emergency services. Land movement can severely impact these systems:

- **Road Damage:** Causes closures, hazardous driving conditions and costly repairs, as seen annually on Pacific Coast Highway (PCH), and many other local roads.
- **Bridge Compromise:** Affects structural integrity, necessitating closures and expensive reconstructions.
- **Public Transit Disruptions:** Impacts train tracks and bus routes, leading to delays and service interruptions.
- **Rail Systems:** Track misalignment can cause delays and potential derailments, affecting both passenger and freight lines.

Water Supply Systems

The county's water delivery system is complex and vulnerable to land movement:

- **Compromised Pipelines:** Leads to ruptures or leaks, disrupting supply and requiring major repairs.
- **Reservoir Impact:** Landslides can affect water quality and storage capacity.

Energy Infrastructure

Land movement poses risks to Los Angeles County's energy infrastructure, including:

- **Electrical Grid Vulnerabilities:** Land movement can damage power lines and substations, causing outages.
- **Gas Pipeline Risks:** Soil shifts can result in gas leaks or explosions, endangering safety.

Communication Systems

Reliable communication is critical, and land movement can disrupt:

- **Telecommunication Towers:** Structural damage can impair cellular and internet services.
- **Underground Cables:** Earth shifts can damage cables, affecting connectivity.

Emergency Services Facilities

- **Hospitals and Fire Stations:** Essential for emergency response, but structural damage could impede operations, underscoring the need for resilient construction and strategic planning.

Economic Impacts

- **Infrastructure Damage:** Leads to costly repairs and maintenance of roads, bridges, and buildings.
- **Property Loss:** Homeowners face financial losses due to property damage or devaluation.

Environmental Impacts

- **Ecosystem Disruption:** Soil movement can lead to habitat loss and affect local flora and fauna.
- **Increased Pollution:** Erosion can result in sediment runoff, degrading water quality in rivers and oceans.

For a better visual representation of the Land Movement Hazard within the LA County planning area, please reference Appendix A for maps that show areas that are susceptible to land movement and recent burn scars.

6.8.9 Mitigation Strategies

To reduce the impact of land movement, Los Angeles County has implemented several mitigation and preparedness strategies, including:

- **Land Use and Development Regulations:** Restricting development in high-risk landslide zones to prevent new structures from being built on unstable terrain.
- **Infrastructure Resilience:** Reinforcing existing infrastructure through slope stabilization projects, retaining walls, and improved drainage systems.

- **Stabilization Regulations:** Implementing stricter grading and excavation regulations to minimize the destabilization of slopes.
- **Public Awareness Campaigns:** Enhancing landslide early notifications by monitoring potential movement areas and precipitation thresholds.
- **Evacuation Planning:** Developing evacuation plans for at-risk communities, ensuring residents receive timely alerts and clear guidance.
- **Public Education:** Conducting public education campaigns to inform residents about recognizing landslide warning signs and preparedness measures.
- **Operational Area Coordination:** Increasing coordination across state, federal, and Office of Emergency Management officials with local jurisdictions to improve forecasting and response efforts.

6.8.10 Summary

Land movement remains a significant hazard in Los Angeles County, particularly in steep and coastal regions. The Palos Verdes Peninsula, Santa Monica Mountains, and San Gabriel Mountains are among the most vulnerable areas, with climate change and human activities exacerbating risks. By implementing land-use regulations, infrastructure reinforcements, and emergency response improvements, the County can enhance resilience and reduce losses in the future. Local governments and communities must actively monitor and manage contributing factors to effectively mitigate the impacts of land subsidence.



6.9 Tsunami

6.9.1 Nature

This section characterizes tsunamis as high-energy, long-wavelength ocean waves generated primarily by significant offshore seismic events (such as subduction zone earthquakes), submarine landslides, or volcanic eruptions. In the context of Los Angeles County, tsunamis represent a relatively infrequent but potentially high-impact hazard that could produce rapid coastal inundation and surge impacts.

Characteristics:

- Triggered mainly by distant, large-magnitude seismic events.
- Features long wavelengths and prolonged arrival times.
- Capable of producing rapid, deep inundation along low-lying coastal areas.
- In summary, tsunamis are dynamic natural phenomena with the potential to cause sudden coastal flooding and damage if a triggering event occurs.

6.9.2 Location

The updated tsunami hazard profile focuses on the coastal areas of Los Angeles County. The new zone map—developed using enhanced modeling techniques and updated coastal geomorphology data—highlights areas along the Pacific shoreline that are at risk. These include regions adjacent to the Los Angeles Basin, parts of Long Beach, Santa Monica Bay, and other low-elevation coastal zones.

For a better visual representation of Tsunami Inundation zones within the LA County planning area, please reference Appendix A for a “Tsunami Inundation Area” map.

Important Details:

- Coastal segments from the western margins of the Los Angeles Basin extending to the border with Orange County.

Overall, the coastal areas of Los Angeles County, containing our communities and infrastructure, face heightened exposure.

6.9.3 Extent

Using the latest hydrodynamic and inundation modeling, the updated tsunami inundation (zone) map provides a refined view of the extent of potential flooding. The map illustrates how tsunami waves could propagate inland, showing revised boundaries that account for current sea-level conditions and future sea-level rise projections.

Highlights:

- Inundation depths and reach have been recalculated, with some areas potentially experiencing water levels up to several feet in depth.
- The inland reach of flooding varies by local topography, with flat, low-lying areas showing the greatest potential for impacts. Impacted areas include, but are not limited to, Long Beach, The ports of Long Beach and Los Angeles, Marina del Rey, Venice and Santa Monica.
- Critical infrastructure within the updated zones has been identified to prioritize mitigation and evacuation routes for planning.

In essence, the extent of tsunami impacts is now mapped more precisely, offering local decision-makers a clearer view of potential flooding depths and distances inland.

TSUNAMI KEY POINTS	
1. Impact	Tsunamis are rare but high-impact events that can cause rapid and deep coastal flooding in Los Angeles County.
2. History	Though infrequent, past tsunami events and the region's tectonic setting highlight the need for preparedness.
3. Extent	New modeling shows tsunami waves could reach several feet in depth and extend inland depending on local topography.
4. Updated Mapping	Updated hazard maps identify vulnerable coastal communities and critical infrastructure at risk of inundation.
5. Vulnerability	High population density, aging infrastructure, and social vulnerabilities increase the potential for severe impacts and economic disruption.

6.9.4 History

Historically, significant tsunami events in the Los Angeles region are rare, though distant seismic events (for example: the 1960 Chilean tsunami, or the most recent 2022 Tonga tsunami) have been known to produce measurable impacts. Historical records combined with geological studies indicate that while tsunamis have occurred in the past, their frequency is low compared to other hazards. However, the region's proximity to major tectonic boundaries necessitates ongoing vigilance.

Historical Context:

- Past events have been sporadic but can serve as valuable lessons for preparedness.
- Historical inundation records and sediment studies confirm that tsunamis have reached the Los Angeles coast in prehistory.
- Lessons learned from past minor events underscore the importance of maintaining updated hazard maps.

Thus, while historical tsunami events are infrequent, they provide a critical context for understanding future risks and guiding preparedness measures. There have been no federal declarations or state proclamations for tsunami in the last five years.

6.9.5 Probability

The probability of a tsunami affecting Los Angeles County is generally low when compared to more frequent hazards like earthquakes or floods. Nevertheless, the potential for a distance source tsunami generated by a distant, large seismic event remains a realistic risk. Updated probabilistic assessments—incorporating recent seismic data and tsunami modeling indicate that while the overall likelihood is low, the consequences in the event of a tsunami can be severe.

Probability Considerations:

- Low annual probability but high consequence if an event occurs; Los Angeles County has about a 2% annual chance.
- Distance source events from subduction zones across the ocean contribute most to the risk.
- Continuous monitoring and updated modeling are essential to reassess the risk over time.
- In summary, the probability of a tsunami remains low, but due to the potential for high-impact outcomes, it warrants continuous study and preparedness.

6.9.6 Vulnerability

Coastal vulnerability in Los Angeles County is significantly influenced by factors such as urban density, low-elevation terrain, aging infrastructure, and socio-economic conditions. The updated tsunami zone map now better delineates areas where these vulnerabilities are most pronounced, highlighting communities that may have limited evacuation routes and fewer resources to recover from rapid inundation. About 75,000 people live in parts of Los Angeles County that could be flooded by a tsunami. Many people also work in these coastal areas, and around 660 unhoused individuals live there, making them especially at risk because they may not have easy access to shelter or transportation.

Tourism adds even more people to these areas, especially during busy weekends or holidays. Places like Santa Monica can see up to 300,000 visitors a day during peak times. This makes evacuating harder if a tsunami warning is issued. Roads near the coast can quickly become crowded, and visitors may not know the best way to leave. Traffic could slow down emergency plans, so it's important to have clear signs, early warnings, and good traffic control to help people get to safety quickly.

Factors:

- High population density in low-lying coastal areas.
- Critical infrastructure (e.g., hospitals, utilities, ports and shipping, transportation networks) located within the inundation zones.
- Socio-economic and language barriers that may hinder effective emergency response.
- Limited natural barriers in some coastal segments.
- Vulnerable communities include those with high population densities and critical infrastructure near the coast.

Ultimately, the vulnerability of the region is compounded by both physical exposures and social factors, underscoring the need for targeted mitigation efforts.

Contextual Overview

Coastal communities in Los Angeles County, including ports and tourist zones, are at risk from tsunamis. These rare but highly destructive events can inundate coastal infrastructure with little warning.

Extent of Exposure

- **Total Area Exposed:** 32.89 sq mi
- **Supervisory Districts (SD) Impacted:**
 - **SD4:** 15.83 sq mi (7.43%)
 - **SD3:** 12.59 sq mi (2.92%)
 - **SD2:** 2.03 sq mi (0.56%)
- **Critical Facilities Affected:**
 - Fire Department: 16 (4.75%)
 - Public Works: 9 (3.91%)
 - Health Services: 3 (4.62%)
 - Public Health: 1 (2.50%)
 - Libraries: 5 (5.75%)
 - Parks: 13 (7.26%)
 - Education: 3 (3.66%)

Problem Statement

Tsunamis can cause rapid and catastrophic coastal flooding. With critical coastal infrastructure and residential areas exposed, especially in SD4 and SD3, there is a need for robust evacuation planning, vertical evacuation shelters, and community outreach to enhance preparedness and reduce vulnerability.

6.9.7 Impacts

Should a tsunami occur, the potential impacts on Los Angeles County could be extensive. Parts of Los Angeles County that could be impacted by a Tsunami are Marina Del Rey, Port of Los Angeles, Port of Long Beach, and other beach communities in low lying areas. The updated impact assessments reflect possible scenarios ranging from significant property damage to loss of life and long-term economic disruption. The new zone map aids in quantifying these impacts by providing detailed inundation depths and spatial extents, thereby allowing for better risk communication and planning.

Potential Impacts:

- Severe flooding of coastal infrastructure and residential areas.
- Disruption of transportation, utility services, and emergency response operations.
- Economic losses in key sectors such as tourism, shipping, and local commerce.
- Social impacts including displacement, loss of livelihoods, and challenges in emergency sheltering.

In short, the potential impacts of a tsunami are far-reaching, necessitating robust mitigation, evacuation, and recovery planning to minimize harm.

For a better visual representation of Tsunami Inundation zones within the LA County planning area, please reference Appendix A for a "Tsunami Inundation Area" map.

6.9.8 Summary

The updated tsunami section for the 2025 AHMP incorporates the latest scientific findings and mapping techniques to provide a more precise understanding of tsunami risks in Los Angeles County. By integrating an updated inundation zone map, the revision clarifies the spatial extent of potential flooding and highlights the vulnerabilities in coastal communities. This comprehensive update is designed to guide decision-makers in enhancing preparedness, targeting mitigation strategies, and strengthening community resilience.

Key Takeaways:

- **Nature:** Tsunamis are infrequent but high-energy events capable of rapid coastal inundation.
- **Location & Extent:** The updated zone map identifies vulnerable coastal areas with revised inland flood extents.
- **History & Probability:** Historical events are rare; however, distance events remain a realistic risk.
- **Vulnerability & Impacts:** High population density and critical infrastructure in coastal zones amplify risk, with potential for severe economic and social disruption.

This updated section is intended to serve as a critical tool for policymakers, emergency managers, and community stakeholders as they work together to reduce the long-term risks associated with tsunamis and enhance overall regional resilience.



6.10 Severe Wind and Tornado

6.10.1 Nature

Severe wind and tornadoes pose significant threats to life, property, and infrastructure, though they differ in frequency and intensity within Los Angeles County. Severe wind events, particularly Santa Ana winds, are a recurring natural hazard that can cause widespread damage, including downed power lines, tree falls, and structural damage. These winds originate from high-pressure systems over the Great Basin, funneling dry and warm air through mountain passes into the coastal and valley regions at high speeds. Additionally, storm-driven winds, microbursts, straight-line winds and gust fronts associated with severe weather can create hazardous conditions, often leading to transportation disruptions, fire hazards, and prolonged power outages.

WIND & TORNADO KEY POINTS

- 1. Nature**
Severe wind events such as Santa Ana winds and occasional tornadoes can cause widespread disruption, infrastructure damage, and increased wildfire risk.
- 2. Location**
High-wind zones are common in canyon passes, valleys, and coastal regions, while tornadoes may occur sporadically throughout the county during severe storm activity.
- 3. Extent**
Santa Ana and storm-driven winds can exceed 80 mph; tornadoes in the area typically range from EF-0 to EF-1, with limited but impactful damage.
- 4. Vulnerability**
Critical infrastructure, older or poorly constructed buildings, wildfire burn scars, and residents with limited mobility are most at risk from high wind and tornado events.
- 5. Mitigation and Preparedness**
Strengthening building codes, retrofitting infrastructure, vegetation management, tornado-resistant construction, early warning systems, and public education.

Tornadoes, while relatively rare in the region, have been recorded and can cause localized but intense damage. These violent windstorms form when unstable atmospheric conditions produce rotating updrafts, resulting in a funnel cloud that contacts the ground.

6.10.2 Location

Severe wind events affect the entire Los Angeles County planning area, with the strongest occurrences in canyon passes, valleys, and coastal regions. The Santa Ana winds are most intense in the fall and winter months, particularly impacting areas in the Valley, and foothill communities of the County. Storm-driven winds, on the other hand, can impact any part of the county and vary in intensity based on weather patterns. These winds can reach speeds of 60 to 80 mph, sometimes exceeding those thresholds, leading to significant damage.

Tornadoes are more sporadic in occurrence and can develop in various parts of the county, particularly in lowland areas where severe thunderstorms have the potential to form rotating systems.

6.10.3 Extent

Winds and breezes are common occurrences in LA County. As wind speeds increase so does the potential for a catastrophic event. Hot dry winds can reach high speeds as they descend from the inland desert regions, creating not only critical wind events but also extremely dangerous fire conditions and contributing to the spread of wildfires. The winds are classified in the Beaufort Wind Scale, see Figure 6.10.1 below. Beaufort wind scale is an empirical scale that relates wind speed to observed conditions at sea or land. It uses numerical scale from 1-12 to describe wind force based on visual observations of the effects of the wind and gives quantitative measures of the wind. For example, 0 is described as 'calm' a sea like a mirror while 12 described as hurricane force with devastating conditions.

Tornadoes are classified using the Enhanced Fujita (EF) Scale Figure 6.10.2. The Enhanced Fujita (EF) Scale is specifically used to rate the intensity of tornadoes based on the damage they cause (damage indicators) such as building types, and trees. It ranges from EF-0 to EF-5, with increasing numbers indicate stronger tornadoes and more severe damage. While tornadoes in the region typically do not exceed EF-1

intensity, they can still produce damaging winds above 100 mph, capable of tearing roofs off buildings, uprooting trees, and overturning vehicles.

Beaufort Wind Scale:

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects	
			On the Water	On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger waves 8-13 ft, whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Sea heaps up, waves 13-19 ft, white foam streaks off breakers	Whole trees moving, resistance felt walking against wind

8	34-40	Gale	Moderately high (18-25 ft) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Twigs breaking off trees, generally impedes progress
9	41-47	Strong Gale	High waves (23-32 ft), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Very high waves (29-41 ft) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	Exceptionally high (37-52 ft) waves, foam patches cover sea, visibility more reduced	
12	64+	Hurricane	Air filled with foam, waves over 45 ft, sea completely white with driving spray, visibility greatly reduced	

Figure 6.10.1 Beaufort Wind Scale

Enhanced Fujita Scale:

THE ENHANCED FUJITA SCALE (EF SCALE)		
EF RATING	3 Second Gust (MPH)	DAMAGE
EF 0	65-85 MPH	Light: Branches broken, minor roof damage
EF 1	86-110 MPH	Moderate: Roofs damaged; trees uprooted
EF 2	111-135 MPH	Considerable: Roofs torn off, large trees down
EF 3	136-165 MPH	Severe: Homes destroyed; cars lifted
EF 4	166-200 MPH	Devastating: Houses leveled; debris airborne
EF 5	Over 200 MPH	Incredible: Homes swept away; total destruction

Figure 6.10.2 Enhanced Fujita Scale

6.10.4 History

Los Angeles County has experienced multiple severe wind events and occasional tornadoes in recent history which caused destructions, and wildfires. There have been no federal declarations or state proclamations for Severe Wind & Tornadoes in the last five years. Some notable incidents include:

- **November-December 2011:** A wind event caused more than \$35 million in damages and severely impacted several foothill communities and unincorporated areas.
- **December 2019:** An EF-0 tornado touched down in South Los Angeles, causing minor roof damage and downing power lines.
- **January 2021:** A severe windstorm impacted the region, leading to damage across multiple communities and emergency response efforts to clear roadways.
- **September 2021:** An EF-0 tornado developed near the community Lake of Los Angeles; %no damage was reported.

- **April 2023:** An EF-0 tornado recorded in Cerritos causing tree damage.
- **March 2023 (DR# 4699):** An EF-1 tornado struck Montebello, one of the strongest tornadoes recorded in the area, causing significant damage to commercial structures and vehicles.
- **May 2023:** An EF-0 tornado occurred near the communities of Carson and Compton damaging buildings and vehicles.
- **August 2023 (DR# 4750):** Tropical Storm Hillary impacting Los Angeles County.
- **February 2024:** Strong winds impacting across Eastern Santa Monica Mountain and Santa Clarita Valley.
- **March 2024:** Strong winds impacting areas around San Gabriel Valley.
- **January 2025 (DR# 4856):** A severe windstorm impacted the region, leading to a Potentially Dangerous Situation (PDS), red flag conditions. Several fires broke out in the area, which exhibited extreme fire behavior, causing widespread destruction.
- **March 2025 (DR# 4856):** As part of a storm event, an EF-0 tornado struck Pico Rivera, California, at 3:15am, with wind speeds reaching up to 85 mph.

6.10.5 Probability

Severe wind events are a regular occurrence in Los Angeles County, with a high probability, 99% chance recurring annually. Santa Ana winds are particularly common during the cooler months, and climate patterns suggest that extreme wind events may become more frequent due to changing weather dynamics. Because wind events and tornadoes are localized in nature, probability vary from one area to another and is difficult to determine percentage of happening in one area. Tornadoes remain a low-probability hazard, 10% chance, in the planning area; however, given past occurrences, they cannot be ruled out entirely. Atmospheric conditions capable of producing tornadoes may arise during severe thunderstorms, particularly in winter storm systems that generate strong wind shear. While the likelihood of an EF-2 or stronger tornado is minimal, the potential for localized damage remains. The Santa Ana winds occur ten to twenty-five times annually and can last for several days, posing a recurring threat of damage and disruption in Los Angeles County.

6.10.6 Vulnerability

Severe wind and tornadoes can be extensive, affecting both infrastructure and public safety. High-wind events pose a risk to critical infrastructure, particularly power lines, communication systems, and transportation networks. Buildings, especially older structures and mobile homes, are vulnerable to wind-related damage, including roof failures, window breakage, and structural collapse.

In addition to physical damage, severe wind events can cause significant economic disruptions. Prolonged power outages impact businesses, healthcare facilities, and emergency response services. Road closures and debris blockages hinder mobility and commerce, while wind-driven wildfires, a secondary hazard of Santa Ana winds, can lead to devastating losses.

Public safety is also a major concern, with risks of flying debris, vehicle accidents, overturned vehicles, and respiratory issues caused by airborne dust and pollutants stirred up by high winds.

Severe wind and tornado events disproportionately impact certain populations and infrastructure in Los Angeles County due to both geographic exposure and socioeconomic vulnerabilities. These hazards can disrupt critical services, exacerbate existing inequalities, and significantly damage structures not built to withstand extreme wind conditions.

Vulnerable Populations

Out of the county's estimated 10.2 million residents, the following populations are considered especially vulnerable:

- Older Adults (65+): Approx. 1.6 million residents (15.5%)—more likely to suffer injury or health complications during wind-related power outages and evacuation events.
- Access and Functional Needs (AFN) Populations: Estimated 1.7 million individuals (17%) including those with disabilities, limited mobility, or communication barriers.
- Low-Income Households: Over 13% of households fall below the poverty line and may lack the resources for structural mitigation or relocation during prolonged outages.

- People Experiencing Homelessness (PEH): Over 75,000 individuals (2024 LAHSA count), at direct risk from falling debris and lack of shelter during windstorms.
- Mobile Home Residents: Approximately 98,000 units countywide, concentrated in inland valleys and foothill communities that are highly exposed to Santa Ana winds.
- Children Under Age 5: Around 600,000 countywide, vulnerable to respiratory complications from airborne particulates and debris stirred by strong winds.
- Economic Impact: Business disruptions, increased insurance claims, and the costs of emergency response and recovery add financial burdens to local communities.

Critical Infrastructure at Risk

Severe wind and tornado events can cause widespread cascading failures in vital systems, including:

- Power Infrastructure: Los Angeles County contains over 20,000 miles of overhead power lines vulnerable to high-wind damage and fire ignition.
- Medical Facilities: Over 350 licensed hospitals and health clinics, many reliant on uninterrupted power and access for vulnerable patient populations.
- Transportation Corridors: Major highways (I-5, I-10, US-101) and over 3,100 bridges, particularly in canyon and foothill areas, are susceptible to obstruction by fallen trees and debris.
- Communication Towers: Over 800 critical telecom sites serve the county's emergency communications and can be disrupted by high wind gusts.
- Schools: Approximately 2,300 public K-12 schools and 100+ college campuses face operational disruptions from power outages or infrastructure damage during events.

6.10.7 Impacts

Severe wind and tornado events pose significant threats to critical infrastructure, public safety, and community operations in Los Angeles County. High winds, such as those during Santa Ana events, regularly damage power lines, uproot trees, and disable

transportation corridors. A notable example occurred in January 2025, when widespread windstorms caused power outages for more than 200,000 customers, including approximately 127,000 Los Angeles Department of Water and Power (LADWP) customers and over 52,000 Southern California Edison (SCE) customers. During this same period, wildfires exacerbated by the strong winds impacted several medical facilities, disrupting critical health services and requiring the emergency relocation of patients.

Tornadoes, while rare, have also demonstrated destructive capacity in localized areas. In March 2025, an EF-0 tornado touched down in Pico Rivera, downing power lines and trees and obstructing roadways, highlighting the potential for tornadoic activity to impact urban communities. These hazards not only endanger life and property but also threaten economic continuity and the functioning of emergency services, particularly in vulnerable neighborhoods and areas with aging infrastructure.

6.10.8 Mitigation and Preparedness

Efforts to mitigate the effects of severe wind and tornadoes should focus on improving structural resilience, enhancing early warnings and alerts, and increasing public awareness of such events.

Severe Wind and Tornado Mitigation

- Strengthening building codes to require wind-resistant design features. Promoting the use of wind-resistant materials and construction techniques in new developments.
- Conducting regular tree-trimming and vegetation management to reduce infrastructure damage risks.
- Retrofitting and reinforcing critical infrastructure, such as power lines and utility systems, to withstand high-wind conditions.
- Implementing public education campaigns on windstorm preparedness and safety measures.
- Leveraging early warning alerting and preparedness messaging, as well as integrating emergency messaging with local broadcast and mobile networks.

6.10.9 Summary

Severe wind and tornadoes, though differing in frequency, remain potential hazards for Los Angeles County. Santa Ana winds and storm-driven gusts regularly impact the region, causing damage to infrastructure and increasing wildfire risks. While tornadoes are rare, their occasional occurrence necessitates preparedness and mitigation efforts. By implementing stronger building codes, reinforcing critical infrastructure, and enhancing preparedness and public awareness, the county can reduce its vulnerability to these hazards, help to better protect its residents from potential hazards of severe winds and tornado and improve community resilience.



6.11 Mass Violence

6.11.1 Nature

This section outlines the defining characteristics of mass violence, which includes intentional, high-impact incidents such as terrorism, active shooter events, vehicle-rammings, and other coordinated attacks. Understanding the nature of these events is critical for developing effective mitigation strategies.

- Mass violence includes both targeted attacks (e.g., ideologically motivated terrorism) and opportunistic acts (e.g., active shooters or violent assaults in public spaces).
- These incidents are characterized by their low warning time, high lethality, and potential to incite widespread fear and panic.

MASS VIOLENCE KEY POINTS

1. Nature

Mass violence involves deliberate, high-impact attacks like shootings or bombings, designed to harm groups and disrupt public order.

2. Location

Incidents often occur in crowded public spaces (like malls, schools, other gatherings) where security may be limited.

3. Extent

Though rare, these events can cause widespread casualties, disrupt services, and impact communities well beyond the attack site.

4. Vulnerability

Public spaces with weak security, limited preparedness, and communication challenges are more susceptible to mass violence impacts.

5. Mitigation and Preparedness

Mitigation focuses on securing vulnerable areas, improving emergency readiness, and strengthening coordination across agencies and communities.

- Acts of mass violence may be perpetrated by individuals, small groups, or well-organized networks, and can involve firearms, explosives, vehicles, or biological agents.
- These attacks often aim to disrupt societal functions, damage infrastructure, or exploit vulnerabilities in soft targets such as schools, places of worship, or entertainment venues.

In summary, the nature of mass violence lies in its deliberate intent to inflict harm on groups and disrupt public order, making strong mitigation measures essential for protecting life and property of Los Angeles County.

6.11.2 Extent

The potential extent of mass violence is characterized by its ability to cause widespread disruption and significant loss of life and property.

MASS VIOLENCE

2007 - 2025



- Events can result in many casualties and severe physical and psychological impacts.
- Mass violence can disrupt essential services, strain emergency response systems, and create cascading socioeconomic effects.
- The overall disruption may extend far beyond the immediate scene, affecting broader community resilience.

In essence, while these events may be rare, their extensive impacts necessitate comprehensive planning and resilient infrastructure.

6.11.3 History

Historical data illustrates that mass violence has evolved over time, with earlier events shaping current mitigation strategies and more recent incidents underscoring emerging vulnerabilities. Previous mitigation and other plans referenced events such as large-scale terrorist attacks and active shooter incidents.

- Recent events in the last five years include high-profile active shooter incidents at schools, public transportation hubs, and commercial centers, as well as vehicle-ramming attacks in urban areas.

Overall, the historical trend shows that while frequency remains low, the severity of mass violence incidents has escalated, necessitating continual updates to mitigation strategies.

6.11.4 Location

Mass violence incidents tend to occur in areas where people naturally congregate, including urban centers, transportation hubs, educational and religious institutions, shopping centers, and public events and venues.

- Public spaces such as transit stations, stadiums, malls and other locations where large number of people assemble, are considered higher-risk areas.
- Critical infrastructure location, like government buildings and commercial center, are often targeted.
- Certain events may also occur in areas lacking adequate physical security or surveillance.

Thus, identifying and securing high-density locations is a key focus for mitigating the effects of mass violence.

6.11.5 Probability

The probability of mass violence incidents is difficult to predict precisely; however, the potential for occurrence is recognized as a persistent low-frequency, high-impact risk that requires constant vigilance.

- Such incidents are statistically rare yet present a disproportionate risk due to their catastrophic consequences.
- Threat assessments and intelligence reports indicate that evolving tactics may increase probability over time.
- Continuous monitoring and updated threat analyses (e.g., via THIRA processes) are essential in quantifying risk levels.

In summary, while mass violence events are not common, their inherent unpredictability and high severity demand that communities prepare as if an incident could occur at any time.

6.11.6 Vulnerability

Mass violence depends on a variety of factors, including physical infrastructure design, public awareness, security preparedness, and interagency coordination.

- Critical vulnerabilities include open public spaces with minimal physical barriers or limited or ineffective safety / security protocols in place.
- Gaps in training and preparedness among first responders can exacerbate the situation during an active incident.
- Social vulnerabilities—such as communication gaps or lack of multilingual emergency information—may hinder rapid response and community resilience.

Thus, reducing vulnerability involves investing in infrastructure hardening, robust security measures, regular training exercises, and effective public communication strategies.

6.11.7 Impacts

The impacts of mass violence events are multifaceted, life safety, community stability, and the local economy.

- Immediate impacts include fatalities, injuries, and trauma among affected populations.
- Secondary impacts may encompass prolonged disruption of local services, economic downturns, and lasting psychological effects on communities.
- Long-term consequences can involve extensive resource allocation for recovery and mitigation, further straining public systems.

Mass violence inflicts immediate harm and often triggers a chain of secondary impacts that complicate community recovery and strain long-term resilience efforts.

6.11.8 Summary

In conclusion, mitigating the hazards of mass violence requires an integrated, multi-layered approach that spans prevention, preparedness, response and recovery. Communities must implement measures to secure high-risk locations, upgrade physical and digital security, enhance interagency coordination, and continuously update training and threat assessments.

- Mitigation strategies include physical security enhancements (e.g., barriers and surveillance), regular active shooter drills, improved emergency communication systems, and coordinated law enforcement and public health responses.
- Investment in resilience-building measures and community outreach helps to ensure that, in the event of an incident, communities can recover quickly and effectively.

This section underscores that while mass violence events are rare, their potential for high impact demands rigorous preparedness and adaptive mitigation strategies to safeguard lives and maintain community functionality.



6.12 Cybersecurity Incidents

6.12.1 Nature

Cybersecurity incidents refer to disruptive events affecting digital networks and systems. These events involve the unauthorized electronic or physical access of information systems that jeopardizes or disrupts the integrity, confidentiality, or availability of information. Cyber incidents can range from minor targeted data breaches to large-scale ransomware attacks and distributed denial-of-service (DDoS) events that compromise critical infrastructure. Common types of cybersecurity incidents include, but are not limited to:

- **Data Breaches:** The compromise, unauthorized disclosure, or unauthorized acquisition of information.

CYBERSECURITY KEY POINTS

- 1. Nature**
Cybersecurity incidents are disruptive events affecting information systems that can cause widespread disruption.
- 2. Location**
Given the global nature of cybersecurity incidents, an attack originating from across the world can manifest with local impacts.
- 3. Extent**
Smaller-scale cybersecurity incidents can compromise data and result in financial loss while large-scale attacks can cause widespread disruptions to critical infrastructure.
- 4. Vulnerability**
Organizations without technical defenses, use outdated systems, or lack training for employees are more vulnerable.
- 5. Mitigation and Preparedness**
Actions focus on implementing a robust cybersecurity program along with continuity of operations and disaster recovery planning.

- **Malware:** Malicious hardware, firmware, or software that is intentionally included or inserted in a system for a harmful purpose.
- **Ransomware:** A type of malicious software designed to lock access to a system until a ransom payment is received. Note that ransom payment is not a guarantee that system access will be restored by the threat actor.
- **Denial of Service (DoS):** An attack meant to shut down a machine or network, rendering it inaccessible to its intended users.
- **Distributed Denial of Service (DDoS):** A DoS attack that uses numerous hosts to perform the attack.
- **Insider Threats:** When an insider (e.g., an employee or vendor) uses their authorized access, wittingly or unwittingly, to do harm to an organization.
- **Phishing Attacks:** The fraudulent practice of sending emails purporting to be from reputable senders in order to induce individuals to reveal information or download malware by clicking on a link.

Key characteristics of a cybersecurity incident include:

Rapid Onset: Impacts to operations can occur suddenly and evolve quickly.

- **Sophistication:** Can be highly sophisticated with state or non-state actors involved.
- **Hybrid Attacks:** May involve both cyber and physical components due to interdependencies.
- **Non-Malicious Incidents:** Technological failures that cause similar impacts to cybersecurity incidents may also occur due to non-malicious reasons such as a software or hardware issue.

Understanding the inherent digital nature and complex characteristics of these incidents is critical to developing effective prevention and mitigation strategies.

6.12.2 Location

Unlike traditional hazards that have a physical geographic footprint, cybersecurity incidents are inherently transboundary. However, their effects manifest locally through the disruption of critical services and systems and necessitate regionally coordinated preparedness and response efforts.

Jurisdictional Relevance:

- Impact local government networks and county infrastructure.
- Affect public and private sector systems within Los Angeles County.
- Disrupt critical infrastructure such as utilities and cause cascading impacts.
- Involve cyber nodes that, while globally distributed, converge on regional networks.

Critical Sectors Impacted:

- Hospitals and healthcare facilities.
- Financial, banking, or payroll systems.
- Transportation providers and systems.
- Utilities such as electricity, gas, and water.
- Emergency response and public safety agencies.

6.12.3 Extent

The extent of cybersecurity incidents is measured not only by the volume of compromised data or financial loss but also by the potential disruption to essential services and critical infrastructure.

Scope of Impacts:

- Rapid spread across interconnected digital systems.
- Potential for cascading failures that disrupt multiple sectors.
- Economic losses that may run into millions of dollars.

Measurable Factors:

- Number of systems compromised.
- Downtime of critical infrastructure and services.
- Financial costs from remediation and lost productivity.

The extensive reach of cybersecurity incidents—both in terms of economic impact and service disruption—highlights the need for robust digital defenses, continuity of operations planning, backup systems and redundancies, disaster recovery strategies, and regional cyber response coordination.

6.12.4 History

Historically, cybersecurity incidents have evolved from isolated breaches to coordinated attacks that leverage global networks. Early cybersecurity incidents focused on data theft and vandalism. More recent attacks have grown increasingly sophisticated and targeted critical infrastructure or use complex ransomware. Cyber threat actors include state-sponsored groups along with non-state groups such as criminal enterprises and terrorist organizations. Recent years have seen cybersecurity incidents affecting large corporations, public entities including local governments, and critical infrastructure sectors. Previous major cybersecurity incidents have included:

- **2024 Los Angeles County Superior Court Ransomware Attack:** Resulted in the shutdown of nearly every court system, a multi-day closure of the court, and cascading impacts to operations.
- **2024 Hospital Group Attack:** A major hospital company experienced an attack that caused IT and phone system outages and disrupted patient care at several Los Angeles County hospitals.
- **2024 Telecommunication Industry Attacks:** A series of attacks against telecommunications providers in the United States resulted in compromised customer data.
- **2023 City Attack:** A cybersecurity incident at a city within Los Angeles County caused city IT systems to be taken offline.
- **2022 Aviation Industry Attacks:** A series of cybersecurity incidents targeting the airports and airlines caused transportation system disruptions.

The historical progression from rudimentary attacks to highly coordinated cybersecurity incidents underscores the growing importance of proactive risk management in the digital realm.

6.12.5 Probability

The probability of cybersecurity incidents occurring is increasing as digital interconnectivity expands and as attackers continue to innovate their methods.

Risk Trends:

- Rapid expansion of the Internet of Things (IoT), the network of internet-connected devices ranging from smart refrigerators to autonomous vehicles, has added new attack vectors to the threat landscape.
- Increasing sophistication of cybercriminal methods including zero-day exploits, a previously unknown cybersecurity vulnerability.
- Growing frequency of reported incidents nationally and globally.

Contributing Factors:

- Inadequate cybersecurity measures in legacy systems still being used by organizations.
- Underinvestment in cyber defense infrastructure or cybersecurity expertise.
- Greater digital reliance in everyday operations without proper continuity of operations planning.

Given current trends and technological developments, the likelihood of cybersecurity incidents remains high, necessitating ongoing vigilance and enhanced preparedness measures. As cybersecurity incidents continue to increase in frequency, the potential for an incident to cause cascading and widespread impacts to critical infrastructure increases as well.

6.12.6 Vulnerability

Vulnerability in the context of cybersecurity refers to the susceptibility of digital systems to attack. This is influenced by both technological and organizational factors including, but not limited to: outdated software or use of legacy systems, insufficient patch management, inadequate segmentation and defense-in-depth strategies, and lack of cybersecurity training among personnel. Organizational challenges also contribute to cybersecurity vulnerability including, but not limited to: budget constraints, gaps in coordination, and rapid technology adoption without corresponding security protocols.

According to the 2024 Threat and Hazard Identification and Risk Assessment (THIRA), over 616,000 people may be affected by a large-scale cybersecurity incident with cascading impacts to utilities. Over 123,000 of those impacted in the THIRA scenario are estimated to have access and functional needs and over 77,000 people are

estimated to have limited English proficiency. Depending on the utilities affected by the incident, a widespread amount of the population could be without utility service for an extended period. Addressing these vulnerabilities is essential to reduce the risk and potential disruption of cybersecurity incidents, calling for both technical upgrades and improved interagency coordination.

6.12.7 Impacts

The impacts of cybersecurity incidents are multifaceted, affecting economic stability, public safety, and critical infrastructure operations.

Direct Impacts:

- Disruption of critical services (e.g., healthcare, emergency response, transportation, etc.).
- Extended duration Continuity of Government or Continuity of Operations event.
- Financial losses due to ransom payments, remediation costs, and potential legal fees.
- Loss, compromise, or unauthorized release of sensitive data.

Indirect impacts:

- Erosion of public trust in digital services and affected institutions.
- Cascading effects on physical infrastructure (e.g., power grid, water systems, wastewater, etc.).
- Long-term economic repercussions from reduced competitiveness.
- The significant impacts—both direct and cascading—of cybersecurity incidents necessitate comprehensive mitigation and recovery strategies that address both technical and socioeconomic dimensions.

6.12.8 Summary

In summary, cybersecurity incidents represent an evolving and critical threat that intersects with multiple aspects of community resilience and safety.

Key Takeaways:

- Cyber incidents are dynamic, sophisticated, and far-reaching in impact
- They affect local systems despite their global nature

- Historical trends and increasing digital dependency heighten both probability and vulnerability
- Impacts extend beyond financial loss to include service disruption and cascading infrastructure failures

Cybersecurity incidents demand a proactive, coordinated response that integrates robust technical defenses with cross-sector planning and recovery efforts. By understanding the nature, scope, and potential consequences of these incidents, communities can build more resilient digital and physical infrastructures to safeguard against this growing threat.

TRANSPORTATION INCIDENTS

6.13 Transportation Incidents

6.13.1 Nature

This section describes the inherent characteristics of transportation incidents that can disrupt the continuous flow of people, goods, and emergency services across Los Angeles County. Transportation incidents can be triggered by a variety of factors including natural events, human error, and deliberate acts. Other characteristics include:

- **Affected Modes of Transportation:** Incidents can involve any mode of transportation such as multi-vehicle collisions, hazardous material spills, rail derailments, aviation incidents, and maritime disruptions.
- **Cascading Impacts:** Disruptions to the transportation system often have the potential to trigger cascading failures due to the interconnected design of highways, rail networks, airports, and seaports.
- **Contributing Factors:** Incidents may be influenced by both predictable factors (e.g., rush-hour congestion) and unpredictable occurrences (e.g., extreme weather or infrastructure failure).

6.13.2 Location

The county's network encompasses highways, rail, airports, ports, and local roads that are critical to regional mobility and commerce.

- **Freeways:** Los Angeles County boasts an extensive freeway system with over 1,200 miles of high-capacity roads including corridors such as I-5, I-405, I-10, I-710, and I-210.
- **Major Transportation Hubs:** The County is home to three commercial airports including Los Angeles International Airport (LAX), Long Beach Municipal Airport (LGB), and the Hollywood Burbank Airport (BUR) along with several general aviation airports. The County owns and operates Brackett Field Airport, Compton/Woodley Airport, San Gabriel Valley Airport, General William J. Fox Airfield, and Whiteman Airport. The Ports of Los Angeles and Long Beach, which are two of the busiest ports in the United States and vital for national and international trade, are also in Los Angeles County. Additionally, Los Angeles Union Station serves as the largest passenger rail station on the west coast.
- **Other Transportation Networks:** The county includes robust passenger rail, bus, and paratransit systems, along with freight rail systems, emerging mobility options such as taxis and rideshare services, and enhanced bicycle networks. This comprehensive network is the backbone for daily commuting, freight movement, and emergency response across the region.

6.13.3 Extent

The scope of transportation incidents spans multiple modes of travel and can have widespread consequences across the county's integrated infrastructure. Road incidents may include multi-vehicle collisions, hazardous material spills, and roadway fires impacting multiple vehicles with potential delays in emergency responses.

- Rail disruptions can impede commuter and freight services, impacting both local transit and regional connectivity.
- Air and maritime incidents—such as delays at major airports or disruptions at port facilities—can significantly affect commerce, supply chains, and public safety.
- Cascading effects across interconnected transportation modes may exacerbate congestion and strain additional infrastructure systems such as power, water, and emergency communications.

The extensive and interdependent nature of these networks means that an incident in one area can quickly influence multiple transportation systems.

6.13.4 History

Los Angeles County has a long record of transportation-related incidents that have disrupted mobility and commerce.

- **2024 Vincent Thomas Bridge Fire:** A semi-truck carrying lithium-ion batteries overturned and caught fire, causing the bridge to be closed for several days.
- **2023 I-10 Freeway Fire:** A fire in a pallet yard below the I-10 freeway in Downtown Los Angeles caused an eight-day closure for repairs and major cascading disruptions.
- **2020 Delta Air Lines Flight 89 Fuel Drop:** Shortly after takeoff from LAX, a Boeing 777 encountered engine problems and conducted a fuel dump over populated areas, injuring over 50 people on the ground.
- **2008 Chatsworth Metrolink Derailment:** A Metrolink passenger train collided with a Union Pacific freight train injuring over 130 people and causing 25 deaths.
- **2007 Newhall Pass Tunnel Fire:** A multi-vehicle collision involving over 30 vehicles caused a fire within the tunnel injuring 10 people and causing 3 deaths.

The historical record reinforces the need to learn from previous events to enhance future preparedness and resilience.

6.13.5 Probability

The likelihood of transportation incidents in Los Angeles County remains elevated due to several converging factors including, but not limited to:

- High daily traffic volumes on freeways and arterials increase the risk of multi-vehicle accidents and congestion-related incidents.
- Aging infrastructure—including bridges, road surfaces, and rail systems—creates a persistent risk of failure, particularly under extreme weather conditions and during peak usage periods.
- The county's role as a major hub for freight and commuter traffic means that even minor incidents can escalate rapidly into larger disruptions.
- The frequent movement of hazardous materials and the increasing reliance on just-in-time delivery systems further elevate the risk of incidents with potentially severe consequences.

Together, these factors contribute to a consistently high probability of transportation incidents impacting the region.

6.13.6 Vulnerability

The vulnerability of Los Angeles County's transportation system is compounded by its interdependent design and its critical role in the regional economy.

- Limited redundancy in key corridors means that a disruption on one freeway or rail line can quickly overload alternate routes.
- Aging and overburdened infrastructure is less resilient to extreme events, leading to longer recovery times after incidents.
- The county's economic dependence on uninterrupted transportation for daily commuting and commercial freight increases exposure to significant losses during disruptions.
- Complex interdependencies between transportation systems, emergency services, and other critical sectors make the network highly sensitive to cascading failures.

This systemic vulnerability calls for coordinated, multi-agency efforts to bolster resilience and implement proactive mitigation measures.

6.13.7 Impacts

Transportation incidents can produce both immediate and long-lasting effects on public safety, commerce, and overall quality of life.

1. **Traffic and Mobility:** Disruptions can lead to severe congestion affecting hundreds of thousands of commuters and freight vehicles, delaying emergency services and disrupting daily operations.
2. **Economic Loss:** Interruptions in the movement of goods and people can result in substantial financial losses, impacting local businesses and the broader regional economy.
3. **Public Safety:** Extended delays in emergency response and Emergency Medical Services (EMS) transport times.
4. **Cascading Disruptions:** An incident in one mode (e.g., a major highway closure) can ripple through the transportation network, affecting rail, air, and maritime operations simultaneously and complicating recovery efforts.

These impacts highlight the critical need for robust mitigation strategies to manage both direct and indirect consequences of transportation incidents.

6.13.8 Summary

Los Angeles County's transportation network is among the most extensive and complex in the nation, serving millions of residents and underpinning a vital economic ecosystem. The diverse transportation modes, while facilitating mobility and commerce, also create vulnerabilities due to overlapping infrastructure and high traffic volumes.

- Aging infrastructure, coupled with the continuous movement of hazardous materials and the increasing pressures of daily usage, contributes to a high probability of incidents.
- Historical data demonstrate that even localized incidents can have far-reaching impacts, including prolonged traffic congestion, economic disruptions, and public safety challenges.

In conclusion, mitigating transportation incident risks in Los Angeles County requires an integrated, countywide approach that combines infrastructure upgrades, enhanced emergency response, and proactive maintenance strategies. Addressing these challenges is essential to safeguard public safety, ensure economic stability, and maintain the region's critical mobility infrastructure.



6.14 Public Health Emergencies

6.14.1 Nature

Public health emergencies in Los Angeles County encompass a broad spectrum of potential hazards, including infectious disease outbreaks, environmental health hazards, and Chemical, Biological, Radiological, Nuclear, Explosives (CBRNE) hazards. Given the county's diverse population, urban density, and economic significance, public health hazards require a coordinated response among government agencies, healthcare institutions, and community partners.

Public health emergencies refer to incidents that pose a significant threat to the health of a population.

These include, but are not limited to:

- Pandemics (e.g., COVID-19, Influenza)
- Bioterrorism (e.g., Anthrax, Smallpox, botulism)

PUBLIC HEALTH KEY POINTS

- 1. Nature**
Public health emergencies include pandemics, disease outbreaks, bioterrorism, and environmental hazards.
- 2. Location**
Highly populated counties face unique public health vulnerabilities.
- 3. Extent**
Public Health Emergencies can derive from local, regional, national, or global sources, affecting various communities.
- 4. Vulnerability**
Older adults, individuals with chronic health conditions, those with low income or experiencing homelessness, and others within the Access and Functional Needs (AFN) community face increased risks during public health emergencies.
- 5. Mitigation and Preparedness**
Efforts include vaccinations, disease tracking, healthcare support, public education, emergency supplies, and agency coordination.

- Vector-borne diseases (e.g., West Nile Virus, Zika)
- Foodborne and waterborne illnesses
- Chemical and radiological exposure
- Climate-related health threats (e.g., extreme heat, poor air quality, wildfires)

The County of Los Angeles Department of Public Health (DPH) and the Emergency Medical Services Agency (EMS) collaborate to monitor threats, prevent outbreaks, and mitigate impacts when emergencies arise.

6.14.2 Location and Extent

Los Angeles County, home to over 9.7 million residents, is the most populous county in the United States. Its diverse geography (i.e., urban, coastal, mountainous, and rural) and demography lead to a range of public health vulnerabilities.

Public health emergencies can originate from local, regional, national, or global sources, impacting specific neighborhoods or the entire county. The extent of public health threats varies based on:

- The nature of the threat, such as transmission dynamics or availability of medical countermeasures.
- Population density (higher risks in urban centers for communicable diseases)
- Access to healthcare infrastructure
- Environmental conditions (air pollution, extreme heat events)

6.14.3 History

Public health emergencies in Los Angeles County have included:

- 2022 Monkeypox Outbreak
 - Approximately 2,500 cases were reported in Los Angeles County.
- COVID-19 Pandemic (2020–Present)
 - Over 3 million cases, 450,000 hospitalizations, and 45,000 deaths reported in the county alone.
- 2018 Hepatitis A Outbreak
 - Primarily affecting unhoused populations, requiring mass vaccination efforts.
- 2016–2017 West Nile Virus Outbreaks
 - Multiple cases of mosquito-borne infections leading to severe illness and fatalities.

- 2015–2016 Zika Virus Outbreak
 - No cases of local mosquito-borne transmission, but there were 122 cases reported in the County, with 121 being travel-related.
- 2015 Meningococcal Disease Cluster
 - An outbreak among men who have sex with men (MSM) led to a targeted vaccination campaign.
- 2009 H1N1 Influenza Pandemic
 - Thousands of hospitalizations; schools and businesses affected.

6.14.4 Probability and Emerging Risks

The 2024 Threat and Hazard Identification and Risk Assessment (THIRA) identifies that pandemics and bioterrorism remain high-probability threats. Future public health risks also include:

- Emergence of infectious diseases driven by global travel and climate change.
- Increased incidence of heat-related illnesses amid rising temperatures.
- Increased prevalence of respiratory diseases due to declining air quality.
- Rise of antimicrobial-resistant infections due to overuse of antibiotics.

The County of Los Angeles DPH continually assesses health threats and updates preparedness plans to address evolving concerns.

6.14.5 Vulnerability and Systemic Impacts

Certain populations in Los Angeles County may be disproportionately affected by public health emergencies:

- At-risk populations may be different for different hazards before, during, and after an emergency. It is important to assess each hazard in turn to identify those who may be disproportionately affected to improve preparedness and response efforts.

Public health emergencies strain the healthcare system, disrupt economic activity, and create mental health burdens. The 2024 THIRA report noted that:

- Healthcare infrastructure overload is a major concern during pandemics.
- Potential economic loss from business closures during a prolonged public health crisis could exceed billions of dollars.

6.14.6 Mitigation Strategies and Preparedness Efforts

Los Angeles County employs several mitigation and preparedness strategies:

- Mass Vaccination Campaigns
 - Annual flu shots, COVID-19 vaccinations, and outbreak-specific immunization efforts.
- Points-of-Dispensing (POD) sites
 - Disease Surveillance & Early Warning Systems
- Syndromic surveillance for emerging threats.
 - Targeted sampling surveillance.
- Healthcare Infrastructure Strengthening
 - Expanding hospital capacity for medical surge, and emergency medical resources.
- Community Outreach & Public Health Education
 - Disseminating critical information in multiple languages.
- Emergency Stockpiles (Strategic National Stockpile(SNS))
 - Deployment of antibiotics, antivirals, and personal protective equipment (PPE) in crisis situations.
- Coordination with Federal & State Agencies
 - Collaboration with FEMA, CDC, and the California Department of Public Health to enhance response capabilities.
- Anthrax Threat Simulations
 - The County of Los Angeles Metro system assessed as a high-risk area for bioterrorism response.

6.14.7 Summary

Public health emergencies pose significant challenges to Los Angeles County, impacting healthcare systems, vulnerable populations, and economic stability. While the COVID-19 pandemic provided a major stress test for response efforts, ongoing preparedness, surveillance, and mitigation strategies aim to protect residents from future threats.

Key Takeaways:

- Los Angeles County faces diverse health threats, including pandemics, bioterrorism, and climate-related illnesses.

- Vulnerable populations may suffer disproportionate impacts during public health crises.
- Preparedness efforts focus on surveillance, vaccination, emergency response, and coordination with federal and state partners.
- Future threats include emerging infectious diseases, heat-related illnesses, and antimicrobial resistance.

By continuing investments in public health preparedness, Los Angeles County aims to reduce risks and strengthen resilience against future health emergencies.

7 Mitigation Strategy

7.1 Mitigation Strategy Overview

The Mitigation Strategy section of the All-Hazard Mitigation Plan (AHMP) presents Los Angeles County's strategic blueprint for reducing risks and vulnerabilities posed over the long term associated with the hazards identified in the Hazard Identification and Risk Assessment section. The strategies identified in this section drive mitigation activities based on existing capabilities while also identifying areas of potential future investment to build resilience across communities, critical facilities, and other infrastructure within Los Angeles County.

7.2 Mitigation Goals and Objectives

Mitigation goals are the long-term vision that the County hopes to achieve by implementing the various mitigation strategies described in this AHMP, as well as the broad guidelines that have shaped mitigation strategy development.

- **Goal 1: Protect life, property, infrastructure, the environment, and the economy through equitable mitigation strategies aimed at reducing risks of natural and human-caused hazards.**
 - o Objective 1-1: Integrate vulnerable populations, including people with Access and Functional Needs (AFN), into the implementation of any potential mitigation actions.
 - o Objective 1-2: Implement mitigation strategies that enhance resilience to disaster impacts across residential areas, commercial areas, infrastructure, high-hazard potential dams, and other critical facilities.
 - o Objective 1-3: Inform strategic investments in climate adaptation, development, and redevelopment that are centered in equity and resilience.
- **Goal 2: Enhance community-wide partnerships in hazard mitigation across all levels of government, the private sector, and the public.**
 - o Objective 2-1: Build a culture of disaster resilience and awareness of local hazards through public engagement, education, and outreach.
 - o Objective 2-2: Strengthen direct coordination among Los Angeles County Operational Area partners to unify efforts for mitigation activities.
 - o Objective 2-3: Utilize a whole community approach to address disparities in outcomes posed by the hazards identified in this AHMP.
- **Goal 3: Enhance planning, response, and recovery through hazard identification, assessment, mitigation, and resilience activities.**

- o Objective 3-1: Establish and maintain coordination between hazard mitigation activities and other emergency management functions.
- o Objective 3-2: Integrate hazard mitigation activities into preparedness for future large-scale planned events within Los Angeles County.
- **Goal 4: Ensure eligibility for FEMA grant funding to maximize equitable investment in hazard mitigation actions.**
 - o Objective 4-1: Continue to meet all requirements for existing hazard mitigation grant programs used by the County.
 - o Objective 4-2: Expand the County's ability to participate in grant programs not currently utilized by the County.

7.2.1 Changes in Mitigation Goals

The AHMP Advisory Committee reviewed the 2020 AHMP goals and updated them to reflect the most current County concerns and priorities. Therefore, the 2025 AHMP has introduced new goals and objectives to build a more resilient community. Table 7-1 (below) compares the 2025 AHMP goals with previous 2020 AHMP goals; all other goals above are new goals and objectives developed by the AHMP Advisory Committee.

Mitigation priorities change through time depending on the type of disaster impacting Los Angeles County, vulnerability, the strategies implemented, as well as other needs of the community. Priorities are also made based on current countywide Threat and Hazard Identification and Risk Assessment (THIRA) studies, National Risk Index Assessment, State Hazard Mitigation Plan (SHMP) and other local plans and guides. The previous 2020 AHMP integrated hazard data into several operational plans including but not limited to the General Plan, Operational Area Emergency Operations Plan (OAEOP), amongst others. Addressing these changes will help to address Los Angeles County hazard priorities and to have mitigation strategies focused on the hazards that impact the region at most. The plan also added additional hazards and addressed a larger vulnerable population.

Table 7-1 Mitigation Goal Updates

Goals Addressed in 2020 AHMP	Goals for 2025-2030 Planning Period	Changes
Build a culture and practice disaster resilience	Goal 2 (see above).	Goal expanded; previous goal integrated as an

Goals Addressed in 2020 AHMP	Goals for 2025-2030 Planning Period	Changes
		objective under Goal 2 in the current AHMP.
Better plan for, respond to, and recover from, hazards and disasters including climate change, drought, earthquake, dam failure, flood, landslide, tsunami, and wildfire that affect Los Angeles County.	Goal 3 (see above).	Previous goal replaced with new goal.
More successfully adapt to hazards and disasters including climate change, drought, earthquake, dam failure, flood, landslide, tsunami, and wildfire that affect Los Angeles County.	Goal 1 (see above).	Previous goal replaced with new goal.

7.3 Existing Mitigation Capabilities

The mitigation strategies developed as part of this AHMP seek to maximize existing mitigation capabilities identified as currently available within the Los Angeles County Operational Area. These existing capabilities have been updated to reflect changes in human, technical, financial, legal, regulatory, education, and outreach resources since the 2020 AHMP.

7.3.1 Authorities, Policies, and Legal/Regulatory Resources

There are several existing authorities, policies, and other legal or regulatory resources applicable to hazard mitigation efforts in Los Angeles County. From the County Code of Ordinances to completed plans, these form the cornerstone of hazard mitigation activities by providing a foundation rooted in data, research, planning, Technical Ecological Knowledge (TEK) provided by our state and locally recognized indigenous communities, and elected officials' authority. The County aims to expand and improve upon these identified capabilities by adopting this AHMP, once approved, into the Safety Element of the Los Angeles County General Plan. This action will contribute to the County's ability to be considered for an additional cost-share on Public Assistance projects through the California Disaster Assistance Act. Table 7-2 provides an overview of existing capabilities related to authorities, policies, and legal/regulatory resources.

Table 7-2 Authorities, Policies, and Legal/Regulatory Resources

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
Los Angeles County Operational Area Emergency Operations Plan (2023)	Establishes the coordinated emergency management system within the Los Angeles County Operational Area to prepare for, respond to, and recover from the effects of large-scale emergencies regardless of cause, location, or complexity.	All-Hazard	No
Los Angeles County General Plan (2024)	Provides the policy framework for how and where the unincorporated County will grow through the year 2035.	All-Hazard	Yes
Los Angeles County Comprehensive Floodplain	Reviews existing floodplain management programs in the County and recommends enhancements to them through 35	Flood Land Movement	Yes

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
Management Plan (2021)	mitigation actions. This plan is currently being reviewed and updated with completion targeted for early 2026.		
Los Angeles County Comprehensive Floodplain Management Plan Repetitive Loss Area Analysis (2021)	Analyzes Repetitive Loss Areas within Los Angeles County and fulfills Community Rating System requirements.	Flood Land Movement	Yes
County of Los Angeles Floodplain Management Plan Progress Report (2024)	Provides an annual update on the implementation of the action plan identified in the Comprehensive Floodplain Management Plan and on the implementation and evaluation of outreach projects.	Flood Land Movement	Yes
County of Los Angeles Repetitive Loss Area Analysis Progress Report (2023)	Provide an annual update on the implementation of the action plan identified in the Repetitive Loss Area Analysis to ensure there is a continuing and responsive planning process.	Flood	Yes
Los Angeles County Fire Plan (2023)	Describes the wildfire environment, history, and pre-fire management strategies to enhance the protection of lives, property, and natural resources from wildland fire.	Wildfire	Yes

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
Los Angeles County 2045 Climate Action Plan (2024)	Delineates the County's path toward meeting the goals of the Paris Agreement and achieving carbon neutrality for unincorporated Los Angeles County.	Wildfire Extreme Heat Drought Flooding	Yes
Our County: Los Angeles Countywide Sustainability Plan (2019)	Outlines how local governments and stakeholders can enhance the well-being of all County communities while adapting to climate change and reducing damage to the natural environment, particularly focusing on communities disproportionately burdened by pollution.	Wildfire Extreme Heat Drought Flooding	Yes
Los Angeles County Floodplain Management Ordinance	Aims to minimize public and private losses resulting from flood conditions via uniformly applied regulations in flood prone, mudflow, or flood related erosion areas.	Flood Land Movement	Yes
Los Angeles County Code - Title 32: Fire Code	To build a new structure (or an addition equal to or greater than 50% of existing square footage), the Los Angeles County Fire Code requires review of its location, type of construction, topography, slope, amount and arrangement of vegetation, and overall site	Wildfire	Yes

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
	settings—in order to create defensible space necessary for effective fire protection of homes in High Fire Severity Zones.		
Los Angeles County Code - Title 22: Planning and Zoning	Establishes the regulations governing land use and development and defines zoning for unincorporated Los Angeles County. Includes the Hillside Management Area Ordinance (Chapter 22.104), the Residential Design Standards Ordinance, and the Hillside Design Guidelines. These include requirements for development in Hillside Management Areas, which are defined as areas with 25% or greater natural slopes. The guidelines include specific and measurable design techniques that can be applied to residential, commercial, industrial, and other types of projects.	Wildfire Earthquake Land Movement	Yes
Los Angeles County Code - Title 31: Green Building Standards Code	Enhances the design and construction of buildings via building concepts with positive (or reduced negative) environmental impacts, and encourages sustainable construction practices	Extreme Heat Drought	Yes

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
	across planning and design, energy efficiency, water conservation, material and resource efficiency, and environmental air quality.		
Los Angeles County Brush Clearance Program	Legally declares both improved and unimproved properties a public nuisance, and where necessary, requires the clearance of hazardous vegetation thereby creating defensible space for effective fire protection of property, life, and the environment. The Brush Clearance Program is a joint effort between the County of Los Angeles Fire Department and the County of Los Angeles Department of Agricultural Commissioner/Weights and Measures, Weed Hazard, and Pest Abatement Bureau (Weed Abatement Division).	Wildfire	Yes
Los Angeles County Code - Title 26: Building Code	Provides minimum standards to regulate the design, construction, installation, quality of materials, use, occupancy, location, and maintenance of all buildings, structures, grading, and certain equipment. Regulates construction	Earthquake Wildfire	Yes

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
	near a known active earthquake fault (Chapter 1, Section 113), the materials and construction methods for construction in a Wildland-Urban Interface (WUI) Fire Area (Chapter 7A), structural design as it relates to earthquake hazards (Chapter 16, Section 1613), repair of certain buildings in High Earthquake Damage Areas (Chapter 94), earthquake hazard reduction for concrete tilt-up buildings (Chapter 95) and unreinforced masonry buildings (Chapter 96), among others. The Building Code also includes provisions for emergency housing during a proclaimed emergency.		

7.3.2 Human and Technical Resources

Existing human and technical resources across County Departments enable the County to plan, manage, conduct, and execute its wide range of hazard mitigation activities. The resources below represent a high degree of expertise in all facets of hazard mitigation available to support mitigation activities. The County aims to expand and improve upon these identified capabilities by expanding potential hazard training opportunities available to the Los Angeles County Operational Area. Additionally, as various special events are scheduled in Los Angeles County over the next five years, the County should seek to expand coordination and technical resources related to mass violence, cyber, and other special event-related hazards.

Table 7-3 provides an overview of existing capabilities related to human and technical resources.

Table 7-3 Human and Technical Resources

Resource	Department/Agency	Principal Activities Related to Hazard Mitigation
Emergency Management Coordinator(s)	Los Angeles County Office of Emergency Management	- Maintains and updates the Los Angeles County Operational Area Emergency Operations Plan and Los Angeles County All-Hazard Mitigation Plan. - Coordinates local response and recovery activities in the Emergency Operation Center and in the field. - Works closely with local, state, and federal partners to support planning, training, exercise, public information, and resource coordination.
Engineer(s), Building Inspector(s), Code Enforcement Officer(s), Fire Marshalls, and Other Technical Staff	Los Angeles County Public Works and Fire Department	Oversees the effective, efficient, fair, and safe enforcement of County of Los Angeles Building and Fire Codes.
Engineer(s), Construction Project Managers, and Other Technical Staff	Los Angeles County Public Works	Provides direct (or contract) civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), Project	Los Angeles County Public Works	Maintains and operates a wide range of local equipment and facilities and assists members of the public by

Resource	Department/Agency	Principal Activities Related to Hazard Mitigation
Manager(s), Equipment Operators, Maintenance and Construction Staff, and Other Technical Staff		providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, streetlights, and traffic signals.
Floodplain Administrator	Los Angeles County Public Works	Enforces the floodplain management ordinance ensuring that development proposals do not increase flood risk and that new developments are not located below the 100-year flood level. In addition, the floodplain administrator is responsible for planning and managing flood risk reduction projects throughout Los Angeles County.
Planner(s), Engineer(s), and Technical Staff	Los Angeles County Department of Regional Planning	- Develops and maintains the Los Angeles County General Plan, including the Safety Element. - Develops area plans based on the Los Angeles County General Plan to provide more specific guidance for the development of more specific areas. - Reviews proposed development, capital improvements, and other physical projects involving property for consistency and conformity with the Los Angeles County General Plan. - Anticipates and acts on the need for applicable new plans, policies, and code changes.

Resource	Department/Agency	Principal Activities Related to Hazard Mitigation
		Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.
Procurement Services Manager	Los Angeles County Internal Services Department	Provides a full range of municipal financial services and administers several licensing measures.
Comptroller Personnel	Los Angeles County Auditor – Controller	Provides financial and grant services.
County Counsel Personnel	Los Angeles County Counsel	Provides legal services for the County.
Fire Department Personnel	Los Angeles County Fire Department	Provides fire protection services including response, fire prevention, and mitigation activities for the County.
Sheriff's Department Personnel	Los Angeles County Sheriff's Department	Provides law enforcement services in the County.

7.3.3 Financial Resources and Programs

There are many existing financial resources, grant programs, and other funding mechanisms that enable current and future hazard mitigation activities. Sources for these resources and programs vary widely from local funding out of the County's General Fund to state and federal programs that aim to help local jurisdictions accomplish their hazard mitigation goals. The amount of funding available is variable and project-specific for many of these programs. Similarly, grant awards are based on the specific projects that are identified as the basis for the grant application. Table 7-4 provides an overview of existing capabilities related to financial resources and programs.

Table 7-4 Financial Resources and Programs

Resource or Program	Administrator	Purpose
General Fund	Chief Executive Office	Program operations and specific projects.
General Obligation Bonds	Auditor - Controller	General obligation bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include but are not limited to: libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.
Special Tax and Revenue Bonds	Controller	Revenue bonds are used to finance capital projects that: 1. Have an identified budgetary stream for repayment (e.g., specified fees, tax receipts); 2. Generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs; or 3. Finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.
Vegetation Management Program	Cal FIRE	Cost-sharing program between Cal FIRE and private landowners, which focuses on the use of prescribed fire and/or mechanical means, for addressing wildland fire fuel hazards and other resource management issues on State Responsibility Area (SRA) lands.
Wildfire Emergency and Mitigation Funds	Cal FIRE	Administers funding from FEMA, Bureau of Land Management, and U.S. Forest Service for

Resource or Program	Administrator	Purpose
		certain types of wildfire emergency and mitigation funding.
California Residential Mitigation Program	California Earthquake Authority	Created by the California Earthquake Authority and the Governor's Office of Emergency Services, "Earthquake Brace + Bolt: Funds to Strengthen Your Foundation" is the first incentive program offered by the California Residential Mitigation Program.
Public Health Emergency Preparedness Cooperative Agreement	Center for Disease Control and Prevention	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.
Hazard Mitigation Grant Program (HMGP)	FEMA	Administered by the California Governor's Office of Emergency Services (Cal OES), HMGP supports pre- and post-disaster mitigation plans and projects available to California communities after a presidentially declared disaster has occurred in California.
Pre-Disaster Mitigation (PDM) Grant Program	FEMA	Available annually as a nationally competitive Cal OES grant, the PDM Grant Program supports pre-disaster mitigation plans and projects.
Flood Mitigation Assistance (FMA) Grant Program	FEMA	Available annually as a nationally competitive Cal OES grant, the PDM Grant Program supports pre-disaster mitigation plans and projects.
Homeland Security	FEMA	Builds and sustains preparedness technical assistance activities in support of the four

Resource or Program	Administrator	Purpose
Preparedness Technical Assistance Program		homeland security mission areas (i.e., prevention, protection, response, recovery) and homeland security program management.
Assistance to Firefighters Grant Program	FEMA/U.S. Fire Administration	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards. Available to fire departments and nonaffiliated emergency medical services providers.
Land and Water Conservation Funds	U.S. Department of the Interior	Supports the protection of federal public lands and waters and voluntary conservation on private land.
Community Action for a Renewed Environment	U.S. Environmental Protection Agency (EPA)	Offers means by which communities may organize/take action to reduce toxic pollution (e.g., in stormwater, etc.) through financial and technical assistance. Communities create partnerships that implement solutions to reduce releases of toxic pollutants and that minimize toxic exposures.
Clean Water State Revolving Fund	EPA	A loan program that provides low-cost financing to eligible entities on state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.

Resource or Program	Administrator	Purpose
Community Block Grant Program Entitlement Communities Grants	U.S. Department of Housing and Urban Development	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements (e.g., water/sewer facilities, streets, neighborhood centers, etc.), and the conversion of school buildings for eligible purposes.
High Hazard Potential Dams (HHPD) Grant Program	FEMA	Provides technical, planning, design, and construction assistance in the form of grants for the rehabilitation of eligible high hazard potential dams.
State and Local Cybersecurity Grant Program	FEMA	Provides funding to eligible entities to address cybersecurity risks and threats to information systems owned or operated by, or on behalf of, state, local, or tribal governments.

7.3.4 Education and Outreach Resources

Engagement with the communities of Los Angeles County is an important component of mitigation efforts. The County of Los Angeles has multiple methods, formats, and venues to conduct outreach with community members and provide education on the hazard landscape in Los Angeles County. These activities ensure mitigation efforts align with community goals and include community input. Table 7-5 shows a list of existing resources for education and outreach.

Table 7-5 Education and Outreach Resources

Resource or Program	Agencies Potentially Involved	Purpose
Preparedness Fairs	Office of Emergency Management, Fire	Engage with community members to provide education

Resource or Program	Agencies Potentially Involved	Purpose
	Department, Sheriff's Department, Public Works, Board of Supervisors	on hazards found in Los Angeles County and emergency preparedness for homes and businesses.
Personal Disaster Impact Surveys	Office of Emergency Management	Receive input and feedback on the hazard landscape from community members in Los Angeles County to inform the 2025 AHMP.
AHMP Draft Review Surveys	Office of Emergency Management	Receive input and feedback on sections of the AHMP from community members in Los Angeles County.
Homeless Outreach Services Team (HOST)	Sheriff's Department, Homelessness Services Organizations	Conduct outreach to People Experiencing Homelessness in areas prone to wildfires or flooding based on weather conditions.
Community Emergency Response Teams (CERT)	Fire Department	Educate community members about disaster preparedness and response in their communities.
Explorer Programs	Fire Department, Sheriff's Department	Educate youth about disaster preparedness and response in their communities.
Youth Climate Commission	Chief Sustainability Office	Educate and obtain input from youth on climate change impacts and mitigation efforts.

7.3.5 National Flood Insurance Program Participation

The National Flood Insurance Program (NFIP) is administered by FEMA and provides affordable flood insurance to participating communities through a network of insurance providers. NFIP regulations must be enforced in Special Flood Hazard Areas (SFHAs). Flood insurance is required for structures in SFHAs with federally backed loans (e.g., most mortgages, Small Business Administration (SBA) loans) and FEMA grants along with any structures with SBA loans, regardless of flood zone. Flood insurance is required to be maintained for the life of the federally backed loan and in perpetuity, regardless of change in ownership, in the case of FEMA grants.

The Los Angeles County Board of Supervisors adopted the County Floodway Ordinance (Los Angeles County Code Title 11, Chapter 11.60) in March 1980. This ordinance included the first County Floodway Maps and paved the way for the County to begin participation in NFIP on behalf of unincorporated residents. The County's participation means that residents (owners and renters) in the unincorporated communities within Los Angeles County are eligible for NFIP flood insurance and Federal flood disaster assistance. The first FEMA Flood Insurance Rate Maps (FIRMs) became effective on December 2, 1980. Since 1980, the County has continued robust participation in NFIP. The FEMA FIRMs were digitized in September 2008 and have been revised over the years by numerous Letters of Map Change and by large-scale Physical Map Revisions for the Ballona Creek watershed and several watersheds in the Santa Monica Mountains (Triunfo Creek, Topanga Canyon and others) in December 2018, the Los Angeles County coastline in April 2021, and the Santa Clara River watershed in June 2021. These maps are available to the public on the Los Angeles County Public Works (PW) website at dpw.lacounty.gov/floodzone.

Los Angeles County also participates in the NFIP's Community Rating System (CRS) program. The CRS program is a voluntary program for communities that engage in community floodplain management activities, which exceed the minimum NFIP standards. CRS communities benefit from a discount on flood insurance rates and improved floodplain management programs. CRS uses a class rating system between 1 and 9 to determine flood insurance premium reductions for residents. As of April 1, 2022, Los Angeles County is a Class 6 CRS community; therefore homeowners and

renters who live in a SFHA can receive up to a 20% discount on their flood insurance policies.

The County's implementation and enforcement of local floodplain management regulations for development in SFHAs are covered in Los Angeles County Building Codes with the most recent update completed in 2023. Title 26, Chapter 1, includes requirements for development within flood hazard areas. Other relevant ordinances include other chapters in Title 26 (Building Code) along with Titles 27 (Electrical Code), Title 28 (Plumbing Code), Title 29 (Mechanical Code), Title 30 (Residential Code), and Title 33 (Existing Building Code). Implementation and enforcement are also covered in the Los Angeles County Subdivision Code (Title 21) and Planning and Zoning Code (Title 22). The NFIP for unincorporated communities is administered by the Department of Public Works (LACPW) Stormwater Engineering Division, which serves as the County's floodplain manager, coordinates with LACPW's Building and Safety and Land Development Divisions and with the Los Angeles County Department of Regional Planning in their enforcement of the County's floodplain management regulations, and participates in FEMA's Community Assisted Visits, which typically occur on a 5-year cycle.

LACPW continues to enforce NFIP regulations for building permit applications determined by Building and Safety officials to be substantial improvement or repair of substantial damage. Los Angeles County also requires all residential buildings undertaking substantial improvement to have their lowest floor elevated 1 foot above the 100-year flood elevation. Additionally, Los Angeles County conducted a Repetitive Loss Area Analysis in 2020, which serves as a specific plan for reducing damage from flooding in repetitive loss areas.

After an event, Public Works staff assess the unincorporated area buildings within the extent of the event. The assessment will identify the buildings that appear to have damages affecting 50 percent or greater of the building. If such a building is in flood-prone areas identified by FEMA's Flood Insurance Rate Maps, County maps (Floodway Maps or Assessor's Maps), or identified by Public Works to be in a Repetitive Loss Area, will undergo further evaluation by Public Works staff on whether the building meets FEMA's definition of substantial improvement/substantial damage (SI/SD). A building that meets FEMA's SI/SD definition will be required to have the entire building upgraded to meet National Flood Insurance Program (NFIP) standards ([Title 44](#), Code

of Federal Regulations, Section 60.3). Los Angeles County Code Title 26, Section 110.1 requires the County to enforce as a minimum the current Federal Flood Plain Management Regulations defined in [Title 44](#), Code of Federal Regulations, Section 60.3, for buildings, structures, and grading located in whole or in part in flood hazard areas. (Ord. 2013-0048 § 2, 2013; Ord. 2010-0053 § 2, 2010; Ord. 95-0065 § 3 (part), 1995.)

7.4 Identification and Analysis of Mitigation Strategies

Potential mitigation actions were identified for each hazard identified in Section 6 in an effort to ensure as comprehensive a mitigation strategy as possible. Multiple mitigation options were then analyzed against the goals and objectives delineated in this section with a focus on new and existing buildings. A combination of new and ongoing mitigation actions aimed at reducing the effects of the identified hazards were compiled into the list of mitigation actions in the following subsection. This list includes a wide range of potential types of mitigation actions, including:

- Local Plans and Regulations.
- Structure and Infrastructure Projects.
- Natural Systems Protection.
- Education and Awareness Programs.

A notable update to the 2025 AHMP was the integration of human-caused threats and corresponding potential mitigation actions. The AHMP Planning Team also reviewed FEMA's Mitigation Ideas document to incorporate national best practices in the list of potential mitigation actions.

7.4.1 Mitigation Strategies

01	Title: Support and Expand Countywide Vegetation Management and Fire Prevention Efforts
Source: Los Angeles County Fire Department	
Type: Natural Systems Protection	
Description: Conduct passive protection measures such as creating defensible space buffers around residential and non-residential structures through the removal of flammable vegetation, managing and/or reducing hazardous fuels, creating firebreaks, fire-resistive landscaping and construction, and clearing dead vegetation, among others. Engage indigenous communities to inform vegetation management and fire prevention practices aligned with Traditional Ecological Knowledge (TEK).	
Hazard: Wildfire	
Hazard: Severe Wind/Tornado	

02	Title: Enhance Community Engagement in Wildfire Protection and Prevention
Source: Los Angeles County Department of Regional Planning	
Type: Education and Awareness Programs	
Description: Engage residents and businesses in high fire risk communities to educate them on community-focused mitigation and risk reduction strategies, emergency preparedness and evacuation readiness, and opportunities to get involved in fire safety-related community initiatives. Engage indigenous communities to inform protection and prevention practices aligned with Traditional Ecological Knowledge (TEK).	
Hazard: Wildfire	
Hazard: Severe Wind/Tornado	

03	Title: Perform Post-Fire Flooding, Debris Flow, and Mud Flow Risk Assessments and Mitigation Activities
<i>Source:</i> Los Angeles County Department of Public Works	
<i>Type:</i> Structure and Infrastructure Projects	
<i>Description:</i> Following a wildfire, assess burn scar for significant mud and debris flow risks to produce mud and debris flow phase maps for first responding agencies to prepare for potential evacuations. Recommend mitigation strategies to prevent mud and debris flow impacts.	
Hazard: Wildfire	
Hazard: Flooding	

04	Title: Strengthen Operational Continuity Capabilities for Critical Facilities
<i>Source:</i> Los Angeles County Department Public Health, among others.	
<i>Type:</i> Structure and Infrastructure Projects	
<i>Description:</i> Conduct robust continuity planning to ensure the continued performance of essential functions in the event critical facilities are impacted by various hazards. Build capabilities that support operational continuity such as alternate or uninterrupted power supply, workforce development and cross-training, emergency communications, and data backup or failover hardware.	
Hazard: Wildfire	
Hazard: Extreme Heat	
Hazard: Severe Wind/Tornado	
Hazard: Cyber Incidents	

05	Title: Incorporate Hazards in Local Planning, Land Use, and Development Codes
<i>Source:</i> Los Angeles County Department of Public Works and Regional Planning	
<i>Type:</i> Local Planning and Regulations	
<i>Description:</i> Develop, maintain, and leverage opportunities to strengthen relevant ordinances that govern land use, building codes, and development in high-risk hazard areas. Incorporate mitigation actions in community planning such as Community Wildfire Plans, Flood Management Plans, and the County General Plan, among many others.	
Hazard: Wildfire	
Hazard: Earthquake	
Hazard: Land Movement	
Hazard: Severe Wind/Tornado	
Hazard: Flooding	

06	Title: Increase Public Awareness of Climate Change Effects on Local Hazards
<i>Source:</i> Los Angeles County Chief Sustainability Office	
<i>Type:</i> Education and Awareness Programs	
<i>Description:</i> Engage with communities on ways climate change impacts various natural hazards along with mitigation actions and available resources for climate adaptation and resilience. Efforts should focus on how communities can take action or support existing County programs including funding available to the public. Public engagement efforts should be accessible, ensure people with Access and Functional Needs are included in outreach, and use materials with multiple language options.	
Hazard: Wildfire	
Hazard: Extreme Heat	
Hazard: Drought	
Hazard: Land Movement	
Hazard: Severe Wind/Tornado	
Hazard: Flooding	

07	Title: Expand Stormwater Management, Drainage, and Outlet Planning
Source: Los Angeles County Department of Public Works	
Type: Local Planning and Regulations	
Description: Continue robust stormwater management programs. Conduct studies to inform measures to improve outlet and drainage planning and prevent flood damage to communities in high-risk areas. These efforts should also prevent flood damage to County-maintained roadways, including evacuation egress and emergency services ingress, while supporting potential groundwater recharge.	Hazard: Flooding
	Hazard: Drought
	Hazard: Transportation Incident

08	Title: Construct and Maintain Localized Flood Control Improvements
Source: Los Angeles County Department of Public Works	
Type: Structural and Infrastructure Projects	
Description: Maintain existing flood control mechanisms by drainage system maintenance, sediment and debris clearance, and other actions. Leverage opportunities to construct flood control improvements.	
Hazard: Flooding	

09	Title: Preserve Floodplains as Public Use Open Spaces
Source: Los Angeles County Department of Public Works, among others.	
Type: Natural Systems Protections	
Description: Preserve and expand public use open spaces that capture stormwater with the aim of reducing localized flooding while also providing green space and recreational opportunities to communities. Prioritize floodplains and watersheds in County-owned public use open spaces near flood risk areas. Use stormwater best management practices in projects involving open spaces to support natural water collection and conservation. Incorporate floodplain preservation into future park improvements.	
Hazard: Flooding	

10	Title: Harden Critical Facilities and Infrastructure from Seismic Damage
Source: Los Angeles County Department of Public Works	
Type: Structure and Infrastructure Projects	
Description: Conduct seismic assessments to prioritize retrofitting and other seismic mitigation actions such as bracing or seismic shutoff valves. Efforts should focus on critical facilities for community lifelines such as hospitals, public safety facilities, utility sites, high-hazard potential dams, and transportation assets (i.e., bridges, roadways, airports, and others).	Hazard: Earthquake
	Hazard: Land Movement
	Hazard: Dam Failure

11	Title: Prevent Impacts to the Transportation System
Source: Los Angeles County Department of Public Works	
Type: Structure and Infrastructure Projects	
Description: Hazard impacts to the transportation system in Los Angeles County have far-reaching potential for cascading effects across multiple lifelines. Mitigation activities for multiple hazards should focus on preventing or lessening impacts to transportation. Activities may include stabilization efforts along County-maintained roads, reinforcing transportation assets, or other seismic mitigation actions.	Hazard: Earthquake
	Hazard: Land Movement
	Hazard: Transportation Incident

12	Title: Continue Efforts to Enhance Dam Safety and Reduce Long-Term Vulnerabilities with High Hazard Potential Dams
Source: Los Angeles County Department of Public Works	
Type: Structure and Infrastructure Projects	
Description: Upgrade infrastructure to ensure the long-term integrity and safe operation of County-owned dam facilities. Potential actions could include strengthening of dams, sediment management activities, regular inspections, continuous maintenance, integrating advanced technologies, and emergency preparedness efforts.	Hazard: Earthquake
	Hazard: Dam Failure

13	Title: Assess Water Resilience in Los Angeles County
Source: Los Angeles County Department of Public Works	
Type: Local Planning and Regulations	
Description: Conduct assessments and studies to monitor the water supply and develop recommendations for other water systems. Identify potential secondary water sources or other contingency measures for ensuring water system resilience during drought conditions.	Hazard: Drought

14	Title: Expand Drought-Tolerant Landscaping and Design
Source: Los Angeles County Chief Sustainability Office and Department of Regional Planning	
Type: Natural Systems Protection	
Description: Integrate drought mitigation into landscaping and design measures undertaken by the County. Prioritize native and drought-tolerant plants when selecting landscaping designs. Use permeable materials for pavers, driveways, walkways, and roadways to reduce runoff and promote groundwater recharge that incorporate indigenous- informed practices aligned with Traditional Ecological Knowledge (TEK).	Hazard: Drought

15	Title: Address Urban Heat Islands by Investing in Green Infrastructure and Cooling Strategies
Source: Los Angeles County Chief Sustainability Office, Department of Regional Planning, Department of Economic Opportunity, Department of Public Health, and Department of Public Works, among others.	
Type: Local Planning and Regulations	
Description: Increase shade cover provided by vegetation such as planting native and drought-tolerant trees along with smaller plants such as shrubs, grasses, and groundcover. Increase the tree canopy in County parks and open concrete or asphalt spaces in the public right of way or County-owned parking lots. Conduct assessments to identify communities considered urban heat islands that are at highest need for an increase in tree canopy or other heat mitigation activities. Advance cooling strategies such as constructing shade structures, installing splash pads, operating cooling centers, modernizing air conditioning systems, and expanding the availability of cool roofing infrastructure that reflects heat away from buildings. Ensure mitigation actions address heat impacts faced by people with Access and Functional Needs. Many of these actions have a secondary benefit mitigating the effects of climate change by promoting carbon sequestration, the capture and storage of CO ₂ from the atmosphere. Additionally, increasing green space and shade cover in urban areas can advance environmental justice.	
Hazard: Extreme Heat	

16	Title: Increase Coastal Resilience, Prevent Erosion, and Protect Shorelines
Source: Los Angeles County Chief Sustainability Office and Department of Beaches and Harbors	
Type: Natural Systems Protection	
Description: Conduct activities to replace sediment lost due to erosion or coastal storms. Assess the need for other sediment protection measures such as planting certain types of vegetation. Consider activities that prevent wind from blowing sand off beaches and impacts from storm surge in high-risk areas. These actions help protect coastal roadways and other infrastructure along with ensuring recreation opportunities remain for residents and visitors.	
Hazard: Flooding	
Hazard: Tsunami	

17	Title: Conduct Multi-Discipline Training and Exercise Programs
Source: Los Angeles County Sheriff's Department and Office of Emergency Management	
Type: Education and Awareness Programs	
Description: Identify opportunities for joint training and exercises for mass violence and cyber incident response across disciplines of law enforcement, fire and emergency medical services, medical examiner, private sector, and others. Each training and exercise should include mass violence rescue and evacuation techniques for AFN populations.	
Hazard: Mass Violence	
Hazard: Cyber Incidents	

18	Title: Strengthen Partnerships and Coordination Among Local Agencies
Source: Los Angeles County Sheriff's Department and Office of Emergency Management	
Type: Education and Awareness Programs	
Description: Expand collaborative agreements with other agencies to share resources during large-scale emergencies. Strengthen partnerships with local agencies for resource sharing. Enhance response capabilities during major incidents.	
Hazard: Mass Violence	
Hazard: Cyber Incidents	

19	Title: Incorporate Mass Violence Prevention and Mitigation Efforts into Special Event Planning
Source: Los Angeles County Sheriff's Department and Office of Emergency Management	
Type: Education and Awareness Programs	
Description: Use physical security measures such as bollards, water-filled barricades, vehicle barriers, and others. Identify mitigation measures for upcoming special events such as the World Cup, Super Bowl, and Olympics. Conduct special event training on topics such as crowd management, sporting event safety, and stadium evacuation. Incorporate Family Assistance Center readiness into special event planning.	
Hazard: Mass Violence	

20	Title: Extreme Heat Risk Education and Safety Outreach for Residents and Vulnerable Workers
Source: Los Angeles County Chief Sustainability Office, Department of Economic Opportunity, Department of Public Health, and Department of Public Works	
Type: Education and Awareness Programs	
Description: Implement outreach and education to workers in low-wage and high hazard industries in LA County that are disproportionately impacted by extreme heat. Partner with organizations providing services to people with Access and Functional Needs on heat response strategies. Expand awareness of cooling centers and other heat respite options for unhoused populations. Increase workforce development opportunities to expand the availability of green infrastructure.	
Hazard: Extreme Heat	

21	Title: Increase Field Response and Coordination Capabilities
Source: Los Angeles County Sheriff's Department and Office of Emergency Management	
Type: Education and Awareness Programs	
Description: Enhance field coordination capabilities at large-scale planned events and no-notice incidents such as wildfires, mass violence, and others. Potential actions could include investments in new redundant communications systems, response vehicles, alert and warning capabilities, and other field operations equipment.	
Hazard: Wildfire	
Hazard: Mass Violence	

22	Title: Strengthen Public Health Prevention and Preparedness Measures
Source: Los Angeles County Office of Emergency Management, Department of Public Health, Department of Health Services, and Fire Department	
Type: Education and Awareness Programs	
Description: Continue and expand mass vaccination and immunization efforts. Coordinate healthcare surge preparedness and response efforts. Conduct disease surveillance, monitor early warning systems, and coordinate outbreak response. Educate communities and businesses about health implications related to wildfire recovery and hazardous materials. Liaise with health system partners to understand hospital surge capacity within the County. Maintain and deploy emergency stockpiles. Incorporate potential climate change-related infectious disease implications into public health preparedness planning.	
Hazard: Public Health Emergencies	

7.5 Status of Previous Mitigation Efforts

Table 7-6 below shows the status of mitigation strategies described in the 2020 AHMP. Departments have made significant progress on some of these mitigation strategies, partially but not fully completing some of these efforts. As such, each strategy from the 2020 AHMP have been rolled into the mitigation strategies described in this section.

Table 7-6 Status of Mitigation Efforts

2020 AHMP Strategy	Status	2025 AHMP Strategy
Red Flag Warning Public Outreach	Not Completed/ Ongoing	Enhance Community Engagement in Wildfire Protection and Prevention

2020 AHMP Strategy	Status	2025 AHMP Strategy
Vegetation Management Program	Not Completed/ Ongoing	Support and Expand Countywide Vegetation Management and Fire Prevention Efforts
Fireproof Coating of Critical Facilities	Not Completed/ Ongoing	Enhance Community Engagement in Wildfire Protection and Prevention
Auxiliary Power for Critical Facilities	Not Completed/ Ongoing	Strengthen Operational Continuity Capabilities for Critical Facilities
Earthquake-Resistant Ductile Iron Pipes Replacement	Not Completed/ Ongoing	Harden Critical Facilities and Infrastructure from Seismic Damage
Watershed Ecosystem Restoration	Not Completed/ Ongoing	Preserve Floodplains as Public Use Open Spaces
Green Streets / Living Streets	Not Completed/ Ongoing	Expand Drought-Tolerant Landscaping and Design
Coordinated Data Collection and Database Systems	Not Completed/ Ongoing	Strengthen Partnerships and Resource Coordination Among Local Agencies
Brush Clearance Program	Not Completed/ Ongoing	Support and Expand Countywide Vegetation Management and Fire Prevention Efforts
Wildland Urban-Interface Ordinance	Not Completed/ Ongoing	Incorporate Hazards in Local Planning, Land Use, and Development Codes
Urban Forest Management Plan	Not Completed/ Ongoing	Address Urban Heat Islands by Investing in Green Infrastructure and Cooling Strategies

2020 AHMP Strategy	Status	2025 AHMP Strategy
Community Wildfire Protection Plans	Not Completed/ Ongoing	Incorporate Hazards in Local Planning, Land Use, and Development Codes
Pre-Disaster Professional Support	Not Completed/ Ongoing	Strengthen Operational Continuity Capabilities for Critical Facilities
Fuel Trailer Project	Not Completed/ Ongoing	Strengthen Operational Continuity Capabilities for Critical Facilities

7.6 Prioritization and Implementation of Mitigation Actions

Potential mitigation actions were prioritized using the FEMA National Risk Index (NRI) score and information from the 2024 Los Angeles Threat and Hazard Identification and Risk Assessment (THIRA), which both address hazards by frequency, severity, and impact. Both the NRI and THIRA follow established processes and use a standardized risk assessment methodology. The NRI incorporates multiple variables including physical impacts posed by hazards in addition to social vulnerability data that communicates risks specific to a certain community. Table 7-7 provides an overview of the NRI results for Los Angeles County across 18 hazards. Hazards rated as Relatively Low, Not Applicable, or No Rating were not included in this AHMP as they are uncommon in frequency in Los Angeles County; all other hazards are covered in this plan.

Table 7-7 FEMA National Risk Index Hazards

Hazard	NRI Score (out of 100.0)	Score Description	Covered in Plan?
Earthquake	100.0	Very High	Yes Section 6.3
Wildfire	99.9	Very High	Yes Section 6.2
Extreme Heat	98.4	Relatively High	Yes Section 6.4
Tornado	97.6	Relatively High	Yes Section 6.10

Hazard	NRI Score (out of 100.0)	Score Description	Covered in Plan?
Landslide	96.3	Relatively High	Yes Section 6.8
Lightning	95.0	Relatively High	Yes Section 6.2/ 6.6
Riverine Flooding	90.8	Relatively Moderate	Yes Section 6.6
Drought	73.8	Relatively Moderate	Yes Section 6.5
Strong Wind	73.5	Relatively Moderate	Yes Section 6.10
Tsunami	63.5	Relatively Moderate	Yes Section 6.10
Winter Weather	48.6	Relatively Low	Not Prioritized
Hail	48.1	Relatively Low	Not Prioritized
Coastal Flooding	43.3	Very Low	Not Prioritized
Avalanche	33.7	Very Low	Not Prioritized
Cold Wave	0.0	No Rating	Not Prioritized
Hurricane	N/A	Not Applicable	Not Prioritized
Ice Storm	N/A	Not Applicable	Not Prioritized
Volcanic Activity	N/A	Not Applicable	Not Prioritized

The THIRA is a process that communities undertake to assess risk and set capability targets to focus their preparedness efforts and strengthen response and recovery capabilities. There are three primary focuses of the THIRA: threat and hazard identification, impacts analyses that include the specific demographics of the community, and a description of existing response and recovery capabilities. The 2024 Los Angeles/Long Beach THIRA was reviewed as part of this hazard mitigation planning effort and all threats and hazards identified were included as part of this AHMP. Additionally, the THIRA's identification of several human-caused threats with potential to impact Los Angeles County influenced the decision to include such threats in this AHMP. Table 7-8 shows a crosswalk of the hazards and threats identified in the THIRA and their corresponding sections in this AHMP.

Table 7-8 2024 THIRA and 2025 AHMP Crosswalk

2024 THIRA Hazard/Threat Name	2025 AHMP Hazard/Threat Name	Covered in Plan?
Biological Attack	Public Health Emergencies	Yes Section 6.14
Complex Coordinated Terrorist Attack	Mass Violence	Yes Section 6.11
Cyber Attack	Cyber Incident	Yes Section 6.12
Earthquake	Earthquake	Yes Section 6.3
Flood	Flooding	Yes Section 6.6
Pandemic - Human	Public Health Emergencies	Yes Section 6.14
Radiological Attack	Public Health Emergencies	Yes Section 6.14
Transportation Accident	Transportation Incident	Yes Section 6.13
Wildfire	Wildfire	Yes Section 6.2

Additional criteria used to prioritize potential mitigation actions also included the following components:

- Actions that prioritize equity and integrate vulnerable populations, including people with AFN.
- Potential benefits of the action to prevent a major hazard.
- Actions that have social support to build a culture and practice of resilience.
- Cost of the action versus the potential benefit to prevent a major hazard.
- Availability of funding and actions that support grant requirements.
- Political support to remedy or prevent a major health or safety hazard.
- Actions that are technically, legally, environmentally, and economically feasible.
- Actions that the County has the administrative capabilities to implement.
- Actions that are related to mitigating long-term vulnerabilities to County-owned High Hazard Potential Dams will automatically be given a HIGH priority.

7.6.1 Priority Levels

- **High-Priority Mitigation Actions:** are essential and require immediate attention to address critical risks and safeguard life, property, or essential systems.

- **Medium-Priority Mitigation Actions:** are important but less urgent, supporting overall risk reduction and resilience goals while allowing for planned implementation.
- **Low-Priority Mitigation Actions:** address lower-risk concerns or long-term objectives and can be deferred without immediate impact to safety or core functions.

7.6.2 Changes in Criteria

The 2014 Los Angeles County AHMP's Mitigation Action Matrix was prioritized using the Social, Technical, Administrative, Political, Legal, Environmental, and Economic (STAPLEE) method, which FEMA had recommended as a prioritization procedure in the early to mid-2000s. The 2020 AHMP replaced the use of STAPLEE with a more streamlined prioritization process that included the following:

- To remedy or prevent a major health/safety hazard, a mitigation project must have political support.
- To build a culture and practice of disaster resilience, a mitigation project must have social support.
- To meet FEMA HMA grant criteria, a mitigation project must be technically, legally, environmentally, and economically feasible and the jurisdiction must have the administrative capabilities to implement it.

This prioritization method used in the 2020 AHMP has been adapted and incorporated into the prioritization criteria described previously in Section 7.6.

7.7 Integration with Other Plans

The County of Los Angeles ensures that mitigation is a countywide effort with multiple departments contributing to critical activities that reduce hazard risks. These actions are captured in other discipline-specific plans in addition to the AHMP, including those listed in Table 7-9.

Table 7-9 AHMP Integration with Other Plans

Plan	Authored By	Hazard(s)	Covered in Plan?
Comprehensive Floodplain Management Plan	Los Angeles County Department of Public Works	Flood	Yes
Repetitive Loss Area Analysis Report	Los Angeles County Department of Public Works	Flood	Yes
Climate Action Plan	Los Angeles County Department of Regional Planning	Wildfire Extreme Heat Flooding Drought	Yes
Sustainability Plan	Los Angeles County Chief Sustainability Office	Wildfire Extreme Heat Flooding Drought	Yes
County Fire Plan	Los Angeles County Fire Department	Wildfire	Yes

7.8 Mitigation Action Plan

Table 7-10 represents a Mitigation Action Plan to reduce risks of the hazards identified in this AHMP. Notably, many County departments include discipline-specific mitigation actions within other related plans mentioned in the above section. Some actions that mitigate risk of natural hazards that are covered elsewhere may not be explicitly listed or may be referred to in general terms while specific details are available in other related plans.

Table 7-10 Mitigation Action Plan

Action No.	Priority	Hazard	Action Name	Potential Funding Source	Expected Time Frame	Lead Agencies
01	HIGH	Wildfire	Support and Expand Countywide Vegetation Management and Fire Prevention Efforts	HMGP	Annual	LACoFD, PW
		Severe Wind/Tornado				
02	HIGH	Wildfire	Enhance Community Engagement in Wildfire Protection and Prevention	HMGP	Quarterly	LACoFD, DRP, OEM, LASD
		Severe Wind/Tornado				
03	HIGH	Wildfire	Perform Post-Fire Flooding, Debris Flow, and Mud Flow Risk Assessments and Mitigation Activities	HMGP, FMA	Annual	PW, LACoFD, OEM
04	HIGH	Flooding		UASI, SHSP	Annual	OEM, PW, DPH,
		Wildfire				
		Extreme Heat				

Action No.	Priority	Hazard	Action Name	Potential Funding Source	Expected Time Frame	Lead Agencies
05	HIGH	Severe Wind/Tornado	Strengthen Operational Continuity Capabilities for Critical Facilities	HMGP, FMA	1-3 Years	LACoFD, LASD, ISD
		Cyber Incidents				
		Wildfire	Incorporate Hazards in Local Planning, Land Use, and Development Codes	FMA, Prop 4	Annual	DRP, CEO
		Earthquake				
		Land Movement				
06	MEDIUM	Severe Wind/Tornado	Increase Public Awareness of Climate Change Effects on Local Hazards	FMA, Prop 4		
		Severe				
		Severe	Increase Public Awareness of Climate Change Effects on Local Hazards	FMA, Prop 4		
		Land Movement				
		Severe				

Action No.	Priority	Hazard	Action Name	Potential Funding Source	Expected Time Frame	Lead Agencies
07	HIGH	Flooding	Expand Stormwater Management, Drainage, and Outlet Planning	FMA	1-5 Years	PW
		Drought				
		Transportation Incident				
08	HIGH	Flooding	Construct and Maintain Localized Flood Control Improvements	FMA	1-5 Years	PW
09	MEDIUM	Flooding	Preserve Floodplains as Public Use Open Spaces	FMA, Prop 4	1-5 Years	PW, DRP, DPR
10	HIGH	Earthquake	Harden Critical Facilities and Infrastructure from Seismic Damage	HMGP	1-5 Years	PW, ISD
		Land Movement				
		Dam Failure				
11	MEDIUM	Earthquake	Prevent Impacts to the Transportation System	HMGP	1-5 Years	PW, LASD
		Land Movement				
		Transportation Incident				

Action No.	Priority	Hazard	Action Name	Potential Funding Source	Expected Time Frame	Lead Agencies
12	HIGH	Earthquake Dam Failure	Conduct Seismic Strengthening at County-Owned Dams	FMA, HHPD	1-5 Years	PW
13	MEDIUM	Drought	Assess Water Resilience in Los Angeles County	Prop 4	1-5 Years	PW, DRP
14	MEDIUM	Drought	Expand Drought-Tolerant Landscaping and Design	Prop 4	1-5 Years	DRP, DRP, PW, CSO
15	HIGH	Extreme Heat	Address Urban Heat Islands by Investing in Green Infrastructure and Cooling Strategies	Prop 4	1-5 Years	CSO, DRP, DEO, DPH, PW, DPR
16	HIGH	Flooding Tsunami	Increase Coastal Resilience, Prevent Erosion, and Protect Shorelines	FMA, Prop 4	1-5 Years	CSO, DBH, PW
17	HIGH	Mass Violence Cyber Incidents	Conduct Multi-Discipline Training and Exercise Programs	UASI, SHSP	1-5 Years	LASD, OEM, LACoFD
18	MEDIUM	Mass Violence Cyber Incidents	Strengthen Partnerships and Resource Coordination Among Local Agencies	UASI, SHSP	1-5 Years	LASD, OEM, LACoFD

Action No.	Priority	Hazard	Action Name	Potential Funding Source	Expected Time Frame	Lead Agencies
19	MEDIUM	Mass Violence	Incorporate Mass Violence Prevention and Mitigation Efforts into Special Event Planning	UASI, SHSP	1-5 Years	LASD, OEM, LACoFD
20	HIGH	Extreme Heat	Extreme Heat Risk Education and Safety Outreach for Residents and Vulnerable Workers	Prop 4	1-5 Years	CSO, DEO, DPH, PW, DAD
21	HIGH	Public Health Emergencies	Strengthen Robust Public Health Prevention and Preparedness Measures	UASI, SHSP, PHEP, HPP	1-5 Years	DPH, OEM, DHS, LACoFD
22	MEDIUM	Wildfire Mass Violence	Increase Field Response and Coordination Capabilities	UASI, SHSP	1-5 Years	LASD, OEM, LACoFD

Agency Key:

CEO = Los Angeles County Chief Executive Office
 CSO = Los Angeles County Chief Sustainability Office
 DAD = Los Angeles Department of Aging and Disabilities
 DBH = Los Angeles County Department of Beaches and Harbors
 DEO = Los Angeles County Department of Economic Opportunity
 DHS = Los Angeles County Department of Health Services
 DPH = Los Angeles County Department of Public Health
 DPR = Los Angeles County Department of Parks and Recreation
 DRP = Los Angeles County Department of Regional Planning
 DSR = Los Angeles County Internal Services Department
 LASD = Los Angeles County Sheriff's Department
 OEM = Los Angeles County Chief Executive Office - Office of Emergency Management
 PHEP = Hazard Mitigation Assistance
 HPP = Flood Mitigation Grant Program
 HMRP = Hospital Preparedness Program
 HMRP = Hazard Preparedness Program
 SHSP = State Homeland Security Program
 UASI = Urban Area Security Initiative

8 Plan Maintenance

8.1 Community Participation in Plan Maintenance

The Hazard Mitigation Plan will be reviewed regularly, acknowledging the dynamic nature of hazard landscapes and the evolving understanding of risks. Stakeholders' engagement will be prioritized throughout the development and monitoring process, fostering transparency and accountability.

To maintain transparency and community involvement, the County has outlined several measures for continued public participation:

- **Public Access to Hazard Mitigation Documents:** A copy of the 2025 AHMP will be maintained on the Los Angeles County Hazard Mitigation Program website along with contact information. Los Angeles County OEM will notify the public of any changes or updates, including mitigation projects identified in the plan as they are implemented, via social media, and traditional local media channels.
- **Annual Public Engagement Opportunities:** Los Angeles County OEM will endeavor to hold multiple in-person public engagement opportunities for hazard mitigation to keep the public informed of progress on hazard mitigation projects, obtain ongoing public feedback, and educate the public about the County's hazard mitigation efforts.
- **Online Portal:** A Los Angeles County Hazard Mitigation Program website will be established to provide the public with more information on hazard mitigation and project updates. This portal will serve as a mechanism to obtain continuous public feedback as projects are implemented and offers access to mitigation resources.
- **Standing Advisory Committee:** The Hazard Mitigation Advisory Committee will be expanded to a standing status and will meet at least once per year or more often as determined necessary to support hazard mitigation projects. The standing Hazard Mitigation Advisory Committee will be comprised of representatives from diverse community groups to provide ongoing input and oversight of hazard mitigation efforts. The standing Hazard Mitigation Advisory Committee will also serve as an important forum for future updates of the AHMP.

These activities ensure that the community remains informed and actively engaged in the plan's implementation and maintenance.

8.2 Monitoring, Evaluation, and Maintenance

To ensure the continued effectiveness of this All-Hazard Mitigation Plan (AHMP), effective monitoring and evaluation will be conducted throughout the plan implementation period. Regular assessments will monitor progress and evaluate the achievements of the intended outcomes. Performance metrics will be developed to quantify the impact of each mitigation action, allowing for data driven adjustments and refinements.

The plan will be reviewed annually to assess progress on mitigation actions. Annual review will include the following elements:

- **Annual Review Worksheets:** Every year, LA County OEM will email each member of the Hazard Mitigation Advisory Committee an Annual Review Worksheet to complete. As shown in Appendix E, the Annual Review Worksheet reflects the FEMA Local Hazard Mitigation Plan Review Tool and includes the following sections: planning process, hazard profile, risk assessment, and mitigation strategy. Each member of the Hazard Mitigation Advisory Committee will email completed worksheets back to LA County OEM to review. LA County OEM will summarize these findings and email them out to the committee. Additionally, the findings from the review worksheets will be presented to the full Hazard Mitigation Advisory Committee at its next regular meeting.
- **Mitigation Progress Project Reports:** Mitigation actions will be monitored and updated using the Mitigation Project Progress Report. During each annual review, each department or agency currently administering a mitigation project will submit a progress report to LA County OEM. For projects that are being funded by a FEMA mitigation grant, FEMA quarterly reports may be used as the preferred reporting tool. As shown in Appendix E, the progress report will discuss the current status of the mitigation project, including any changes made to the project, identify implementation problems, and describe appropriate strategies to overcome them.
- **Post-Incident Mitigation Review:** Following a major disaster event impacting Los Angeles County, a post-disaster review will be initiated by LA County OEM to evaluate the need to update the AHMP based on the circumstances of the disaster and incorporate any specific mitigation actions required due to the

8.3 Criteria for Updating the Hazard Mitigation Plan

incident. If LA County OEM finds that an update to the AHMP is needed, the Hazard Mitigation Advisory Committee will be convened to begin drafting the update.

The All-Hazards Mitigation Plan (AHMP) is required to be updated every five years in compliance with the Disaster Mitigation Act of 2000 (DMA 2000) and FEMA guidance (44 CFR § 201.6). The update process is not merely an administrative requirement but a critical mechanism to evaluate the plan's effectiveness in reducing risk and guiding mitigation strategies.

1. Review of Past Actions and Effectiveness

The update process begins with a thorough review of the mitigation actions outlined in the previous plan. This includes:

- Evaluating the implementation status of each action (completed, in progress, not started).
- Assessing the impact and effectiveness of completed actions in reducing hazard risk.
- Determining if the objectives are still relevant or require modification based on new data or circumstances.

2. Integration of New Data and Changing Conditions

- Hazard profiles and risk assessments are updated with new hazard event data, climate science, and changes in development or land use.
- Demographic shifts and infrastructure changes are reviewed to reassess vulnerability.
- Technological advancements or improved modeling tools (e.g., Hazus, National Risk Index) are incorporated to refine risk analysis.

3. Community and Stakeholder Input

The update process must actively include community participation to maintain transparency and ensure the plan reflects local priorities. This includes:

- Public workshops and surveys.
- Targeted outreach to vulnerable populations including those with Access and Functional Needs (AFN).
- Feedback from County departments, cities, NGOs, and regional partners.

4. Performance Evaluation and Metrics

To ensure effectiveness, the plan maintenance strategy includes:

- Annual progress reports that monitor implementation progress and identify barriers.
- Metrics to evaluate the reduction of risk or exposure over time.
- Documentation of lessons learned from real events and exercises to inform changes.

5. Revision of Goals, Objectives, and Actions

Based on the evaluation findings, the plan's goals and mitigation actions are revised to improve alignment with current capabilities, risk levels, and funding opportunities. Each updated action includes:

- Clear responsibilities.
- Realistic timelines.
- Evaluation metrics to measure future success.

8.4 Plan Update

The 2025 LHMP includes an updated methodology for future revisions, ensuring compliance with federal and state guidelines. A full plan update will occur every five years.

- **2030 AHMP Update Kickoff:** LA County OEM will convene the Hazard Mitigation Advisory Committee for a meeting to review the worksheet findings and endeavor to begin the process of updating the AHMP in approximately November 2028. The planning process should begin a minimum of 18 months prior to the plan's expiration. LA County OEM, in consultation with the Hazard Mitigation Advisory Committee, will develop a work plan for the update, conduct

research and review relevant documentation, determine hazards to be included in the 2030 AHMP, and begin the process to draft an updated AHMP.

- **Plan Submission and Adoption:** Once updated, the plan is submitted to Cal OES and FEMA for review. Upon conditional approval, it must be adopted by the Los Angeles County Board of Supervisors and participating jurisdictions to maintain eligibility for FEMA Hazard Mitigation Assistance (HMA) grants.

8.5 Integration with Other Plans

Los Angeles County is committed to ensuring that hazard mitigation planning is not a standalone effort, but a fully integrated component of broader County planning initiatives. By strategically weaving the goals, objectives, and actions of the All-Hazards Mitigation Plan (AHMP) into a variety of local and regional plans such as the General Plan, Capital Improvement Plans, Climate Action and Adaptation Plans, and departmental strategic plans; the County promotes a more cohesive and effective approach to building long-term resilience. This integration is achieved through ongoing collaboration with County departments, cities, and regional agencies to align land use, infrastructure development, and emergency preparedness efforts with identified hazard risks. Embedding hazard mitigation principles into existing policies and planning mechanisms ensures that they become an inherent part of decision-making processes, project funding prioritization, and long-term investment strategies ultimately reducing vulnerabilities and enhancing the resilience of communities across Los Angeles County.

The Los Angeles County AHMP will be shared across all jurisdictions within the operational area. Those jurisdictions will have the opportunity to incorporate the 2025 AHMP into their established planning process. The Hazard Mitigation Advisory Committee will assess the plan at a yearly basis, acknowledging the dynamic nature of hazard landscapes and the evolving understanding of risks. The OEM Hazard Mitigation Program will make the AHMP available for all county departments to incorporate into departmental planning efforts, and other relevant documents produced by Los Angeles County departments.

9 Plan Adoption

9.1 Plan Adoption Overview

Plan Adoption addressed Element F of the Local Mitigation Plan Regulation Checklist under single jurisdiction plan requirement.

The Los Angeles County Board of Supervisors officially adopted the 2025 All Hazard Mitigation Plan (AHMP) through a formal resolution on September 9, 2025. A scanned copy of the resolution is included in Appendix F. The Los Angeles County Office of Emergency Management (OEM) will retain the resolution for its records, while copies will be submitted to both Cal OES and FEMA.

This Plan adoption completes the mitigation planning process and department agencies, stakeholders, and community's commitment to the goals and actions. It also recognizes the current planning process and acknowledges changes from the past five years and validates the priorities for hazard mitigation actions. It makes the community eligible for certain FEMA assistance that can fund some mitigation actions.

After being adopted by the Los Angeles County Board of Supervisors, the 2025 AHMP transitions into the implementation phase. The success of the plan hinges on the integrating its mitigation strategies and actions into the local plans and policies. The mitigation action items collectively establish a robust framework to guide the County's hazard mitigation strategies over the next five years. To ensure these strategies are effective, actionable and well aligned with the county's long term resilience goals, the Planning Advisory Committee has set clear objectives. Their prioritized approach focuses on seamlessly blending mitigation actions with current policies, plans, and emphasizing collaboration and coherence throughout.

Appendices

Appendix L

Resolution 2-09-465 and

Resolution 4-95-333

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RESOLUTION NO. 2-09-465

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE
UPPER SAN GABRIEL VALLEY MUNICIPAL WATER
DISTRICT REPEALING RESOLUTION NO. 1-08-453 AND
ADOPTING WATER RATES AND CHARGES FOR CALENDAR
YEAR 2009**

WHEREAS, the Metropolitan Water District of Southern California ("MWD" herein) has adopted water rates and charges for its classes and conditions of service for the calendar year 2009 and this Upper San Gabriel Valley Municipal Water District ("Upper District" herein) wishes to reflect MWD's new rates and charges in the water rates and charges of the Upper District; and

WHEREAS, MWD has established charges in their rate structure including a Readiness-to-Serve Charge, Capacity Charge, Tier 1 and 2 commodity charges; and

WHEREAS, Upper District requested that MWD continue its Standby Charge in Upper District's service area with the intention that the above referenced Readiness-to-Serve charge be paid from the funds generated from said Standby Charge for calendar year 2009; and

WHEREAS, during Fiscal year 1991/92 Upper District entered into an agreement with MWD for the enlargement of the discharge valve on Service Connection USG-3. As part of this agreement, MWD will charge Upper District an additional \$2.00 per acre foot for all water delivered through this enlarged discharge valve. It is the intention of Upper District to incorporate this \$2.00 per acre foot charge into the rate established for delivery through Service Connection USG-3; and

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT as follows:

Section 1. Resolution No. 1-08-453 adopted January 3, 2008, is hereby repealed.

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Section 2. Effective March 1, 2009, the following water rates are established and will remain effective through December 31, 2009:

Class of Service	Rate per Acre Foot
Full Service – Treated (Tier 1)	\$681.00
Full Service – Treated (Tier 2)	\$808.00
Groundwater Replenishment Service – Untreated	\$337.00
Groundwater Replenishment Service – Untreated (Rate for MWD cyclic storage deliveries pre-purchased in 2008)	\$251.90
Full Service – Untreated (Tier 1)	\$450.00
Full Service – Untreated (Tier 2)	\$577.00
Recycled Water Service	By Contract
Excess Annual Capacity Charge	\$6,800 per CFS
Minimum Service Connection Charge (per year)	\$680.00
Groundwater Replenishment Ready-to-Serve Charge	\$42 per CFS/\$6,300 per

Section 3. Description of Service Classes:

Full Service Treated (Tier 1)

For Calendar Year 2009 the Upper District has an allocation of Full Service Tier 1 supply of 16,511.6 acre feet at a rate of \$681.00 per acre foot. That fixed supply will be equitably allocated to all treated water service connections at the end of Calendar Year 2009. Service connections utilizing supply exceeding the aforementioned allocation will be subject to Tier 2 charges.

Full Service Treated (Tier 2)

For Calendar Year 2009, the Upper District will have an unlimited allocation (subject to drought restrictions) of Full Service Tier 2 supply. Once the total allocation of Tier 1 supply is utilized, all treated water sold will be at the Tier 2 rate of \$808.00 per acre-foot for the remainder of the calendar year.

Excess Annual Capacity Charges

The Full Service Tier 1 rate per acre foot as well as the Full Service Tier 2 rate per acre foot assumes an annual maximum daily average capacity usage* per acre foot of 0.0034 cubic feet per second. Sub-agencies that exceed the 0.0034 CFS/AF threshold will be subject to annual excess capacity charges. Excess capacity charges will be calculated as \$6,800 for each CFS of

**May through September only.*

1 excess capacity utilized during the period of May through September 2009 and will apply for
2 three years.

3 Groundwater Replenishment Service (Untreated)

4 The rate for untreated groundwater replenishment service will be \$337.00 per acre foot. This
5 service will be provided at service connection USG-3 and be subject to supply availability as
6 determined by the Metropolitan Water District. The timing and rate of delivery (CFS) for this
7 service shall also be subject to operating restrictions imposed by the Los Angeles County
8 Department of Public Works. The rate for untreated groundwater replenishment service that was
9 pre-purchased by the Upper District during Calendar Year 2008 from the MWD cyclic storage
10 will be \$251.90 per acre foot.

11 Full Service Untreated (Tier 1)

12 The Upper District's base year Tier 1 allocation is 16,511.6 acre feet. That total includes both
13 treated and untreated Tier 1 deliveries. As a matter of policy, the Upper District will give
14 preference to Tier 1 treated deliveries over untreated deliveries. Full service untreated deliveries
15 will be billed at the Tier 1 rate of \$450.00 only if there is sufficient allocation remaining after all
16 full service treated deliveries have been accounted for. In the event that the Upper District base
17 year allocation has been fully subscribed for the calendar year, all full service untreated
18 deliveries will be subject to Tier 2 charges.

19 Full Service Untreated (Tier 2)

20 For Calendar Year 2009, the Upper District will have an unlimited allocation (subject to drought
21 restrictions) of Full Service Tier 2 supply. Once the total allocation of Tier 1 supply is utilized,
22 all untreated water sold will be at the Tier 2 rate of \$577.00 per acre-foot for the remainder of the
23 calendar year.

24 Section 4. Cost of Service Model:

25 The District has prepared a cost of service model for the period 2008 through 2014. The model
26 includes forecasted treated and untreated water demands, anticipated costs, probable water rates,
27 expected cost recovery and a reasonable application of rate stabilization funds. Future actual
28 costs and rates may vary from those presented in the model. However, the model offers a

1 reasonable budgeting and planning tool for the District and its sub-agencies. The Board will
2 periodically review the model to validate or modify assumptions to provide for the most rational
3 projection of future costs and rates possible. The model presented in Exhibit A is incorporated
4 herein by reference.

5 Section 5. Each groundwater replenishment customer shall pay a monthly ready-to-serve
6 charge in addition to the water rate for groundwater replenishment service. This monthly ready-
7 to-serve charge will be \$42.00 for each cubic foot per second of groundwater replenishment
8 service connection capacity, at an amount not-to-exceed \$6,300.00 per month, payable in
9 advance.

10 Section 6. A minimum charge equivalent to ten percent (10%) or one-tenth (1/10) of the
11 value of one CFS of capacity (\$6,800), which equals \$680 for calendar year 2009, will be billed
12 to the sub-agencies prorated on a monthly basis irrespective of the amount of water used.

13 Section 7. All sales, deliveries and availability of water at the rates established herein
14 shall be subject to the ability of the Upper District to sell, deliver and make available such water
15 under operating conditions determined by the General Manager of Upper District and of MWD,
16 and subject to the water service regulations of Upper District and of MWD. All agencies that
17 purchase treated or untreated water must comply with all rules, requirements, and regulations of
18 Upper District Urban Water Management Plan adopted on or about December 2005 and any
19 amendments or supplements thereto.

20 Section 8. The Board of Directors finds that the water rates and charges established
21 herein will result in a fair and equitable revenue source to partially fund budgeted expenditures,
22 thereby reasonably allocating costs of service to those who benefit therefrom.

23 Section 9. The Board of Directors recognizes that Southern California is facing water
24 supply challenges arising from both ongoing drought and environmental factors. These factors
25 have created uncertainty regarding the reliability of all sources of water for the foreseeable
26 future. As such, the Board reserves the authority to modify, alter, or suspend any or all sections
27 of this resolution as determined prudent to properly respond to new developments in water
28 supply circumstances.

Section 10. The Secretary of Upper District shall cause a copy of this Resolution to be mailed to all current purchasers of water from Upper District including the users of water replenishment service connections.

PASSED, APPROVED AND ADOPTED this 17th day of February, 2009.

Ofelia Contreras
PRESIDENT

ATTEST

SECRETARY

SEAL

RESOLUTION NO. 4-95-333

**A RESOLUTION OF THE BOARD OF DIRECTORS OF
THE UPPER SAN GABRIEL VALLEY MUNICIPAL
WATER DISTRICT REPEALING RESOLUTION NO. 5-
94-321 ADOPTING WATER RATES FOR THE 1995/96
FISCAL YEAR AND ADOPTING A WATER RATE FOR
SEASONAL STORAGE WATER SERVICE FOR
GROUNDWATER REPLENISHMENT FOR THE 1996/97
FISCAL YEAR**

WHEREAS, The Metropolitan Water District of Southern California ("MWD" herein) has adopted water rates and charges for its classes and conditions of service for the fiscal year 1995/96 and this District wishes to reflect MWD's new rates and charges in the water rates and charges of this District; and

WHEREAS, MWD has established new charges in their fiscal year 1995/96 rate structure including a Readiness-to-Service Charge, a New Demand Charge and a Connection Maintenance Charge; and

WHEREAS, this District requested by its Resolution No. 2-95-332 that MWD continue its Standby Charge for fiscal year 1995/96 in this District's service area with the intention that the above reference new MWD charges be paid from the funds generated from said Standby Charge for fiscal year 1995/96; and

WHEREAS, during Fiscal Year 1991/92 Upper District entered into an agreement with MWD for the enlargement of the discharge valve on Service Connection USG-3. As part of this agreement, MWD will charge Upper District an additional \$2.00 per acre foot for all water delivered through this enlarged discharge valve. It is the intention of Upper District to incorporate this \$2.00 per acre foot charge into the rate established for Seasonal Storage Service Untreated Water delivered through Service Connection USG-3; and

WHEREAS, in order to accommodate the requirements of the judgement in Upper San Gabriel Valley Municipal Water District v. City of Alhambra, et al., LASC No. 924128, and the customs and practices of the Watermaster, this District will adopt a seasonal storage service groundwater replenishment rate for fiscal year 1996/97.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF

1 THE UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT as follows:

2 Section 1. Resolution No. 5-94-321 adopted May 4, 1994, is hereby repealed. The
3 water rates specified in said resolution, however, are hereby ratified, affirmed, and shall
4 remain in full force and effect until July 1, 1995.

5 Section 2. Effective July 1, 1995, the following rates are established.

<u>Class of Service</u>	<u>Rate per acre-foot</u>
Noninterruptible Water	
Untreated	361.20
Treated	447.30
Emergency Water	
Untreated	1,083.60
Treated	1,341.90
Seasonal Storage Service	
Untreated	242.45
Treated	302.30

13 The definition and application of the foregoing classes and conditions of service shall be the
14 same as those established, interpreted and amended from time to time by MWD through its
15 Administrative Code and such other rules, regulations, policies ordinances or resolutions
16 that have been or may be adopted by the MWD Board of Directors, which are by this
17 reference are incorporated herein and adopted for this District as though set forth herein in
18 their entirety.

19 Section 3. Effective July 1, 1996, the rate for untreated seasonal storage service
20 water for groundwater replenishment shall be 254.57 per acre-foot.

21 Section 4. In addition to the water rate for seasonal storage service water for
22 groundwater replenishment, each groundwater replenishment customer shall pay a monthly
23 ready-to-serve charge of \$42.00 for each cubic foot per second of groundwater
24 replenishment service connection capacity, at an amount not to exceed \$6,300.00 per month,
25 payable in advance.

26 Section 5. A minimum charge of \$25.00 per month will be made for all open service
27 connections, irrespective of amount of water used.

28 Section 6. All sales, deliveries and availability of water at the rates established

1 herein shall be subject to the ability of the District to sell, deliver and make available such
2 water under operating conditions determined by the General Managers of this District and
3 of MWD, and subject to the water service regulations of this District and of MWD.

4 Section 7. The Board of Directors finds that the water rates and charges established
5 herein will result in a fair and equitable revenue source to partially fund budgeted
6 expenditures, thereby reasonably allocating costs of service to those who benefit therefrom.

7 Section 8. The Secretary of the District shall cause a copy of this Resolution to be
8 mailed to all current purchasers of water from the District including the users of water
9 replenishment service connections.

10 Dated this 19th day of April, 1995

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PRESIDENT

14 ATTEST

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17 SECRETARY

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Appendix M

Resolution No. 06-10-678 Adopting Urban
Water Management Plan and
Resolution No. 06-10-679 Adopting Water
Shortage Contingency Plan

RESOLUTION NO. 06-10-678

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE UPPER SAN
GABRIEL VALLEY MUNICIPAL WATER DISTRICT ADOPTING THE 2025
URBAN WATER MANAGEMENT PLAN**

WHEREAS, the Urban Water Management Planning Act requires urban water suppliers 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 every five years;

WHEREAS, the Urban Water Management Planning Act specifies the requirements and procedures for adopting such urban water management plans; and

WHEREAS, the Board of Directors of the Upper San Gabriel Valley Municipal Water District has duly reviewed, discussed, and considered Upper Water's 2025 Urban Water Management Plan and has determined the 2025 Urban Water Management Plan to be consistent with the Urban Water Management Planning Act and to be an accurate representation of water resources planning for Upper Water's service area.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Upper San Gabriel Valley Municipal Water District that, on June 10, 2026, the District hereby adopts the 2025 Urban Water Management Plan for submittal to the State of California.

PASSED, APPROVED, AND ADOPTED this 10th day of **June 2026**.

AYES:

NOES:

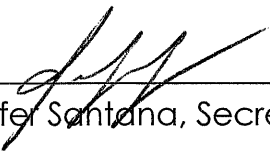
ABSTAIN:

ABSENT:



Dr. Katarina Garcia, President

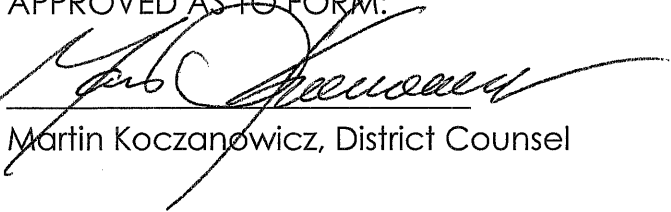
ATTEST:



Jennifer Santana, Secretary

(SEAL)

APPROVED AS TO FORM:



Martin Koczanowicz, District Counsel

RESOLUTION NO. 06-10-679

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE UPPER SAN
GABRIEL VALLEY MUNICIPAL WATER DISTRICT ADOPTING THE 2025
WATER SHORTAGE CONTINGENCY PLAN**

WHEREAS, the Urban Water Management Planning Act requires urban water suppliers 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, a water shortage contingency plan;

WHEREAS, the Urban Water Management Planning Act specifies the requirements and procedures for adopting such water shortage contingency plans; and

WHEREAS, the Board of Directors of the Upper San Gabriel Valley Municipal Water District has duly reviewed, discussed, and considered Upper Water's updated Water Shortage Contingency Plan and has determined the Water Shortage Contingency Plan to be consistent with the Urban Water Management Planning Act and to be an accurate representation of the planned actions during shortage conditions for the Upper Water.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Upper San Gabriel Valley Municipal Water District that, on June 10, 2026, the District hereby adopts the update of its Water Shortage Contingency Plan for submittal to the State of California.

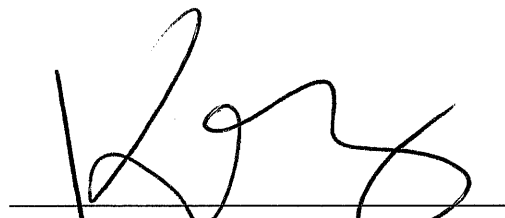
PASSED, APPROVED, AND ADOPTED this 10th day of **June 2026**.

AYES:

NOES:

ABSTAIN:

ABSENT:



Dr. Katarina Garcia, President

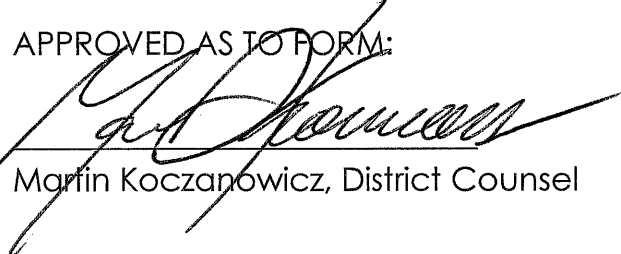
ATTEST:



Jennifer Santana, Secretary

(SEAL)

APPROVED AS TO FORM:



Martin Koczanowicz, District Counsel