



**SAN BERNARDINO
VALLEY** | A REGIONAL WATER
AGENCY SINCE 1954

2025 Urban Water Management Plan Public Draft

Part 4 Appendix A

MAY 2026

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT



A-1: UWMP Compliance Checklist

Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
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	1.2,1.3,1.7
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	1.2,1.4
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	1.8
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	n/a	n/a
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	Part 1 Chapter 1
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	1.1
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	1.8
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	1.8
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	n/a	n/a
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	1.2,1.3
3	Chapter 3.0	10631(a)	Describe the Supplier service area.	System description	n/a	1.1
3.3	Section 3.3	10631(a)	Describe the climate of the Supplier's service area.	System description	n/a	1.1, Part 1 Ch 2.5
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	1.1.2
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	1.1.2, Part 1 Ch 2
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	Part 1 Ch 2.4
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	n/a	n/a
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	n/a	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	n/a	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	n/a	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	n/a	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	n/a	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	n/a	n/a
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	1.1, Part 1 Ch 2.5, Part 1 Ch 4, Part 1 Ch 5
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	1.7
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	n/a	n/a
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	1.2, Part 1 Ch 3

Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
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	1.4, Part 1 Ch 5
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	1.3.1, Part 1 Ch 3.2
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	Part 1 Ch 3.2
6.2	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System supplies	n/a	Part 1 Ch 3.2
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	Part 1 Ch 3.2
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	Part 1 Ch 3.2
6.2	Section 6.2.2	10631(b)(4)(B)	For unadjudicated 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	Part 1 Ch 3.2
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	1.3.1, Part 1 Ch 3.2
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	1.3.2, Part 1 Ch 3.2
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	1.2
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	1.2, Part 1 Ch 3.6
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)	n/a	n/a
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	n/a
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	Part 1 Ch 3.5
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	Part 1 Ch 3.5
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	Part 1 Ch 3.5
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	Part 1 Ch 3.5
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	Part 1 Ch 3.5
6.2	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System supplies	6-7	Part 1 3.8.2
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	1.2.2, Part 1 Ch 3.10
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 suppliers, energy intensity	O-1A, O-1B, O-1C, and O-2	1.2.4
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	Part 1 Ch 3.9
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	1.4
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	1.2,1.3,1.7, Part 1 Ch 3
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	1.5
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	1.5
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	1.5, Part 1 Ch 5
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	1.5, Part 1 Ch 5

Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
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	Part 1 – 2.5.2; Part 1 – 3.1.2; Part 1 – 5
8	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water shortage contingency planning	n/a	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
8.4	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water shortage contingency planning	8-2	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	n/a
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	Appendix A-6
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	n/a
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	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	Appendix A-6
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	Appendix A-6
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	1.7
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	n/a

Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
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	n/a
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	1.8
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	1.8
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	1.8
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	1.8
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	1.8
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	1.8
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	1.8
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	1.8
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	1.8
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	1.8
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	1.8
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	n/a

A-2: Public Outreach

A-3: Resolutions

A-4: Agreements

See Part 3: Regional Supporting Information for agreements pertinent to SBVMWD

A-5: DWR Tables

Submittal Table 2-2: Plan Identification

Select One	Type of Plan	Name of Regional Alliance or RUWMP (Drop Down List)
<input type="checkbox"/>	Individual UWMP	
	If Water Supplier is also a member of a SB X7-7 Regional Alliance, select name from the drop-down.	
<input checked="" type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)	
	If Supplier selected RUWMP, select name from the drop-down.	San Bernardino Valley Municipal Water District

NOTES:

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
<input checked="" type="checkbox"/>	Supplier is a wholesale supplier
<input type="checkbox"/>	Supplier is a retail supplier
Fiscal or Calendar Year (select one)	
<input checked="" type="checkbox"/>	UWMP Tables are in calendar years
<input type="checkbox"/>	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
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)	
<input checked="" type="checkbox"/>	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.
Part 4 Appendix A-2	Provide page number for location of the list.
<input type="checkbox"/>	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	
Part 4 Appendix A-2	
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)
	733,887	762,280	782,611	805,910	829,974	847,127
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		Groundwater Recharge	Non-Potable	36,282
Sales to other agencies		Direct Deliveries	Non-Potable	26,505
			Subtotal Potable	0
			Subtotal Non-Potable	62,787
			Total	62,787
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.				

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

Submittal Table 6-1 Wholesale: Groundwater Volume Pumped							
<input checked="" type="checkbox"/>	Check the box if the Supplier does not pump groundwater.						
<input type="checkbox"/>	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 6-4 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										
City of Redlands	Non-Potable	Direct Use	1665	3357	3510	3642	3773	3905	maximized	
City of Redlands	Non-Potable	Groundwater Recharge	3663	4037	4210	4368	4532	4702	maximized	
City of Rialto	Non-Potable	Direct Use	0	15	15	15	15	15	8000	
SBMWD	Non-Potable	Direct Use	601	1344	1344	1344	1344	1344	maximized	
SBMWD	Non-Potable	Groundwater Recharge	0	4256	4256	4256	4256	8736	maximized	
East Valley Water District	Non-Potable	Groundwater Recharge	7300	9000	9000	9000	9000	9000	maximized	
Subtotal Potable			0	0	0	0	0	0	0	
Subtotal Non-Potable			13,229	22,009	22,335	22,625	22,920	27,702	8,000	
Total			13229	22009	22335	22625	22920	27702	8000	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: FWC and YVWD use of recycled water is excluded because their direct non-potable recycled water use is independent of participating agencies in this RUWMP.
EVWD 2025 groundwater recharge value estimated.
Rialto WWTP effluent discharged in 2025 was 8,053 AFY (see Part 2 Chapter 5 - Rialto Table 5-12). Upper Santa Ana River Habitat Conservation Plan may limit potential recycled water use.

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)**

<input checked="" type="checkbox"/>	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		
Total	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.
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)							
<input type="checkbox"/>		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.					
<input checked="" type="checkbox"/>		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.					
Part 1 Section 3.10 (page 3-58)		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							
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	Table A	Non-Potable	49,799	
Purchased or Imported Water	Carryover	Non-Potable	15,407	
Exchanges	CLAWA SWPAO 25-033 and 25-035	Non-Potable	4,984	
		Subtotal Potable	0	0
		Subtotal Non-Potable	70,190	0
		Total	70,190	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)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)
Add additional rows as needed												
Purchased or Imported Water	Table A	Non-Potable	52,668		49,932		47,196		44,460		41,724	
Supply from Storage	Sites Reservoir	Non-Potable					11,200		11,200		11,200	
		Subtotal Potable	0	0	0	0	0	0	0	0	0	0
		Subtotal Non-Potable	52,668	0	49,932	0	58,396	0	55,660	0	52,924	0
		Total	52,668	0	49,932	0	58,396	0	55,660	0	52,924	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 a 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

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	
		<input type="checkbox"/>	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	2025	52668	100%
Single-Dry Year	2022	15130	29%
Consecutive Dry Years 1st Year	1929	15105	29%
Consecutive Dry Years 2nd Year	1930	15105	29%
Consecutive Dry Years 3rd Year	1931	15105	29%
Consecutive Dry Years 4th Year	1932	15105	29%
Consecutive Dry Years 5th Year	1933	15105	29%
<p>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.</p> <p>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.</p>			
<p>NOTES: Single Dry Year includes 10,000 AFY carryover supply and 5% Table A. Consecutive Dry Years based on 2024 DCR , 75% LOC, 1929-1924 drought, no carryover assumption. All Volumes Available set to the 2030 value in this table, but decrease in future per DCR. Sites Reservoir not included in this table because not online by 2030.</p>			

**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)	52,668	49,932	58,396	55,660	52,924
Use totals (see OPTIONAL Submittal Table 4-2 W)	49,803	50,148	50,257	50,368	50,478
Surplus/(shortfall)	2,865	(216)	8,139	5,292	2,446
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 7-3 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	15,130	15,130	15,130	15,130	15,130
Use totals	15,130	15,130	15,130	15,130	15,130
Surplus/(shortfall)	0	0	0	0	0

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	15,105	14,820	24,535	24,250	23,965
	Use totals	15,105	14,820	24,535	24,250	23,965
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Second year	Supply totals	15,105	14,820	24,535	24,250	23,965
	Use totals	15,105	14,820	24,535	24,250	23,965
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Third year	Supply totals	15,105	14,820	24,535	24,250	23,965
	Use totals	15,105	14,820	24,535	24,250	23,965
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fourth year	Supply totals	15,105	14,820	24,535	24,250	23,965
	Use totals	15,105	14,820	24,535	24,250	23,965
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fifth year	Supply totals	15,105	14,820	24,535	24,250	23,965
	Use totals	15,105	14,820	24,535	24,250	23,965
	Surplus/(shortfall)	0	0	0	0	0
	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:

2026		Total
Total Water Use (AF)		15,105
Total Supplies (AF)		15,105
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)		15,105
Total Supplies (AF)		15,105
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)		15,105
Total Supplies (AF)		15,105
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)		15,105
Total Supplies (AF)		15,105
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)		15,105
Total Supplies (AF)		15,105
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:		

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

<input checked="" type="checkbox"/>	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%		
2	Up to 20%		
3	Up to 30%		
4	Up to 40%		
5	Up to 50%		
6	>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:

**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				How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)			
	Drop down list These are the only categories that will be accepted by the WUEdata online submittal tool				Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)				
Add additional rows as needed										
All	Exchanges				Percentage		100%		Yuba Accord, Carryover	
All	Transfers				Percentage		100%		SWC Dry Year Transfer	
All	Stored Emergency Supply				Percentage		100%		Use Sites, groundwater in storage	
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.										
NOTES: All actions have potential to meet 100% of supply shortage either by themselves or together depending on severity of shortage.										

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				
All	Other		N/A	Support Regional WUE Programs – ongoing
All	Expand Public Information Campaign		N/A	Outreach campaign to address targeted demand reduction
All	Other		Up to 20%	Voluntary demand reductions by retailers
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**

<input checked="" type="checkbox"/>	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.	
Part 1 Section 1.3 Page 1-6	Provide the page or location of this list in the UWMP.	
<input type="checkbox"/>	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.

Optional Submittal Table O-1B: Recommended Energy Reporting - SINGLE DELIVERY PRODUCT - TOTAL UTILITY APPROACH

Water Delivery Product drop down list (If delivering more than one type of product recommend using Table O-1C)	Wholesale Non-Potable Deliveries	Only for Water Delivery Products Under the Urban Water Supplier's Operational Control		
Start Date of Reporting Period	1/1/2025	Sum of All Water Management Processes	Non-Consequential Hydropower	
End Date of Reporting Period	12/31/2025			
Is upstream embedded energy in the values reported?	Yes			
Units of Measure for Water	AF	Total Utility See DWR NOTES	Hydropower	Net Utility
Volume of Water Entering Process		62,787		62,787
Energy Consumed (kWh)		217,748,000		217,748,000
Energy Intensity (kWh/vol. converted to MG)		10,643	-	10,643

DWR NOTES:
Total Utility: The volume of water entered in the "Total Utility" column should equal the volume of water entering the distribution system (excluding recycled water); in most cases, this is the total volume calculated in UWMP Table 4-1: 2025 Actual Total Uses for Potable and Non-Potable Water. Note if recycled water is included in your Submittal Table 4-1, you must exclude it from your volume in this table.

Quantity of Self-Generated Renewable Energy
 kWh

Data Quality (Estimate, Metered Data, Combination of Estimates and Metered Data)

Data Quality Narrative:
 Energy estimated based on flow meter data and energy estimates per DWR Bulletin 132-24.

Narrative:
 DWR Bulletin 132-24 calculates energy required for water to reach different sections of the SWP.
 3,236 kWh/AF after Devil Canyon Afterbay energy recovery for 62,787 AFY to SBVMWD's facilities.
 1,164 kWh/AF additional for the 12,522 AFY delivered to Yucaipa area.

NOTES:

A-6: Water Shortage Contingency Plan

This appendix includes the current Water Shortage Contingency Plan (WSCP) at the time of adoption of the 2025 RUWMP, however the WSCP may be amended separately in the future. Contact SBVMWD to obtain the most current version of the WSCP.



Water Shortage Contingency Plan

San Bernardino Valley Municipal Water
District

MAY 2026

SAN BERNARDINO VALLEY





SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Water Shortage Contingency Plan

MAY 2026

Prepared by Water Systems Consulting, Inc and Blua Consulting, LLC



ACKNOWLEDGEMENTS

The Water Shortage Contingency Plan was prepared by Water Systems Consulting, Inc and Blua Consulting, LLC. The primary authors are listed below.



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Water Systems Consulting, Inc. would like to acknowledge the significant contributions of San Bernardino Valley Municipal Water District. The primary contributors are listed below.



A REGIONAL WATER AGENCY
SINCE 1954

Adekunle Ojo

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ACRONYMS & ABBREVIATIONS

AWSDA	Annual Supply and Demand Assessment
CWC	California Water Code
DWR	California Department of Water Resources
EOP	Emergency Operation Plan
HMP	Hazard Mitigation Plan
RRA	Risk and Resilience Assessment
RUWMP	Regional Urban Water Management Plan
SAF	San Andreas Fault
SBVMWD	San Bernardino Valley Municipal Water District
SWP	State Water Project
UWMP	Urban Water Management Plan
WSCP	Water Shortage Contingency Plan

1.0 Regional Water Shortage Contingency Plan

This Water Shortage Contingency Plan is a vital plan that the San Bernardino Valley Municipal Water District uses to prepare for and respond to water shortages.

IN THIS SECTION

- Water Service Reliability
- Annual Water Supply and Demand Assessment
- Supply Shortage Stages and Response Actions

San Bernardino Valley Municipal Water District

As a State Water Project (SWP) Contractor, San Bernardino Valley Water District (San Bernardino Valley or SBVMWD) is responsible for long-range water supply management and importing supplemental water ordered by retail water agencies within its service area. Under the 1969 Western Judgment, San Bernardino Valley serves as a co-basin manager with Western Municipal Water District, overseeing adjudicated groundwater supplies in the San Bernardino, Rialto-Colton, and Riverside Basin. In the Rialto-Colton Basin, San Bernardino Valley collaborates with and supports the Rialto Basin Groundwater Council through its participation in the Technical Advisory Committee. Additionally, San Bernardino Valley is a member of the Yucaipa Sustainable Groundwater Management Agency, which is responsible for the long-term sustainability of the groundwater resources within Yucaipa Subbasin. San Bernardino Valley delivers raw SWP water purchased by retailers to local retail treatment plants to meet current demand and to groundwater recharge basins for storage within local basins for future use.

The Regional WSCP is independent of the plans adopted by regional retail urban water suppliers and does not dictate their specific shortage levels or response actions. Instead, it facilitates a coordinated regional response when appropriate. While aligned with retailers' WSCPs, each agency performs independent reliability assessments and maintains the authority to implement its own shortage stages and actions.

A water shortage occurs when available supply cannot meet expected demand. While the region's diverse portfolio, system redundancy, and vast groundwater storage make the risk of a shortage very low, this Regional WSCP provides a framework to address such risks promptly and equitably.

The plan formalizes the regional coordination and proactive mitigation procedures San Bernardino Valley and its retailers have practiced for years. It establishes a process for an annual water supply and demand assessment (Annual Assessment or AWSDA) and identifies a range of response actions to maintain reliability. Prepared in conjunction with the 2025 RUWMP, this standalone document complies with California Water Code (CWC) Section 10632 and the Department of Water Resources (DWR) UWMP Guidebook 2025. As a wholesale supplier, SBVMWD focuses on regional elements; retail-specific requirements are addressed within the individual WSCPs of the regional water agencies. SBVMWD and its partners will monitor the plan's effectiveness and perform updates as described in the [Plan Adoption, Submittal, and Availability](#) section.

San Bernardino Valley Municipal Water District

The WSCP describes the following:

1. **Water Service Reliability Analysis:** Summarizes the regional water supply reliability analysis from the 2025 UWMP and identifies any key issues that may trigger a shortage condition.
2. **Annual Water Supply and Demand Assessment Procedures:** Describes the key data inputs, evaluation criteria, and methodology for assessing the system's reliability for the coming year and the steps to formally declare any water shortage stages and response actions, when needed.
3. **Regional Water Shortage Levels:** Establishes water shortage stages to clearly identify and prepare for shortages.
4. **Shortage Response Actions:** Describes the response actions that may be implemented or considered for each stage to reduce gaps between supply and demand.
5. **Communication Protocols:** Describes communication protocols under each stage to ensure customers, the public, and government agencies are informed of shortage conditions and requirements.
6. **Legal Authority:** Lists the legal documents that grant the City the authority to declare a water shortage and implement and enforce response actions.
7. **Financial Consequences of WSCP Implementation:** Describes the anticipated financial impact of implementing water shortage stages and identifies mitigation strategies to offset financial burdens.
8. **WSCP Refinement Procedures:** Describes the factors that may trigger updates to the WSCP and outlines how to complete an update.
9. **Plan Adoption, Submittal, and Availability:** Describes the process for the WSCP adoption, submittal, and availability after each revision.

1.1 Water Service Reliability Analysis

This section provides a summary of the supply reliability analysis presented in the 2025 RUWMP and highlights key issues that could create a shortage condition.

San Bernardino Valley and the retail water agencies recognize that water availability through the SWP is variable and interruptible. Because of this, SBVMWD's Resolution No. 888 "Rules for Service" (Attachment 2), requires that all its retailers have a 100 percent backup for any amount of water they order from the SWP. Under average conditions, San Bernardino Valley's allocation of SWP water exceeds the demands for direct deliveries by retail customers and the remaining SWP supplies are recharged in local groundwater basins as determined by retailer water purchases. This ensures that the supplies in the San Bernardino Valley region have a high degree of reliability. Under a typical dry year scenario when SWP supplies are reduced, retail water agencies shift to using groundwater that was put into storage in prior years.

The reliability analysis is presented in the 2025 RUWMP and demonstrates that the region's urban water supply is reliable even during multiple dry years.

Despite the proactive measures taken by San Bernardino Valley and its retailers, there are potential issues that could create a regional water supply shortage condition. These include:

- An extended drought more severe than historic events, possibly driven by climate change
- An extended and wide-spread power outage that limits retailers' ability to produce and distribute local surface or groundwater supplies; on the other hand, SWP water can be delivered to most parts of the service by gravity.
- Long term reductions in imported water supply due to environmental restrictions related to endangered species or habitat protection.
- Identification of a currently unregulated contaminant that affects the region's ability to use the available groundwater supply.
- Post-wildfire environment that may impact local surface water runoff, water quality, and groundwater recharge.

Water shortage contingency planning provides a framework to plan for these risks and anticipate actions that should be implemented to manage the impacts. This plan describes how the region intends to respond to such shortage events.

1.2 Annual Water Supply and Demand Assessment Procedures

As a wholesale urban water supplier, San Bernardino Valley must prepare and submit an Annual Water Supply and Demand Assessment. The Annual Assessment is a determination of the near-term outlook for supplies and demands and an assessment of the likelihood of a water

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shortage occurring during the next 12 months. This determination is based on known circumstances and information available at the time of analysis. The Annual Assessment, as indicated by CWC Section 10632.1 states that "[a]n urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later."

The Annual Assessment procedure, including key data inputs and evaluation criteria, is summarized in Table 1. The Annual Assessment procedure and timeline, along with how it integrates with the annual assessment that will be conducted by retail water agencies in parallel, is shown graphically in Figure 1.

Table 1: Annual Assessment Procedure

TIMING	ASSESSMENT ACTIVITIES	PROCEDURE, KEY DATA INPUTS, EVALUATION CRITERIA AND OTHER CONSIDERATIONS
December to March	Estimate unconstrained demands for coming year	Each December, retail agencies submit orders to SBVMWD for SWP direct deliveries for the following year. In March, records of total production from local groundwater and surface water supplies for the prior year are compiled for annual reporting. An estimate of regional demands on local water sources for the coming year will be based on prior year production plus any anticipated changes and increases due to weather, growth, and SWP supply availability.
December to May	Estimate available supplies for the year, considering the following year will be dry	Typically, between December and April each year, DWR announces initial and revised SWP allocations, which may be revised multiple times depending on conditions. SBVMWD then considers whether to augment expected SWP deliveries with supplies from other sources for the coming year, considering that the following year may be dry. SBVMWD meets with the retail agencies to reconcile available supplies with requested SWP deliveries. If SWP supplies are lower than requested deliveries, retailers will be advised to shift to stored groundwater; this does not necessarily indicate a water shortage since the region will be storing water in wet years to overcome dry years. In April to May of each year, SBVMWD evaluates available storage in each groundwater basin.
December to April	Consider potential constraints that may impact supply delivery	SBVMWD will identify any known DWR or SBVMWD infrastructure issues that may impact near-term water supply reliability, including repairs, construction, and environmental mitigation measures that may temporarily constrain capabilities, as well as any new projects that may add to system capacity. If infrastructure issues impact direct deliveries of SWP water, retail agencies will be advised to shift to stored groundwater.

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TIMING	ASSESSMENT ACTIVITIES	PROCEDURE, KEY DATA INPUTS, EVALUATION CRITERIA AND OTHER CONSIDERATIONS
March to June	Conduct Annual Assessment	San Bernardino Valley will compare groundwater in storage to expected demands for the coming year, assuming the following year will be dry, as well as other potential supply constraints, and determine whether the potential for a shortage condition exists. SBVMWD and its retailers are working to develop groundwater management zones that will trigger associated shortage response actions.
June	Board of Directors Action	If San Bernardino Valley recommends a regional shortage stage and response actions, a recommendation will be provided to the SBVMWD Board of Directors for adoption by resolution to guide regional response and messaging. If the Regional WSCP is activated, retail agencies can implement consistent local response actions as necessary for their service areas and activate their local WSCP. Retail agencies will make their own recommendations to their respective decision-making bodies based on their own independent decision-making processes.
On-going	Implement Regional WSCP actions, if needed	Collaborate with retail water agencies to implement any agreed upon regional shortage response actions, if needed
By July 1	Submit Annual Assessment	Send Final Annual Assessment to DWR

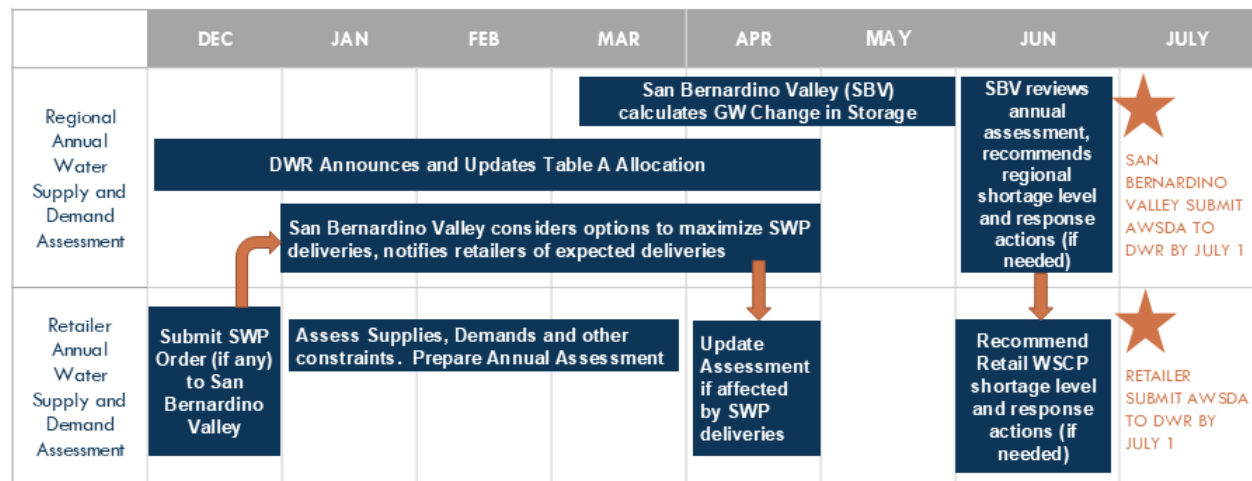


Figure 1: Regional and Retail Agency Annual Assessment Process and Timeline

1.3 Regional Water Shortage Levels

If a potential regional water supply shortage is identified by San Bernardino Valley, this section provides information on the regional water shortage levels and response actions that the Agency may implement. It is important to note that the regional water management system is complex, and the ultimate actions taken will depend on the unique issues of each particular condition and the opportunities available during a particular shortage condition and may include actions in addition to those listed in this WSCP.

The Regional WSCP shortage levels are aligned with the six standard water shortage levels outlined in the Water Code. Shortage levels indicate the gap in supply compared to normal year availability and will be considered on a regional basis for the Regional WSCP. The six standard water shortage levels correspond to progressively increasing estimated shortage conditions (up to 10-, 20-, 30-, 40-, 50-percent, and greater than 50-percent shortage compared to the normal reliability condition) and align with the response actions that could be implemented based on the severity of the impending shortages. The trigger levels used to determine water shortage levels will depend on local water conditions.

San Bernardino Valley will coordinate with retailers to evaluate the water shortage conditions on a case-by-case basis and determine which response actions are appropriate to maintain regional water supply reliability or mitigate potential impacts. The regional response to potential shortages may include increased public outreach throughout the region, exploration of additional supply sources, changes to typical operations, and promoting voluntary actions to reduce demands. The six Regional Water Shortage Levels and corresponding response actions that could be implemented are summarized in Table 2. The following subsections describe potential response actions in more detail.

San Bernardino Valley may also implement additional actions not listed in Table 2 and may implement a combination of the actions specified below, as appropriate, but not necessarily all five actions for each level. Selected actions will depend on the nature of water shortage conditions at a given time. Retailers develop their own shortage response actions and implement them according to their respective WSCPs.

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Table 2: Water Shortage Levels and Corresponding Response Actions

REGIONAL WATER SHORTAGE LEVELS	ONGOING WATER USE EFFICIENCY	PUBLIC OUTREACH	MAXIMIZE SWP SUPPLIES	USE GROUNDWATER IN STORAGE	OPERATIONAL CHANGES	VOLUNTARY DEMAND REDUCTIONS
Normal Conditions No Shortage	✓	✓	✓			
Level 1 Up to 10%	✓	✓	✓	✓	✓	✓
Level 2 Up to 20%	✓	✓	✓	✓	✓	✓
Level 3 Up to 30%	✓	✓	✓	✓	✓	✓
Level 4 Up to 40%	✓	✓	✓	✓	✓	✓
Level 5 Up to 50%	✓	✓	✓	✓	✓	✓
Level 6 Above 50%	✓	✓	✓	✓	✓	✓

1.4 Shortage Response Actions

1.4.1 Demand Reduction

Ongoing Water Use Efficiency

San Bernardino Valley actively promotes water use efficiency and partners with the retail agencies in the region to support sustainable management of regional water supplies regardless of water supply conditions. Past efforts have included reimbursing retail agencies for turf removal, weather-based irrigation controller, and high-efficiency toilets among others. Ongoing water use efficiency efforts primarily involve assisting retailers through SBVMWD's Demand Management Program which allows retailers to submit funding requests for their respective conservation programs and projects. San Bernardino Valley also provides funding for retailers' workshops, secures grant funding, and facilitates other regional efforts. These coordinated efforts are done in a manner that provides maximum flexibility to the individual water retailers.

Public Outreach

On a regular basis, San Bernardino Valley conducts public outreach to inform and educate the public about local water conditions, projects planned to improve regional water supply reliability and water use efficiency.

During a water shortage condition, San Bernardino Valley collaborates with the retailers to provide enhanced and coordinated public outreach to communicate current water supply conditions, actions that are being taken by regional water agencies, and actions the public is being asked to take to help reduce water use during the shortage.

1.4.2 Supply Augmentation

Maximize SWP Supplies

In the event of a reduced SWP allocation in a given year, San Bernardino Valley can exercise one or more of the following options to provide additional imported water for direct deliveries in the region. Direct deliveries are around 27,000 acre-feet each year.

The quantity of supply available from each of these programs can vary based on conditions at the time and SBVMWD will evaluate these options and others on a case-by-case basis as requested by retailers:

- SWP Carryover Storage Amount
- Yuba Accord
- State Water Contractors Dry Year Transfer Program
- Sites Reservoir (storage project under development)
- Other available exchanges and transfers

Any direct SWP water demands that are not met by augmenting the SWP deliveries in a given year will be met by shifting production to other local water sources.

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Use Groundwater in Storage

The region's water management strategy prioritizes storing stormwater and SWP water in local groundwater basins during wet years when it is plentiful to store for later use during dry years when surface water supplies are limited. This strategy strengthens local water supply reliability and provides a buffer during naturally variable hydrologic conditions to reduce vulnerability to supply shortages.

San Bernardino Valley actively monitors groundwater storage levels each year. The San Bernardino Basin is adjudicated, protecting the integrity of the basin health and co-managed by San Bernardino Valley and Western Water. The region has adopted a proactive approach to recharging more water in wet years. San Bernardino Valley is working on developing a future groundwater storage program following a Basin Optimization Study. This will inform the development of management zones for each groundwater basin that will include response actions for each zone based upon storage levels.

1.4.3 Operational Changes

San Bernardino Valley and its retailers maintain mutual aid agreements to assist one another during emergency situations. In the event of a shortage, SBVMWD and the retailers will evaluate operational procedures to identify short-term solutions, such as temporarily altering maintenance cycles, deferring planned system outages, and adjusting flow routing to effectively distribute available supply. SBVMWD also maintains a Coordinated Operating Agreement with the Metropolitan Water District for mutual aid during shortages.

To ensure resilience during power outages or infrastructure failures, the region capitalizes on the following:

- The SWP maintains delivery capabilities during power outages as the system is primarily gravity-fed, with the exception of higher elevations in the eastern service area.
- To mitigate long-term power outages affecting local infrastructure, the region utilizes the Santa Ana River - Mill Creek Cooperative Water Project Agreement. Under this active exchange, Santa Ana River and Mill Creek water right holders can exchange water sources for SWP deliveries. This allows retailers within the San Bernardino Valley and Yucaipa to receive supplemental water deliveries entirely via gravity, bypassing the need for pumping.

1.4.4 Voluntary Demand Reductions

If San Bernardino Valley determines that the potential for a regional shortage condition exists, they may encourage voluntary demand reductions by retail agencies to reduce groundwater pumping and preserve storage for future dry years. Demand reductions would be implemented by each individual retailer through implementation of their respective WSCPs and would be supported by enhanced regional public outreach.

1.5 Shortage Response Action Effectiveness

The region expects to address any regional supply shortages through a combination of public outreach, SWP supply augmentation, use of groundwater in storage, operational changes and voluntary demand reductions, if needed. The estimated range of potential supply shortage reductions that could be achieved from each response action is summarized in Table 3.

Table 3: Potential Supply Shortage Reduction for Response Actions

RESPONSE ACTION	POTENTIAL SUPPLY SHORTAGE REDUCTION	DESCRIPTION
Ongoing Water Use Efficiency	n/a	SBVMWD supports regional water use efficiency programs and will track resulting demand reduction.
Public Outreach	Supports effectiveness of other actions	Anticipated shortages may trigger an appropriately sized outreach campaign to address the targeted demand reduction, which depends on the combined effectiveness of other shortage response actions.
SWP Supply Augmentation	Up to 15%	SWP supply augmentation options would help address any shortage for SWP direct deliveries and would depend on availability of those supplies.
Use Groundwater in Storage	Up to 100%	The use of groundwater in storage is expected to address up to 100 percent of anticipated shortages, depending upon the amount of groundwater in storage.
Voluntary Demand Reductions	Up to 20%	Efficacy of demand reduction efforts is difficult to estimate or predict. Water savings are a function of the extent to which public information campaigns reach water users and the degree of consumer response to those messages, as well as the response of individual retail agencies and their willingness and ability to implement and enforce their respective WSCPs Based on results from the previous drought, the region expects that region wide demands could be reduced by up to 20% depending on the severity of the shortage.

1.6 Emergency Response Plan

San Bernardino Valley and the retail water agencies recognize that water availability through the SWP is intermittent. As a result, SBVMWD’s Resolution No. 888 “Rules for Service”, requires that all of its customers have a 100 percent backup for any amount of water they order from the SWP.

The primary regional contingency strategy is groundwater storage. During an outage of the State Water Project, agencies would rely primarily on local groundwater supplies. One of the primary management strategies is to store water in wet years so that it is available in dry years. However, any additional stored water would also be available during other water shortages.

A second strategy for addressing water supply during an emergency is system redundancy and interconnections between purveyors.

Nearly all of the retailers in the San Bernardino Valley participate in the Emergency Response Network of the Inland Empire (ERNIE). ERNIE is a water/wastewater mutual aid network within San Bernardino and Riverside counties. ERNIE meets monthly and provides regular training for utilities in emergency response and long-term emergency planning.

Finally, San Bernardino Valley has identified alternative conveyance facilities which could be used in the event of a failure of one of SBVMWD’s pipelines. For example, San Bernardino Valley has an agreement with Metropolitan Water District of Southern California which could allow the use of the Inland Feeder Pipeline to bypass a large portion of San Bernardino Valley’s primary delivery pipeline, the Foothill Pipeline.

San Bernardino Valley developed an updated Emergency Operations Plan (EOP) in 2025, which includes a protocol to assess damage and threats during an emergency and restore facilities to service.

Potential threats include:

- Operational incidents, such as fire or bacteriological contamination of water associated with SBVMWD facilities.
- Outsider malevolent acts, such as threatened or intentional contamination of water, intentional damage/destruction of facilities, detection of an intruder or intruder alarm, bomb threat, or suspicious mail.
- Natural disasters, such as earthquakes, floods, or wildfires.

Since critical pieces of infrastructure and specific vulnerabilities are detailed in the EOP, the contents of the document are confidential and for use by SBVMWD’s staff only.

1.7 Regional Seismic Risk Assessment and Mitigation

This section addresses vulnerability of the region’s water supply system to catastrophic events that may interrupt the water deliveries in the Region.

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SBVMWD Hazard Mitigation Plan

In 2025, San Bernardino Valley updated its Hazard Mitigation Plan (HMP), which is included as Attachment 3 to this WSCP.

The HMP evaluates earthquake hazards and identifies that the San Andreas and San Jacinto Faults both traverse the District. These faults are capable of producing a major earthquake, with a magnitude of 6.7 or larger being a near certainty (99%) in the region within the next 30 years. An earthquake of this magnitude could cause extensive damage to San Bernardino Valley's facilities and could curtail or reduce water conveyance to retail water providers. Additionally, the Cucamonga Fault system and other smaller faults within the region are capable of generating shaking severe enough to damage property and disrupt water delivery.

The HMP establishes the following mitigation goals and strategies for earthquakes:

Goal:

To mitigate the effects of seismic activity on San Bernardino Valley facilities to prevent further damage, such as flooding, that could occur as a result of a pipeline break.

Objectives:

Technologically, there is no way to mitigate against a break in our pipeline during an earthquake event near SBVMWD pipelines, but there are ways to reduce post-event related damages to others (such as damage due to flooding).

This includes the installation of:

1. Installation of seismically activated actuators that automatically close valves in a seismic event.
2. SCADA technology that allows remote operation of facilities following an emergency
3. After emergency automatically starting remote electrical power.

These three items will each be required at the three-line valves along the Foothill Pipeline. These improvements could reduce damage, or destruction, of our facilities. Hydraulic energy dissipation (in which the water contained in the pipeline will act as a battering ram against the valves) will occur once any of our line valves are closed. To prevent this, operation of our valves must be operated quickly and efficiently to prevent additional breaks that are not a direct result of the earthquake event.

Mitigation Projects:

Foothill Pipeline Line Valve Vault Seismic Actuators

Vulnerability to Catastrophic Interruption of Water Supply and Disaster Preparedness

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Given the presence of the San Andreas Fault, San Jacinto Fault and many other faults, a large magnitude earthquake is generally considered the most likely and “worst case” natural disaster for the region. The other possible catastrophic interruptions such as regional power failure, terrorist attack, or other man-made or natural catastrophic event would cause similar conditions but would likely not be as severe.

The San Bernardino Valley is a seismically active area of Southern California. Four major fault zones are found in the region, including the San Jacinto Fault, the Chino-Corona segment of the Elsinore Fault, the Cucamonga Fault, and the SAF. Numerous other minor faults associated with these larger fault structures may also present substantial hazards. The SAF is a right-lateral strike-slip fault that runs approximately 800 miles through western and southern California. The fault marks a transform boundary between the Pacific Tectonic Plate and the North American Tectonic Plate. In Southern California, the SAF runs along the southern base of the San Bernardino Mountains, crosses through Cajon Pass, and continues northwest along the northern base of the San Gabriel Mountains. Historical records indicate that massive earthquakes have occurred in the central section of the SAF in 1857 and in the northern section in 1906 (the San Francisco Earthquake). In 1857, an estimated magnitude 8+ earthquake occurred on the San Andreas Fault rupturing the ground for 200 to 275 miles, from near Cholame to Cajon Pass and possibly as far south as San Geronimo Pass. The recurrence interval for a magnitude 8 earthquake along the total length of the fault is estimated to be between 50 and 200 years. It has been over 150 years since the 1857 rupture.

1.7.1 Facility Reliability

The following sections summarize the findings of the Vulnerability to Catastrophic Interruption of Water Supply and Disaster Preparedness prepared for the IRWMP. These findings have been developed from a search of literature reporting the impacts of major earthquakes and limited work by water purveyors.

1.7.2 Reliability of Groundwater Wells

Review of post-earthquake lifeline performance reports reveals little discussion of groundwater well failure. However, loss of utility power, damage to electrical equipment and above ground appurtenances, or damage to the distribution system may effectively put wells out of service. Liquefaction, especially in areas where there are high groundwater levels between depths of 5 to 50 feet, may cause ground settlement and interfere with continued well operation. No discussion of the performance of wellhead treatment systems during earthquakes was found. This may be due to the limited amount of wellhead treatment in place during prior earthquakes. As wellhead treatment typically includes purchased equipment installed in a field location, there is significant opportunity for lapses in the seismic design. The groundwater basin and the groundwater production wells are a reliable part of the water supply system for the San Bernardino area, but are ultimately owned and maintained by San Bernardino Valley’s retailers.

1.7.3 Reliability of Pipelines

Pipelines are generally the most fragile part of a water system. Typically, damage is a function of displacement rather than shaking. Empirical algorithms have been developed to predict seismic reliability of pipelines. San Bernardino Valley maintains pipeline redundancy to move water in the event of pipeline failures.

1.7.4 Reliability of Pump Stations

Past earthquakes indicate that the structural and mechanical elements of a pump station are highly resistant to earthquake damage. The most likely failures are to the electrical equipment and loss of commercial power. Most pump stations are either equipped with an automatic transfer switch to enable connection to a permanent standby generator or have an electrical outlet for connection to a mobile generator.

1.7.5 Reliability of Surface Water Treatment Facilities

The major elements of a surface water treatment system are typically concrete structures that are very resistant to damage. However, these facilities include a large variety of mechanical equipment, much of it long and lightweight and subject to damage not only from the direct force of an earthquake, but also from the wave action created by the earthquake. Similar to a pump station, power supply and electrical equipment are fragile. However, treatment facilities also are constructed with provisions for standby power, either permanent or temporary. Surface water treatment facilities within the region are owned and operated by retail agencies. In the event that these facilities are nonoperational, water deliveries can alternatively be made to recharge basins.

1.7.6 Reliability of the State Water Project

The State Water Project is operated by the California Department of Water Resources and it is susceptible to a wide range of challenges including but not limited to seismic-prone Delta levee system, sea level rise and saltwater intrusion that can diminish water quality, land subsidence reducing aqueduct capacity, regulatory and operational constraints that can limit pumping, and invasive species that poses a severe risk to infrastructure. Some of these challenges can disrupt the SWP for months and retailers in the San Bernardino Valley service area would have to shift to local supplies in case of extended outages. The SWP has a Climate Adaptation Strategy, Business Resumption Plan, and an Emergency Operations Plan to manage these challenges and ensure continuity of operations.

1.7.7 Strategies to Improve Regional Preparedness

Based on the recommendations in the 2020 Integrated Regional Urban Water Management Plan, the following strategies were identified to enhance regional disaster preparedness:

- San Bernardino Valley is planning to implement seismic improvements for high priority facilities, including the Foothill Pipeline.
- Projects are proposed that could provide water system redundancies for regional facilities. These include:
 - The Countyline Road Project provides resilience in the Calimesa area of the Yucaipa Subbasin
 - The Central Feeder/EBX2 Intertie, which provides an additional connection between SBVMWD's system and DWR's system and could be used to bypass a portion of SBVMWD's conveyance system in the event of failure.
- A catastrophic earthquake may cause loss of electricity for an indeterminate amount of time. In order to ensure water supplies in the immediate aftermath and weeks following a major earthquake, it is critical to have back-up generators or alternative power sources for important production wells throughout the Region.
- SBVMWD has a storage program to help meet direct delivery demands during a shortage on the SWP. The current storage program includes the Kern-Delta Water Bank, SWP carryover storage, the Yuba Accord and the State Water Contractors Dry Year Water Transfer Program. SBVMWD continues to evaluate "upstream" groundwater banks located along the California Aqueduct to help it provide direct deliveries when SWP supplies are their lowest.

1.7.8 General Response Strategies

The San Andreas Fault, which traverses the length of the southern San Joaquin Valley, could impact the State Water Project. The California Division of Mines and Geology has stated that two of the aqueduct systems that import water to southern California (including the California Aqueduct) could be ruptured by displacement on the San Andreas Fault. The situation would be further complicated by physical damage to pumping equipment and local loss of electrical power.

DWR has an Aqueduct Outage Plan for restoring the California Aqueduct to service should a major break occur, which it estimates would take approximately four months to repair. Limitations on supplies of groundwater and/or imported water for an extended period, due to power outages and/or equipment damage, could result in severe water shortages until the supplies could be restored.

The public would be asked to reduce consumption to minimum health and safety levels, extending the supply in treated water storage a number of days. This would provide sufficient time to restore a significant amount of groundwater production. After the groundwater supply is restored, the pumping capacity of the retail purveyors could meet the reduced demand until

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such time that the imported water supply was reestablished. Updates on the water situation would be made as often as necessary.

San Bernardino Valley's water sources are generally of good quality, and no insurmountable problems resulting from industrial or agricultural contamination are foreseen. If contamination did result from a toxic spill or similar accident, the contamination would be isolated and should not significantly impact the total water supply. In addition, such an event would be covered by the purveyors Emergency Response Plan.

1.8 Communication Protocols

San Bernardino Valley facilitates multiple regional meetings to encourage communication. These regular meetings provide a forum to coordinate on regional water management issues. In the event of regional water supply shortage, a meeting could be convened to discuss supply shortages and response actions. The region can also use these meetings to help coordinate consistent regional messaging in times of drought

1.9 Legal Authority

San Bernardino Valley does not have the legal authority to implement or enforce regional supply shortages or response actions. San Bernardino Valley and the retailers work cooperatively to support sustainable management of shared regional water supplies.

1.9.1 Declaration of Water Shortage

In accordance with CWC Section Division 1, Section 350, San Bernardino Valley shall declare a water shortage emergency condition to prevail within the area served whenever it finds and determines that the ordinary demands and requirements cannot be satisfied without depleting the water supply to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

1.9.2 Proclamation of Local Emergency

If a water shortage is approaching, San Bernardino Valley shall coordinate with any of the cities and counties in its service area for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

1.10 Financial Consequences of WSCP Implementation

This section describes the anticipated financial consequences to San Bernardino Valley of response actions. This description includes potential reductions in revenue due to lower water

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sales and increased expenses associated with implementing the shortage response actions in the WSCP.

Potential financial impacts could include:

- Reduced revenue from reduced SWP water sales
- Increased cost of obtaining supplemental SWP supplies.
- Increased staff costs for implementing enhanced public outreach and for increased regional coordination.

Potential mitigation measures could include:

- Using financial reserves
- Reducing operation and maintenance expenses
- Deferring capital improvement projects
- Passing through costs of supplemental water to retailers
- Reducing future projected operation and maintenance expenses
- Other financial management mechanisms

1.11 WSCP Refinement Procedures

San Bernardino Valley will monitor the implementation of this plan to evaluate its effectiveness as an adaptive management tool and periodically evaluate the need for any changes. Potential changes to the WSCP that would warrant an update include, but are not limited to, changes to the shortage level structure or response actions.

Any prospective changes to the WSCP would be presented to SBVMWD's Board for discretionary approval.

1.12 Plan Adoption, Submittal, and Availability

San Bernardino Valley adopted this Regional WSCP with the 2025 RUWMP. The 2025 RUWMP and Regional WSCP were made available for public review in May 2026 and a public hearing was held on June 2, 2026 to receive public input on the draft 2025 RUWMP and the Regional WSCP.

The SBVMWD Board of Directors adopted the 2025 RUWMP and the Regional WSCP at a public meeting on June 2, 2026. The resolution of adoption of the Regional WSCP is included as Attachment 1.

This Regional WSCP was submitted to DWR through the WUEData portal before the deadline of July 1, 2026.

This Regional WSCP will be available to the public on the San Bernardino Valley website.

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If San Bernardino Valley identifies the need to amend this WSCP, it will follow the same procedures for notification to cities, counties and the public as used for the 2025 RUWMP and for initial adoption of the Regional WSCP

References

California Department of Water Resources. (2026). 2025 Urban Water Management Plan Guidebook. Sacramento: California Department of Water Resources.

Texas Living Waters Project. (2018). Water Conservation by the Yard: A Statewide Analysis of Outdoor Water Savings Potential. Austin: Texas Living Waters Project, Sierra Club, National Wildlife Federation. Retrieved from Texas Living Waters Project.

United States Environmental Protection Agency, Office of Water. (2002). Cases in Water Conservation: How Efficiency Programs Help Water Utilities Save Water and Avoid Costs. United States Environmental Protection Agency

Attachment 1

WSCP Adoption Resolution

Attachment 2

Resolution 888

Effective January 1, 2003

RESOLUTION No. 888SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
RULES, REGULATIONS AND RATES FOR THE SALE AND DELIVERY
OF WATER

Be it hereby resolved by the Board of Directors of the San Bernardino Valley Municipal Water District that effective January 1, 2003 the following rules, regulations and rates for the sale and delivery of water are hereby enacted and further that Resolution No. 876 is hereby superseded.

ARTICLE I

DEFINITIONS

Section 1.01. Definitions. As used herein the terms set forth below shall be defined as follows and shall have such meaning unless the context indicates otherwise.

- a. Applicant: Any person or entity applying to the District for water service.
- b. Board: The Board of Directors of the District.
- c. Customer: An applicant for service, an approved applicant, or any person or entity receiving water service from the District.
- d. District: The San Bernardino Valley Municipal Water District.
- e. General Manager: The General Manager of the District.

ARTICLE II

QUALIFICATIONS FOR SERVICE

Section 2.01. Application for Service. Any applicant seeking a new, or revised, water service shall make application therefor in such form as may be prescribed by the General Manager. The General Manager shall investigate each such application and may require submission of additional information. The application and such additional information as may be required, together with the General Manager's recommendation thereon, shall be submitted to the Board for action thereon.

Section 2.02. Identification of Applicant and Intended Use. Each application shall state the legal capacity of the Applicant, e.g., public agency (indicating

Effective January 1, 2003

the type of agency and the law under which formed), corporation (indicating the state of incorporation and other pertinent information), partnership, limited liability company, or individual, and whether the Applicant is a public utility or mutual water company. The application shall also state the nature of the intended use or uses to which the water will be put, e.g., municipal, industrial, agricultural, domestic, groundwater recharge, etc., and the general geographic area of service. The application shall contain such information as may be required by the General Manager to show that the plan of use is in the public interest and in accord with good water resources management requirements as required by Section 5.03. Service may be refused if the Board determines it is not in the public interest or will not result in good water resources management.

Section 2.03. Nature of Service. Each application shall state whether untreated water or treated water meeting Department of Health Services standards for drinking water is required. Applications for untreated water shall contain such information as is necessary to assure that the District will not become subject to the obligations imposed by public health standards with respect thereto.

Section 2.04. Back-up Capacity. Each application shall contain information indicating that the Applicant is capable of sustaining its service requirements from independent sources during the period of any interruption of service from District facilities.

Section 2.05. Treatment Facilities. Each application shall contain information indicating that the Applicant has or will install such treatment facilities as may be required for the use or uses to which the Applicant intends to put the water.

Section 2.06. Power Generation Rights. Each application for service shall contain an assignment to the District of all rights to the generation of power from the use of the water supplied. Said rights shall extend to the generation of power as the water flows through District facilities and as it flows through such of the Applicant's facilities as are reasonably adapted for such purpose or can be reasonably adapted for such purpose. It shall be

Effective January 1, 2003

the responsibility of the District to pay its expenses for any exercise of its right to generation of power pursuant hereto, and no Applicant shall be subjected to extra expense in connection therewith. In appropriate cases, the District and the Applicant may install joint facilities for power recovery purposes. In the event the District determines not to exercise its rights, the Applicant may undertake to install recovery facilities for its own account.

Section 2.07. Right to Recapture Return Flows. Each application shall contain the agreement of the Applicant that the District shall have the prior right to recapture and reclaim any return flow from water supplied by the District to the Applicant or others, directly or indirectly, which reaches any groundwater basins within the District.

Section 2.08. Indemnity for Ground Water Recharge. Each application shall contain the agreement of the Applicant to provide the District with indemnity for damages to any lessee of the Applicant arising out of groundwater spreading operations of the District, or performed by others for it, in all circumstances in which the lease between the Applicant and the Applicant's lessees protects the Applicant against such damages.

Section 2.09. New Application May Be Required from Existing Customers. The District may require a new application from existing customers whenever there are changed circumstances or conditions which, in the judgment of the District, make a new application necessary or desirable.

Section 2.10. Application for Groundwater Replenishment. Except in cases in which the District undertakes to conduct groundwater replenishment operations on its own motion, an application shall be required whenever request is made that the District engage in groundwater replenishment operations, whether delivery is to be made to a customer, or such groundwater replenishment is to be conducted by or at the direction of the District without delivery to a customer.

Section 2.11. Water Conservation Program Requirements. It is the policy of the District to encourage all of its customers to implement active water

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conservation programs providing for installation and use of low-flow water fixtures, and for the encouragement of use of drought resistant landscape materials and efficient landscape watering methods. In accordance with such policy and the provisions of Sections 2.02 and 5.03, all applicants and customers shall establish and maintain a water conservation program designed to implement the foregoing conservation policies, and shall submit such evidence thereof as may be required by the General Manager.

ARTICLE III

INSTALLATION AND CONNECTION OF FACILITIES

Section 3.01. General Authorization. All service connections, including valves, pipe, meters and other equipment required, shall be installed at the expense of the Customer after authorization by the Board.

Section 3.02. Procedure. The District shall cause a service connection to be constructed pursuant to a written request by a Customer in accordance with plans and specifications approved by the General Manager and by an authorized representative of the Customer. Except as otherwise specifically authorized by the District, all equipment and materials required for constructing the service connection shall be acquired by the District in its customary manner, or the District may utilize therefor suitable equipment and materials on hand.

Section 3.03. Facilities Included; Ownership by the District. The service connection shall include the facilities for diversion of water from the District's system and for delivery of such water into the pipeline distribution system of the Customer or the Customer's distributor. The service connection up to and including the fitting connecting with the pipeline through which the Customer will receive water delivered through the service connection, which shall include metering instruments and a cabinet therefor, shall be the property of the District and shall be operated, maintained and controlled by the District.

Section 3.04. Back-flow. The Customer may be required to install adequate back-flow or back-siphonage equipment approved by the District or demonstrate adequate facilities exist to prevent back-flow into District

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facilities. The District solely shall determine when back-flow facilities are required and the type of device required. The device(s), when required, shall be installed at the service connection point and shall be maintained by the Customer by means satisfactory to the District.

Section 3.05. Pressure Surges (Water Hammer). All service connection applications shall include data showing that any operation (gravity or pumping from pipeline, if required) will not damage any District facility. Such data shall include, but is not limited to, surge analysis, structural calculation and hydraulic analysis for any pumping or delivery condition requested.

Section 3.06. Deposit of Estimated Costs. The costs of constructing the service connection shall be estimated by the General Manager, who shall inform the Customer's representative regarding the amount of such estimate. The total amount of such estimate shall be deposited by the Customer in advance of any action toward construction of the service connection, including all items peculiar only to a given service connection, or it may be deposited in stages, upon approval of the Board. Costs shall include reasonable allowance for costs of design, supervision and overhead, in addition to direct costs of labor, equipment and materials.

Section 3.07. Use of Deposit. Such deposit or deposits shall be held and used to defray the costs of constructing the service connection, and the District shall not be required to proceed with the construction of the service connection in the absence of sufficient funds deposited therefor.

Section 3.08. Settlement Upon Completion. Upon completion of construction of the service connection, the District shall render to the Customer a statement of all costs, in accordance with the customary practice of the District, incurred by the District in constructing the service connection; if such costs shall exceed the sum of money theretofore deposited by the Customer with the District the Customer promptly shall pay to the District the amount by which such costs shall exceed such deposit; and if such costs be less than the said sum of money so deposited, any unexpended balance of such deposit shall be returned by the District to the Customer.

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Section 3.09. Easement for Service Connection. The Customer shall cause to be granted to the District or the fee owner of the affected land, such easement as may be necessary in the opinion of the General Manager for the construction, operation, maintenance and repair of the service connection. Said easement and the grant thereof shall be approved by the District; provided, however, that fee title to the property required for such service connection may be acquired in the same manner as an easement and in lieu of an easement if the General Manager and Customer agree that it would be advantageous to do so. Customer shall provide, or the District may obtain, at Customer's sole cost and expense, a policy of title insurance insuring that clear title to the easement, or fee, is vested in the District, subject to any encumbrances that have been approved in writing by the General Manager. The amount of title insurance shall be determined by the acquisition costs, or as may be reasonably determined by the General Manager.

Section 3.10. Maintenance of Service Connection. Upon completion of the service connection, the District shall be responsible for any subsequent maintenance, alteration, reconstruction or relocation of such service connection except changes which are requested by the Customer, which changes shall be handled as a new service connection. However, prior to the release of water by the District into the pipeline distribution system of the Customer or of the Customer's affected distributor, each agency shall install its own flow control device or devices as a means of maintaining uniform flow.

Section 3.11. Environmental Requirements. Public agency customers are responsible for ensuring that the obligations of lead agencies as described in the California Environmental Quality Act and its implementing guidelines are fulfilled. The District shall fulfill all other obligations that may arise from its involvement in construction of the service connections and shall provide such information as it has available which is necessary to insure compliance with the Act and its implementing guidelines.

Section 3.12. Fair Value of Outlet. The fair value of an outlet installed during pipeline construction will be established by the General Manager at the time a service connection is constructed at the outlet, and the charge to

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a Customer for such an outlet will be based on this fair value; provided that any outlet larger than 24 inches or any outlet installed after a pipeline is placed in operation shall be charged for its actual cost.

ARTICLE IV

WATER SERVICE AND OPERATIONS

Section 4.01. Limitations of State Contract Service. All water service made pursuant to the District's State Contract shall be subject to all of the terms and conditions of the said State Contract and to any conditions affecting the State's source of supply or the availability of supply.

Section 4.02. Interruptible Service. All water supplied by the District shall be served upon an interruptible basis. Interruption may be occasioned either due to the terms of the District's State Contract or by reason of the District's requirements for maintenance and operation of its facilities, including the design and operating criteria established pursuant to Section 5.05. The District shall notify its customers in advance of any nonstandard interruption to the extent reasonably feasible. Due to the nature of the District's facilities and the potential modes of service required, the District cannot guarantee any specific level of pressure.

Section 4.03. Quality. Except as otherwise specifically agreed, all water served by the District is raw untreated water and shall not be supplied for domestic purposes by any customer without such treatment as may be required to comply with all applicable laws and regulations. The District makes no representation as to the quality of the water it supplies as to its suitability for any particular purpose. Reference is hereby made to Article 19 of the District's State Contract, but the District does not undertake to monitor the extent of the State's compliance or noncompliance with such standards, but only to transport said supply to its customers. With respect to any exchange water or other supply available to the District, the District shall be responsible only to exercise ordinary care in transporting and safeguarding said supply and shall not be responsible for the quality of such water as it is received by the District. The District may, however, reject any supply which is unsuitable by

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reason of contamination or pollution which render it impractical for the District Customers to treat and use the same.

Section 4.04. Special Classes of Service. The Board may from time to time establish special classes of service reflecting the special conditions applicable to such service. Such classes may include, but shall not be limited to the following:

- a. Service outside the District.
- b. Service to property not subject to District taxes.
- c. Service with a special rate in accordance with the terms of annexation to the District.
- d. Service pursuant to special contractual arrangements with the District.

Where service is made pursuant to the Santa Ana River - Mill Creek Cooperative Water Project Agreement, such service shall be made pursuant to the terms of that Agreement and any regulations applicable thereto, as well as these rules. Deliveries pursuant to the Cooperative Water Project Agreement will be made at the delivery points specified therein, to the members thereof in accordance with the instructions of the management committee and project manager and it shall be the responsibility of the member agency to make delivery to its Customers. Deliveries pursuant to the Cooperative Water Project Agreement will be limited strictly to the quantities and delivery points specified therein and any other deliveries (whether for quantities in excess of entitlements or for delivery at other delivery points), either directly or indirectly, will be subject to application and approval under these rules.

Water supplied for delivery to property not within the District or not subject to District taxes may be subject to a special outside rate as authorized by Water Code Section 71613. The outside rate may be applicable to any District delivery, wherever made, which makes water available for use on property not subject to District taxes, including (1) direct delivery to such property, (2) delivery to such property by exchange (e.g., delivery of District water

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within the District to make other water supplies otherwise used within the District available for use on property outside the District), and (3) any delivery ordered to make water available for use outside the District.

Section 4.05. Water Rates. All water rates for water service made by the District shall be established from time to time by the Board of Directors of the District. Water Rates are established in Appendix A hereto. Appendix A may be revised from time to time independent of any other revisions to these Rules and Regulations.

Section 4.06. Pressure and Flow Conditions. All Applicants and Customers are required to accept such conditions of pressure and service as are provided by the distribution system at the location of the proposed connection, and shall agree to hold the District harmless from any damages arising out of low pressure or high pressure conditions or interruptions of service. The District will not make deliveries at flows less than one cubic foot per second or for a period less than 24 hours. Orders for water must be placed one week in advance of actual delivery.

Section 4.07. Payment of Water Charges. Water charges are due and payable at the office of the District on date of mailing bill to the Customer or his agent as designated in the application and shall be delinquent 30 days thereafter. Service may be discontinued without further notice if payment of the water charge is not made prior to the date such charge becomes delinquent.

Section 4.08. Meter Testing. When the accuracy of a water meter is questioned, the District upon request will cause an official test to be made at its own expense. The Customer shall be duly notified of the time and place of such test and may be present when any such test is made by the District. The meter will be tested on variable rates of delivery and if the average registration is more than two percent in excess of the actual quantity of water passing through the meter, the District shall refund to the Customer the overcharge based upon the test, for the prior twelve months, unless it can be shown that the error was due to some cause for which the date can be fixed. In the latter case, the overcharge shall be computed back to and not beyond such time. Any undercharge determined upon the basis of the test may be billed to the Customer on a

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similar basis. Requests for a test within 12 months of a prior test will be at the Customer's expense unless the meter is determined to be over-registering deliveries as determined in this section.

Section 4.09. Deleted.

Section 4.10. Contents of Estimates. Each estimate furnished by a Customer shall contain, as a minimum, for each service connection for each month of the year beginning with the succeeding July 1, and for the entire Customer for each month of the succeeding four years, the following information:

1. The quantity of water to be delivered by District to the Customer.
2. The quantity of water to be used for:
 - a. Domestic, industrial, and municipal purposes, exclusive of groundwater replenishment by spreading or injecting.
 - b. Groundwater replenishment by spreading or injecting; and
 - c. Agricultural purposes.

The estimate shall constitute the member public agency's request for deliveries for the first of the five years covered therein.

Section 4.11. Revision of Estimates. The Customer may make revisions to any of its estimates upon reasonable notice to the District.

Section 4.12. Order for Water. Any Customer requesting delivery of water from the District shall place such order in writing. The General Manager may prescribe a suitable form for use in placement of water orders and may revise the same from time to time. Any customer water order shall be accompanied by a copy of the ordinance, resolution, minute order, or other action of the board or other governing body of the Customer which authorizes the placement of the order.

Section 4.13. Outside Sales. Water may be sold for use outside the District only when the Board finds there is

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a surplus above that required by consumers within the District, as authorized by Water Code Section 71612. All such sales shall be limited to the period of surplus and shall terminate when the water available is required for use within the District. Any sales for delivery within or without the District which makes water available for use on property outside the District shall be treated as an outside sale for such purposes, including (1) direct delivery to property outside the District, (2) delivery to property outside the District by exchange (e.g., delivery of District water within the District to make other water supplies otherwise used within the District available to use on property outside the District), and (3) any delivery ordered to make water available for use outside the District.

ARTICLE V

GENERAL

Section 5.01. Liability and Indemnification. Neither the District nor any of its officers, agents, or employees shall be liable for the control, carriage, handling, use, disposal, or distribution of water supplied by the District to a Customer after such water has been delivered to such Customer; nor for claim of damage of any nature whatsoever, including but not limited to property damage, personal injury or death, arising out of or connected with the control, carriage, handling, use, disposal, or distribution of such water beyond the point of such delivery; and the Customer shall indemnify and hold harmless the District and its officers, agents, and employees from any such damages or claims of damages. Neither the Customer nor any of its officers, agents, or employees shall be liable for the control, carriage, handling, use, disposal, or distribution of water prior to such water being delivered to the Customer; nor for claim of damage of any nature whatsoever, including but not limited to property damage, personal injury or death, arising out of or connected with the control, carriage, handling, use, disposal, or distribution of such water prior to its delivery to such Customer; and the District shall indemnify and hold harmless the Customer and its officers, agents, and employees from any such damages or claims of damages.

Section 5.02. Return Flows. All water sold and delivered by the District is subject to the right of the

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District to recapture and reclaim any return flow reaching any groundwater basin within the District.

Section 5.03. Water Resources Management Requirements. In order to promote good water resources management and prevent waste of water, undesirable groundwater conditions, and unnecessary expense to the inhabitants and taxpayers of the District, the District may encourage or require the use of alternate supplies where such is required to prevent waste or undesirable groundwater conditions and/or to prevent unnecessary expense to the District's inhabitants and taxpayers. The District may also encourage the use of special conservation facilities or devices where appropriate.

Section 5.04. Power Generation Rights. It is the policy of the District to retain the power generation rights from the use of the water which it supplies, without thereby imposing extra expense upon its Customers, and to cooperate with its Customers in installing power recovery facilities where appropriate.

Section 5.05. Design and Operating Criteria. The District's facilities have been designed and planned within the limits of available funding to meet water service and other needs within the District to the maximum extent feasible and to allow for maximum flexibility for use of facilities for different purposes and in different modes of operation. Such a system necessarily makes it impossible to always respond automatically to service demands when facilities are needed for conflicting demands or modes of service. It is the applicant's responsibility to consult with District staff to obtain information as to the District's requirements for connection and the capabilities of the District system before designing facilities for connection to the District system.

Section 5.06. Indemnification for Water Spreading. The District shall require execution of an agreement indemnifying the District and its officers, agents, and employees against liability for damages of any nature whatsoever, including but not limited to property damage, personal injury, or death, arising out of or resulting from, or connected with, groundwater replenishment by spreading or injecting which is conducted by or at the direction of the District pursuant to the application or request of a customer or water purveyor or in which water

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is to be delivered by the District to a customer or water purveyor for such use.

ENACTED: October 7, 1985 by Resolution No. 711

AMENDED: August 1, 1988 by Resolution No. 732


AMENDED: March 20, 1989 by Resolution No. 739

AMENDED: April 15, 1991 by Resolution No. 778

AMENDED: April 20, 1993 by Resolution No. 803


AMENDED: November 18, 2002

Enacted: November 18, 2002



President

ATTEST:



Secretary

(SEAL)

Effective January 1, 2003

Appendix A: Water Rates

Unless otherwise provided by contract, the following rates shall apply.

- a. **Tier I** water (Plan ahead): Water ordered, and agreed to be purchased, by a customer prior to December 31 of a year, for delivery in the following calendar year. Payment, at the Base Price, for 1/12 of the water ordered due at the end of each Tier I month. The order shall specify the amount ordered for each month of the year.
- b. **Tier II** water (Seasonal Storage): Water ordered, and agreed to be purchased, by a customer for groundwater recharge prior to December 31 of a year for delivery in January, February, March, April, or May of the following year. Payment, at the Base Price, for 1/5 of water ordered is due at the end of each Tier II month. The order shall specify the amount ordered for each month of the year.
- c. **Tier III** water (Spot Market purchase): Water ordered by a customer at any time during the calendar year for delivery within the same calendar year.
- d. **Base Energy Charge**: Unless otherwise established by the Board, the unadjusted cost of energy, in dollars per acre foot, to recoup the energy costs for delivering State Water Project water for use throughout the District. Said charge shall include the cost of pumping water from the Sacramento Delta to the Devil Canyon Afterbay as well as the energy cost of using the Crafton Hills Pump Station and the Greenspot Pump Station. The Board hereby establishes the Base Energy Charge at \$108 per acre foot.
- e. **Base Conveyance Charge**: A charge per acre foot of water delivered to a customer set to recoup a portion of the internal operations and maintenance costs of the District as set by the Board from time to time. The Board hereby establishes the Conveyance Charge at \$40 per acre foot.
- f. **Base Price**: The sum of the Base Energy Charge and the Base Conveyance Charge. The Base Price shall be charged to Customers for water delivered for use within the District which is not subject to the Tier I or II discount nor the Tier III surcharge.

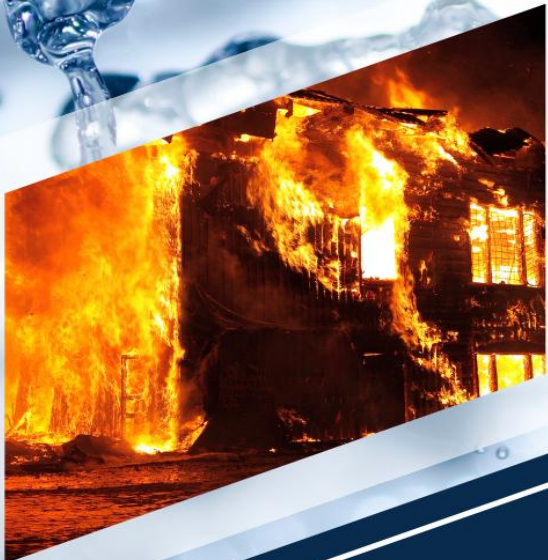
Effective January 1, 2003

- g. **Tier I discount:** For water ordered pursuant to Tier I and paid for by January 31 of the calendar year a discount of 15% off of the Base Price.
- h. **Tier II discount:** For water ordered pursuant to Tier II and paid for the calendar year by January 31 of the calendar year a discount of 20% off of the Base Price.
- i. **Tier III surcharge:** For water ordered pursuant to Tier III a surcharge of 25% will be added to the Base Price.
- j. **Outside Rate:** A charge per acre foot of water purchased from the District for use outside the boundary of the District. The rate to be set according to the then current DWR Bulletin 132 Appendix B, Table B-24, "Total Equivalent Unit Charge". Bulletin 132-02 rate is \$378.89/acre foot. At the sole discretion, the District Board may approve or not approve any request for deliveries outside the District.

Attachment 3

SBVMWD 2025 Hazard Mitigation Plan

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT LOCAL HAZARD MITIGATION PLAN 2025



LETTER OF PROMULGATION

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SECTION 1: INTRODUCTION

1.1 Hazard Mitigation Planning

Hazard mitigation is defined as any action taken to reduce or alleviate the loss of life, personal injury, and property damage that can result from a disaster. It involves long- and short-term actions implemented before, during and after disasters. Hazard mitigation activities include planning efforts, policy changes, programs, studies, improvement projects, and other steps to reduce the impacts of hazards.

The purpose of mitigation planning is for State, local, and tribal governments to identify the natural hazards that impact them and/or the environment, to identify actions and activities to reduce any losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of a wide range of resources.

The responsibility for hazard mitigation lies with many, including private property owners, commercial interests, and local, state and federal governments. For the San Bernardino Valley Municipal Water District (District), hazard mitigation planning is a process in which the District will:

- Document how the plan was developed and how the whole community was involved in the planning process
- Identify and profile hazards that affect the service area
- Analyze the District facilities and equipment at risk from those hazards
- Review progress of the 2018 mitigation projects
- Develop a mitigation strategy and actions to lessen or reduce the impact of the hazards profiled

The District's implementation of mitigation actions, which includes short-term or long-term strategies, is the planning process's primary objective. This type of planning will supplement the District's comprehensive planning and emergency management programs.

1.2 Local Mitigation Planning Requirements

Hazard mitigation planning is governed by the Stafford Act, as amended by the Disaster Mitigation Act of 2000 (DMA 2000), and by federal regulations implementing the Stafford Act. DMA 2000 revised the Stafford Act to require state, local, and tribal governments to develop and submit to FEMA a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the jurisdiction. Plan approval by FEMA is a

prerequisite to receiving federal hazard mitigation grant funds.

To implement the mitigation planning requirements of the Stafford Act, FEMA promulgated 44 CFR Part 201, the federal regulations governing the planning process, plan content, and the process for obtaining approval of the plan from FEMA. The planning requirements set forth in the CFR are identified throughout this plan mirroring the order of the FEMA Regulation Checklist in the Local Mitigation Planning Handbook.

Federal law and the State of California’s requirements for hazard mitigation plans require coverage of only natural hazards. The District’s 2020 Risk and Resilience Assessment/ Emergency Response Plan (2025) include technological and human-caused hazards as well as natural hazards. The planning team decided to cover both natural and technological/human-caused hazards for the LHMP, including a description and analysis of each hazard.

FEMA has produced a Local Mitigation Plan Review Tool (PRT) to document that each requirement is met for each participating jurisdiction. Local staff may use the PRT as a checklist to ensure all requirements have been addressed. FEMA and the state may also use the PRT to provide additional feedback to local governments, including special districts, which exceed the requirements. FEMA and the state may use the PRT to recommend improvements that may increase effectiveness. The Local Mitigation Plan Review Tool Regulation Checklist is provided in Appendix A of this document.

1.3 Hazard Mitigation Plan Description

The 2024 LHMP consists of the sections and appendices described below:

Table 1-1: Plan Sections, Appendices, and Descriptions	
Section 1: Introduction	Section 1 includes an introduction to hazard mitigation planning, lists the LHMP planning requirements, provides a description of the plan, and discusses grants related to hazard mitigation.
Section 2: Planning Process	Section 2 describes the planning process for the 2024 LHMP, including an overview of how the LHMP was prepared, identification of the LHMP planning team, involvement of outside agencies and communities, the inclusion of related plans, reports, and information, and stakeholder and public outreach activities.
Section 3: Planning Area Description	Section 3 includes a description of the natural and built states of the District, including climate, geography, demographics, and economic conditions.

Table 1-1: Plan Sections, Appendices, and Descriptions	
Section 4: Capability Assessment and Hazard Identification	Section 4 identifies and evaluates the resources available for hazard mitigation within the District.
Section 5: Risk Assessment	Section 5 provides a list of the hazards identified in the 2024 LHMP, a profile of each hazard and hazard summary, and a risk assessment of the planning area.
Section 6: Mitigation Strategy	Section 6 identifies and evaluates the current, ongoing, and completed mitigation projects and programs in the District and lists mitigation strategies for reducing potential losses.
Section 7: Plan Maintenance Procedures	Section 7 describes procedures for updating the LHMP to keep it current and for continued public engagement in the planning process.
Appendix A	Appendix A contains the FEMA Local Mitigation Plan Review Tool, which documents the District’s compliance with the local hazard mitigation plan requirements of 44 CFR Part 201.
Appendix B	Appendix B contains documentation of the planning process for the planning team, including invitations, attendee lists, meetings minutes, presentations, emails, etc.
Appendix C	Appendix C contains documentation of the planning process, including surveys, social media outreach and opportunity for comment for the stakeholders and public, and other stakeholder/public outreach efforts.
Appendix D	Appendix E lists acronyms and abbreviations used in the 2024 LHMP.
Appendix E	Plan Approval and Adoption Resolution

1.4 Grant Programs with Mitigation Plan Requirements

FEMA makes funding available for planning through the Hazard Mitigation Assistance (HMA) grant programs: the Hazard Mitigation Grant Program (HMGP); and the Flood Mitigation Assistance (FMA) Program. Approved mitigation plans are a requirement for local governments, including special districts, to be eligible for the projects funded under the HMA and other FEMA programs, including the Rehabilitation of High Hazard Potential Dams (HHPD).

1.4.1 Stafford Act Grant Programs

FEMA funding is provided to state, local, and tribal governments that have an approved Hazard Mitigation Plan through the following programs.

Hazard Mitigation Grant Program (HMGP)

The HMGP provides grants to implement long-term hazard mitigation measures after declaration of a major disaster. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. To qualify for HMGP funding, projects must provide a long-term solution to a problem, and the project's potential savings must exceed the cost of implementing the project.

HMGP funds may be used to protect either public or private property or to purchase property that has been subjected to, or is in danger of, repetitive damage. The amount of funding available for the HMGP under a particular disaster declaration is limited. Under the program, the federal government may provide a state or tribe with up to 20 percent of the total disaster grants awarded by FEMA and may provide up to 75 percent of the cost of projects approved under the program.

1.4.2 National Flood Insurance Act Grant Programs

Flood Mitigation Assistance Grant Program

The goal of the Flood Mitigation Assistance (FMA) Grant Program is to reduce or eliminate flood insurance claims under the National Flood Insurance Program (NFIP). This program emphasizes mitigating repetitive loss (RL) properties. The primary source of funding for the FMA program is the National Flood Insurance Fund. Grant funding is available for planning, project, and technical assistance. Project grants are awarded to local entities to apply mitigation measures to reduce flood losses to properties insured under the NFIP. In FY 2014, FMA funding totaled \$89 million. The cost-share for this grant is 75 percent federal and 25 percent nonfederal. However, a cost-share of 90 percent federal and 10 percent nonfederal is available in certain situations to mitigate

severe repetitive loss (SRL) properties.

Repetitive Flood Claims Program

The Repetitive Flood Claims (RFC) Program provides funding to reduce or eliminate the long-term risk of flood damage to residential and non-residential structures insured under the NFIP. Structures considered for mitigation must have had one or more claim payments for flood damages. All RFC grants are eligible for up to 100 percent federal assistance.

As of April 2025, the BRIC and FMA programs have been cancelled and defunded.

Section 2: PLANNING PROCESS

2.1 Plan History

The 2025 LHMP is an update of the 2018 Plan. It addresses and consolidates hazards analyzed in the previous plan and adds new hazards such as terrorism, cyber-attack, hazardous materials, power outage, and dam failure. The 2025 LHMP contains many of the mitigation actions listed in the 2018 version as they are ongoing and still relevant.

2.2 Plan Purpose and Authority

The purpose of the Plan is to identify natural and human-caused hazards that impact the District, to assess the vulnerability and risk posed by those hazards to District-wide human and structural assets, to develop strategies for mitigation of those identified hazards, to present future maintenance procedures for the plan, and to document the planning process. The Plan is prepared in compliance with DMA 2000 requirements and represents an updated LHMP.

The requirements for adopting this LHMP by all local governing bodies, as set forth in the Stafford Act and as amended by DMA 2000 and its implementing regulations, are described below. The local planning requirements are documented throughout the LHMP and in [Appendix A](#), FEMA Local Mitigation Plan Review Tool. This Plan Review Tool is documented in the governing body meeting resolution documented in Appendix E.

Funding for the development of the Plan was provided by the District's 2024-2025 Operations Budget. Navigating Preparedness Associates was retained by the District to provide consulting services in guiding the planning process and Plan development.

2.3 Planning Process Description

In October 2024, the planning process for the 2025 LHMP began. Select staff from various departments in the District, and other stakeholders were invited to join the Hazard Mitigation Planning Team to develop the 2025 LHMP. Documentation is located in Appendices B and C.

Email solicitations were sent to other utility companies and cities within the service area, requesting participation in the LHMP planning process. Documentation of the emails is contained in Appendix C, Public Engagement Process.

2.4 Planning Team

Members of the LHMP planning team are listed in **Table 2-1** below.

Table 2-1: LHMP Planning Team		
Department or Agency	Member Name	Key Role
San Bernardino Valley Municipal Water District	Greg Woodside, Chief of Planning & Watershed Resilience	Planning Team Member, provided input on hazard identification/analysis, developed mitigation activities, participated in the public outreach process.
San Bernardino Valley Municipal Water District	David McArthur, Water Operations Manager	Planning Team Member, provided input on hazard identification/analysis, developed mitigation activities, participated in the public outreach process.
San Bernardino Valley Municipal Water District	Wen Huang, Assistant General Manager	Planning Team Member, provided input on hazard identification/analysis, developed mitigation activities
San Bernardino Valley Municipal Water District	Mike Esquer, Senior Project Manager	Planning Team Member, provided input on hazard identification/analysis, developed mitigation activities
San Bernardino Valley Municipal Water District	Brent Adair, Project Manager II	Planning Team Member, provided input on hazard identification/analysis, developed mitigation activities
San Bernardino Valley Municipal Water District	Aaron Jones, Associate Engineer	Planning Team Member, provided input on hazard identification/analysis, developed mitigation activities
San Bernardino Valley Municipal Water District	Kelly Malloy, Strategic Communications Manager	Planning Team Member, provided input on hazard identification/analysis, developed mitigation activities, participated in the public outreach process.
San Bernardino Valley Municipal Water District	Leo Ferrando, Assistant Chief Engineer	Planning Team Member, provided input on hazard identification/analysis, developed mitigation activities, participated in the public outreach process.
San Bernardino Valley Municipal Water District	Adekunle Ojo, Water Resources Manager	Planning Team Member, provided input on hazard identification/analysis, developed mitigation activities, participated in the public outreach process.

Table 2-1: LHMP Planning Team		
Department or Agency	Member Name	Key Role
San Bernardino Valley Municipal Water District	Dan Borell, Geospatial Services Program Manager	Planning Team Member, provided input on hazard identification/analysis, developed mitigation activities, participated in the public outreach process.
Navigating Preparedness	Lee Rosenberg, Project Manager	Consultant
Navigating Preparedness	Francisco Soto, Planner	Consultant
Atlas Planning	Aaron Pfannenstiel, Planner	Consultant

2.4.1 Planning Team Activities

Two meetings were held with the planning team: representatives from the District held the responsibility of chairing the planning team. The District project manager reviewed all documents and sent out meeting notices. Appendix B documents the LHMP planning activities.

Table 2-2: Planning Activities		
Date	Activity	Purpose
October 17, 2024	LHMP Planning Team Meeting #1	Introduce core Planning Team members, review the project management plan, align expectations. Describe the regulatory issues of LHMP, the value of them, and the LHMP planning process. Distribute data collection forms.
January 27, 2025	LHMP Planning Team Meeting #2	Review potential hazards and select those that pose risks. Use CPRI. Review status of 2018 mitigation activities and update status. Review data-collection-sheet inputs, begin to develop potential mitigation activities. Request information for hazard analysis and potential losses.

2.4.2 Other Jurisdictions Agency/Organizational Participation

External organizations were invited to review the LHMP. They were invited by an MS Outlook invitation to a meeting of the Basin Technical Advisory Committee that reviewed the LHMP development process. Appendix B, Planning Team Meetings notes,

documents their engagement. They were also provided a copy of the draft to provide input. Table 2-3 lists the organizations and attendees:

Table 2-3: Organization Participation		
Organization	Staff	Participation
Yucaipa Valley Water District	Jennifer Ares	Plan Review, Public Outreach
Bear Valley Mutual Water Company	George Hanson	Plan Review, Public Outreach
Western Municipal Water District	Ryan Shaw	Plan Review, Public Outreach
Riverside Public Utilities	Farid Boushaki	Plan Review, Public Outreach
San Bernardino Valley Conservation District	Betsy Miller	Plan Review, Public Outreach
City of San Bernardino Municipal Water District	Miguel Guerrero	Plan Review, Public Outreach
City of Colton	Cecilia Griego	Plan Review, Public Outreach
Fontana Water Company	Chris Fealy	Plan Review, Public Outreach
City of Rialto	Toyasha Sebbag	Plan Review, Public Outreach
West Valley Water District	Linda Jadeski	Plan Review, Public Outreach

Copies of the draft LHMP were provided to the in the service area for their review. Comments received from these partners are incorporated in the final draft of the LHMP and are documented in **Appendix C**.

2.5 Community Engagement

It is important to note that the District is a wholesale water district that does not have any retail customers (residential or business customers). To effectively reach the public to inform them of the planning process and gather input, the District provided public notification through its website, Facebook and Instagram accounts. The District conducted an online survey to solicit input on the hazards that the service area faces and the types of mitigation activities the District should undertake. The draft LHMP was placed on the District website for public review and comment. The District also invited service area cities and other stakeholders to review the LHMP. Finally, notification of the draft LHMP review and adoption by the District Board was advertised as required by the Brown Act. During the month of July 2025, the District posted a link to the draft LHMP on its website and invited public to review and comment on the plan using their various

social media channels.

The Hazard Mitigation Survey results indicated that earthquake, drought, cyber security and wildfire were of biggest concern to the District's service area. Feedback from the survey was incorporated into the CPRI for each hazard which enhanced the priority for earthquake, drought and cyber security. Survey results did not provide feedback on any of the District's proposed mitigation actions. Additionally, respondents were greatly concerned about the effects the hazards would have on the District's water delivery system.

Appendix C contains screenshots and pictures of the outreach the District completed.

2.6 Incorporation into Other Planning Mechanisms

The LHMP planning process provided the District with an opportunity to review and expand on policies contained in its capital improvement plan (CIP) and other plans. The District views the CIP and the hazard mitigation plan as complementary documents that work together to reduce risk exposure to the residents of its service area. Many of the ongoing recommendations identified in the LHMP are programs or projects that are in the CIP.

The District's 2025 hazard mitigation identification, risk assessment, plan recommendations and mitigation actions will be integrated into the following planning mechanisms.

Emergency Response Plan (ERP)

- Hazards identified in this LHMP were incorporated into the ERP.
- Ensured that the ERP incorporates the hazard profiles and mitigation strategies from the LHMP for a cohesive response framework.
- Conducted joint training and exercises based on scenarios identified in the LHMP to improve preparedness.
- Ensure response objectives align with the risk identified in the LHMP

Risk and Resiliency Assessment (RRA)

1. Hazard Identified in this LHMP were incorporated into the RRA.
2. Mitigation strategies from the RRA will align with those in the LHMP.
3. The Risk Assessment in this LHMP will align with the RRA.
4. Infrastructure identified in the RRA will align with the LHMP.

Capital Improvement Plan

1. Aligned LHMP actions with climate adaptation strategies to address the increasing frequency and severity of hazards due to climate change.
2. Infrastructure Resilience: Planned for the Install of energy efficient equipment and harden emergency backup power at critical facilities.
3. Ensure the updated CIP's goals align with the 2025 LHMP

Incorporating action items and processes from the 2025 LHMP into various planning documents will be completed as other plans are updated, and new plans are developed. These efforts may coincide with the Plan Maintenance Method and Schedule activities listed in Section 7.

2.7 Review of Existing Plans, Reports, Technical Documents, and Data

In updating the LHMP, the planning team used a large number of resource documents and references. Table 2-4 contains a comprehensive list of guidance and tools incorporated to create the current Plan.

Table 2-4: Resource Documents and References Reviewed and Incorporated in the Plan Update		
Referenced Document or Technical Source	Resource Type	Description of Reference and Its Use
General Plans for the Cities of San Bernardino, Highland, Colton, Loma Linda, Redlands, Rialto	Comprehensive Plan	Source for history as well as demographic and development trend data for the service area.
Integrated Regional Water Management Plan 2020	Water Management Plan	The UWMP Act requires water agencies to develop UWMPs to provide a framework for long-term water planning and information regarding long-term resource planning to ensure sufficient water supplies are available to meet existing and future demands. Urban water suppliers must report, describe, and evaluate water deliveries and uses, water supply sources, efficient water uses, demand management measures, and water shortage contingency planning.
San Bernardino Valley Emergency Operations Plan	Response Plan	The District has developed a comprehensive Emergency Operations Plan to prepare for and mitigate the effects of earthquakes, floods, fires, hazardous material releases, and power outages. The response procedures and organization strategies provide a step-by-step guide to response and operations during the aforementioned events. The specific natural hazard response procedures included in the EOP identified which hazards the District viewed as a specific threat.
San Bernardino County Operational Area Emergency Response Plan	Comprehensive Response Plan	All hazards emergency response plan.
Department of Water Resources Risk Informed Strategic Plan for the State Water Project	State Water Project Strategic Plan published in January 2024	Describes DWR’s approach to provide a reliable, sustainable, and resilient water system for the people and environment of California

Table 2-4: Resource Documents and References Reviewed and Incorporated in the Plan Update		
Referenced Document or Technical Source	Resource Type	Description of Reference and Its Use
State Water Project Delivery Capability Report 2023	DWR’s State Water Project Delivery report (published July 2024)	Provides a comprehensive analysis of the current and future conditions for the State Water Project water supply.
Climate Adaption and Resilience Plan adopted by San Bernardino Valley (2024)	Planning and Technical Document	Programmatic roadmap to increase San Bernardino Valley’s operational resilience and reduce contributions to climate change.
California Climate Change Center (2006). Our Changing Climate: Assessing the Risks to California. A Summary Report from the California Climate Change Center http://meteora.ucsd.edu/cap/pdf/files/CA_climate_Scenarios.pdf	Technical and Planning Resource	Describes monitoring, analysis, and modeling of climate as well as efforts designed to reduce emissions.
California Climate Change Center (2012). Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. A Summary Report on the Third Assessment from the California Climate Change Center http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf	Technical and Planning Resource	Describes monitoring, analysis, and modeling of climate as well as efforts designed to reduce emissions.
California Governor’s Office of Emergency Services http://myhazards.caloes.ca.gov/	Technical and Planning Resource	Provides a tool for the general public to discover hazards in their area (earthquake, flood, fire, and tsunami) and learn steps to reduce personal risk.
California Department of Conservation https://www.conservation.ca.gov/cgs/geohazards	Technical and Planning Resource	Identifies significant geologic hazards that exist or are likely to exist so that informed land use and emergency response planning decisions can be made.

Table 2-4: Resource Documents and References Reviewed and Incorporated in the Plan Update		
Referenced Document or Technical Source	Resource Type	Description of Reference and Its Use
Federal Emergency Management Agency	Technical and Planning Resource	Resource for LHMP guidance (How-To series), floodplain and flood-related NFIP data (mapping, repetitive loss, NFIP statistics), and historic hazard incidents. Used in the risk assessment and mitigation strategy.
HAZUS-MH	Technical Resource	Base data sets within the program were used in the vulnerability analysis.
National Centers for Environmental Information https://www.ncdc.noaa.gov/data-access	Technical Resource	Online resource for weather-related data and historic hazard event data. Used in the risk assessment.
National Integrated Drought Information System (2019) https://www.drought.gov/drought/	Technical Resource	Source for drought-related projections and conditions. Used in the risk assessment.
National Inventory of Dams (2018) https://www.fema.gov/2018-national-inventory-dams	Technical Resource	Database used in the dam failure hazard profiling. Used in the risk assessment.
National Weather Service https://www.weather.gov/	Technical Resource	Source for hazard information, data sets, and historical event records. Used in the risk assessment.
United States Geological Survey (2018); Earthquake Hazards Program https://earthquake.usgs.gov/hazards/hazmaps/conterminous/	Technical Data	Source for geological hazard data and incident data. Used in the risk assessment.

SECTION 3: PLANNING AREA DESCRIPTION

The following section provides information on the District’s service area. It includes location, geology, climate, history, government, economy, demographics, land use and cultural and natural resources.

3.1 Location

The District service area covers about 353 square miles in southwestern San Bernardino County, which is scheduled to have a new EOC, about 60 miles east of Los Angeles, and has a population of about 714,000. It spans the eastern two-thirds of the San Bernardino Valley, the Crafton Hills, and a portion of the Yucaipa Valley and includes the cities and communities of San Bernardino, Colton, Loma Linda, Redlands, Rialto, Bloomington, Highland, East Highland, Mentone, Grand Terrace, and Yucaipa. Elevations within the District range from 827.5 to 6,635.5 feet above sea level. The boundary is shown against the regional topography in **Figure 3-1**.

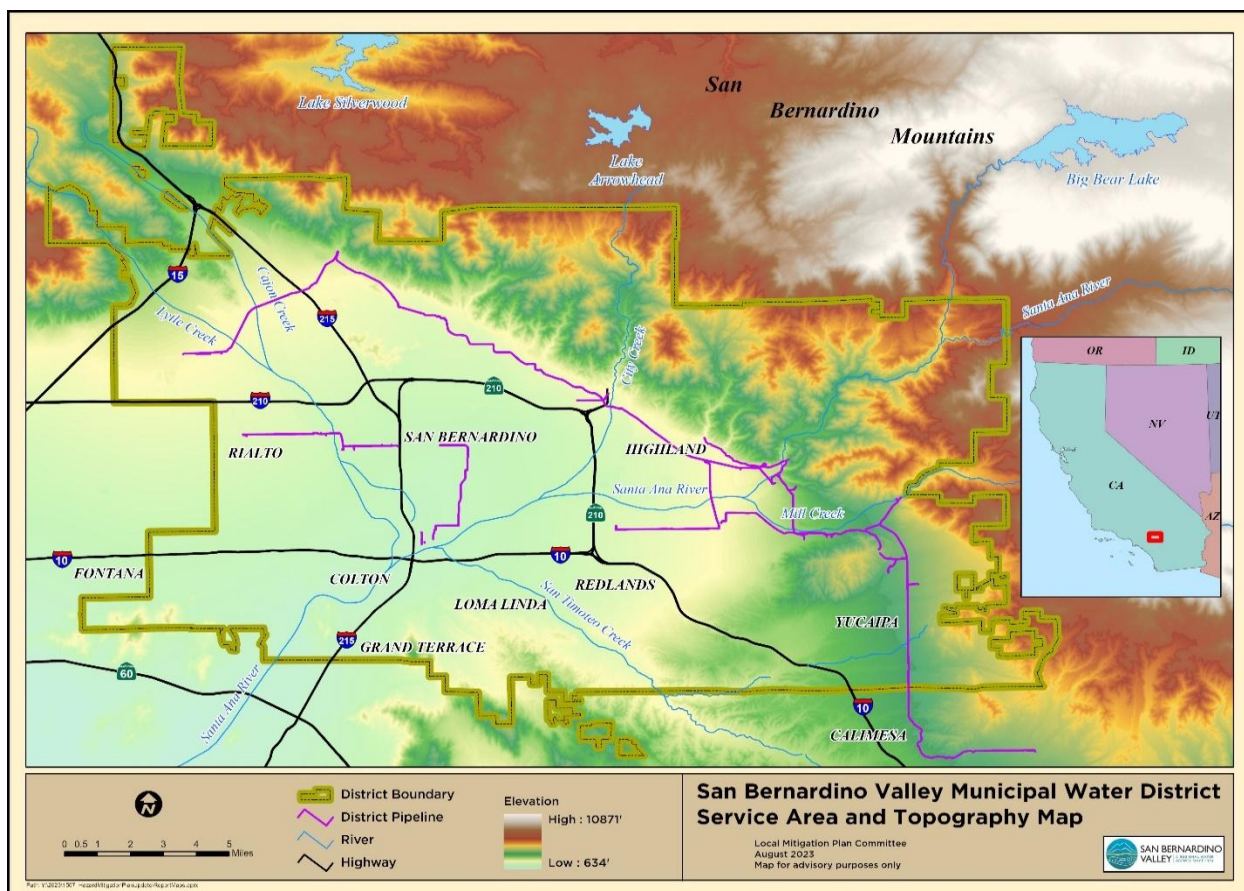


Figure 3-1: The District Service Area

The entire service area lies within the Santa Ana River watershed. Major waterways include the Santa Ana River and two of its tributaries: Mill Creek and Lytle Creek. Flows along many areas of these streams are typically low or intermittent. These are shown in **Figure 3-2**. Most of the District’s water resources come from groundwater stored within the San Bernardino Basin Area (**Figure 3-2**). This 112 square mile basin has an estimated capacity of 5.5 million acre-feet of water.

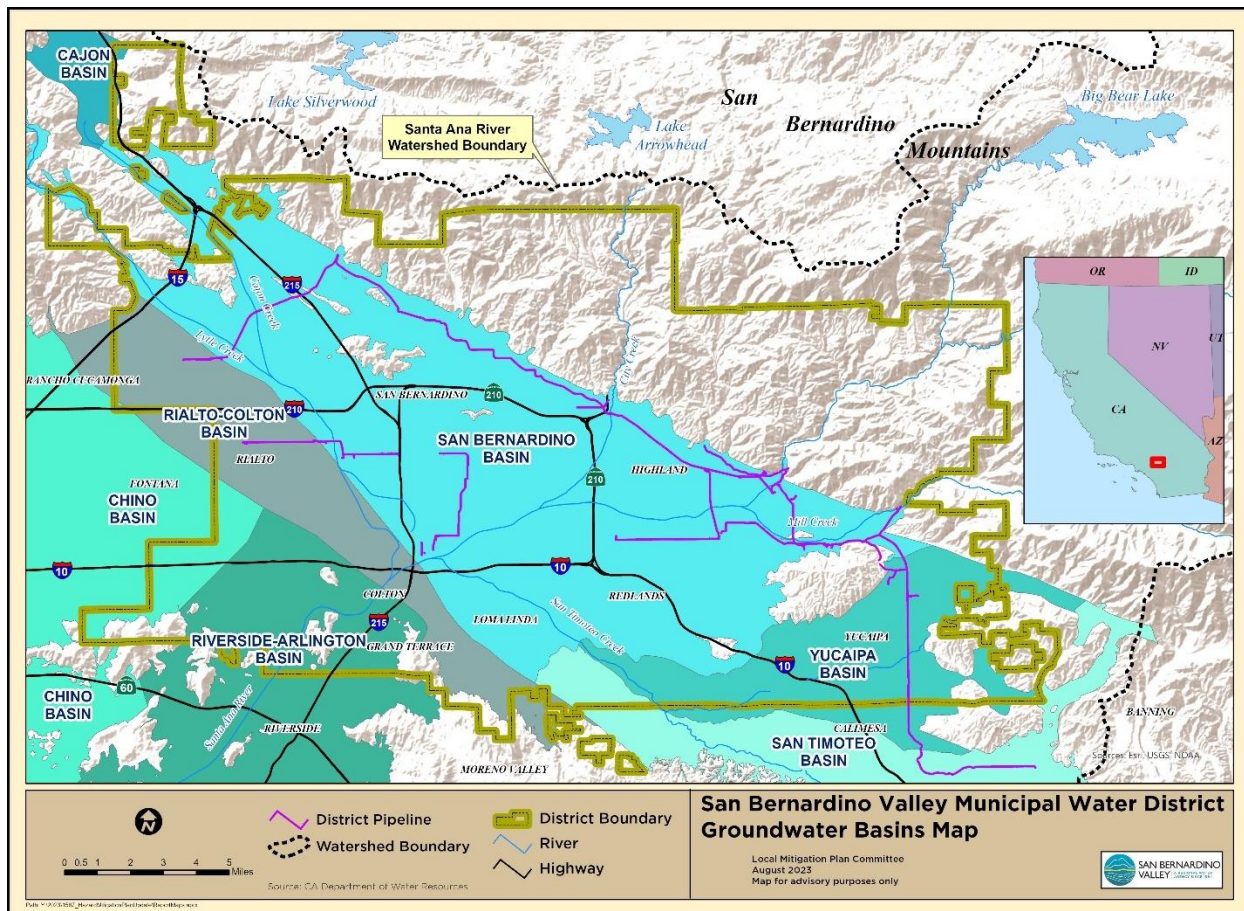


Figure 3-2: Major Rivers and Groundwater Basins

3.2 Geology

The District’s service area is characterized by a diverse geological landscape. The region encompasses several mountain ranges, including the San Bernardino Mountains, which are part of the larger Transverse Ranges. These mountains are primarily composed of ancient crystalline rocks, including granite and metamorphic rocks, which date back to the Precambrian era.

The San Bernardino Valley floor is underlain by alluvial deposits brought down by rivers

and streams from the surrounding highlands. These sediments, consisting of sands, gravels, silts, and clays, create a fertile ground for the extensive aquifers that serve as vital water sources for the region. The alluvial deposits can reach substantial thicknesses, particularly in the areas surrounding the San Bernardino Basin, which is a critical groundwater reservoir.

Tectonic activity has played a significant role in shaping the geology. The San Andreas Fault, one of the most well-known fault lines in the world, runs through the region, influencing the local topography and contributing to seismic activity.

3.3 Climate

Within the service area, the valleys between mountain ranges experience very high temperatures. Rainfall and humidity are low. Differences in elevation and topography are in large part responsible for variations in temperature and precipitation from the valley and desert areas.

Winter low temperatures in some areas of the desert range near 40°F, the cold is often compounded by the wind-chill factor. In the summer, temperatures can reach as high as 100°F in the lower elevations. Temperatures in the San Bernardino valley area range from an average high of 80°F and an average low of 53°F. The record high for the area is 117°F and the record low is 17°F. The annual average rainfall for the area is 15.6 inches. During the fall and winter months, strong “Santa Ana” winds blow across the area contributing to wildland fire danger.

3.4 History

The District was incorporated on February 17, 1954, as a regional agency to plan for long-range water supply for the San Bernardino Valley. The primary source of supplemental water is from the California State Water Project (SWP). The District is one of 29 State Water Contractors who are part of the SWP. The District's ultimate annual entitlement for Table A SWP water is the fifth largest at 102,600 acre-feet. There are approximately 60 miles of 12" to 78" diameter pipeline in the District's water conveyance system. The District has 35 delivery points which supply both native and SWP water for direct delivery or groundwater recharge to local water retailers and cities water departments.

The District is also responsible for the management of the groundwater basins of the region. Some of the basins are regulated by court judgments that are enforced by a court appointed Watermaster.

3.5 Government

The District is governed by a five-member, locally elected Board of Directors. Each Director serves a four-year term. The Board of Directors is responsible for promoting and maintaining proper and efficient management by establishing policies, rules, and regulations that best serve the needs of the District and the community it represents. The Board of Directors meet the first and third Tuesday of the month at 2:00 p.m. at the District's Administrative Office located at 380 East Vanderbilt Way in San Bernardino.

3.6 Economy

Like most communities in Southern California, the District's service has experienced a continual increase in population. This has been accompanied by changes in the economic base as agricultural and vacant land were replaced with residential housing and commercial buildings providing commercial and service sector employment.

Much of the regional population growth since the 1970s was linked with the economies of Los Angeles and Orange Counties. Less expensive housing prices than Orange and Los Angeles Counties resulted in creation and expansion of commuter communities. Additional population growth was due to a marked increase in immigration from Mexico, Latin America, and the Pacific Rim.

Industry includes major agricultural production of citrus and vegetables in the Redlands area, a major medical center in Loma Linda and key railroad transfer facilities in Colton, Rialto, and San Bernardino. Other industries are represented by a major petroleum products terminal in Colton, software development in Redlands, and cement production.

San Bernardino was home to a large Air Force Base until 1994. It is also home to a large campus in the California State University system.

The transportation industry heavily utilizes the intersection of the I-10 and I-215, and their corridors for warehousing and logistics hubs. A casino is located in the Highland area.

Key factors that describe San Bernardino County's current economic conditions are:

- While the region has made significant strides in reducing poverty among its residents, homelessness, housing affordability, and public safety continue to be a challenge.
- The county is a major transportation hub, with three airports, two major railroads and highways stretching in every direction.
- Buoyed by the rapid growth of its Transportation & Warehousing sector, the county's economy experienced a strong recovery from the COVID-19 pandemic.
- While Transportation & Warehousing growth has brought with it many opportunities to obtain well-paying jobs, it has also increased the vulnerability of the county to unpredictable downturns in the industry, geopolitical risks, and long-term trends toward automation. As such, there is an urgent need for the county to diversify its economy into other promising industries and to prepare its workforce for automation.
- The county's unemployment has returned to its pre-pandemic low, but rates are

not equal across race and ethnicity.

- The vast majority (69%) of residents do not have a college degree, with Hispanic residents holding the lowest educational attainment rates in the county.
- Job growth is driven by the Transportation & Warehousing and Healthcare industries.
- The county's location makes it prone to water scarcity challenges but also a prime location for solar and wind energy installations.
- Compared to statewide and national metrics, the county has worse health outcomes, but comparable rates of health insurance.

3.7 Demographics

Because the District serves a large portion of San Bernardino County residents, demographics of the District's service area closely resemble that of the overall county's demographics.

Ethnic composition includes Hispanics (55.8%) who form the largest share of the County's population, followed by Non-Hispanic Whites (25.4%). African Americans (9.4%) and Asian Americans (8.5%) form a relatively lower share of the total population. The Hispanic population is growing at the fastest rate among all ethnic groups, followed by African Americans and Asian Americans. Over 21% of the population is foreign born.

Key statistics include:

- Education – High School = 82.1%, College = 22.9%
- Medium household income = \$82,184 (2023)
- Persons living in poverty = 13.2%
- Population per square mile = 107 (2020)
- Person per household = 3.21

3.8 Land Use and Developing Trends

While the District encompasses several cities and parts of two counties, it doesn't directly govern land use within its territory. **Figure 3-3** depicts land use by category within the service area. Land used is characterized by large residential developments, transportation hubs and corridors and commercial warehousing complexes. Much of the northern service area is mountainous and lies in the San Bernardino National Forest. Outside the mountains, most of the land is dedicated to residential communities.

Over the past five years, land in the service area has continued to be developed.

Multiple, new residential development have been completed or are in progress. Perhaps the most notable change in land use has been proliferation of warehouses and logistics hubs. Another area of changing land use has been the recent movement of high-tech enterprise into the region.

The District does not intend to construct new buildings or develop infrastructure outside of that enumerated within the Capital Improvement Plan or the mitigation actions described within this LHMP. District-led development on District-owned lands during this LHMP's cycle will primarily include CIP projects. The District may consider building facilities at the Sunrise Ranch property near Redlands.

3.9 Cultural and Natural Resources

The service area abundant natural resources are integral to quality of life, community identities, and economic success. Natural resources include agricultural/grazing lands, watersheds, minerals, native plants and wildlife, and plant and wildlife habitat areas. Appropriately managed, they provide safe air and water for our people and the environment, improve the health of our residents and workers, attract visitors from around the world, and sustain the productivity of our local and national economies.

As air and water quality are largely regulated by regional, state, and federal agencies, the District complies standards set by and coordinates with such agencies. Similarly, the protection and conservation of biological resources is primarily regulated and controlled by state and federal agencies. The District operates within state and federal laws and participates in local and countywide efforts to promote biodiversity and healthy ecosystems

The Santa Ana River (SAR) watershed is the largest stream system in Southern California and nearly all of the surface flow generated in the headwaters of the San Bernardino Mountains flows through the IRUWMP region before being discharged to the Pacific Ocean between Newport Beach and Huntington Beach. The SAR watershed covers over 2,650 square miles of widely varying forested, rural, and urban terrain and includes populated urban areas of San Bernardino, Riverside, and Orange Counties, as well as a lesser portion of Los Angeles County. Much of the District lies within this watershed.

The Upper Santa Ana River Watershed covers 852 square miles, approximately 32% of the total SAR watershed, and is primarily located in San Bernardino and Riverside Counties. The Region includes the Big Bear Valley as well as the cities and communities of San Bernardino, Yucaipa, Redlands, Highland, Rialto, Mentone, Colton, Grand Terrace, Loma Linda, Beaumont, and Riverside.

None of the planned mitigation actions in the LHMP will negatively impact water sources. This is due to the relatively small geographic scope of infrastructure projects (relative to the size of the watershed) and focus management practices that promote sustainability.

Headwaters Resiliency Partnership

The headwaters of the Santa Ana River lie in the San Bernardino Mountains and Foothills, where approximately 90% of local precipitation falls. Approximately 67% of San Bernardino Valley’s local water supply originates from the San Bernardino Mountains and Foothills. The criticality of this area to the region’s water supply led to the establishment of the Inland Empire Headwaters Resiliency Partnership (HRP) in 2024.

Current efforts of the HRP are focused on formalizing the partnership through charter or agreement, developing framework documents to memorialize shared goals and objectives, and implementing proactive management actions within the headwaters of the Santa Ana River Watershed. The goals of the HRP align with San Bernardino Valley’s Climate Action and Resilience Plan (CARP). Guiding Principle 1 of the CARP is for the District to maintain a diverse water portfolio that is adaptable to a changing climate. To that, the CARP recognizes that the District provides leadership in supporting the improved health and function of the region’s forest headwaters which are critical to its water supply. The CARP also captures that the District acts as a regional convener on this and other initiatives and is coordinating the HRP, which brings partners and stakeholders together to identify innovative ways to fund proactive management and investments in the long-term health of the San Bernardino National Forest, which includes the headwaters of the Santa Ana River Watershed and supports local water resources within the District.

3.10 Changes in Development

Tracking previous and future growth in potential hazard areas provides an overview of increased exposure to hazards within a community. Hazard mitigation plan updates must be revised to reflect changes in development within the planning area during the previous performance period of the plan, as stated in 44 CFR Section 201.6(d)(3). The plan must describe changes in development in hazard- prone areas that increased or decreased vulnerability since the last plan was approved. All new development was regulated pursuant to local programs and codes, such as the International Building Code and flood damage prevention requirements of the National Flood Insurance Program (NFIP). Therefore, hazard vulnerability did not increase between the planning cycles.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Local Hazard Mitigation Plan 2025 – Public Review Draft

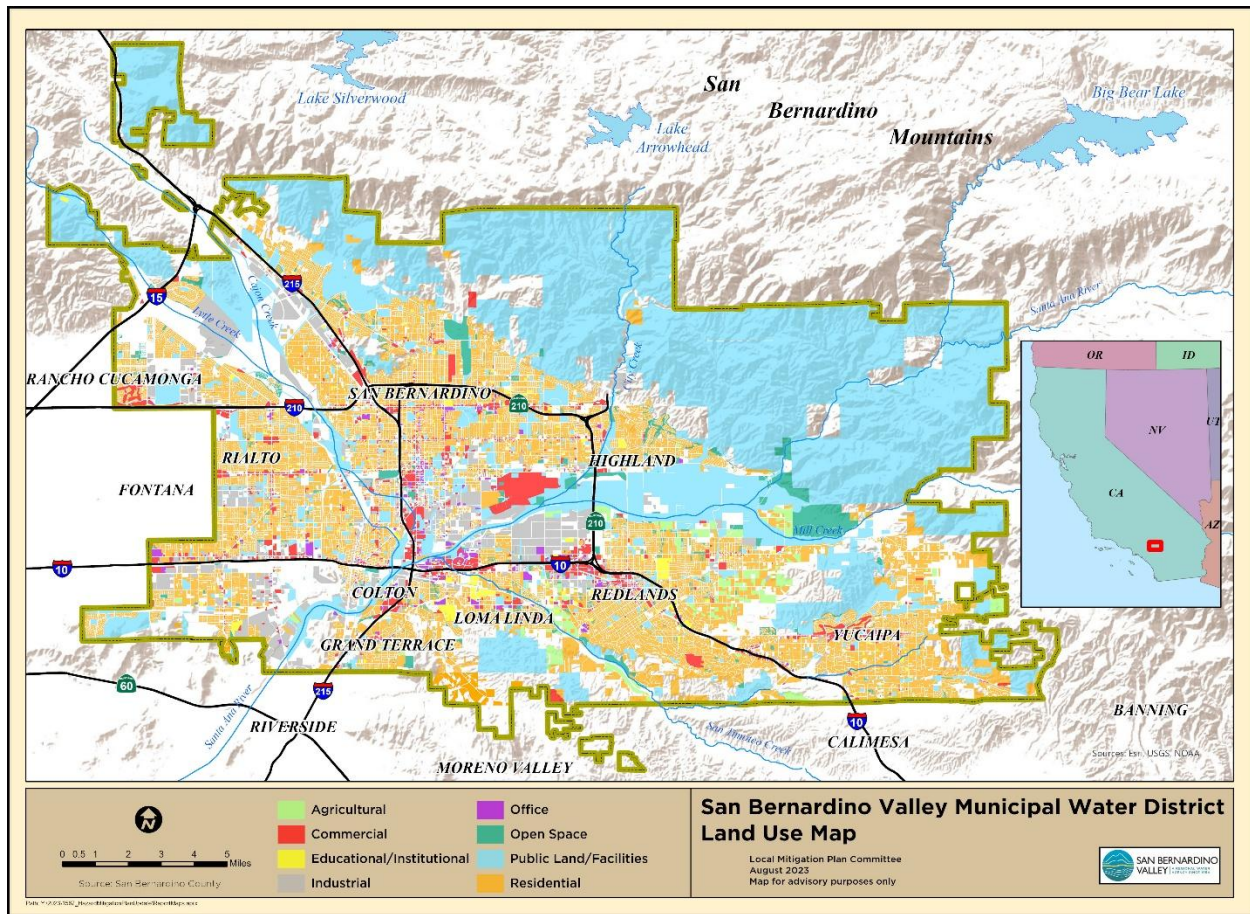


Figure 3-3: Regional Land Use

SECTION 4: CAPABILITIES ASSESSMENT AND HAZARD IDENTIFICATION

The federal regulations require local mitigation plans to identify goals for reducing long-term vulnerabilities to the identified hazards in the planning area (Section 201.6(c)(3)(i)).

A hazard mitigation plan's primary focus is the mitigation strategy. It represents the efforts selected by the District to reduce or prevent losses resulting from the hazards identified in the risk assessment. The strategy includes mitigation actions and projects to address the risk and vulnerabilities discovered in the risk assessment. The mitigation strategy consists of the following steps:

- Identify and profile hazards and risks within the service area.
- Identify projects and activities that can prevent or mitigate damage and injury to the population and buildings.
- Develop a mitigation strategy to implement the mitigation actions.
- Develop an action plan to prioritize, implement, and administer the mitigation actions.
- Implement the LHMP mitigation action plan.

A capability assessment was conducted of the District's authorities, policies, programs, and resources. From the assessment, goals, and mitigation actions were developed. The planning team also developed a plan to prioritize, implement, and administer the mitigation actions to reduce risk to existing buildings and new development.

4.1 Existing Authorities, Policies, Programs, and Resources

An assessment of authorities, policies and programs, and resources was conducted to identify capabilities that reduce vulnerability to hazards. The capabilities include:

- Authorities and policies, such as legal and regulatory resources
- Fiscal resources
- Professional staff
 - Technical personnel such as planners/engineers with knowledge of land development and land management practices
 - Engineers trained in construction practices related to building and infrastructure,
 - Planners and engineers with an understanding of natural or human-caused hazards

- Floodplain managers, surveyors, personnel with GIS skills, and staff with expertise of the hazards in the planning area).

The planning team also considered ways to expand on and improve these existing policies and programs to integrate hazard mitigation into the day-to-day activities and programs of the District. **Tables 4-1, 4-2, 4-3, and 4-4** summarize the existing authorities, policies, programs, and resources to implement mitigation actions and projects.

4.1.1 Planning and Regulatory Capabilities

Planning and regulatory capabilities include local ordinances, policies, and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes, and zoning ordinances. These capabilities may be used to inform and support mitigation planning or may be modified as mitigation action. **Table 4-1** lists District planning and regulatory capabilities. Under the Description column is an explanation of the District’s ability to use the LHMP to expand on and improve these existing policies and programs.

Table 4-1: Local Planning and Regulatory Capabilities				
Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Version/ Date	Capability Type (Planning, Regulatory, Administrative, Technical, or Financial) if known
Climate Adaptation and Resilience Plan	Programmatic roadmap to increase San Bernardino Valley’s operational resilience and reduce contributions to climate change <u>Expansion and integration:</u> Updates to the LHMP must address climate change as per California SB 379. These updates can be coordinated with the Climate Adaptation and Resilience Plan.	Climate Change, Drought, extreme precipitation	Adopted October 15, 2025	Planning and Technical
The Upper Santa Ana River Watershed Integrated	Addresses major water management issues for the communities of the Upper Santa Ana River Watershed.	Climate Change, Drought	Updated in 2021	Planning Regulatory Technical

Table 4-1: Local Planning and Regulatory Capabilities				
Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Version/ Date	Capability Type (Planning, Regulatory, Administrative, Technical, or Financial) if known
Regional Water Management Plan (IRWMP)	<u>Expansion and integration:</u> The LHMP should include mitigation activities that relate to long term watershed protection and sustainment.			
Emergency Operations Plan (EOP)	Describes District hazards and preparedness/ response actions to address them. <u>Expansion and Integration:</u> The District EOP contains a list of hazards. The LHMP provides a similar, more detailed description of these hazards. Updates to the LHMP can inform revisions to the EOP. Hazards in both plans should be corroborated	All		Planning
	<u>Expansion:</u> The District EOP contains a list of hazards. The LHMP provides a similar, more detailed description of these hazards. Updates to the LHMP can inform revisions to the EOP. Hazards in both plans should be corroborated.			
San Bernardino Valley Regional Urban Water Management Plan (RUWMP).	Assess whether water supplies are adequate to meet the needs during a single year drought, multiple year drought and/or catastrophic interruption in supplies. <u>Expansion and integration:</u> Identify mitigation activities to lessen impacts from drought.	Drought Climate Change	Updated in 2021; 2025 update ongoing	Planning

Table 4-1: Local Planning and Regulatory Capabilities				
Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Version/ Date	Capability Type (Planning, Regulatory, Administrative, Technical, or Financial) if known
Risk and Resilience Assessment (RRA)	Add the date of plan (2024); Assesses the risks to, and resilience of, its system. <u>Expansion and integration:</u> Use the risk identification process in the RRS to inform the risk assessment in the LHMP.	All	2025	Planning

4.1.2 Administrative and Technical Capabilities

Administrative and technical capabilities include community (including public and private) staff and their skills and tools that can be used for mitigation planning and implementation. This capability includes engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers. Small communities may rely on other government entities such as counties or special districts for resources. These capabilities may be used when planning mitigation activities to support project feasibility studies, designs, estimates, and construction.

Table 4-2: Administrative and Technical Capabilities		
Technical Capability	Description	Hazards Addressed
Professional Engineers	Certified District staff. <u>Expansion and integration:</u> Work with Engineering to identify at risk structures and develop mitigation strategies to make improvements.	Dam Failure, Drought, Earthquake, Flood
Trained Water System Maintenance Technicians	District staff trained to manage water conveyance system, notice impending component faults, and take preventive/ repair actions. <u>Expansion and integration:</u> Work with technicians to identify possible mitigation activities.	Dam Failure, Drought, Earthquake, Flood
Emergency Operations Center	The District has a fully equipped, dedicated emergency operations center for rapid response to incidents. <u>Expansion and integration:</u> Integrate the LHMP risk assessment into the EOP.	All

4.1.3 Financial Capabilities

Financial capabilities include grants, general funds, property sales, income taxes, development impact fees, or stormwater utility fees. Based on procedures for each resource, these financial resources may be used to support mitigation activities.

Table 4-3: Financial Resources		
Financial Resource	Administrator	Purpose
Hazard Mitigation Grant Program (HMGP)	FEMA	Provides support for post-disaster mitigation plans and projects. <u>Expansion and integration:</u> Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.
General Fund	District	Provide funding for all District activities. <u>Expansion and integration:</u> Hazard mitigation projects may be considered during the annual budgeting process for funding from the general fund.
Water Sales	District	Revenue from water sales provides support to the General Fund. <u>Expansion and integration:</u> Utility revenue may be used for hazard mitigation projects.

4.1.4 Education and Outreach Capabilities

These capabilities include fire safety programs, hazard awareness campaigns, and public information or communications offices. Education and outreach capabilities can be used to inform the public on current and potential mitigation activities.

Table 4-4: Education and Outreach Resources				
Name	Description	Hazards Addressed	Version /Date	Capability Type (Planning, Regulatory, Administrative, Technical, or Financial) If known
Communications Staff	District Communications staff develops and delivers outreach and engagement programs that promote hazard awareness, safety of drinking water, and water conservation	All	N/A	Technical

Table 4-4: Education and Outreach Resources				
Name	Description	Hazards Addressed	Version /Date	Capability Type (Planning, Regulatory, Administrative, Technical, or Financial) If known
	<p>methods.</p> <p><u>Expansion and integration:</u> Provide additional information to the community about hazard mitigation activities.</p>			
<p>District Web Site</p> <p>www.sbvmwd.com</p>	<p>Provides easily accessed information about the District. Used for LHMP public outreach and engagement.</p> <p><u>Expansion and integration:</u> Use the website to provide additional information to the community about hazard mitigation activities.</p>	All	N/A	Technical
<p>District Social Media Accounts</p> <p>https://www.facebook.com/SBValleyDistrict/</p> <p>www.x.com/SBVMWD.com</p> <p>https://www.instagram.com/sbvmwd/</p>	<p>Provides easily accessed information about the District. Used for LHMP public outreach and engagement.</p> <p><u>Expansion and integration:</u> Use the social media platforms to provide additional information to the community about hazard mitigation activities.</p>	All	N/A	Technical

4.1.5 National Flood Insurance Program Participation

The District does not issue building permits or regulate development. Therefore, the District does not participate in the FEMA NFIP program

4.2 Hazard Identification

This section of the LHMP includes requirements for hazard profiles and a risk assessment, as provided in the Code of Federal Regulations. The goal of mitigation is to reduce the future impacts of hazards, including loss of life, property damage, disruption to the local economy, and the expenditure of public and private funds for recovery.

4.2.1 Hazard Identification and Screening

The goal of mitigation is to reduce the future impacts of hazards, including loss of life, property damage, disruption to the local economy, and the expenditure of public and private funds for recovery. The 2018 HMP planning process identified the following hazards:

- Climate Change
- Drought
- Earthquake
- Flooding
- Landslide
- Liquefaction
- Wildfire

2025 Hazard Identification

FEMA guidance identifies several hazards that communities should evaluate for inclusion in a hazard mitigation plan. Communities may also consider additional hazards for their plans. The planning team reviewed the previous hazards in the 2018 plan and discussed other potential hazards, excluding ones that do not pose a threat or are not a significant concern to the District.

Table 4-5 lists the hazards considered and explains the reasoning for inclusion/exclusion. For context, this table also shows if a hazard is recommended for consideration by FEMA, if it is included in the 2023 California State Hazard Mitigation Plan (SHMP), and if it is included in the San Bernardino County Hazard Mitigation Plan (SBC HMP).

Table 4-5: Hazard Evaluation for San Bernardino Valley Water District LHMP			
Hazard	Recommended for Consideration	Included in LHMP?	Reason for Inclusion or Exclusion
Agricultural Pests	SHMP	No	The planning team did not identify this as a hazard of concern for the District.
Air Pollution	SHMP	No	Since the District does not regulate these resources, the HMPC did not identify this as a hazard of concern that could be addressed in this plan.
Aircraft Incident	SHMP	No	The planning team determined that this hazard should not be included in the plan.
Aquatic Invasive Species	SHMP	No	The HMPC determined that this hazard should not be included in the plan.
Avalanche	FEMA guidance SHMP	No	District infrastructure is not located within potential avalanche zones.
Civil Disturbance or Riot	SHMP	No	The HMPC determined that this hazard should not be included in the plan.

Table 4-5: Hazard Evaluation for San Bernardino Valley Water District LHMP			
Hazard	Recommended for Consideration	Included in LHMP?	Reason for Inclusion or Exclusion
Climate Change	SHMP SBC HMP	Yes	Climate change is discussed as a function of each relevant hazard and is mentioned throughout the Plan.
Coastal Flooding and Storm	FEMA guidance SHMP	No	The District is not located along the coast of California. Coastal flooding and storms are not anticipated to impact the community.
Cyber Threats	SHMP	Yes	With the increase in cyber threats occurring throughout California and the nation, the planning team is concerned about the potential effects on vital records, communications and industrial control systems.
Dam Failure	FEMA guidance SHMP	Yes	There are dams that can impact District infrastructure. The planning team identified Dam Failure as a hazard of concern.
Drought	SHMP SBC HMP	Yes	While the planning team is confident in the current hydrologic infrastructure to supply water, drought can potentially impact the District's operations. Long term drought can reduce available water from the State Water Project and groundwater. The planning team does not consider drought to be a local issue alone, but rather a regional one. It is addressed in the State HMP's.
Epidemic, Pandemic, Vector-Borne Disease	SHMP	No	The District is in San Bernardino County, which has experienced several health-related incidents in the past. The planning team felt it was best to address issues with infectious diseases and other public health issues County Health Department.
Erosion	FEMA guidance SHMP	No	The planning team did not identify erosion as a hazard of concern for the District.
Expansive Soil	FEMA guidance	No	Expansive soils were not identified by the planning team as a hazard of concern. While they could exist, the County and Cities requires compliance with the California Building Code, which is intended to mitigate hazards associated with this condition.

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Table 4-5: Hazard Evaluation for San Bernardino Valley Water District LHMP			
Hazard	Recommended for Consideration	Included in LHMP?	Reason for Inclusion or Exclusion
Extreme Cold	FEMA guidance SHMP	No	Extreme cold temperatures in the district's boundaries do not pose a threat to infrastructure. Due to this, the HMPC did not identify this as a hazard of concern.
Extreme Heat	FEMA guidance SHMP	No	Extreme heat has occurred in the District's boundaries and is expected to be a recurring event. Although extreme heat does occur, it does not have an effect on the District's operation.
Fault Rupture	FEMA guidance SHMP SBC HMP	Yes	Earthquakes events and their potential are extremely prominent within the District as both the San Andreas and San Jacinto Faults traverse the District. As a result, the HMPC identified this as a hazard of concern to the District. Fault rupture is included in the discussion of Seismic Hazards.
Flooding	FEMA guidance SHMP SBD HMP	Yes	The majority of the flood risk within the District is specifically subject to inundation as a result of heavy rainfall and resulting stream and drainage canal overflows. The HMPC identified flooding as a hazard of concern included in the Flooding profile.
Fracking	SHMP	No	Fracking does not occur in or near the District.
Hail	FEMA guidance	No	Hail does not pose a threat to District infrastructure.
Hazardous Materials release	SHMP	Yes	The presence of uses for storing, manufacturing, disposing, and transporting hazardous materials was identified as a concern for the planning team. The transport of these materials by the District could endanger the community if a release into the environment were to occur.
Hurricane	FEMA guidance SHMP	No	Hurricanes do not occur in District's boundaries. Although Tropical Storm Hilary impacted the County in August 2023, no fatalities from Hilary were reported in the state. There was damage to hydropower facilities owned by SCE

Table 4-5: Hazard Evaluation for San Bernardino Valley Water District LHMP			
Hazard	Recommended for Consideration	Included in LHMP?	Reason for Inclusion or Exclusion
Infrastructure Failure	SHMP	No	The planning team did not identify Infrastructure Failure as a hazard of concern since it is addressed in other response plans.
Landslide	FEMA guidance SHMP	Yes	Landslides associated with earthquakes can occur in the hilly sections of the District’s boundary. This hazard is included in the discussion of the Seismic Hazards section.
Levee Failure	SHMP	No	The planning team did not include levee failure as a hazard of concern.
Lightning	FEMA guidance	No	Although lightning does occasionally occur in the County, it does not pose a significant threat to District property.
Liquefaction	FEMA guidance SHMP SBC HMP	Yes	According to mapping prepared by the California Geological Survey, areas of the County are prone to liquefaction. This hazard is included in the discussion of the Seismic Hazards section.
Methane Containing Soils	SBC HMP	No	The District does not have methane-containing soils that pose a threat to the public health and safety of customers and businesses. The planning team did not identify this as a hazard of concern to the District.
Natural Gas Pipeline Hazards	SHMP	No	Natural gas pipelines traverse the District’s boundaries, posing a danger to people and property if they were to breach and release their contents. The hazard will not pose a threat to District property. The planning team did not identify this as a hazard of concern to the District.
Oil Spills	SHMP	No	There is no history of oil drilling and extraction within the District boundary. Based on this, the planning team did not identify this as a hazard of concern to the District.
Power Failure	SHMP	Yes	Power loss events can occur in the District and cause major disruptions to water supply, the planning team determined that this hazard should be addressed within the LHMP.

Table 4-5: Hazard Evaluation for San Bernardino Valley Water District LHMP			
Hazard	Recommended for Consideration	Included in LHMP?	Reason for Inclusion or Exclusion
Radiological Accidents	SHMP	No	There are no known major sources of radiation in the District or the immediate surrounding area that could pose a serious threat to the community.
Sea-level Rise	FEMA guidance SHMP	No	The District is not located along the coast or near any large bodies of seawater. The planning team did not identify this as a hazard of concern for the District. The state HMP and DWR’s 2023 Delivery Capability Report (2024) address the potential impact of sea level rise on the State Water Project.
Seiche	FEMA guidance SHMP	No	There are no major bodies of water in the District that could be subjected to seiche.
Seismic Shaking	FEMA guidance SHMP SBC HMP	Yes	The District is in a seismically active area where shaking can be severe enough to damage property or cause loss of life. For this reason, the planning team determined it should be addressed in this plan.
Severe Wind	FEMA guidance	No	Severe Weather includes discussions regarding extreme heat, severe wind, and rain, which are weather-related hazards that are common for the District. However, this hazard is not a significant risk to the District.
Severe Weather and Storms	FEMA guidance SHMP SBC HMP	No	Severe Weather includes discussions regarding extreme heat, severe wind, and rain, which are weather-related hazards that are common for the District. However, flooding associated with severe storms is addressed through the flooding hazard;
Storm Surge	FEMA guidance	No	The District is not located on the coast. The planning team did not identify this as a hazard of concern to the District.
Subsidence	FEMA guidance	Yes	The planning team believed that subsidence could occur with significant groundwater pumping. Subsidence is not discussed as a stand-alone hazard but rather is a function of the Seismic Hazards profile.

Table 4-5: Hazard Evaluation for San Bernardino Valley Water District LHMP			
Hazard	Recommended for Consideration	Included in LHMP?	Reason for Inclusion or Exclusion
Terrorism	SHMP	Yes	The damage caused by a terror attack is dependent on the method of attack. Large bomb attacks could destroy major infrastructure, kill many people, and disrupt regional functioning for a significant time.
Thunderstorm	SHMP	No	Thunderstorms that cause damage and endanger public safety are rare in the Southern California region. The planning team did not identify this as a hazard of concern.
Tornadoes	FEMA guidance SHMP	No	No tornadoes are known to have occurred in the District. The planning team did not identify this as a hazard of concern.
Transportation Accidents	SHMP	No	The planning team determined that transportation incidents would not have a significant impact on the District.
Tree Mortality	SHMP	No	The planning team noted that the County has a significant number of trees, however the District's facilities are not impacted by this hazard.
Tsunami	FEMA guidance SHMP	No	The District is not a coastal community. The planning team did not identify this as a hazard of concern to the District.
Urban Fire	SHMP SBC HMP	Yes	The planning team identified urban fires as a risk to District Infrastructure. It is discussed under the Fire profile.
Volcano	SHMP	No	There are no volcanoes near District infrastructure that pose a threat. The planning team did not identify this as a hazard of concern to the District.
Wildland Fire	FEMA guidance SHMP	Yes	Portions of the District are in the extremely high fire danger zone as determined by Cal Fire. This hazard is discussed under the Fire profile.

Base on the hazard analysis conducted by the planning team, the plan includes eight broad hazards with accompanying sub-categories:

Hazard Type	Sub-Categories
Dam Failure/Inundation	
Drought	
Earthquake/Geologic Hazards	Seismic Shaking Subsidence Liquefaction Fault Rupture Landslide
Flooding	
Hazardous Materials Release	Profiled in Human Caused Hazards
Fire	Wildland Fire Urban fire
Human-Caused Hazards	Cyber Threats Hazardous Materials Release Power Outage Terrorism
Climate Change	Discussed in all Hazard Categories

4.2.2 Disaster Proclamation History

The planning team also considered past history of disasters. While the District has not made any disaster proclamations, the county has been included in various declarations.

Table 4-6 below lists the state and federal disaster declarations affecting San Bernardino County since completion of the previous LHMP.

Table 4- 6: San Bernardino County Emergency Proclamations			
Year	Declaration Number	Declaration Title	Incident Type
2024	FM-5537-CA	BRIDGE FIRE	Fire
2024	FM-5535-CA	LINE FIRE	Fire
2023	DR-4699-CA	SEVERE WINTER STORMS, STRAIGHT-LINE WINDS, FLOODING, LANDSLIDES, AND MUDSLIDES	Severe Storm
2023	EM-3591-CA	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	Flood

Table 4- 6: San Bernardino County Emergency Proclamations			
Year	Declaration Number	Declaration Title	Incident Type
2023	EM-3592-CA	SEVERE WINTER STORMS, FLOODING, LANDSLIDES, AND MUDSLIDES	Flood
2021	DR-4569-CA	WILDFIRES	Fire
2021	FM-5381-CA	BLUE RIDGE FIRE	Fire
2020	DR-4482-CA	COVID-19 PANDEMIC	Biological
2020	EM-3428-CA	COVID-19	Biological
2020	FM-5350-CA	EL DORADO FIRE	Fire
2020	FM-5325-CA	APPLE FIRE	Fire
2020	FM-5301-CA	HILLSIDE FIRE	Fire
2019	EM-3415-CA	EARTHQUAKES	Earthquake

4.2.3 Disaster Proclamation Process

When there is a condition of extreme peril or potential peril to the safety of persons and property, and the condition is beyond the capability of the local jurisdiction to control effectively, the local governing body (board of directors, board of supervisors, or a person authorized by ordinance) may proclaim that a local emergency exists. The local government may request the California Governor’s Office of Emergency Services (Cal OES) Director to concur in their proclamation of a local emergency and to provide assistance under the California Disaster Assistance Act (CDAA).

A copy of the resolution must be provided to the San Bernardino Operational Area as soon as possible for transmission to Cal OES. When a county proclaims a local emergency pursuant to Section 8630 of the Government Code, based upon conditions which include both incorporated and unincorporated territory of the county, it is not necessary for the cities to also proclaim the existence of a local emergency independently.

If sufficient conditions occur, the state may proclaim a state of emergency to fully commit state and mutual aid assistance and provide resources to assist local government. Following the proclamation of a state of emergency, the Cal OES Director may recommend that the Governor request a Presidential declaration of a major disaster under the authority of Public Law 93-288. The Governor’s request to the

president is submitted through FEMA.

4.2.4 Hazard Risk Rating

During a review of the 2018 hazards, the planning team decided to add terrorism, cyber-attack, hazardous materials, power outage, and dam failure. The planning team also decided to combine hazardous materials, cyber-attack, power outage, and terrorism into a single hazard named Human Caused Hazards.

For the 2025 LHMP, the risk for each potential hazard was rated using the Calculated Priority Risk Index (CPRI). The CPRI examines four criteria for each hazard (probability, magnitude/severity, warning time, and duration), (**Table 4-7**). For each hazard, an index value is assigned for each CPRI category from 0 to 4, with “0” being the least hazardous and “4” being the most hazardous situation. This value is then assigned a weighting factor, and the result is a hazard ranking score shown in **Table 4-8**. **Table 4-9** is an overall summary of the hazard evaluations for the District.

Table 4-7: Calculated Priority Risk Index				
CPRI Category	Degree of Risk Chart		Assigned Weight	
	Level ID	Description	Index Value	%
Probability	Unlikely	Extremely rare with no documented history of occurrences or events. Annual probability of less than 0.001.	1	45%
	Possible	Rare occurrences with at least one documented or anecdotal historic event. Annual probability of between 0.01 and 0.001.	2	
	Likely	Occasional occurrence with at least two or more documented historical events. Annual probability of between 0.1 and 0.01.	3	
	Highly Likely	Frequent events with a well-documented history of occurrence. Annual probability of greater than 0.1.	4	
Magnitude - Severity	Negligible	Negligible property damages (less than 5% of critical and non-critical facilities and infrastructure). Injuries or illnesses are treatable with first aid, and there are no deaths. Negligible quality of life lost. Shut down of critical facilities for less than 24 hours.	1	30%
	Limited	Slight property damages (greater than 5% and less than 25% of critical and non-critical facilities and	2	

Table 4-7: Calculated Priority Risk Index					
CPRI Category	Degree of Risk Chart			Assigned Weight	
	Level ID	Description	Index Value	%	
		infrastructure). Injuries and illnesses do not result in permanent disability, and there are no deaths. Moderate quality of life lost. Shut down of critical facilities for more than 1 day and less than 1 week.			
	Critical	Moderate property damages (greater than 25% and less than 50% of critical and non-critical facilities and infrastructures). Injuries or illnesses result in permanent disability and at least one death. Shut down of critical facilities for more than 1 week and less than 1 month.	3		
	Catastrophic	Severe property damages (greater than 50% of critical and non-critical facilities and infrastructure). Injuries or illnesses result in permanent disability and multiple deaths. Shut down of critical facilities for more than 1 month.	4		
Warning Time	> than 24 hours	Population receives greater than 24 hours of warning.	1	15%	
	12 to 24 hours	Population receives between 12-24 hours of warning.	2		
	6 to 12 hours	Population receives between 6-12 hours of warning.	3		
	< than 6 hours	Population receives less than 6 hours of warning.	4		
Duration	< than 6 hours	Disaster event will last less than 6 hours.	1	10%	
	6 to 24 hours	Disaster event will last between 6-24 hours.	2		
	24 hrs. to 1 week	Disaster event will last between 24 hours and 1 week.	3		
	> than 1 week	Disaster event will last more than 1 week.	4		

The results of the CPRI are contained in **Table 4-8** below.

Table 4-8: Calculated Priority Risk Index Summary

Hazard	Probability	Weighted 45%	Magnitude Severity	Weighted 30%	Warning Time	Weighted 15%	Duration	Weighted 10%	CPRI Ranking
Climate Change	4	1.8	2	.60	1	.15	4	.40	2.95
Cyber Attack	3	1.35	3	.90	4	.60	4	.40	3.25
Dam Failure	1	.45	2	.60	3	.45	1	.10	1.60
Drought	3	1.35	2	.60	1	.15	4	.40	2.50
Earthquake	3	1.35	3	.90	4	.60	4	.40	3.25
Fire	2	.90	2	.60	4	.60	3	.30	2.40
Flooding	2	.90	1	.30	1	.15	1	.10	1.45
HazMat Release	2	.90	1	.30	3	.45	2	.20	1.85
Landslide	2	.90	2	.60	4	.60	1	.10	2.20
Power Outage	3	1.35	3	.90	3	.45	2	.20	2.00
Terrorism	2	.90	3	.90	4	.60	2	.20	2.60

Table 4-9 depicts the relative risk level of the selected hazards.

Table 4-9: Relative Risk Level of Hazards				
Risk Level	Severe	High	Moderate	Low
Rank Score	3.5 – 4.0	3.0 – 3.4	2 – 2.9	1 – 1.9

Earthquakes have the greatest potential to instantaneously disrupt District services resulting in inoperability over a sustained duration. They are also likely to result in the largest cost to recover from. Cyber-attacks may also have an immediate impact on the District operations and pose a challenge to recover from.

4.3 Hazard Characterization and Profiles

This section of the LHMP includes requirements for hazard profiles and a risk assessment, as provided in the Code of Federal Regulations.

4.3.1 Climate Change

Hazard Description

The earth's climate is changing. The State has warmed about two degrees Fahrenheit (2°F) in the last century. Heat waves are becoming more common throughout the southwestern United States, and snow is melting earlier in spring. In the coming decades, changing climate is likely to decrease the supplies of water available from the State Water Project (DWR, 2024).

The U.S. Environmental Protection Agency (EPA) describes climate change as “any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among other effects, which occur over several decades or longer.”

Many people confuse climate change with global warming, the recent and ongoing rise in global average temperatures near Earth's surface. However, global warming represents only one aspect of climate change. The Earth's average temperature has risen by 1.4°F over the past century and is projected to rise another 2.0°F to 11.5°F over the next hundred years. Rising global temperatures have been accompanied by changes in weather and climate. Many places have seen changes in rainfall, resulting in more floods, droughts, or intense rain, as well as more frequent and severe heat waves. The planet's oceans and glaciers have also experienced changes, with every glacier and permanent icefield in the State of California receding or melting entirely. Oceans are warming and becoming more acidic, ice caps are melting, and sea levels are rising. The effects of these indicators include:

- **Greenhouse Gases:** Human activities have increased the emissions of greenhouse gases. As a result of the increase in emissions, average concentrations of heat-trapping gases in the atmosphere are also increasing.
- **Weather and Climate:** Average U.S. and global temperatures are increasing while weather and climate attributes, such as precipitation, drought and tropical cyclone activity, are changing.
- **Oceans:** Average oceanic temperatures are increasing. Sea levels are rising worldwide due to thermal expansion and increases from ice melt, and waters are becoming more acidic.
- **Snow and Ice:** Glaciers in the U.S. and worldwide are generally shrinking, while snowfall and snow cover in the U.S. have decreased overall. The extent of the Arctic Sea ice is declining.
- **Health and Society:** Warmer temperatures and later fall frosts allow ragweed plants to produce pollen later into the year, potentially prolonging allergy season.

The length of ragweed pollen season has increased at 10 out of 11 locations studied in the central U.S. and Canada since 1995. The change becomes more pronounced from south to north.

- **Ecosystems:** Many areas are experiencing earlier spring events, such as peak stream runoff and flower blooms. Bird migration patterns are changing, and wildfire zone size has increased.

Location

Warming and climate change are occurring globally with wide variations based on location and latitude. The polar regions have experienced particularly rapid changes in climate with increased ice melt and more sea-ice-free days.

Extent

Climate change is likely to affect the entire earth's population. More widespread drought and associated crop failure, movement of invasive species, more frequent wildfires, increased energy emergencies, and more intense climate events such as storms and extreme heat will occur throughout Southern California. The entire planning area is subject to climate change.

History

Climate change has occurred throughout the planet's history due to variations in the earth's inclination to the sun, volcanic activity, and other factors such as asteroid impacts and the amount of solar radiation reaching the earth's surface rises and falls. The planet's temperature correlates to the amount of solar radiation arriving at the surface and the climate with it.

In relatively recent history, the last glacial period, popularly known as the Ice Age, occurred from c. 110,000 to 12,000 years ago. This most recent glacial period is part of a larger pattern of glacial and interglacial periods known as the Quaternary glaciation (c. 2,588,000 years ago to present). From this point of view, scientists consider this "ice age" to be merely the latest glaciation event in a much larger ice age that dates back over two (2) million years and is still ongoing.

During this last glacial period, there were several changes between glacier advance and retreat. The Last Glacial Maximum, the maximum extent of glaciation within the last glacial period, was approximately 22,000 years ago. While the general pattern of global cooling and glacier advance was similar, local differences in the development of glacier advance and retreat make it difficult to compare the details from continent to continent. Generally, temperature variation and glaciation patterns have lagged in atmospheric carbon dioxide (CO₂) content. **Figure 4-1** depicts global variations during the past

400,000 years as a correlation between temperature and atmospheric CO2 content in part per million.

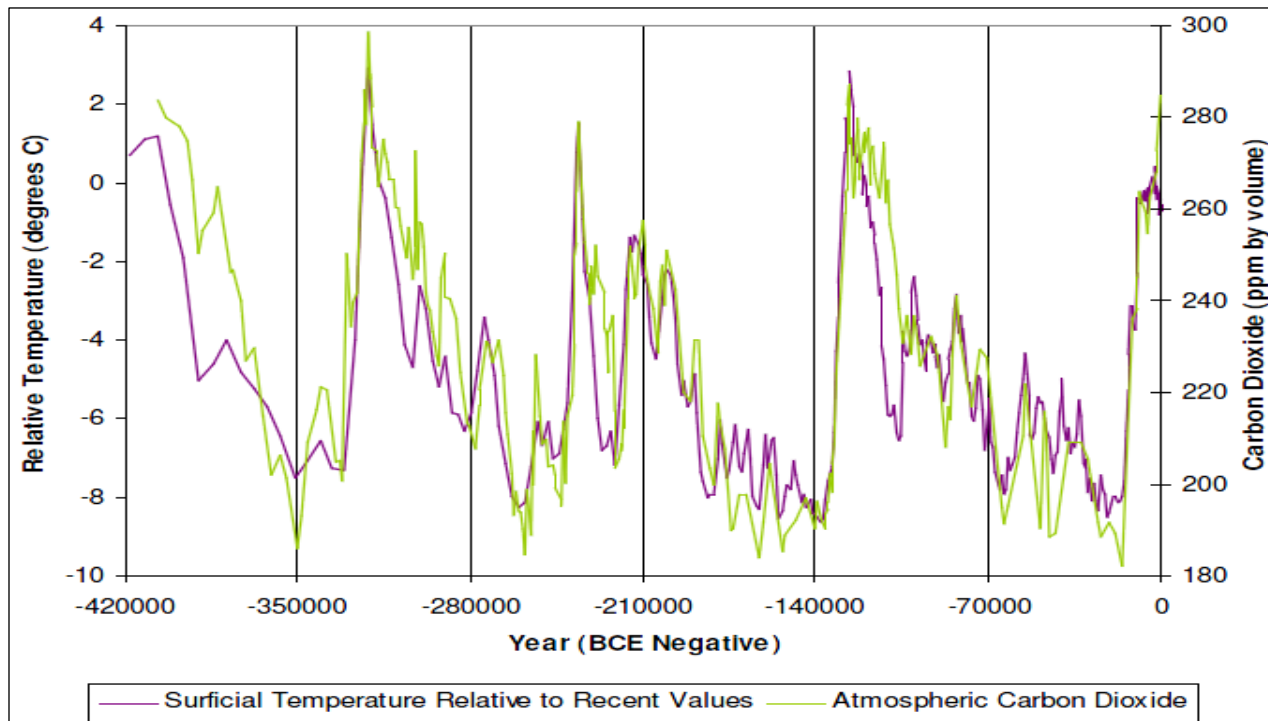


Figure 4-1: Temperature and Atmospheric CO2 Variation Past 400,000 Years

For 22,000 years ago, the planet has slowly warmed, and the glaciers retreated to high northern latitudes and mountains. In the last several decades of this period, human activity has likely led to a rapid increase in atmospheric CO2 and a matching rise in global temperature. The result has been that climate change may be accelerating.

Figure 4-2 provides a graphical depiction of the recent history of temperature rise.

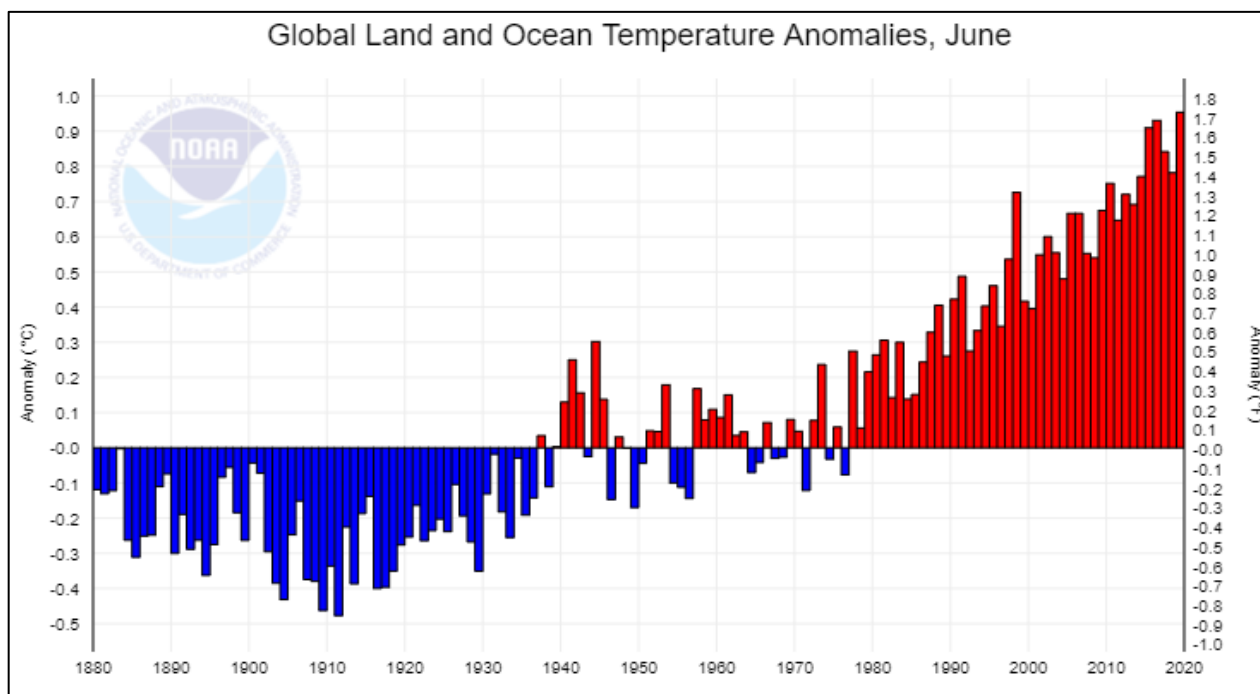


Figure 4-2: Temperature Rise Since 1880

Vulnerability

According to Weather.org, earth's average temperature has risen by 1.4°F over the past century and is projected to rise another 2.0°F to 11.5°F over the next hundred years. Rising global temperatures have been accompanied by changes in weather and climate. Many places have seen changes in rainfall, resulting in more floods, droughts, or intense rain, as well as more frequent and severe heat waves. The planet's oceans and glaciers have also experienced changes. Oceans are warming and becoming more acidic, ice caps are melting, and sea levels are rising.

Many people confuse climate change with global warming, the recent and ongoing rise in global average temperatures near Earth's surface. However, global warming represents only one aspect of climate change. Climate change itself is not likely to cause potential losses to infrastructure or affect services to populations. Effects secondary to climate change, such as the greater likelihood of flooding due to more frequent storms or more annual days with excess heat, are included in individual hazards such as flood or excess heat. The result is climate change as a standalone hazard is assigned a zero percent loss. There are multiple secondary impacts of climate change. The effects of these indicators include:

- **Greenhouse Gases:** Human activities have increased the emissions of greenhouse gases. As a result of the increase in emissions, average concentrations of heat-trapping gases in the atmosphere are also increasing.

- **Weather and Climate:** Average U.S. and global temperatures are increasing while weather and climate attributes, such as precipitation, drought and tropical cyclone activity, are changing.
- **Oceans:** Average oceanic temperatures are increasing. Sea levels are rising worldwide due to thermal expansion and increases from ice melt, and waters are becoming more acidic.
- **Snow and Ice:** Glaciers in the U.S. and worldwide are generally shrinking, while snowfall and snow cover in the U.S. have decreased overall. The extent of the Arctic Sea ice is declining.
- **Health and Society:** Warmer temperatures and later fall frosts allow ragweed plants to produce pollen later into the year, potentially prolonging allergy season. The length of ragweed pollen season has increased at ten (10) out of eleven (11) locations studied in the central U.S. and Canada since 1995. The change becomes more pronounced from south to north.
- **Ecosystems:** Many areas are experiencing earlier spring events, such as peak stream runoff and flower blooms. Bird migration patterns are changing, and wildfire zone size has increased.

Impacts

Increasing droughts and higher temperatures will likely affect California's top agricultural products, including cattle, dairy, and vegetables. Hot temperatures threaten the health of cows and cause them to eat less, grow more slowly, and produce less milk. Livestock operations could also be impaired by fire, the lack of water, and changes in the landscape from grassland to woody shrubs, more typical of a desert. Reduced water availability would also create challenges for irrigated farms, which account for two-thirds of the water used in the state.

Wildfires, changing landscapes, higher temperatures, and drought are likely to increase the severity, frequency, and extent of wildfires which could harm property, livelihoods, and human health. On average, more than two percent (2%) of the land in California has burned per decade since 1984. Wildfire smoke can reduce air quality and increase medical visits for chest pains, respiratory problems, and heart problems. The combination of more fires and drier conditions may expand deserts and otherwise change parts of California's landscape. Many plants and animals living in arid lands are already near the limits of what they can tolerate. A warmer and drier climate would generally extend deserts to higher elevations and expand their geographic ranges.

In some cases, native vegetation may persist and delay or prevent the expansion of the desert. In other cases, fires or livestock grazing may accelerate the conversion of grassland to desert in response to a changing climate. For similar reasons, some

forests may change to deserts or grassland.

Warmer and drier conditions make forests more susceptible to pests. Temperature controls the life cycle and winter mortality rates of many pests. With higher winter temperatures, some pests can persist year-round, and new pests and diseases may become established.

Hot days can be unhealthy, even dangerous. Certain people are especially vulnerable, including children, the elderly, the sick, and the poor. High air temperatures can cause heat stroke and dehydration and affect people's cardiovascular, respiratory, and nervous systems. Higher temperatures are amplified in urban settings where paved and other surfaces tend to store heat. Construction crews may have to increasingly operate on altered time schedules to avoid the heat of the day.

Rising temperatures can increase the formation of ground-level ozone, a key component of smog. Ozone has various health effects, aggravates lung diseases such as asthma, and increases the risk of premature death from heart or lung disease. The U.S. EPA and the California Air Resources Board have been working to reduce ozone concentrations. As the climate changes, continued progress toward clean air will be more difficult.

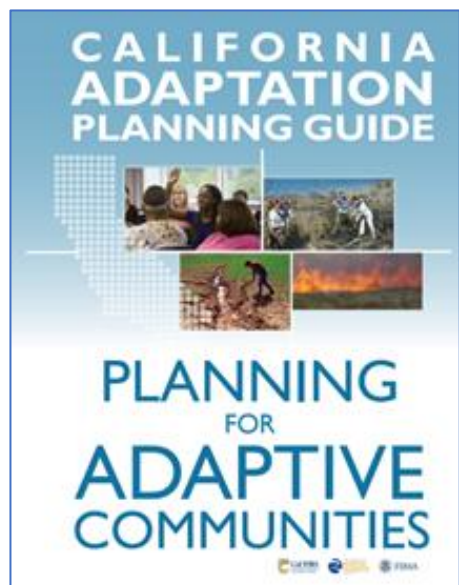
Probability of Future Events

Climate change is an ongoing, long-term hazard. The effects of increased CO₂ in the atmosphere will likely increase and persist for hundreds or thousands of years. There is a 80 percent probability that Climate Change will impact the District.

Regulatory Context

The State of California has stepped into a leadership role in planning for reducing greenhouse gas emissions and adapting to the potential impacts of climate change. Key laws, regulations, and policies helping to reduce Greenhouse Gas (GHG) emissions include:

The California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32 and Senate Bill [SB] 32): AB 32 is the primary legislation that has driven GHG regulation and analysis in California between 2006 and 2016 by instructing the California Air Resource Board (CARB) to develop and enforce regulations for the reporting and verification of statewide GHG emissions. The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020. Based on CARB's calculations of



emissions levels, California must reduce GHG emissions by approximately fifteen percent (15%) below 2005 levels to achieve this goal. In September 2016, the Governor signed SB 32, which builds upon the statewide targets for 2020 by establishing a longer-term target so that “statewide greenhouse gas emissions are reduced to forty percent (40%) below the 1990 levels by 2030.” The bill further authorized CARB to adopt regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions.

California Executive Orders S-3-05 (2005) and B-30-15 (2015): These two (2) executive orders highlight longer-term GHG emissions reduction

targets for the state, though such targets have not yet been adopted by the legislature and signed into law. Specifically, Executive Order (EO) S-3-05 seeks to achieve a reduction of GHG emissions of eighty percent (80%) below 1990 levels by 2050, consistent with the scientific consensus that developed regions will need to reduce emissions at least eighty percent (80%) below 1990 levels to limit global warming to two degrees Celsius (2.0°C). Executive Order B-30-15 seeks to establish an interim target between the 2020 target established through AB 32 and the long-term targets in EO S-3-05, to achieve a reduction of GHG emissions of forty percent (40%) below 1990 levels by 2030.

CEQA and Greenhouse Gas Emissions (Senate Bill 97): In 2007, the Natural Resources Agency was directed by the legislature to prepare amendments to the California Environmental Quality Act (CEQA) Guidelines, providing direction to lead agencies on how to analyze and mitigate greenhouse gas emissions.

Senate Bill 379 (2015) Planning and Zoning Law: This legislation requires that the next revision of a jurisdiction’s local hazard mitigation plan on or after January 1, 2017, or, if the local jurisdiction has not adopted a local hazard mitigation plan, beginning on or before January 1, 2022, include a review and update of the safety element to address climate adaptation and resiliency strategies applicable to that county. The bill would require the update to include a set of goals, policies, and objectives based on a vulnerability assessment, identifying the risks that climate change poses to the local jurisdiction and the geographic areas at risk from climate change impacts.

California has also prepared programs and guidance for local governments to consider

in identifying hazards and adapting to a changing climate.

California Climate Adaptation Strategy – Executive Order S-13-08: In 2008, the Governor signed EO S-13-08, which directed the California Natural Resources Agency to lead a statewide effort to develop a climate adaptation strategy. Published in 2009, the statewide plan describes climate trends and the potential impacts of climate change on key sectors, and it outlines short- and long-term actions that state and local governments can take to address future climate impacts.

California Adaptation Planning Guide (APG): Published in 2012, this statewide resource serves as a guide to local governments to identify, evaluate, and plan for the range of unavoidable consequences their community may face in the future due to climate change. The APG includes a step-by-step process for conducting a vulnerability assessment and identifying potential adaptation strategies.

4.3.1.1 District’s Response to Climate Change

San Bernardino Valley has developed a Resilience Roadmap, known as a Climate Adaptation and Resilience Plan (CARP). This effort set out to address and plan for the future of water supply and variability in climate, ensuring that there is reliable access to water in the San Bernardino Valley for decades to come.

The CARP provides goals and strategies for San Bernardino Valley to be resilient to climate change impacts, reduce greenhouse gas emissions, and adapt operations to climate change. The Plan also proposes ongoing, adaptive implementation to comprehensively incorporate climate change actions in San Bernardino Valley’s functions and operations.

Developed with partner agency input and with support from the San Bernardino Valley Board of Directors, the CARP followed a process consistent with State plans and guidance, including the California Governor’s Office of Planning and Research, Intergovernmental Panel on Climate Change Assessment Report 5 (IPCC AR5), California Adaptation Planning Guide, California Water Resilience Portfolio, California Water Plan, and California’s Fourth Climate Assessment. The engagement process included online workshops for interested parties and workshops with San Bernardino Valley’s Board of Directors. The goal of this process was to collaboratively form an actionable CARP that best fits the needs of the service area. Through a collaborative approach, San Bernardino Valley staff and community members were meaningfully engaged and provided tangible feedback and support for regional climate action and resilience planning.

4.3.2 Cyber Attack

Hazard Description

A cyberattack is an intentional and malicious crime that compromises the digital infrastructure of a person or organization, often for financial gain or political objectives. Such attacks vary in nature and are perpetrated using digital mediums, backdoors, or social engineering to target human operators. Generally, attacks last minutes to days, but large-scale events and their impacts can last much longer. As information technology continues to grow in capability and interconnectivity, cyberattacks become increasingly frequent and destructive.

Types of cyberattacks include using viruses to erase entire systems, breaking into systems and altering files, using someone's personal computer to attack others, tricking users to click on links that download malicious software, or stealing confidential information. The spectrum of risk is limitless, with threats having a wide range of effects on the individual, community, organization, and nation. Cyberattacks may also include security breaches that steal information from organizations such as usernames, passwords, credit card information, and other personal details.

Since 2013, a new type of cyberattack called "cyber-ransom" is becoming increasingly common against individuals and small- and medium-sized organizations. Cyber-ransom occurs when an individual downloads ransom malware (also known as "ransomware"), often through phishing or drive-by download. The subsequent execution of code results in encryption of all data and personal files stored on the system. The victim then receives a message that demands a fee in electronic currency or cryptocurrency, such as Bitcoin.

Locations

Cyberattacks are not characterized by location. Attacks can originate from any computer to affect any other computer in the world. If a system is connected to the Internet or operating on a wireless frequency, then it is susceptible to exploitation.

Targets of cyberattacks can be individual computers, networks, organizations, business sectors, or governments. The most commonly targeted sectors are finance, energy and utilities, defense and aerospace, communications, retail, and health care. Financial institutions and retailers are often targeted to extract personal and financial data that can be used to steal money from individuals and banks.

Extent

All critical facilities and infrastructure operated by electricity and/or a computer system, are vulnerable to cyberattacks. Cyberattacks may affect structures if any critical electronic systems suffer service disruption. For instance, a cyberattack may cripple the

electronic system that controls a cooling system or pressure system within critical infrastructure.

The District's Supervisory Control and Data Acquisition (SCADA) system and financial, human resources, and administrative systems are vulnerable to cyberattack. This scenario may result in physical damage to the structure from components overheating, back-ups due to improper treatment and movement of waste, or an explosion if pressure relief systems are rendered inoperable.

Types of cyberattacks include:

- **Socially-Engineered Trojans:** Programs designed to mimic legitimate processes (e.g., updating software, running fake antivirus software) with the end goal of system infection. The victim runs the fake process (often sent through credible-appearing emails, attachments, and free downloads), after which the Trojan is installed on the system. The Trojan then installs or runs malicious software of which the victim might not be aware. Trojans cannot install on their own.
- **Unpatched Software:** Nearly all software has weak points that may be exploited by malware. The most common software exploitations occur with Java, Adobe Reader, and Adobe Flash. These vulnerabilities are often exploited as small amounts of malicious code are often downloaded via drive-by download. Hackers may also take advantage of known insecure processes that can be exploited through penetration.
- **Phishing:** Phishing involves malicious actors sending email messages that ask users to click a link or download a program. Phishing attacks may appear as legitimate emails from trusted third parties. They may also spoof the names or positions of District staff and/or leadership. Phishing is often used to trick victims into downloading Trojans.
- **Password Attacks:** A malicious actor uses a program to crack a user's password and subsequently gain access to a system. Password attacks do not typically require malware but rather stem from software applications on the attacker's system. These applications may use a variety of methods to gain access, including generating large numbers of guesses or by using dictionary attacks, in which passwords are systematically tested against all of the words in a dictionary or the list of the 1,000 most common passwords.
- **Drive-by Downloads:** Malware is downloaded unknowingly by the victims when they visit an infected site or run a browser-based program. Accessing the site or interacting with the webpage causes a download to automatically occur, or the weblink itself attaches to a file.

- **Direct Denial of Service (DDoS) Attacks:** DDoS attacks focus on disrupting service to a network by sending high volumes of data until the network becomes overloaded and can no longer function. A common method of DDoS attacks involves attackers sending a website or server many simultaneous access requests.
- **Man-in-the-Middle:** Man-in-the-Middle attacks mirror victims and endpoints for online information exchange. In this type of attack, the attacker communicates with the victims, who believe they are interacting with a legitimate endpoint website. The attacker is also communicating with the actual endpoint website by impersonating the victim. As the process goes through, the attacker obtains entered and received information from both the victim and endpoint.
- **Malvertising:** Malvertising is a term for any software that is downloaded to a system when the victim clicks on an affected ad. Malvertising may be viewed as a form of phishing.
- **Advanced Persistent Threat (APT):** An attack in which the attacker gains access to a network and remains undetected. APT attacks are designed to steal data rather than download infected programs.

History

Cyberattacks on U.S. companies occur daily, and the quantity and quality of information being hacked, stolen, destroyed, or leaked is becoming more and more of a problem for consumers, government entities, and businesses. The Attorney General of the State of California lists data security breaches from organizations that have sent notices of a breach.¹ These include healthcare organizations, public utilities, management companies, banks, municipalities, courthouses, and other organizations. Recent examples include:

- In April 2023, the San Bernardino County Sheriff's Office reported a security breach that encrypted its systems and reduced operations for over two weeks. A member of the Sheriff's Office clicked on a phished link and downloaded ransomware, disrupting emails and dispatch computers. The ransom demanded \$1.1 million in cryptocurrency.
- On May 28, 2023, University of California-Los Angeles (UCLA) reported a breach within the file transfer system MOVEit. Information from approximately 16 million users was stolen by the CLoP Ransomware Gang, although no actual

¹ <https://oag.ca.gov/privacy/databreach/list>

ransomware was loaded onto UCLA systems.

Impact of Climate Change

Cyberattacks have no direct correlation with climate change. Indirectly, the impacts of cyberattacks that shut down major resources can exacerbate any simultaneously occurring hazards that are associated with climate change (e.g., hacking the District's SCADA systems during a severe drought).

Probability of Future Events

While there is little evidence to confirm the exact likelihood of a cyberattack against the District, there is nearly a hundred percent (100%) certainty that cyberattacks will continue to impact the utilities sector. As discussed earlier, many governmental and non-governmental organizations within the State of California have been victims of cyberattacks that either shut down resources or cause millions of dollars in cyber-ransom payouts.

An initial attack is often followed by more severe attacks to cause harm, stealing data, or financial gain. As cyberattacks become more sophisticated and numerous, all of the District's digital infrastructure should be considered at-risk. The magnitude of any individual cyberattack depends on the aims and goals of the attacking entity. There is a 60 percent probability that a Cyber Attack will impact the District.

4.3.3 Dam Inundation

Hazard Description

Dams and reservoirs of jurisdictional size are defined in the California Water Code Sections 6000 through 6008. There are currently more than 1,400 dams of jurisdictional size in California. Approximately 1,250 of these dams are under the jurisdiction of California's Department of Water Resources, Division of Safety of Dams. Dams and reservoirs owned by the federal government are not subject to state jurisdiction except as otherwise provided by federal law. In California, there are currently 149 dams owned by federal government agencies such as the U.S. Forest Service, Bureau of Reclamation, Army Corps of Engineers, and the U.S. Military.

The term "dam failure" encompasses a wide variety of circumstances. Situations that would constitute a dam failure vary widely, from developing problems to a partial or catastrophic collapse of the entire dam. Potential causes of dam failure are numerous and can be attributed to deficiencies in the original design of the dam, the quality of construction, the maintenance of the dam and operation of the appurtenances while the dam is in operation, and acts of nature, including precipitation in excess of the design, flood, and damage from earthquakes.

Water overtopping the dam crest is a common cause of failure in earth dams. Overtopping will cause erosion of the dam crest and eventually dam breach. Piping of each dam is another common form of failure. Piping is a form of erosion that occurs underground caused by rodent burrowing and extensive root systems from vegetation growing on and around the dam.

This type of disaster is especially dangerous because it can occur suddenly, providing little warning or evacuation time for the downstream communities. The flows resulting from dam failure generally are much larger than the capacity of the downstream channels and therefore lead to extensive flooding. Flood damage occurs due to the momentum of the flood caused by the sediment-laden water flooding over the channel banks and impact debris carried by the flow.

Locations

There are a total of 11 dams that can impact the District’s service area. Their names and capacity of each dam are contained in **Table 4-10**. It’s important to note, not all will impact District critical infrastructure. Below is a list of each dam and potential impacts. **Figure 4-3** depicts dam inundation zones in San Bernardino.

Table 4-10: Dam Reservoir Capacity and Classification		
Catch Basin Name	Reservoir Capacity	Classification
Bear Valley	74,000 acre-feet	High
Crafton Hill	130 acre-feet	High
Devil Canyon	355 acre-feet	High
Devil’s Canyon Dike #1	79 acre-feet	High
Little Mountain	150 acre-feet	High
Seven Oaks	145,600 acre-feet	Extremely High
Small Canyon	20 acre-feet	High
Yucaipa No. 1	92 acre-feet	High
Yucaipa No. 2	100 acre-feet	High
Yucaipa No. 3	32 acre-feet	High
Mineral Hot Springs Lake	31 acre-feet	High
Perris Hill Reservoir	31 acre-feet	Extremely High

Table 4-10: Dam Reservoir Capacity and Classification		
Catch Basin Name	Reservoir Capacity	Classification
Source: Dams Within Jurisdiction of the State of California, September 2019, California Department of Water Resources, Division of Safety of Dams.		

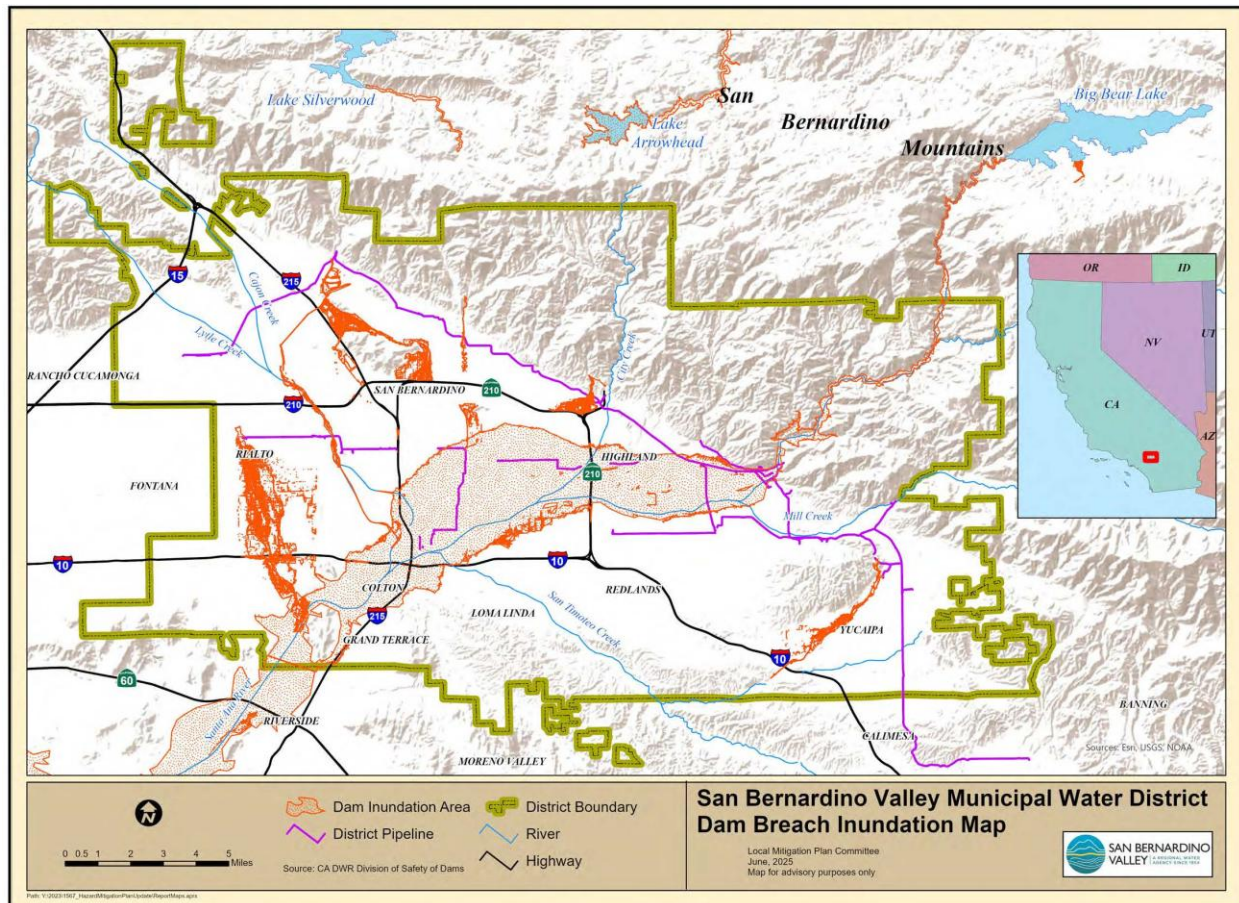


Figure 4-3: Dam Inundation Zones in Service Area

Extent

DSOD uses a scale for defining the intensity or potential severity of dam failure solely based on potential downstream impacts to life and property. The hazard is not related to the condition of the dam or its pertinent structures. This scale has four (4) categories which include the Federal categories and adds a fourth category of “extremely high”. **Table 4-11** outlines the downstream hazard potential classifications used by DSOD.

Table 4-11: California Department of Water Resources Division of Safety of Dams – Downstream Hazard Classifications	
Downstream Hazard Potential Classifications	Potential Downstream Impacts on Life and Property
Low	No probable loss of human life and low economic and environmental losses. Losses are expected to be principally limited to the owner's property.
Significant	No probable loss of human life, but it can cause economic loss, environmental damage, impacts to critical facilities, or other significant impacts.
High	Expected to cause the loss of at least one human life.
Extremely High	Expected to cause considerable loss of human life or would result in an inundation area with a population of 1,000 or more.

History

Despite some significant flooding events in the late 1800s and early 1900s, including one in 1862 that wiped out the tiny Santa Ana River hamlet of Agua Mansa near present-day Colton, regional flood management and mitigation weren't given a great deal of consideration in San Bernardino County until the Great Flood of March 1938. That deluge claimed 14 lives, left hundreds homeless, and caused an estimated \$12 million (\$220 million in 2020 dollars) in property damage.

In 1939, the State Legislature passed the San Bernardino County Flood District Act, which empowered the County to develop regional flood protection facilities to protect life and property. Today, San Bernardino County Flood Control operates and maintains 14 dams, 119 basins, 82 levees, and more than 250 miles of flood control channels. The dams, levees, and channels are designed to convey runoff around homes and businesses in the valley safely.

Vulnerability

Much of the District's service area is in the potential inundation zone of the Seven Oaks Dam. Populations and infrastructure within the Cities of Highland, San Bernardino, Redlands, Colton and Grand Terrace lie in this inundation zone. The City of Rialto lies in the inundation zone of the Cactus Dam. The vulnerability of these areas depends upon several factors including the condition of the dam, reservoir level, failure mechanism, extent of the failure and time of arrival of flood waters. Essentially, every dam failure scenario is variable and unique. Above ground infrastructure and pipeline traversing water courses are vulnerable.

Impacts

Impacts resulting from dam inundation can be catastrophic. As the water rushed through the downstream channel it picks up debris including houses, cars and trees. These serve as a battering ram that destroys infrastructure in its path. The rising water causes damage typical of a flood inundating structures and leaving mud and debris in its path. In addition to above ground infrastructure damage, loss of power and transportation disruptions are likely to occur.

After a major dam failure the District may be unable to provide water to its retail customers. This could disrupt potable water delivery to a large portion of the population of the service area. It could also adversely affect the availability of firefighting water to respond to structural and wildland fires

Possibility of Future Event

Dam failure can result from numerous natural or human activities. Earthquakes, internal erosion, improper siting, structural and design flaws, or rising floodwaters can all result in the collapse or failure of a dam. A dam failure may also be a result of the age of the structure or inadequate spillway capacity. The probability of a future dam failure affecting the District is unknown. While possible, it is unlikely that a dam failure event will occur within the next ten years. Event history is less than or equal to 10% likelihood per year. There is a 20 percent change that a dam failure will impact the District.

Regulatory Context

In California, the regulation of dams is primarily overseen by the Division of Safety of Dams (DSOD) under the Department of Water Resources. This division is responsible for the review, approval, and supervision of dam construction, maintenance, and safety protocols to prevent failure and mitigate risks associated with dam operations.

Impact of Climate Change

Severe weather such as more powerful rainstorms are likely to occur as a result of climate change. Atmospheric rivers which can create flooding throughout California may occur more frequently due to warmer weather and more moisture in storm systems. Climate change has the potential to cause more frequent and more heavy precipitation incidents. The results could be additional flows into with the potential for overtopping or other dam failure mechanisms.

4.3.4 Drought

Hazard Description

Drought is a normal part of virtually every climate on the planet, including areas of high and low rainfall. It is different from normal aridity, which is a permanent characteristic of

the climate in areas of low rainfall. Drought is the result of a natural decline in the expected precipitation over an extended period, typically one or more seasons in length. The severity of drought can be aggravated by other climatic factors, such as prolonged high winds and low relative humidity.

Drought is a complex natural hazard which is reflected in the following four definitions commonly used to describe it:

Meteorological drought is defined solely on the degree of dryness, expressed as a departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales

Hydrological drought is related to the effects of precipitation shortfalls on stream-flows and reservoir, lake, and groundwater levels

Agricultural drought is defined principally in terms of naturally occurring soil moisture deficiencies relative to water demands of plant life, usually arid crops

Socioeconomic drought associates the supply and demand of economic goods or services with elements of meteorological, hydrologic, and agricultural drought. Socioeconomic drought occurs when the demand for water exceeds the supply as a result of a weather-related supply shortfall. It may also be called a water management drought.

A drought's severity depends on numerous factors, including duration, intensity, geographic extent, and regional water supply demands by humans and vegetation. Due to its multi-dimensional nature, drought is difficult to define in exact terms and also poses challenges in terms of comprehensive risk assessments.

Drought differs from other natural hazards in three ways. First, the onset and end of a drought are difficult to determine due to the slow accumulation and lingering effects of an event after its apparent end. Second, the lack of an exact and universally accepted definition adds to the confusion of its existence and severity. Third, in contrast with other natural hazards, the impact of drought is less obvious and may be spread over a larger geographic area. These characteristics have hindered the preparation of drought contingency or mitigation plans by many governments.

Droughts may cause a shortage of water for human and industrial consumption, hydroelectric power, recreation, and navigation. Water quality may also decline, and the number and severity of wildfires may increase. Severe droughts may result in the loss of agricultural crops and forest products, undernourished wildlife and livestock, lower land values, and higher unemployment.

Location

When a drought is in effect, the entirety of the District is affected by all drought conditions affecting Southern California.

Extent

The National Integrated Drought Information System (NIDIS) Act of 2006 (Public Law 109-430) prescribes an interagency approach for drought monitoring, forecasting, and early warning. The NIDIS maintains the U.S. Drought Portal, a centralized, web-based access point to several drought-related resources, including the U.S. Drought Monitor (USDM) and the U.S. Seasonal Drought Outlook (USSDO).

The primary indicators for these maps for the Western U.S. are the Palmer Hydrologic Drought Index and the 60-month Palmer Z-index. The Palmer Drought Severity Index (PDSI) is a commonly used index that measures the severity of drought for agriculture and water resource management. It is calculated from observed temperature and precipitation values and estimates soil moisture. However, the Palmer Index is not considered consistent enough to characterize the risk of drought on a nationwide basis. Commonly used drought severity classifications are depicted in **Figure 4-4**.

Drought Severity Classification							
Category	Description	Possible Impacts	Ranges				
			Palmer Drought Index	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Short and Long-term Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.	-1.0 to -1.9	21-30	21-30	-0.5 to -0.7	21-30
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested.	-2.0 to -2.9	11-20	11-20	-0.8 to -1.2	11-20
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed.	-3.0 to -3.9	6-10	6-10	-1.3 to -1.5	6-10
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions.	-4.0 to -4.9	3-5	3-5	-1.6 to -1.9	3-5
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies.	-5.0 or less	0-2	0-2	-2.0 or less	0-2

Figure 4-4: Commonly Used Drought Severity Classifications

History

Since record-keeping began, California and the western region of the U.S. have experienced several multi-year drought conditions. The County experienced severe

drought from April 2007 through December 2009 and severe to exceptional drought from February 2013 through January 2017. A severe to exceptional drought began in 2020 and ended during the winter of 2022-2023. *Source: U.S. Drought Monitor.*

The following maps (**Figures 4-5 to 4-7**) show the extent of drought conditions in California from February 2025, 2020, and 2015. They also include a chart showing the history of drought conditions in California from 2001 through early 2025.

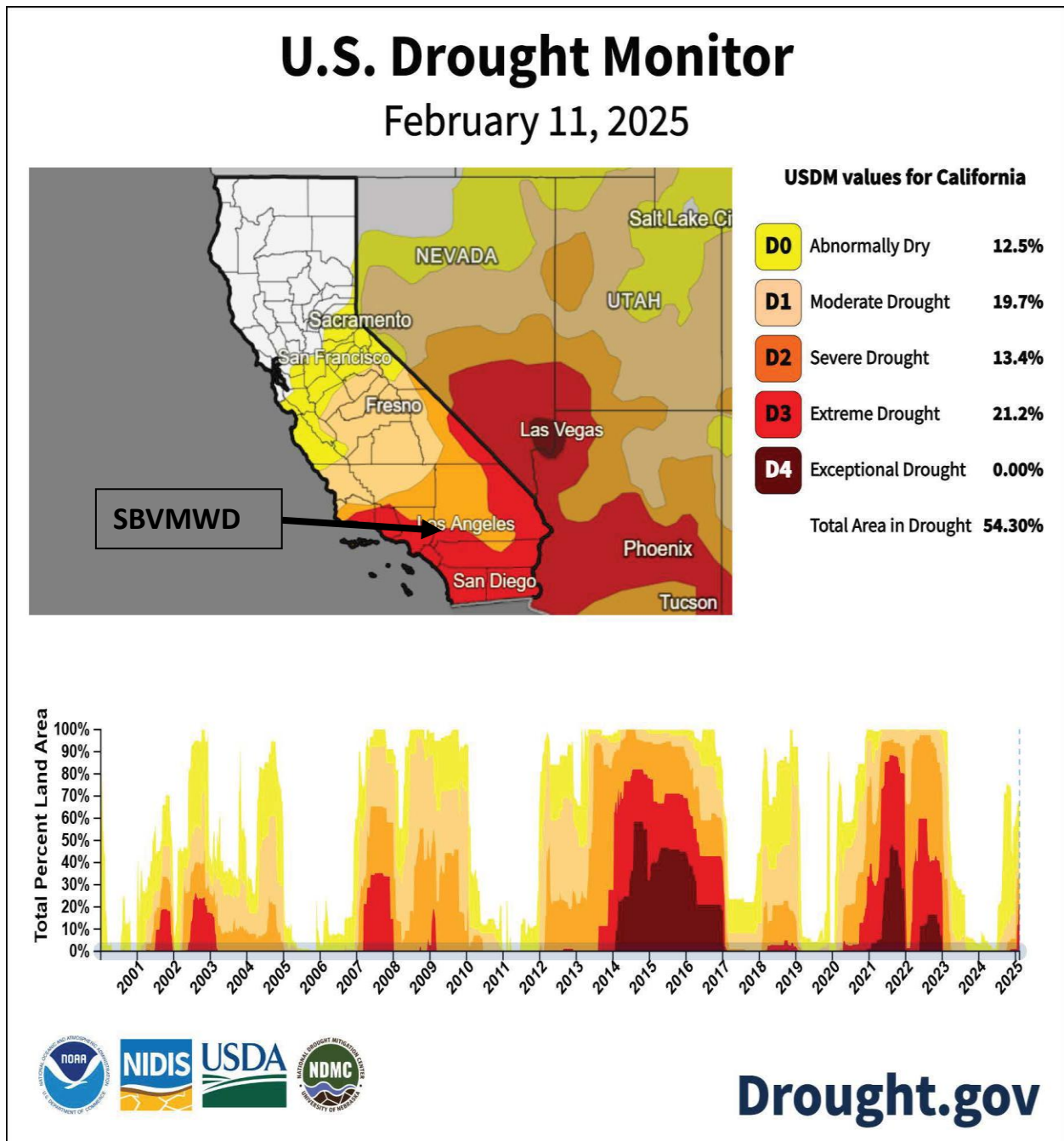


Figure 4-5: California Drought Monitor February 2025

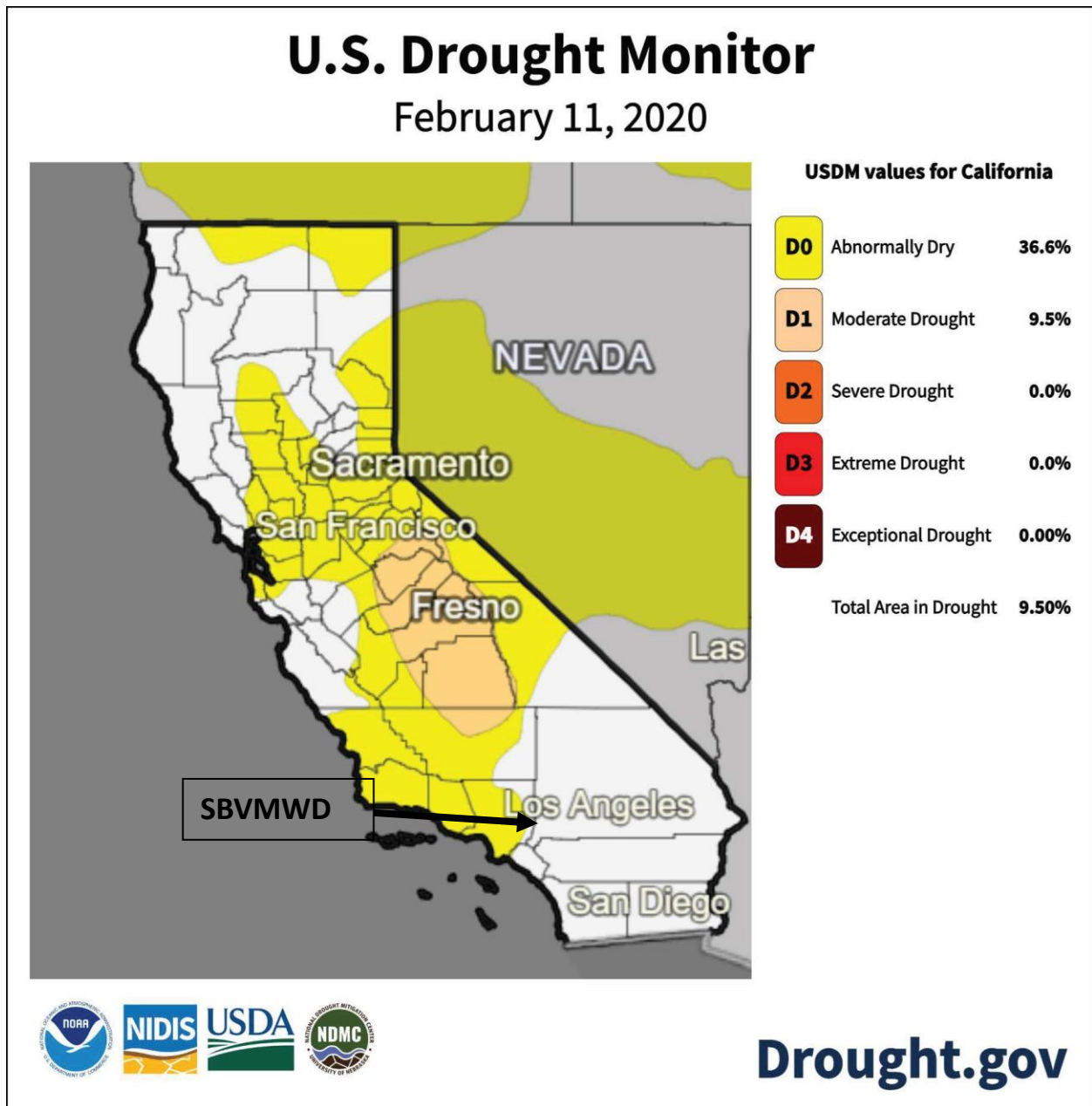


Figure 4-6: California Drought Monitor February 2020

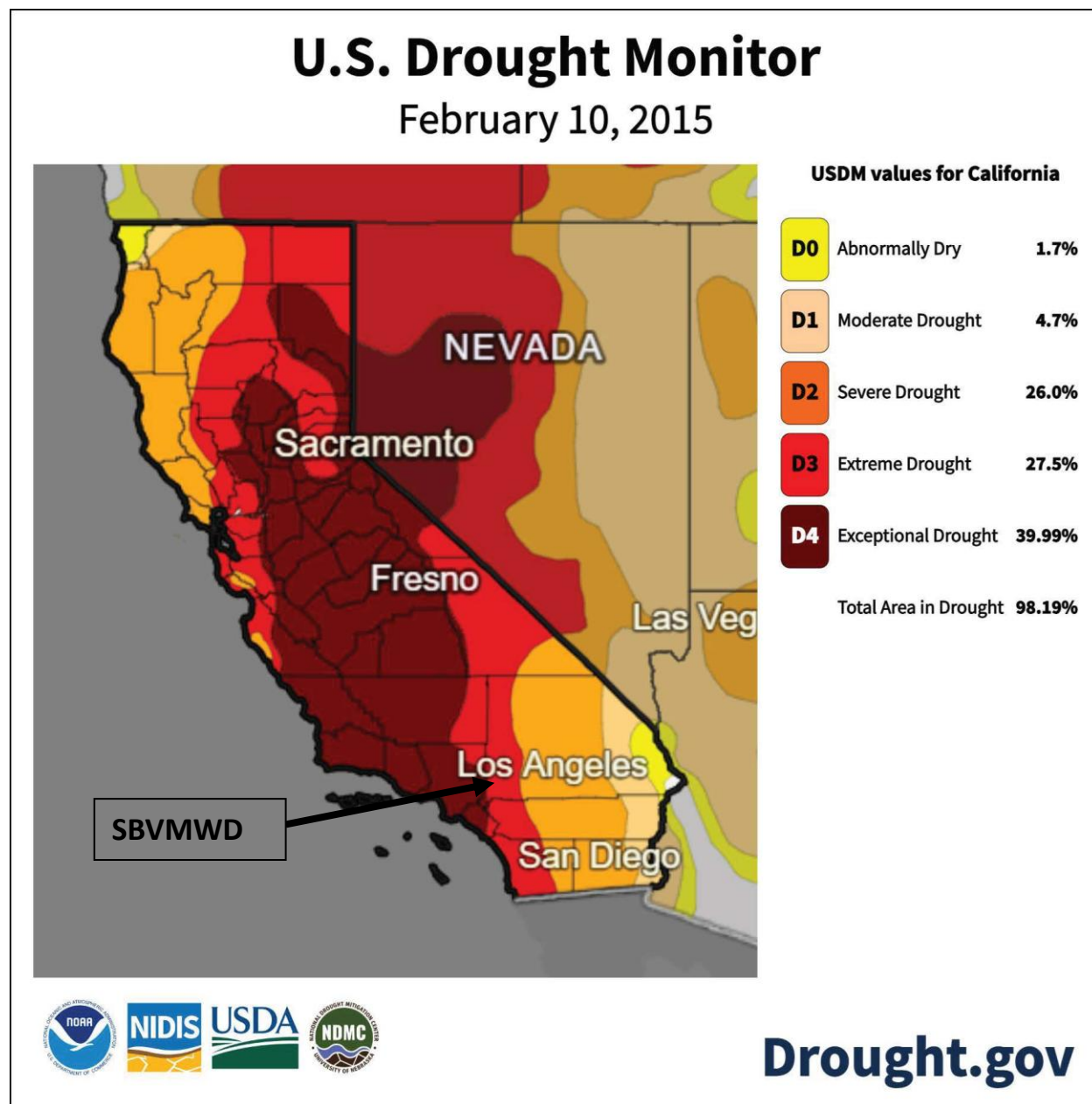


Figure 4-7: California Drought Monitor February 2015

Vulnerability

As a State Water Project agency, the District is vulnerable to multi-year drought. Drought affects reservoir levels which determine the amount of water available from the SWP. The two (2) biggest factors the Department of Water Resources uses to determine and update the allocation are storage levels in Lake Oroville and San Luis Reservoir and the amount of runoff projected for the remaining year. The amount of water pumped by the SWP in the Sacramento-San Joaquin Delta is a factor in allocation announcements, but there is not a direct correlation between pumping levels and the

allocation. More important is the projected runoff, which is based on the amount of precipitation that has fallen since October 1st.

Allocations typically start low and then increase through the winter months, depending upon precipitation. For example, in 2016, the December allocation was ten percent (10%), and the final was sixty percent (60%). In 2024, the allocation started at ten percent (10%) and increased to forty percent (40%). Full allocation years, or hundred percent (100%) allocation, are rare with only one such allocation in the past decade in the extremely wet year of 2023.

Groundwater sources are also vulnerable to drought. During long dry periods, groundwater levels sink and are more difficult to access. This requires additional pump operation and potentially dry wells.

Because droughts are regional, the entire service area is vulnerable to drought. This includes human populations, wildlife and vegetation and commercial water users. Droughts result in decreased water supply and may have long term effects on aquifer levels and water availability from underground sources.

Impacts

For the District, the primary impacts are potential loss of ability to provide water to retail customers. Because the primary impact of drought is loss of water supply, second order affects include loss of or reduction in crops and livestock, destruction of habitats, increased wildland fire risk due to tree mortality and loss of recreation due to reduced reservoir levels.

Probability of Future Events

As this HMP is being developed, California is not experiencing severe drought. Extreme drought persisted from 2012 to 2016. After an extremely wet winter during 2017-2018, drought conditions returned in 2021 and lasted to 2024.

Drought in California is a common occurrence that can last for multiple years. It is often associated with the El Niño Southern Oscillation (ENSO), when La Niña conditions result in decrease winter precipitation. The regional climate is characterized by a distinct dry season (approximately May to September) and wet season (approximately October to April) defined by a few large precipitation events, though additional peaks in precipitation can occur. There is a high probability (85%) that multi-year drought will occur during any 25-year period.

Regulatory Context

The State Water Resources Control Board (State Water Board) and the nine (9) Regional Water Quality Control Boards (Regional Boards) protect water quality and

allocate surface water rights. The Legislature created the State Water Board in 1967. The mission of the Water Board is to ensure the highest reasonable quality for waters of the State while allocating those waters to achieve the optimum balance of beneficial uses. The joint authority of water allocation and water quality protection enables the Water Board to provide comprehensive protection for California's waters. Regional Boards are semi-autonomous and have broad responsibilities within the framework of State regulatory guidance. The Department of Water Resources manages water usage, including water delivery to two-thirds of California's population through the State Water Project.

Impact of Climate Change

Climate change is already profoundly impacting California's water resources, as evidenced by changes in snowpack, sea level, and river flows. These changes are expected to continue, and more precipitation will likely fall as rain instead of snow. This potential change in weather patterns will add additional challenges to water supply reliability.

The mountain snowpack provides as much as a third of California's water supply by accumulating snow during wet winters and releasing it slowly during the spring and summer when the need is the greatest. Warmer temperatures will cause snow to melt faster and earlier, making it more difficult to store and use.

By the end of this century, the Sierra snowpack is projected to experience a forty-eight percent (48%) to sixty-five percent (65%) loss from the historical April 1st average. This loss of snowpack means less water will be available for Californians.

Climate change is also expected to result in more variable weather patterns throughout California. More variability can lead to longer and more severe droughts. In addition, rising sea levels will continue to threaten the Sacramento-San Joaquin Delta, the heart of the California water supply system and the source of water for 25 million Californians and millions of acres of prime farmland.

4.3.5 Earthquake and Seismic Hazards

Hazard Description

An earthquake is the vibration of the earth's surface following a release of energy in the earth's crust. This energy can be generated by a sudden dislocation of the crust or by a volcanic eruption. Most destructive quakes are caused by dislocations of the crust. The crust may first bend and then, when the stress exceeds the strength of the rocks, break and snap to a new position. In the process of breaking, vibrations called "seismic waves" are generated. These waves travel outward from the source of the earthquake at varying speeds.

The District is located in a high seismic risk zone. This region is one of the most seismically active in the world, marked by the number of large, damaging earthquakes that have occurred in the past. The following geologic hazards are associated with earthquakes and may be caused by seismic activity, increasing the resulting damage:

Ground Shaking

Ground shaking caused by a strong earthquake is probably the most important seismic hazard that can be expected anywhere in the County and larger Southern California area. The amount of earthquake shaking at a site is associated with the earthquake magnitude; the type of earthquake fault; the distance between the site and the earthquake source; the geology of the site; and how the earthquake waves decrease or increase as they travel from their source to the site in question. Shaking from the earthquake intensifies with a greater magnitude and closer distance to the epicenter. Softer soils and topographic ridges can also amplify seismic ground motions.

Liquefaction

Soil liquefaction is a phenomenon in which soil's strength and stiffness are reduced by earthquake shaking or other rapid loadings. Liquefaction and related phenomena have been responsible for tremendous amounts of damage in historical earthquakes around the world. Liquefaction can result in the settling and compacting of unconsolidated sediment in the event of a major earthquake. Liquefaction may increase as the ground acceleration and duration of shaking increase.

Areas subject to liquefaction in the service area are shown in **Figure 4-8**.

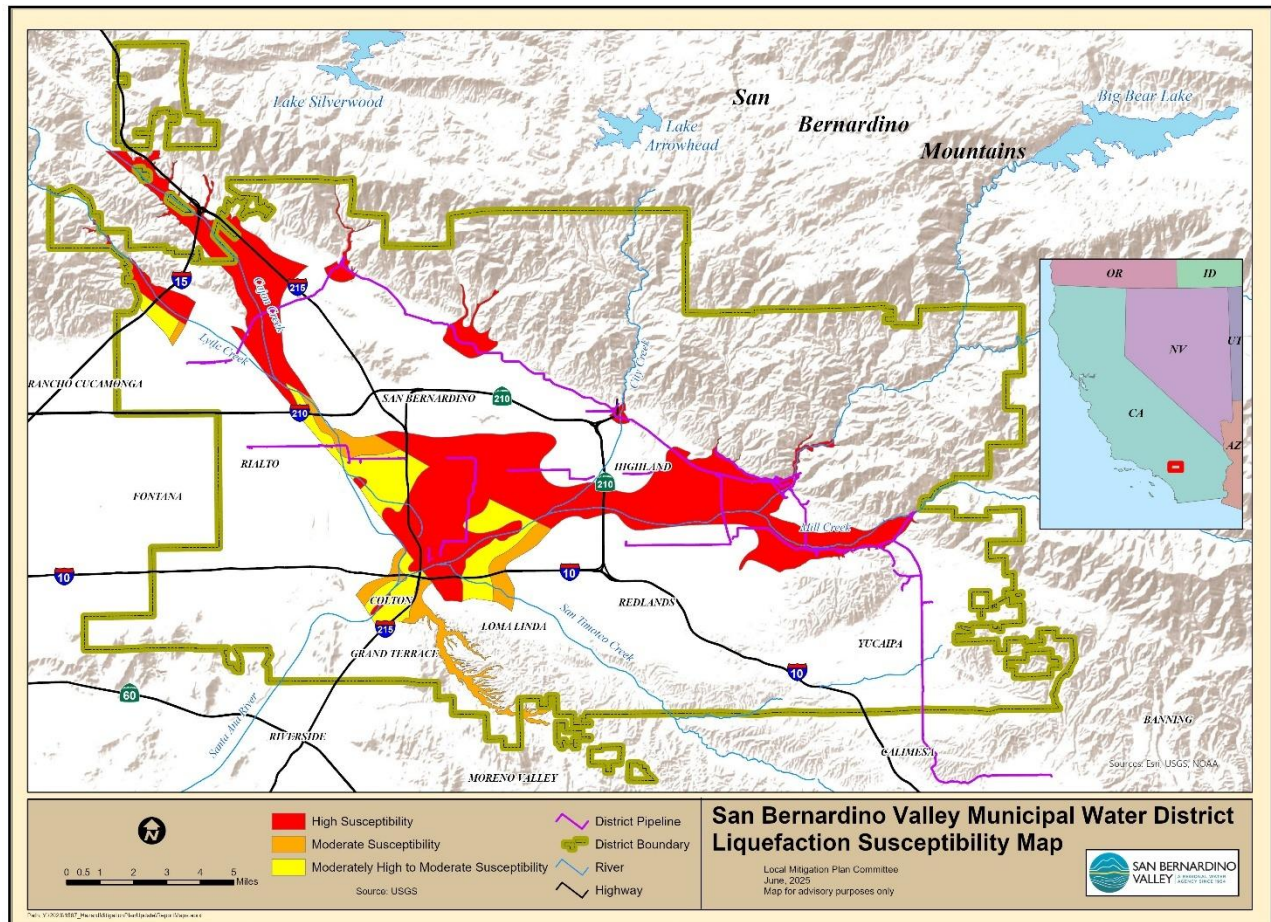


Figure 4-8: San Bernardino Valley Liquefaction Zones

Surface Fault Rupture

Surface rupture is an offset of the ground surface when fault rupture extends to the Earth's surface. Fault rupture almost always follows preexisting faults, which are zones of weakness. Any structure built across the fault is at risk of being torn apart as the two sides of the fault slip past each other. Normal and reverse surface fault ruptures have vertical motion while strike-slip surface fault ruptures produce lateral offsets.

Subsidence

Land subsidence is defined as the lowering of the land surface. Many different factors can cause the land surface to subside, such as a sinkhole or underground mine collapse, or during a major earthquake. Land subsidence can also occur when large amounts of groundwater have been excessively withdrawn from an aquifer. The clay layers within the aquifer compact and settle, resulting in lowering the ground surface in the area from which the groundwater is being pumped. Over time, as more water is removed from the area, the ground drops and creates a cone. Once the water has been removed from the sediment, it cannot be replaced.

Land subsidence can occur in various ways during an earthquake. Movement that occurs along faults can be horizontal or vertical or have a component of both. As a result, a large area of land can subside drastically during an earthquake. Land subsidence can also be caused during liquefaction. Liquefaction can result in the settling and compacting of unconsolidated sediment in the event of a major earthquake. This can result in the lowering of the land surface.

Expansive Soils

Expansive soils contain mixed-layer clay minerals that increase and decrease in volume upon wetting and drying, respectively. Expansive soils are common throughout California and can damage foundations and slabs unless properly treated during construction.

Landslides

Some soil materials, such as clay minerals, can absorb water, resulting in a reduction of shear strength. The force of gravity can cause landslides when the shear strength of saturated clay is reduced below its minimum stability threshold. Earthquake-induced landslides of steep slopes can occur in either bedrock or soils. Areas at risk from landslides typically have steep slopes (fifteen percent [15%] or greater), unstable rock or soil characteristics, or other geologic evidence of instability.

While ground shaking, liquefaction, surface fault rupture, subsidence, expansive soils, and landslides may all result from an earthquake, the District has taken the approach of developing mitigation activities that address earthquakes as a single hazard. This is based upon the fact that the sub-hazards of landslide and surface fault rupture are unlikely in the County, and that ground shaking, liquefaction, subsidence, and expansive soils result in damage to structures and facilities. Mitigation actions will be designed to address the sub-hazards as a single hazard.

For this planning cycle, the District has chosen not to develop any mitigation actions specific to these sub-hazards.

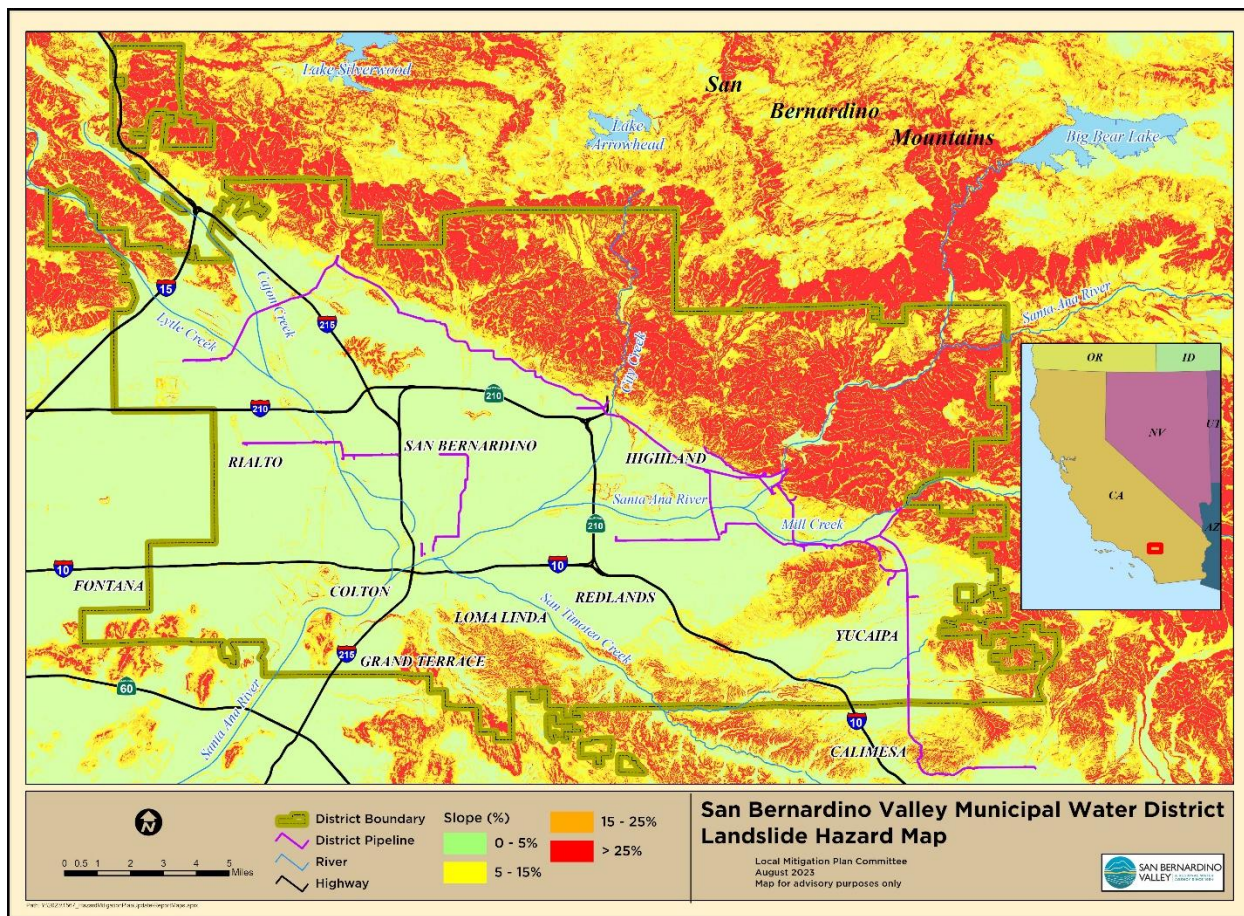


Figure 4-9: Landslide Susceptibility Zones within San Bernardino

Location

Earthquakes events and their potential are extremely prominent within the District as both the San Andreas and San Jacinto Faults traverse the District. The Cucamonga Fault system as well as many smaller faults can be found within the District. Areas subject to landslides in the District are shown in **Figure 4-9**.

Figure 4-10 shows these faults and shaking as provided by the California Geological Survey.

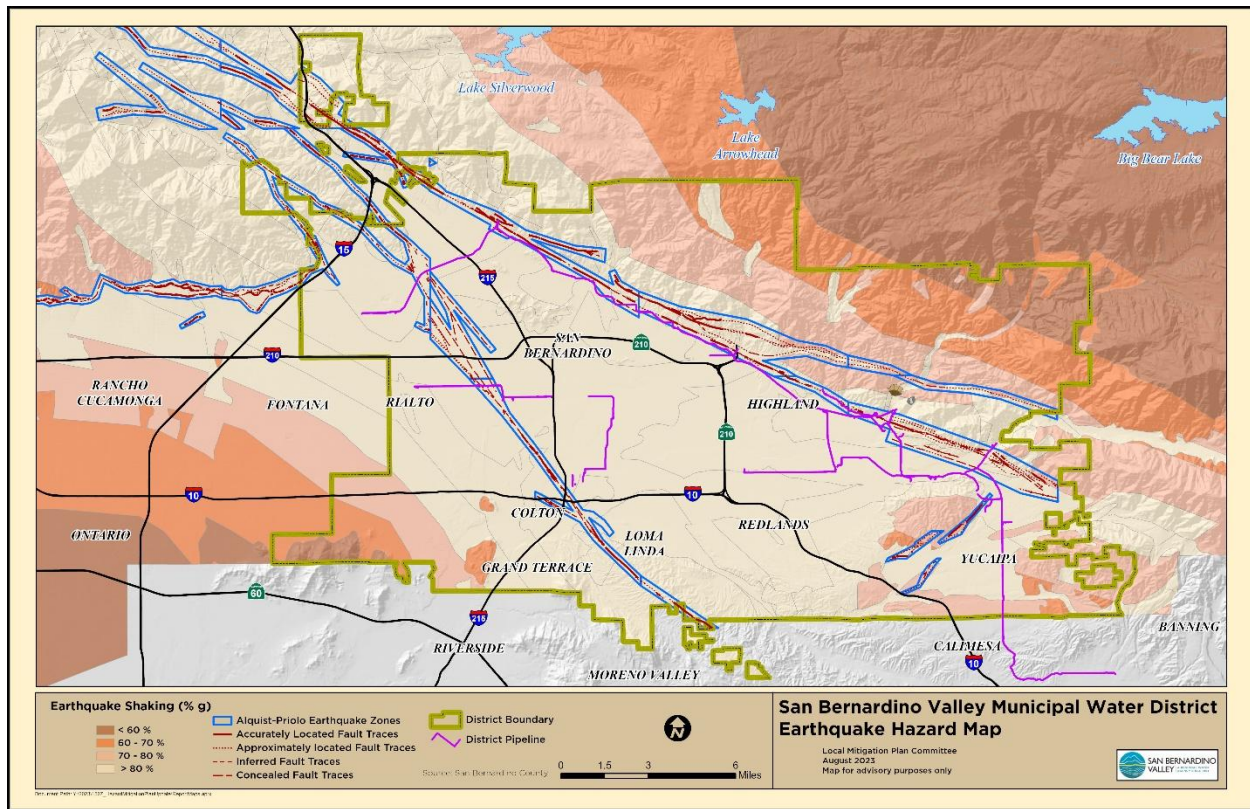


Figure 4-10: San Bernardino County Earthquake Hazard Map

Extent

Two scales are used to measure the severity and intensity of an earthquake. The Modified Mercalli Intensity (MMI) Scale measures the ground shaking intensity in terms of acceleration, velocity, and displacement. The Moment Magnitude (Mw) Scale measures the severity of the earthquake by the amount of energy released at the source of the earthquake. The Mw scale, based on the concept of seismic moment, is uniformly applicable to all sizes of earthquakes. The extent of damage from an earthquake is determined by the magnitude of the earthquake, distance from the epicenter, and characteristics of surface geology. **Table 4-12** shows an approximate correlation between the Moment Magnitude (Mw) and the Modified Mercalli Intensity (MMI) Scale and its effects.

Table 4-12: Modified Mercalli Intensity Scale

Intensity	Description	Description
I	Instrumental	Felt only by very few people under especially favorable conditions.
II	Feeble	Felt only by a few people at rest, especially on the upper floors of buildings.
III	Slight	Noticeable by people indoors, especially on upper floors, but not always recognized as an earthquake.
IV	Moderate	Felt by many indoors and by some outdoors. Sleeping people may be awakened. Dishes, windows, and doors are disturbed.
V	Slightly Strong	Felt by nearly everyone, and many sleeping people are awakened. Some dishes and windows broken, and unstable objects overturned.
VI	Strong	Felt by everyone. Some heavy furniture is moved, and there is slight damage.
VII	Very Strong	Negligible damage in well-built buildings, slight to moderate damage in ordinary buildings, and considerable damage in poorly built buildings.
VIII	Destructive	Slight damage in well-built buildings, considerable damage and partial collapse in ordinary buildings, and great damage in poorly built buildings.
IX	Ruinous	Considerable damage to specially designed structures. Great damage and partial collapse in substantial buildings, and buildings are shifted off foundations.
X	Disastrous	Most foundations and buildings with masonry or frames and some well-built wood structures are destroyed. Rail lines are bent.
XI	Very Disastrous	Most or all masonry structures are destroyed, along with bridges. Rail lines are greatly bent.
XII	Catastrophic	Damage is total. The lines of sight are distorted, and objects are thrown into the air.

History

Earthquake

Table 4-13 shows earthquakes greater than Magnitude 5.0 that have been felt within the San Bernardino County area from 1970-2025.

Table 4-13 San Bernardino County Earthquakes 5.0 or Greater	
Date	Event Mw
7/29/2008	Chino Hills 5.4
10/16/1999	Hector Mine 7.1
1/17/1994	Reseda 6.7
6/28/1992	Big Bear/Landers 7.3
4/22/1992	Joshua Tree 6.1
2/28/1990	Upland 5.3
9/12/1970	Lytle Creek 5.2

Liquefaction

There have been no instances of liquefaction within the District. However, an event could occur if soil conditions, shallow groundwater levels, and a strong seismic event coincide.

Earthquake-Induced Landslides

Prior landslide (erosion) events have occurred within the District. However, they have typically been associated with weather-related precipitation events.

Vulnerability

The District is extremely vulnerable to seismic activity. **Figure 4-11** shows the locations of major faults in relation to the District service area. The faults are the Southern San Andreas, the San Jacinto, the Elsinore, and the Garlock Faults. The San Andrea fault lies just to the north a many of the District’s facilities. Additionally, this fault has the potential to disrupt water delivery from the State Water Project by damaging or destroying water conveyance system in the Tejon Pass area.

Interestingly, earthquakes in northern California may impact the District. A large earthquake that causes the levees in the Sacramento/San Joaquin River Delta to fail could resulting in sea water inundation in the conveyance systems that feed Clifton Bay Forecourt. The forecourt is the origin point for water in the California Water Project. If

freshwater does not reach the forecourt, the system must be shut down.

Impacts

A major earthquake on the San Andreas fault would have severe consequences for the District. Almost all the District's facilities could be damaged or destroyed. Control system could fail due to loss of connectivity or loss of power. Long term loss of power would disrupt well production and pumping facilities. Damage to transportation systems will prevent or delay initiating damage assessments and conducting repairs. Displacement of staff due to loss of housing or access to lifeline support systems would also be likely.

The most immediate impacts of a major seismic event with an epicenter within or near the District's service area would be curtailment or reduction of water conveyance to its retail customers and city agencies. The impact on the population could be devastating as water available for drinking, wastewater, commercial uses, agriculture, health and food preparation may be severely limited and take days or weeks to restore.

Probability of Future Events

Earthquake probabilities are calculated by projecting earthquake rates based on earthquake history and fault slip rates (not simply the number of occurrences within a span of years). The result is expressed as the probability that an earthquake of a specified magnitude will occur on a fault or within an area.

There is a strong likelihood that the District will experience a significant earthquake from one of the known major faults in the next 30 years. In 2015, the Working Group on California Earthquake Probabilities (WGCEP) issued its third Uniform California Earthquake Rupture Forecast (UCERF3), which determined the likelihood for magnitude 6.7 and larger earthquakes within the next 30 years, somewhere in the region remains near certainty (greater than ninety-nine percent [99%]). Within the next 30 years, the probabilities of earthquakes in Southern California are:

- 60% that an earthquake measuring magnitude 6.7
- 46% that an earthquake measuring magnitude 7
- 31% that an earthquake measuring magnitude 7.5

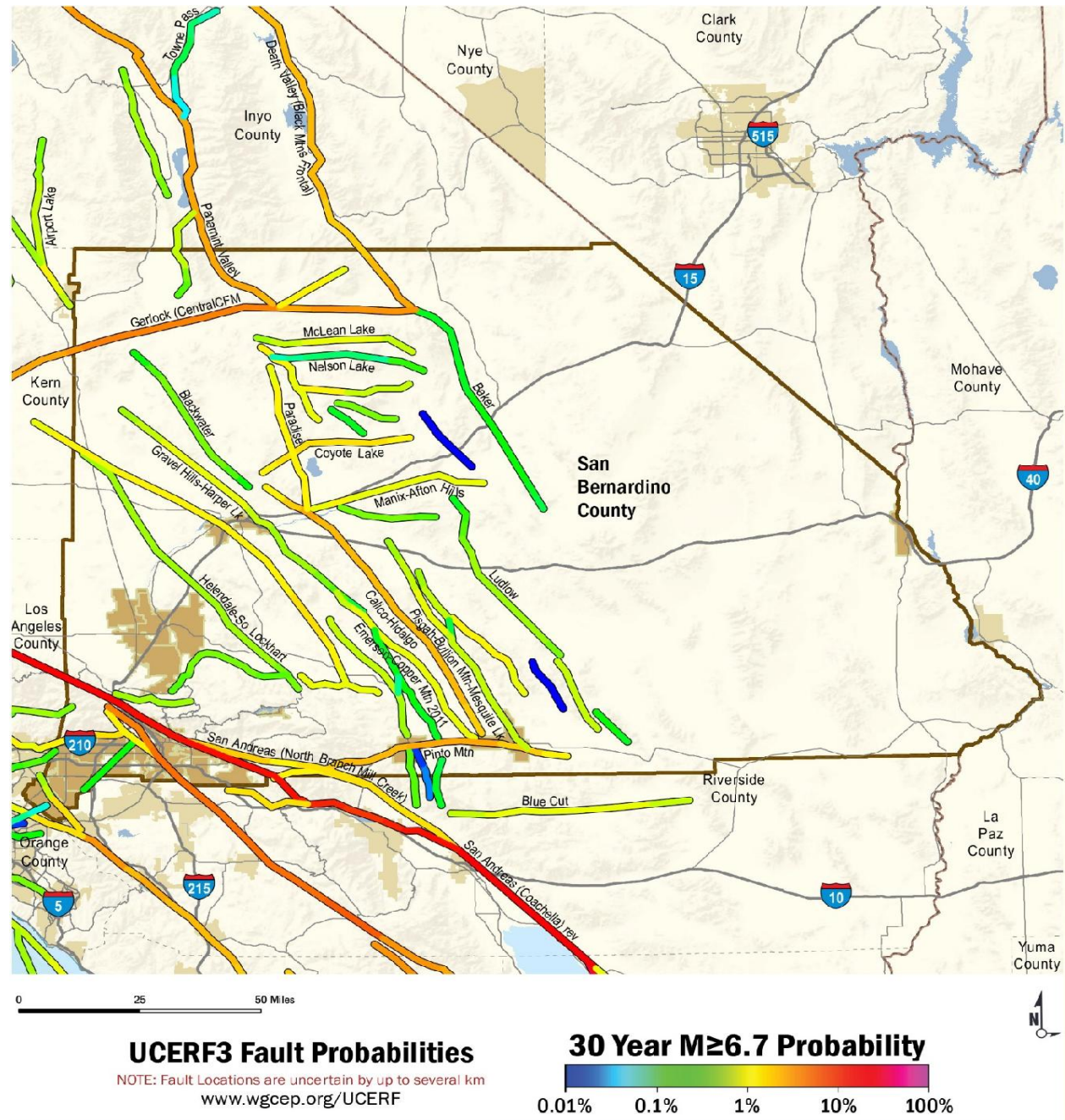


Figure 4-11: Earthquake Probability in San Bernardino County

Impacts of Climate Change

Climate change is not expected to have any direct influence on the likelihood, size, and/or severity of any future seismic-related event. Landslides and other geological hazards can be more common with the impacts of climate change due to more extreme weather events causing greater water saturation of soils, such as during the 2023 atmospheric river events. More extreme El Niño weather events could also increase the

amount of water dumped during each event despite the area becoming dryer on average.

4.3.6 Flooding

Hazard Description

Flooding is any overflowing of water onto land that is normally dry, due to rain, ocean waves, or the failure of a dam or levee. Floods are the most common of all weather-related natural disasters. They kill more people in the United States each year than tornados, hurricanes, or lightning. Areas near rivers or streams are at risk from floods during heavy rain or periods of upstream snowmelt. In urban areas, where buildings, highways, driveways, and parking lots reduce the ground's ability to absorb rainfall, the resulting increase in runoff can overwhelm constructed storm drain systems, resulting in flooding on nearby roads and buildings.

According to FEMA, there are several different types of floods and under some there are subtypes. The flooding types and subtypes include:

- Riverine Flooding
- Overbank (River/Stream) Flooding
- Flash Floods
- Dam and Levee Failure
- Alluvia Fans
- Ice Jam Flooding
- Moveable Bed Streams
- Urban Drainage
- Ground Failures
- Mudflood and Mudflows
- Subsidence
- Liquefaction
- Fluctuating lake levels
- Coastal flooding and erosion
- Storm Surge

Additionally, the District owns a 78-inch diameter pipeline (Foothill Pipeline) that crosses the City Creek channel in Highland. The City Creek Channel has been both eroding and head cutting in the segment of the stream channel between Highland Avenue and Base Line Road. Since 2006 Valley District has been actively working to protect the Foothill Pipeline, installing gabion walls and rip rap armory. In December 2010, a flood event damaged the pipeline protection put in place and the District had to perform emergency construction work to repair the damage.

Location

The majority of the flood risk within Valley District is specifically subject to inundation as a result of heavy rainfall and resulting stream and drainage canal overflows. The extent of flooding associated with a 1-percent annual probability of occurrence (the base flood or 100-year flood) is used as the regulatory boundary by many agencies and helps identify the location and extent of flooding in areas across the Valley District. This area

is also referred to as the SFHA and is a convenient tool for assessing vulnerability and risk in flood-prone communities.

Figure 4-12 is based on the 500 year flood zone being the combination of the 100-year mapped zone and the 500-year mapped zone, which are estimated inundation areas based on a flood that has a 1-percent (100-year) and 0.2-percent (500-year) chance of occurring in any given year. The District contains over 25,942 acres of identified flood hazard areas. A narrative on the risk flood hazards pose to the district can be found in Section 5.

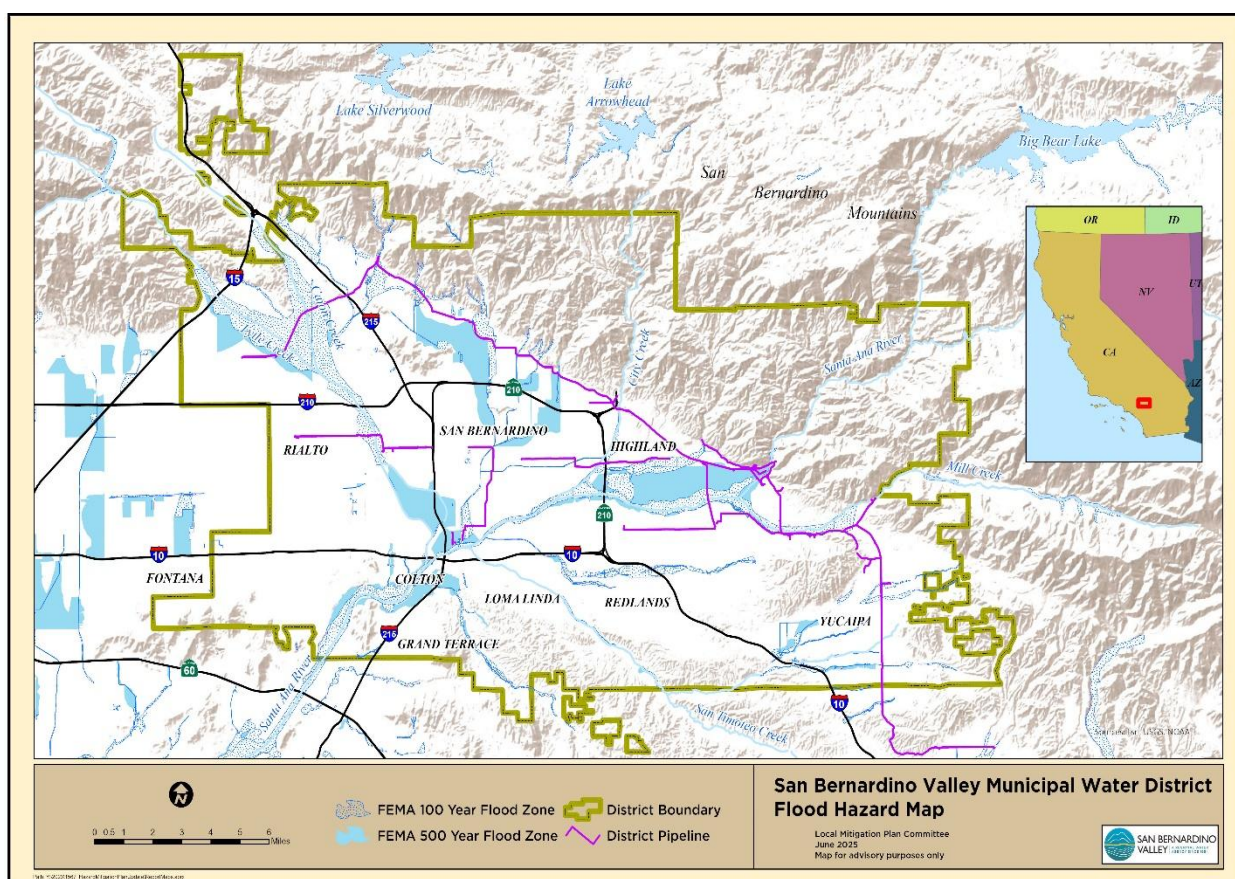


Figure 4-12: FEMA Flood Insurance Rate Maps 100-year and 500-year flood zones within the District

Extent

Flood events are measured by their likelihood of occurrence. For instance, a 100-year flood is a flood that has a 1 in 100 (1.0 percent) chance of occurring in any given year. A 500-year flood is a flood that has a 1 in 500 (0.2 percent) chance of occurring in any given year. The 100-year flood has been designated as the benchmark for major flood events. Thus 100-year floods are referred to as “base floods.”

Floodplains are areas that are prone to flooding and often experience frequent flooding. While it is possible for areas outside of these designated floodplains to experience flooding, the most likely locations to experience future flooding are low-lying areas near bodies of water. FEMA is the governmental body responsible for designating which areas of the United States can be classified as floodplains.

The three (3) most common designations are:

- **Special Flood Hazard Area:** The area within a 100-year floodplain.
- **Moderate Flood Hazard Area:** The area outside the 100-year floodplain but within the 500-year floodplain.
- **Minimum Flood Hazard Area:** The area outside of the 500-year floodplain.

FEMA has multiple floodplain categories for each unique environment within these three designations. **Table 4-14** shows these detailed floodplain categories. FEMA classifies San Bernardino under four floodplain categories: A, AE, AO, D, and X.

Flooding hazards can potentially impact a significant amount of the community; however, less than ten percent (10%) of this area is subject to a 100-year event. Development within flood hazard areas is expected to comply with flood protection standards that reduce vulnerability to flood impacts and ensure safe use and occupation of structures.

Table 4-14: FEMA Floodplain Categories	
Category	Description
A	Within a 100-year floodplain, but the water height of the 100-year flood is not known.
A1-30 or AE	Within a 100-year floodplain and the water height of the 100-year flood is known.
AO	Within a 100-year floodplain, and the water height of the 100-year flood is between one and three feet but not specifically known.
A99	Within a 100-year floodplain; protected by flood protection infrastructures such as dams or levees.
AH	Within a 100-year floodplain, the water height of the 100-year flood is between one and three feet and is specifically known.
AR	Within a 100-year floodplain, it is protected by flood protection infrastructure that is not currently effective but is being rebuilt to provide protection.

Table 4-14: FEMA Floodplain Categories	
Category	Description
V	Within a 100-year floodplain for coastal floods, but the water height of the flood is not known.
V1-30 or VE	Within a 100-year floodplain for coastal floods and the water height of the flood is known.
VO	Within a 100-year floodplain for shallow coastal floods with a height between one and three feet.
B	Within a 500-year floodplain, or within a 100-year floodplain with a water height less than one foot (found on older maps).
C	Outside of the 500-year floodplain (found on older maps).
X	Outside of the 500-year floodplain (found on newer maps).
X500	Within a 500-year floodplain or within a 100-year floodplain with a water height less than one foot (found on newer maps).
D	Within an area with a potential and undetermined flood hazard.
M	Within an area at risk of mudslides from a 100-year flood event.
N	Within an area at risk of mudslides from a 500-year flood event.
P	Within an area at risk of mudslides from a potential and undetermined flood event.
E	Within an area at risk of erosion from a 100-year flood event.

Source: 24 CFR, Section 64.3

History

San Bernardino County and the communities within the county have experienced 15 flooding events since 1969 for which federal disaster declarations were issued, as summarized in **Table 4-15**. Many flood events do not trigger federal disaster declaration protocol but have significant impacts on their communities.

Table 4-15 History of Flood Disaster Declaration Events		
Incident Date(s)	Declaration #	Type of event
December 31, 2022- January 1, 2023	N/A	A potent storm moved in late on 12.31.2022 and continued into 1.1.2023. Many mountain locations recorded over 4" of precipitation, mostly rain. Lytle Creek recorded 5.85".

Table 4-15 History of Flood Disaster Declaration Events		
Incident Date(s)	Declaration #	Type of event
December 11, 2022	N/A	An atmospheric river brought heavy rain to Southern California, ranging from 0.50-2” in the lowlands, generally 2- 4” in the mountains, except Lytle Creek, with 5.03”.
December 4, 2017- January 31, 2018	DR-4353	Wildfires, flooding, mudflows, debris flow
January 18-23,2017	DR-4305	Severe winter storms, flooding, and mudslides
January 17-February 6, 2010	DR-1884	Severe winter storms, flooding, and debris and mud flows
February 16-23, 2005	DR-1585	Severe storms, flooding, landslides, and mud and debris flows
December 27, 2004- January 11, 2005	DR-1577	Severe storms, flooding, debris flows, and mudslides
February 2-April 30, 1998	DR-1203	Severe winter storms, and flooding
February 13-April 19, 1995	DR-1046	Severe winter storms, flooding landslides, mud flow
January 3-February 10, 1995	DR-1044	Severe winter storms, flooding, landslides, mud flows
January 5-March 20, 1993	DR-979	Severe winter storm, mud and landslides, and flooding
February 10-18, 1992	DR-935	Rain/snow/windstorms, flooding, mudslides
January 17-22, 1988	DR-812	Severe storms, high tides and flooding
January 21-March 30, 1983	DR-677	Coastal storms, floods, slides and tornados
January 8, 1980	DR-615	Severe storms, mudslides and flooding
February 15, 1978	DR-547	Coastal storms, mudslides and flooding
January 26, 1969	DR-253	Severe storms and flooding

Vulnerability

District facilities vulnerable to flooding include pipelines that lie within the 100- and 500-year floodplains, particularly where they cross rivers or creeks. Relevant waterways include the Santa Ana River, Cajun Creek, Lytle Creek, and Rialto Channel. During the flood events, heavy flows in the watercourses can undercut crossing lying beneath the channel resulting in broken or damaged pipelines.

Impacts

Impacts from flood events that damage pipelines are loss of service until repairs can be made. Given that the District normally provides supplemental water to its retail customers, there's a small chance of flooding resulting in significant reduction of water to populations in the service area.

Probability of Future Event

The FIRM maps not only identify the flood hazard zones for insurance and floodplain management purposes but also provide a statement of probability of future occurrence. A 500-year flood has a 0.2-percent chance of occurring in any given year; a 100-year flood has a 1- percent chance, a 50-year flood has a 2-percent chance, and a 10-year flood has a 10-percent chance of occurrence. Although the recurrence interval represents the long-term average period between floods of specific magnitude, significant floods could occur at shorter intervals or even within the same year. The FIRM maps typically identify components of the 500-year and 100-year floodplains. There is a 65 percent chance that the District will be impacted by flooding.

Impact of Climate Change

Climate change acts as an amplifier of existing flood hazards. Extreme weather events have become more frequent over the past 40 to 50 years and this trend is projected to continue. Rising sea levels and shifting weather patterns (temperate, winds) are expected to have a significant impact on rainfall frequency, intensity and conveyance, which in turn will have a significant impact on the frequency of flood occurrences.

Climate Change can also increase the frequency and/or intensity of mudflows. Changes in precipitation, specifically the increased frequency of intense precipitation, can result in a water content the ground cannot tolerate, and may cause mudflows. These mudflows may happen more frequently due to the increased number of heavy rainfall events.

4.3.7 Human Caused Hazards

While human caused hazards are not required to be addressed in an LHMP, the District has included material to address some of the most severe human induced hazards.

Hazardous Materials Release

Hazard Description

A hazardous material is a substance or combination of substances that, because of quantity, concentration, or physical, chemical, or infectious characteristics, may cause or contribute to an increase in mortality or an increase in serious illness, or otherwise pose a hazard to human life, property, or the environment. Hazardous material releases can

pose a risk to life, public health, air quality, water quality and the environment. They may result in the evacuation of a facility or an entire neighborhood. In addition to the immediate risk, long-term public health and environmental impacts may result from sustained exposure to certain substances.

Title 49 of the Code of Federal Regulations lists thousands of hazardous materials, including gasoline, insecticides, household cleaning products, and radioactive materials. Even the natural gas used in homes and businesses is a dangerous substance when a leak occurs. According to the California State Hazard Mitigation Plan, hazardous materials are substances that are flammable, combustible, explosive, toxic, noxious, corrosive, an oxidizer, an irritant or radioactive. State-regulated substances that have the greatest probability of adversely impacting communities are listed in the CCR, Title 19.

Hazardous materials are present in facilities that produce, store, or use them:

- Hazardous materials are transported along interstate highways and railways daily.
- The District uses EarthTec to control algae growth and protect water quality of State Water Project supplies. EarthTec is considered a hazardous substance.

Hazardous materials are likely accidentally released or spilled numerous times each day. Eliminating these widespread substances would be nearly impossible, but the threat of accidental releases or spills may be reduced by mitigation.

Responding to the Hazardous Materials Risk

The following mitigation efforts for hazardous substances are implemented through state and federal regulation:

- Process hazard analysis through the California Division of Occupational Safety and Health
- Policies and procedures, hazard communication, and training
- Placarding and labeling of containers
- Hazard assessment
- Security
- Process and equipment maintenance
- Mitigating techniques (flares, showers, mists, containment vessels, failsafe devices)
- Use of inherently safer alternative products
- Emergency plans and coordination

- Response procedures

Extent

Hazardous materials releases are classified on a scale of I-III as described below:

- Level I - A minor situation within the capabilities of first responders trained at the “operational” level.
- Level II - Incidents that are beyond the capabilities of an agency with jurisdictional responsibility and that require mitigation by a hazardous materials team.
- Level III - Incident beyond the capabilities of the hazardous materials team and local resources. The incident may be quite lengthy in duration and may necessitate large- scale evacuations.

Vulnerability

Because the District stores and uses minimal amounts of hazardous materials, it has only limited vulnerability to releases. Staff are much more likely to be exposed to due to a transportation accident while commuting to and from work.

Impacts

A hazardous material release is unlikely to impact water service to communities in the service area. It may have a minor impact on staff by disrupting their normal routine.

Probability of Future Event

The likelihood of a hazardous material release that has an impact on the District staff or facilities is very low with a probability estimated by the staff of less than five percent (5%) annually.

Terrorism

Hazard Description

The definition of terrorism by the U.S. Federal Bureau of Investigation (FBI) is “the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.” The FBI defines cyber terrorism as the use of computer network tools to shut down critical national infrastructures (e.g., energy, transportation, government operations) or to coerce or intimidate a government or civilian population.

Terrorists may use one or more of the following types of weapons: chemical, biological, incendiary, radiological, or explosives. In addition to large-scale attacks, a full range of assault styles must be considered, including simple bombings, active shooter, assassinations with small arms, major bombings, and others. The use of explosive devices remains the weapon of choice

for terrorist activity. Related activities include bomb threats that disrupt the normal operations of transit systems, government, or corporate facilities. Primary locations likely to be targeted include airports, mass transit targets, government facilities, and high population density locations, although so-called “soft targets” such as schools, local entertainment facilities, etc., are at risk. The potential for nuclear, biological, or chemical terrorism is also a concern. These types of emergencies would necessitate detailed contingency planning and preparation of emergency responders to protect their communities.

Weapons of mass destruction (WMD) typically used by terrorists are categorized by an acronym that lists the types of materials/weapons: CBRNE stands for chemical, biological, radiological, nuclear, and explosives; BNICE stands for biological, nuclear, incendiary, chemical, and explosives. The nature of each category of weapon is described briefly below:

Explosives - Explosive weapons are most terrorist’s weapon of choice. Eighty-six percent (86%) of domestic terrorist incidents involve the use of explosives. Explosives are readily available and have dramatic results, are low risk, require few skills to build and use, are easy to execute, allow for remote attacks, and do not require many people to execute. There are low explosives and high explosives. The effects include blast pressure, both positive and negative, fragmentation, and thermal. There are pipe bombs or bombs that can be easily concealed into a backpack, box, vehicles, or virtually any type of container, with numerous trigger mechanisms to set off the bomb. Bombings account for up to fifty percent of worldwide terrorist attack patterns.

Contamination – Contamination of food and water supplies are an infrequent method of terrorism. In 1984, members of the Rajneeshee religious cult contaminated a city water supply tank in The Dalles, Oregon, using Salmonella and infected 750 people. In 1992 The Kurdistan Workers' Party (PKK) put lethal concentrations of potassium cyanide in the water tanks of a Turkish Air Force compound in Istanbul. Contamination has the potential to injure large numbers of people and disrupt critical commodity supplies. Under the Environmental Protection Agency America’s Water Infrastructures Act, water system operators are required to conduct a risk and resiliency assessment and develop an Emergency Operations Plan.

Location

The form and locations of many natural hazards are identifiable and, even in some cases, predictable; however, there is no defined geographic boundary for terrorism. Based on previous events, it is presumed that critical facilities and services and large gatherings of people are at higher risk. A terrorism event such as explosives or water contamination poses the greatest threat to water infrastructure.

Extent

The damage caused by a terror attack is dependent on the method of attack. Large bomb attacks could destroy major infrastructure, kill many people, and disrupt regional functioning for a significant time.

History

There has been one terrorism event in San Bernardino County:

- December 2, 2015 – A terrorist attack, consisting of a mass shooting and an attempted bombing, occurred at the Inland Regional Center in San Bernardino, California, United States. 14 people were killed and 22 others were seriously injured.

Vulnerability

While district staff and facility could be the target of a terrorist attack, they do not represent an attractive target as they are not an iconic public symbol. The staff is small and work closely together.

Impacts

While a terrorist attack could disrupt water delivery to retail customers, it is unlikely to impact water service to communities in the service area.

Probability of Future Event

The likelihood of a terrorist attack is small. While the probability can't be accurately determined, it is estimated by District staff to be less than five percent (5%) annually.

Power Outage

Hazard Description

A power outage is the loss of the electricity supply to an area. In addition to natural hazards, power failure can result from a defect in a power station, damage to a power line or other part of the conveyance system, a short circuit, or the overloading of electricity mains.

A power outage may be referred to as a blackout if power is lost completely or as a brownout if some power supply is retained, but the voltage level is below the minimum level specified for the system, and a short circuit indicates a loss of power for a short amount of time (usually seconds). Some brownouts, called voltage reductions, are made intentionally to prevent a full power outage.

Power failures may also be intentionally induced due to high power demand that exceeds supply or due to actions taken by utility companies to de-energize power lines

when there is the possibility of energized power lines being downed during fire Red Flag warnings and causing fires.

Location

Power outages can occur throughout the service area and affect the entire region.

Extent

Power outages are typically measured by the number of customers without power. This number is two to three times lower than the number of people affected.

History

Following devastating fires in California in 2017 and 2018, utility companies sought regulatory actions to allow them to de-energize power lines when conditions might result in downed lines causing wildfires. The California Public Utilities Commission developed guidelines for public safety power shutoffs (PSPS) that have affected numerous areas of the State for up to several days.

August 2020 saw the first California electricity providers institute rolling blackouts since 2001. Hundreds of thousands of people experienced brief power outages through the several evenings after the body that manages most of the state's electric utilities declared a Stage 3 emergency to help reduce stress on the larger grid. Electricity demand surged through the day as temperatures topped the triple digits in many parts of the state, and people cranked up fans and air-conditioning units to try to stay cool. The emergency order was rescinded before midnight, and power was fully restored to all affected households

The 2011 Southwest blackout, sometimes referred to as the Great Blackout of 2011, was a widespread power outage that affected the San Diego–Tijuana area, southern Orange County, the Imperial Valley, Mexicali Valley, and Coachella Valley, and parts of Arizona. It occurred on Thursday, September 8, 2011, beginning at about 3:38 p.m. PDT and was the largest power failure in California history.

The 2000-2001 California electricity crisis brought to light many critical issues surrounding the State's power generation and conveyance system, including its dependency on out-of-state resources. Although California has implemented effective energy conservation programs, the State continues to experience both population growth and weather cycles contributing to a heavy demand for power. The 2000 and 2001 blackouts occurred due to losses in transmission or generation and/or extremely severe temperatures that lead to heavy electric power consumption.

Vulnerability

The District is vulnerable to power outages, especially if they have a long duration. Key

facilities that provide water service to retail customers have backup power.

Impacts

While District facilities are not likely to be affected by power outages, populations in the service area are significantly at risk from power outages as they affect critical infrastructure, transportation systems and commerce.

Probability of Future Occurrence

While the location, duration, and number of people affected cannot be predicted, power outages in the County service area are likely to occur on a continual basis with the likelihood of an incident greater than ten percent (10%) in any year.

Impact of Climate Change

Climate change may affect the number and severity of power outages. The August 2020 rolling blackouts resulted from high energy usage during record-setting heat throughout the state. As hotter conditions result in more and longer Red Flag warnings and concomitant PSPS', more power outages will occur.

4.3.8 Fire

Hazard Description

Wildfire

As defined in the California Fire Protection (CAL FIRE) 2010 Strategic Fire Plan, a wildfire event is an unwanted wildland fire including unauthorized human-caused fires, escaped wildfire use events, escaped prescribed wildfire projects, and all other wildfires.

Wildfire hazard is a significant and recurrent threat in the District's service area and has the potential to destroy buildings, cause damage to vital infrastructure, injure people, damage or destroy habitat, impair water quality and negatively affect groundwater recharge. Wildfire can result in loss of life, agricultural land, and animals. Wildfire season generally commences in early spring through late fall every year during the hotter, dryer months, although in recent years devastating wildfire have occurred in southern California in the winter months. Highly flammable vegetation and warm, dry summers create the potential for wildland fires in Vacaville.

The risk of wildland fires is related to a combination of factors, including winds, temperatures, humidity levels, and fuel moisture content. Of these four factors, wind is the most crucial. Steep slopes also contribute to fire hazards by intensifying the effects of wind and making fire suppression difficult. Where there is easy public access to dry vegetation, fire hazards increase due to greater chance of human carelessness. High hazard areas include outlying residential parcels and open lands adjacent to residential areas. Such development has also moved the urban wildland interface (the area where

human development meets undeveloped wildland) closer to higher-risk, wildfire hazard areas, increasing the number of people and buildings at risk as illustrated in **Figure 4-13: Urban Wildland Perimeters**.

Wildland Urban Interface Fire (WUI)

A WUI fire includes situations in which a wildland fire enters an area that is developed with structures and other human developments. In WUI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the wildland-urban interface is defined as “...the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.”

The WUI fire can be subdivided into three (3) categories (NWUIFPP, 1998): 1) classic wildland-urban interface; 2) the mixed wildland-urban interface; and 3) the occluded wildland-urban interface. The classic wildland-urban interface exists where well-defined urban and suburban development presses up against open expanses of wildland areas. The mixed wildland-urban interface is characterized by isolated homes, subdivisions, and small communities situated predominantly in wildland settings. The occluded wildland-urban interface exists where islands of wildland vegetation occur inside a largely urbanized area. Generally, many of the areas at risk within the County fall into the classic wildland-urban interface category.

Certain conditions must be present for a wildfire hazard to occur; a large source of fuel must be present, the weather must be conducive (generally hot, dry, and windy), and fire suppression sources must not be able to easily suppress and control the fire. The cause of the majority of wildfires is human-induced or lightning; however, once burning, wildfire behavior is based on three (3) primary factors: 1) fuel; 2) topography; and 3) weather. Fuel will affect the potential size and behavior of a wildfire depending on the amount present, its burning qualities (e.g. level of moisture), and its horizontal and vertical continuity.

Topography affects the movement of air, and thus the fire, over the ground surface. The terrain can also change the speed at which the fire travels, and the ability of firefighters to reach and extinguish the fire. Weather as manifested in temperature, humidity and wind (both short and long term) affect the probability, severity, and duration of wildfires. Other factors that create concern are drought conditions and development (the built environment). Drought conditions bring on contributing concerns in that it can lead to relatively drier conditions and leave reservoirs and water tables lower; thus, creating hotter fires and less water to fight the fires. The expansion of the built environment into

previously unoccupied areas introduces more people to the hazard and in some cases make response actions more challenging.

Location

Due to the San Bernardino Mountains foothill topography, San Bernardino has a susceptibility to and a long history of dealing with wildfires. The community extends into the undeveloped hillside areas/mountains to the north of the county, adjacent to the San Bernardino National Forests.

Wildfires present a significant threat to the District and the County, as it is a region of relatively high temperatures, low humidity, and low precipitation during the summer. This long summer season is followed by a fall season famous for high velocity and arid winds originating from the desert (Santa Ana winds). **Figure 4-13** identifies the historic wildfire perimeters between 1900 and 2020 in and around the County. In addition, **Figure 4-14** identifies the fire hazard zones within the County and surrounding areas. The zones depicted include areas of the national forest (FRA), areas within unincorporated San Bernardino County (SRA), and the San Bernardino Wildland Urban Interface (WUI), which includes the LRA within the jurisdictional boundaries of the San Bernardino County Fire Protection District.

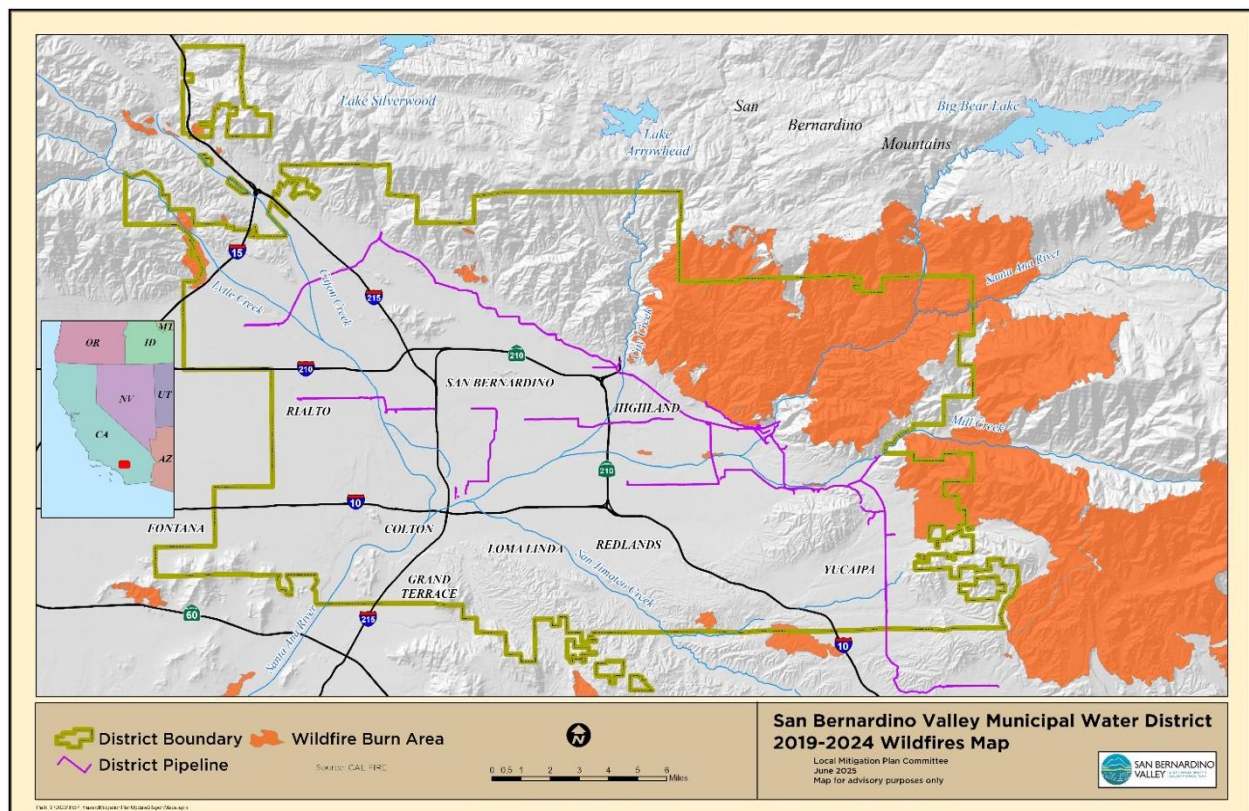


Figure 4-13: Historic Wildfire Perimeters

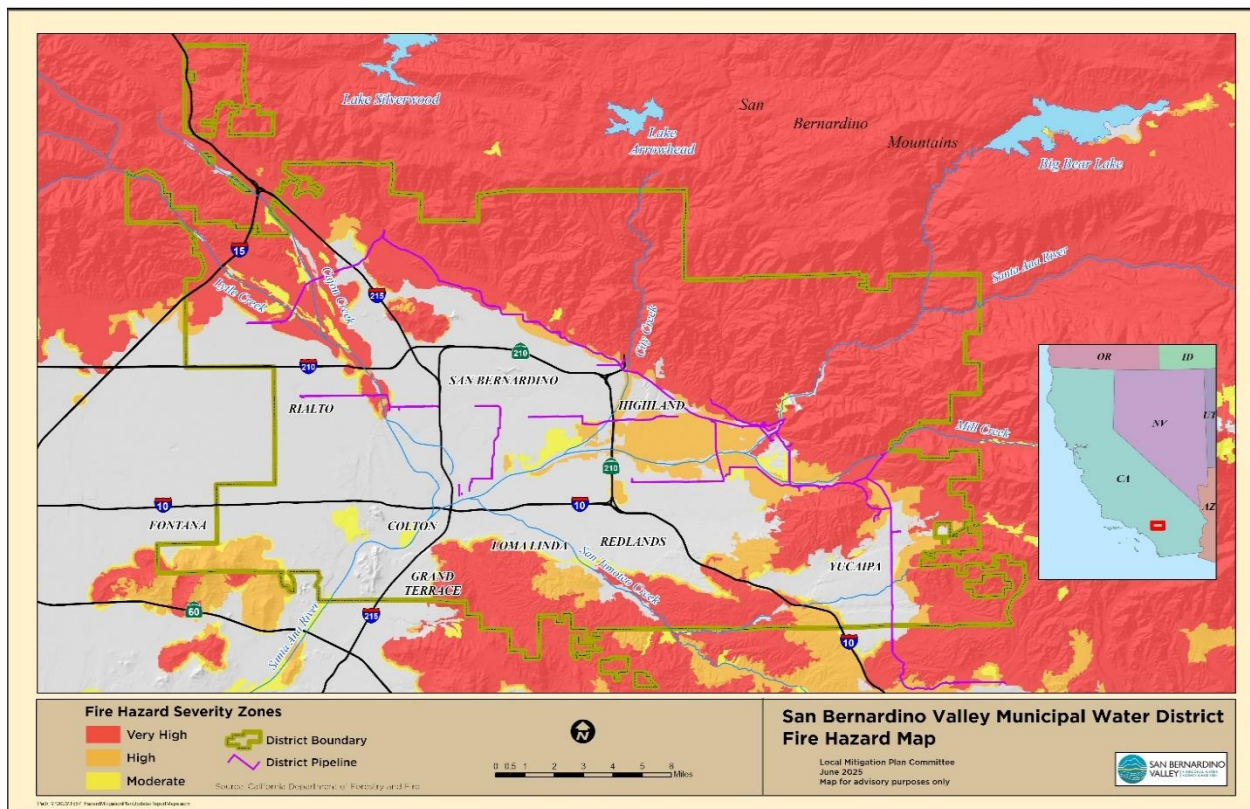


Figure 4-14: Fire Hazard Severity Zones

Extent

The State Fire Marshal classifies wildfire hazard lands within state responsibility areas into fire hazard severity zones. Each zone shall embrace relatively homogeneous lands and shall be based on fuel loading, slope, fire weather, and other relevant factors present, including areas where winds have been identified by the department as a major cause of wildfire spread. The State Fire Marshal shall identify areas in the state as moderate, high, and very high fire hazard severity zones based on consistent statewide criteria and based on the severity of fire hazard that is expected to prevail in those areas. Moderate, high, and very high fire hazard severity zones shall be based on fuel loading, slope, fire weather, and other relevant factors including areas where winds have been identified by the Office of the State Fire Marshal as a major cause of wildfire spread.

Fire-prone areas are also classified by the agency responsible for fire protection. Federal Responsibility Area (FRA) falls to federal agencies such as the US Forest Service, the Bureau of Land Management, and the National Park Service. State Responsibilities Area (SRA), which includes unincorporated land within counties with statewide watershed value, falls to the Cal Fire. Local Responsibility Area (LRA), which includes portions of incorporated cities with identified wildfire hazard zones, falls to local

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governments.

History

Table 4-16 provides a record of wildfires in the vicinity of the District's service area.

Table 4-16: Historic Wildfires in San Bernardino County			
Year	Name	Acres Burned	Description
9/8/2024	Bridge Fire	56,030	The fire began on September 8 and burned a total of 56,030 acres before being fully contained on November 26, 2024.
9/5/2024	Line Fire	43,978	The fire began on September 5, 2024, at 6:33 PM PDT near the community of Highland and spread into the San Bernardino National Forest. As of December 23, 2024, the Line Fire was reported as 100 percent contained at 43,978 acres.
9/5/2020	El Dorado Fire	22,755	The fire began at Oak Glen Rd Road and Potato Canyon Road, West of Oak Glen and burned into the San Bernardino National Forest. One firefighter died fighting the fire.
8/16/2016	Blue Cut Fire	36,274	The Blue Cut Fire began as a small brush fire in the Cajon Pass. IT immediately escalated to a large fire, consuming 18,000 acres in a matter of hours due to the dry hillsides, extreme heat temperatures that peaked at 102°F, and gusty winds of up to 45 mph. By the following morning, the fire had consumed 30,000 acres, peaking at 36,274 acres by the time it was contained one week later. The fire destroyed 105 homes and 213 other structures and ranks as the 20th most destructive wildfire in state history.
11/2/2003	Old Fire (Grand Prix)	91,281	This Santa Ana wind-driven fire burned over 91,000 acres within San Bernardino and Los Angeles Counties. In total, the fires destroyed 975 buildings and killed six people. The total cost associated with fire response and suppression activities totaled over \$1.2 billion in 2003 dollars.
11/24/1980	Panorama Fire	28,800	That deadly blaze burned 23,800 acres, destroyed about 280 homes, and damaged 49 others. Some 60-plus other structures were also damaged or destroyed. Four civilian deaths and 77 injuries were attributed to the Panorama Fire. This fire started near the top of Waterman Canyon and was spread across the foothills by the merciless winds.

Vulnerability

Because much of the District's infrastructure is pipelines, vulnerability to fire is low. Second order impacts from fires can affect the District's ability to provide water. These second order impacts include increased needs to provide water to retail customers for firefighting operations, changes in source water quality due to fire caused degradation to watersheds and loss of SCADA systems due to destruction of communications systems. Loss of power may be the greatest vulnerability from fire as wildland fires can damage or destroy electrical transmission systems.

Impacts

Direct impacts to the District from fires are difficult to predict. The most likely impact is loss of power that affects well and pump station operation. The duration of the power loss and the need to provide supplemental water to retail customers will determine the impact on populations within the service area.

Other fire related impacts include environmental effects such as increased sediment runoff from impacted areas and adverse water quality in aquatic habitats. Fires in areas with steep slopes can result in soil degradation that potentially produce destructive debris flows during consequent heavy precipitation.

Possibility of Future Event

The history of wildfires in San Bernardino County and San Bernardino and the presence of development within the County's WUI, which includes very high fire hazard severity zones (VHFHSZ), indicates that wildfire events are likely in the future. Since 1980, three major wildfire events have affected the County. This risk is expected to remain highest in the undeveloped land in the foothills within both the County and the unincorporated areas of the Fire Protection District, as well as National Forest lands.

From 1995 to 2024, 15 fire incidents in California resulted in a Major Disaster Declaration, Emergency Declaration. An additional 240 incidents resulted in a Fire Management Assistance Declaration from FEMA. The most destructive and deadliest fire in the state's history is the 2018 Camp Fire in Butte County, which destroyed nearly 19,000 structures and killed 85 people. The year 2020 was also a highly destructive wildfire season, with five of the six largest fires in the state's history totaling nearly 2.5 million acres. The year 2025 has also been notable. The Palisades and Eaton Fires in Los Angeles County destroyed over 16,000 structures, burned over 57,000 acres, and tragically resulted in at least 30 deaths. They may be the costliest disaster in California history.

The fire risk assessment shows that the District's area with the highest risk level is in the north, along the Wildland Urban Interface (WUI). New construction within WUI areas is

required to comply with the California Building Code and the California Residential Code, including requirements for fire retardant or ignition-resistant construction materials at roofs, eaves, vents, exterior walls, exterior windows, doors, and decks. California Government Code Section 51182 also requires buildings within these areas to provide defensible space. There is a 70 percent chance that the District will be impacted by Fire.

Impacts of Climate Change

Climate change is expected to cause an increase in temperatures and more frequent and intense drought conditions. This increase will likely increase the amount of dry plant matter available for fuel, increasing wildfire risk statewide. In the foothills of the San Bernardino Mountains, which are already highly prone to wildfires, climate change is expected to increase the number of acres burned annually. However, increases in fuel supplies could cause wildfires to move faster or spread into more developed areas, increasing the future threat to San Bernardino.

Section 5: Risk Assessment

The District operates a number of assets including pipelines, water storage infrastructure, facilities, and buildings. These assets are critical for the District to fulfill its mission. The Planning Team conducted a risk assessment that analyzed the juncture of loss of District critical assets with respect to impacts on populations, land use, and cultural/natural resources. This assessment does not identify vulnerabilities specific to individual infrastructure or buildings.

5.1 Identification of Critical Facilities and Assets

Assets and facilities include pumping stations, groundwater recharge basins, major pipelines, control stations, and administrative buildings. These assets are spread throughout the District’s service area.

Table 5-1 contains the values of critical assets by category based on the District’s financial consequences and insurance values.

Table 5-1: District Assets	
Facility	Value*
Foothill Pump Station	\$20,036,845
Greenspot Pump Station	\$15,036,845
Citrus Pump Station (DWR owned)	\$360,000
Tate Pump Station	\$900,000
Redlands Pump Station	\$4,700,000
Weaver Basins – Groundwater Recharge Facilities	\$10,000,000
Enhanced Recharge Facilities	\$10,000,000
SBV District Office/Administration Building	\$10,000,000
Redlands Warehouse	\$4,399,917
San Bernardino Ave Well	\$12,001,482
Baseline Feeder Well (2) Complex	\$12,001,482
Line Valve 1	\$2,001,254
Line Valve 2	\$2,001,254

Table 5-1: District Assets	
Facility	Value*
Line Valve 3	\$2,001,254
Line Valve 4	\$2,001,254
Lytle Creek Turnout	\$6,001,227
Sweetwater Turnout	\$3,001,482
Waterman Turnout	\$2,006,080
City Creek Turnout	\$5,003,192
Wilson Basin Turnout	\$5,002,470
Yucaipa Valley Water District Turnout No. 1	\$5,002,470
Bear Valley Sandbox Turnout	\$17,504,294
Santa Ana Low Turnout	\$6,014,744
North Fork-Edwards Pipeline Turnout	\$5,001,710
Baseline Feeder Tank	\$1,000,000
Greenspot Pipeline Metering Station	\$188,800
Yucaipa Pipeline Metering Station	\$188,800
Devil Canyon-Azuza Pipeline Metering Station	\$187,470
Baseline Feeder	\$185,984
Morton Canyon Inlet	\$3,001,227
Foothill Pipeline Metering Station	\$284,548
Baseline Feeder Extension South	\$260,984
Regional Recycled Water Pipeline Metering Station	\$136,482
Business System	\$1,200,000
SCADA System	\$600,000
Recycled Water Pipeline	\$23,000,000

* Total values for infrastructure in **Table 5-1** come from the District’s financial consequences and insurance values.

The LHMP does not attempt to quantify the financial value of employees' lives. For hazards that have substantial potential risk to life but little impact on property (e.g., active shooter), the LHMP will reflect no risk to buildings or infrastructure but emphasizes the risk to human health and well-being.

5.2 Vulnerability Assessment

Each hazard of significant concern included was assessed for potential impact to facilities, and staff. Where possible, the critical facilities and assets inventory was used to quantify values-at-risk. The Planning Team used a combination of Geographic Information Systems (GIS) technology, discussions with local stakeholders, and subject matter expertise to assign potential losses.

5.2.1 Climate Change

By its nature, climate change is a systemic hazard that will impact most if not all of the District's service area, infrastructure, buildings, and staff. While climate change does not have direct impacts, it will be indirectly felt through potentially more frequent droughts, floods and wildland fires. Given the relative permanency of climate change an increase in the baseline level of risk is likely to result within the District.

5.2.2 Cyber attack

Cyberattacks on utilities often target control systems, specifically SCADA. Other forms of ransomware may target administrative networks such as payroll. Cyberattacks will likely disrupt or damage technological infrastructure as opposed to the buildings themselves. Additionally, the true monetary cost to the District (and service area) might be based on the extent of systems impacted, the proportion of lost services, and the total time the District is impacted by the cyberattack.

A ransomware attack will likely incur additional costs if the District is unable to regain control of their control and/or administrative systems without paying the ransom. Ransomware attacks in California are often between \$1 million and \$2 million. **Table 5-2** describes the number of facilities at risk of cyber-attack. In the event the District's SCADA system was attacked, the District's facilities can be operated manually, separate from the SCADA system.

Table 5-2: Facilities at Risk From Cyber Attack			
Infrastructure Category	Number At Risk	Number Not At Risk	Notes
Pump stations		5	
Reservoirs/Tanks		1	
Metering Station		13	
Recharge Basins		2	
Valves/Turnouts		24	
Wells		2	
Business and SCADA Systems	2		SCADA and Business systems would have an impact on most District operations.
Administrative Buildings		2	
Total:	2	49	

5.2.3 Dam Inundation

The District has 10 facilities that are in the inundation zones of various dams within its service boundary.

Table 5-3: Facilities in Inundation Zones			
Infrastructure Category	Number At Risk	Number Not At Risk	Estimated Value At Risk
Pump stations	2	3	\$35,000,000
Reservoirs/Tanks	1	0	\$1,000,000
Metering Stations	2	11	\$400,000
Recharge Basins	0	2	0
Valves/Turnouts	5	19	\$25,000,000
Wells	0	2	0
Business and SCADA Systems	0	2	0
Administrative Buildings	0	2	0

Total:	10	41	\$66,400,000
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5.2.4 Drought

As with the climate change hazard, droughts by their definition are regional and are primarily defined by their indirect impacts to the service area. Droughts are unlikely to harm buildings and infrastructure. However, they may stress pumps and cause additional maintenance costs. Increased turbidity and silt concentration as water levels fall might place further stress on systems. Droughts primarily threaten the District’s operations through decreasing available water supplies to meet service requirements due to lower reservoir levels, decreased groundwater recharge, and lower average precipitation.

5.2.5 Seismic Hazards

Earthquake

Much of the District’s infrastructure is along the highly seismically active fault zones that crisscross San Bernardino County. If a major earthquake (7.0 Magnitude or higher) were to occur within the San Bernardino County, the District may expect significant losses due to the destruction of facilities and pipelines. Additionally, a large earthquake along the State Water project may disrupt water supply to the District. **Table 5-3** below identifies District-owned facilities within Fault Zone Hazard Areas.

Table 5-3: District-owned Facilities within Fault Zone Hazard Areas			
Infrastructure Category	Number At Risk	Number Not At Risk	Estimated Value At Risk
Pump stations	5		\$40,000,000
Reservoirs/Tanks	1		\$1,000,000
Metering Stations	13		\$2,600,000
Recharge Basins	2		\$20,000,000
Valves/Turnouts	24		\$96,000,000
Wells	2		\$24,000,000
Business and SCADA Systems	2		\$1,800,000
Administrative Buildings	2		\$14,000,000
Total:	51	0	\$199,400,000

Landslide

Much of the District’s facilities, infrastructure, and pipelines are located within the steep slopes of the San Bernardino Mountains – especially water transport pipelines.

Landslides are likely to occur in the more remote and inaccessible areas of the District’s lands. **Table 5-4** below shows District-owned facilities within the Landslide Hazard Zone.

Table 5-4: District-owned Facilities within the Landslide Hazard Zone			
Infrastructure Category	Number At Risk	Number Not At Risk	Estimated Value at Risk
Pump stations	4	1	\$30,000,000
Reservoirs/Tanks	1	0	\$1,000,000
Metering Station	3	10	\$600,000
Recharge Basins	1	1	\$10,000,000
Valves/Turnouts	14	10	\$56,000,000
Wells	0	2	0
Business and SCADA Systems	0	2	0
Administrative Buildings	0	2	0
Total:	23	28	

5.2.6 Flood

Much District infrastructure, facilities, and pipelines are located within a 100 and/or 500-year flood zone. Therefore, it is expected that a significant flood may impact much of the District’s infrastructure. **Table 5-5** identifies District-owned facilities within 500 feet of the 100-year and 500-year floodplain according to FEMA’s hazard maps.

Table 5-5: District-owned Facilities Within 500 Feet of 100- and 500-year Floodplain			
Infrastructure Category	Number At Risk	Number Not At Risk	Estimated Value At Risk
Pump stations	0	5	
Reservoirs/Tanks	0	1	0
Metering Stations	3	10	\$5,000,000

Table 5-5: District-owned Facilities Within 500 Feet of 100- and 500-year Floodplain			
Infrastructure Category	Number At Risk	Number Not At Risk	Estimated Value At Risk
Recharge Basins	1	1	\$10,000,000
Valves/Turnouts	0	24	0
Wells	0	2	0
Business and SCADA Systems	0	2	0
Administrative Buildings	0	2	0
Total:	4	47	\$15,000,000

5.2.7 Fire

Much of the District’s service area is outside the fire hazard zone, however the District does own infrastructure that is located along the San Bernardino Mountains that is “very high” or “high” wildland fire risk, per Cal Fire. **Table 5-6** below lists those facilities in either risk zone. Pipelines – especially above-ground and plastic pipes – pose additional financial risk and potential for service interruptions.

Table 5-6: Facilities within “Very High” or “High” Wildland Fire Risk Zones			
Infrastructure Category	Number At Risk	Number Not At Risk	Estimated Values At Risk
Pump stations	2	3	\$15,000,000
Reservoirs/Tanks	0	1	0
Metering Station	0	13	0
Recharge Basins	1	1	\$10,000,000
Valves/Turnouts	0	24	0
Wells	0	2	0
Business and SCADA Systems	0	2	0
Administrative Buildings	0	2	0
Total:	3	48	\$25,000,000

A risk assessment involves evaluating vulnerable assets, describing potential impacts, and estimating losses for each hazard. The intention of a risk assessment is to help the

community understand the greatest risks facing the District. The risk assessment defines and quantifies vulnerable staff, buildings, critical facilities, and other assets at risk from hazards and is based on the best available data and the significance of the hazard. The risk assessment further examines the impact of the identified hazards on the District, determines which areas of the District are most vulnerable to each hazard, and estimates potential losses to District facilities for each hazard.

5.3 Potential Losses by Hazard

The risk assessment and potential losses for physical damage for District facilities are listed in the following tables. Because the District provides a critical lifeline infrastructure support system, potential losses beyond physical damage must be considered. Loss of potable water service due to non-destructive events results in community hardship, economic loss, and reputational damage. Computing potential losses from these risks is beyond the scope of this LHMP and must be considered in the context of the impact on the entire county and region.

The percentages associated with each hazard represent the District's approximation of its vulnerability in terms of loss of functionality for the water system's major facilities.

A successful attack by a threat on an asset produces a variety of real consequences that represent a loss in capability for the system. The financial cost to the utility is the direct cost to repair/replace the damaged asset. These costs can also include provision of temporary services while restoring the asset's operating capacity, costs of ensuing lawsuits, and other indirect costs to the utility.

The second component to financial cost to the utility is any regional impacts that may result from the loss of water service. This may include businesses that are unable to operate due to the absence of water or the direct impact to services such as hospitals, dialysis centers, universities, and other major community operations. The District's system provides supplemental water to their customers, resulting in no direct regional impacts if service was unavailable as all customers are contractually obligated to have redundant water supplies. Bear Valley is District's unique customer due to the Big Bear Agreement. This Agreement allows for Big Bear Valley to call for water and District's must maintain the capacity to meet obligations. With this Agreement in place, the Bear Valley Sandbox Turnout is the only critical asset that has a Regional Community Loss calculated into the financial consequences.

The following **Table 5-7** describes the district's top financial consequences. In addition, the District's water conveyance system contains 61 miles of pipelines, ranging from 12 to 78 inches in diameter.

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Table 5-7: District’s Complete List of Financial Consequences		
Asset	Threat	Financial Total (\$)
Foothill Pump Station	Earthquake	\$20,036,845
Bear Valley Sandbox Turnout	Earthquake	\$17,504,294
Greenspot Pump Station	Earthquake	\$15,036,845
Baseline Feeder Well (2) Complex	Earthquake	\$12,001,482
Weaver Basins – Recharge Facilities	Earthquake	\$10,000,000
Enhanced Recharge Facilities	Earthquake	\$10,000,000
SBV District Office/Administration Building	Earthquake	\$10,000,000
Lytle Creek Turnout	Earthquake	\$6,001,227
Santa Ana Low Turnout	Earthquake	\$6,014,744
North Fork-Edwards Pipeline Turnout	Earthquake	\$5,001,710
City Creek Turnout	Earthquake	\$5,003,192
Wilson Basin Turnout	Earthquake	\$5,002,470
Yucaipa Valley Water District Turnout No. 1	Earthquake	\$5,002,470
San Bernardino Ave Well	Earthquake	\$5,000,000
Redlands Warehouse	Earthquake	\$4,399,917
Morton Canyon Inlet	Earthquake	\$3,001,235
Sweetwater Turnout	Earthquake	\$3,001,482
Line Valve 1	Earthquake	\$2,001,254
Line Valve 2	Earthquake	\$2,001,254
Line Valve 3	Earthquake	\$2,001,254
Line Valve 4	Earthquake	\$2,001,254
Waterman Turnout	Earthquake	\$2,006,080
Business System	Cyber Attack	\$1,200,000
Baseline Feeder Tank	Earthquake	\$1,000,000

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Table 5-7: District’s Complete List of Financial Consequences		
Asset	Threat	Financial Total (\$)
Redlands Warehouse	Physical Sabotage/Terrorism	\$1,000,000
Foothill Pipeline	Flooding	\$991,533
Greenspot Pump Station	Wildfire	\$812,274
Enhanced Recharge Facilities	Physical Sabotage/Terrorism	\$700,000
SCADA System	Cyber Attack	\$600,000
Redlands Warehouse	Physical Sabotage/Terrorism	\$500,000
Enhanced Recharge Facilities	Physical Sabotage/Terrorism	\$350,000
Foothill Pump Station	Wildfire	\$212,274
Greenspot Pipeline	Earthquake	\$188,800
Yucaipa Pipeline	Earthquake	\$188,800
Devil Canyon-Azuza Pipeline	Earthquake	\$187,470
Baseline Feeder	Earthquake	\$185,984
Foothill Pipeline	Earthquake	\$284,548
Baseline Feeder Extension South	Earthquake	\$260,984
Greenspot Pipeline	Flooding	\$196,400
Greenspot Pump Station	Physical Sabotage/Terrorism	\$150,000
Redlands Warehouse	Physical Sabotage/Terrorism	\$150,000
Greenspot Pump Station	Physical Sabotage/Terrorism	\$150,000
Regional Recycled Water Pipeline	Earthquake	\$136,482
Baseline Feeder Well (2) Complex	Physical Sabotage/Terrorism	\$120,000
Foothill Pump Station	Physical Sabotage/Terrorism	\$112,280
Redlands Warehouse	Physical Sabotage/Terrorism	\$100,000
SBV District Office/Administration Building	Physical Sabotage/Terrorism	\$100,000
SBV District Office/Administration Building	Physical Sabotage/Terrorism	\$100,000

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Table 5-7: District’s Complete List of Financial Consequences		
Asset	Threat	Financial Total (\$)
Bear Valley Sandbox Turnout	Physical Sabotage/Terrorism	\$91,794
Greenspot Pump Station	Physical Sabotage/Terrorism	\$87,280
Baseline Feeder Well (2) Complex	Physical Sabotage/Terrorism	\$60,984
Weaver Basins	Physical Sabotage/Terrorism	\$51,474
San Bernardino Ave Well	Physical Sabotage/Terrorism	\$50,000
SBV District Office/Administration Building	Physical Sabotage/Terrorism	\$50,000
Santa Ana Low Turnout	Physical Sabotage/Terrorism	\$44,736
Foothill Pump Station	Physical Sabotage/Terrorism	\$40,000
Lytle Creek Turnout	Physical Sabotage/Terrorism	\$31,227
City Creek Turnout	Physical Sabotage/Terrorism	\$28,192
Wilson Basin Turnout	Physical Sabotage/Terrorism	\$27,455
Yucaipa Valley Water District Turnout No. 1	Physical Sabotage/Terrorism	\$27,455
North Fork-Edwards Pipeline Turnout	Physical Sabotage/Terrorism	\$26,718
San Bernardino Ave Well	Physical Sabotage/Terrorism	\$25,000
Foothill Pump Station	Physical Sabotage/Terrorism	\$20,000
Greenspot Pump Station	Physical Sabotage/Terrorism	\$20,000
Enhanced Recharge Facilities	Wildfire	\$20,000
Sweetwater Turnout	Physical Sabotage/Terrorism	\$16,474
Waterman Turnout	Physical Sabotage/Terrorism	\$16,141
Weaver Basins	Flooding	\$15,000
Enhanced Recharge Facilities	Physical Sabotage/Terrorism	\$15,000
Line Valve 1	Physical Sabotage/Terrorism	\$11,227
Line Valve 2	Physical Sabotage/Terrorism	\$11,227
Line Valve 3	Physical Sabotage/Terrorism	\$11,227

Table 5-7: District’s Complete List of Financial Consequences		
Asset	Threat	Financial Total (\$)
Line Valve 4	Physical Sabotage/Terrorism	\$11,227
Weaver Basins	Physical Sabotage/Terrorism	\$10,000
Enhanced Recharge Facilities	Physical Sabotage/Terrorism	\$10,000
SBV District Office/Administration Building	Physical Sabotage/Terrorism	\$10,000

SECTION 6: MITIGATION STRATEGY

Federal regulations require local mitigation plans to identify goals for reducing long-term vulnerabilities to the identified hazards in the planning area (Section 201.6(c)(3)(i)).

A hazard mitigation plan's primary focus is the mitigation strategy. It represents the efforts selected by the District to reduce or prevent losses resulting from the hazards identified in the risk assessment. The strategy includes mitigation actions and projects to address the risk and vulnerabilities discovered in the risk assessment. The mitigation strategy consists of the following steps:

- Identify and profile hazards and risk within the District
- Identify projects and activities that can prevent or mitigate damage and injury to the population and buildings
- Develop a mitigation strategy to implement the mitigation actions
- Develop an action plan to prioritize, implement, and administer the mitigation actions
- Implement the LHMP mitigation action plan

A capability assessment was conducted of District authorities, policies, programs, and resources. Based upon this assessment and the hazard analysis and risk assessment, goals, and mitigation actions were developed. The planning team also developed a process to prioritize, implement, and administer the mitigation actions to reduce risk to existing facilities and new development

6.1 Hazard Mitigation Statement

The 2025 LHMP represents the District's commitment to create a safer, more resilient community by taking actions to reduce risk and by committing resources to lessen the effects of hazards on the people and property of the District.

6.2 Hazard Mitigation Goals and Objectives

Mitigation goals are guidelines that represent what the community wants to accomplish through the mitigation plan. Goals are broad statements that represent a long-term, community-wide vision. The planning team reviewed the example goals and objectives from the previous LHMP and determined which goals best met the District's objectives for mitigation. Overall, mitigation priorities did not change for the District, the District continues to be very concerned about wildfire and earthquake risks. In addition to the overarching hazard mitigation goals, the District worked to develop the strategies aligned with the District CIP and Urban Water Management Plan.

The goals align with the District’s Strategic Plan and Climate Adaptation and Resilience Plan’ and reflect input provided by stakeholders and the public. **Table 6-1** lists the goals for the 2025 LHMP.

Table 6-1: Hazard Mitigation Goals
2025 Goals
Goal 1: Protect life and property, and reduce potential injuries from natural, technological, and human-caused hazards
Goal 2: Improve public understanding, support of, and need for hazard mitigation measures
Goal 3: Promote disaster resilience for the District’s natural, existing, and future built environment
Goal 4: Strengthen partnerships and collaboration to implement hazard mitigation activities
Goal 5: Enhance the District’s ability to effectively and immediately respond to disasters

6.3 Mitigation Actions/Projects and Implementation Strategy

Mitigation actions are specific activities or projects that serve to meet the goals that the community has identified. Mitigation actions and projects are more specific than goals or objectives and often include a mechanism, such as an assigned timeframe, to measure the success and ensure the actions are accomplished. The planning team conducted a review of the mitigation actions and strategies from the State Hazard Mitigation Plan and from other cities’ planning efforts to develop new mitigation actions and projects to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure.

The requirements for prioritization of mitigation actions, as provided in the federal regulations implementing the Stafford Act as amended by DMA 2000, are described below.

Based on these criteria, the District prioritized potential mitigation projects and included them in the action plan discussed below in **Table 6-3**. The mitigation action plan developed by the planning team includes the action items that the District intends to implement during the next five years, assuming funding availability. The action plan includes the implementing department, an estimate of the timeline for implementation, and potential funding sources.

6.4 Previous Mitigation Actions/Projects Assessment

The 2018 HMP contained eleven (11) mitigations actions. Many of the mitigation actions were completed or carried out to some degree or are considered ongoing. Some of the mitigation actions were duplicative, others were better categorized as emergency preparedness or recovery activities, and others were either not addressed during the time period or were not feasible to accomplish. **Table 6-2** provides the status of mitigation actions from the 2018 HMP.

Table 6-2: 2018 Mitigation Actions Status		
Number	Mitigation Action	Status (Complete, Ongoing, Planned, Not Completed)
1	Foothill Pipeline Line Valve Vault Seismic Actuators	Ongoing
2	City Creek Channel Improvements	Ongoing
3	Badger Turnout Grading and Diversion Wall Mill	Incomplete/Planned
4	North Fork Turnout Grading and Diversion Well	Ongoing
5	Foothill Surge Riser Erosion Control	Ongoing
6	Baseline Feeder Lytle Creek Grading and Riprap	Planned
7	Santa Ana River Pipeline Channel Improvements	Ongoing
8	Morton Canyon Road/Slope Stabilization	Incomplete/Planned
9	North Fork Turnout Grading and Diversion Wall	Completed
10	Clear Brush Annually	Ongoing
11	Creek Channel Improvements	Ongoing

6.5 New Mitigation Actions

Mitigation actions are specific activities or projects that serve to meet the goals that the community has identified. Mitigation actions and projects are more specific than goals or objectives and often include a mechanism, such as an assigned time period, to measure the success and ensure the actions are accomplished. The planning team conducted a review of the mitigation actions and strategies from the 2018 HMP. With information from the risk assessment, capability assessment, and status of the actions implemented since the 2018 HMP, the planning team developed 26 new/ongoing mitigation actions and projects to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure.

Table 6-3 lists the initial, potential mitigation actions developed by the planning team. For each mitigation action, the following information is listed: type of mitigation project; hazard(s) addressed, type of development affected by action; and the source of the mitigation project idea.

Table 6-3: Potential Mitigation Actions 2025					
Goal	Action Item #	Action Description	Mitigation Type	Related Hazards	Implementing Organizations
Goal 1: Protect life, property, and reduce potential injuries from natural caused hazards	1.1	Assess and implement flexible piping joints at above-ground storage reservoirs as appropriate	Prevention	Seismic	Operations
	1.2	Continue to include back-up power in plans for new construction or retrofitting of facilities	Preparedness	Loss of Power/ PSPS	Operations
Goal 2: Improve public understanding , support of, and need for hazard mitigation measures	2.1	Develop a public education campaign focused on reducing the risk of hazards.	Prevention	All	Operations
Goal 3: Promote disaster resilience for the District’s natural, existing, and future built environment	3.1	Continue to identify and ensure that pipe specifications are compatible with engineering and earthquake specifications	Prevention	Seismic	Operations
Goal 4: Strengthen partnerships and collaboration to implement	4.1	Work with Couty Public Works to integrate into the County’s Dam Emergency Action Planning Process	Prevention	Dam Inundation	Operations

Table 6-3: Potential Mitigation Actions 2025					
Goal	Action Item #	Action Description	Mitigation Type	Related Hazards	Implementing Organizations
hazard mitigation activities		and Notification.			
Goal 5: Enhance the District’s ability to effectively and immediately respond to disasters	5.1	Acquiring and using easements (e.g., conservation) to prevent development in known hazard areas.	Prevention	Flood	Operations

6.6 Mitigation Action Plan

The mitigation action plan developed by the planning team includes the action items that the District intends to implement during the next five years, assuming funding availability. The action plan, shown in **Table 6-3**, includes the implementing department, an estimate of the timeline for implementation, and potential funding sources.

The new mitigation actions include a broad range of approaches to hazard mitigation such as retrofitting, code enforcement, development of new regulations, public education, development of redundant facilities, and others. Measures are included to mitigate risks to existing buildings and infrastructure, as well as new buildings and infrastructure. The mitigation action plan assigns primary responsibility for each of the action items to an implementing department. The implementing department is the controlling department that will assign funding and oversee activity implementation, monitoring, and evaluation.

The planning team does not presume the expertise to prescribe which projects will be implemented. The prioritization of projects in the LHMP is a means to provide a basis for implementing the mitigation strategies, but all new mitigation actions and projects will be formally prioritized and selected by the implementing department. This will accommodate the project funding, schedule of the department, staff requirements, and ability to integrate the new project into existing and ongoing projects. Departments will take into account the funding source, the cost-effectiveness of the project, alternative projects, the compatibility of the new project with ongoing projects, the extent to which the project addresses the risks assessed in Section 4, and the potential of economic and social damage.

6.6.1 Prioritization

To assist with implementing the mitigation action plan, the planning team used the following ranking process to provide a method to prioritize the projects for the Action Plan. Designations of High, Medium, and Low priorities have been assigned to each action item using the following criteria.

- Does the action**
 - Solve the problem?
 - Address vulnerability assessment?
 - Reduce the exposure or vulnerability to the highest priority hazard?
 - Address multiple hazards?
 - Offer benefits that equal or exceed costs?
 - Implement a goal, policy, or project identified in the General Plan or Capital Improvement Plan?
- Can the action**
 - Be implemented with existing funds?
 - Be implemented by existing state or federal grant programs?
 - Be completed within the five-year life cycle of the LHMP?
- Will the action**
 - Be implemented with currently available technologies?
 - Be accepted by the community?
 - Be supported by community leaders?
 - Adversely affect segments of the population or neighborhoods?
 - Require a change in local ordinances or zoning laws?
 - Result in a positive or neutral impact on the environment?
 - Comply with all local, state, and federal environmental laws and regulations?
- Is there**
 - Sufficient staffing to undertake the project?
 - Existing authority to undertake the project?

Each positive response is equal to one point. Answers to the criteria above determined the priority according to the following scale:

1–6 = Low priority

7–12 = Medium priority

13–18 = High priority

Using the criteria above, the planning team employed the STAPLEE method to rank actions in the mitigation action plan. The results are contained in **Appendix D**.

6.6.2 Benefit-Cost Analysis

Conducting benefit/cost analysis for a mitigation activity can assist the District in determining whether a project is worth undertaking now in order to avoid disaster-related damages later. Cost-effectiveness analysis evaluates how to best spend a given amount of money to achieve a specific goal. Determining the economic feasibility of mitigating hazards can provide decision-makers with an understanding of the potential benefits and costs of an activity, as well as a basis for comparing alternative projects.

6.6.3 Funding

The funds required to implement the mitigation action plan will come from a variety of sources, including Federal Hazard Mitigation Grants, District budget, bonds, fees and assessments, and others. Some projects are (or will be) included in capital improvement budgets, while some, especially ongoing projects, are included in department operating budgets.

Prior to beginning a project or when federal funding is involved, the implementing department will use a FEMA approved benefit/cost analysis approach to identify the actual costs and benefits of implementing these mitigation actions. For non-structural projects, implementing departments will use other appropriate methods to weigh the costs and benefits of each action item and then develop a prioritized list.

6.6.4 Implementation

Mitigation projects were assigned one of three categories as a tentative schedule for implementation; short-range, mid-range, and long-range. Projects that are currently being implemented by various departments are assigned to the ongoing category. Implementation of short-range projects will typically begin within the next three years. Mid-range projects will require some planning and likely require funding beyond what is currently allocated to the various departments in the District's Operations and Maintenance budget. Projects in the mid-range category will generally begin implementation in the next three to five years. Long-range projects will require great planning and funding and will generally begin implementation within five (5) years and beyond.

6.6.5 Incorporation into Other Planning Mechanisms

The 2018 LHMP was not incorporated into other planning mechanisms in a systematic fashion. The 2025 LHMP will be coordinated with and integrated into the following other planning mechanisms.

- The District EOP contains a list of hazards. The LHMP provides a similar, more detailed description of these hazards. Updates to the LHMP can inform revisions to the EOP. Hazards in both plans should be corroborated.
- The American Water Infrastructure Act Risk required Risk and Resiliency Assessment (RRA) and the LHMP both should use the same source data and similar language to describe hazards that are contained in both. Hazard analysis and risk/vulnerability updates to one document should be reviewed for inclusion in both. For the 2021 LHMP, the planning team used portions of the RRA to develop new mitigations actions.
- The District will review the mitigation action plan in the LHMP as it updates its CIP. Several mitigation actions address facility improvement and resiliency. Grant funding for these projects may support CIP projects.

In addition to incorporation into planning documents, the LHMP mitigation actions will be correlated with 3 environmental restoration projects. The Hidden Valley Creek and Anza Creek projects are in the construction phase. The projects are being constructed as part of the Santa Ana River Habitat Conservation Plan (SARHCP). The Pipeline for Riverside Habitat, Parks, and Water Project is in the planning phase. Constructions will be completed in December 2026. The projects are:

1. Hidden Valley Creek

The Hidden Valley Creek project consists of the creation and restoration of approximately 21.7 acres of aquatic and riparian habitat along Hidden Valley Creek, a tributary to the Santa Ana River in Riverside County. The project will benefit the federally threatened Santa Ana sucker and other listed and sensitive species found along the Santa Ana River.

Work will include constructing 4,200 linear feet (0.8 acres) of new and restored stream channel, enhancing a 25-foot buffer of native riparian vegetation on each side of the stream course as an enhanced 1.2-acre floodplain bench, and non-native plant removal, and site revegetation within the entire 21.7-acre project site. The stream channel is designed to provide in-stream structures and substrate conditions suitable for Santa Ana sucker and other native aquatic and semi-aquatic species, and habitat restoration of the area surrounding the channel will

benefit riparian bird species, including the state and federally listed as endangered least Bell's vireo. The project has received funding from the CA Department of Water Resources.

2. Anza Creek

The Anza Creek project consists of the creation, restoration, and enhancement of approximately 17.7 acres of aquatic and riparian habitat along Anza Creek, a tributary to the Santa Ana River in the City of Riverside. The project will benefit the federally threatened Santa Ana sucker and other listed and sensitive species found along the Santa Ana River.

The project encompasses the construction of 1,107 linear feet of new stream channel, and the enhancement of approximately 2,322 linear feet of existing channel. Channel construction and enhancement will include placement of gravel substrate and in-stream habitat structures to support suitable habitat for native fish species. Additional project elements consist of the construction of 2.1 acres of new floodplain bench adjacent to the enhanced and created stream channel, and nonnative plant removal and revegetation with native riparian plant species across the entire 17.7 acres.

The project will provide new and enhanced habitat to benefit native aquatic and semi-aquatic species, and riparian bird species, including the state and federally listed as endangered least Bell's vireo. The project has received funding from the CA Department of Water Resources.

3. Pipeline for Riverside Habitat, Parks, and Water Project (RHPWP)

The project will be constructed as part of the SARHCP. The RHPWP will supply recycled water from the City of Riverside's Regional Water Quality Control Plant (RWQCP) to SARHCP mitigation sites, plus one additional site and other Riverside Public Utilities (RPU) retail customers. The regional pipeline and associated facilities will be funded through a partnership between RPU and San Bernardino Valley. Planning activities for the project are currently funded by San Bernardino Valley.

The RHPWP will have the capacity to provide up to 15,500 gallons per minute (gpm) or 14,450 acre-feet per year (AFY) of recycled water to the SARHCP and RPU sites. The water supply to the RHPWP will originate from the City's RWQCP.

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Local Hazard Mitigation Plan 2025 – Public Review Draft

Table 6-4 :List of Proposed Mitigation Projects						
	Mitigation Action	Funding Sources	Responsible Department	Relative Cost*	Time Frame	Priority
1	Install energy efficient equipment and harden emergency backup power at critical facilities deemed necessary. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants	Engineering	\$\$	2-5 years	Medium
2	Ensure DWR has an updated SBVMWD contact list. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants	Engineering	\$	1 Year	High
Climate Change						
3	Continue to Implement San Bernardino Valley’s Climate Adaptation and Resilience Plan. (Hazards addressed: Climate Change; wildfire)	General Fund, BRIC/ HMGP Grants	Operations	\$	Ongoing - Yearly	High
Drought						
4	Continue to Conduct Operations to Send Recycled Water to the Weaver Recharge Basin	General Fund, BRIC/ HMGP Grants	Operations	\$	Ongoing-Yearly	High
5	Conduct Efforts to Fund San Bernardino Valley’s Share to Construct Sites Dam	General Fund, BRIC/ HMGP Grants	Water Resources Finance	\$\$\$	Ongoing-Yearly	High
6	Invest in the construction of the Delta Conveyance Project	General Fund, BRIC/ HMGP Grants	Water Resources	\$\$\$	5-10 Years	High
7	Invest in the construction of Sites Reservoir	General Fund, BRIC/ HMGP Grants	Water Resources	\$\$\$	2-5 Years	High

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Table 6-4 :List of Proposed Mitigation Projects						
Mitigation Action		Funding Sources	Responsible Department	Relative Cost*	Time Frame	Priority
Earthquake/Geologic Hazards						
8	Morton Canyon Road/Slope Stabilization (Hazards addressed: Landslide)	General Fund, BRIC/ HMGP Grants	Engineering	\$	2 years	Medium
Flooding						
9	Design and Construction to Prevent Undercutting Foothill Pipeline at City Creek Crossing During Floods	General Fund, BRIC/ HMGP Grants	Engineering Environmental	\$\$\$	2 years	Medium
10	Design and Construction to Prevent Undercutting Foothill Pipeline at Mill Creek.	General Fund, BRIC/ HMGP Grants	Engineering Environmental	\$\$	2 years	Medium
11	Badger Turnout Flood Risk Mitigation	General Fund, BRIC/ HMGP Grants	Engineering Environmental	\$\$	1 years	Low
12	Design and Construction to Prevent Undercutting Baseline Feeder at Lytle Creek	General Fund, BRIC/ HMGP Grants	Engineering Environmental	\$\$\$	3 years	Low
13	Line Valve 2 Flood Risk Mitigation: Build deflector wall around turnout to protect from debris flow	General Fund, BRIC/ HMGP Grants	Engineering	\$\$	2 Years	Medium
14	Sweetwater Turnout Flood Risk Mitigation: Build deflector wall around turnout to protect from debris flow	General Fund, BRIC/ HMGP Grants	Engineering Environmental	\$\$	1 Year	Medium
15	Design and Construction to Prevent Undercutting Santa Ana River Crossing Pipeline at Santa Ana River	General Fund, BRIC/ HMGP Grants	Engineering Environmental	\$\$	3 years	Low

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Table 6-4 :List of Proposed Mitigation Projects						
	Mitigation Action	Funding Sources	Responsible Department	Relative Cost*	Time Frame	Priority
Extreme Weather (Severe Winds, Extreme Heat, Severe Rainstorms)						
16	Remove or trim trees determined to be susceptible to blowing over, during a severe wind event and impacting District infrastructure. (Hazards addressed: High Winds, Severe Rainstorm)	General Fund, BRIC/ HMGP Grants	Operations	\$	Ongoing-yearly	Medium
Fire						
17	Clear brush around facilities District-wide to ensure defensible space.	General Fund,	Operations	\$	Ongoing - Yearly	High
18	Conduct a Fire Danger Assessment of Facilities to Determine Potential Exposure to Wildland Fire and Develop a List of Activities to Reduce the Risk.	General Fund,	Operations	\$	1 Year	High
19	Conduct Annual Vegetation Maintenance/ Build Firebreak at around key facilities.	General Fund,	Operations	\$	Ongoing-Yearly	High
20	Maintain firebreak at Sunrise Ranch.	General Fund	Operations	\$	Ongoing-Yearly	High
Dam Inundation						
21	Coordinate with County Public Works to collectively identify threats to the District infrastructure and implement an early warning system/protocol that notifies the District in the event of a potential dam failure incident	General Fund, BRIC/ HMGP Grants	Planning	\$	2 years	High
22	Conduct an Annual Inspection of the Yucaipa Dams and Correct Any Concerns	General Fund, BRIC/ HMGP Grants	Operations	\$\$	Ongoing-Yearly	High

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Table 6-4 :List of Proposed Mitigation Projects						
Mitigation Action		Funding Sources	Responsible Department	Relative Cost*	Time Frame	Priority
23	Maintain the Yucaipa Dams Emergency Action Plans Current and Conduct an Annual Notification Call-down Exercise	General Fund, BRIC/ HMGP Grants	Engineering	\$\$	Ongoing-Yearly	High
Human-caused Hazards						
24	Backup power at Redlands Warehouse (Hazards addressed: Power Outage)	General Fund, BRIC/ HMGP Grants	Engineering	\$	1 Year	Medium
25	Backup power at Baseline Feeder surge tank: Upgrade dosing station to minimize hazardous materials release. (Hazards addressed: Power Outage)	General Fund, BRIC/ HMGP Grants	Engineering	\$\$	1 Years	Medium
26	Dosing Station Upgrades – Line Valve 2 (current access road for chemical delivery is steep) (Hazards addressed: Hazardous Materials)	General Fund, BRIC/ HMGP Grants	Engineering	\$	1 Years	Medium
27	Continually Update Security Patches on District Servers and Other IT Equipment (Hazards addressed: Cyber Attack)	General Fund, BRIC/ HMGP Grants	IT	\$	Ongoing-Yearly	Medium

SECTION 7: PLAN MAINTENANCE PROCEDURES

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. This section details the process that the District will use to monitor, update, and evaluate the plan within the five (5)-year cycle of the plan's revision to ensure the LHMP remains an active and relevant document. The format of the plan aligns with the regulation checklist and is divided into sections of information. When it is time to maintain or revise the LHMP, data can be easily located and incorporated, resulting in an easy method to keep the plan current and relevant.

The planning team represents District staff from each department and other stakeholders that contributed to the development of the 2025 plan. The planning team oversaw the development of the plan and made recommendations on key elements of the plan, including the maintenance strategy.

It was important to the District that each department be represented in the planning team and given the opportunity to provide input during the plan development. This philosophy will be continued for future plan revisions through evaluations, maintenance, and updates of data, processes, and programs. The planning team will convene annually to perform annual reviews of the LHMP and its implementation. The planning team will include representation from residents, citizen groups, and stakeholders within the planning area.

If planning team members can no longer serve on the planning team, the Chief of Planning and Watershed Resilience will coordinate with the Chief Engineer to assign another staff person to be on the planning team so that every District department is represented.

7.1 Monitoring and Evaluation

The hazard mitigation plan includes a range of action items to reduce losses from hazard events. Together, the action items provide a framework for activities that the District can choose to implement over the next five (5) years. The effectiveness of the plan depends on the incorporation of the action items into existing County plans, policies, and programs. Although the District's Planning Department will have primary responsibility for the LHMP's continual review, coordination, and promotion, plan implementation, and evaluation will be a shared responsibility among all departments and agencies that contributed to the mitigation action plan.

The District's Chief of Planning & Watershed Resilience and Chief Engineer will be jointly responsible for the plan's implementation and maintenance through existing

District programs. Department Supervisors will be responsible for implementing mitigation strategies and actions specific to their department operations. The District's Chief of Planning & Watershed Resilience will assume the lead responsibility for facilitating plan maintenance and coordinating the planning team.

Each April, the planning team will begin the process of reviewing the LHMP and the implementation of mitigation actions to develop an annual progress report. This process can also assist the budget review process by providing information on mitigation projects and activities that have been completed or implemented. The annual progress report process will serve to align annual reviews of the hazard mitigation plan and to incorporate information. As updates to the LHMP are completed, the public will be made aware of the changes to the LHMP and make recommendations or comments.

The planning team will monitor and evaluate the hazard mitigation strategies during the year, and at a meeting held in January of each year, team members will provide information for the evaluation of the progress of the 2025 LHMP. The Chief of Planning & Watershed Resilience will convene the planning team and lead the effort for the annual evaluation. This evaluation will include:

- A summary of any hazard events that occurred during the prior year and their impact on the planning area
- A review of successful mitigation initiatives identified in the 2025 plan
- A brief discussion about the targeted strategies that were not completed
- A re-evaluation of the action plan to determine if the timeline for identified projects needs to be amended, and the reason for the amendment, e.g., funding issues
- Any recommendations for new projects
- Any changes in or potential for new funding options (grant opportunities)
- Any impacts of other planning programs or initiatives in the County that involve hazard mitigation

The planning team will write a progress report that will be provided to the District's budget planning team for review and incorporation in the budget process as mitigation projects are completed or implemented. The hazard mitigation plan progress report will also be posted on the District website on the page dedicated to the hazard mitigation plan. The planning team will strive to complete the progress report process by March of each year.

7.2 Plan Update

Section 201.6.d.3 of 44CFR requires that local hazard mitigation plans be reviewed, revised as appropriate, and resubmitted for approval in order to remain eligible for benefits awarded under the Disaster Mitigation Act. The District intends to update its hazard mitigation plan on a five (5)-year cycle.

Based on needs identified by the planning team, the update will, at a minimum, include the following elements:

- The hazard risk assessment will be reviewed and updated using the most recent information and technologies
- The action plan will be reviewed and revised to account for any initiatives completed, dropped, or changed and to account for changes in the risk assessment
- Any new District policies identified under other planning mechanisms, as appropriate
- The draft LHMP update will be sent to appropriate agencies and organizations for comment
- The public will be given an opportunity to comment on the updated version prior to adoption
- The District Board will adopt the updated plan.

At a minimum of six months before the expiration date of the 2025 LHMP, the planning team will implement a plan revision schedule to formally update the 2025 plan. The plan will be revised using the latest FEMA hazard mitigation guidance documents, such as the Mitigation Planning Tool and Regulation Checklist, to ensure compliance with current hazard mitigation planning regulations.

The overall success of the LHMP is through implementation of the plan's hazard mitigation strategy and activities to reduce the effects of hazards, protect people and property, and improve the District's efforts to respond to and recover from disasters. Members of the public and the District will ultimately benefit from the implementation of the LHMP and must be given the opportunity to provide input to the continuous cycle of LHMP planning.

7.3 Continued Public Involvement

The overall success of the LHMP is through implementation of the plan's hazard

mitigation strategy and activities to reduce the effects of hazards, protect people and property, and improve the District’s efforts to respond to and recover from disasters. Members of the public and the District will ultimately benefit from the implementation of the LHMP and must be given the opportunity to provide input to the continuous cycle of LHMP planning.

The District will strive to keep the public aware of hazard mitigation projects that take place as a result of the LHMP. Public information will be released through posting of Board meeting agenda items on the District’s website, social media, and other the appropriate District communication tools. Projects that mitigate hazards are included in the District’s annual budget planning process. The public is made aware of the planning through District Board meeting agendas that are posted on the District’s website. The budget planning process will serve as an annual opportunity to conduct outreach to the public on updates to the hazard mitigation planning process. The District’s proposed budget for the upcoming fiscal year is posted on the District’s website as part of the review of the proposed budget by the District’s Board of Directors.

A survey can be developed to gather input on how the community feels about the progress being made on LHMP activities. The District will also provide information about hazard mitigation projects to the public through the District’s website. At a minimum, the public will be engaged to learn about current LHMP activities and given the opportunity to provide comments and information on updating and maintaining the LHMP. When the time comes to begin revising the 2025 LHMP, the plan update process will be implemented, which will include continued public involvement and input through attendance at designated public Board of Directors meetings, web postings, community events, and surveys. As part of this effort, a series of public outreach events will be held, and public comments will be solicited on the revisions to the LHMP according to the five-year cycle. **Table 7-1** summarizes successful public involvement efforts previously conducted by the District, as well as proposed activities for public involvement and dissemination of information that shall be pursued whenever possible and appropriate.

Table 7-1: Past and Proposed Continued Public Involvement Activities or Opportunities Identified by the District		
Department	Public Involvement Activity or Opportunity	
	PAST	PROPOSED
Administration	LHMP Survey was conducted online and given out at District events in person.	Conduct surveys to be completed online and at District sponsored events.

Table 7-1: Past and Proposed Continued Public Involvement Activities or Opportunities Identified by the District		
Department	Public Involvement Activity or Opportunity	
	PAST	PROPOSED
All		Place emphasis on the risks associated with natural and manmade hazards at public awareness campaigns conducted by various District departments. Consider developing and distributing public education materials for natural hazards.

APPENDIX A – LOCAL MITIGATION PLAN REVIEW TOOL

Local Mitigation Plan Review Tool

Cover Page

The Local Mitigation Plan Review Tool (PRT) demonstrates how the local mitigation plan meets the regulation in 44 CFR § 201.6 and offers states and FEMA Mitigation Planners an opportunity to provide feedback to the local governments, including special districts.

1. The Multi-Jurisdictional Summary Sheet is a worksheet that is used to document how each jurisdiction met the requirements of the plan elements (Planning Process; Risk Assessment; Mitigation Strategy; Plan Maintenance; Plan Update; and Plan Adoption).
2. The Plan Review Checklist summarizes FEMA’s evaluation of whether the plan has addressed all requirements.

For greater clarification of the elements in the Plan Review Checklist, please see Section 4 of this guide. Definitions of the terms and phrases used in the PRT can be found in Appendix E of this guide.

Plan Information	
Jurisdiction(s)	San Bernardino Valley Municipal Water District
Title of Plan	San Bernardino Valley Municipal Water District Local Hazard Mitigation Plan
New Plan or Update	Update
Single- or Multi-Jurisdiction	Single-jurisdiction
Date of Plan	9/9/2025
Local Point of Contact	
Name	Greg Woodside
Title	Chief Planning & Watershed Resilience
Agency	San Bernardino Valley Municipal Water District
Address	380 East Vanderbilt Way. San Bernardino, CA 92408
Phone Number	909-387-9241
Email	GregW@sbsvmwd.com

Additional Point of Contact	
Name	Lee Rosenberg
Title	Managing Director
Agency	Navigating Preparedness
Address	Click or tap here to enter text.
Phone Number	925-381-0583
Email	Lee@navigatingpreparedness.com

Review Information	
State Review	
State Reviewer(s) and Title	Ivan J. Cintron Guzman
State Review Date	10/01/2025
FEMA Review	
FEMA Reviewer(s) and Title	Avery M Frank
Date Received in FEMA Region	10/1/2025
Plan Not Approved	Click or tap to enter a date.
Plan Approvable Pending Adoption	11/18/2025
Plan Approved	Click or tap to enter a date.

Plan Review Checklist

The Plan Review Checklist is completed by FEMA. States and local governments are encouraged, but not required, to use the PRT as a checklist to ensure all requirements have been met prior to submitting the plan for review and approval. The purpose of the checklist is to identify the location of relevant or applicable content in the plan by element/sub-element and to determine if each requirement has been “met” or “not met.” FEMA completes the “required revisions” summary at the bottom of each element to clearly explain the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is “not met.” Sub-elements in each summary should be referenced using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each element and sub-element are described in detail in Section 4: Local Plan Requirements of this guide.

Plan updates must include information from the current planning process.

If some elements of the plan do not require an update, due to minimal or no changes between updates, the plan must document the reasons for that.

Multi-jurisdictional elements must cover information unique to all participating jurisdictions.

Element A: Planning Process

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
A1. Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement 44 CFR § 201.6(c)(1))	Section 2/ Page 14-18	
A1-a. Does the plan document how the plan was prepared, including the schedule or time frame and activities that made up the plan’s development, as well as who was involved?	Section 2.3 Table 2-1 & 2-2	Met
A1-b. Does the plan list the jurisdiction(s) participating in the plan that seek approval, and describe how they participated in the planning process?	Table 2-1	Met
A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development as well as businesses, academia, and other private and non-profit interests to be involved in the planning process? (Requirement 44 CFR § 201.6(b)(2))		

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
A2-a. Does the plan identify all stakeholders involved or given an opportunity to be involved in the planning process, and how each stakeholder was presented with this opportunity?	Section 2.4.2 Page 16 -17	Met
A3. Does the plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? (Requirement 44 CFR § 201.6(b)(1))		
A3-a. Does the plan document how the public was given the opportunity to be involved in the planning process and how their feedback was included in the plan?	Section 2.5, Appendix C Page 17	Met
A4. Does the plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement 44 CFR § 201.6(b)(3))		
A4-a. Does the plan document what existing plans, studies, reports and technical information were reviewed for the development of the plan, as well as how they were incorporated into the document?	Section 2.7 Page 20-22	Met
ELEMENT A REQUIRED REVISIONS		
Required Revision: Click or tap here to enter text.		

Element B: Risk Assessment

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR § 201.6(c)(2)(i))		
B1-a. Does the plan describe all natural hazards that can affect the jurisdiction(s) in the planning area, and does it provide the rationale if omitting any natural hazards that are commonly recognized to affect the jurisdiction(s) in the planning area?	Table 4-5	Met

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
<p>B1-b. Does the plan include information on the location of each identified hazard?</p>	<p>Dam failure:</p> <ul style="list-style-type: none"> - Figure 4-3 <p>Drought:</p> <ul style="list-style-type: none"> - Page 67 <p>Earthquake:</p> <ul style="list-style-type: none"> - Figure 4-10 <p>Flooding:</p> <ul style="list-style-type: none"> - Figure 4-12 <p>Wildfire:</p> <ul style="list-style-type: none"> - Figure 4-14 	<p>Met</p>
<p>B1-c. Does the plan describe the extent for each identified hazard?</p>	<p>Dam failure:</p> <ul style="list-style-type: none"> - Table 4-10 <p>Drought:</p> <ul style="list-style-type: none"> - Figures 4-4 to 4-7) <p>Earthquake:</p> <ul style="list-style-type: none"> - Figure 4-10 <p>Flooding:</p> <ul style="list-style-type: none"> - Figure 4-12 <p>Wildfire:</p> <ul style="list-style-type: none"> - Figure 4-14 	<p>Met</p>

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
B1-d. Does the plan include the history of previous hazard events for each identified hazard?	Table 4-6	Met
B1-e. Does the plan include the probability of future events for each identified hazard?	Section 4.2.4 Table 4-8	Met
B1-f. For participating jurisdictions in a multi-jurisdictional plan, does the plan describe any hazards that are unique to and/or vary from those affecting the overall planning area?	N/A	N/A
B2. Does the plan include a summary of the jurisdiction’s vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii))		
B2-a. Does the plan provide an overall summary of each jurisdiction’s vulnerability to the identified hazards?	Table 5-1 Section 5.2 Dam failure: - Table 5-3 - Pg. 64-65 Drought: - Section 5.2.4 - Pg. 70-71 Earthquake: - Table 5-3 - Pg. 79-80 Flooding: - Table 5-5 - Pg. 86-87	Met

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
	Wildfire: - Table 5-6 - Pg. 98	
B2-b. For each participating jurisdiction, does the plan describe the potential impacts of each of the identified hazards on each participating jurisdiction?	Table 5-7	Met
B2-c. Does the plan address NFIP-insured structures within each jurisdiction that have been repetitively damaged by floods?	N/A	N/A
ELEMENT B REQUIRED REVISIONS		
Required Revision:		

Element C: Mitigation Strategy

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C1. Does the plan document each participant’s existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3))		
C1-a. Does the plan describe how the existing capabilities of each participant are available to support the mitigation strategy? Does this include a discussion of the existing building codes and land use and development ordinances or regulations?	Section 4.1 Table 4-1 thru 4-4	Met
C1-b. Does the plan describe each participant’s ability to expand and improve the identified capabilities to achieve mitigation?	Section 4.1 Table 4-1 thru 4-4	Met

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C2. Does the plan address each jurisdiction’s participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C2-a. Does the plan contain a narrative description or a table/list of their participation activities?	N/A	N/A
C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i))		
C3-a. Does the plan include goals to reduce the risk from the hazards identified in the plan?	Table 6-1	Met
C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C4-a. Does the plan include an analysis of a comprehensive range of actions/projects that each jurisdiction considered to reduce the impacts of hazards identified in the risk assessment?	Table 6-3 thru 6-4	Met
C4-b. Does the plan include one or more action(s) per jurisdiction for each of the hazards as identified within the plan’s risk assessment?	Table 6-4	Met
C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including a cost-benefit review), implemented, and administered by each jurisdiction? (Requirement 44 CFR § 201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))		
C5-a. Does the plan describe the criteria used for prioritizing actions?	Section 6.6.1 thru 6.6.4	Met
C5-b. Does the plan provide the position, office, department or agency responsible for implementing/administrating the identified mitigation actions, as well as potential funding sources and expected time frame?	Table 6-4	Met
ELEMENT C REQUIRED REVISIONS		
Required Revision: Click or tap here to enter text.		

Element D: Plan Maintenance

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
D1. Is there discussion of how each community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii))		
D1-a. Does the plan describe how communities will continue to seek future public participation after the plan has been approved?	Section 7.3	Met
D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i))		
D2-a. Does the plan describe the process that will be followed to track the progress/status of the mitigation actions identified within the Mitigation Strategy, along with when this process will occur and who will be responsible for the process?	Section 7.1	Met
D2-b. Does the plan describe the process that will be followed to evaluate the plan for effectiveness? This process must identify the criteria that will be used to evaluate the information in the plan, along with when this process will occur and who will be responsible.	Section 7.1	Met
D2-c. Does the plan describe the process that will be followed to update the plan, along with when this process will occur and who will be responsible for the process?	Section 7.2	Met
D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii))		
D3-a. Does the plan describe the process the community will follow to integrate the ideas, information and strategy of the mitigation plan into other planning mechanisms?	Section 2.6	Met

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
D3-b. Does the plan identify the planning mechanisms for each plan participant into which the ideas, information and strategy from the mitigation plan may be integrated?	Section 2.6	Met
D3-c. For multi-jurisdictional plans, does the plan describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms?	N/A	N/A
ELEMENT D REQUIRED REVISIONS		
Required Revision: Click or tap here to enter text.		

Element E: Plan Update

Element E Requirements	Location in Plan (section and/or page number)	Met / Not Met
E1. Was the plan revised to reflect changes in development? (Requirement 44 CFR § 201.6(d)(3))		
E1-a. Does the plan describe the changes in development that have occurred in hazard-prone areas that have increased or decreased each community's vulnerability since the previous plan was approved?	Section 3.10	Met
E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))		
E2-a. Does the plan describe how it was revised due to changes in community priorities?	Section 6.2	Met
E2-b. Does the plan include a status update for all mitigation actions identified in the previous mitigation plan?	Table 6-2	Met

Element E Requirements	Location in Plan (section and/or page number)	Met / Not Met
E2-c. Does the plan describe how jurisdictions integrated the mitigation plan, when appropriate, into other planning mechanisms?	Section 2.6	Met
ELEMENT E REQUIRED REVISIONS		
Required Revision:		

Element F: Plan Adoption

Element F Requirements	Location in Plan (section and/or page number)	Met / Not Met
F1. For single-jurisdictional plans, has the governing body of the jurisdiction formally adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F1-a. Does the participant include documentation of adoption?	Click or tap here to enter text.	Not Met
F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F2-a. Did each participant adopt the plan and provide documentation of that adoption?	N/A	N/A
ELEMENT F REQUIRED REVISIONS		
Required Revision: F1-a: After receiving official approvable pending adoption correspondence from the FEMA Region 9 Office please send a signed adoption resolution to FEMA-R9-MITIGATION-PLANNING fema-r9-mitigation-planning@fema.dhs.gov for final plan approval.		

Element G: High Hazard Potential Dams (Optional)

HHPD Requirements	Location in Plan (section and/or page number)	Met / Not Met
HHPD1. Did the plan describe the incorporation of existing plans, studies, reports and technical information for HHPDs?		
HHPD1-a. Does the plan describe how the local government worked with local dam owners and/or the state dam safety agency?	Click or tap here to enter text.	Choose an item.
HHPD1-b. Does the plan incorporate information shared by the state and/or local dam owners?	Click or tap here to enter text.	Choose an item.
HHPD2. Did the plan address HHPDs in the risk assessment?		
HHPD2-a. Does the plan describe the risks and vulnerabilities to and from HHPDs?	Click or tap here to enter text.	Choose an item.
HHPD2-b. Does the plan document the limitations and describe how to address deficiencies?	Click or tap here to enter text.	Choose an item.
HHPD3. Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?		
HHPD3-a. Does the plan address how to reduce vulnerabilities to and from HHPDs as part of its own goals or with other long-term strategies?	Click or tap here to enter text.	Choose an item.
HHPD3-b. Does the plan link proposed actions to reducing long-term vulnerabilities that are consistent with its goals?	Click or tap here to enter text.	Choose an item.
HHPD4-a. Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPDs?		
HHPD4-a. Does the plan describe specific actions to address HHPDs?	Click or tap here to enter text.	Choose an item.
HHPD4-b. Does the plan describe the criteria used to prioritize actions related to HHPDs?	Click or tap here to enter text.	Choose an item.
HHPD4-c. Does the plan identify the position, office, department or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?	Click or tap here to enter text.	Choose an item.

HHPD Required Revisions

Required Revision:

Click or tap here to enter text.

Element H: Additional State Requirements (Optional)

Element H Requirements	Location in Plan (section and/or page number)	Met / Not Met
This space is for the State to include additional requirements.		
<p>Cal OES requires all Multi-Jurisdictional Hazard Mitigation Plans to fill out the linked Annex Review Tool (ART) for all its annexes. Each annex must be on a separate tab, and each tab MUST have the POC information row and “Location in Plan” column filled out.</p> <p>Submit both the PRT and ART with your LHMP plan submission to MitigationPlanning@CalOES.ca.gov.</p>	Click or tap here to enter text.	Choose an item.

Plan Assessment

These comments can be used to help guide your annual/regularly scheduled updates and the next plan update.

Element A. Planning Process

Strengths

- The plan used a public outreach strategy that included an online survey and social media posts. This survey resulted in useful feedback that was incorporated into the plans development. This is an effective practice that should be maintained in future plan updates.

Opportunities for Improvement

- In future plan updates consider building upon the successful practice of listing planning team members by including their title or position instead of their names. This will help strengthen the plan for future updates by ensuring the plan stays accurate even if people change roles.
- The planning team may consider in future updates building upon the information in table 2-4 by including footnotes. This helps to further demonstrate the source that was used and how it was used to inform the plan which effectively meets sub element A4-a.

Element B. Risk Assessment

Strengths

- The plan combines effective problem statements with estimated potential losses for assets per hazard type. This is an effective practice that helps to strengthen the plan by clearly identifying the challenges and quantifying the impacts to create realistic mitigation actions.
- The plan effectively links the primary hazard of earthquakes to secondary hazards like landslides which improves the risk assessment by outlining cascading impacts that could occur during a hazard event. This also helps to inform mitigation actions by documenting the various types of impacts and linking them to the various causes.

Opportunities for Improvement

- [insert comments]

Element C. Mitigation Strategy

Strengths

- The plan documents a comprehensive range of actions including outreach, infrastructure improvements, nature based solutions, and stakeholder coordination. This helps to strengthen the plan by addressing multiple aspects of risk and leveraging existing resources.
- The plan includes a table outlining the mitigation actions that were considered but not selected. This helps to strengthen the plan by providing potential options for mitigation activities for the next plan update.

Opportunities for Improvement

- [insert comments]

Element D. Plan Maintenance

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element E. Plan Update

Strengths

- [insert comments]

Opportunities for Improvement

- The plan documents it will begin the update process at a minimum of 6 months prior to the plans expiration date. The planning team should consider starting the process at minimum a year prior to the expiration date. This provides the district with adequate time to engage with stakeholders and the public as well as receive feedback from CalOES and FEMA, ensuring the plan is approved prior to expiring.

Element G. HHPD Requirements (Optional)

Strengths

- [insert comments]

Opportunities for Improvement

- The planning team should consider in future plan updates completing the HHPD planning requirements to open up access to apply for HHPD grants. Currently the plan includes dam failure as a risk but did not request HHPD review. Section 4.7 Element G: High Hazard Potential Dams (Required for HHPD Grant Program Eligibility) of the [FEMA Local Planning Policy Guide](#) has more information about eligibility and planning requirements. The district many also request an HHPD review at any time during the planning cycle.

Element H. Additional State Requirements (Optional)

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

APPENDIX B – PLANNING TEAM MEETING DOCUMENTATION

Appendix B contains documentation of the planning process for the LHMP Planning Team, including meetings, presentations, emails, etc.

Date	Activity	Documentation
10/17/2024	Planning Team Meeting #1	Invitation to stakeholders Meeting Notes Presentation (cover only)
1/27/2025	Planning Team Meeting #2	Invitation to stakeholders Meeting Notes Presentation (cover only)

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

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HMPC MEETING #1 INVITATION

The screenshot shows a Microsoft Outlook meeting invitation window. The title bar reads "Hazard Mitigation Plan - Meeting". The ribbon includes "File", "Meeting", "Scheduling Assistant", "Tracking", and "Help". The meeting details are as follows:

- Accepted on:** 10/15/2024 6:02 PM
- Hazard Mitigation Plan** (Meeting Insights icon)
- Organizer:** Greg Woodside <GregW@sbwmwd.com> (Sent: Mon 9/30/2024 9:01 AM)
- Time:** Thursday, October 17, 2024 1:00 PM-3:00 PM
- Location:** Microsoft Teams Meeting
- Response:** Accepted (Change Response)

The main body of the invitation contains the following text:

Now that we have completed the Risk and Resilience Assessment, we transition to the update of the HMP: this is our first workshop on updating the HMP.

Microsoft Teams [Need help?](#)

Join the meeting now

Meeting ID: 238 784 754 689
Passcode: 7hAKz

For organizers: [Meeting options](#)

The bottom of the window shows the Windows taskbar with the search bar, taskbar icons, and system tray showing 62°F Sunny and 8:26 AM 6/30/2025.

HMPC MEETING #1 MEETING NOTES

San Bernardino Valley Municipal Water District
Local Hazard Mitigation Plan Update

October 22, 2024

To: Greg Woodside
From: Lee Rosenberg

Project Kick-off Meeting

San Bernardino Valley Municipal Water District hosted the virtual Hazard Mitigation Plan kick-off meeting with Navigating Preparedness Associates (NPA) on October 17, 2024, at 8:30 AM to discuss project deliverables.

Attendees

Attendee	Organization
Greg Woodside	San Bernardino Valley Municipal Water District
David McArthur	San Bernardino Valley Municipal Water District
Kelly Malloy	San Bernardino Valley Municipal Water District
Leo Ferrando	San Bernardino Valley Municipal Water District
Adekunle Ojo	San Bernardino Valley Municipal Water District
Dan Borell	San Bernardino Valley Municipal Water District
Lee Rosenberg	Navigating Preparedness
Francisco Soto	Navigating Preparedness
Aaron Pfannenstiel	Atlas Planning

Summary of Discussion

- NPA reviewed the following:
 - a. Discussed the overall scope of work
 - i. Organization and Planning Process
 - ii. Risk Assessment
 - iii. Mitigation Strategy
 - iv. Implementation and Maintenance
 - v. Plan Approval and Adoption
- NPA provided an overview of the schedule to complete the plan.
- NPA reviewed some of the challenges related to hazard mitigation
 - a. New guidance
 - b. Stakeholder engagement

c. Integration with other planning processes

- NPA provided an overview of the hazard mitigation planning process.
- NPA reviewed hazards identified in the district's 2018 plan.
- NPA reviewed the hazard analysis for the updated plan and reviewed each hazard and its effect on the district.
 - a. The district does not believe aquatic invasive species but they don't think they pose a hazard to infrastructure.
 - b. The District will discuss whether cyberattack should be included in the update to the HMP.
 - c. NPA discussed the possibility of adding Dam Failure as a hazard to the updated plan. Leo believes Seven Oaks Dam would cause significant damage. They also own three small dams. The District will have internal discussions to decide whether it should be included.
 - d. NPA discussed the possibility of adding Drought to the updated plan. The District would like to add it as a hazard in the updated plan.
 - e. There is an erosion issue at City Creek that can affect the foothill pipeline. The District would like to add it as a hazard.
 - f. The group discussed whether hazardous material release should be included in the plan. The district does not use a lot of chemicals in its operation. The group decided not to include hazardous materials as a hazard.
 - g. The district does have issues with landslides and will include it in the updated plan.
 - h. NPA discussed the possibility of adding infrastructure failure as a stand-alone hazard. The group decided to add the hazard as a cascading effect of an earthquake.
 - i. The group discussed whether to add power loss as a hazard. The District has a history of power failures and will continue to in the future. This will be added as a stand-alone hazard.
 - j. The planning team decided to include subsidence as a hazard because of issues in the delta and central valley. The district will be spending millions of dollars to address subsidence to DWR. Discuss internally whether Cyber Threats should be included in the update to the HMP. Subsidence will be included a sub-category of earthquake.

San Bernardino Valley Municipal Water District
Local Hazard Mitigation Plan Update

- k. The group decided to include terrorism as a hazard of concern.
 - l. The group would like to add tree mortality as an internal discussion because of the San Bernardino National Forest.
 - m. The group would like to include urban fire as a hazard because of their infrastructure in built communities, such as wells, tanks, booster stations (Redlands Booster Station), Baseline Feeder.
 - n. The group would like to add sea-level rise as a hazard because of the impacts in the delta. This will be included under climate change.
- The group discussed possible avenues to involve other stakeholders. There is Technical Advisory Committee meeting coming up in December, which may be an option.

Action Items

Action Item	Responsible Party	Due Date	Status
Develop and distribute PMP for LHMP.	NPA	October 25, 2024	Open
Review outreach strategy. Resend	SBVMWD	November 1, 2024	Open
Discuss internally whether Cyber Threats should be included in the update to the HMP.	SBVMWD	November 1, 2024	Open
Discuss internally whether Dam Failure should be included in the update to the HMP.	SBVMWD	November 1, 2024	Open
Discuss internally whether Tree Mortality should be included in the update to the HMP.	SBVMWD	November 1, 2024	Open
Investigate whether a presentation can be made to the Technical Advisory Committee in December.	SBVMWD	November 1, 2024	Open
Deliver meeting minutes	Lee Rosenberg	10/22/2024	Complete

HMPC MEETING #1 PRESENTATION SLIDE

San Bernardino Valley Municipal Municipal Water District



Update the Local Hazard Mitigation Plan

Kickoff Meeting

October 17, 2024

HMPC MEETING #2 MEETING INVITATION

The screenshot shows a Microsoft Outlook meeting invitation window. The title bar reads "Hazard Mitigation Plan - Meeting". The ribbon includes "Meeting", "Scheduling Assistant", "Tracking", and "Help". The main content area displays the following information:

- Accepted on:** 10/15/2024 6:32 PM.
- Meeting Title:** Hazard Mitigation Plan
- Organizer:** Greg Woodside <GregW@sbmwd.com>
- Time:** Thursday, October 17, 2024 1:00 PM-3:00 PM
- Location:** Microsoft Teams Meeting
- Response:** Accepted

The body of the invitation contains the following text:

Now that we have completed the Risk and Resilience Assessment, we transition to the update of the HMP; this is our first workshop on updating the HMP.

Microsoft Teams [Need help?](#)

Join the meeting now

Meeting ID: 238 784 754 689
Passcode: 7hAkzZ

For organizers: [Meeting options](#)

HMPC MEETING #2 PRESENTATION SLIDE



San Bernardino Valley
Municipal Water District

Hazard Mitigation Plan
Update

January 27, 2025



HMPC MEETING #2 MEETING NOTES

San Bernardino Valley Municipal Water District
Local Hazard Mitigation Plan Update

January 28, 2025

To: Greg Woodside
From: Lee Rosenberg

Planning Meeting #2

San Bernardino Valley Municipal Water District hosted an in-person Hazard Mitigation Plan Planning Meeting with Navigating Preparedness Associates (NPA) on January 27, 2024, to discuss the risk assessment and mitigation strategy.

Attendees

Attendee	Organization
Greg Woodside	San Bernardino Valley Municipal Water District
Wen Huang	San Bernardino Valley Municipal Water District
Leo Ferrando	San Bernardino Valley Municipal Water District
Adekunle Ojo	San Bernardino Valley Municipal Water District
Dan Borell	San Bernardino Valley Municipal Water District
Lee Rosenberg	Navigating Preparedness

Summary of Discussion

- NPA reviewed the following:
 - a. Updated the status of the LHMP. The following sections are drafted:
 - i. Introduction and agency description
 - ii. Hazard analysis and risk assessment
 - iii. Capabilities description
 - iv. Status of previous mitigation activities
- The group reviewed the public outreach process. The survey is online with links on social media accounts. Placing brochures at libraries will be done to further solicit public input.
- The group noted that the current LHMP has expired. It was completed in 2018.
- The group reviewed the following potential mitigation activities:

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Project # and Priority	Mitigation Project Name	Associated Facility	Hazard	Cost / Funding Source	Department/s Responsible	Timeframe	Status and Comments
1	Design and Construction to Prevent Undercutting Foothill Pipeline at City Creek Crossing During Floods	Foothill Pipeline	Flood	\$\$\$	Engineering Environmental	1-2 years	Design and environmental permitting ongoing
2	Clear Brush (Annually)	All in high fire zones	Wildfire	\$\$	Operations	Ongoing	Completed annually
3	Conduct a Fire Danger Assessment of Facilities to Determine Potential Exposure to Wildland Fire and Develop a List of Activities to Reduce the Risk.	All in high fire zones	Wildfire	\$\$	Operations	1 year	Not started
4	Design and Construction to Prevent Undercutting Foothill Pipeline at Mill Creek	Greenspot Pipeline	Flood	\$\$\$	Engineering Environmental	2-3 years	Planning Stage
5	Morton Canyon Road/Slope Stabilization	Morton Canyon Pipeline	Flood Landslide	\$\$	Engineering	1 year	Not Started
6	Design and Construction to Prevent Undercutting	Baseline Feeder	Flood	\$\$\$	Engineering Environmental	2-3 years	Not Started



LHMP Planning Meeting #2 | 2

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San Bernardino Valley Municipal Water District
Local Hazard Mitigation Plan Update

	Baseline Feeder at Lytle Creek						
7	Design and Construction to Prevent Undercutting Santa Ana River Crossing Pipeline at Santa Ana River	SARC Pipeline	Flood	\$\$\$	Engineering Environmental	2-3 years	Not Started
8	Backup power at Redlands Warehouse	Redlands Warehouse	Power outage	\$\$	Operations	1 year	Not started
9	Backup power at Baseline Feeder Surge Tank	Baseline Feeder	Power outage	\$	Operations	1 year	Not started
10	Badger Turnout Flood Risk Mitigation	Foothill Pipeline	Flood Landslide	\$\$	Engineering Environmental	1 year	Build deflector wall around turnout to protect from debris flow
11	Sweetwater Turnout Flood Risk Mitigation	Foothill Pipeline	Flood Landslide	\$\$	Engineering Environmental	1 year	Build deflector wall around turnout to protect from debris flow
12	Line Valve 2 Flood Risk Mitigation	Foothill Pipeline	Flood Landslide	\$\$	Engineering Environmental	1 year	Build deflector wall around turnout to protect from debris flow



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San Bernardino Valley Municipal Water District
Local Hazard Mitigation Plan Update

13	Dosing Station Upgrades – Line Valve 2	Foothill Pipeline	Hazard Materials Release	\$\$	Engineering Environmental	1 year	Upgrade dosing station to a new design to minimize potential hazardous materials release (current access road for chemical delivery is steep)
14	Conduct Annual Vegetation Maintenance/ Build Firebreak at Morton Canyon facilities	Greenspot Pipeline	Wildfire	\$\$	Operations Environmental	1 year	Fire damage risk reduction for facilities in Morton Canyon
15	Continue to Conduct Operations to Send Recycled Water to the Weaver Recharge Basin	N/A	Drought	\$	Operations	Ongoing	
16	Conduct Efforts to Fund San Bernardino Valley's Share to Construct Sykes Dam	Sykes Dam	Drought	\$\$\$	Finance	3-5 years	
17	Continue to Implement San Bernardino Valley's Climate Action Plan.		Climate Change	\$	Communications	Ongoing	

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Local Hazard Mitigation Plan 2025 – Public Review Draft

San Bernardino Valley Municipal Water District
Local Hazard Mitigation Plan Update

18	Continually Update Security Patches on District Servers and Other IT Equipment	District Wide	Cyber Attack	\$	IT	Ongoing	
19	Coordinate with County of San Bernardino Public Works to Maintain a Copy of the Seven Oaks Dam Emergency Action Plan	District Wide	Dam Inundation	\$	Operations	Ongoing	
20	Conduct an Annual Inspection of the Yucaipa Dams and Correct Any Concerns	Yucaipa Dams	Dam Inundation	\$\$	Operations	Annually	
21	Maintain the Yucaipa Dams Emergency Action Plans Current and Conduct an Annual Notification Call-down Exercise	Yucaipa Dams	Dam Inundation	\$	Operations	Annually	



SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Local Hazard Mitigation Plan 2025 – Public Review Draft

San Bernardino Valley Municipal Water District Local Hazard Mitigation Plan Update

Action Items

Action Item	Responsible Party	Due Date	Status
Continue public outreach efforts	NPA/SBV	February 28, 2025	Ongoing
Deliver internal review draft LHMP	NPA	March 14, 2025	In Progress
Deliver public review draft LHMP	NPA	April 11, 2025	Pending internal review draft review
Incorporate public review comments	NPA	May 2, 2025	Pending
Deliver Cal OES/FEMA review draft LHMP	NPA	May 9, 2025	Pending
Complete the FEMA LHMP Plan Review Tool	NPA	May 9, 2025	Pending
Submit LHMP for Cal OES/FEMA review	SBV	May 16, 2025	Pending

Points of Contact

For concerns or questions regarding these notes, please contact:

Lee Rosenberg, (925) 381-0583 or lee.rosenberg@navigatingpreparedness.com



APPENDIX C – PUBLIC OUTREACH DOCUMENTATION


Appendix C contains documentation of the planning process including meetings, presentations held for the stakeholders and public, and other stakeholder/public outreach efforts.

Date	Activity	Documentation
January 2024 - Present	Survey posted on District Website with links provided in social media accounts. General Hazard Mitigation documents.	Documentation 1 – Survey Documentation 2 – Flyer (English/Spanish) Documentation 3 – Posting on District Instagram Account Documentation 4 – Posting on District LinkedIn Account Documentation 5 – Posting on District Facebook Account Documentation 6 – Posting on District's Webpage Documentation 8 – Outreach Event 1 Documentation 9 – Outreach Event 2
November 19, 2024	Outreach Meetings	Documentation 7: Basin Technical Advisory Committee Presentation
3 months	Public hazard mitigation survey conducted.	Documentation 10: Survey results
July 11, 2025	Draft LHMP provided for public review.	Documentation 11: Social Media Post Documentation 12: Website
July 11, 2025	Draft LHMP provided to neighboring jurisdiction for review and comment.	Documentation 13: Email

DOCUMENTATION #1: SURVEY/SURVEY RESPONSES

ip.constantcontactpages.com/sv/a8OUq8G/LHMP

Faults Do List Email FIRO SOD board calendar Granicus CW3E Radar Sat CNRFC - CNRFC Map Temp



SAN BERNARDINO VALLEY | A REGIONAL WATER AGENCY SINCE 1954

The San Bernardino Valley Municipal Water District (San Bernardino Valley) is updating its Local Hazard Mitigation Plan (LHMP). The plan identifies natural, and human caused hazards that can impact the San Bernardino Valley service area. The new and updated plan will list potential actions needed to reduce risk and future damage. The plan enables the San Bernardino Valley to be eligible for various assistance grants. Public involvement is critical to the plan as the LHMP must represent the current needs and values of the community. To assist with obtaining public input, we invite you to participate in the following survey. We thank you in advance for your cooperation and assistance.

*** Do you live or work in any of the following cities or communities that receive water from one of San Bernardino Valley’s customers? (check all that apply)**

- Bloomington
- Colton
- East Highland
- Grand Terrace
- Highland
- Loma Linda

DOCUMENTATION #2: FLYER



HAZARD MITIGATION PLAN DEVELOPMENT

WHAT IS A HAZARD MITIGATION PLAN

The Local Hazard Mitigation Plan is a document that outlines the Water District's long-term strategy to eliminate risk to human life, property, and infrastructure from future natural and man-made disasters. Mitigation plans are key to breaking the cycle of disaster damage and reconstruction.

The essential steps of hazard mitigation planning are to:

- Identify and profile hazards that affect the local area
- Analyze people and facilities at risk from those hazards
- Develop a mitigation strategy to lessen the impacts
- Implement the hazard mitigation actions and projects

WHY NOW

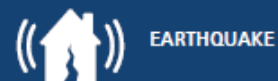
The Hazard Mitigation Plan was last updated in 2018. In order to be eligible for mitigation funds, the plan must be updated every 5 years. An approved LHMP makes us eligible to receive additional federal mitigation funds for future projects.

HOW CAN YOU BE INVOLVED IN THE PLANNING PROCESS

The community can strengthen the content and outcomes of the mitigation plan. The public is represented by community members and organizations that have an interest in District projects and actions to mitigate hazards and save lives and property. The Water District will post hazard mitigation plan progress and key documents on the following platforms:

- Website and Social Media Platforms
- Print materials at our SanBernardino Valley Headquarters
- Hazard Mitigation Survey
- Public Outreach Workshops
- Present and adopt the plan at a Board meeting

HAZARDS



EARTHQUAKE



DROUGHT



EXTREME HEAT



WILDFIRE



LANDSLIDE



WINTER STORM



DAM FAILURE



CLIMATE CHANGE



FLOODING

FOR ADDITIONAL INFORMATION OR QUESTIONS, CONTACT:

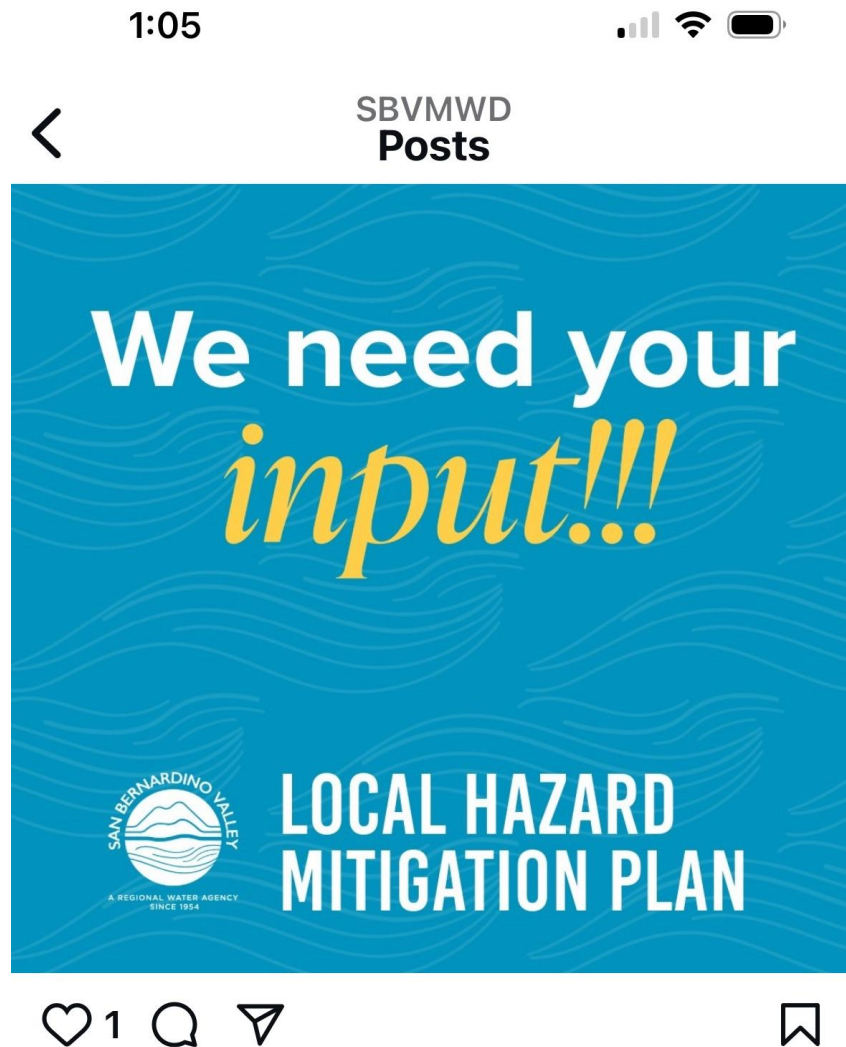


EMAIL
GREGW@SBVMWD.COM



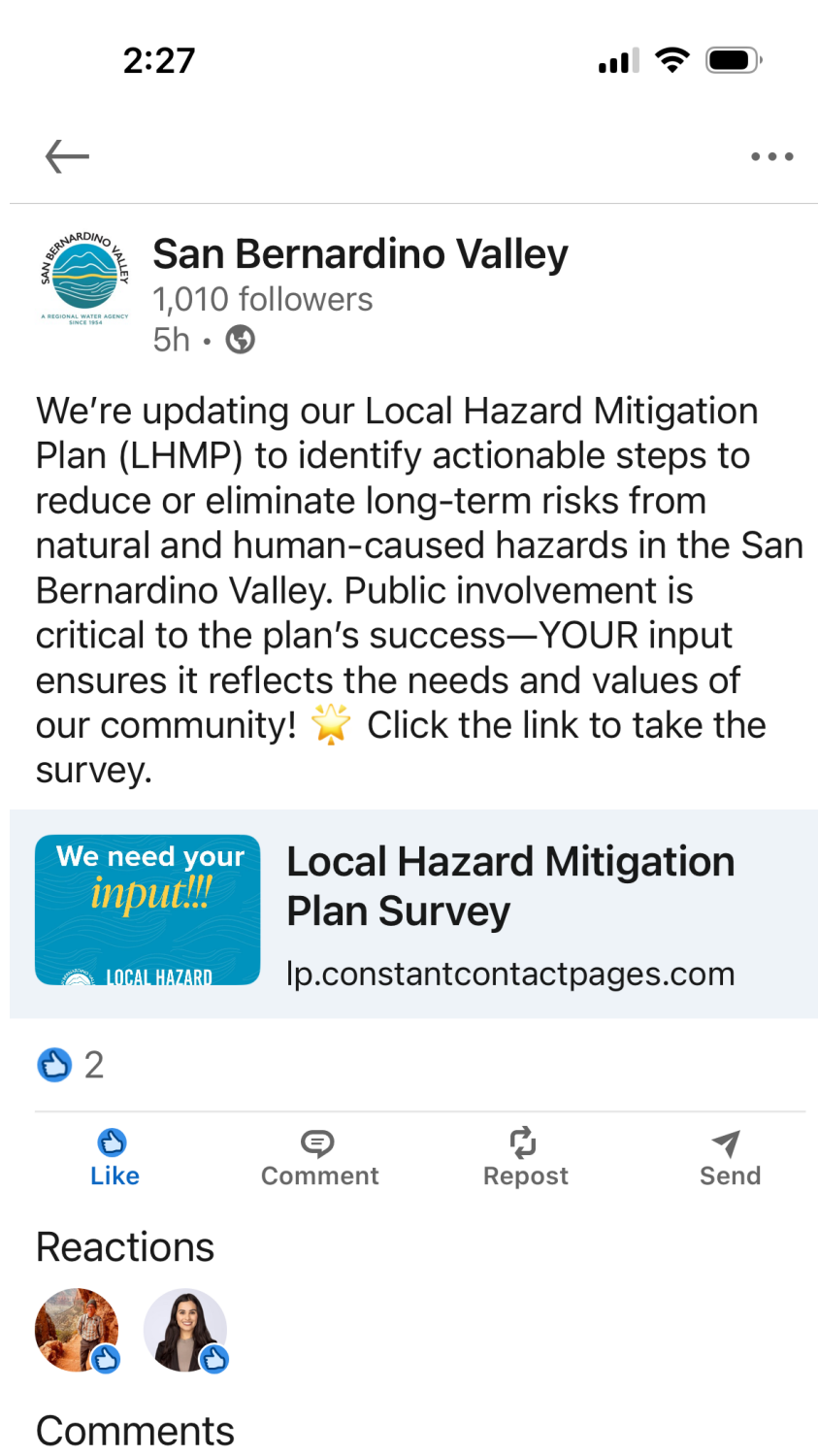
PHONE
(909) 387-9241

DOCUMENTATION #3: POSTING ON DISTRICT INSTAGRAM ACCOUNT



sbvmwd We're updating our Local Hazard Mitigation Plan (LHMP) to identify actionable steps to reduce or eliminate long-term risks from natural and human-caused hazards in the San Bernardino Valley. Public involvement is critical to the plan's success—YOUR input ensures it reflects the needs and values of our community! 🌟 Click the link in our bio to take the survey.

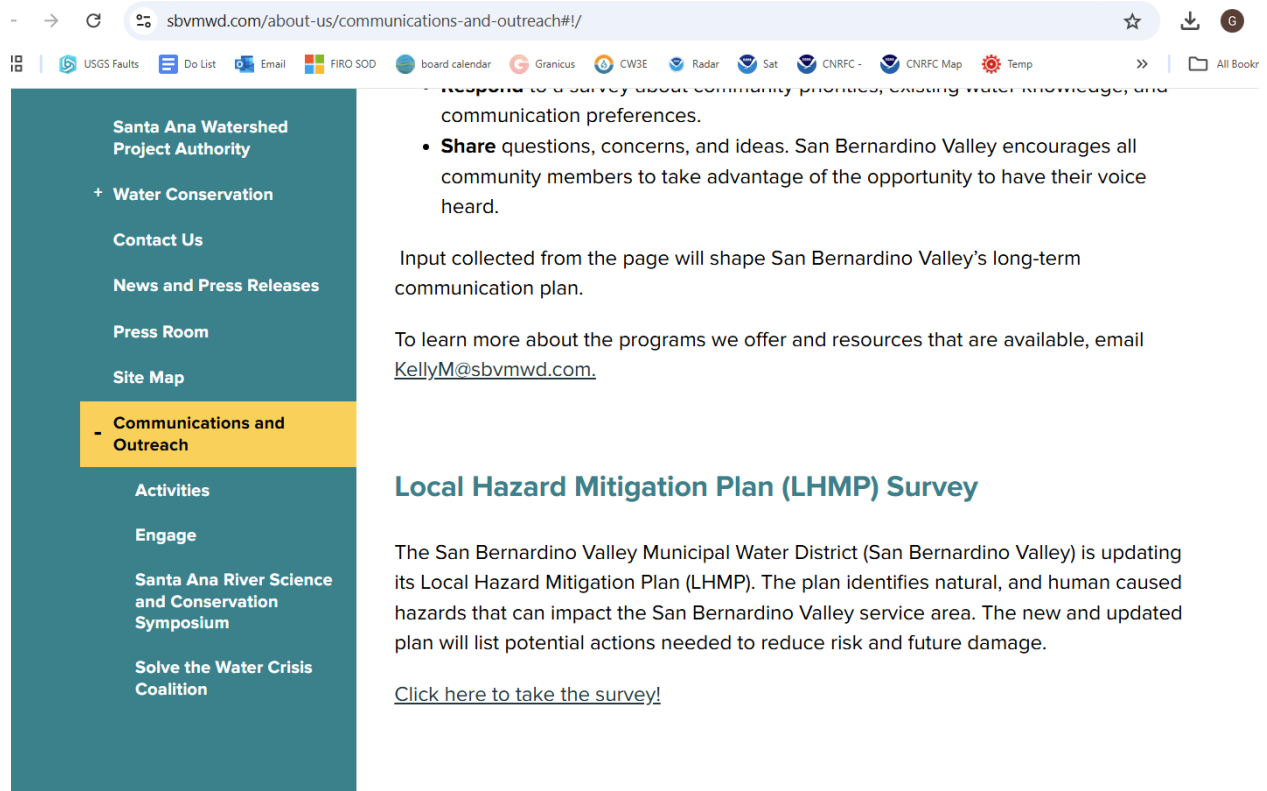
DOCUMENTATION #4: POSTING ON DISTRICT LINKEDIN ACCOUNT



DOCUMENTATION #5: POSTING ON DISTRICT FACEBOOK ACCOUNT



DOCUMENTATION #6: POSTING ON DISTRICT WEBPAGE



DOCUMENTATION 7: BASIN TECHNICAL ADVISORY COMMITTEE PRESENTATION AGENDA

Basin Technical Advisory Committee

Bear Valley Mutual Water Company	City of Colton	East Valley Water District	City of Loma Linda
City of Redlands	City of Rialto	City of Riverside	San Bernardino County Flood Control District
San Bernardino Municipal Water Department	San Bernardino Valley Municipal Water District	San Bernardino Valley Water Conservation District	West Valley Water District
Western Municipal Water District	Yucaipa Valley Water District		

AGENDA

December 9, 2024, 1:30 PM

- 1) Call to Order/Pledge of Allegiance/Introductions
- 2) Public Comment
- 3) Approval of Minutes
 - 3.a August 5, 2024 Regular Meeting
[BTAC Meeting Minutes](#)
- 4) Discussion and Action Items
 - 4.a Proposed BTAC 2025 Meeting Schedule
[Memo - Proposed BTAC 2025 Meeting Schedule](#)
 - 4.b Consider the 2025 BTAC Regional Water Management Plan
[Memo - Consider the 2025 BTAC Regional Water Management Plan Summary of the 2025 Plan](#)
- 5) Presentations and Informational Items
 - 5.a San Bernardino Valley's Hazard Mitigation Plan Update
 - 5.b Engineering Subcommittee Report
 - 5.c Water Conservation Subcommittee Report
- 6) Other Business and Future Agenda Items

Jennifer Ares, Chair
Linda Jadeski, Vice Chair

Cecilia Griego, Chair
Project Review Subcommittee

Ryan Shaw, Chair
Engineering Subcommittee

Devin Arciniega, Chair
Conservation Subcommittee

380 East Vanderbilt Way, San Bernardino, CA 92408

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Local Hazard Mitigation Plan 2025 – Public Review Draft

DOCUMENTATION 8: DISTRICT OUTREACH EVENT #1 – Outreach event at the City of San Bernardino Public Library to engage residents.



SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Local Hazard Mitigation Plan 2025 – Public Review Draft

DOCUMENTATION 9: DISTRICT OUTREACH EVENT #2 – Outreach event at the California State University San Bernardino to engage students.



SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

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DOCUMENTATION 10: SURVEY RESULTS

Constant Contact Survey Results

Campaign Name: Hazards Mitigation Survey

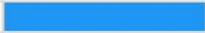



Survey Starts: 31

Survey Submits: 5

Export Date: 06/02/2025 10:02 PM

CHECKBOXES

Do you live or work in any of the following cities or communities that receive water from one of San Bernardino Valley's customers? (check all that apply)

Answer Choice	0%	100%	Number of Responses	Responses Ratio
Bloomington			0	0%
Colton			0	0%
East Highland			0	0%
Grand Terrace			0	0%
Highland			0	0%
Loma Linda			0	0%
Mentone			0	0%
Redlands			2	40%
Rialto			0	0%
San Bernardino			1	20%
Yucaipa			1	20%
None of the Above			1	20%
Total Responses			5	100%

OPEN QUESTION

Who is your water provider?

Suburban

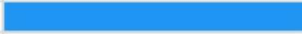

City of San Bernardino Water Department

City of Redlands

5 Response(s)

MULTIPLE CHOICE

What is your age group?

Answer Choice	0%	100%	Number of Responses	Responses Ratio
Under 18			0	0%
18-24			0	0%
25-34			3	60%
35-44			0	0%
45-54			0	0%
55-64			2	40%
65+			0	0%
prefer not to answer			0	0%
Total Responses			5	100%

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Local Hazard Mitigation Plan 2025 – Public Review Draft

OPEN QUESTION

How many people live in your household?

3

3

2

5 Response(s)

RANK ORDER

Hazards Mitigation Plans identify a range of hazards. Rank the following hazards based on which concerns you the most.

Answer Choice	Average Rank	Ranked 1	Ranked 2	Ranked 3	Ranked 4	Ranked 5	Ranked 6	Ranked 7	Ranked 8	Ranked 9
Climate Change	5.60	1 (20%)	0 (0%)	1 (20%)	0 (0%)	0 (0%)	1 (20%)	0 (0%)	0 (0%)	2 (40%)
Cyber Security	4.20	0 (0%)	2 (40%)	1 (20%)	0 (0%)	0 (0%)	1 (20%)	0 (0%)	1 (20%)	0 (0%)
Dam Failure	6.60	0 (0%)	0 (0%)	0 (0%)	2 (40%)	0 (0%)	0 (0%)	1 (20%)	0 (0%)	2 (40%)
Drought	3.40	0 (0%)	2 (40%)	0 (0%)	2 (40%)	1 (20%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Earthquake	1.40	4 (80%)	0 (0%)	1 (20%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Extreme Weather (windstorms, extreme heat, hailstorms)	6.40	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (20%)	2 (40%)	1 (20%)	1 (20%)	0 (0%)
Flooding	6.20	0 (0%)	0 (0%)	0 (0%)	1 (20%)	1 (20%)	1 (20%)	0 (0%)	2 (40%)	0 (0%)
Landslide	7.20	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (20%)	0 (0%)	2 (40%)	1 (20%)	1 (20%)
Wildfire	4.00	0 (0%)	1 (20%)	2 (40%)	0 (0%)	1 (20%)	0 (0%)	1 (20%)	0 (0%)	0 (0%)
Total Responses	5									

OPEN QUESTION

Are there other hazards not listed above that concern you?

No.

Terrorist attack

2 Response(s)

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Local Hazard Mitigation Plan 2025 – Public Review Draft

MULTIPLE CHOICE

How concerned are you about the risks from disasters adversely affecting water delivery to your community?

Answer Choice	0%	100%	Number of Responses	Responses Ratio
A great deal			2	40%
Somewhat			3	60%
Neutral			0	0%
A little bit			0	0%
Not at all			0	0%
Total Responses			5	100%

RANK ORDER

How do you prefer to find information about incoming or ongoing hazards? Rank the following communication methods

Answer Choice	Average Rank	Ranked 1	Ranked 2	Ranked 3	Ranked 4	Ranked 5	Ranked 6
Social Media (Facebook, Instagram, Ring, NexDoor, TikTok, X, etc)	3.60	0 (0%)	0 (0%)	3 (60%)	1 (20%)	1 (20%)	0 (0%)
Local Government Websites	2.40	2 (40%)	1 (20%)	0 (0%)	2 (40%)	0 (0%)	0 (0%)
Reverse 911 Community Notification	1.60	2 (40%)	3 (60%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Radio	4.20	1 (20%)	0 (0%)	1 (20%)	0 (0%)	1 (20%)	2 (40%)
Television	4.60	0 (0%)	1 (20%)	0 (0%)	1 (20%)	1 (20%)	2 (40%)
Friends and Family	4.60	0 (0%)	0 (0%)	1 (20%)	1 (20%)	2 (40%)	1 (20%)
Total Responses	5						

OPEN QUESTION

Are there other types of communication methods you prefer that are not listed above?

Cell phone notification

No.

Email/Text

3 Response(s)

OPEN QUESTION

Please provide any additional comments or insight below into how local hazards could be mitigated.

Upgrade infrastructure.





1 Response(s)

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Local Hazard Mitigation Plan 2025 – Public Review Draft

MULTIPLE CHOICE

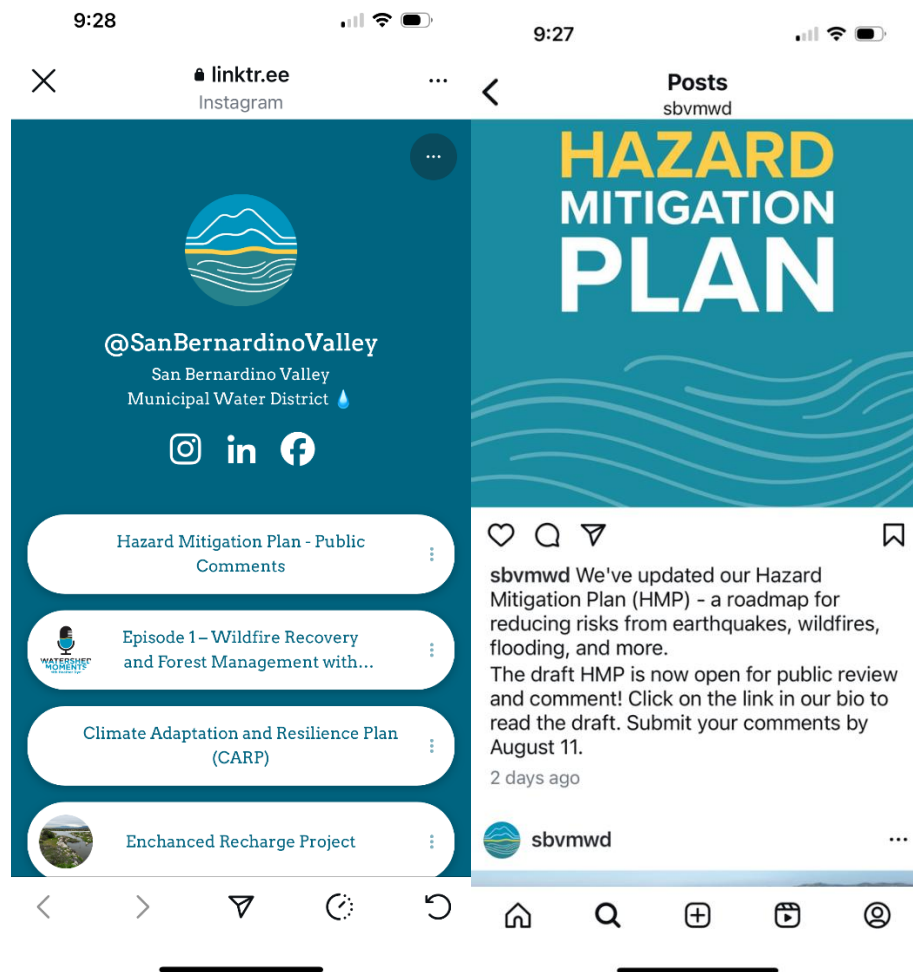
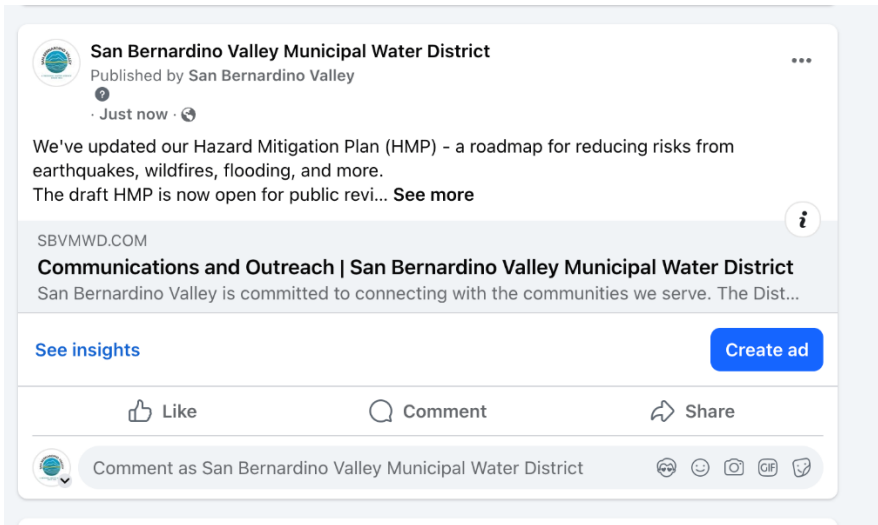
How did you hear about this survey?

Answer Choice	0%	100%	Number of Responses	Responses Ratio
Social Media			0	0%
San Bernardino Valley Website			1	20%
Community Event			1	20%
Science Symposium			0	0%
Industry Meeting			0	0%
Referral			2	40%
Other			1	20%
Total Responses			5	100%

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Local Hazard Mitigation Plan 2025 – Public Review Draft

DOCUMENTATION 11: PUBLIC REVIEW DRAFT DISTRIBUTION (SOCIAL MEDIA)



DOCUMENTATION 12: PUBLIC REVIEW DRAFT DISTRIBUTION (WEBSITE)

- Who We Serve
- History
- Event Photo Galleries
- FAQ
- Property Tax Info
- Transparency
- Job Opportunities
- Doing Business with Us
- Projects
- State Water Project
- Local Water Conditions
- Santa Ana Watershed Project Authority
- Water Conservation
- Contact Us
- News and Press Releases
- Press Room
- Site Map
- Communications and Outreach**
- Activities
- Engage
- Santa Ana River Science and Conservation Symposium
- Solve the Water Crisis Coalition

Communications and Outreach

Print Feedback Share & Bookmark Font Size

San Bernardino Valley is committed to connecting with the communities we serve. The District participates in community events, hosts educational workshops, supports school education programs, and makes presentations to community groups.

The District launched an online engagement website to connect with the public on communication and engagement preferences. The Community Input Page—www.ConnectSBVMWD.com—allows you to provide feedback through a short survey and an open-ended community wall. The page has three components: Learn, Respond, Share.

- **Learn** how San Bernardino Valley provide a reliable and sustainable water supply.
- **Respond** to a survey about community priorities, existing water knowledge, and communication preferences.
- **Share** questions, concerns, and ideas. San Bernardino Valley encourages all community members to take advantage of the opportunity to have their voice heard.

Input collected from the page will shape San Bernardino Valley's long-term communication plan.

To learn more about the programs we offer and resources that are available, email KellyM@sbvmwd.com.

Local Hazard Mitigation Plan (HMP)

San Bernardino Valley engages in on-going efforts to maintain an effective Emergency Preparedness Program. The District's Hazard Mitigation Plan (HMP) is a key part of this effort.

The HMP provides the framework to reduce our risk of damage and curtailment of services from hazards such as earthquakes, wildfire, and flooding.

The District has prepared an updated HMP that is now available for public review and comment.

[HMP Public Review Draft \(PDF\)](#)

Please provide your comments by August 11, 2025 to Greg Woodside at gregw@sbvmwd.com

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Local Hazard Mitigation Plan 2025 – Public Review Draft

DOCUMENTATION 13: STAKEHOLDER REVIEW DRAFT DISTRIBUTION

SBVMWD Draft Hazard Mitigation Plan - Public Review

Andreea Tanase
To

Fri 7/11/2025 2:06 PM

HMP Public Review Draft 7-2-2025.pdf
.pdf File

Good afternoon,

San Bernardino Valley engages in on-going efforts to maintain an effective Emergency Preparedness Program. The District's Hazard Mitigation Plan (HMP) is a key part of this effort.

The HMP provides the framework to reduce our risk of damage and curtailment of services from hazards such as earthquakes, wildfire, and flooding.

The District has prepared an updated HMP that is now available for public review and comment.

A copy of the draft HMP is attached to this email.

Please provide your comments by August 11, 2025 to Greg Woodside at gregw@sbvmwd.com

Thank you,

Andreea Tanase, MPA
Administrative Analyst

San Bernardino Valley Municipal Water District
380 East Vanderbilt Way, San Bernardino, CA 92408
Office: (909) 387-9220

APPENDIX D – ACRONYMS

Acronym	Definition
Cal OES	California Governor’s Office of Emergency Services
CDA	California Disaster Assistance Act
CIP	Capital Improvement Plan
CPRI	Calculated Priority Risk Index
DMA 2000	Disaster Mitigation Act of 2000
EOP	Emergency Operations Plan
ERP	Emergency Response Plan
FEMA	Federal Emergency Management Agency
FMA	Flood Mitigation Assistance
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
LHMP	Local Hazard Mitigation Plan
MWD	Metropolitan Water District of Southern California
NFIP	National Flood Insurance Program
NWS	National Weather Service
PDM	Pre-Disaster Mitigation
RFC	Repetitive Flood Claims
SCADA	Supervisory Control and Data Acquisition
SHMO	State Hazard Mitigation Officer
SRL	Several Repetitive Loss
STAPLEE	Social, Technical, Administrative, Political, Legal, Economic, Environmental
U.S. EPA	U.S. Environmental Protection Agency
UCERF3	(the third) Uniform California Earthquake Rupture Forecast
USDM	U.S. Drought Monitor

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Local Hazard Mitigation Plan 2025 – Public Review Draft

Acronym	Definition
USSDO	U.S. Seasonal Drought Outlook
UWMP	Urban Water Management Plan
WARN	Water, Wastewater Agency Response Network
NIDIS	National Integrated Drought Information System
WUI	Wildland Urban Interface

APPENDIX E – PLAN APPROVAL AND RESOLUTION