

Draft for Public Comment

# 2025 URBAN WATER MANAGEMENT PLAN

OF THE LONG BEACH UTILITIES DEPARTMENT  
*A Department of the City of Long Beach, California*



LONG BEACH  
**Utilities**  
Water · Gas · Sewer

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## ACRONYMS

ABP	The Alamitos Barrier Project
Act	Urban Water Management Planning Act
AF	Acre-feet
Albert Robles Center	Albert Robles Center for Water Recycling & Environmental Learning
AMI	Advanced Metering Infrastructure
APA	Allowable Pumping Allocation
AWWA	American Water Works Association
CCF	Centum Cubic Feet
CIP	Capital Improvement Program
City	City of Long Beach
DOF	California Department of Finance
DRA	Drought Risk Assessment
DWR	Department of Water Resources
GPCD	Gallons per Capita per Day
GWTP	Groundwater Treatment Plant
LACDPW	Los Angeles County Department of Public Works
LACSD	Los Angeles County Sanitation Districts
LADWP	Los Angeles Department of Water and Power
LBUD	Long Beach Utilities Department
LBUD Board	City of Long Beach Board of Public Utilities Commissioners
LBWRP	Long Beach Water Reclamation Plant

## ACRONYMS

LOCA VIC	Localized Constructed Analogs Variable Infiltration Capacity
LVL AWTF	Leo J. Vander Lans Advanced Water Treatment Facility
MFR	Multi-Family Residential
MGD	Millions of Gallons per Day
MWD	Metropolitan Water District of Southern California
NOAA	National Oceanic and Atmospheric Association
POLB	Port of Long Beach
RCPs	Representative Concentration Pathways
SBX7-7	The Water Conservation Act of 2009
SCAG	Southern California Association of Governments
SFR	Single-Family Residential
SJCWRP	San Jose Creek Water Reclamation Plant
SWP	State Water Project
UWMP	Urban Water Management Plan
West Coast Basin	The West Coast Sub-Basin of the Coastal Plain of Los Angeles County Groundwater Basin
WRD	Water Replenishment District of Southern California
WRP	Water Resources Plan
WSAP	Water Supply Allocation Plan
WSCP	Water Shortage Contingency Plan
WSDM	Water Surplus and Drought Management

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## DWR UWMP CHECKLIST ARRANGED BY WATER CODE SECTION

2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and overview	n/a	Chapter 1
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	Chapter 1
Section 2.1	10620(b)	Every person that becomes a Supplier shall adopt UWMP within one year after it has become a Supplier.	Plan preparation	n/a	Section 2.5
Section 2.5	10644	Supplier shall report the Public Water Systems number, volume of delivered water, and number of connections that are included in this UWMP.	Plan preparation	2-1	Section 1.1 Appendix A
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	Section 2.3 Appendix A
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	Section 2.4 Appendix A

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2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 2.4	10642	Provide supporting documentation that the Supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan preparation	n/a	Section 2.5
Section 2.4.2	10620(d)(3)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other Suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan preparation	n/a	Section 2.3
Section 2.4.1	10631(h)	Retail Suppliers will include documentation that they have provided their Wholesale Supplier(s)– if any–with water use projections from that source.	Plan preparation	2-4 R	Section 2.5.1 Appendix A
Chapter 3.0	10631(a)	Describe the Supplier service area.	System description	n/a	Section 3.3
Section 3.3	10631(a)	Describe the climate of the Supplier’s service area.	System description	n/a	Section 3.7
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	Section 3.8 Appendix A
Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the Supplier’s water management planning.	System description	n/a	Section 3.9

2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 3.5	10631(a)	Describe the land uses within the service area... include the current and projected land uses within the existing or anticipated service area affecting the Supplier’s water management planning. Describe the land uses within the service area.	System description and baselines	n/a	Section 3.1
Sections 4.2.3 and 4.2.4	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System water use	4-1 and 4-2	Section 4.1 Section 4.2 Section 4.4.2 Section 4.4.3 Appendix A
Section 4.3.1	10631(d)(3)(A)	Report the distribution system water loss for each of the five years preceding the plan update.	System water use	4-5	Section 4.3 Appendix A
Section 4.3.2	10631(d)(3)(C)	Retail Suppliers shall provide data to show the distribution loss standards were met.	System water use	4-6	Section 4.3 Appendix A
Section 4.2.5.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the Supplier.	System water use	4-3	Section 4.4.3 Appendix A
Section 4.2.5.3	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System water use	4-3	Section 4.4.1 Section 4.4.2 Appendix A
Section 4.2.5.3	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System water use	4-3	Section 4.4.1 Section 4.4.2 Appendix A

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2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 4.2.5.3	10631(d)(4)(B)(ii)	To the extent that a Supplier reports the information described in subparagraph (A), an urban water Supplier shall... Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.	System water use	4-3	Section 4.4.2 Appendix A
Section 4.2.5.6	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System water use	n/a	Section 7.3.1 Section 7.3.2 Section 7.3.3
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: <ul style="list-style-type: none"> <li>Was considered an urban retail water supplier in 2020,</li> <li>Met its 2020 target in 2020, or</li> <li>Was part of a merger or consolidation since 2020.</li> </ul> Chapter 5 Subsections 5.2.1, 5.2.2, and 5.2.3 address each of these situations.	Baselines and targets	5-1	Section 5.8 Appendix A
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	Section 6.1.2 Section 6.1.3 Section 6.2 Section 6.3 Section 6.8

2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
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	Section 7.2.2
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	Section 6.1 Section 6.1.4 Appendix A
Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the Supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System supplies	n/a	Section 6.1.2 Section 6.1.3
Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System supplies	n/a	Section 6.1.1.1 Section 6.1.1.2
Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the Supplier has the legal right to pump.	System supplies	n/a	Section 6.1.1.1 Section 6.1.1.2 Section 6.1.2 Section 6.1.3

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2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 6.2.2	10631(b)(4)(B)	For adjudicated 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	n/a
Section 6.2.2	10631(b)(4)(B)	For adjudicated basins... describe efforts by the Supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	Water supplies and recycled water	n/a	n/a
Section 6.2.2.	10631(b)(4)(C)	If groundwater is identified as an existing or planned source of water... (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	System supplies	n/a	Section 6.1 Section 6.1.4
Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System supplies	6-9	Section 6.6 Appendix A
Section 6.1	10631(b)	Identify and quantify the existing and planned sources of water available for 2025, 2030, 2035, 2040, 2045 and optionally 2050.	System supplies	6-8 and 6-9	Section 6.1 Section 6.1.4 Section 6.2 Section 6.3 Section 6.4 Section 6.6 Section 6.8 Appendix A
Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System supplies	n/a	Section 6.3.3

2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the Supplier’s service area with quantified amount of collection and treatment and the disposal methods.	System supplies (recycled water)	6-2	Section 6.3 Appendix A
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	Section 6.3 Appendix A
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	Section 6.3 Appendix A
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	Section 6.3.2.2 Appendix A
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	Section 6.3 Section 6.6 Appendix A
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	Section 6.6 Appendix A
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	Section 6.6

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2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System supplies	6-7	Section 6.4.1 Appendix A
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	Section 6.6 Appendix A
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	Section 6.5 Appendix A
Section 7.1	10634	Provide information on the quality of existing sources of water available to the Supplier and the manner in which water quality affects water management strategies and supply reliability.	Water supply reliability assessment	n/a	Section 7.1
Section 7.2	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the Supplier with the total projected water use over the next 20 years.	Water supply reliability assessment	7-2, 7-3, and 7-4	Section 7.2 Section 7.3
Section 7.2.3	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water supply reliability assessment	n/a	Section 7.2.3

2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water supply reliability assessment	n/a	Section 7.3
Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive years.	Water supply reliability assessment	n/a	Section 7.3.1
Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water supply reliability assessment	n/a	Section 7.3 Section 7.1.1
Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the Supplier with the total projected water use for the drought period.	Water supply reliability assessment	7-5	Section 7.3.3 Appendix A
Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water supply reliability assessment	n/a	Section 7.3.1
Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water shortage contingency planning	n/a	Chapter 8
Chapter 8	10632(a)(1)	Provide an analysis of water supply reliability (from Guidebook Chapter 7) in the WSCP.	Water shortage contingency planning	n/a	Chapter 8

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2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the Supplier will use each year to determine its water reliability.	Water shortage contingency planning	n/a	Section 8.2
Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the Supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water shortage contingency planning	n/a	Section 8.2
Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10%, 20%, 30%, 40%, 50% shortage, and greater than 50% shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water shortage contingency planning	n/a	Section 8.3
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	Section 8.3 Appendix A
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	Section 8.4.2 Appendix A
Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water shortage contingency planning	8-3	Section 8.4.1 Appendix A

2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water shortage contingency planning	8-2	Section 8.4.3 Appendix A
Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to State-mandated prohibitions are appropriate to local conditions.	Water shortage contingency planning	Table 8-3	Section 8.4.4 Appendix A
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	Section 8.8 Appendix A
Section 8.4.6	10632.5	The UWMP shall include a seismic risk assessment and mitigation plan.	Water shortage contingency plan	n/a	Section 8.4.6
Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water shortage contingency planning	n/a	Section 8.5
Section 8.5	10632(a)(5)(B), 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water shortage contingency planning	n/a	Section 8.5
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	Section 8.6
Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the Supplier to enforce shortage response actions.	Water shortage contingency planning	n/a	Section 8.6

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2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 8.7	10632(a)(7)(B)	Provide a statement that the Supplier will declare a water shortage emergency per Water Code Chapter 3. Water Shortage Emergencies.	Water shortage contingency planning	n/a	Section 8.5
Section 8.7	10632(a)(7)(C)	Provide a statement that the Supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water shortage contingency planning	n/a	Section 8.5
Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	Section 8.8
Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	Section 8.8
Section 8.8	10632(a)(8)(C)	Retail Suppliers must describe the cost of compliance with Water Code Chapter 3.3, Excessive Residential Water Use During Drought.	Water shortage contingency planning	n/a	Section 8.8
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	Section 8.9

2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the WSCP to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water shortage contingency planning	n/a	Section 8.10
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	Section 8.11
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	Section 8.9.1
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	Section 9.1 Section 9.2
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	Section 10.3
Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the Supplier provides water that the Supplier will be reviewing the UWMP and considering amendments or changes to the plan.	Plan adoption, submittal, and implementation	10-1	Section 10.2 Section 10.3 Appendix A

## 2025 Urban Water Management Plan

2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 10.4	10621(f)	Each urban water Supplier shall update and submit its 2025 plan to DWR by July 1, 2026.	Plan adoption, submittal, and implementation	n/a	Section 10.4
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	Section 10.2.2 Section 10.3 Section 10.5
Section 10.2.2	10642	The Supplier is to provide the time and place of the hearing to any city or county within which the Supplier provides water.	Plan adoption, submittal, and implementation	10-1	Section 10.2.2 Appendix A
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	Section 10.3
Section 10.4	10644(a)	Provide supporting documentation that the Supplier has submitted their UWMP to the California State Library.	Plan adoption, submittal, and implementation	n/a	Section 10.4
Section 10.4	10644(a)(1)	Provide supporting documentation that the Supplier has submitted their UWMP to any city or county within which the Supplier provides water no later than 30 days after adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.4
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	Section 10.4
Section 10.7.2	10644(b)	If revised, submit a copy of the WSCP to DWR within 30 days of adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.4

2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its UWMP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Section 10.5
Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its WSCP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Section 10.5
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

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# CHAPTER 1: INTRODUCTION AND LAY DESCRIPTION

The Lay Description is an executive summary of the Urban Water Management Plan (UWMP), summarizing the key information from the UWMP regarding water supplies, water use, and water service reliability.

## 1.1 Service Area

In 1911, the City of Long Beach (City) voters approved the purchase of two privately owned water systems serving the City at that time. Shortly thereafter, a change to the City Charter established the Long Beach Water Department to regulate and control the use, sale, and distribution of water owned or controlled by the City.

Then in 1931, City voters approved the City's membership in Metropolitan Water District of Southern California (MWD), establishing Long Beach as one of the founding member agencies in what is now the largest urban water agency in the United States. As a wholesaler, MWD sells supplemental water to its 26 member agencies.

In November 2022, the voters of Long Beach approved a change to the City's charter to consolidate the City's water, natural gas, and sewer services into one department, the Long Beach Public Utilities Department, also referred to as the Long Beach Utilities Department (LBUD).

The availability of water has been vital to the economic development of the City, growing from a population of approximately 17,800 in 1911 to becoming one of California's most populous city with over 462,000 people as of 2025. As a large municipal water retailer, LBUD delivers safe and reliable water service to approximately 92,000 active service connections.

LBUD’s service area primarily consists of the City of Long Beach. The approximately 50 square mile service area is comprised of residential, commercial, and industrial land uses. The City is also home to different types of regional-serving facilities, such as The Port of Long Beach, Long Beach Airport, California State University of Long Beach, major healthcare facilities, and large energy production facilities.

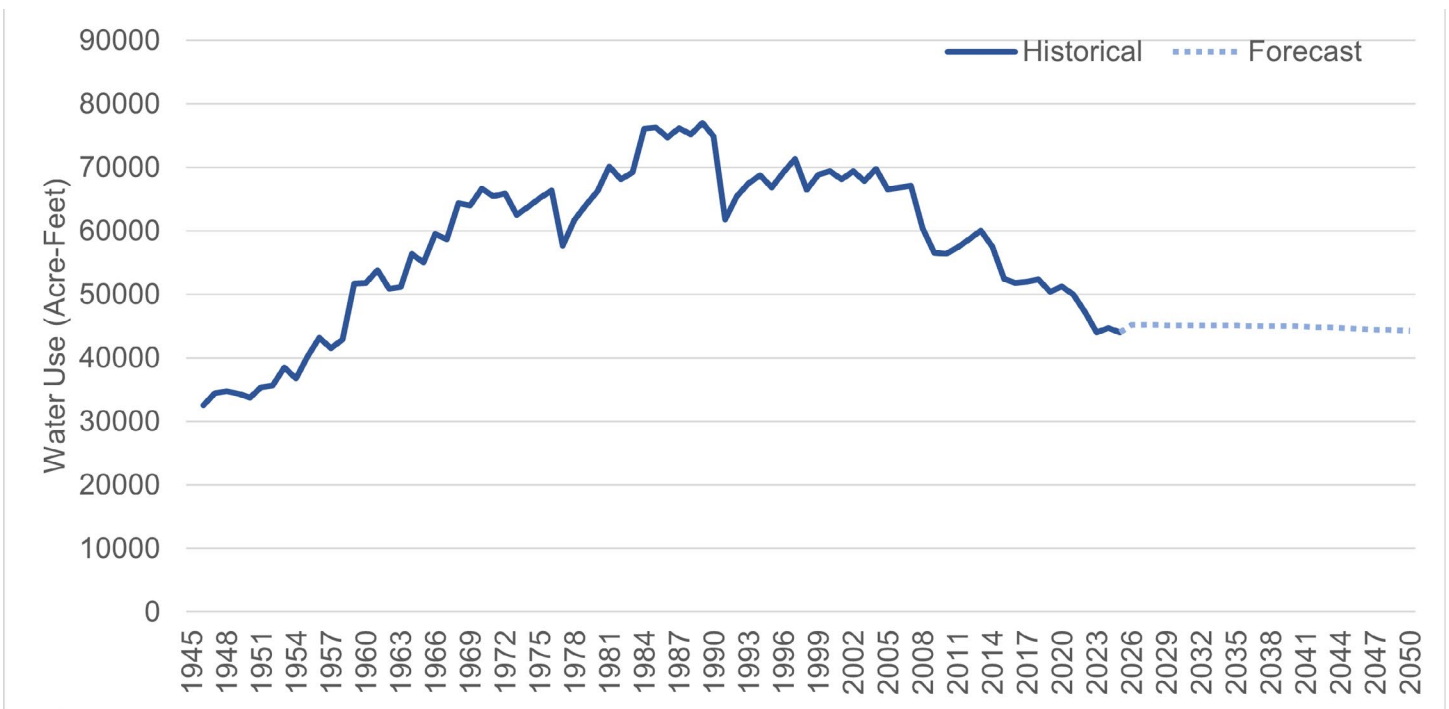
The service area is predominantly residential; approximately 45% of the total land use. LBUD’s service area is mostly built out and future development is expected to be focused on redevelopment in the downtown and urban areas along major highways (PCH) or along major arterial roads.

**1.1.1 Water Use and Conservation**

Total water use in Long Beach peaked in the late 1980s and has been declining ever since due to a range of demand-management measures. LBUD has successfully reduced water loss within its distribution system and has offered various water-efficiency rebates and implemented multiple conservation programs.

As of 2025, residential water use makes up about 71 percent of the potable water usage. Commercial and institutional water use accounts for about 24 percent of the total water usage. The remainder of water use is attributable to industrial and landscape irrigation.

**FIGURE 1-1: Historical and Projected Future Water Use**



### 1.1.2 Water Supplies

Locally pumped groundwater, recycled water, and imported surface water purchased from MWD are the water supply sources used in available within the LBUD service area.

Groundwater is the primary source of drinking water in Long Beach. Long Beach overlies two groundwater basins, the Central Basin and West Coast Basin. LBUD pumps groundwater using 33 active wells located throughout the service area, but currently only from Central Basin. In 2025, 59% (31,130 acre-feet) of LBUD’s total water supply came from local groundwater.

Recycled water in Long Beach comes from the Long Beach Water Reclamation Plant (LBWRP), which is owned and operated by the Los Angeles County Sanitation Districts (LACSD). According to a 1968 agreement between LBUD and LACSD, all of the treated recycled water from LBWRP is available to LBUD for use. In 2025, 15% (7,624 acre-feet) of LBUD’s total water supply came from recycled water.

Imported water is purchased from the Metropolitan Water District of Southern California (MWD). The

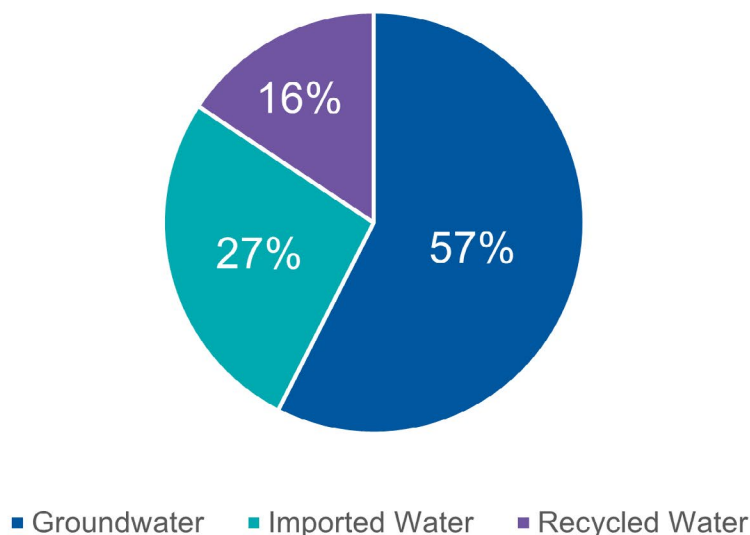
water imported by MWD into Southern California originates from the Colorado River and from the Sierra Nevada Mountains in Northern California. LBUD has historically purchased imported supplies from MWD to meet the remainder of water demands not met by groundwater and recycled water. In 2025 26% percent (13,756 acre-feet) of LBUD’s potable water supply came from imported water. In the long-term, LBUD seeks to help improve regional supply reliability by further developing local groundwater and recycled water supplies to reduce its dependence on purchased imported water.

### 1.1.3 Water Supply Reliability

LBUD’s groundwater, recycled water, and imported water are forecasted to be reliable over the 25-year planning horizon covered by this UWMP.

For groundwater, both the Central Basin and West Coast Basin have adjudicated judgments that ensure the protection and reliability of groundwater supplies even during multiple consecutive dry years. The judgments prevent overextraction, provide for multiple on-going basin replenishment projects, allow for adequate funding of the replenishment

FIGURE 1-2: Water Supplies Used in 2025



## 2025 Urban Water Management Plan

activities through a replenishment assessment charged on groundwater extractions, and sufficient storage space in the basins. The challenge LBUD will face is with groundwater is keeping up with increasing maintenance on aging groundwater infrastructure.

Recycled water supplies are anticipated to be reliable during single-year and multi-year droughts. The source for recycled water is wastewater from indoor potable water uses. Unlike outdoor water uses such as irrigation, indoor potable water uses such as toilet flushing, showers, clothes washing, wastewater from commercial kitchens, industrial manufacturing, etc., are largely unaffected by single or multi-year droughts. A challenge for recycled water will be that successful long-term water conservation efforts will reduce indoor water usage, and this will mean a decrease in the wastewater that serves as the source for recycled water.

The imported water LBUD purchases from MWD are anticipated to be reliable. MWD’s 2025 Regional UWMP projects that its imported water supplies will be sufficient to meet demands even

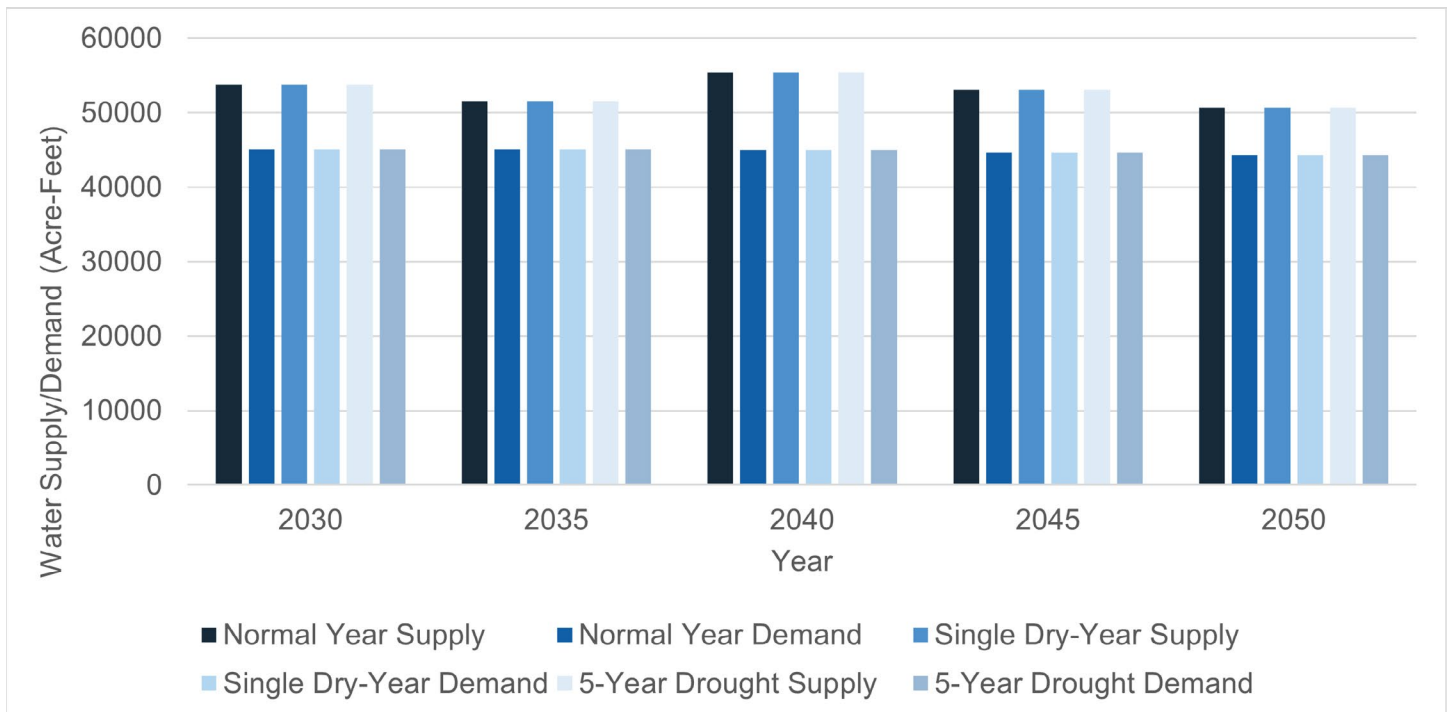
under multiple-dry year conditions. Imported water faces challenges from climate change altering the rain and snowfall patterns as well as pressure from increasing regional water demands.

Even though LBUD expects its water supplies to remain reliable through 2050, the LBUD will continue working to reduce dependence on imported water by lowering overall demand through conservation and by expanding groundwater and recycled water supplies. These efforts will help ensure Long Beach is better prepared for any future challenges to water supply reliability.

### 1.2 Basis for Preparing a Plan

The Urban Water Management Planning (UWMP) Act of 1983 requires urban water suppliers in California to submit an Urban Water Management Plan to the State every five years. Sections 10610 through 10656 of California’s Urban Water Management Planning Act (Act) were added by Statute 1983, Chapter 1009, and became effective on January 1, 1984. The Act requires that “every urban water supplier [as defined] shall prepare

**FIGURE 1-3: Water Supply Reliability During Drought Lasting Five Consecutive Years**



and adopt an urban water management plan". The UWMP is a comprehensive planning document whose content is largely dictated by the Act.

Due to both the number of customers served and volume of water supplied, LBUD is considered an urban water supplier as defined by the California Water Code Section 10617, and therefore must submit its 2025 UWMP to the California Department of Water Resources by July 1, 2026.

Although the Act requires the UWMP to forecast a minimum of 20 years into the future (2025 through 2045), LBUD's 2025 UWMP outlines a 25-year forecast. The additional five years allow LBUD to reference the 2025 UWMP in future water supply assessments completed between 2025 and the year 2030 when the next UWMP update is expected.

### 1.3 DWR Guidance

LBUD has created this UWMP using the guidebook provided by the California Department of Water Resources (DWR). The guidebook not only helps urban water suppliers to comply with state law, but because UWMPs must be reviewed by DWR for completeness, an UWMP structured according to the guidebook also assists DWR in its review of the submitted UWMPs. The DWR guidebook includes a "compliance checklist" of the elements required in the UWMP and is designed to assist DWR in its review of the submitted UWMP.

The completed LBUD checklist, arranged by Water Code Section (as opposed to by Subject), is shown at the beginning of this UWMP. The checklist summarizes LBUD's response to the requirements of the Water Code and indicates where each required element can be found in this 2025 UWMP.

DWR developed standardized tables for the electronic reporting and submittal of data to DWR. LBUD shall electronically submit the standardized tables to the designated DWR portal no later than the July 1, 2026 deadline. Copies of the standardized tables submitted electronically to DWR have also been included as **Appendix A**.

### 1.4 Organization of this Document

This report has been prepared in compliance with Water Code Sections 10610 through 10656 of the Urban Water Management Planning Act. The organization of this document follows the ordering of the chapters and sub-sections found in the DWR “Urban Water Management Plan Guidebook 2025.” Detailed below is a summary of the chapters and contents of each chapter of the 2025 UWMP.

#### **Chapter 1: Introduction and Lay Description**

Chapter 1 provides a discussion on fundamentals of the 2025 UWMP and a lay description.

#### **Chapter 2: Plan Preparation**

Chapter 2 provides an explanation of the process undertaken by LBUD to coordinate and prepare the 2025 UWMP.

#### **Chapter 3: System Area Description**

Chapter 3 describes the LBUD service area, climate, and overview of LBUD's organizational structure and history.

#### **Chapter 4: Water Use Characterization**

Chapter 4 describes and quantifies current LBUD water use and projections for future water use through the year 2050.

#### **Chapter 5: Conservation Target Compliance**

Chapter 5 reports the water use baseline and targets required to meet compliance with the 2020 per-capita water conservation mandate, also known as SBx7-7.

#### **Chapter 6: Normal-Year Water Supply Characterization**

Chapter 6 describes and quantifies the current and projected potable and non-potable water sources available to LBUD as a water supplier.

#### **Chapter 7: Water System Reliability and Drought Risk Assessment**

Chapter 7 describes the long-term reliability of LBUD water supplies. This chapter also includes the Drought Risk Assessment, and an assessment of long-term water service reliability in a normal year, single dry year, and a five consecutive-year drought.

#### **Chapter 8: Water Shortage Contingency Planning**

Chapter 8 includes a structured plan for how LBUD will deal with water shortages, incorporating standardized action levels, along with implementation actions in the event of a catastrophic supply interruption.

#### **Chapter 9: Demand Management Measures**

Chapter 9 describes the actions taken to promote water conservation and reduce water demand.

#### **Chapter 10: Plan Adoption, Submittal, and Implementation**

Chapter 10 describes the steps taken to make the LBUD 2025 UWMP publicly available, adopt, and submit the UWMP in accordance with the Water Code.

#### **Appendices**

The appendices provide detailed tables and background information on the content presented within the main body of the 2025 UWMP.

#### **Attachments**

Documents that are referenced in the 2025 UWMP are included as attachments if they are too long to include within the body of the UWMP itself.



# CHAPTER 2: PLAN PREPARATION

Chapter 2 summarizes the actions taken by LBUD to assure coordination and public participation throughout the development of the 2025 UWMP.

## 2.1 Basis for Preparing a Plan

Due to the number of customers served and volume of water supplied, LBUD is considered an urban water supplier as defined by the California Water Code Section 10617, and state law requires LBUD's governing body, the City of Long Beach Board of Water Commissioners (LBUD Board), to submit its updated 2025 UWMP to the California Department of Water Resources (DWR) no later than July 1, 2026.

The UWMP is to assure water suppliers plan for long term reliability, conservation, and efficient use of California's water supplies to meet existing and future demands. State water code requires

that planning projections extend at least 20 years beyond the year of the UWMP cycle i.e. through 2040 for the 2025 UWMP cycle. The planning horizon for the LBUD 2025 UWMP is 30 years, i.e. through 2050. The additional five years allow LBUD to reference the 2025 UWMP in future water supply assessments completed between 2025 and the year 2030 when the next UWMP update is expected.

### 2.2 Regional Planning

Sections 10608.20(a)(1) and 10608.28 of the Urban Water Management Planning Act allow urban retail water suppliers to plan, comply, and report on a regional basis, on an individual basis, or both. LBUD has chosen to plan as an individual agency.

### 2.3 Individual or Regional Planning and Compliance

The City of Long Beach is a member of the Los Angeles Gateway Integrated Water Management Authority (Gateway Authority). The Gateway Cities formed the Gateway Authority for the purpose of developing a detailed integrated regional water management plan for the Gateway area and to assist the region in other water related matters. The Gateway Authority is a joint powers authority (JPA) under California law. The City of Long Beach and LBUD participated in the preparation of the 2013 Gateway Integrated Regional Water Management Plan.

UrbanwaterretailagenciesintheGatewayRegionare signatories to the Gateway Authority and therefore must comply with the reporting requirements of SBx7-7 on a regional basis. To facilitate compliance, Gateway Authority formed the Gateway Regional Alliance to provide flexibility for cities and water agencies within the Gateway Region to comply with the regional compliance option available under SBx7-7. LBUD, along with 14 other water agencies comprise the Gateway Regional Alliance.

If a Regional Alliance meets its SBx7-7 regional target, then all suppliers in the alliance will be deemed to be in compliance. If a Regional Alliance fails to meet its regional target, water suppliers in the Alliance that meet their individual targets are still deemed to be in compliance.

LBUD is in compliance with the SBx7-7 water conservation target for 2025 as an individual urban water agency. Since LBUD has met its individual target, LBUD is in compliance.

### 2.4 Fiscal or Calendar Year and Units of Measure

The data reported in the 2025 UWMP and the accompanying standardized tables are reported on a Fiscal Year (FY) basis, which is not the actual LBUD fiscal year but the water reporting administrative year starting July 1 and ending June 30. The 2025 UWMP corresponds with FY 2024-2025, which represents the period from July 1, 2024 through June 30, 2025. This July 1 through June 30 reporting year is consistent with LBUD's past UWMPs, the Administrative Year of the Watermaster of the Central Basin aquifer from which LBUD obtains local groundwater supplies, and with the fiscal year for the Metropolitan Water District of Southern California (MWD), the wholesale agency from which LBUD purchases imported water.

Volumes of water for this 2025 UWMP are reported in acre-feet (AF) unless otherwise noted. One acre-foot is the amount of water that would cover an acre of land, approximately the size of a football field, one foot deep with water. There are 325,851 gallons or 43,560 cubic feet in an acre-foot.

### 2.5 Coordination and Outreach

Public outreach activities for the 2025 UWMP update are described below. Further documentation is included in **Appendix B**.

During the preparation of its 2025 UWMP and consistent with the requirements of California Water Code Sections 10620(d)(2) and 10642, LBUD sent a notification letter to all cities and counties within which LBUD provides water, as well as to other interested parties that it was preparing the 2025 UWMP, and solicited comments and participation. The notification letter 2025 UWMP was electronically and physically mailed by April 3, 2026.

A notice of the time and place of the public hearing as required by the California Water Code was sent by May 20, 2026. The list of notified organizations and individuals is provided in **Appendix B**.

A notice of the hearing was advertised in a local newspaper, the Press Telegram, on May 17, 2026 and May 24, 2026 in accordance with California Government Code 6066. The notice was printed in multiple languages to reach a more diverse local population. Copies of the publications of the public hearing are provided in **Appendix C**.

A public hearing is scheduled for June 4, 2026. The UWMP is scheduled for adoption on June 18, 2026.

### 2.5.1 Coordination with Wholesale Suppliers

Consistent with California Water Code Section 10631(h), LBUD has provided water use projections to Metropolitan Water District of Southern California (MWD). Documentation is included in **Appendix D**. Further detailed discussion regarding future water use is located under **Chapter 3**.





# CHAPTER 3: SYSTEM DESCRIPTION

Chapter 3 describes the LBUD water system, service area, climate and demographic features to provide an understanding of the elements that affect water supply and demand.

## 3.1 Organizational Structure

The LBUD Board is comprised of five members of the Long Beach community who are nominated by the Mayor and approved by the City Council. LBUD Board members may serve up to three 4-year terms. The LBUD Board is charged with full jurisdiction over all water, sewer, and natural gas works necessary to the acquisition, treatment, sale, and distribution of water and natural gas served to the City and the oversight of the City's sanitary sewer system. Among other duties, the LBUD Board has authority to acquire or sell real property, to construct and operate water and natural gas facilities, to purchase equipment and to enter contracts. Additionally, the

LBUD Board is responsible for establishing LBUD's missions and goals and adopting policies and strategies to meet those ends.

More information about LBUD is available at [www.LBUtilities.org](http://www.LBUtilities.org). Additional information pertaining to the City of Long Beach is available at [www.longbeach.gov](http://www.longbeach.gov).

### 3.2 Regional Location

LBUD's service area, shown in **Figure 3-1**, coincides with the boundary of the City of Long Beach (City). It is located approximately 24 miles south of downtown Los Angeles and bounded by the City of Compton, Paramount and Lakewood to the north; the City of Seal Beach, Los Alamitos and Rossmore to the east; the Pacific Ocean to the south; and City of Los Angeles and Carson to the west. The City of Signal Hill is surrounded by the City of Long Beach and is a LBUD customer for natural gas services, but not water or sewer services.

The City is located at the mouth of two significant southland watersheds, the San Gabriel River Watershed and the Los Angeles River Watershed. The topography in the area is generally flat, with elevations sloping down to about 10 feet near the Pacific Ocean, the Port of Long Beach, and areas surrounding the San Gabriel and Los Angeles Rivers. Elevations increase to 120 feet in the central area of the City.

### 3.3 Service Area Description

The approximate 50 square mile service area is comprised of residential, commercial, and industrial land uses. The City is also home to different types of regional-serving facilities, such as The Port of Long Beach, Long Beach Airport, Cal State University of Long Beach, major healthcare facilities, and large energy production facilities.

The service area is predominantly residential, at about 45% of the total land use. Since 1990, there has been a shift of land uses away from manufacturing and warehousing to more educational and health facilities. The current population is estimated at 465,000 and the Southern California Association of Governments (SCAG) projects the service area to reach a population of approximately 495,031 by 2050. LBUD's service area is mostly built-out and future development is expected to be focused on redevelopment in the downtown and urban areas along major highways and along major arterial roads.

### 3.4 Potable Water Distribution System

LBUD's potable water system, shown in **Figure 3-2**, consists of two primary pressure zones, and is primarily fed by treated groundwater from LBUD's centralized Groundwater Treatment Plant (GWTP) and supplemented by eight imported water connections. The potable distribution system includes two storage tank farms, three booster stations, over 7,000 fire hydrants, and over 92,000 active service connections. Approximately 918 miles of transmission and distribution pipelines move water throughout the system and deliver water to homes and businesses throughout the City.

There are also twenty inter-agency connections with the Cities of Signal Hill, Compton, Los Angeles, Paramount, Lakewood, and Seal Beach; the Harbor Department; the California Water Company; and the Golden State Water Company. Most of these connections are in place for emergency purposes only.

More detailed information about the potable water supplies is provided under **Chapter 6**.

### 3.5 Groundwater Collection and Treatment Systems

More than half of the drinking water supplied to the City comes from groundwater. As shown in **Figure 3-3**, LBUD has a total of 33 active wells, but at any given time one or more of these wells may be out of service for maintenance. The raw groundwater pumped from all these wells is collected and delivered to the Long Beach Groundwater Treatment Plant (GWTP), which has a capacity of 62.5 MGD. After going through treatment at the GWTP, the treated groundwater is then pumped from the GWTP into the water distribution system via two booster pump stations. More information about the groundwater supply is provided under **Chapter 6**.

FIGURE 3-1: Long Beach Utilities Department Service Area

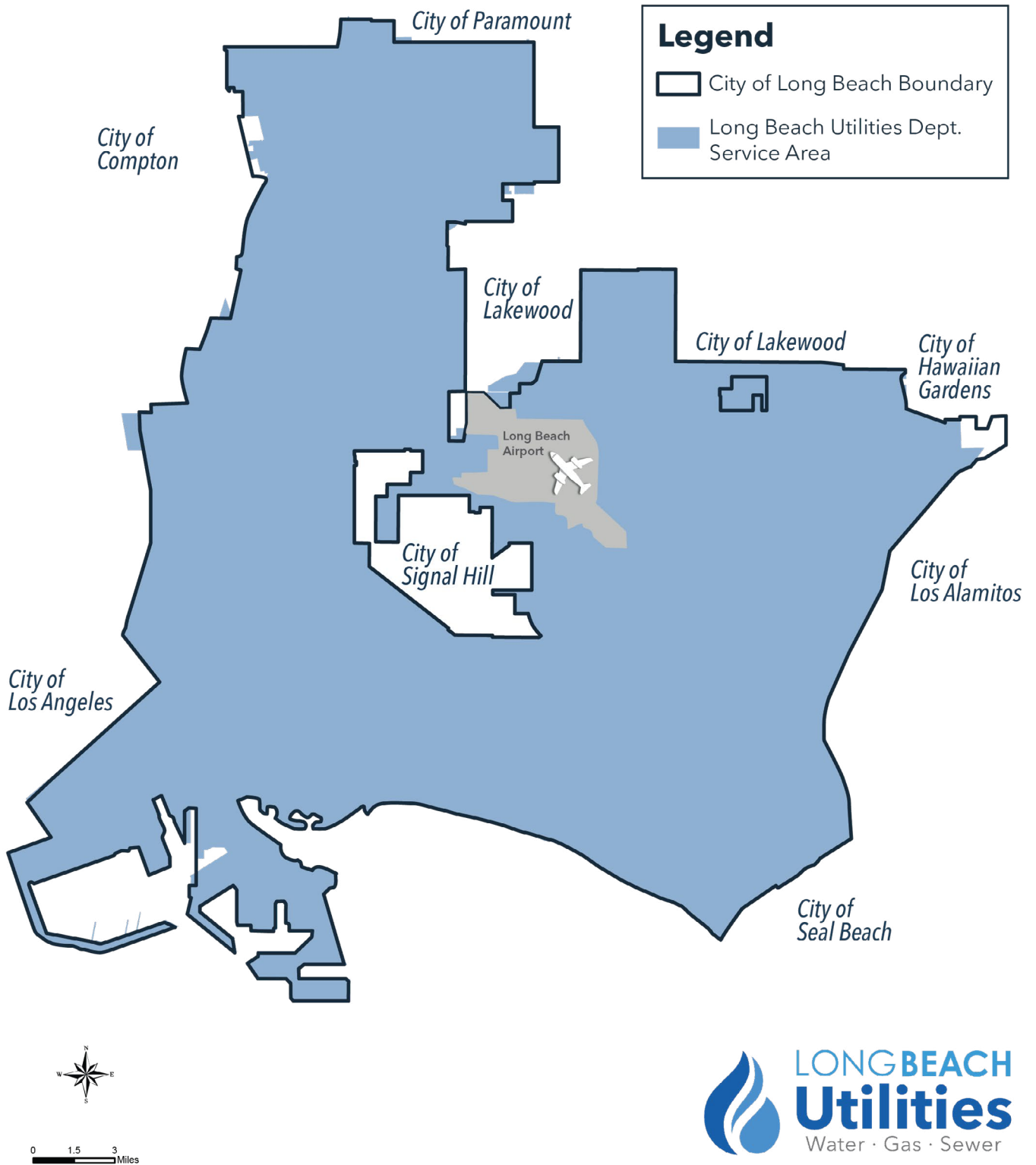
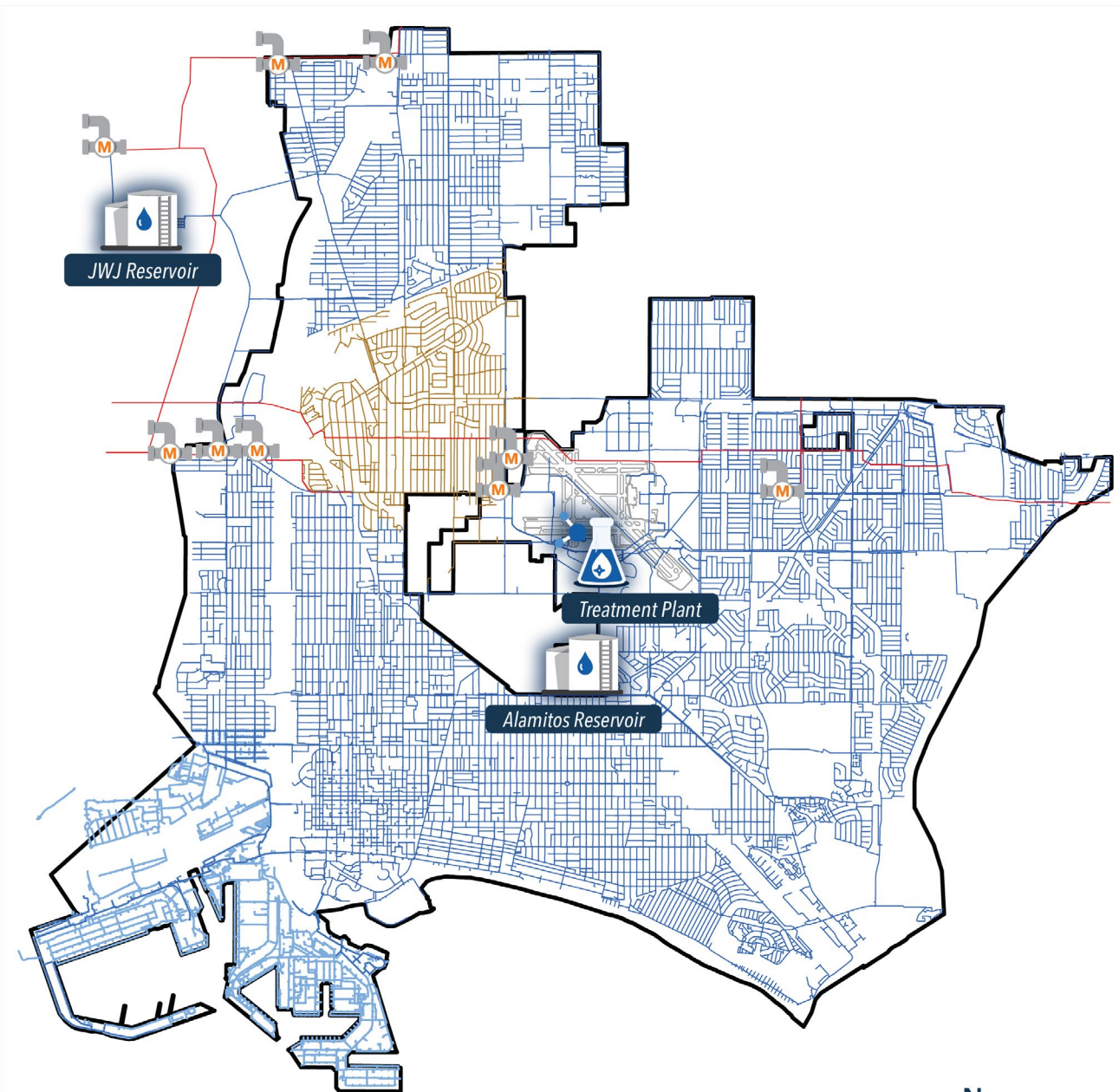








FIGURE 3-2: Potable Water System



**Legend**

	MWD Potable Water Mains		Boosted Pressure Zone Water Mains
	Main Pressure Zone Water Mains		Long Beach Harbor Water Main
	MWD Water Connections		City of Long Beach Boundary



### 3.6 Recycled Water Systems

LBUD receives its recycled water supply from the Long Beach Water Reclamation Plant (LBWRP), which is owned and operated by the Los Angeles County Sanitation Districts (LACSD). Per a 1968 agreement with LACSD, LBUD owns 100% of the rights to all the effluent from the LBWRP. Any treated recycled water that is not taken by LBUD into its recycled water distribution system is discharged into the Coyote Creek outfall by LACSD.

More information about the recycled water supplies is provided under **Chapter 6**.

### 3.7 Climate

Long Beach typically experiences a Mediterranean climate with warm, dry summers and mild winters. All rainfall and weather data is captured through the City of Long Beach's Daugherty Field Data, located near the Long Beach Airport, and reported through the National Oceanic and Atmospheric Association (NOAA).

July to September tend to be the warmest months with average temperatures of about 81°F. December and January are typically the coolest months with average temperatures of about 62°F. Over the last 20 years, the extreme temperatures in the City have been recorded as high as 111°F and as low as 31°F. Significant amounts of precipitation only tend to fall from October through April, and there is little to no rainfall from May through September. On average, monthly precipitation is highest in the winter months, with February having the highest average total precipitation at over 2.59 inches.

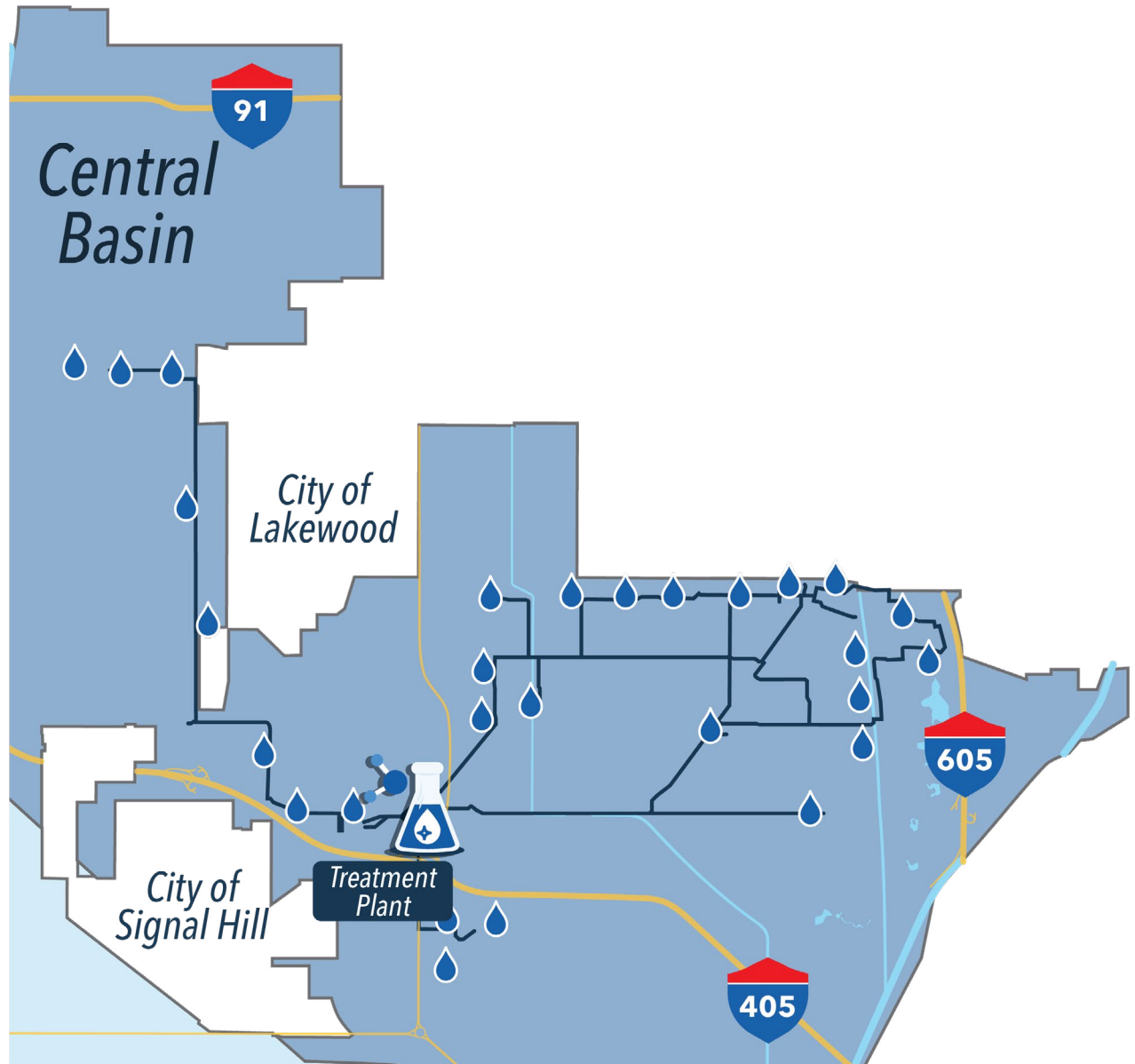
#### 3.7.1 Impacts Due to Climate Change

The LBUD Water Resources Plan (WRP), which is in progress at the time of the development of this UWMP, evaluates the City's current and projected water demands, supplies, and supply resiliency. As part of that evaluation, several climate forecasts were used to evaluate impacts on water demands, supplies and supply resiliency. Two different climate change assumptions were modeled in the development of the demand forecast. A moderate climate change scenario used changes in precipitation and temperature compared to Historical Average as averaged from the modeled outputs of Representative Concentration Pathways (RCP) 4.5 and 8.5 from ten global climate models downloaded from Cal-Adapt based on the Localized Constructed Analogs Variable Infiltration Capacity (LOCA VIC) Runs. An extreme climate change scenario used changes in expected precipitation and temperature compared to Historical Average from the modeled outputs of RCP 8.5 from ten global climate models downloaded from Cal-Adapt based on the LOCA VIC Runs. Neither climate scenario showed a strong difference in forecasted demands compared to the historical average, so the historical average temperature and precipitation were used in the forecasting of demand.





Additionally, to account for imported water supplies, the Metropolitan Water District's 2025 Urban Water Management Plan concludes that the agency can maintain water supply reliability through 2050 under a range of conditions, including normal years, single dry years, and multi-year drought scenarios.

Further discussions of climate change and potential impacts are revisited in subsequent chapters in the 2025 UWMP.


FIGURE 3-3: Groundwater Collection System




**Legend**

-  Active Well
-  LBUD Potable Water Main
-  Lakes, rivers, and water channels
-  City of Long Beach Boundary

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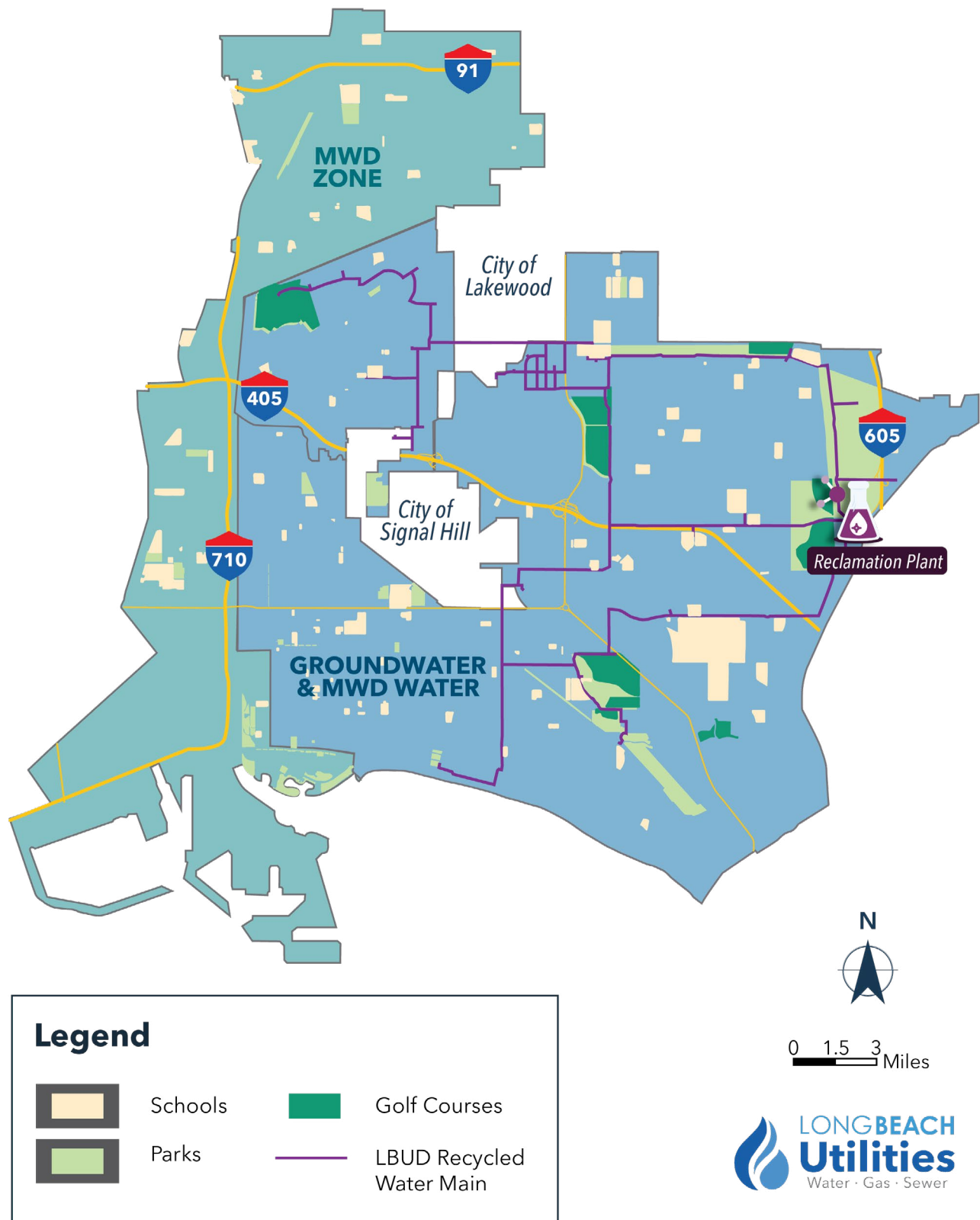


0 1 2 Miles



**Long Beach Utilities**  
Water · Gas · Sewer

FIGURE 3-4: Recycled Water System



### 3.8 Population and Demographics

Population projection is a key variable when evaluating future water demands, but can be very difficult to predict over a 25 to 30 year timeframe. Under LBUD’s Water Resources Plan, population forecasts were developed based on a 25-year linear trend extrapolated from historical data taken from the California Department of Finance (DOF) and the Southern California Association of Governments (SCAG) from January 1990 to December 2024.

As shown in **Table 3-3**, the total population is currently estimated to be nearly 465,000 and is projected to grow by nearly 30,000 over the next 30 years, or about 6% per year.

### 3.9 Other Demographic Factors Influencing Water Demand

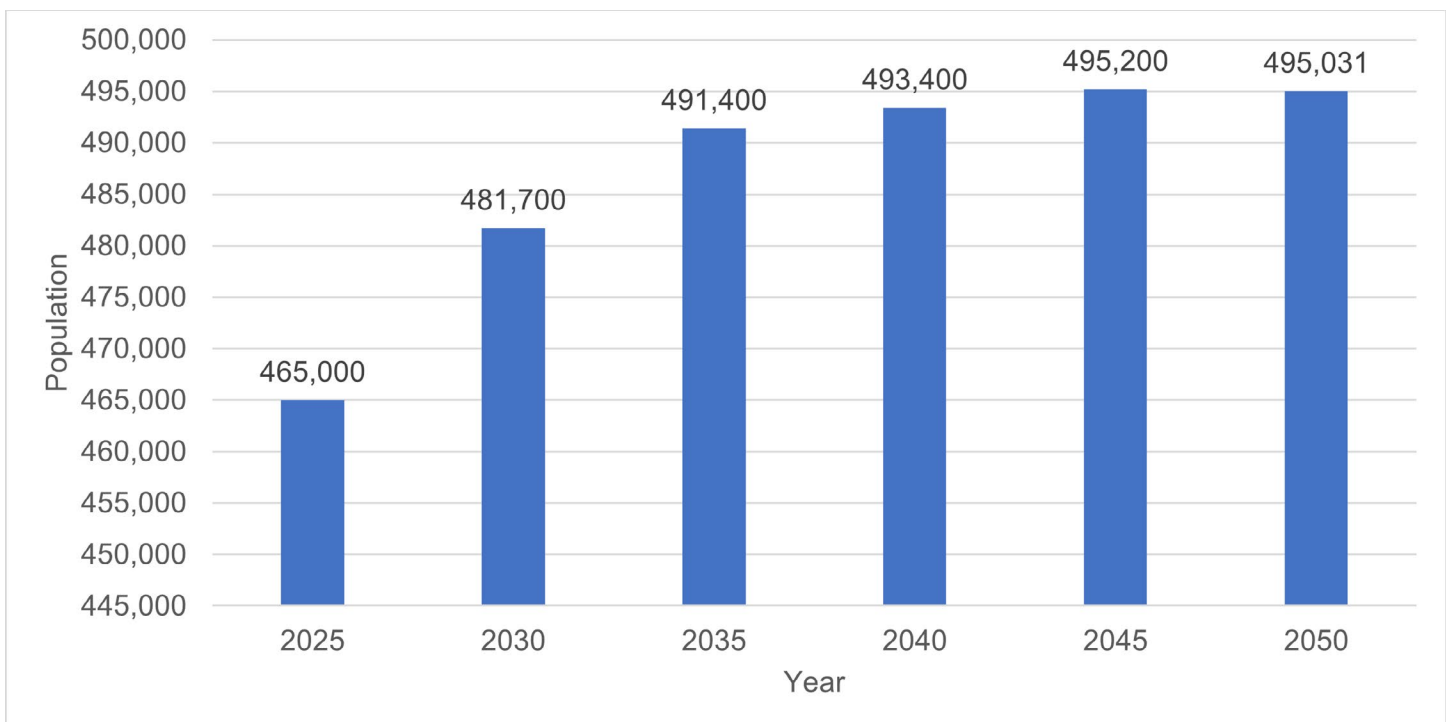
Other demographic data were taken into consideration under the development of the 2025 UWMP. Historical demographic data such as

housing and employment can be used to estimate historical per unit of water use. This information was also used as a variable in LBUD’s future water demand modeling. Housing and employment data taken from the California Department of Finance (DOF) and the Southern California Association of Governments (SCAG) from January 1990 to December 2024 to provide other demographic projections through 2050.

The number of households is projected to increase by 20,000 with two-thirds of that growth being multi-family housing. Long Beach has been mostly built-out, and any future growth will have to be absorbed by urban infill and increase in housing density. Future housing development is projected to occur mainly in the form of high-density multi-family units such as apartments and condominiums.

Employment is also projected to grow at 11%, but with a decline in manufacturing employment. Projecting future employment helps with water demand projections because businesses require

**FIGURE 3-5: Population Current and Projected**



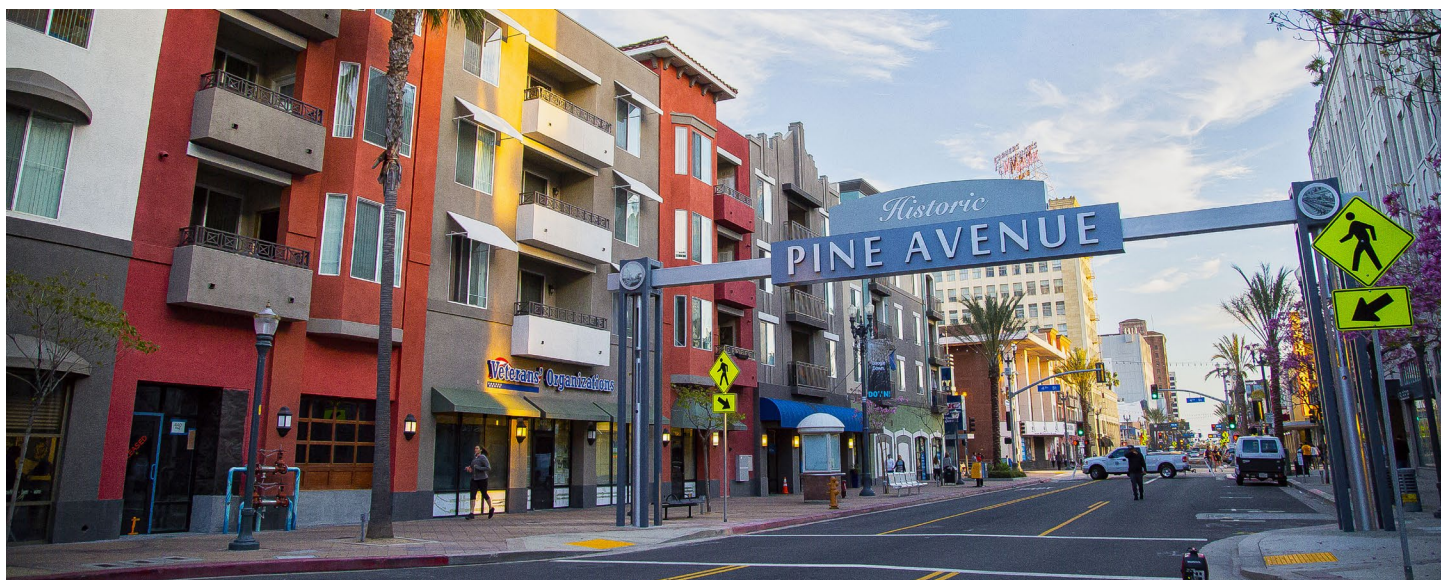
## 2025 Urban Water Management Plan

water as a direct input to provide goods and services, as well as for on-the-job employee personal uses. Therefore, as the economy grows and the demand for goods and services increases, water demand from the commercial and industrial sectors will also increase. On the other hand, if the economy and employment declines, water demand is also expected to decline.

### 3.10 Land Use

The City of Long Beach is comprised of approximately 25,900 acres. Residential development constitutes approximately 45 percent of the total land use within the City. Within the residential land use category, single-family residential is the largest at approximately 8,100 acres or 31 percent of the total land use within the City. The existing land use information is primarily based on GIS Parcel land use data and City approved General Plan data.

Future land use in the City is focused on compact developments along corridors, infill sites, and around transit stations, while generating new jobs and attracting businesses. The future land use types provided in the City of Long Beach 2019 General Plan vary when compared to existing land use types provided in GIS Land use data. The Neighborhood-Serving Centers and Corridors and Transit-Oriented Developments represent mixed-use areas and are considered redevelopment areas throughout the City.



# CHAPTER 4: CUSTOMER WATER USE

Chapter 4 describes and quantifies current LBUD water use and makes projections for future water use through the year 2050.

## 4.1 Historical Water Use

Accurately tracking and reporting past and current customer water use allows LBUD to properly analyze use of its water supplies and conduct good resource planning. **Figure 4-1** presents the historical water demand within LBUD's service area for years 1970 through 2025.

There have been several significant droughts and water shortages in Southern California since the 1970's. Evidence of these droughts can be seen in the reduction of water use. Water use in Long Beach peaked in the late 1980's and has been trending downward ever since.

Historical trends also indicate that water demand tends to rebound after the region recovers from a drought, but the magnitude of rebound is unpredictable. For example, after the 2007-2009 shortage, water use recovered somewhat but remained 13% below pre-shortage levels until falling again in 2015.

## 4.2 Recent Water Use by Sector

Per capita water use (i.e. gallons of water consumed per person per day [GPCD]) have been on a general decline since the 1980's. Changes

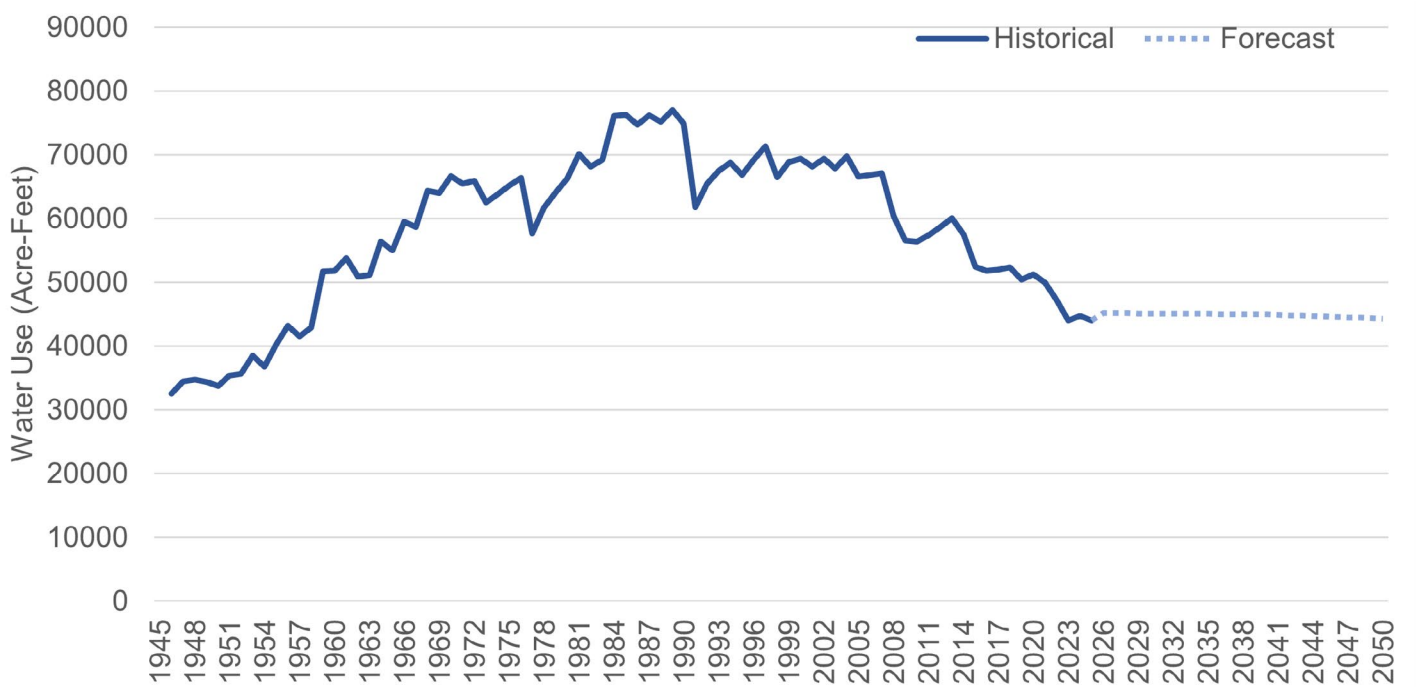
## 2025 Urban Water Management Plan

in plumbing codes, and conservation programs (either voluntarily embraced by residents and businesses or mandated by LBUD), have affected water demands.

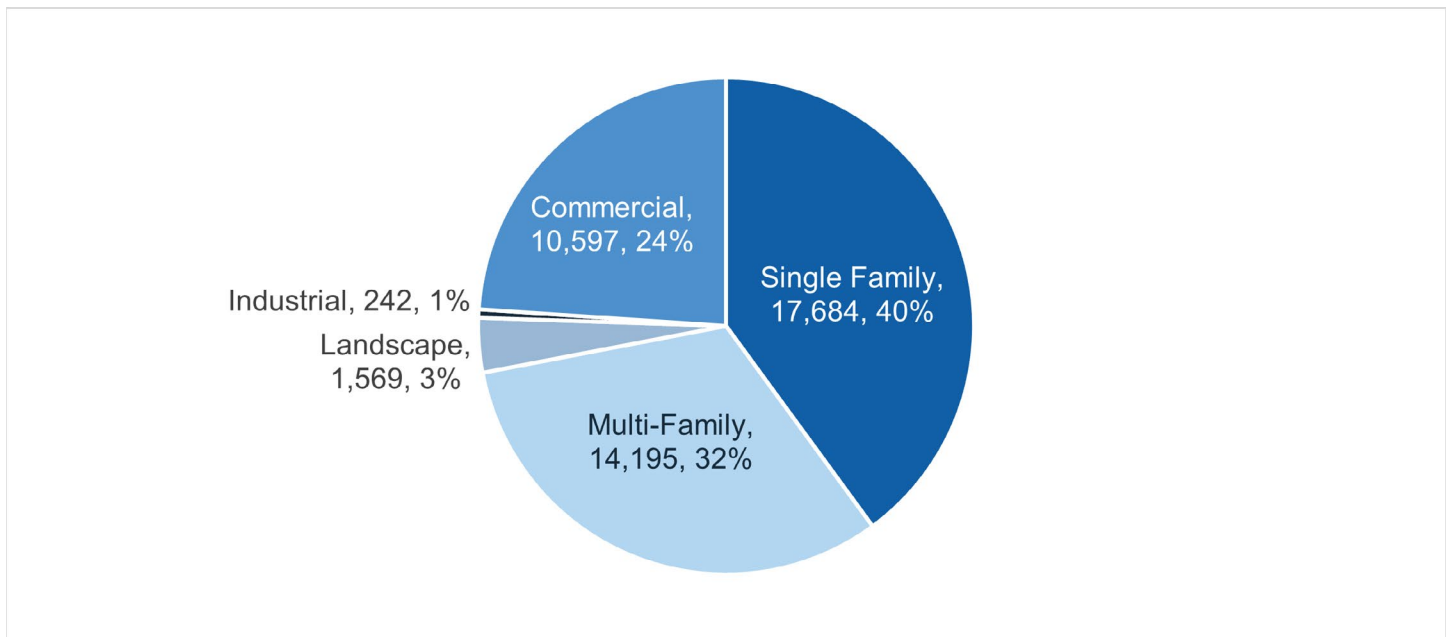
**Figure 4-2** shows recent billing data by meter type for fiscal year 2025. Residential water use makes

up about 71 percent of the total water usage. Commercial and institutional water use accounts for about 25 percent of the total water usage. The remainder is due to industrial and landscape irrigation. A description of each water sector is provided in the subsequent section.

**FIGURE 4-1: Historical and Projected Water Use**



**FIGURE 4-2: 2025 Actual Water Uses**





### 4.2.1 Residential

LBUD has three different types of residential water service: single-family homes, duplexes, and multi-family housing.

- Single-family water services provide water to detached homes comprising a single dwelling unit, or residence - the typical "home" found in residential neighborhoods. LBUD has just over **61,000** active single-family services.
- Duplex services provide water to two dwelling units, usually attached to one another and usually on a single lot or parcel. Occasionally, both dwellings in the duplex will be individually metered, and have separate dedicated services. LBUD has just **over 8,000** active duplex services, supplying water to almost 15,000 dwelling units.

- Multi-family services provide water to residential buildings with three or more dwelling units. LBUD has about **12,000** active multifamily service connections that supply water to **94,600** dwelling units.

Water demand from the residential sector tends to increase as the population increases. The number of multi-family housing units in Long Beach is expected to grow significantly compared to that of single family units. This housing development trend is the reason why growth in water demand for multi-family housing is projected to outpace the growth in demand for single-family housing.

### 4.2.2 Landscape Irrigation

Irrigation services supply water solely for the purposes of landscape irrigation. Typical irrigation services are those used for irrigating parks and street medians. LBUD has just over **1,200 active irrigation services**.

The volume of water demanded from dedicated landscape irrigation accounts has been declining at an average annual rate of 0.6 percent from 2003 through 2014. The decline is likely the result of two factors: professional irrigators' increasing awareness of the tremendous waste that had been occurring and proactively reducing that waste, and some landscapes converting their systems from potable water to recycled water.

Although climate change may have a slight impact on the temperature and the amount of precipitation available to plants, the potential upward pressure on water use by landscape from these changes is expected to be offset by a reduction in the amount of turf grass used in the landscape and by improvements in irrigation system management, often aided by technology such as automated weather based irrigation controllers.

### 4.2.3 Commercial/Institutional

This category includes just about every type of nonresidential customer other than irrigation accounts and a small number of industrial customers. For example, it includes office buildings, restaurants, retail outlets and government/institutional entities such as the Long Beach Unified School District, California National Guard, the City of Long Beach Long Beach Parks, Recreation and Marine. LBUD has **7,400 active Commercial/Institutional** accounts.

### 4.2.4 Industrial

Industrial services supply water to industrial customers. LBUD has just under **300 active Industrial** services.

### 4.2.5 Losses

Refer to **Section 4.3** for a detailed discussion of water losses.

### 4.2.6 Seawater Barrier

Groundwater aquifers near coastlines must often be protected from seawater intrusion, the process when saltwater from the ocean migrates into the underground aquifer and subsequently spoils the fresh water. This is typically found in the Central Basin near the confluence of the San Gabriel River where it meets the Pacific Ocean.

The Alamitos Seawater Barrier was implemented to prevent ocean water from migrating underground into the Central Basin aquifers; a migration that would spoil this source of fresh water for LBUD. A seawater barrier protects the groundwater aquifers by injecting potable or highly treated recycled water into the aquifer to create a pressure ridge that blocks the seawater from intruding.

The water injected into the Alamitos Seawater Barrier is a combination of potable imported water from a MWD connection dedicated to that purpose and highly purified recycled water from WRD's Leo J. Vander Lans Advanced Water Treatment Facility (LVLAWTF).

This 2025 UWMP does not include deliveries to the Alamitos Seawater Barrier when estimating the future potable water demand within LBUD's service area because the potable imported water from MWD supplying the seawater barrier does not enter

LBUD's distribution system. The MWD connection that serves the seawater barrier exclusively serves the seawater barrier and no other user. For more than fifty years, this imported water connection had previously been assigned to the Central Basin Municipal Water District, another MWD member agency. However, the connection was transferred to LBUD in 2005. Although the connection is now assigned to LBUD, its sole purpose remains the same.

The Alamitos Seawater Barrier seeks to minimize potable water use in the future. The LVL AWTF was upgraded in 2014 and is working towards supplying recycled water to 100 percent of the Alamitos Seawater Barrier demand, thereby eliminating the need for imported potable water. Further discussion of recycled water used within LBUD's service area and at the Alamitos Seawater Barrier can be found in **Chapter 6**.

### 4.3 Non-Revenue Water

Water loss is defined as the difference between the quantity of water supplied to customers and the quantity of water consumed by customers. It is comprised of (1) apparent losses, which include unbilled, authorized consumption for operational uses (i.e. firefighting, pipe flushing, street cleaning, dust control, and fire hydrant use) and all types of inaccuracies associated with customer metering, data handling, and theft or illegal use; and (2) real losses, which include all water physically lost due to distribution system leaks, breaks, overflows, and other unbilled, unauthorized consumption.

LBUD conducts an annual water audit using the American Water Works Association (AWWA) M36 method and associated worksheets. Water loss in the LBUD service area is typically less than 10 percent of total demand. Water loss calculations are reported in detail in **Appendix E**.

Non-revenue (or unaccounted for) water is physically "used" within LBUD's service area, but no

revenue is generated.

LBUD manages real losses through its Distribution Capital Improvement Program (CIP) and Advanced Metering Infrastructure (AMI) Program. The Distribution CIP replaces and renews distribution system pipelines and customer service connections. The deployment of the AMI Program began in 2017 to upgrade all water meters with wireless advanced metering technology and was completed in 2021. LBUD's AMI Program will increase the ability to detect and repair losses through the distribution system. Further discussion about management of system losses is provided in **Chapter 9**.

## 4.4 Projected Water Use

### 4.4.1 Methodology

An econometric forecast method was used to project water use because it provides a more robust water demand forecast as compared to more simplified per capita/service connection or land use based methods. The econometric method allows for a detailed examination of the major factors that influence changes in water use over time.

For each water customer type (i.e., single family, multifamily, commercial, industrial, and irrigation), an independent statistical model was developed based on historical billed consumption data to produce model coefficients that were then used to project demand into the future. The customer type specific statistical models developed each use a multivariate regression analysis to analyze the underlying relationship between historical billed consumption as the dependent variable in relation to the variation of historical data for multiple independent variables (e.g., rainfall, month of the year, drought restrictions, housing units, employment, climate, etc.).

Historical relationship patterns between the dependent variable and the independent variables were then used to calculate future forecasted demands using projections of the independent variables. Demographic projections for the econometric

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demand forecast model were based upon the Southern California Association of Governments' (SCAG) 2024 Regional Transportation Plan Demographic Forecasts, population and housing estimates for 2025 from the California Department of Finance, and 2019 historical actual employment data from SCAG.

**Figure 4-3** represents the projected total potable water demands through the year 2050.

### 4.4.2 Estimating Future Water Conservation Savings

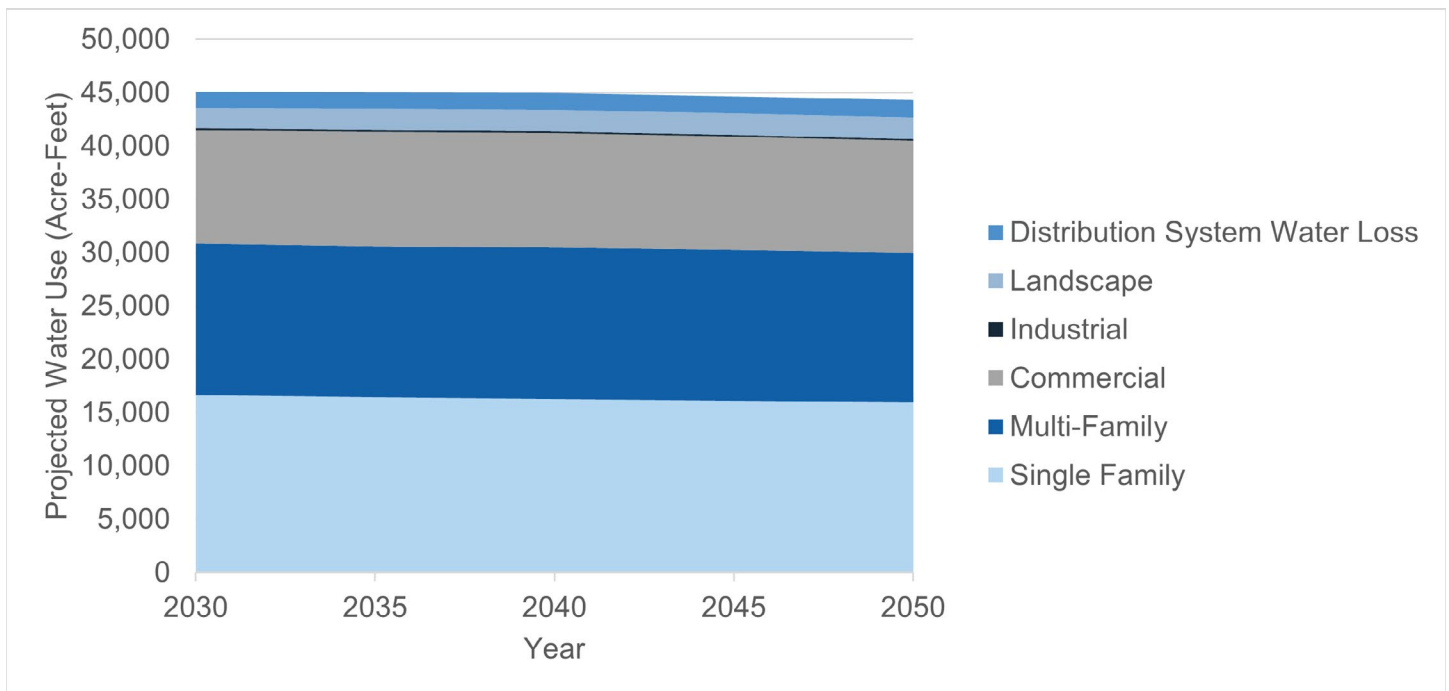
Water conservation and water use efficiency reduces the demand for water. Looking to the future, additional water is expected to be conserved as a result of both "active" and "passive" conservation measures. Active conservation refers to the programs water agencies tend to implement at the local level, such as rebate programs for water efficient devices and fixtures or turf replacement. Passive conservation refers to changes in the efficiency standards for new devices sold in California, like toilets and shower heads, new

building codes, and ordinances that restrict the type of landscapes that can be installed with new developments.

The Alliance for Water Efficiency Conservation Tracking Tool (AWE CTT) was used to project passive water conservation and active water savings attributable to each customer type. The AWE CTT is a standalone model that independently calculates these water savings before they are incorporated into the Econometric Demand Forecast Model. To estimate historical water savings from active programs, historical conservation program customer participation data from the wide range of conservation programs implemented by LBUD was input into the AWE CTT.

Passive savings were calculated using the AWE CTT by inputting demographic and other service area data to drive the fixture saturation component of the model which results in a passive savings estimate. Additionally, passive savings as a result of the Model Water Efficient Landscape Ordinance were modeled separately using the Econometric Demand Forecast Model.

**FIGURE 4-3: Projected Uses of Potable Water by Customer Type**



The estimates of future passive and active water savings generated by the AWE CTT were then subtracted from the “unconstrained” projected water volumes estimated by the Econometric Demand Forecast Model.

#### ***4.4.3 Water Use for Lower Income Households***

Median household income is positively correlated with water demand (i.e. increased income results in increased water demand). According to the City of Long Beach General Plan 2013-2021 Housing Element, 44 percent of the households in Long Beach are classified as low-income, very low-income, or extremely low-income. Since the Housing Element does not include historical information or projections of low-income households attributed to different housing types, this UWMP forecasts future water demand for all low-income housing types in aggregate by applying the 44 percent to the total water demand for the three LBUD residential water service types: single family, duplex, and multi-family.

#### ***4.4.4 Climate Change Considerations***

The climate change considerations used when projecting baseline future water demands include the following:

- Historical average climate (defined as the average from 1980 to 2024)
- LBUD will remain in drought restrictions equivalent to a Level 1 Shortage

Different climate change scenarios, previously discussed in Chapter 3, along with demographic growth and conservation, were used to test the sensitivity of the baseline demand forecast



# CHAPTER 5: CONSERVATION TARGET COMPLIANCE

Chapter 5 reports the water use baseline and targets required by the Water Conservation Act of 2009, also known as the SBx7-7, to set a statewide goal to reduce urban water use by 20 percent by the year 2020. Chapter 5 shows that LBUD has achieved its 2020 Target.

## 5.1 Water Conservation Act of 2009

The Water Conservation Act of 2009, also known as the SBx7-7, set a statewide goal to reduce urban water use by 20 percent by the year 2020. In order for the State to achieve the 20 percent reduction, each retail urban water supplier is required to calculate its individual water use reduction target for the year 2020, a calculation based on one of the four allowable methods described in CWC §10608.20(b). LBUD used the standardized SBx7-7 Verification Forms provided by DWR to calculate and report its progress in meeting the SBx7-7 water use targets.

## 5.2 Updating Calculations from 2015 UWMP

### 5.2.1 Target Method

Water agencies were required to calculate and report in their 2015 UWMP, a 2020 Urban Water Use Target (2020 Target) using one of the four methods described in CWC §10608.20(b). The target would equal:

- Method 1: 80 percent of the water supplier's baseline per capita water use (i.e., a 20 percent reduction); or 34
- Method 2: Per capita daily water use estimated using the sum of performance standards applied

to indoor residential use, landscaped area water use, and CII uses; or

- Method 3: Ninety-five percent of the target calculated by the state for its hydrologic region; or
- Method 4: The calculated savings of metering currently unmetered water connections and achieving water conservation measures in three water use sectors.

In the 2015 UWMP, LBUD identified using Method 1 to establish its 2020 Target, which is 80 percent of its baseline per capita daily water use; in other words, LBUD intended to reduce its per capita water use 20 percent by the year 2020. In the 2015 UWMP, LBUD identified a final reported 2020 target of 107 GPCD.

### 5.3 Baseline Periods

#### 5.3.1 Determination of the 10-Year Baseline Period

In order to calculate a 2020 Urban Water Use Target, water suppliers must select a 10 to 15-year period from which a baseline average water use is calculated. This baseline period must be a 10 to 15-year continuous period ending between December 31, 2004 and December 31, 2010. 35

Water agencies must use the 10-year baseline period unless recycled water made up at least 10 percent of their total water deliveries in the year 2008; in which case they have the choice of using a 15-year baseline period. Because recycled water deliveries comprised less than 10 percent of total water delivered by LBUD in 2008, LBUD must use a 10-year baseline period. LBUD’s 10-year baseline for setting the 2020 Target begins with fiscal year 1996 and ends with fiscal year 2005 (July 1, 1995 to June 30, 2005).

#### 5.3.2 Determination of the 5-Year Baseline Period

Water suppliers are also required to calculate water use for a continuous 5-year period that ends no

earlier than December 31, 2007 and no later than December 31, 2010. This 5-year baseline is used to confirm that the selected 2020 Target meets the minimum water use reduction requirements, which is a minimum reduction of 5 percent from the 5-year baseline. LBUD’s 5-year baseline for the purposes of this section begin in fiscal year 2004 and conclude in fiscal year 2008 inclusive (July 1, 2003 to June 30, 2008).

### 5.4 Population

In order to calculate annual GPCD, agencies must determine the population that they served for each baseline year in both the 5-year and 10-year baseline periods as well as for the 2020 compliance year.

Because the LBUD service area overlaps substantially ( $\geq 95$  percent) with the City of Long Beach boundaries, LBUD is able to use City of Long Beach population estimates provided by the California Department of Finance to calculate GPCD.

### 5.5 Gross Water Use

Gross water use is a measure of potable water that enters the distribution system of the supplier over a 12-month period, excluding recycled water. Gross water use must be reported for each year in the baseline periods as well as for the 2020 compliance year.

### 5.6 Baseline Daily Per Capita Water Use

After determining the population and gross water use for each year in the 10-year baseline period and the 5-year baseline period, the GPCD can be calculated for the baseline periods. LBUD’s GPCD for the 10-year baseline period is 134 GPCD, and GPCD during the 5-year baseline period is 128 GPCD.

### 5.7 2020 Compliance Target

#### 5.7.1 Apply Target Method

LBUD has selected Target Method 1: 80 percent of its 10-year baseline GPCD. Since the LBUD 10-year baseline GPCD is 134 GPCD, the 2020 Urban Water Use Target (80 percent of 134 GPCD) is therefore 107 GPCD. LBUD has not changed its Target Method from the 2020 UWMP.<sup>36</sup>

#### 5.7.2 2020 Target Confirmation

LBUD is required to choose the lower of the two 2020 Urban Water Use Targets as calculated using (1) one of the four Methodologies that use the 10-year or 15-year baselines, or (2) 95 percent of the 5-year baseline. Since the LBUD's 5-year baseline is 128 GPCD, that baseline's 2020 Urban Water Use Target (95 percent of 128 GPCD) is 122 GPCD. Because the 10-year baseline target of 107 GPCD is lower than that of the 122 GPCD 5-year baseline, LBUD's 2020 Urban Water Use Target is 107 GPCD.

### 5.8 2020 Compliance Daily per Capita Water Use

Water suppliers must calculate their actual 2020 water use to determine whether or not they have met their 2020 Urban Water Use Target. LBUD per capita water use for 2020 was 93 GPCD, which is less than the 107 GPCD Confirmed 2020 Target. LBUD has therefore met its 2020 Urban Water Use Target.



# CHAPTER 6: SYSTEM SUPPLIES

Chapter 6 describes and quantifies the sources of water available to LBUD as a water supplier. There are three primary supply sources within the LBUD service area: 1) Locally pumped groundwater, 2) imported surface water purchased from MWD, and 3) recycled water.

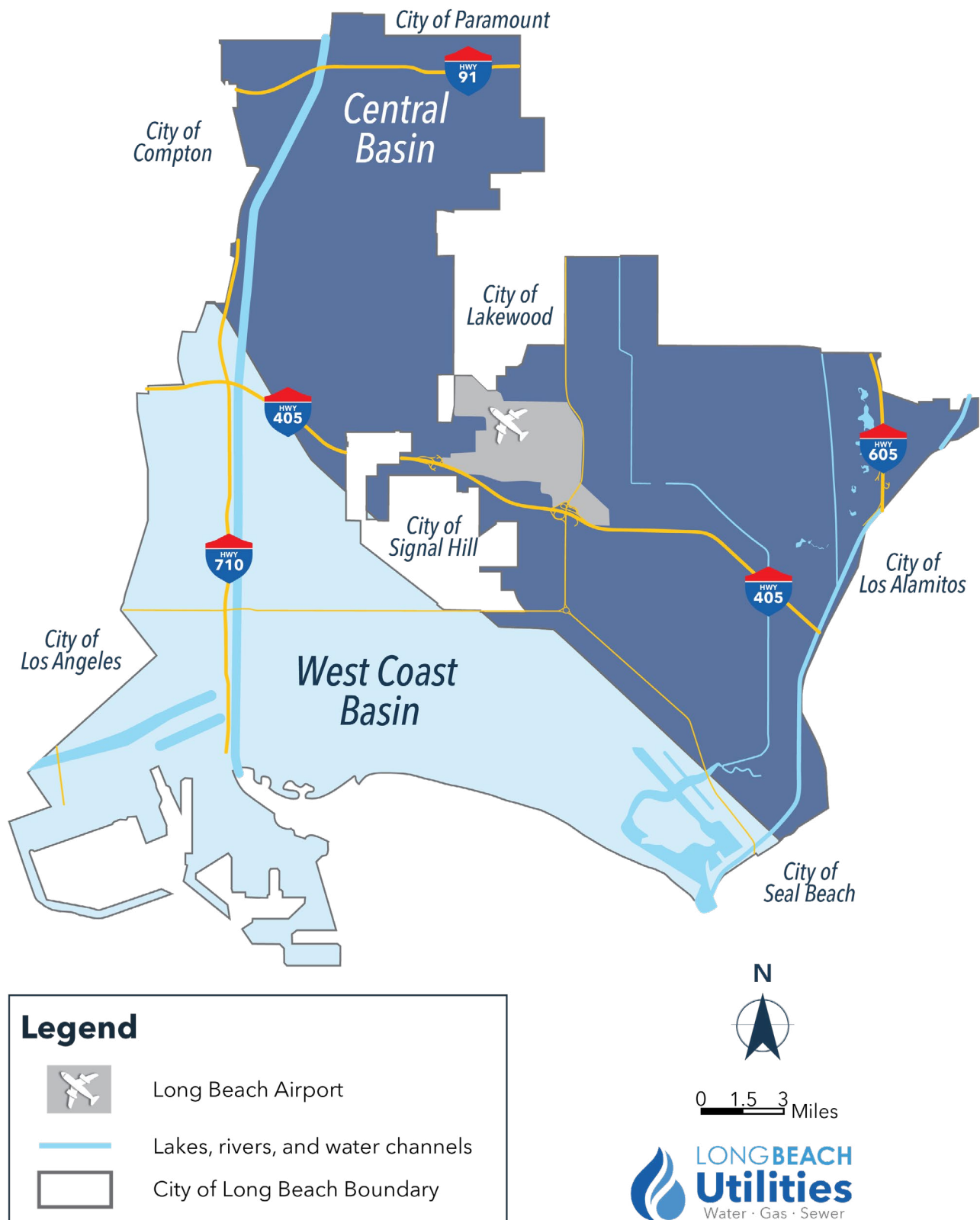
## 6.1 Groundwater

Groundwater is the primary source of drinking water in Long Beach. More than half of water supplied to the City is sourced from groundwater. LBUD pumps groundwater through 33 active wells throughout the service area. The raw groundwater pumped from all these wells is collected and delivered to the Long Beach Groundwater Treatment Plant (GWTP), which has a capacity of 62.5 MGD. After going through treatment at the GWTP, the treated groundwater is then pumped from the GWTP into the water distribution system via two booster pump stations. Between 2020-2025, 57% of LBUD's total potable water supply came from local groundwater.

### 6.1.1 Water Rights

As shown in **Figure 6-1**, two groundwater basins lie beneath the LBUD service area: the Central Basin and the West Coast Basin aquifers. The City of Long Beach holds water rights in both groundwater basins, which are managed by the Water Replenishment District of Southern California (WRD). LBUD has an Allowable Pumping Allocation (APA) for 32,692 AFY from the Central Basin and currently pumps all its groundwater supply from this source. LBUD also has 0.7 AFY of water rights in the West Coast Basin, but LBUD does not currently use water from the West Coast Basin as a water supply as that would require the acquisition of additional water rights.

FIGURE 6-1: Central and West Coast Basins



### 6.1.1.1 Central Basin

The Central Basin is a groundwater aquifer under 277 square miles in mostly urbanized southern Los Angeles County. The Central Basin is bounded on the north by a surface divide called the La Brea High, and on the northeast and east by the Elysian, Repetto, Merced and Puente Hills. The southeast boundary between Central Basin and Orange County Groundwater Basin roughly follows Coyote Creek, and the southwest boundary is formed by the Newport Inglewood fault.

The Central Basin is currently the only groundwater basin utilized by LBUD. LBUD has an adjudicated right to extract 32,692 acre-feet per year of groundwater from the Central Basin Aquifer, so all 33 of LBUD's active wells are located within Central Basin. A full description of the Central Basin can be found in the **Attachment 1**.

### 6.1.1.2 West Coast Basin

The West Coast Sub-Basin of the Coastal Plain of Los Angeles County Groundwater Basin (West Coast Basin) underlies 160 square miles of the southwestern part of the Los Angeles County coastal area. The basin extends from the coast to just past the 405 Freeway, from the Newport-Inglewood Uplift in the City of Long Beach in the south to the Ballona Creek escarpment just north of the Los Angeles International Airport.

LBUD has an adjudicated right to pump 0.7 acre-feet from the West Coast Basin, but LBUD does not currently pump from this basin as additional water rights would need to be acquired.

A full description of the West Coast Basin can be found in the **Attachment 2**.

### 6.1.2 Groundwater Management - Central Basin

The Central Basin was considerably over-drafted by the 1940's, which prompted the adjudication of the basin in Superior Court in the early 1960's. The adjudication now provides the framework for groundwater management of the Central Basin by apportioning pumping rights to certain parties and strictly limiting extractions to those apportioned rights. The total allowable pumping allocation (APA) is divided among the owners of these water rights. These annual rights to extract water can be exercised, sold, leased or remain unused. A copy of the judgment is enclosed as **Attachment 3**.

The recent Third Amendment to the Central Basin Judgment entered by the Los Angeles Superior Court in 2013 replaced the California Department of Water Resources (DWR) as the Watermaster and created a new Watermaster. The new Watermaster consists of three separate bodies, each with a different function: the Administrative Body to administer the Watermaster accounting and reporting functions, the Water Rights Panel to enforce issues related to pumping rights, and the Storage Panel to approve groundwater storage proposals. The new Watermaster began its duties in July 2014.

Because the total allowable pumping allocation (i.e., the total annual right to extract water on an on-going basis) exceeds the natural yield of the basin, the judgment charges the Water Replenishment District of Southern California (WRD) with the responsibility of replenishing the basin. WRD funds these essential services through a replenishment assessment, meaning that parties extracting water from the Central Basin pay an assessment to WRD on a per acre-foot extracted basis. The replenishment assessment is used by WRD to purchase replenishment water and to fund other programs for the replenishment and protection of the basin.

The Central Basin is replenished in several ways

### 1. Natural replenishment

The amount of natural replenishment to the Central Basin fluctuates from year to year based primarily on the amount of precipitation in the San Gabriel Mountains that makes its way into the San Gabriel River and down to the spreading grounds.

There are two spreading grounds located downstream of the Whittier Narrows Dam and next to the Rio Hondo and San Gabriel River channels; the Rio Hondo Coastal Spreading Grounds and San Gabriel Coastal Spreading Grounds, respectively. The spreading grounds are the primary means of replenishing the Central Basin aquifers and are owned and operated by the Los Angeles County Flood Control District.

### 2. Recycled water

Recycled water is mixed with imported water and/or natural runoff and allowed to percolate into the groundwater basin. The percolated water filters slowly through the soil, sometimes for many decades, before being extracted.

Recycled water is a reliable source of replenishment even during fluctuations in weather, including multiple dry years.

WRD may also utilize advanced-treated recycled water generated by the Albert Robles Center for Water Recycling & Environmental Learning (Albert Robles Center) for groundwater replenishment. This facility produces up to 10,000 AFY of purified water from the tertiary treated recycled water supplied from San Jose Creek Water Reclamation Plant (SJCWRP). The purified recycled water is conveyed to the Central Basin spreading grounds at the Montebello Forebay. The purified water may also be supplemented by another 11,000 AFY of tertiary treated recycled water from the

SJCWRP to deliver up to 21,000 AFY of water to the San Gabriel Coastal Spreading Grounds.

### 3. In-lieu replenishment

Under certain conditions, parties that own rights to pump water from the Central Basin may choose to essentially retire a portion of their allowable pumping allocation in a particular year to instead purchase an equal amount of imported water from MWD. Rather than pumping the groundwater out and cause WRD to have to later purchase imported water to replenish the amount pumped, forgoing pumping in the first place and leaving the water in the ground “replenishes” the basin. For this reason, MWD and WRD provide financial compensation to help offset the higher cost of purchasing the MWD imported water relative to groundwater pumping. In this way, the groundwater basin is replenished through “in-lieu” means rather than directly through physical replenishment.

### 4. Imported water

If natural, recycled water, and in-lieu replenishment is insufficient, WRD may purchase imported water from MWD for replenishment purposes.

### 5. Seawater Barrier Operations

The Alamitos Barrier Project (ABP) helps protect groundwater in the Central Basin from coastal seawater intrusion. Recycled water for the ABP is supplied from the Leo J. Vander Lans Advanced Water Treatment Facility (LVL AWTF), which is owned by WRD. WRD purchases tertiary treated recycled water from LBUD as the influent supply for LVL AWTF, which in turn produces advanced treated recycled water that is suitable quality for injection into the seawater barrier. LVL AWTF has the capacity to supply 100 percent of the Alamitos Barrier’s needs.

### 6.1.2.1 Overdraft Conditions

In the decades prior to the adjudication of the Central Basin, more water was being pumped out of the groundwater basin than going into it, resulting in an overdraft condition with a falling water table. Since the adjudication, the combination of limits on groundwater extractions and active replenishment by WRD have allowed the basin to recover to its current healthy condition.

WRD publishes a comprehensive Engineers Survey and Report each year, and the 2025 report is enclosed as **Attachment 4**. This report goes into great detail regarding groundwater production, groundwater conditions, the quantity and availability and cost of groundwater replenishment, and groundwater projects and programs.

### 6.1.3 Groundwater Management - West Coast Basin

By the early 1900's, techniques used to develop groundwater advanced dramatically with the advent of the deep-well turbine pump. Dependable sources of water attracted industry and agriculture, and in time the demand for water exceeded the rate at which the Basin replenished naturally. In the 1920's water levels throughout the West Coast Basin dropped below sea level and wells along the western basin region had to be abandoned due to poor, brackish water quality. By 1932, the entire coastal reach of the West Coast Basin was contaminated by sea water.

Groundwater quality within the West Coast Basin deteriorated until 1945 when a lawsuit was filed from the California Water Company, City of Torrance, and Palo Verdes Water Company to the Los Angeles County of Superior Court. The objective of the lawsuit was to title the groundwater rights of each pumper and to establish control over groundwater extractions from the Basin. Other organizations joined the litigation, leading to the



formation of the West Basin Water Association in 1946.

A plan was developed to (1) provide supplemental supply for major producers, (2) limit groundwater extractions, and (3) create an exchange pool to provide pumping rights for users not having access to supplemental water. The first step of the plan was realized in 1947 with the formation of the West Basin Municipal Water District to distribute water from the Colorado River. The District was annexed into the Metropolitan Water District of Southern California in 1948, and that year Colorado River water began flowing into the West Coast Basin, followed by the State Water Project water in 1974. In 1946, the second and third steps of the plan were taken to the Court's preliminary hearings to define the groundwater problem and outline those areas needing more information. The Court asked the Department of Water Resources (DWR) to define the boundaries and determine the geohydrology characteristics of the West Coast Basin.

Several years passed before water users became sufficiently alarmed by groundwater conditions to draft an Interim Agreement that reduced groundwater extractions until a final judgment could be approved. The Court approved the Interim Agreement on February 16, 1955, and appointed DWR as Watermaster to administer it. On August 18, 1961, after 16 years of litigation, the Court rescinded the Interim Agreement and signed the West Coast Basin Judgment. The Judgment retained DWR as Watermaster.

The Judgment has been amended multiple times since its inception, most recently in 2014 (2014 Amendment). A copy of the judgment is enclosed as **Attachment 5**. The 2014 Amendment retires DWR as the Watermaster and mandates the creation of a new Watermaster with three separate bodies serving different functions: the Administrative Body, the Water Rights Panel, and the Storage Panel:

1. The Administrative Body administers and enforces the provisions of the Judgment

and fulfills Watermaster accounting and reporting functions. WRD was appointed as the Administrative Body.

2. The Water Rights Panel, consisting of five members, enforces issues related to pumping rights within the adjudication and is made up of five West Coast Basin water rights holders. Three of the members are the elected officers of president, vice-president and treasurer of the West Basin Water Association, and the remaining two members are selected by the Board of Directors of the West Basin Water Association.
3. The Storage Panel is composed of the Water Rights Panel and the WRD Board of Directors, which together review and approve storage projects within the Basin.

Since the total water rights in West Coast Basin exceed the natural yield of the basin, the judgment charges the WRD with the responsibility of replenishing the basin. WRD funds these essential services through a replenishment assessment, meaning that parties extracting water from the West Coast Basin pay an assessment to WRD on a per acre-foot extracted basis. The replenishment assessment is used by WRD to purchase replenishment water and to fund other programs for the replenishment and protection of the basin.

The West Coast Basin is replenished in several ways:

### 1. Natural replenishment

Natural replenishment is largely limited to underflow from the Central Basin through and over the Newport-Inglewood fault zone. There is also artificial recharge associated with the operation of seawater intrusion barriers.

### 2. Dominguez Gap Barrier

The Dominguez Gap Barrier Project (DGBP), located in the southern portion of the West Coast Basin, is injected with a combination of imported water from MWD and recycled water from the City of Los Angeles Department of

Public Works - Bureau of Sanitation Terminal Island Water Reclamation Plant/Advanced Water Purification Facilities (TIWRP/AWPF). Delivery of recycled water to DGBP began in February 2006. The project was originally permitted to receive up to 5 MGD of recycled water and 50% recycled water contribution, meaning recycled water may not exceed 50% of the total injected volume with the remainder consisting of potable water. The permit was revised in 2016 to allow up to 12 MGD, or 100% recycled water. From 2024-2025, a total of 8,188 AF was injected into the DGBP--of which 2,906 AF was imported, and the remaining 5,282 AF was recycled. Now, 65% of the total volume of artificial recharge occurring through the DGBP comes from recycled water, representing an increase from 44% in 2019-2020.

### 3. West Coast Barrier

The West Coast Basin Barrier Project (WCBBP) consists of a line of 153 injection wells from the Palos Verdes Hills north to the Los Angeles International Airport, a distance of approximately nine miles. WCBBP is supplied with imported water from MWD and recycled water from West Basin Municipal Water District Edward C. Little Water Recycling Facility.

The amount of recycled water injected into the West Coast Barrier has varied over time. However, in 2024-2025, 8,543 AF of recycled water and 5,636 AF of imported water was utilized for artificial injection. WBMWD is working with WRD to increase the amount of recycled water injected into the Barrier to 100 percent.

#### 6.1.3.1 Overdraft Conditions

In the decades prior to the adjudication of the West Coast Basin, more water was being pumped out of the groundwater basin than going into it, resulting in an overdraft condition with a falling water table and poor water quality. Since the adjudication, the

combination of limits on groundwater extractions and active replenishment by WRD have allowed the basin to recover to its current healthy condition.

WRD publishes a comprehensive Engineers Survey and Report each year, and the 2024-2025 report is enclosed as **Attachment 4**. This report goes into great detail regarding groundwater production, groundwater conditions, the quantity and availability and cost of groundwater replenishment, and groundwater projects and programs.

#### 6.1.4 Watermaster Report and Recent Groundwater Production

The Watermaster develops and adopts an annual report that details the groundwater extractions, storage accounts, use of imported water and recycled water, replenishment operations, and its budget and finances. Within this annual report, monthly production for each well is identified. The 2024-2025 reports for Central Basin and West Coast Basin are the most current reports as of the adoption of this UWMP and have been included as **Attachments 6 and 7**.

The amount of groundwater production has experienced fluctuations between 2021-2025 due to the attrition of pumping capacity at aging wells and downtime for maintenance at the Groundwater Treatment Plant counterbalanced by increased production as the result of drilling of new wells and rehabilitating old wells. LBUD is undergoing continuous efforts to keep up with aging infrastructure and increase groundwater production capacity in the long term.

Detailed historical monthly production from the wells is available at the Watermaster's web site: [www.wrd.org/watermaster/](http://www.wrd.org/watermaster/). Further discussion about future supplies can be reviewed under **Section 6.6**. Discussion surrounding supply reliability is located in **Chapter 7**.

### 6.2 Imported Water

LBUD purchases imported water from the Metropolitan Water District of Southern California (MWD). MWD was formed in 1928 when California's Metropolitan Water District Act was signed into law, "for the purpose of developing, storing, and distributing water" to communities in Southern California. The MWD service area spans across the Southern California coastal plain as far north as the Ventura County cities of Oxnard and Simi Valley down to the international boundary with Mexico in the south. The Metropolitan Water District Act allows MWD to levy property taxes within its service area; establish water rates; impose charges for water standby and service availability; incur general obligation bonded indebtedness and issue revenue bonds, notes and short-term revenue certificates; execute contracts; and exercise the power of eminent domain for the purpose of acquiring property.

MWD is the purveyor of imported water for 26 member agencies in Southern California, including the City of Long Beach, through a regional distribution network of canals, pipelines, reservoirs, treatment plants, pump stations, hydropower plants and other appurtenances.

The water imported by MWD into Southern California originates from the Colorado River and from the Sierra Nevada Mountains in Northern California. The water from the Colorado River reaches Southern California through the 242-mile-long Colorado River Aqueduct, an aqueduct designed, constructed, operated, and maintained by MWD. The water from Northern California reaches Southern California through the State Water Project, using storage in Lake Oroville and traveling through the Sacramento-San Joaquin Bay Delta before being transported over 400 miles to Southern California via the Governor Edmund G. Brown California Aqueduct (California Aqueduct). The California Aqueduct is operated and maintained by the California Department of Water Resources.

State Water Project contractors, including MWD, pay for the operations and maintenance of the project and service the debt; MWD is the contractor with the greatest financial obligations to the State Water Project but also enjoys the largest share of rights to the project's yield.

LBUD has historically purchased imported supplies from MWD to meet water demands through 11 direct interconnections. Located across LBUD's service area, the inter-connections feed different areas of the distribution system. Between 2021-2025, approximately 43 percent of LBUD's total water supply (on average) comes from MWD. LBUD aims to help improve regional supply reliability by reducing its dependence on purchased imported water through the development of local supplies.

#### 6.2.1 Water Shortage Conditions

When MWD's total storage allocated to drought protection reaches certain thresholds and MWD operations staff believe its wholesale deliveries will not be able to meet member agencies' water demands, MWD enacts its Water Supply Allocation Plan (WSAP). Using formulas to adjust for member agency's local water supplies, conservation and other considerations, MWD allocates water to each member agency for the coming year when the WSAP is enacted. If a member agency's purchase of MWD water goes above this allocation it is subject to a penalty water rate, which is charged above MWD's treated water rate. MWD has imposed water allocations to its member agencies in 1991, 2007 and 2008, and 2015.

### 6.3 Recycled Water

LBUD is not only a retail water agency, but also collects wastewater from its sewer system shed and transports that wastewater to the Los Angeles County Sanitation Districts (LACSD) regional sewer trunk lines.

A portion of the wastewater collected by LBUD is delivered to the LACSD owned and operated Long Beach Water Reclamation Plant (LBWRP). The volume of wastewater conveyed by the LBUD sewer collection system and conveyed to LBWRP is neither metered nor easily estimated because LBWRP also receives wastewater collected from many other communities upstream of Long Beach in the sewer shed, such as the cities of Lakewood and Cerritos.

The remaining portion of the LBUD collected wastewater that is not transported to LBWRP is sent to the LACSD A.K. Warren Water Resource Facility (AKWWRF) in Carson. Similar to the LBWRP, the volume of wastewater conveyed by the LBUD sewer collection system to the AKWWRF also is neither metered nor easily estimated because AKWWRF receives wastewater from many other communities other than Long Beach.

The Title 22 tertiary treated recycled water from the LBWRP is currently LBUD’s only recycled water supply for distribution. A portion of LBUD’s non-potable water demands (i.e. irrigation, industrial) are fulfilled by LBUD through recycled water supplies from LBWRP. There is an additional significant

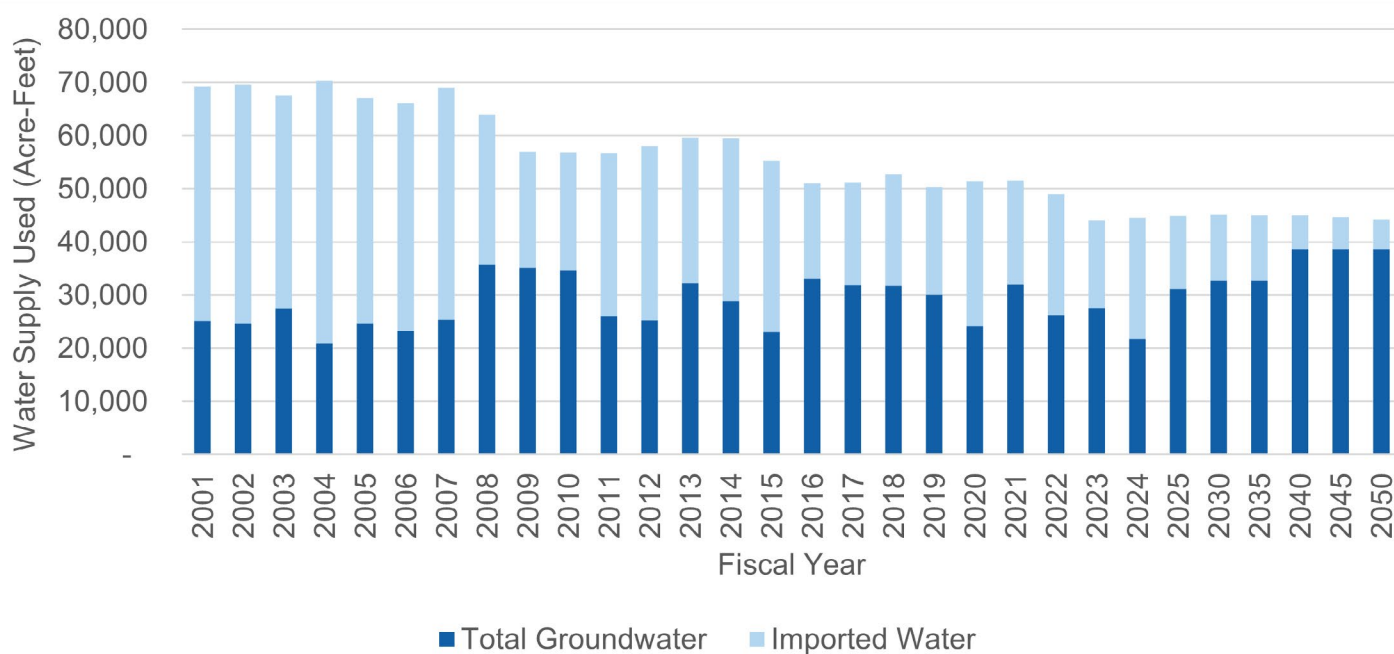
recycled water demand served by LBUD that comes from WRD’s Leo J. Vander Lans Advanced Water Treatment Facility (LVL AWTF). The LVL AWTF performs advanced treatment on the tertiary treated recycled water so that it is of sufficient quality to inject back into the ground for the purposes of maintaining the seawater barrier at the Alamitos Barrier Project (ABP), which was previously discussed in **Chapter 4**.

**6.3.1 Recycled Water Coordination**

Although the LBWRP is owned and operated by LACSD, according to a 1968 agreement between LBUD and LACSD, all the treated recycled water produced by the LBWRP is available to LBUD for use. Any recycled water that is not conveyed into LBUD’s recycled water distribution system or used at LVL AWTF, is discharged into the Coyote Creek outfall by LACSD. LBUD continues to coordinate with LACSD in an effort to utilize 100 percent of available recycled water supply from the LBWRP.

The maximum treatment capacity of the LBWRP is approximately 25 million gallons per day (MGD). LBWRP currently produces an average of about

**FIGURE 6-2: Groundwater and Imported Supplies Used**



## 2025 Urban Water Management Plan

14,000 AFY (5-year average from 2021 through 2025) of recycled water. It is assumed that about 10 percent of the total LBWRP influent is lost through system recirculation, or as a treatment system byproduct. Byproducts from LBWRP are transported through a sewer trunk line to the A.K. Warren Water Resource Facility located in the City of Carson.

### 6.3.2 Recycled Water Beneficial Uses

LBUD's recycled water customer base and distribution system have expanded to 177 service connections. LBUD recycled water customers include public and private irrigation customers, such as parks, schools, golf courses, cemeteries, and nurseries. The recycled water is also used by THUMS, a consortium of oil companies, which uses the recycled water to re-pressurize offshore oil-bearing strata to prevent land subsidence. Additionally, there is the demand from WRD's LVLAWTF for sea-water barrier injection at the Alamitos Barrier Project (ABP).

#### 6.3.2.1 Current Uses of Recycled Water

In 2025, LBWRP produced 13,328 AF of recycled water. A total of 7,624 AF was used, and the remaining effluent from LBWRP that was not reused was discharged to Coyote Creek. **Figure 6-3** shows the recycled water use in 2025 separated by use type. Descriptions of recycled water uses are provided below:

- Landscape irrigation (excludes golf courses): Typical sites that use recycled water for landscape irrigation other than golf courses are the City of Long Beach Parks and Recreation Department that uses a great deal of recycled water for irrigating public parks and street medians or schools that might use the water to irrigate sports fields.
- Golf Course Irrigation: All the golf courses in the LBUD service area that can be efficiently



reached by the LBUD recycled water distribution system are using recycled water. Recycled water demand from golf courses has decreased slightly over the past twenty years. Factors explaining the decreased demand include increased irrigation efficiency and replacing non-essential turf areas with drought tolerant landscaping. If these trends continue, we expect recycled water demand at golf courses will continue to decline given that Long Beach is a built-out city and therefore unlikely additional golf courses will be created in the future.

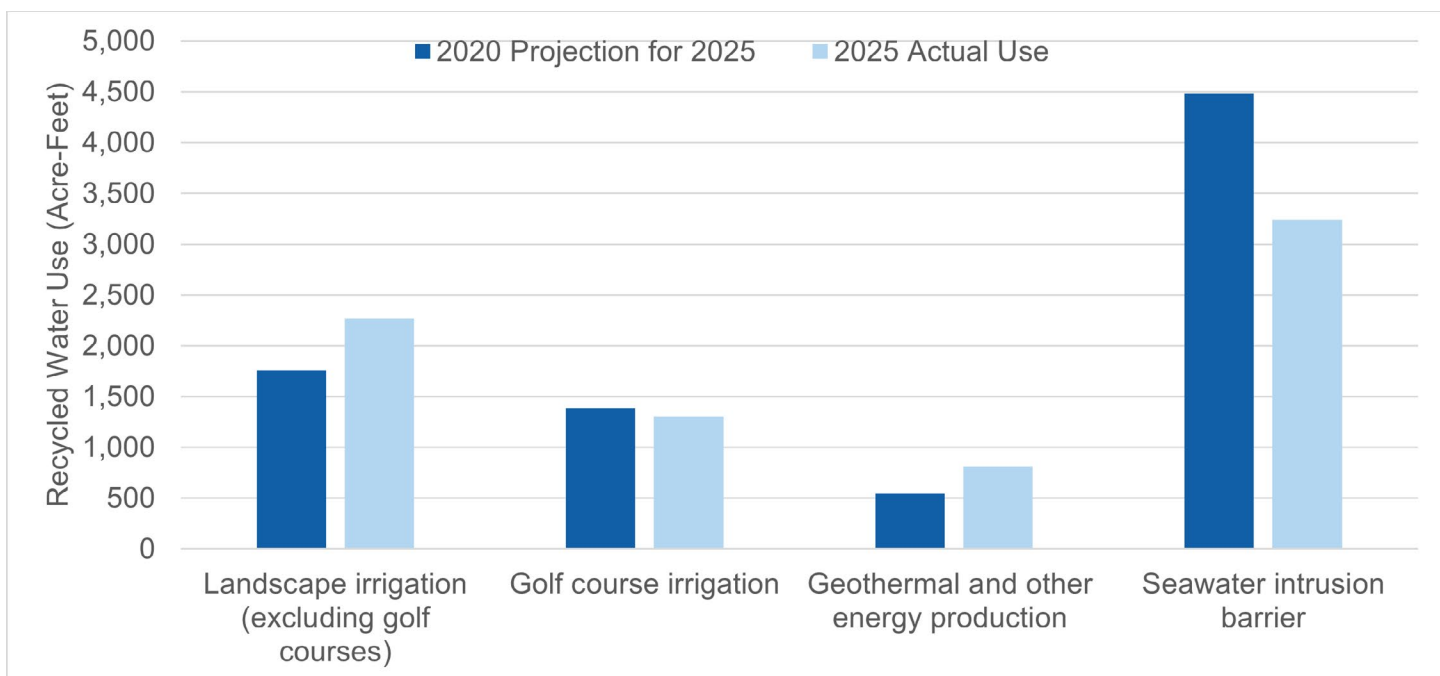
- **Energy Production:** Although irrigation customers account for most recycled water service connections within the LBUD service area, THUMS Long Beach Company (THUMS) represents the largest individual demand for recycled water. THUMS gets its name from the oil property's original shareholders (Texaco, Humble, Union, Mobil and Shell). THUMS extracts oil from the eastern offshore section of California's Wilmington oil field (which lies beneath Long Beach Harbor) and uses recycled

water for groundwater injection to re-pressurize offshore oil-bearing strata, preventing land subsidence. The use of recycled water by THUMS fluctuates with the volume of oil extractions and their own complicated conveyance network (pipelines, storage tanks, pumps) where demand is primarily driven mechanically by operations while accepting other additional sources of water to meet process demands.

- **Seawater Intrusion Barrier:** WRD Leo J. Vander Lans Advanced Water Treatment Facility (LVL AWTF) accepts recycled water from LBUD and further treats it prior to injecting it back into the ground for the purposes of sea-water barrier injection for the Alamitos Barrier Project (ABP). For further discussion, refer to **Chapter 4**.

Overall, actual total recycled water use in 2025 was lower than projected in LBUD's 2020 UWMP. This was primarily due to seawater barrier demands being lower than projected. Although WRD has a goal to utilize 100 percent recycled water at Alamitos Barrier Project, operational constraints and challenges are still being worked through

**FIGURE 6-3: 2025 Actual Recycled Water Use Compared to 2020 UWMP Projection**



to achieve that goal. Demands from landscape irrigation and energy production were slightly higher than projected, and golf course irrigation was slightly lower than projected.

### 6.3.2.2 Seawater Barrier Demand for Alamitos Barrier Project (ABP)

The Alamitos Seawater Barrier prevents saline water from traveling into and degrading the fresh water underground in the Central Basin aquifer. This is accomplished through the Alamitos Gap Barrier Project, which injects high-quality water at strategic locations, thereby creating a hydrologic barrier between the ocean and the groundwater.

The Alamitos Gap Barrier Project began operation in 1964, runs approximately 2.2 miles in the southeast corner of Long Beach, involves 43 wells that inject an average of about 6,000 acre-feet of water per year, and is operated by the Los Angeles County Department of Public Works (LACDPW). Historically, LACDPW has used MWD imported potable water for injection but the goal is for WRD's Advanced Water Treatment Facility to eventually supply 100 percent of the water needed at the barrier.

LBUD serves WRD's Advanced Water Treatment Facility recycled water demands.

Although recycled seawater barrier demands are being accounted for on the recycled water demand, the potable imported water serving the seawater barrier demand is not being included in the potable water demand. As explained in **Section 4.2.6**, a single MWD connection serves the Alamitos Gap Barrier Project and only the barrier project; the connection serves no other purpose; it serves no other water demands in LBUD's service area. In fact, this water never enters LBUD's distribution system. This MWD connection, which had been in use for many decades, was owned by a different MWD member agency until 2005; that is, prior to 2005 LBUD's name was not on the MWD barrier connection.

Even though the name on the MWD connection was recently switched to LBUD from that of the previous MWD member agency, LBUD merely serves as a pass-through agency to facilitate the very important operations of the barrier. Because this demand on MWD at the barrier had never represented a demand by LBUD, it has never been included as part of LBUD's potable demand in past UWMPs. Likewise, the MWD deliveries to the barrier have not been counted as a supply of water to LBUD.

For the purposes of MWD's water shortage allocation, the only demand for water in the LBUD service area that has its own shortage allocation from MWD, apart from all other LBUD demands, is the seawater barrier. MWD creates a separate and unique allocation for the barrier in its shortage allocation plan.

For these reasons, the MWD wholesale supplies to the seawater barrier have not been included in the calculation of total MWD supplies available to LBUD in UWMPs.

Going forward, WRD has goals to supply 100 percent of the ABP demands with advanced treated recycled water via the LVL AWTF. LBUD committed at least 6.5MGD of recycled water to supply LVL AWTF operations to meet ABP demands. WRD is in the process of completing an injection well, which once operational, could help WRD to operate closer to its full 8.0 MGD designed production capacity, which would require closer to 8.5 MGD of influent recycled water.

### 6.3.2.3 Future Uses of Recycled Water

LBUD is undertaking an expansion of the recycled water system to serve the Los Angeles Department of Water and Power (LADWP) Haynes Generating Station. Located in the southeast corner of the LBUD service area, LADWP Haynes Station may potentially utilize recycled water as early as 2029 to replace ocean water for cooling processes. Haynes Generating Station would represent a large

demand estimated at 4.5 MGD, which would fully utilize all available recycled water supplies available to LBUD during the peak demand summer months.

As a direct result of LADWP Haynes Generating Station coming onto the LBUD recycled water system, recycled water demands are projected to increase as shown in **Figure 6-4** below.

## 6.4 Other Supplies

### 6.4.1 Desalination

LBUD has no plans for building a seawater desalination plant at this time because LBUD has more viable and cost-effective water supply alternatives. Seawater desalination may be reevaluated if it meets one or more of the criteria at some point in the future. The possibility of building a seawater desalination plant in the future is discussed in **Section 6.6**.

### 6.4.2 Exchanges or Transfers

Exchanges and transfers do not appear to be a cost-effective alternative to MWD supplies at this time, nor are they needed to improve LBUD’s

water reliability and/or water quality in the short term. However, as with seawater desalination, exchanges and transfers may satisfy one or more of these criteria at some point in the future. Therefore, although LBUD has not committed to participate in exchanges or transfers at this time, it has not ruled out doing so in the future.

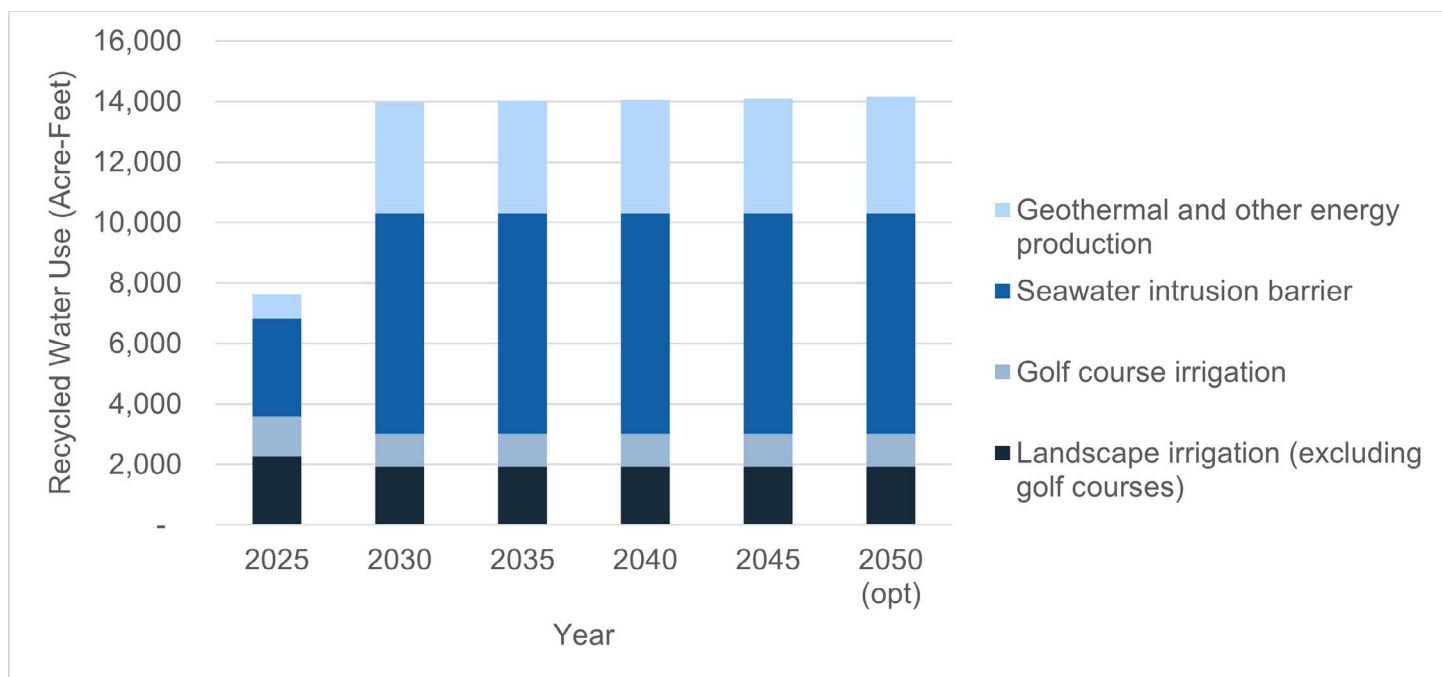
### 6.4.3 Stormwater

LBUD has supported the efforts of customers to capture stormwater through rebates on rain barrels and cisterns as well as including the requirement of the addition of stormwater retention features in turf replacement incentive programs. However, LBUD does not directly use stormwater as a source of supply in its distribution system.

## 6.5 Energy Intensity

Energy intensity reporting can be beneficial for water utilities because it identifies associated energy savings and greenhouse gas reduction opportunities. The most energy intensive source of water for LBUD is imported water purchased from MWD. This is a result of the transportation of that

**FIGURE 6-4: Projected Recycled Water Demand**



imported water over hundreds of miles via the California Aqueduct and Colorado River Aqueduct. However, UWMP reporting is focused only on the water supplies under the Urban Water Supplier's operational control, so the energy of imported water is not being reported.

Similarly with recycled water, the Long Beach Water Reclamation Plant is owned and operated by LACSD. Therefore, the only energy intensity of recycled water supplies attributable to LBUD is the energy associated with pump stations required for the distribution of recycled water throughout the LBUD recycled water system. The volume of recycled water distributed in 2025 was 7,624 AF, with an associated energy usage of 2,026,918 kilowatt hours (kWh), resulting in an energy intensity of 265 kWh/AF.

Groundwater is a relatively energy efficient water supply. However, since groundwater is wholly within the operational control of LBUD and also represents the largest source of supply for LBUD, groundwater represents the highest total energy usage as well as highest kilo-watt hour per acre-foot supply being reported. The volume of groundwater distributed in 2025 was 31,130 AF, with an associated total energy usage of 16,913,569 kilowatt hours (kWh), resulting in an energy intensity of 543 kWh/AF.

### 6.6 Future Supplies

A range of potential water supply projects and programs are being evaluated as part of the update to the LBUD Water Resources Plan, which is in progress as of the development of this UWMP. Long Beach is fortunate in its geographic location to have access to a multitude of potential water supplies as well as potential regional partners with which only through collaboration would certain water supply projects be possible. This section summarizes those water supply options being evaluated

#### 6.6.1 Groundwater

Since LBUD is an adjudicated party in both Central Basin and West Coast Basin, LBUD can pursue opportunities to increase groundwater supplies in either or both basins. This increase can be achieved through the acquisition of additional groundwater rights through purchase or lease, augmentation of the groundwater basin with recycled water supplies for subsequent extraction, or extraction and treatment of groundwater plumes affected by historical seawater intrusion. These options are described in more detail in the following sections.

##### 6.6.1.1 Groundwater Rights

Both the West Coast Basin and Central Basin are adjudicated, meaning a court judgment allocates specific quantities of groundwater pumping rights to parties within each basin. These rights establish the allowable volume of groundwater that each party may extract annually, and the terms of the adjudication allow for these rights to be transferred temporarily or permanently from one party to another. Since LBUD is a party to both the Central and West Coast Basin judgments, LBUD could therefore increase its use of groundwater as a supply by acquiring additional groundwater rights in either basin or both basins through leasing or purchasing from another party. Preliminary estimates indicate 6,000 acre-feet per year of additional groundwater supplies could be utilized in the LBUD service area.

##### 6.6.1.2 Groundwater Augmentation

The proposed MWD Pure Water Southern California project could deliver up to 150 MGD of purified water for the augmentation of regional groundwater basins, including West Coast Basin and Central Basin. The proposed pipeline alignment goes through Long Beach, so therefore has the opportunity to construct injection wells to take water from Pure Water Southern California and inject into the groundwater basin, which would

allow LBUD to then extract an equivalent amount of water elsewhere in the basin. LBUD is planning for 4,000 acre-feet per year from Pure Water Southern California.

### **6.6.2 Recycled Water: Los Coyotes Water Reclamation Plant Supply**

LBUD's tertiary treated recycled water system currently receives all of its supply from the Long Beach Water Reclamation Plant (LBWRP) owned and operated by LACSD. However, there are additional unused tertiary treated recycled water supplies available from the Los Coyotes Water Reclamation Plant (LCWRP), also owned and operated by LACSD. A conveyance pipeline could be constructed to connect the LCWRP supplies into the LBUD recycled water system to supplement supplies from LBWRP.

### **6.6.3 Stormwater Capture**

LBUD has supported small, distributed stormwater capture projects onsite at customer properties through rebates for rain barrels and cisterns as well as including the requirement of the addition of stormwater retention features in turf replacement incentive programs. However, there have not been large enough projects for LBUD to integrate stormwater as a source of supply into the LBUD distribution system.

There are two potential larger stormwater capture projects which could have the potential to generate a water supply in sufficient quantity for inclusion into LBUD water supplies: the Long Beach Municipal Urban Stormwater Treatment Project and the El Dorado Regional Stormwater Capture Project.

#### **6.6.3.1 Long Beach Municipal Urban Stormwater Treatment Project**

The Long Beach Municipal Urban Stormwater Treatment (LB-MUST) Project is in the Lower Los Angeles River Watershed Area and supports the

City of Long Beach's compliance with stormwater permit requirements. The project diverts and treats polluted urban runoff and portions of first flush stormwater (the initial runoff from a storm that contains the highest concentration of pollutants) from existing stormwater pump stations along the Los Angeles River to the LBMUST facility, which has an initial capacity of 2 MGD. The treated water is currently being discharged to sustain two acres of constructed wetlands next to the facility, which used to be a part of the natural Los Angeles River flood plain prior to the development of the industrial site that previously existed at the site on which the LBMUST facility was built. Future phases of the LBMUST project have the potential to connect to stormwater more pump stations, expand the capacity of the facility to 4 MGD, and potentially reuse the treated water for irrigation, toilet flushing and other permitted uses in the adjacent area.

#### **6.6.3.2 El Dorado Regional Stormwater Capture Project**

The El Dorado Regional Stormwater Capture Project is a potential multi-benefit regional project that would be led by the City of Long Beach to capture and treat stormwater diverted from the Artesia-Norwalk Storm Drain. This project would include vegetated surface storage ponds with approximately 10.3 acre-feet of storage capacity. There would be the potential to divert this captured stormwater to the Long Beach Water Reclamation Plant to supplement existing recycled water supplies.

#### **6.6.4 Exchange Supplies**

In 2025, MWD approved a new framework that allows local water agencies across the region to sell and purchase locally produced water supplies among one another. Under the framework, one agency will produce and consume the local water supply instead of imported water, and in exchange, MWD would deliver that equivalent amount of

imported water to another agency. The local water itself doesn't move physically between agencies – instead, MWD would facilitate the exchanges through coordinated accounting and billing. The price of the locally produced water would be arranged through an agreement between the two agencies exchanging the water. In this manner, any local water supply could be exchanged, such as groundwater or desalinated seawater.

### 6.6.4.4 Seawater Desalination

The location of Long Beach right next to the ocean means that seawater desalination will always be a potential water supply option for LBUD to take into consideration. However, LBUD has no plans for building a seawater desalination plant at this time because LBUD has more beneficial and cost effective water supply alternatives. Seawater desalination is not a cost-effective alternative to MWD imported water supplies, nor is it needed to improve LBUD's water reliability and/or water quality. Seawater desalination may be reevaluated if it meets one or more of these criteria at some point in the future.

## 6.7 Climate Change Impacts

Although Long Beach may experience climate change in the form of increased temperatures and more erratic yet intense winter precipitation events, climate change is not expected to impact LBUD's water supply reliability.

### 6.7.1 Groundwater Supply Climate Change Impacts

Average annual precipitation in Long Beach is expected to increase slightly by the year 2050. However, these precipitation events are predicted to come in fewer but larger storms, which are more difficult to fully capture for infiltration into the groundwater basins as the stormflows would exceed the capture capacity of the infrastructure.

However, even if replenishment were to increase as

a result of increased precipitation, it the increased recharge would not provide LBUD with additional supply because the Central Basin and West Coast Basin Judgments limit the amount of water that LBUD has the right to pump.

Even with hotter temperatures or more frequent droughts, the reliability of groundwater supplies would not be impacted. The basins are large enough to store many years worth of water supplies. Also, the total allowable pumping in the basins have historically already exceeded the natural yields of the basins, so the basins have already been recharged with supplemental recycled water or imported water supplies and could make up any additional shortfall in natural replenishment from rainfall.

### 6.7.2 Imported Water Supply Climate Change Impacts

Climate change is expected to have an impact on water supplies from the Colorado River and the Sierra Nevada Mountains, the two primary water sources for the imported water LBUD purchases from MWD. Details on the impacts of climate change on MWD water supplies can be found in **Attachment 9**.

Despite the impacts of climate change on MWD's supplies, LBUD does not anticipate its supply of imported water to be impacted due to the following reasons:

- MWD has indicated reliability of future supplies documented in the MWD Draft 2025 UWMP;
- MWD allocation plan guarantees a minimum total use of 100 gallon per capita per day (which is an amount above LBUD's current and projected water demands); and
- LBUD has a preferential right to MWD supplies in excess of the minimum total use of 100 GPCD guaranteed allocation.

Further discussion of these reasons is described in detail in **Chapter 7**

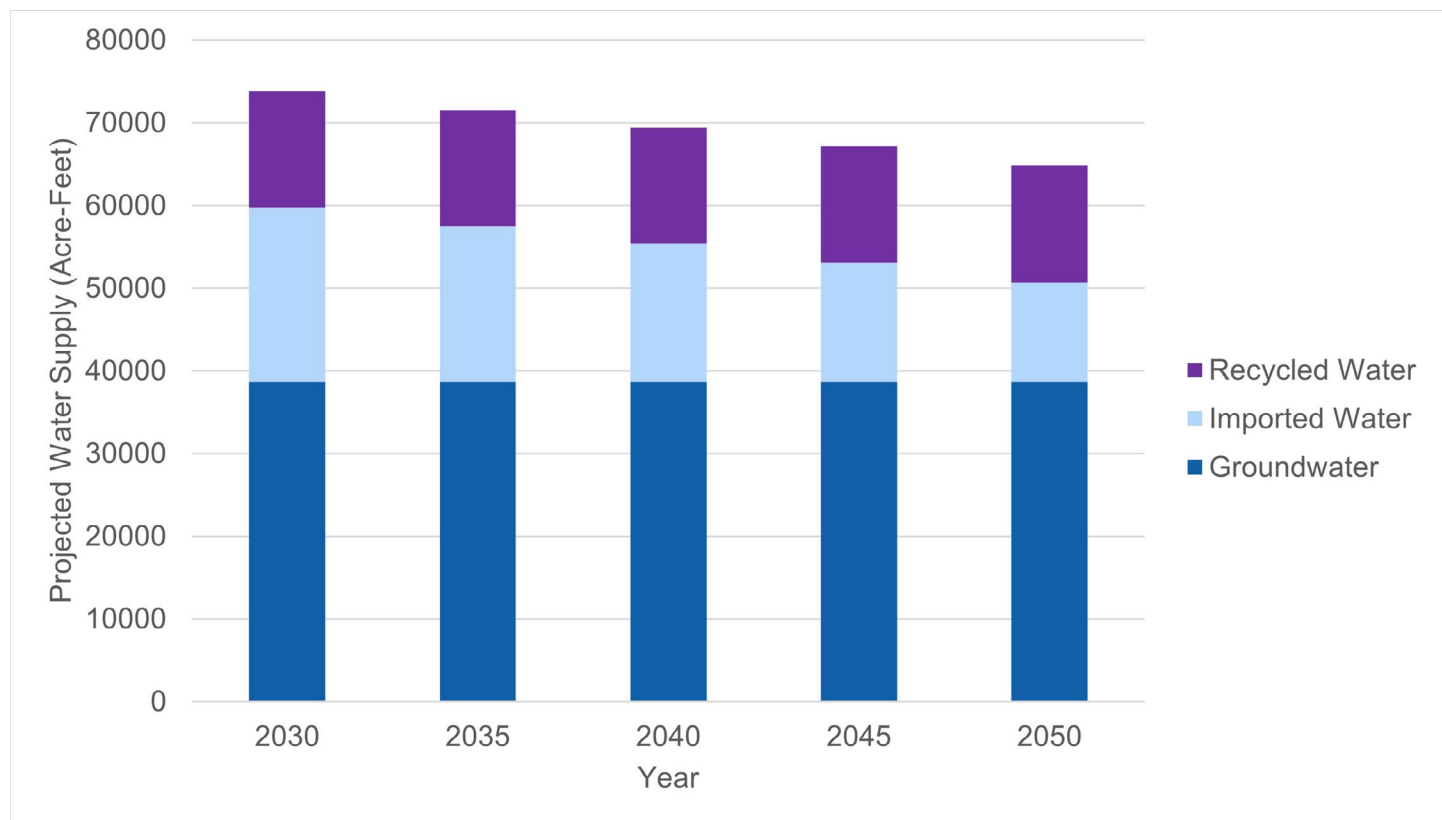
### 6.7.3 Recycled Water Supply Climate Change Impacts

The sources of supply to the Long Beach Water Reclamation Plant (LBWRP) are millions of indoor water-using devices such as showers, clothes washers, dishwashers, faucets, and so on, that feed wastewater into the LACSD wastewater trunk lines. Climate change is not expected to impact these essential indoor activities and therefore is not expected to impact the supply of wastewater to the LBWRP. Therefore, LBUD recycled water supplies are not expected to be impacted by climate change.

### 6.8 Summary of Existing and Future Supplies

Existing and projected sources of water for 2025 through 2050 are identified and shown in **Figure 6-5**. The projections for groundwater and imported water are based on historical use, as well as projections of supply reliability from WRD and MWD.

**FIGURE 6-5: Summary of Existing and Future Water Supplies**





# CHAPTER 7: WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

Chapter 7 describes the long-term reliability of LBUD water supplies to meet demands through the year 2050. Water supply reliability is described for normal year (i.e. average year), single dry year, and multiple dry year conditions.

## 7.1 Constraints on Water Sources Considerations

LBUD's water supplies include groundwater, imported water purchased from MWD, and recycled water. Although LBUD has faced a number of challenges that impact the reliability of these water sources, each of these supplies is expected to be reliable for at least the next 25 years.

### 7.1.1 Groundwater Reliability

Both the Central Basin and West Coast Basin Judgments' groundwater extraction limitations, multiple on-going basin replenishment projects, adequate funding of the replenishment activities from revenue generated by the replenishment assessment placed on extractions, and sufficient storage in the basins will provide LBUD with a very reliable supply of groundwater, even during multiple-dry years.

### 7.1.2 Imported Water Reliability

LBUD does not anticipate any projected constraints of its imported water supply to be impacted for the next 25 years due to the following reasons:

- MWD has indicated reliability of future supplies documented in MWD’s 2025 Regional UWMP;
- MWD allocation plan guarantees a minimum total use of 100 gallon per capita per day (which is an amount above LBUD’s current and projected water demands); and
- LBUD has a preferential right to MWD supplies in excess of the minimum total use of 100 GPCD guaranteed allocation.

#### 7.1.2.1 MWD Declaration of Reliability

MWD is a wholesale water provider serving most of Southern California, and as such, the reliability of MWD is essential for the water reliability of the region. MWD water supplies are imported from Northern California through the State Water Project’s California Aqueduct and from the Colorado River through the Colorado River Aqueduct. MWD’s 2025 Regional UWMP projects that future supplies from these two imported water sources will be sufficient to meet demands even under multiple-dry year conditions.

#### 7.1.2.2 MWD Commitment to 100 GPCD

MWD incorporated its Water Surplus and Drought Management (WSDM) Plan in its Draft 2025 Regional UWMP. The WSDM Plan articulates different stages of shortages and different actions based on those stages. However, the ‘shortages’ envisioned in the WSDM Plan have more to do with years in which normal imported deliveries are less than the demand on MWD; these ‘shortages’ do not necessarily lead to an allocation of water; MWD may choose to mitigate the limitations on normal imported deliveries by drawing on stored

water, curtailing interruptible deliveries, acquiring additional supplies from the spot market, and by taking similar types of actions.

MWD refers to a shortage that results in allocation of supplies as an ‘Extreme Shortage.’ It is MWD’s objective to avoid Extreme Shortage. When MWD enters an Extreme Shortage, it develops an allocation plan based on its board adopted allocation principles. One of those principles is that MWD will guarantee an amount of water necessary for its member agencies to provide a minimum of 100 GPCD to their service areas.

Because LBUD’s service area is currently under 100 GPCD and is projected to remain under 100 GPCD through the year 2050, this guarantee by MWD is essentially a guarantee of 100 percent reliability for LBUD.

#### 7.1.2.3 LBUD Preferential Rights to MWD Supplies

Even if MWD’s declaration of reliability and its minimum guarantee of 100 GPCD were not enough, LBUD has an additional guarantee of reliability from MWD due to its preferential right to MWD’s water supplies. The Metropolitan Water District Act, included as **Attachment 10**, as enumerated in California law, entitles each member agency to a certain volume of “preferential rights” to the MWD imported water supplies. Per Section 135 of the Metropolitan Water District Act:

*“Each member public agency shall have a preferential right to purchase from the district for distribution by such agency, or any public utility therein empowered by such agency for the purposes, for domestic and municipal uses within the agency a portion of the water served by the district which shall, from time to time, bear the same ratio to all of the water supply of the district as the total accumulation of amounts paid by such agency to the district on tax assessments and*

*otherwise, excepting purchase of water, toward the capital cost and operating expense of the district's works shall bear to the total payments received by the district on account of tax assessments and otherwise, excepting purchase of water, toward such capital cost and operating expense."*

MWD recalculates preferential rights for each member agency on an annual basis, expressed as a percentage. Long Beach was one of the founding member agencies of MWD and has contributed towards the prescribed capital costs and operating expenses of MWD since the early 1930's and has, therefore, essentially purchased a preferential right to a portion of MWD's supplies. As of FY 2025, these cumulative contributions from Long Beach equate to preferential right of 1.92 percent of MWD supplies.

MWD's water service reliability assessment has determined that it has supply capabilities sufficient to meet expected demands from 2030 through 2050 under a single dry-year condition and a period of drought lasting five consecutive water years, as well as under normal water year hydrologic conditions. MWD's five-year drought risk assessment concludes that it has supply capabilities sufficient for a drought period that lasts five consecutive water years based on the driest five-year historic sequence for Metropolitan's water supply (1988-1992). Should a shortfall occur, MWD has a robust Water Shortage Contingency Plan (WSCP) and comprehensive shortage response planning that include demand reduction measures and supply augmentation actions to mitigate any potential shortage. As of January 1, 2025, dry-year storage is at a historic high, with approximately 3.8 MAF in storage that may be provided by MWD to its member agencies (including Long Beach) for dry-year needs.

LBUD's average annual demand for MWD supplies over the last 10 years has been approximately 26,000 AF, but demand has been steadily declining due to conservation reducing overall demand and the development of groundwater and recycled

supplies. However, MWD's WSCP and shortage response planning will cover the gap in shortfall to meet demand in the event of a shortfall. As reported in Submittal Tables 7-3 and 7-4, LBUD is projected to be in a surplus in both single dry year and multiple dry year scenarios. These projections are based upon trends in LBUD's preferential rights to MWD's total supplies that are projected to be more than sufficient to meet projected future demands even when using conservative planning assumptions.

### 7.1.3 Recycled Water Reliability

The supply of recycled water is not affected by single or multi-year droughts. The source of supply to the Long Beach Water Reclamation Plant (LBWRP) is fundamentally wastewater from indoor uses such as toilet flushing, showers, clothes washing, wastewater from commercial kitchens, industrial manufacturing. Unlike outdoor water uses such as irrigation, these indoor uses are largely unaffected by single or multi-year droughts. Recycled water availability is affected by long term changes to indoor water use efficiencies from plumbing codes and active conservation programs to rebate or replace older devices with more efficient ones.

The LBWRP effluent over the past 5 years is shown in **Figure 7-1** along with projections of supply availability through 2050 per the LACSD Joint Outfall System 2050 Master Facilities Plan, TM 1: Long Beach Water Reclamation Plant Population, Flow, and Loads, Table 1.18. While the supplies of recycled water are anticipated to be reliable, it is expected that as LBUD increases overall recycled water use over time that the summertime peak demands will begin to exceed the available supply. This is not so much a supply reliability issue so much as a demand management issue, which is an outcome expected as a result of the effort to maximize the use of available recycled water supplies. LBUD is prepared to manage demands through its already existing agreements and interruptible program where customers voluntarily

participating in the program curtail their water demand during peak times in exchange for paying a lower rate for recycled water. Additionally, recycled water demands can be supplemented by potable water supplies if necessary.

## 7.2 Water Supply Reliability Assessment

Historically, LBUD water supplies have proven to be reliable during normal years and even during the driest single year and multiple consecutive dry-year scenarios. As described in **Section 7.1**, each individual LBUD water supply is reliable and is not projected to be constrained in the future. Therefore, LBUD water supplies are projected to continue to be reliable during a single dry-year or multiple dry-year scenarios through 2050.

### 7.2.1 WSRA Year-Type Characterization

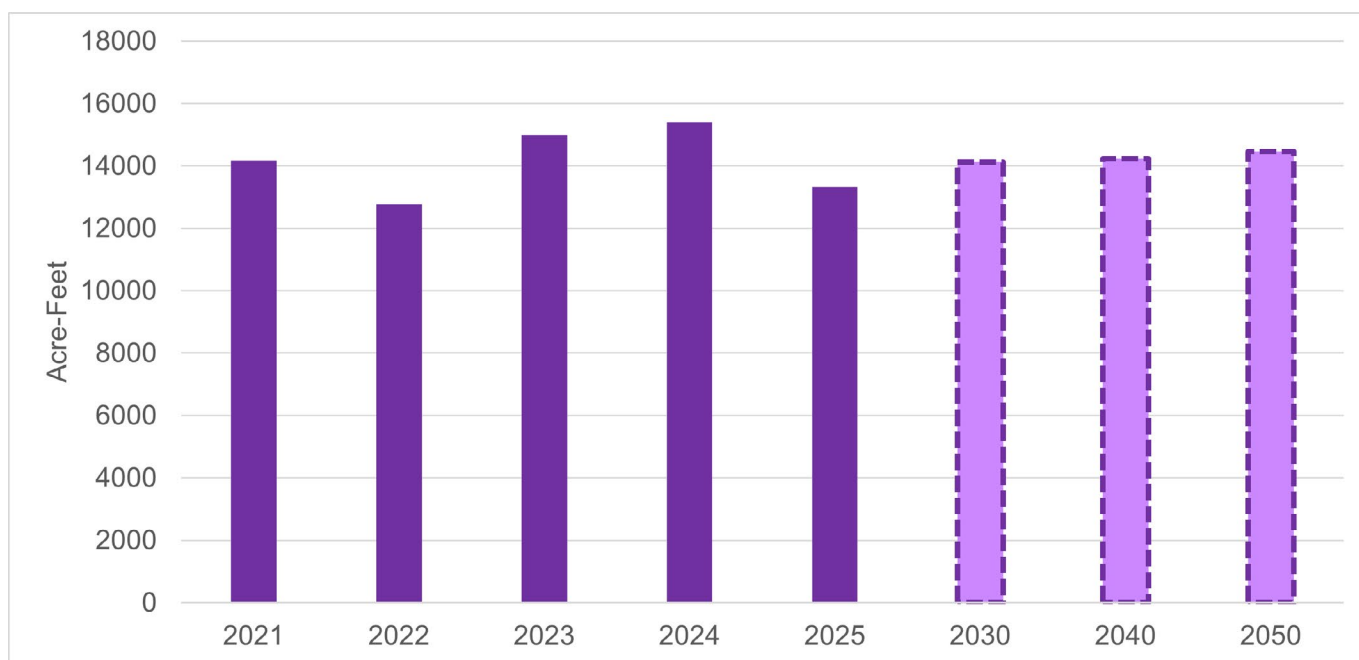
Historical precipitation data was referenced to determine which years to use for the purposes of evaluating LBUD supply reliability during a single

dry year and multiple dry years. The single driest year (July through June) in Long Beach in the past 50 years was 2007, which only had 2.1 inches of precipitation the entire year. The driest four-year period in the past 50 years has been from 2012 through 2016, averaging just 6.7 inches of precipitation annually, as shown in **Figure 7-2**.

Three year-types were included in the reliability assessment. These include:

- **Normal Year:** A normal year is characterized as having average or near-average precipitation and imported water availability in which water demands can be met without extraordinary conservation measures or supply restrictions.
- **Single Dry Year:** A single dry year is a period of below-average hydrologic conditions that may lead to short-term supply stress. LBUD assumes that both demand and supply will remain relatively stable.
- **Multiple Dry Year:** A multiple dry year is characterized as many consecutive dry years resulting in cumulative impacts on groundwater

**FIGURE 7-1: 2021 – 2025 Recycled Water Supply**



basins, surface storage reservoirs, and imported supplies. Reliability under these conditions should account for storage depletion, reduced groundwater recharge, increasing conservation measures, and allocation constraints. LBUD assumes that even under these conditions supply will remain stable since, as described in **Section 7.1**, each individual LBUD water supply is reliable and is not projected to be constrained in the future. In a multi-year drought, customer demand would likely decrease due to voluntary conservation driven by media coverage and social pressure. However, for conservative planning purposes, demand is assumed to remain constant

**7.2.1.1 Normal Year Supply Reliability**

As described in **Section 7.1**, each individual LBUD water supply is reliable and is not projected to be constrained in the future. Therefore, LBUD’s water

supplies are projected to be reliable during normal years through the 2050 planning horizon.

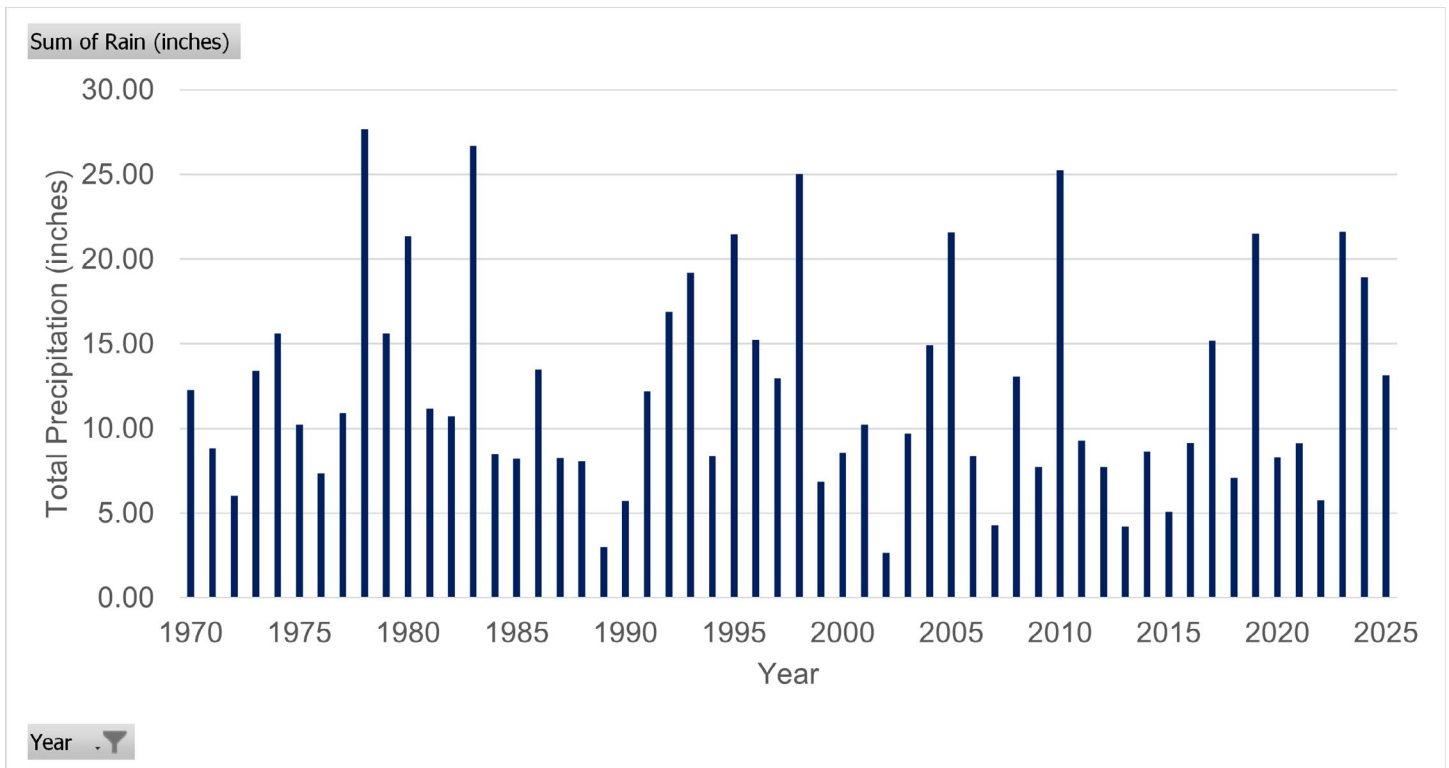
**7.2.1.2 Single Dry Year Supply Reliability**

The single driest year used by LBUD for analysis was the critically dry year of 2007, which experienced just 2.1 inches of total rainfall for the entire year. All LBUD water supplies were reliable during this single dry year. LBUD projects stable water supply and demand conditions because each individual LBUD water supply is reliable and is not projected to be constrained in the future as described in **Section 7.1**. Even if demand is conservatively assumed to remain the same, there would be sufficient supplies to meet demand.

**Groundwater Reliability**

LBUD pumped 25,411 AF of groundwater in 2007 despite the critically dry conditions, which was an amount almost identical to the average

**FIGURE 7-2: Historical Precipitation**



annual pumping amount for the previous 10 years, or 23,995 AF. More importantly, LBUD was free to pump its adjudicated allocation of 32,692 AF in 2007 if it had chosen to; there were no drought related constraints limiting groundwater production. Additionally, the 10-year average in the subsequent years showed that LBUD pumped more than the single dry year; it is important to note that the subsequent years included the driest five-year period within California in the past 50 years. During the post 10-year time frame, WRD did not impose mandatory pumping restrictions.

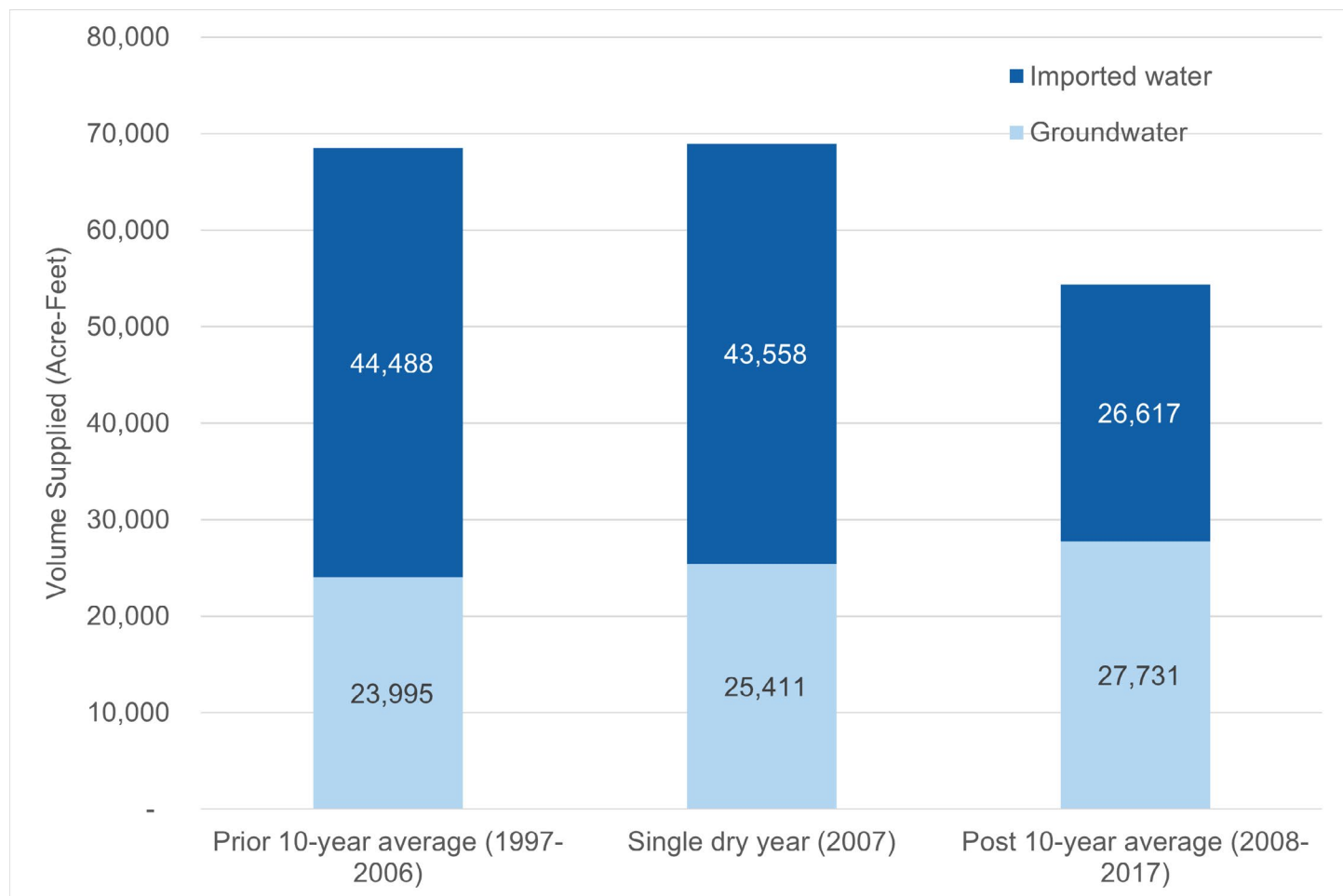
As explained in multiple sections throughout this document, the Central Basin is a reliable source of water because of the adjudication, because WRD actively manages the replenishment of the basin,

and because WRD can generate sufficient revenue to adequately replenish the basin through the replenishment assessment on extractions. LBUD groundwater supplies are therefore projected to be reliable even under critically dry single year conditions.

**Imported Water Reliability**

As represented in **Figure 7-3**, LBUD purchased 43,558 AF of imported water from MWD in 2007 despite the critically dry conditions, which was an amount similar to the average annual purchases in the prior 10 years of 44,488 AF. The slight reduction in purchases was due to a reduction in the necessary demand rather than any constraint on imported water availability.

**FIGURE 7-3: Single Dry Year Water Supply Reliability**



LBUD's imported water supplies are therefore projected to be reliable even under critically dry single year conditions. Average annual purchases in the subsequent 10 years were significantly lower at 26,617 AF, again due to decreased demand rather than any constraint on the availability of imported water. Imported supplies were reliable during that entire 10-year period.

### 7.2.1.3 Multiple Dry Year Supply Reliability

The multiple dry year period used by LBUD for this analysis were the five years 2012 through 2016, the driest five-year period in the past 50 years. This period was not only one of the driest in Long Beach, but it was the driest in California in the last 500 years. Despite the historical nature of this dry period, all LBUD water supplies were reliable during each of the five consecutive dry years. LBUD projects stable water supply and demand conditions because imported supplies from MWD will remain stable, groundwater production is not currently being maximized under existing pumping allocations, and recycled water expansion may offset a portion of potable demand. In reality, drought-related conservation behavior is likely to further reduce customer demand. Even if demand does not decrease, there are sufficient supplies in case of a shortfall.

### Groundwater Reliability

LBUD's groundwater supplies were reliable in each of the five consecutive dry years from 2012 through 2016. The amount of groundwater physically pumped by LBUD during each of the four dry years fluctuated, but this fluctuation was due to the amount of in-lieu replenishment undertaken by LBUD and WRD.

In an agreement with WRD, LBUD purchased additional imported water and retired the equivalent amount of groundwater pumping rights each year in exchange for WRD financially compensating LBUD to help defray the cost of the additional imported

water purchases. The combination of groundwater pumped and imported water purchased in-lieu of groundwater was essentially equivalent to or greater in each of the five dry years than the average of the ten years prior to the dry years. Therefore, LBUD's groundwater supplies are projected to be reliable even in multiple dry year conditions as severe as 2012 through 2016.

As stated previously in **Section 7.1.1**, the Central Basin is a reliable source of water because of the adjudication, active Basin management, and sufficient revenue from replenishment assessments. LBUD groundwater supplies are therefore projected to be reliable even under critically dry multi-year conditions.

### Imported Water Reliability

LBUD purchases wholesale imported water from MWD to supplement its groundwater, recycled water, and water conservation. Therefore, because the overall water demand in each of the five dry years from 2012 through 2016 was lower than the average demand of the ten previous years, LBUD imported water purchases were also lower. The decrease in imported water purchases was a result of decreased demand rather than any constraint on the availability of imported water.

Due to the preferential rights LBUD has to MWD supplies of imported water explained in **Section 7.1.2.3**, LBUD would have still been able to purchase as much imported water even in dry year 5 (2016) to provide customers a total of 71,584 AF, an amount greater than the 64,410 AF average demand for the ten years prior to the five dry years. Additionally, MWD in its 2025 Regional UWMP clearly articulates how it will continue to provide reliable supplies to its member agencies even during multiple dry year events. LBUD imported water supplies are therefore projected to be reliable even under multiple dry year conditions as severe as 2012 through 2016.

### 7.2.2 WRSA Supply and Demand Comparison

LBUD projects that water supplies will be sufficient to meet all demands through the year 2050 during normal, single dry year, and multiple dry year hydrologic conditions, even with the impacts of climate change. **Figure 7-4** compares projections of LBUD water supply and demand under the different hydrologic conditions and shows that LBUD supplies are projected to exceed demands through 2050.

Future water supply projections are based on those detailed in **Figure 6-5** of **Chapter 6** and the assessment of supply reliability addressed in **Section 7.3**. As described in **Section 7.3**, LBUD water supplies are projected to be reliable in a single dry year as well as multiple dry years.

Future demand projections are based on potable and recycled water demand projections detailed in **Chapters 4 and 6, respectively**. Although historical precedent has consistently proven that water demand decreases in dry years due to voluntary and mandatory water use restrictions and a general increase in public awareness of the need for water

conservation, this UWMP takes a conservative approach to planning by assuming that water demand will remain steady, rather than decrease during dry years.

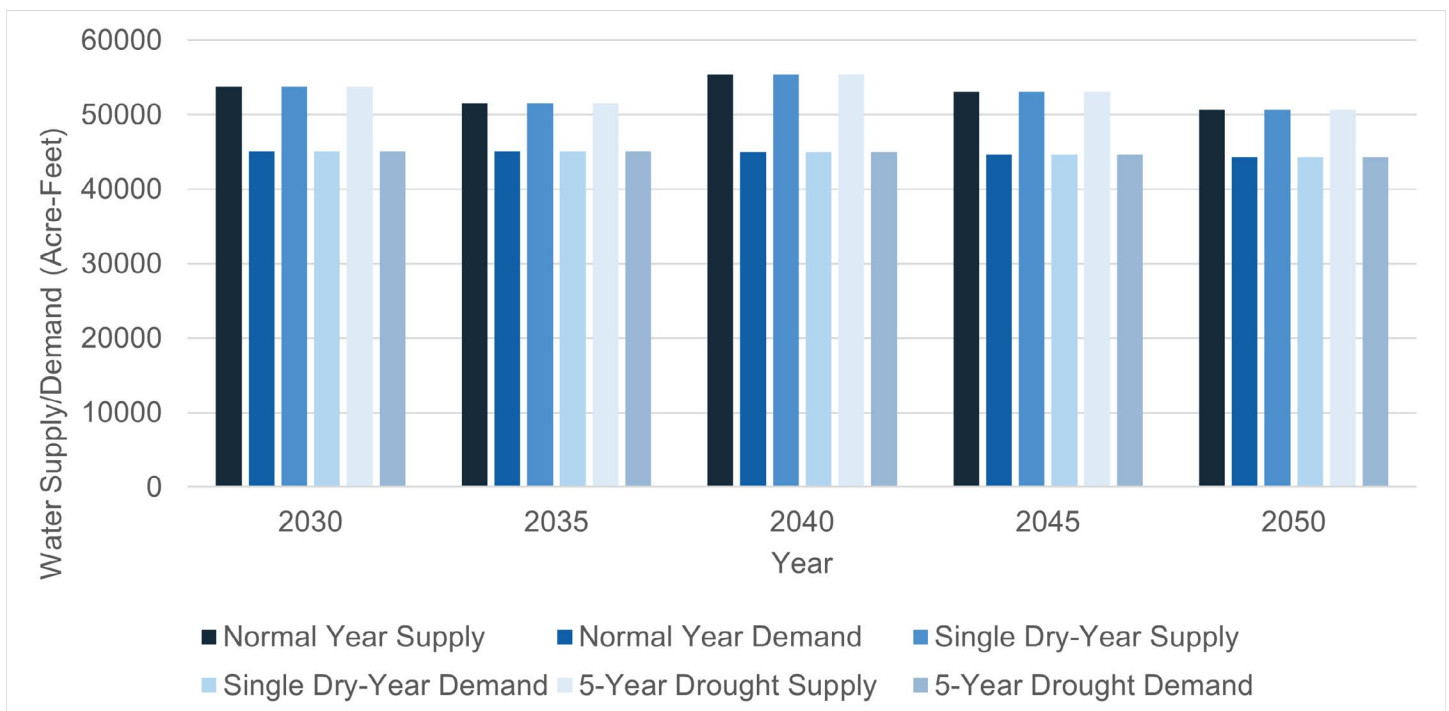
### 7.2.3 WRSA Description of Management Tools and Options

LBUD has been continuously investing in groundwater and recycled water infrastructure to maximize the use of these local resources and minimize the need to import water. LBUD has groundwater rights in surplus to what has historically been pumped, and similarly, there are additional recycled water supplies available from the Long Beach Water Reclamation Plant than have been historically used

### 7.3 Drought Risk Assessment (DRA)

In compliance with Water Code Section 10635(b), a drought risk assessment (DRA) which evaluates LBUD’s water demands and supplies over an

**FIGURE 7-4: Supplies and Demands Under Different Hydrologic Conditions**



assumed five-year drought period is presented in **Figure 7-5**.

### 7.3.1 DRA Data, Methods, Reliability and Basis for Supply Shortage Conditions

Projections are for water use to continue to slightly decrease over the evaluated time period of 2026-2030 even when considering the effects of climate change because of the anticipated ongoing water conservation efforts required to meet the Urban Water Use Objective regulatory requirements set by the State Water Resources Control Board.

### 7.3.2 DRA Individual Water Source Reliability

Groundwater supplies may be significantly affected by reduced rainfall and corresponding natural basin recharge during a five-year drought period. However, these effects are expected to be offset by additional replenishment with imported water and recycled water. Therefore, a five-year drought period is not anticipated to have any significant impacts to LBUD’s groundwater supplies.

MWD’s 2025 RUWMP indicates that MWD will

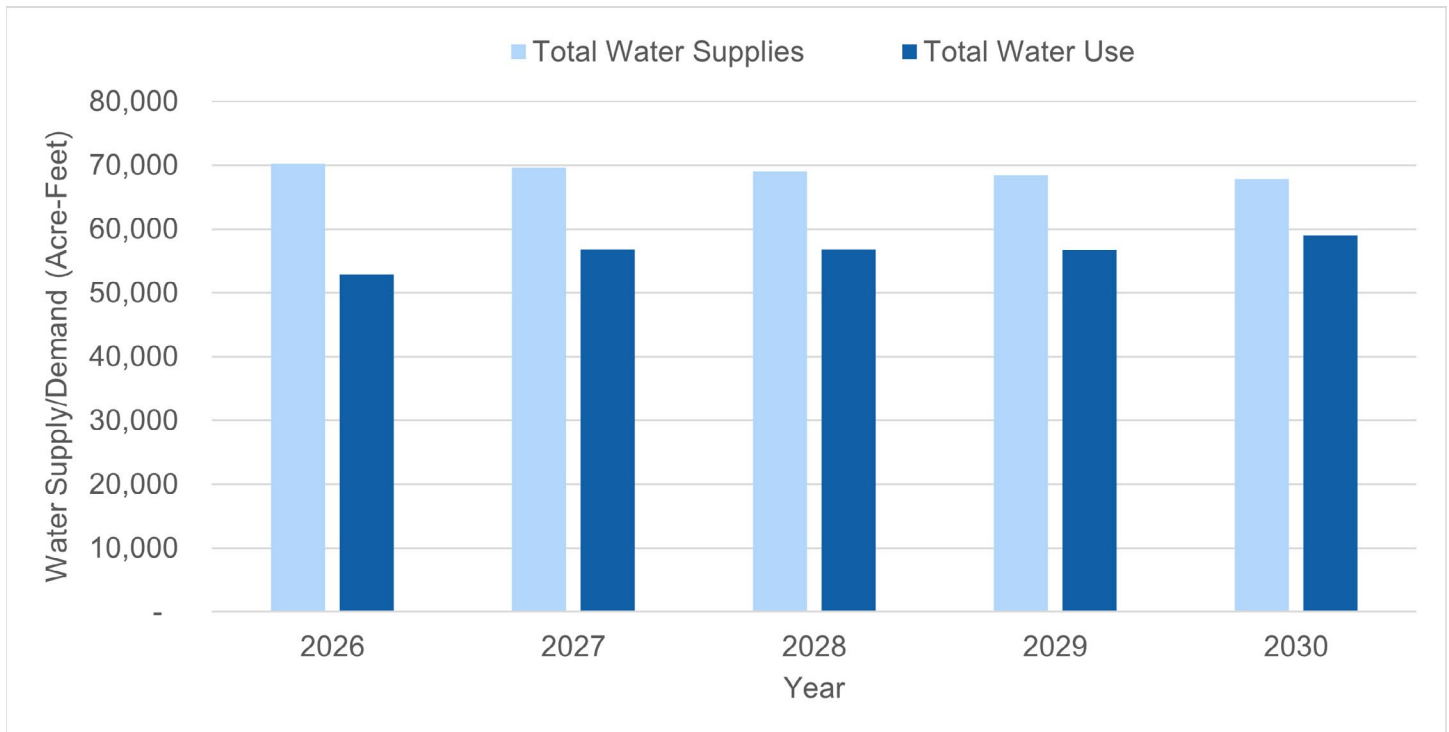
continue to provide 100 percent supply capability over the next five years under a consecutive five-dry year period starting in 2026. LBUD assumes MWD will be only able to provide LBUD supplies equivalent to its preferential rights, which is less than MWD’s 100 GPCD minimum supply guarantee.

Recycled water is assumed to be reliable within the next five-year timeframe, as the source of supply to the Long Beach Water Reclamation Plant (LBWRP), wastewater from indoor uses such as toilet flushing, showers, clothes washing, are largely unaffected by single or multi-year droughts. The supply average of the previous 5-years was used as the amount available for LBUD.

### 7.3.3 DRA Total Water Supply and Use Comparison

Given the assumptions and methodology discussed above, the DRA shows no anticipated shortages over a five-year drought period from 2026 through 2030.

**FIGURE 7-5: Drought Risk Assessment**





# CHAPTER 8: WATER SHORTAGE CONTINGENCY PLANNING

Chapter 8 describes how LBUD will maintain reliable supplies and reduce the impact of supply reductions that may occur due to drought or sudden catastrophic events.

LBUD’s Water Shortage & Contingency Plan (WSCP), as amended in 2023, is included in this UWMP as **Attachment 11**.

The objectives of the WSCP are to:

- Prevent water supply shortages through aggressive and effective water management programs such as water conservation, water education, and use of recycled water; and
- Minimize the impact of a water supply shortage on the City’s population and economy; and
- Provide first for public health and fire protection and other essential services, then to provide for the economic health of the City, and then to provide for other uses of water; and
- Ensure that water users who conserve water during normal-year hydrology and wet-year hydrology are not disadvantaged by the WSCP during shortages.

### 8.1 Water Supply Reliability Analysis

As previously discussed in **Chapters 6 and 7**, though Long Beach may experience climate change in the form of increased temperatures and erratic winter precipitation events, it is not expected to impact LBUD's water supply reliability; LBUD water supplies are projected to be 100 percent reliable in a single dry year as well as multiple dry years. Nevertheless, the WSCP will allow LBUD to address any impacts should a supply shortage occur.

### 8.2 Annual Water Supply and Demand Assessment Procedures

As required by Water Code Section 10632.1, LBUD shall prepare and submit, on or before July 1 of each year, or within 14 days of receiving its final allocations, an annual water supply and demand assessment (Annual Assessment) to the Department of Water Resources (DWR). The procedures used in conducting an annual water supply and demand assessment will include the following:

- The written decision-making process that LBUD will use each year to determine its water supply reliability
- Key data inputs and assessment methodology used to evaluate LBUD's water supply reliability for the current year and one dry year, including all of the following:
  - Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable;
  - Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year;
  - Existing infrastructure capabilities and plausible constraints;
  - A defined set of locally applicable evaluation criteria that are consistently

relied upon for each annual water supply and demand assessment;

- A description and quantification of each source of water supply.

The Annual Assessment and associated reporting are to be conducted based on LBUD's procedures in the Water Shortage & Contingency Plan. LBUD regularly conducts assessments of near-term water supply conditions to ensure appropriate shortage response actions, if any, are triggered in a timely manner.

### 8.3 Six Standard Water Shortage Levels

As required by California Water Code Section 10632(a)(3), LBUD has developed and included a cross-reference relating its existing stages of action under the WSCP to the six (6) standard water shortage levels, detailed in **Submittal Table 8-1**. The shortage levels have been standardized to provide a consistent regional and statewide approach to conveying the relative severity of water supply shortage conditions. The six (6) standard water shortage levels correspond to progressively increasing estimated shortage conditions: up to 10 percent, 20 percent, 30 percent, 40 percent, 50 percent, and greater than 50 percent shortage. These shortage stages have been aligned with the corresponding response actions LBUD would implement to meet the severity of the impending shortages.

#### 8.3.1 Level 0 (No Shortage)

LBUD believes it is necessary for communities in Southern California to use water efficiently even during non-shortage years. The water that is conserved in non-shortage years and placed into storage provides the reliability we enjoy during single dry year and multiple dry year events. To that end, LBUD maintains a robust water conservation program in dry years and wet, including prohibition against certain uses of water irrespective of the

hydrologic conditions, termed “Prohibited Use of Water At All Times”. These permanent prohibitions are summarized in **Section 8.4** and are detailed in the WSCP included as **Attachment 11**. Each subsequent stage (Levels 1–4) builds upon these foundational prohibitions, creating a cumulative and progressive demand reduction framework.

### **8.3.2 Level 1 (DWR Water Shortage Level 1)**

Level 1 Water Supply Shortage represents shortages up to ten percent and is the first level of mandatory demand reduction implemented after a shortage is declared. Level 1 builds upon the baseline requirements in the prohibited uses of water at all times by introducing additional restrictions designed to reduce overall water consumption, such as limiting irrigation days to Tuesday, Thursday, or Saturday, and capping watering to ten minutes per station, and restricting restaurant water service unless requested. Together, these sections form a cumulative framework consistent with California Water Code Section 10632, where permanent efficiency standards are supplemented by progressively stricter conservation measures as water supply conditions worsen.

### **8.3.3 Level 2 (DWR Water Shortage Level 2)**

Level 2 Water Supply Shortage corresponds to 10 to 20 percent shortage conditions. Level 2 Water Supply Shortage builds upon Level 1 and the prohibited uses of water at all times by further restricting irrigation schedules between October and March to just Tuesdays and Saturdays. At a Level 2 shortage, pool covers are required for commercial pools and spas to reduce evaporative losses, and leak repairs are required to be addressed promptly within 72 hours.

### **8.3.4 Level 3 (DWR Water Shortage Levels 3)**

Level 3 Water Supply Shortage corresponds to 20 to 30 percent shortage conditions. In addition

to all prior restrictions, Level 3 reduces irrigation year-round to Tuesdays and Saturdays. Level 3 also introduces a required ten percent reduction in potable water use for golf courses, parks, and schools relative to their baseline. This reflects a shift toward quantifiable demand management consistent with Level 3 expectations.

### **8.3.5 Level 4, 5 and 6**

#### **(DWR Water Shortage Levels 4, 5, and 6)**

Level 4, 5, and 6 Water Supply Shortage address shortages of up to 40 percent, 50 percent, and greater than 50 percent respectively. At these shortage levels, the Board is authorized to impose additional prohibitions and restrictions as necessary to achieve significant reductions in water use and protect system reliability. The WSCP currently does not detail specific potential measures for a Water Supply Shortage Levels 4, 5, and 6. This provides the LBUD Board flexibility to respond in the manner needed to critical conditions at that point in time.

### **8.3.6 Catastrophic Water Supply Shortage**

Catastrophic Water Supply Shortages are addressed in the LBUD WSCP. When the General Manager determines that a sudden event has, or threatens to, significantly diminish the reliability or quality of the City’s water supply, then the General Manager may declare a Catastrophic Water Supply Shortage and impose whatever emergency water allocation or conservation actions necessary to protect the reliability and quality of the City’s water supply and in order to meet the objectives of this Plan, until the emergency passes or the Board takes other action.

## **8.4 Shortage Response Actions**

### **8.4.1 Demand Reductions**

The demand reduction actions associated with each of the six levels of water supply shortage have been described above in **Section 8.3** and summarized in **Submittal Table 8-3**.

### 8.4.2 Supply Augmentation

LBUD maintains approximately 14,000 acre-feet of groundwater in stored in the Central Basin, which is considered a component of supply augmentation. This stored volume would supplement existing supplies during imported water supply disruptions, thereby enhancing system resilience and reliability.

LBUD maintains an interagency agreement with the City of Lakewood to procure Lakewood's groundwater as a supplemental supply. This purchased water is considered a component of supply augmentation, as it increases the total volume of water available to LBUD beyond its existing groundwater and local resources. Supply augmentation and other actions are summarized in **Submittal Table 8-2**.

### 8.4.3 Operational Changes

LBUD continuously monitors and makes operational changes across all water supply conditions. Major efforts to improve monitoring and tracking of customer usage rates has been improved by the Advanced Metering Infrastructure (AMI) implementation, which is further discussed in **Chapter 9**.

### 8.4.4 Additional Mandatory Restrictions

Implementation of additional mandatory restrictions could be an effective but unpopular method for reducing customer usage because it is associated with enforcement actions and penalties. Mandatory restrictions can include several items such as limitations on outdoor water use (timing, volume, location), limiting total residential water use, restrictions on using water for certain functions (e.g., car washing), and other restrictions.

### 8.4.5 Emergency Response Plan

If LBUD could not meet all the demand placed upon it by its customers, LBUD could declare a water

emergency and take appropriate actions as outlined in its WSCP. Additionally, LBUD in cooperation with federal authorities, regional and local first-responders first responders, and other experts, have developed a confidential and comprehensive study of its vulnerabilities and have completed the necessary measures to mitigate the reasonable impacts of these types of events on its ability to serve its customers. Given the critical nature of the services provided by LBUD to the public's welfare, and recent security considerations, the responses to be taken by LBUD to mitigate the impacts of certain emergencies and catastrophic events are no longer explored in public forums such as the UWMP.

### 8.4.6 Seismic Risk Assessment and Mitigation Plan

The 2023 Hazard Mitigation Plan (**Attachment 12**) was prepared in response to the Disaster Mitigation Act of 2000, which requires state and local governments to prepare Mitigation Plans to document their mitigation planning process, and identify hazards, potential losses, mitigation needs, goals and strategies.

## 8.5 Communication Protocols

LBUD shall declare a water shortage emergency condition to prevail within its service area when it finds and determines that the demands and requirements of its customers cannot be satisfied without depleting water supplies to the extent that there would be insufficient water for public health and safety.

In an event of a water shortage, LBUD will follow communication protocols as outlined in the WSCP (**Attachment 11**) to inform customers; the general public and interested parties; and local, regional, and state government entities.

When Water Supply Shortage is declared by the Board, the LBUD shall provide notice to its customers

by including the following:

- Effective date of the declaration;
- The Prohibited Use of Water (PUoW) associated with the relevant supply shortage;
- Information about rate increases, if any, resulting from the declaration; and
- The importance of taking additional voluntary actions to conserve water

The communication protocols shall be pursued to California Government Codes Article 2, Section 8558. The list of contacts for all entities for which LBUD provides service is included under

**Appendix B.**

### 8.6 Compliance and Enforcement

LBUD has found customer education to be the most effective means of achieving compliance with the prohibited uses of water. LBUD customers have been extremely responsive to the water supply challenges facing the region, and over the years have achieved incredible levels of water conservation. As our customers have proven to be both willing and voluntary partners in our recent conservation success, LBUD prefers to continue to educate and assist customers in their compliance efforts rather than to achieve compliance through punitive measures.

LBUD encourages customers to report apparent violations and has made reporting easy by providing customers four simple anonymous ways to report violations: a website, email, or a telephone phone "hot line." After receiving reports, LBUD sends an "Informational Letter" to the alleged violators. The Informational Letter informs the customer of the importance of conserving water, the alleged violation, and how violations of that type may be rectified. These Informational Letters are effective and reinforce the belief that most people in Long Beach will act responsibly when informed, because rarely does a second letter have to be sent to the

same customer for the same violation.

Enforcement through penalties is used only as a last resort in situations where customers are engaging in prohibited use of water activities after having received ample communication and opportunity to correct their water wasting practices. The details regarding penalties and enforcement of the prohibited uses of water can be found in the WSCP and the LBUD Rules, Regulations, and Charges (included as **Attachment 13**).

The first step in the enforcement process is to serve the customer a Warning Letter containing the following information:

- The account number and service address where the violation took place;
- A description of the violation and the provision of the Water Conservation and Water Supply Shortage Plan violated;
- Possible suggestion(s) for eliminating the violation;
- An order to the customer to correct the violation no later than the specified correction date;
- An explanation of the possible consequences of failure to correct the violation in a timely manner. This explanation informs the customer that subsequent separate and distinct offenses of the provision of the WSCP shall result in a Notice of Violation and a Prohibited Use of Water Charge.

The goal of the Warning Letter is to make sure that the customer is aware that they are using water in a prohibited manner and to provide them with as much information as possible to help them to correct the problem.

In cases where a violation of the same prohibited use of water occurs again within 365 days of receiving an initial Warning Letter, then the customer is issued a Notice of Violation. The Notice of Violation includes a Prohibited Use of Water Charge, and the amount of the Prohibited Use of Water Charge is determined

by the LBUD Board by Resolution and listed in the LBUD Rules, Regulations, and Charges (**Attachment 13**). The applicable Resolution as of the date of this 2025 UWMP is LBUD Board Resolution Number UT-1480 (included as **Attachment 11**).

### 8.6.1 Legal Authorities

LBUD is authorized to implement and enforce the WSCP through authority granted under the California Water Code, the Long Beach Municipal Code, and Board-adopted resolutions, including the Water Shortage Contingency Plan and Rules, Regulations, and Charges.

The Board as the governing body is authorized to declare water shortage conditions and establish corresponding shortage response actions through formal resolution consistent with the Water Code and adopted City ordinances.

### 8.6.2 Declaration of Water Shortage

LBUD shall declare a water shortage emergency condition in accordance with Division 1, Chapter 3 (commencing with Section 350) of the California Water Code whenever it determines that available water supplies are insufficient to meet ordinary demands without jeopardizing public health, safety, or fire protection.

Shortage levels (Levels 1 through 4, and catastrophic conditions) are declared by resolution of the Board. In the event of a sudden catastrophic shortage, the General Manager is authorized to implement immediate emergency actions necessary to protect the water supply until further Board action is taken.

### 8.6.3 Proclamation of Local Emergency

LBUD has an Emergency Response Plan (ERP) that is built on the National Incident Management System (NIMS) framework and uses the Incident Command System (ICS) to organize and manage emergency response activities. ICS, specifically, provides a

standardized structure that allows LBUD to integrate and coordinate with other responding agencies, including the City's Emergency Operations Center (EOC).

During significant incidents affecting water supply, the LBUD Incident Management Team (IMT) would coordinate closely with the City's EOC and Board of Utilities Commissioners. This coordination supports unified situational awareness, streamlined information sharing, and resource prioritization using established NIMS protocols. Through this structure, operational updates, damage assessments, and resource needs are communicated to City leadership, the Board, and supporting agencies.

The integration with the City's Emergency Operations Center also ensures that LBUD can support policy-level decision-making, including the evaluation and preparation of a local emergency proclamation when conditions meet the criteria outlined in Government Code Section 8558. Since LBUD follows established ICS and EOC coordination protocols, our agency fulfills the requirement to collaborate with local jurisdictions in the event of potential water-related emergencies.

## 8.7 Financial Consequences of WSCP

During shortages, the LBUD Board may adjust water rates. Any increase in rates approved by the Board shall be subject to a public protest hearing as provided for in the California Constitution Article XIII. The rate increase would be carefully managed so as not to meet but not exceed LBUD revenue requirements.

Additionally, LBUD maintains large capital improvement programs (CIP), and much of the CIP is completed by LBUD workforce. This work includes ongoing water main replacement and meter exchange programs. In the event of a funding shortfall resulting from an extreme shortage, LBUD would have the option of reducing expenses by postponing certain capital projects and re-directing

staff to emergency conservation efforts. After the emergency, the staff would return to their normal CIP duties.

Finally, as a prudent utility providing an essential public service, LBUD maintains a responsible fund balance for use in emergencies. In the event LBUD were financially stressed as a result of an extreme water shortage, these reserves could be utilized.

## 8.8 Monitoring and Reporting

Water meters record all the water that goes into LBUD's distribution system, and all the water used by our customers. These records make it possible for LBUD to calculate the water savings resulting from implementing different water shortage stages. Electronic systems monitor the production of groundwater remotely, and MWD has a similar system for its connections with LBUD. All LBUD customer accounts are metered, so consumption can also be determined. The extent of estimating supply and demand gap reductions vary depending on the shortage level and action. For example, determining the use reductions from providing rebates on exchanges of plumbing fixtures is more transparent on a per unit basis. Alternatively, expanding public information campaigns is not as straightforward as a calculation but can be estimated based on overall consumption data along with other assumptions factored in.

### 8.8.1 WSCP Adoption, Submittal, and Implementation

The LBUD WSCP was most recently adopted by the LBUD Board on August 1, 2023 and has been included as **Attachment 11**.

## 8.9 WSCP Refinement Procedures

Currently, the WSCP is updated and adopted per Board's discretion based on shortage conditions. In the future, the WSCP will be updated to improve procedures for systematically monitoring and evaluating the functionality of the WSCP. The update

will ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

## 8.10 Special Water Feature Distinction

LBUD separately categorizes water features that are not pools or spas in the WSCP. For example, LBUD identifies operating a fountain or other water feature that does not re-circulate the water, under Prohibited Uses of Water at All Times. Alternatively, this is categorized differently from leaving a commercial swimming pool and/or spa uncovered when not in use, under Level 2 Water Supply Shortage. This separation is primarily due to the different water uses of each water feature. For example, non-pool or non-spa water features may use or be able to use recycled water, whereas pools and spas must use potable water for health and safety considerations.



# CHAPTER 9: DEMAND MANAGEMENT MEASURES

Chapter 9 describes the water conservation programs and other efforts that LBUD had implemented in the past, is currently implementing, and plans to implement in order to reduce the demand on the water supply and meet its urban water use reduction targets. Many of the targets in this section are directly related to those discussed elsewhere in this UWMP.

## 9.1 Existing Demand Management Measures for Retail Suppliers

### 9.1.1 Water Waste Prevention Ordinances

About 30 years ago, the LBUD Board adopted water waste prevention mandates, known as “prohibited uses of water”. These prohibited uses of water are incorporated into the City’s municipal code by reference. The LBUD Board reviews and revises these prohibited uses from time to time as needed; most recently in 2023. The prohibited uses of water are detailed in **Section 8.3**, and the enforcement of the prohibited uses of water is discussed in **Section 8.6**.

### 9.1.2 Metering

It is axiomatic in the water industry that water conservation programs begin with measuring customers’ water usage and billing them accordingly. LBUD’s service area is fully metered and has been so for many decades.

Customers’ water meters slow down as they age, and unlike a new meter, a meter that is old and has seen a lot of usage will become less accurate over time. Therefore, older meters must be replaced as they become less accurate to maintain their usefulness in measuring customer water use. LBUD

has determined through meter testing and analysis, that meters should be replaced about once every twenty years.

In 2019, LBUD began a full deployment to replace all existing meters with advanced metering infrastructure (AMI), or “smart meters.” By 2021, all customers in the LBUD service area were equipped with smart meters. LBUD is looking forward to continued work in this field to more closely track water use, waste, and leaks on a timely basis as well as to assist our customers in behavioral water conservation practices.

### **9.1.3 Conservation Pricing**

In addition to individually metering customers, those customers subsequently must be billed according to their metered volumetric water usage to help achieve the desired water conservation results. LBUD has incentivized water conservation for decades by billing customers according to their metered water usage.

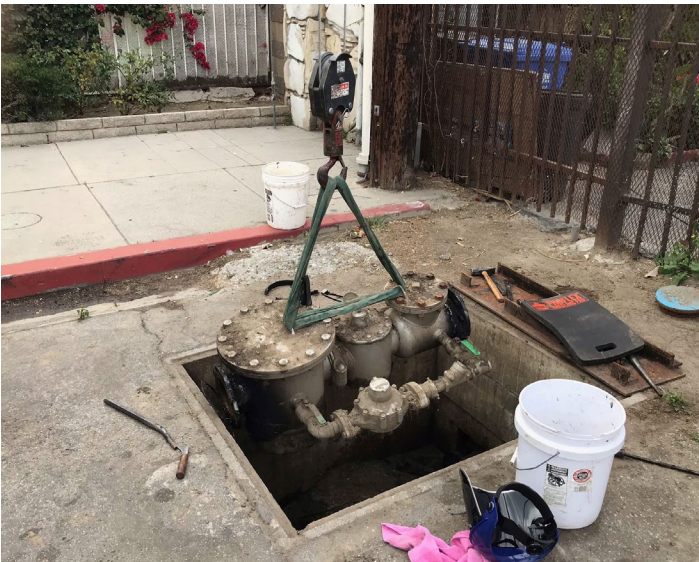
Commercial, institutional, industrial and irrigation customers are charged a flat per-unit rate. Their water bill is based on the volume of metered water they consume; the more water the customer consumes, the higher their water bill.

For residential customers, LBUD uses a three-tiered inclining block rate structure, meaning that as the customer uses more water, the rate they pay per unit of water used also increases.

Additionally, because LBUD is also a wastewater collection agency and because the fees it charges for wastewater services are tied to the volume of metered water usage, the wastewater charges amplify the water conservation signal incentivizing the customer to save water.

### **9.1.4 Public Education and Outreach**

LBUD continues to have a vibrant public education and outreach program. Efforts include in-school seminars for young students, landscape classes



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for adults, bill-inserts delivered to customers throughout the year, promotions at movie theaters, bus stops, bus tails, billboards, and newspaper advertisements.

LBUD's "Community Engagement Team", a volunteer group of employees, attend around 100 public events in Long Beach each year to help provide a consistent public presence in promoting water conservation.

LBUD is also active social media, using platforms such as Facebook, X, and Instagram.

### 9.1.5 Programs to Assess and Manage Distribution System

Financial investments in infrastructure by LBUD over the past 25 years have prevented potential water loss in the distribution system. Due to these infrastructure investments, LBUD's system losses are very low by industry standards: averaging only about 2-5% per year. LBUD manages system losses primarily through pressure management and monitoring by utilizing inputs from SCADA and periodic data from pressure transducers. Routine inspection and preventative maintenance efforts are conducted to maintain accuracy of the pressure transducers and as well as improvement efforts towards proactive leak detection.

In addition, LBUD continues to invest in its water main replacement and meter replacement programs. LBUD's Automated Meter Infrastructure Program (described previously in Section 9.1.2) enable improved management of system losses.

LBUD provides emergency response to reports of main breaks 24-hours a day, 7 days a week. LBUD also conducts visual inspection for the surface above all its major pipelines on a regular basis, looking for possible water leaks and breaks.

LBUD has been using the American Water Works Association system loss spreadsheet to track system losses since 2009. By continuing and improving efforts to prevent and quantify water loss, LBUD is



able to address a standardized method of water loss from the State Water Board and identify potential gaps in order to achieve such standard method.

### **9.1.6 Water Conservation Program Coordination and Staffing Support**

LBUD's equipped with conservation staff consisting of five professionals, two water conservation interns, and the ongoing support of individuals completing fellowships as part of the California Climate Action Corps (CCAC) and the Long Beach Public Service Corps (LBPSC), among others. Additionally, LBUD's Government and Public Affairs section actively promotes water conservation through traditional forms of communication with our customers such as newspaper ads, bill inserts, billboard advertising, and through social media.

### **9.1.7 Other Demand Management Measures**

LBUD has several demand management measures in addition to those discussed above. These additional measures include the following:

#### **Turf Replacement**

##### **Lawn to Garden Program**

LBUD has had a successful award-winning "Lawn-to-Garden" turf replacement program since 2010. The program also has had success for large landscapes such as commercial campuses, public facilities, and multi-family developments. Approximately 4,200 residential yards have been converted to beautiful drought-friendly landscapes that thrive in the semi-arid Long Beach region, replacing more than 4.2 million square feet of turf grass. Because Lawn-to-Garden landscapes only require about 20-percent of the irrigation water of grass lawns, they have been a major contributor the LBUD's overall success in water conservation. In addition to conserving water, these landscapes tend to increase the amount of habitat for wildlife such as hummingbirds and butterflies and reduce urban runoff from landscape irrigation.

As a part of the turf replacement programs LBUD offers multiple free landscape classes per year and has agreements with most of the local plant nurseries to provide discounts to Lawn-to-Garden program applicants. Designing a landscape is often one of the most challenging obstacles in a turf replacement. In 2018 LBUD began offering a design assistance incentive to eligible customers. The Design assistance incentive connects Lawn to Garden applicants with a list of LBUD verified local landscaping professionals to help produce aesthetically pleasing and functional garden spaces.

##### **Native Plant Parkway Program**

In 2020, LBUD launched a new pilot program to promote the multiple benefits of California native plants and address water consumption in parkways (the median area between the sidewalk and the curb found in many Long Beach neighborhoods). The Native Plant Parkway Program is a turf replacement alternative that provides planting kits of California native plants and mulch to eligible customers. The Native Plant Parkway Program has helped to convert over 200 parkway strips into California native garden habitats.

##### **Low Income and Disadvantaged Community Programs**

LBUD strives for equity and inclusiveness to create opportunities for all customers, regardless of income or locale, to incorporate a more water use efficient lifestyle. In late 2019 and early 2020, LBUD launched its first set of programs to promote water conservation in low-income multifamily housing and single-family residences.

##### **Direct Install Gardens**

The Direct Install Gardens (DIG) program is an alternative turf replacement program for customers residing in low income and disadvantaged communities. The DIG program replaces grass lawns with a multi-benefit, low water-use garden at no cost to the customer. Through the DIG program, the

## 2025 Urban Water Management Plan

customer's existing irrigation system is upgraded to a more efficient option consisting of drip irrigation, micro-spray, high efficiency spray or a hybrid system integrated with a weather sensor. The DIG program also serves as a partnership with the Long Beach Conservation Corps that provides job training in the areas of drought tolerant landscaping, efficient irrigation systems and landscape maintenance to local at-risk youth.

### Direct Install Appliances

The Direct Install Appliances (DIA) Program provides and installs high efficiency water appliances, such as toilets, shower heads, faucet aerators, dryers, and water heaters, for single-family and multifamily residences at no cost to the customer or resident. Since the inception of DIA, the program has helped to retrofit over 3,000 devices at over 1,100 single family and multifamily residences.

### Rebates

LBUD offers a wide variety of rebates to both residential and non-residential properties. These include rebates for toilets, clothes washers, sprinkler nozzles, weather-based irrigation controllers, air-cooled ice machines, cooling towers and many other devices. LBUD has rebated over 2,000 water efficient devices to customers. LBUD also offers the Energy Efficient Rebate Program (EERP) providing rebates for high efficient natural gas appliances such as tank and tankless water heaters, further assisting the hot water-energy nexus savings.

### 9.2 Implementation over the Past Five Years

Over the past five years, LBUD has continuously implemented and continued to develop the demand management measures mentioned in this chapter to achieve water use targets.



### 9.3 Urban Water Use Objectives

LBUD is working to meet the Urban Water Use Objective (UWUO) requirements set by the State Water Resources Control Board in 2024.

LBUD has prioritized achieving its water use objectives and remains dedicated towards creating a more sustainable and water use efficient community. Objectives set by legislation will remain a priority to which LBUD will continue to develop and adapt its demand management measures where necessary to fulfill those objectives.



# CHAPTER 10: PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

Chapter 10 describes the process LBUD followed to adopt, submit, and implement the 2025 UWMP.

## 10.1 Inclusion of All 2025 Data

LBUD is reporting on a fiscal year basis from July 1 through June 30, and data for the entire 2025 fiscal year (July 1, 2024 through June 30, 2025) has been reported.

## 10.2 Notice of Public Hearing

LBUD was required to hold a public hearing prior to adopting the 2025 UWMP. The public hearing provided an opportunity for the public to provide input to the plan before it is adopted. There are two audiences to be notified for the public hearing: cities and counties, and the general public.

### 10.2.1 Notice to Cities and Counties

Ninety-nine percent of LBUD's accounts are located in the City of Long Beach; the balance is located in an unincorporated area within the county of Los Angeles and several other cities. Cities and counties wherein at least one LBUD customer resides were sent notification letters, at least 60 days prior to the public hearing, that LBUD would be reviewing and considering amendments to the 2025 UWMP. The full list of cities and counties are listed in **Appendix B**.

### 10.2.2 Notice to the General Public

LBUD noticed the public hearing via publications in the Press-Telegram and through [www.LBUtilities.org](http://www.LBUtilities.org). The notices were published once a week for two successive weeks. The notice included the time and place of hearing, as well as the location where the 2025 UWMP was available for public inspection. A copy of the public notice has been included as **Appendix C**.

### 10.3 Public Hearing and Adoption

A public hearing will be held on **June 4, 2026**, where information was provided on the baseline values, water use targets, and implementation plan required in the Water Conservation Act of 2009 described in Chapter 5. The LBUD Board will adopt the 2025 UWMP on **June 4, 2026**. The adoption resolution has been included as **Appendix G**.

### 10.4 Plan Submittal

The 2025 UWMP was submitted electronically to DWR within 30 days of adoption and prior to the **July 1, 2026** deadline.

Also within 30 days of adoption, LBUD submitted a printed hard copy and electronic copy of the 2025 UWMP via mail to the California State Library.

Electronic copies of the adopted LBUD 2025 UWMP which included the Water Conservation & Water Shortage Plan were submitted to the cities and counties where LBUD provides water listed in **Appendix B**.

### 10.5 Public Availability

The adopted 2025 UWMP, along with the most recent Conservation & Shortage Plan, has been made available for public review on the LBUD website at: [www.LBUtilities.org/UWMP](http://www.LBUtilities.org/UWMP)

# APPENDICES: LIST OF APPENDICES

The appendices provide detailed tables and background information on the content presented within the main body of the 2020 UWMP.

## List of Appendices

Appendix A	DWR UWMP Standardized Tables
Appendix B	Coordination and Outreach
Appendix C	Public Notification Ad
Appendix D	Metropolitan Water District Coordination
Appendix E	Water Losses
Appendix F	DWR SBx7- 7 Compliance Forms
Appendix G	Board Resolution Adopting the 2020 UWMP

## APPENDIX A: DWR Tables

Submittal Table 2-1 Retail: Public Water Systems			
Has there been a change in the number of affiliated Public Water Systems since the 2020 UWMP? (OPTIONAL)			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2025	Volume of Water Supplied 2025
			(AF)
Add additional rows as needed			
CA1910065	LONG BEACH UTILITIES DEPARTMENT	92,563	52,511
<b>Total</b>		92,563	52,511
<b>DWR NOTES:</b> 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 Table 2-3.			
<b>NOTES:</b>			

Submittal Table 2-2: Plan Identification		
Select One or Both	Type of Plan	Name of Regional Alliance or RUWMP (Drop Down List)
✓	Individual UWMP	
	<input type="checkbox"/>	Water Supplier is also a member of a SB X7-7 Regional Alliance
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)	
<b>NOTES:</b>		

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
<input type="checkbox"/>	Supplier is a wholesale supplier
<input checked="" type="checkbox"/>	Supplier is a retail supplier
Fiscal or Calendar Year (select one)	
<input type="checkbox"/>	UWMP Tables are in calendar years
<input checked="" type="checkbox"/>	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
07/01-06/30	
Units of measure used in UWMP (Select from the drop down list).	
Unit	AF
<b>DWR NOTES:</b> Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.	
<b>NOTES:</b>	

Submittal Table 2-4 Retail: Water Supplier Information Exchange Water Code Section 10631(h)
The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631 (h).
Wholesale Water Supplier Name
Add additional rows as needed
Metropolitan Water District of Southern California
<b>NOTES:</b>

Submittal Table 3-1 Retail: Population - Current and Projected Water Code Section 10631(a)						
Population Served	2025	2030	2035	2040	2045	2050 (opt)
	465,000	481,700	491,400	493,400	495,200	495,031
<b>NOTES:</b>						

Submittal Table 4-1 Retail: 2025 Actual Total Uses for Potable and Non-Potable Water Water Code Section 10631(d)(1)			
Use Type	Additional Description (as needed)	2025 Actual Water Use	
<b>Drop down list</b> May select each use multiple times These are the only use types that will be recognized by the WUEdata online submittal tool		Level of Treatment When Delivered (OPTIONAL) Drop down list	Volume (AF)
Add additional rows as needed			
Single Family		Potable	17,684
Multi-Family		Potable	14,195
Landscape		Potable	1,569
Industrial		Potable	242
Commercial		Potable	10,597
Distribution System Water Loss		Potable	600
Landscape		Non-Potable	3,572
Saline water intrusion barrier		Non-Potable	3,244
Industrial		Non-Potable	808
<b>Subtotal Potable</b>			44887
<b>Subtotal Non-Potable</b>			7624
<b>Total</b>			52,511
<b>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.</b>			
<b>NOTES:</b>			

Submittal Table 4-2 Retail: Total Uses of Potable, and Non-Potable Water - Projected Water Code Section 10631(d)(1)							
Use Type	Additional Description (as needed)	Projected Water Use (Report To the Extent that Records are Available)					
		Level of Treatment When Delivered (OPTIONAL) Drop down list	2030	2035	2040	2045	2050 (opt)
<b>Drop down list</b> May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool			(AF)	(AF)	(AF)	(AF)	(AF)
Add additional rows as needed.							
Single Family		Potable	16,634	16,412	16,245	16,088	15,931
Multi-Family		Potable	14,207	14,177	14,207	14,156	14,064
Commercial		Potable	10,639	10,734	10,760	10,615	10,504
Industrial		Potable	177	177	168	157	147
Landscape		Potable	1,900	1,964	2,005	2,020	2,027
Distribution System Water Loss		Potable	1,529	1,578	1,597	1,609	1,614
Landscape		Non-Potable	3,024	3,024	3,024	3,024	3,024
Saline water intrusion barrier		Non-Potable	7,281	7,281	7,281	7,281	7,281
Industrial		Non-Potable	3,665	3,698	3,731	3,797	3,862
<b>Subtotal Potable</b>			45,086	45,042	44,982	44,645	44,287
<b>Subtotal Non-Potable</b>			13,970	14,003	14,036	14,102	14,167
<b>Total</b>			59,056	59,045	59,018	58,747	58,454
<b>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.</b>							
<b>NOTES:</b>							

<b>Submittal Table 4-3 Retail: Inclusion in Water Use Projections</b> <b>Water Code Section 10631 (a), 10631 (d)(4)(A), and 10631 (d)(4)(B)</b>	
<b>Are Future Water Savings Included in Projections?</b> (Refer to Appendix K of UWMP Guidebook) <b>Drop down list (y/n)</b>	Yes
If "Yes" to above: State the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found. <b>OPTIONAL</b> Suppliers may complete Optional Submittal Table 4-4 R to quantify the expected savings.	Section 4.4.2
<b>Are Lower Income Residential Demands Included In Projections?</b> (Refer to Appendix K of UWMP Guidebook) <b>Drop down list (y/n)</b>	Yes
<b>OPTIONAL</b> If the method for accounting Lower Income Residential Demands has been included, provide page number where this accounting can be found. (An example is included in Appendix K.)	Section 4.4.3
<b>NOTES:</b>	

<b>Submittal Table 4-5 Retail: Water Loss Audit Reporting</b> <b>Water Code Section 10631(d)(3)(A)</b>		
Public Water System ID # Reported in Table 2-1 R	Reporting Period	Submitted to DWR Water Loss Audit Program (yes/no)
<b>Report submittal status for all five years for each Public Water System as available.</b> <b>Add rows as needed</b>		
	2020	Yes
	2021	Yes
	2022	Yes
	2023	Yes
	2024	Yes
	2025	Yes
<b>DWR NOTES:</b> Suppliers will provide a link to the WUEdata submittals of their Water Loss Audit Reports.		
<b>NOTES:</b>		

**Submittal Table 4-6 Retail: Progress Towards 2028 Water Loss Standard  
Water Code Section 10631(d)(3)(C) (Part 1)**

Public Water System ID # Reported in Submittal Table 2-1 R	Did the Water Board Calculate a Water Loss Standard for this Public Water System? (y/n) If no, Supplier will not complete this row.	Real Water Loss				
		State Water Board Standard		Most Recent AWWA Water Loss Audit		Real Water Loss Per Unit per Day
		2028 Real Water Loss Standard per Unit per day	Units for Real Water Loss Drop down list	Number of Units (Connections or Miles corresponding with units selected)	Volume of Total Real Loss (from AWWA Water Loss Audit) (AF)	
Add additional rows as needed.						
CA1910065	Yes	8.6	Gallons per Service Connection per Day (GPSCD)	92,563	186.72	1.8
<b><u>Water Board's Calculated Water Loss Standards</u></b>						
<b>DWR NOTES: Units of measure (AF, CCF, MG) for Water Loss MUST remain consistent with units reported in Submittal Table 2-3. The units reported in Submittal Table 2-3 are used in this table's calculations.</b>						
<b>NOTES:</b>						

**Submittal Table 4-6 Retail: Progress Towards 2028 Water Loss Standard  
Water Code Section 10631(d)(3)(C) (Part 2)**

Public Water System ID # Reported in Submittal Table 2-1 R	Did the Water Board Calculate a Water Loss Standard for this Public Water System? (y/n) If no, Supplier will not complete this row.	Apparent Water Loss				
		State Water Board Standard		Most Recent AWWA Water Loss Audit		Apparent Water Loss Per Unit per Day
		2028 Apparent Water Loss Standard per Unit per Day	Units for Apparent Water Loss	Number of Connections	Volume of Total Apparent Loss (from AWWA Water Loss Audit) (AF)	
Add additional rows as needed.						
CA1910065	Yes	9.1	Gallons per Service Connection per Day (GPSCD)	92,563	401.812	3.9

**Water Board's Calculated Water Loss Standards**

**DWR NOTES: Units of measure (AF, CCF, MG) for Water Loss MUST remain consistent with units reported in Submittal Table 2-3. The units reported in Submittal Table 2-3 are used in this table's calculations.**

**NOTES:**

**Submittal Table 5-1 Retail: SB X7-7 2020 Target Progress  
Water Code Section 10608.40**

<input type="checkbox"/>	Check the box if the Supplier was not an Urban Water Supplier during or before the 2020 UWMP reporting cycle. Proceed to the next table.					
Was Supplier part of a merger or consolidation since 2020?	Regional Alliance Target or Individual Target? Drop down list	2020 Target	Actual 2020 GPCD	Did Supplier Achieve Targeted Reduction for 2020?	Only for suppliers that did not meet the Target in 2020 See DWR NOTES below.	
					Actual 2025 GPCD (From SB X7-7 Compliance Form)	Did Supplier meet the 2020 Target in 2025?
No	Individual Target	107	93	Yes		NA

**DWR NOTES:**  
**Suppliers calculating a 2025 GPCD** will need to complete and submit SB X 7-7 Compliance Tables to verify the use of SB X7-7 Methodologies.  
**Suppliers that were part of a merger or consolidation since 2020** see Chapter 5 and Appendix P for guidance.  
 NA=Not Applicable

**NOTES:**

**Submittal Table 6-1 Retail: Groundwater Volume Pumped  
Water Code Section 10631(4) and 10631(4)(c)**

<input type="checkbox"/>	Check the box if the Supplier does not pump groundwater. Proceed to the next table.
<input type="checkbox"/>	Check the box if all or part of the groundwater described below is desalinated. (OPTIONAL)

Groundwater Type <b>Drop Down List</b> May use each category multiple times	Water Type (OPTIONAL) <b>Drop down list</b>	Location or Basin Name	2021	2022	2023	2024	2025
			(AF)	(AF)	(AF)	(AF)	(AF)

**Add additional rows as needed**

Alluvial Basin	Potable	Central Basin	31989	26281	27606	21673	31130
Alluvial Basin	Potable	West Coast Basin	0	0	0	0	0
<b>Total</b>			31,989	26,281	27,606	21,673	31,130

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

**NOTES**

**Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2025  
Water Code Section 10633(a)**

<input type="checkbox"/>	Check the box if there is no wastewater collection system. Proceed to the next table.
<input type="checkbox"/>	Percentage of 2025 service area served by wastewater collection system (OPTIONAL)
<input type="checkbox"/>	Percentage of 2025 service area population served by wastewater collection system (OPTIONAL)

Wastewater Collection			Recipient of Collected Wastewater	
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? OPTIONAL Drop Down List	Volume of Wastewater Collected from UWMP Service Area 2025 (AF)	Name of Wastewater Treatment Plant (WWTP) and Place ID Number Drop down list	Is WWTP Located Within UWMP Area? Drop Down List
Add additional rows as needed				
Long Beach Utilities Department		Unknown	Long Beach WRP, Place ID 238562	Yes
Long Beach Utilities Department		Unknown	A.K. Warren Water Resource Facility, Place ID 234156	No
<b>Total Wastewater Received from UWMP Service Area in 2025:</b>		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:**

Wastewater collected by LBUD is conveyed to the LACSD owned and operated Long Beach WRP and AK Warren WRF.

The volume of wastewater conveyed by the LBUD sewer collection system to LBWRP is neither metered nor easily estimated because LBWRP also receives wastewater collected from many other communities upstream of Long Beach in the sewer shed.

Similar to the LBWRP, the volume of wastewater conveyed by the LBUD sewer collection system to the AKWWRF also is neither metered nor easily estimated because AKWWRF receives wastewater from many other communities other than Long Beach.

**Submittal Table 6-3 Retail: Wastewater Treatment and Outcomes Within UWMP Service Area in 2025 (Part 1)**  
**Water Code Section 10633(a)**

Check the box if no wastewater is treated or disposed of within the UWMP service area. Proceed to the next table.

Wastewater Treatment Plant Name and Place ID Number <b>Drop down list</b>	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area? (OPTIONAL) <b>Drop down list</b>	2025 Volume of Wastewater Received from UWMP Service Area (As Reported in Submittal Table 6-2 R ) <b>(AF)</b>	Total 2025 Volume of Water Treated <b>(AF)</b>	2025 Outcomes of Treated Wastewater			
				Water Recycled Within UWMP Service Area (enter data as applicable)		Water Recycled Outside of UWMP Service Area (enter data as applicable)	
				Treatment Level <b>Drop down list</b>	Volume <b>(AF)</b>	Treatment Level <b>Drop down list</b>	Volume <b>(AF)</b>

Add additional rows as needed

Long Beach WRP, Place ID 238562	Yes	Unknown	13,328	Tertiary	4,380	Tertiary	-
<b>Total</b>		<b>0</b>	<b>13,328</b>		<b>4,380</b>		<b>0</b>

**DWR NOTES:**

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

**IPR:** Indirect Potable Reuse would have the treatment level of its end use requirement in the Level of Treatment drop-down.

**Additional Guidance.** See Appendix M, Section M.21 for detailed guidance on this table.

**NOTES:**

The volume of wastewater conveyed by the LBUD sewer collection system to LBWRP is neither metered nor easily estimated because LBWRP also receives wastewater collected from many other communities upstream of Long Beach in the sewer shed.

**Submittal Table 6-3 Retail: Wastewater Treatment and Outcomes Within UWMP Service Area in 2025 (Part 2)**  
**Water Code Section 10633(a)**

Check the box if no wastewater is treated or disposed of within the UWMP service area. Proceed to the next table.

Wastewater Treatment Plant Name and Place ID Number <b>Drop down list</b>	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area? (OPTIONAL) <b>Drop down list</b>	2025 Volume of Wastewater Received from UWMP Service Area (As Reported in Submittal Table 6-2 R )  (AF)	Total 2025 Volume of Water Treated  (AF)	2025 Outcomes of Treated Wastewater			
				Effluent Discharge that is not a Permitted Recycled Water Use (enter data as applicable)		Required Discharge for Instream Flow (enter data as applicable)	
				Treatment Level <b>Drop down list</b>	Volume (AF)	Treatment Level <b>Drop down list</b>	Volume (AF)

Add additional rows as needed

Long Beach WRP, Place ID 238562	Yes	Unknown	13,328	Tertiary	5704	Tertiary	0
<b>Total</b>		0	13,328		5,704		0

**DWR NOTES:**  
**Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.  
**IPR:** Indirect Potable Reuse would have the treatment level of its end use requirement in the Level of Treatment drop-down.  
**Additional Guidance.** See Appendix M, Section M.21 for detailed guidance on this table.

**NOTES:**  
 The volume of wastewater conveyed by the LBUD sewer collection system to LBWRP is neither metered nor easily estimated because LBWRP also receives wastewater collected from many other communities upstream of Long Beach in the sewer shed.

**Submittal Table 6-3 Retail: Wastewater Treatment and Outcomes Within UWMP Service Area in 2025 (Part 3)**  
**Water Code Section 10633(a)**

Check the box if no wastewater is treated or disposed of within the UWMP service area. Proceed to the next table.

Wastewater Treatment Plant Name and Place ID Number <b>Drop down list</b>	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area? (OPTIONAL) <b>Drop down list</b>	2025 Volume of Wastewater Received from UWMP Service Area (As Reported in Submittal Table 6-2 R) <b>(AF)</b>	Total 2025 Volume of Water Treated <b>(AF)</b>	2025 Outcomes of Treated Wastewater		
				Delivered to Another Entity for Additional Treatment (enter data as applicable)		
				Treatment Level <b>Drop down list</b>	Volume <b>(AF)</b>	Name of other entity

Add additional rows as needed

Long Beach WRP, Place ID 238562	Yes	Unknown	13,328	Advanced	3244	Water Replenishment District
<b>Total</b>		<b>0</b>	<b>13,328</b>		<b>3,244</b>	

**DWR NOTES:**  
**Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.  
**IPR:** Indirect Potable Reuse would have the treatment level of its end use requirement in the Level of Treatment drop-down.  
**Additional Guidance.** See Appendix M, Section M.21 for detailed guidance on this table.

**NOTES:**  
 The volume of wastewater conveyed by the LBUD sewer collection system to LBWRP is neither metered nor easily estimated because LBWRP also receives wastewater collected from many other communities upstream of Long Beach in the sewer shed.

**Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area (Part 1)  
Water Code Section 10633 (c)(e)**

<input type="checkbox"/>	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) :	
--	--

Supplemental Water Added in 2025 (volume) Include units (OPTIONAL) :	
--	--

Source of 2025 Supplemental Water (OPTIONAL) :	
--	--

Use Type Drop down list	Water Type (after treatment if treated) (OPTIONAL) Drop down list	Additional Information (as needed)	2025	2030	2035	2040	2045	2050 (opt)
			(AF)	(AF)	(AF)	(AF)	(AF)	(AF)

Add additional rows as needed

Landscape irrigation (exc golf courses)	Non-Potable		2268	1,920	1,920	1,920	1,920	1,920
Golf course irrigation	Non-Potable		1304	1,104	1,104	1,104	1,104	1,104
Seawater intrusion barrier	Non-Potable	WRD ABP	3244	7,281	7,281	7,281	7,281	7,281
Geothermal and other energy production	Non-Potable	THUMS	808	3,665	3,698	3,731	3,797	3,862
<b>Total</b>			<b>7644</b>	<b>13970</b>	<b>14003</b>	<b>14036</b>	<b>14102</b>	<b>14167</b>

**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.  
**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:**

**Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area (Part 2)  
Water Code Section 10633 (c)(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) :

Supplemental Water Added in 2025 (volume) Include units (OPTIONAL) :

Source of 2025 Supplemental Water (OPTIONAL) :

Use Type Drop down list	Water Type (after treatment if treated) (OPTIONAL) Drop down list	Additional Information (as needed)	Potential Recycled Water Use	
			Volume	Narrative page number (OPTIONAL)

Add additional rows as needed

Landscape irrigation (exc golf courses)	Non-Potable			
Golf course irrigation	Non-Potable			
Seawater intrusion barrier	Non-Potable	WRD ABP		
Geothermal and other energy production	Non-Potable	THUMS		
<b>Total</b>			<b>0</b>	<b>0</b>

**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.

**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:**

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

Check the box if recycled water was not used in 2025 nor previously projected for use in 2020. Proceed to the next table.

Use Type Drop Down list	2020 Projection for 2025	2025 Actual Use
	(AF)	(AF)
Add additional rows as needed		
Landscape irrigation (exc golf courses)	1,756	2,240
Golf course irrigation	1,390	1,304
Geothermal and other energy production	547	808
Seawater intrusion barrier	4,481	3,244
<b>Total</b>	<b>8,174</b>	<b>7,617</b>

**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  
**Additional Guidance.** See Appendix M, Section M.21 for detailed guidance on this table.

**NOTES:**

Submittal Table 6-6 Retail: Methods to Encourage Future Recycled Water Use Water Code Section 10633 (f)			
✓	Check the box if the Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in the UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
			(AF)
Add additional rows as needed			
Distribution system expansion	Extending the recycled water distribution system to serve the Los Angeles Department of Water and Power Haynes Generating Station	2029	2,630
Increase deliveries for seawater barrier	Completion of the Water Replenishment District's injection well at the LVLAWTF will allow for more recycled water to be injected for the Alamitos Barrier Project.	2027	4,037
<b>Total (AF)</b>			6,667
<b>Unit Conversion to AF</b>			6,667
<p><b>DWR NOTES:</b>  <b>Units of measure</b> (AF, CCF, MG) MUST remain consistent with units reported in Submittal Table 2-3. The units reported in Submittal Table 2-3 are used in this table's calculations.  <b>The unit conversion to Acre Feet</b> addresses the Water Code's requirement that this value be provided in acre-feet.</p>			
<p><b>NOTES:</b></p>			

**Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs  
Water Code Section 10631 (f)**

- Check the box if there are no expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Proceeds to the next table.
- Check the box if some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.

Provide page location of narrative in the UWMP

Name of Future Projects or Programs	Joint Project with other suppliers?		Additional Description (as needed)	Water Type (after treatment if treated) (OPTIONAL) <b>Drop Down list</b>	Planned Implementation Year	Planned for Use in Year Type <b>Drop Down List</b>	Expected Increase in Water Supply to Supplier (This may be a range)
	Drop Down List (yes/no)	If Yes, Supplier Name					(AF)

Add additional rows as needed

Pure Water Southern California - Groundwater Augmentation	Yes	Metropolitan Water District of Southern California		Potable	2037	All Year Types	4,000
Groundwater Resilience Program	No		Additional groundwater extraction and treatment infrastructure to utilize additional groundwater rights	Potable	2037	All Year Types	6,000

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

**NOTES:**

**Submittal Table 6-8 Retail: Water Supplies – 2025 Actual  
Water Code Section 10631 (b)**

Water Supply		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		Additional Description (as needed)	Water Type (after treatment if treated) (OPTIONAL) Drop Down list	Actual Volume
			(AF)	(AF)
Add additional rules as needed				
Groundwater (not desalinated)	Central Basin	Potable	31,130	32,692
Groundwater (not desalinated)	West Coast Basin	Potable	0	1
Purchased or Imported Water	MWD	Potable	13,757	38,458
Recycled Water	LBWRP	Non-Potable	7,624	13,328
Subtotal Potable			44,887	71,150
Subtotal Non-Potable			7,624	13,328
<b>Total</b>			52,511	84,478
<p><b>DWR NOTES:</b>  <b>Units of measure (AF, CCF, MG)</b> 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.  <b>Total Entitlement:</b> e.g. Water Right, Groundwater Allocation, Contracted Amount.</p>				
<p><b>NOTES:</b></p>				

**Submittal Table 6-9 Retail: Water Supplies – Projected (Part 1)**  
**Water Code Section 10631 (b)**

Water Supply	Additional Detail on Water Supply	Water Type (after treatment if treated) (OPTIONAL) Drop Down list	Projected Water Supply (Report to the Extent Practicable)			
			2030		2035	
			Reasonably Available Volume	Total Entitlement (OPTIONAL) See "DWR Notes" below	Reasonably Available Volume	Total Entitlement (OPTIONAL) See "DWR Notes" below
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			(AF)	(AF)	(AF)	(AF)
Add additional rows as needed						
Groundwater (not desalinated)	Central Basin	Potable	32,692		32,692	
Groundwater (not desalinated)	West Coast Basin	Potable	1		6,000	
Purchased or Imported Water	MWD	Potable	21,070		18,818	
Recycled Water	LBWRP	Non-Potable	14,114		14,170	
Subtotal Potable			53,763	0	57,510	0
Subtotal Non-Potable			14,114	0	14,170	0
<b>Total</b>			<b>67,877</b>	<b>0</b>	<b>71,679</b>	<b>0</b>

**DWR NOTES:**

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

**Total Entitlement:** e.g. Water Right, Groundwater Allocation, Contracted Amount.

**NOTES:** Reasonably available volume of groundwater was determined by current and projected adjudicated rights in the Central and West Coast Basins. Reasonably available volume of purchased or imported water was determined by fitting a trend line upon the percentage of Long Beach historical MWD preferential rights and calculating the that fraction of MWD's forecasted total local supplies from Submittal Table 4-2 within the MWD 2025 UWMP. Reasonably available volume of recycled water was determined utilizing supply projections of the Long Beach Water Reclamation Plant (LBWRP) based on the LACSD Joint Outfall System 2050 Master Facilities Plan, and estimates were available for years 2030, 2040, and 2050, whereas intermediate years (2035 and 2045) are interpolated values.

**Submittal Table 6-9 Retail: Water Supplies – Projected (Part 2)**  
**Water Code Section 10631 (b)**

Water Supply	Additional Detail on Water Supply	Water Type (after treatment if treated) (OPTIONAL) Drop Down list	Projected Water Supply (Report to the Extent Practicable)			
			2040		2045	
			Reasonably Available Volume	Total Entitlement (OPTIONAL) See "DWR Notes" below	Reasonably Available Volume	Total Entitlement (OPTIONAL) See "DWR Notes" below
<b>Drop down list</b> May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool			(AF)	(AF)	(AF)	(AF)
Add additional rows as needed						
Groundwater (not desalinated)	Central Basin	Potable	32,692		32,692	
Groundwater (not desalinated)	West Coast Basin	Potable	6,000		6,000	
Purchased or Imported Water	MWD	Potable	16,711		14,392	
Recycled Water	LBWRP	Non-Potable	14,226		14,338	
Subtotal Potable			55,403	0	53,084	0
Subtotal Non-Potable			14,226	0	14,338	0
<b>Total</b>			69,629	0	67,422	0

**DWR NOTES:**  
**Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3.  
**Total Entitlement:** e.g. Water Right, Groundwater Allocation, Contracted Amount.

**NOTES:** Reasonably available volume of groundwater was determined by current and projected adjudicated rights in the Central and West Coast Basins. Reasonably available volume of purchased or imported water was determined by fitting a trend line upon the percentage of Long Beach historical MWD preferential rights and calculating the that fraction of MWD's forecasted total local supplies from Submittal Table 4-2 within the MWD 2025 UWMP. Reasonably available volume of recycled water was determined utilizing supply projections of the Long Beach Water Reclamation Plant (LBWRP) based on the LACSD Joint Outfall System 2050 Master Facilities Plan, and estimates were available for years 2030, 2040, and 2050, whereas intermediate years (2035 and 2045) are interpolated values.

Submittal Table 6-9 Retail: Water Supplies – Projected (Part 3) Water Code Section 10631 (b)				
Water Supply	Additional Detail on Water Supply	Water Type (after treatment if treated) (OPTIONAL) Drop Down list	Projected Water Supply (Report to the Extent Practicable)	
			2050 (opt)	
			Reasonably Available Volume	Total Entitlement (OPTIONAL) See "DWR Notes" below
<b>Drop down list</b> May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool			(AF)	(AF)
Add additional rows as needed				
Groundwater (not desalinated)	Central Basin	Potable	32,692	
Groundwater (not desalinated)	West Coast Basin	Potable	6,000	
Purchased or Imported Water	MWD	Potable	11,988	
Recycled Water	LBWRP	Non-Potable	14,450	
Subtotal Potable			50,680	0
Subtotal Non-Potable			14,450	0
<b>Total</b>			65,129	0
<b>DWR NOTES:</b> <b>Units of measure (AF, CCF, MG)</b> must remain consistent throughout the UWMP as reported in Submittal Table 2-3. <b>Total Entitlement:</b> e.g. Water Right, Groundwater Allocation, Contracted Amount.				
<b>NOTES:</b> Reasonably available volume of groundwater was determined by current and projected adjudicated rights in the Central and West Coast Basins. Reasonably available volume of purchased or imported water was determined by fitting a trend line upon the percentage of Long Beach historical MWD preferential rights and calculating the that fraction of MWD's forecasted total local supplies from Submittal Table 4-2 within the MWD 2025 UWMP. Reasonably available volume of recycled water was determined utilizing supply projections of the Long Beach Water Reclamation Plant (LBWRP) based on the LACSD Joint Outfall System 2050 Master Facilities Plan, and estimates were available for years 2030, 2040, and 2050, whereas intermediate years (2035 and 2045) are interpolated values.				

<b>Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison Water Code Section 10635 (a)</b>					
	2030	2035	2040	2045	2050 (Opt)
	(AF)	(AF)	(AF)	(AF)	(AF)
Supply totals (auto-fill from Submittal Table 6-9 R)	67,877	71,679	69,629	67,422	65,129
Use totals (auto-fill from Submittal Table 4-2 R)	59,056	59,045	59,018	58,747	58,454
Surplus/(shortfall)	8,821	12,634	10,611	8,675	6,675
<b>OPTIONAL Planned WSCP Actions</b>					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					
<b>DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.</b>					
<b>NOTES:</b>					

<b>Submittal Table 7-3 Retail: Single Dry Year Supply and Use Comparison Water Code Section 10635(a)</b>					
	2030	2035	2040	2045	2050 (Opt)
	(AF)	(AF)	(AF)	(AF)	(AF)
Supply totals	67,877	71,679	69,629	67,422	65,129
Use totals	59,056	59,045	59,018	58,747	58,454
Surplus/(shortfall)	8,821	12,634	10,611	8,675	6,675
<b>OPTIONAL Planned WSCP Actions</b>					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					
<b>DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.</b>					
<b>NOTES:</b>					

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Use Comparison (Part 1) Water Code Section 10635(a)						
		2030	2035	2040	2045	2050 (Opt)
		(AF)	(AF)	(AF)	(AF)	(AF)
First year	Supply totals	67,877	71,679	69,629	67,422	65,129
	Use totals	59,056	59,045	59,018	58,747	58,454
	Surplus/(shortfall)	8,821	12,634	10,611	8,675	6,675
	<b>OPTIONAL Planned WSCP Actions</b>					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Second year	Supply totals	67,877	71,679	69,629	67,422	65,129
	Use totals	59,056	59,045	59,018	58,747	58,454
	Surplus/(shortfall)	8,821	12,634	10,611	8,675	6,675
	<b>OPTIONAL WSCP Actions</b>					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Third year	Supply totals	67,877	71,679	69,629	67,422	65,129
	Use totals	59,056	59,045	59,018	58,747	58,454
	Surplus/(shortfall)	8,821	12,634	10,611	8,675	6,675
	<b>OPTIONAL Planned WSCP Actions</b>					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
<b>DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.</b>						
<b>NOTES:</b>						

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Use Comparison (Part 2) Water Code Section 10635(a)						
		2030	2035	2040	2045	2050 (Opt)
		(AF)	(AF)	(AF)	(AF)	(AF)
Fourth year	Supply totals	67,877	71,679	69,629	67,422	65,129
	Use totals	59,056	59,045	59,018	58,747	58,454
	Surplus/(shortfall)	8,821	12,634	10,611	8,675	6,675
	<b>OPTIONAL Planned WSCP Actions</b>					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fifth year	Supply totals	67,877	71,679	69,629	67,422	65,129
	Use totals	59,056	59,045	59,018	58,747	58,454
	Surplus/(shortfall)	8,821	12,634	10,611	8,675	6,675
	<b>OPTIONAL Planned WSCP Actions</b>					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
<b>DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.</b>						
<b>NOTES:</b>						

<b>Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment (Part 1)</b>			
<b>Water Code Section 10635(b)(3)</b>			
<b>2026</b>			<b>Total</b>
Total Water Use	(AF)		52,865
Total Supplies	(AF)		70,250
Surplus/Shortfall w/o WSCP Action			17,385
<b>OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)</b>			
WSCP - supply augmentation benefit	(AF)		
WSCP - use reduction savings benefit	(AF)		
Revised Surplus/(shortfall)			
<b>2027</b>			<b>Total</b>
Total Water Use	(AF)		56,863
Total Supplies	(AF)		69,657
Surplus/Shortfall w/o WSCP Action			12,794
<b>OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)</b>			
WSCP - supply augmentation benefit	(AF)		
WSCP - use reduction savings benefit	(AF)		
Revised Surplus/(shortfall)			
<b>2028</b>			<b>Total</b>
Total Water Use	(AF)		56,825
Total Supplies	(AF)		69,063
Surplus/Shortfall w/o WSCP Action			12,238
<b>OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)</b>			
WSCP - supply augmentation benefit	(AF)		
WSCP - use reduction savings benefit	(AF)		
Revised Surplus/(shortfall)			
<b>DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.</b>			
<b>NOTES:</b>			

Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment (Part 2) Water Code Section 10635(b)(3)			
<b>2029</b>			<b>Total</b>
Total Water Use	(AF)		56,786
Total Supplies	(AF)		68,470
Surplus/Shortfall w/o WSCP Action			11,684
<b>OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)</b>			
WSCP - supply augmentation benefit	(AF)		
WSCP - use reduction savings benefit	(AF)		
Revised Surplus/(shortfall)			
<b>2030</b>			<b>Total</b>
Total Water Use	(AF)		59,057
Total Supplies	(AF)		67,877
Surplus/Shortfall w/o WSCP Action			8,820
<b>OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)</b>			
WSCP - supply augmentation benefit	(AF)		
WSCP - use reduction savings benefit	(AF)		
Revised Surplus/(shortfall)			
<b>DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.</b>			
<b>NOTES:</b>			

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

✓	Check the box if the Supplier uses the Standard six levels of water shortage. Proceed to the next table.		
Standard Shortage Levels	Percent Shortage Range	Suppliers Shortage Levels	Percent Shortage Range
1	Up to 10%	Stage 1	≤10%
2	Up to 20%	Stage 2	10-20%
3	Up to 30%	Stage 3	20-30%
4	Up to 40%	Stage 4	30-40%
5	Up to 50%	Stage 5	40-50%
6	>50%	Stage 6	>50%
<b>NOTES:</b>			

<b>Submittal Table 8-2 Retail: Supply Augmentation and Other Actions</b> <b>Water Code Section 10632(a)(4)(A),(C) and (E)</b>				
No	Is the Supplier completing this table using the standard six levels? (yes/no)			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier <b>Drop down list</b> These are the only categories that will be accepted by the WUEdata online submittal tool	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)	
Add additional rows as needed				
	Stored Emergency Supply	Volume	14,000	
	Other Purchases	Volume	0 - 3,000	Purchase agreement with Lakewood
	Implement or Modify Drought Rate Structure or Surcharge	Percentage	Not yet quantifiable	
	Expand Public Information Campaign	Percentage	Not yet quantifiable	
	Other Actions (describe)	Percentage	Not yet quantifiable	Increase charge for violation of water-use restriction
<b>DWR NOTES: Units of measure (AF, CCF, MG)</b>				
<b>NOTES:</b>				

Submittal Table 8-3 Retail: Demand Reduction Actions (Part 1) 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 <b>Drop down list</b> 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)	Penalty, Charge, or Other Enforcement? <b>For Retail Suppliers Only</b> Drop Down List
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)		
Add additional rows as needed					
Level 0 (No Shortage)	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Percentage	<10%		Yes
Level 0 (No Shortage)	Landscape - Limit landscape irrigation to specific times	Percentage	<10%		Yes
Level 0 (No Shortage)	Landscape - Restrict or prohibit runoff from landscape irrigation	Percentage	<10%		Yes
Level 0 (No Shortage)	Landscape - Other landscape restriction or prohibition	Percentage	<10%	Irrigation system malfunctions resulting in water waste must be repaired in a timely manner	Yes
Level 0 (No Shortage)	Other - Prohibit use of potable water for washing hard surfaces	Percentage	<10%		Yes
Level 0 (No Shortage)	Water Features - Restrict water use for decorative water features, such as fountains	Percentage	<10%	Fountain or water feature must re-circulate water	Yes
Level 0 (No Shortage)	CII - Lodging establishment must offer opt out of linen service	Percentage	<10%		Yes
Level 0 (No Shortage)	CII - Commercial kitchens required to use pre-rinse spray valves	Percentage	<10%	Must be less 1.5 gpm	Yes

**Submittal Table 8-3 Retail: Demand Reduction Actions (Part 2)**  
**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 <b>Drop down list</b> 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)	Penalty, Charge, or Other Enforcement? <b>For Retail Suppliers Only</b> Drop Down List						
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) <b>(AF)</b>								
Add additional rows as needed											
Level 0 (No Shortage)	CII - Other CII restriction or prohibition	Percentage	<10%	Commercial laundry systems installed after Nov. 3, 2006 must recirculate water	Yes						
Level 0 (No Shortage)	Other - Require automatic shut of hoses	Percentage	<10%	For vehicle washing	Yes						
Level 0 (No Shortage)	Other	Percentage	<10%	Installing single-pass cooling systems in buildings requesting water connection after Nov. 3, 2006	Yes						
Level 0 (No Shortage)	Other	Percentage	<10%	Using potable water when General Manager determines reclaimed water is a cost-effective alternative	Yes						
Level 0 (No Shortage)	Landscape - Prohibit certain types of landscape irrigation	Percentage	<10%	Following measurable rainfall or at any time within forty-eight (48) hours afterwards	Yes						
Level 0 (No Shortage)	Other	Percentage	<10%	To be determined by Board	Yes						
Level 1 (10%)	CII - Restaurants may only serve water upon request	Percentage	≤		Yes						
Level 1 (10%)	Landscape - Restrict or prohibit runoff from landscape irrigation	Percentage	≤	3 days/ week, year round	Yes						

**Submittal Table 8-3 Retail: Demand Reduction Actions (Part 3)  
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 <b>Drop down list</b> 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)	Penalty, Charge, or Other Enforcement? <b>For Retail Suppliers Only</b> Drop Down List						
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) <b>(AF)</b>								
Add additional rows as needed											
Level 1 (10%)	Landscape - Other landscape restriction or prohibition	Percentage	≤	10 minutes per station	Yes						
Level 1 (10%)	Other	Percentage	≤	To be determined by Board	Yes						
Level 2 (20%)	Landscape - Limit landscape irrigation to specific days	Percentage	10-20%	2 days/week, Oct-Mar	Yes						
Level 2 (20%)	Pools and Spas - Require covers for pools and spas	Percentage	10-20%	Covered when not in use	Yes						
Level 2 (20%)	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Percentage	10-20%	Within 72 hours of notification	Yes						
Level 2 (20%)	Other	Percentage	10-20%	To be determined by Board	Yes						
Level 3 (30%)	Landscape - Limit landscape irrigation to specific days	Percentage	20-30%	2 days/week, year round	Yes						
Level 3 (30%)	Landscape - Other landscape restriction or prohibition	Percentage	20-30%	10% reduction of institutional irrigation	Yes						
Level 3 (30%)	Landscape - Other landscape restriction or prohibition	Percentage	20-30%	10% reduction of golf course potable irrigation	Yes						
Level 3 (30%)	Other	Percentage	20-30%	To be determined by Board	Yes						
Level 4	Other	Percentage	>40%	To be determined by Board	Yes						

<b>Submittal Table 8-3 Retail: Demand Reduction Actions (Part 4)</b> <b>Water Code Section 10632(a)(4)(B) and (E)</b>					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions <b>Drop down list</b> 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)	Penalty, Charge, or Other Enforcement? <b>For Retail Suppliers Only</b> Drop Down List
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)		
Add additional rows as needed					
Level 5	Other	Percentage	>50%	To be determined by Board	Yes
Level 6	Other	Percentage	>60%	To be determined by Board	Yes
<b>DWR NOTES: Units of measure (AF, CCF, MG)</b>					
<b>NOTES:</b>					

<b>Submittal Table 10-1 Retail: Notification to Cities and Counties</b> <b>Water Code Section 10621(b) and 10642</b>		
City Name	60 Day Notice Drop Down (yes/no)	Notice of Public Hearing Drop Down (yes/no)
Add additional rows as needed		
Bellflower	Yes	Yes
Compton	Yes	Yes
Hawaiian Gardens	Yes	Yes
Signal Hill	Yes	Yes
Paramount	Yes	Yes
Los Alamitos	Yes	Yes
Lakewood	Yes	Yes
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		
Los Angeles County	Yes	Yes
<b>NOTES:</b>		

## APPENDIX B: Stakeholder Coordination

Category	City/Agency/Organization	Notified of UWMP Preparation
Cities in which LBUD accounts are located	City of Bellflower	X
	City of Compton	X
	County of Los Angeles, Unincorporated	X
	City of Hawaiian Gardens	X
	City of Long Beach	X
	City of Lakewood	X
	City of Los Alamitos	X
	City of Paramount	X
	City of Signal Hill	X
Water suppliers and management agencies	Metropolitan Water District of Southern California	X
	Water Replenishment District of Southern California	X
	Sanitation Districts of Los Angeles County	X
	Los Angeles County	X
	Gateway Water Management Authority	X

## APPENDIX C: Public Notification Ad

### PRESS-TELEGRAM

Invoice

[casmundson@scng.com](mailto:casmundson@scng.com)

[ealmeida@scng.com](mailto:ealmeida@scng.com)

Invoice number	NYVM1TGV-0002
Date created	May 14, 2026
Payment method	Invoiced Outside Column
Notice Id	dGxzAVpwILu5uJqc500J
Publisher	Long Beach Press-Telegram

Bill to  
Long Beach Public Utilities Department

\$642.45 due June 14, 2026

=== Notes ===

Notice Name: Urban Water Management Plan Hearing Notice

Order Number:

THIS IS NOT A BILL AS A BILLABLE CUSTOMER FOR SOUTHERN CALIFORNIA NEWS GROUP


YOU WILL BE INVOICED DIRECTLY BY THEM AND PAY THEM ON YOUR NORMAL BILLING CYCLE.

Description	Qty	Unit price	Amount
05/19/2026: City Notices Notice	1	321.23	321.23
05/26/2026: City Notices Notice	1	321.22	321.22
Subtotal			\$642.45
Tax			0.00
Amount Due			\$642.45

## APPENDIX D: Metropolitan Water District Coordination

5/18/26, 3:21 PM

Re: 2026 Local Supply Survey — UWMP data confirmation due March 6; survey due May 29 - Dean Wang - Outlook

 Outlook

---

**Re: 2026 Local Supply Survey — UWMP data confirmation due March 6; survey due May 29**


---

**From** Dean Wang <Dean.Wang@lbwater.org>  
**Date** Fri 2/27/2026 8:46 AM  
**To** Carrillo, Carlos A <CCarrillo@mwdh2o.com>  
**Cc** Benhabib, Laurie D <LBenhabib@mwdh2o.com>; Sumi, David H <DSumi@mwdh2o.com>

Confirming receipt.

**Dean Wang**

562.570.2311




---

**From:** Carrillo, Carlos A <CCarrillo@mwdh2o.com>  
**Sent:** Thursday, February 26, 2026 5:58 PM  
**To:** Dean Wang <Dean.Wang@lbwater.org>  
**Cc:** Benhabib, Laurie D <LBenhabib@mwdh2o.com>; Sumi, David H <DSumi@mwdh2o.com>  
**Subject:** 2026 Local Supply Survey — UWMP data confirmation due March 6; survey due May 29

-EXTERNAL-

Hello,

Metropolitan is beginning its Annual Local Supply Survey, and we appreciate your agency's cooperation in providing this year's data. This survey tracks local water production and maintains an inventory of existing and planned local supply projects. The information supports the Urban Water Management Plan (per CA Water Code § 10631) and other key regional analyses, including the Integrated Water Resources Plan.

This year, we are requesting:

- Historical local production through calendar year 2025
- An updated inventory of existing and planned local supply projects
- Confirmation of the data Metropolitan will use in its final 2025 UWMP (separate deadline)

**2025 UWMP data confirmation (due March 6, 2026):**

Metropolitan is finalizing the technical analysis for the 2025 UWMP. For the final draft, we will incorporate all agency data received by the end of February 2026 and use placeholders where updated information is not yet available. Please review the attached 2025 UWMP data for your agency and confirm that it reflects the best available information as of now by March 6, 2026.

**Annual Local Supply Survey (due May 29, 2026):**

## 2025 Urban Water Management Plan

5/18/26, 3:21 PM

Re: 2026 Local Supply Survey — UWMP data confirmation due March 6; survey due May 29 - Dean Wang - Outlook

Please review the instructions in the attached production and inventory files and return the completed survey by May 29, 2026.


Kindly confirm receipt of this message and the attached files and let us know if you have any questions by emailing Carlos Carrillo ([ccarrillo@mwdh2o.com](mailto:ccarrillo@mwdh2o.com)) and Laurie Benhabib ([LBenhabib@mwdh2o.com](mailto:LBenhabib@mwdh2o.com)).

Best,  
MWD Resource Planning Team

---

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# APPENDIX E: Water Losses



**AWWA Free Water Audit Software:**  
**Worksheet**

FWAS v6.1  
 American Water Works Association.  
 Copyright © 2025, All Rights Reserved.

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**Water Audit Report for:** Long Beach Utilities Department

**Audit Year:** 2024 Jul 01 2024 - Jun 30 2025 Fiscal

Click 'n' to add notes  
 Click 'g' to determine data validity grade  
 To edit water system info: [go to start page](#)

To access definitions, click the [input name](#)

All volumes to be entered as: ACRE-FEET PER YEAR

**Water Supplied Error Adjustments**

choose entry option:

n	g	9	30,092.130	Acre-ft/Yr	n	g	8	0.62%	percent
n	g	1	14,794.830	Acre-ft/Yr	n	g	3	0.53%	percent

over-registration VOSEA  
under-registration WIEA  
under-registration WEEA

---

**WATER SUPPLIED**

VOS	Volume from Own Sources:	n	g	9	30,092.130	Acre-ft/Yr
WI	Water Imported:	n	g	1	14,794.830	Acre-ft/Yr
WE	Water Exported:	n	g	n/a	0.000	Acre-ft/Yr

WATER SUPPLIED: 44,780.369 Acre-ft/Yr

---

**AUTHORIZED CONSUMPTION**

BMAC	Billed Metered:	n	g	9	44,066.600	Acre-ft/Yr
BUAC	Billed Unmetered:	n	g	n/a	0.000	Acre-ft/Yr
UMAC	Unbilled Metered:	n	g	4	15.070	Acre-ft/Yr
UUAAC	Unbilled Unmetered:	n	g	3	110.167	Acre-ft/Yr

Default option selected for Unbilled Unmetered, with automatic data grading of 3

AUTHORIZED CONSUMPTION: 44,191.837 Acre-ft/Yr

---

**WATER LOSSES**

588.532 Acre-ft/Yr

**Apparent Losses**

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

SDHE	Systematic Data Handling Errors:	n	g	3	110.167	Acre-ft/Yr
CMI	Customer Metering Inaccuracies:	n	g	3	181.479	Acre-ft/Yr
UC	Unauthorized Consumption:	n	g	3	110.167	Acre-ft/Yr

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 401.812 Acre-ft/Yr

**Real Losses**

Real Losses: 186.720 Acre-ft/Yr

WATER LOSSES: 588.532 Acre-ft/Yr

---

**NON-REVENUE WATER**

NON-REVENUE WATER: 713.769 Acre-ft/Yr

---

**SYSTEM DATA**

Lm	Length of mains:	n	g	10	918.2	miles	
Nc	Number of service connections:	n	g	10	92,563	(including fire hydrant lead lengths)	
	Service connection density:					101	conn./mile main

(active and inactive)

Are customer meters typically located at the curbstop/property line? Yes

Average length of customer service line has been set to zero and a data grading of 10 has been applied

AOP Average Operating Pressure: n g 8 68.9 psi

---

**COST DATA**

CRUC	Customer Retail Unit Charge:	n	g	9	\$4.15	\$/100 cubic feet (ccf)
VPC	Variable Production Cost:	n	g	9	\$1,325.50	\$/acre-ft

Total Annual Operating Cost \$142,200,464 \$/yr (optional input)

---

Click here to calculate carbon emissions ----> [carbon](#)

---

**WATER AUDIT DATA VALIDITY TIER:**

\*\*\* The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. \*\*\*

[go to dashboard](#)

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

**PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:**

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Water Imported (WI)
2: Customer Metering Inaccuracies (CMI)
3: Unauthorized Consumption (UC)

**KEY PERFORMANCE INDICATOR TARGETS:**

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses <sup>a</sup> :		gal/conn/day
Unit Real Losses <sup>b</sup> :		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

Appendix F - Board Resolution (PLACEHOLDER)

# ATTACHMENTS:

Documents that are referenced in the 2020 UWMP are included as attachments if they are too long to include within the body of the UWMP itself.

Most of these attachments are very large documents and can be found on the internet (links are provided below and on the LBUD website at [www.LBUtilities.org](http://www.LBUtilities.org)).

All attachments are available for review, by appointment, during normal business hours, at LBUD administration offices, located at 1800 East Wardlow Road. Copies of these attachments are only provided with the official adopted UWMP sent to the California Department of Water Resources. Photocopies of the attachments are available at cost.

## List of Attachments

1. DWR Bulletin 118 Basin Description: Central Basin
2. DWR Bulletin 118 Basin Description: West Coast Basin
3. Central Basin Judgment
4. WRD Engineers Survey and Report, 2025
5. West Coast Basin Judgment
6. WRD Watermaster's Central Basin Report, FY 2024 - 2025
7. WRD Watermaster's West Coast Basin Report, FY 2024 - 2025
8. MWD 2025 UWMP (Draft)
9. MWD Act
10. LACSD JOS Plan
11. LBUD Water Shortage Contingency Plan
12. City of Long Beach 2023 Hazard Mitigation Plan
13. LBUD Rules and Regulations

*Draft for Public Comment*



**LONG BEACH UTILITIES DEPARTMENT**

1800 East Wardlow Road  
Long Beach, CA 90807  
[www.LBUtilities.org](http://www.LBUtilities.org)