2025

URBAN WATER MANAGEMENT PLAN

AND

WATER SHORTAGE CONTINGENCY PLAN

CITY OF CERRITOS



JUNE 2026 FINAL

STETSON ENGINEERS INC.

Northern California • Southern California • Arizona • Oregon

City of Cerritos

2025
Urban Water Management Plan

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LIST OF ACRONYMS

AB	Assembly Bill
AF	Acre-Feet
AFY	Acre-Feet per Year
Annual Assessment	Annual Water Supply and Demand Assessment
AWWA	American Water Works Association
CBMWD	Central Basin Municipal Water District
CY	Calendar Year
CIMIS	California Irrigation Management Information System
CWC	California Water Code
DAC	Disadvantaged Communities
Delta	Sacramento- San Joaquin Delta
DOF	California Department of Finance
DMM	Demand Management Measures
DRA	Drought Risk Assessment
DWR	California Department of Water Resources
ERP	Emergency Response Plan
ETo	Evapotranspiration
GCM	General Circulation Models
GPCD	Gallons per Capita per Day
GPM	Gallons per Minute
GIS	Geographical Information Systems
GSP	Groundwater Sustainability Plan
GSWC	Golden State Water Company
Judgement	The Central Basin Judgement
JWPCP	Joint Water Pollution Control Plant
kWh	Kilowatt Hours
LACSD	Sanitation Districts of Los Angeles County
LVL	Leo J. Vander Lans Advanced Water Treatment Facility
MGD	Million gallons per day
MSL	Mean Sea Level
MWD	Metropolitan Water District of Southern California
NAICS	North American Industry Classification System
PCE	Perchloroethylene
PFAS	Per- and Poly- Fluoroalkyl Substances
Plan	Urban Water Management Plan
RCP	Representative Concentration Pathway
RDM	MWD's Robust Decision Making Approach

RRA	Risk and Resilience Assessment
SB	Senate Bill
SB X7-7	The Water Conservation Act of 2009
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SGMA	Sustainable Groundwater Management Act of 2014
SWRCB-DDW	State Water Resources Control Board - Division of Drinking Water
SWP	State Water Project
TCE	Trichloroethylene
TDS	Total Dissolved Solids
The City	The City of Cerritos
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
VOCs	Volatile Organic Chemicals
Water Code	California Water Code
WIN	Central Basin Water Independence Now Program
WRCC	Western Regional Climate Center
WRD	Water Replenishment District of Southern California
WRP	Water Reclamation Plant
WSCP	Water Shortage Contingency Plan
WSAP	Water Supply Allocation Plan
WSRA	Water Supply Reliability Assessment
WUCA	Water Utility Climate Alliance
WUE	Water Use Efficiency

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CHAPTER 1

URBAN WATER MANAGEMENT PLAN INTRODUCTION AND OVERVIEW

LAY DESCRIPTION - INTRODUCTION

An urban water supplier is defined (pursuant to Section 10617 of the California Water Code[1]) as "*a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers.*"

The City of Cerritos (City) is classified as an urban water supplier because it serves more than 3,000 customers (i.e. individual metered accounts) and it supplies more than 3,000 acre-feet of water annually to its customers for municipal purposes.

In accordance with the "Urban Water Management Planning Act", which was enacted by the California Legislature in 1983, every urban water supplier (including the City) is required to prepare and adopt an Urban Water Management Plan (UWMP), periodically review its UWMP, and incorporate updated and new information into an updated UWMP at least once every five years.

The City's most recent update was its 2020 UWMP (or 2020 Plan) which was submitted to, and approved by, the California Department of Water Resources (DWR). Urban water suppliers (including the City) are required to complete and submit their 2025 UWMPs to DWR by July 1st, 2026.

[1] References to CWC Sections in this 2025 UWMP were obtained from https://leginfo.legislature.ca.gov/

The current requirements for preparing the UWMP are included in California Water Code (CWC) Sections 10608 through 10657. The City's 2025 UWMP (or 2025 Plan) was prepared consistent with the CWC and the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2025" (Final 2025 UWMP Guidebook), dated January 2026.

The UWMP provides urban water suppliers (including the City) with a reliable management action plan for long-term resource planning to ensure adequate water supplies are available to meet existing and future water supply needs. In addition, the 2025 Plan incorporates water supply reliability determinations resulting from potential prolonged drought, regulatory revisions, and/or changing climatic conditions.

The City's 2025 Plan consists of the following Chapters:

Chapter 1	Urban Water Management Plan Introduction and Overview
Chapter 2	Plan Preparation
Chapter 3	Service Area Description
Chapter 4	Water Use Characterization
Chapter 5	SB X7-7 Baselines, 2020 Targets, and 2025 Reporting
Chapter 6	Normal-Year Water Supply Characterization
Chapter 7	Water Service Reliability and Drought Risk Assessment
Chapter 8	Water Shortage Contingency Plan
Chapter 9	Demand Management Measures
Chapter 10	Plan Adoption, Submittal, and Implementation

A lay description is presented at the beginning of each of these Chapters.

LAY DESCRIPTION – CHAPTER 1

URBAN WATER MANAGEMENT PLAN INTRODUCTION AND OVERVIEW

Chapter 1 (Urban Water Management Plan Introduction and Overview) of the City's 2025 Plan discusses and provides the following:

- An overall lay description of the 2025 Plan, including California Water Code and Urban Water Management Plan Act requirements, is provided. The City is required to prepare an Urban Water Management Plan.
- The City's 2025 Plan was prepared consistent with the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2025", dated January 2026. A description regarding the organization of the 2025 Plan, including a summary of each Chapter, is provided. The City's Water Shortage Contingency Plan (discussed in Chapter 8) is also included in the 2025 Plan.
- The 2025 Plan incorporates DWR's water use and supply tables (standardized Submittal Tables) for the reporting and submittal of UWMP data. These tables are included within the respective sections of the 2025 Plan and in Appendix A.
- The City's coordination efforts with other planning agencies are discussed, including coordination efforts with Central Basin Municipal Water District and the Southern California Association of Governments.
- The City's eligibility to receive grants and loans administered by the State of California and/or DWR, as a result of preparing the 2025 Plan, is discussed.
- Information is provided which demonstrates the City's prior, continued, and projected reduction on imported water supplies obtained (either directly or indirectly) from the Sacramento-San Joaquin Delta. The City has reduced its reliance on the imported water supplies for Calendar Years 2015, 2020, and 2025. In addition, the City is projected to continue reducing its reliance on imported water supplies through Calendar Year 2050.

- The checklist developed by DWR and used by the City to incorporate the specific UWMP requirements is discussed. The completed checklist is provided in Appendix B.

1.1 UPDATED GUIDANCE FOR 2025 URBAN WATER MANAGEMENT PLANS

The City's 2025 Plan was prepared consistent with the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2025", dated January 2026. DWR provided the following updated guidance for the preparation of the 2025 Plans (in comparison to the preparation of the 2020 Plans):

- There have been minor changes to the Water Code since the 2020 Plans were submitted; primarily, several definitions have been added (none of these change the requirements for 2025 Plans).
- DWR and the State Water Resources Control Board are using the same criteria to determine when a water supplier with multiple Public Water Systems is considered an Urban Water Supplier subject to UWMP requirements.
- DWR has updated its submittal tables to reflect the current reporting year, improve accuracy of reporting, and more clearly identify information required by Water Code and optional information.
- There has been no change to the Water Code regarding water loss standard reporting since the 2020 Plans were submitted. However, water suppliers can report progress toward compliance with their 2028 Water Loss Standard in the 2025 Plans (see Table 4-6).
- The State Water Resources Control Board has adopted regulations for the use of direct potable reuse (DPR) since the 2020 Plan reporting. To allow for reporting of DPR, minor changes have been made to the supply and demand tables in the 2025 Plans.

- While projections for lower-income housing were required in the 2020 Plans, additional guidance has been provided for optional reporting of the method used to project water use for lower-income housing.
- In previous years, the guidance for reporting water placed into storage did not differentiate between long-term storage (i.e., water placed into storage one year but extracted in a future year) and short-term storage (i.e., water that is placed into storage and extracted the same year). When a water supplier reports water placed into storage and then reports it was retrieved in the same year (short-term storage) it can cause a double counting error. Additional guidance has been provided recommending that water suppliers do not report water into and out of short-term storage.

1.2 SUBMITTAL TABLES

The City's 2025 Plan includes the completion of DWR's standardized Submittal Tables for the reporting and submittal of UWMP data. Relevant Submittal Tables are included at the end of each Chapter in this 2025 Plan. In addition, all Submittal Tables are provided collectively in Appendix A.

1.2.1 OPTIONAL PLANNING TOOL

CWC 10644.

(a)(2) The plan, or amendments to the plan, submitted to the department … shall include any standardized forms, tables, or displays specified by the department.

DWR has created an optional "Planning Tool Worksheet" for water suppliers to review and assess monthly water use trends. DWR has deemed the tool as optional and the City is not required by DWR to use the tool.

1.3 RECOMMENDED URBAN WATER MANAGEMENT PLAN ORGANIZATION

The City's 2025 UWMP (2025 Plan) was prepared consistent with the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2025" (Final 2025 UWMP Guidebook), dated January 2026. The City's 2025 Plan consists of the following Chapters:

Chapter 1	Urban Water Management Plan Introduction and Overview
Chapter 2	Plan Preparation
Chapter 3	Service Area Description
Chapter 4	Water Use Characterization
Chapter 5	SB X7-7 Baselines, 2020 Targets, and 2025 Reporting
Chapter 6	Normal-Year Water Supply Characterization
Chapter 7	Water Service Reliability and Drought Risk Assessment
Chapter 8	Water Shortage Contingency Plan
Chapter 9	Demand Management Measures
Chapter 10	Plan Adoption, Submittal, and Implementation

Pursuant to CWC requirements, the City's 2025 Plan incorporates DWR's water use and supply tables (standardized Submittal Tables) for the reporting and submittal of UWMP data. DWR's standardized Submittal Tables are provided within the body of the 2025 Plan text as well as in Appendix A.

The City's 2025 Plan also provides supporting documents (appendices) including notification letters of the Plan update, public notice of the Plan hearing, and adoption

resolution from the City's governing body. Further discussions regarding these supporting documents are provided within the individual Chapters of the City's 2025 Plan.

1.4 URBAN WATER MANAGEMENT PLANS IN RELATION TO OTHER EFFORTS

The City's 2025 Plan was prepared in coordination with planning agencies including the City of Cerritos Department of Public Works, the Los Angeles County Department of Regional Planning, and the Southern California Association of Governments[2] (SCAG). In addition, the City's 2025 Plan was prepared using management documents including the City's "General Plan 2004" and "Hazard Mitigation Plan 2022", and the County of Los Angeles 2025 "All- Hazards Mitigation Plan."

The City is a sub-agency of Central Basin Municipal Water District (CBMWD), a wholesale water agency. CBMWD prepared a 2025 Plan which is incorporated by reference in the City's 2025 Plan. In addition, the City provided its 2025 Plan to CBMWD which includes water use projections in five-year increments for a normal year, a single dry year, and a five consecutive year drought condition over the next 25 years.

1.4.1 SPECIFIC CONSIDERATIONS

1.4.1.1 DEMONSTRATION OF CONSISTENCY WITH THE DELTA PLAN FOR PARTICIPANTS IN COVERED ACTIONS

Pursuant to DWR, an urban water supplier that anticipates participating in or receiving water from a proposed project (or "covered action") such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting

[2] Population projection data was obtained from SCAG, as discussed in Section 3.4.

water from, or using water in the Sacramento-San Joaquin Delta (Delta) should provide information in their Plans for use in demonstrating consistency with Delta Plan Policy WR P1, "*Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance"*. In addition, pursuant to California Code of Regulations, Title 23, § 5003:

> *(c)(1) Water suppliers that have done all of the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:*
>
> > *(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;*
> >
> > *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and*
> >
> > *(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).*

The City has reduced its reliance on the imported water supplies for CY 2015, CY 2020, and CY 2025. In addition, the City is projected to continue reducing its reliance on the imported water supplies through CY 2050. A further discussion which the City's measurable reduction in imported water reliance and improvement in regional self-reliance is provided in Appendix C.

1.4.1.2 PERMITTING FOR OCEAN DESALINATION PROJECTS

The City is currently not considering the development of a desalinated water project. However, as discussed in Section 6.2.6, there may be opportunities for use of desalinated ocean water as a potential water supply source in the future, if needed, through coordination with other agencies that have ocean desalination programs.

1.5 DEPARTMENT OF WATER RESOURCES' REVIEW PROCESS

Section 10.5 discusses the process for a water supplier to submit the completed 2025 Plan to DWR, including electronic submittal through DWR's online Water Use Efficiency Data (WUEdata) portal. DWR will subsequently review the 2025 Plans to ensure that they address the California Water Code requirements. Following DWR's review, water suppliers will be notified of the results of the review via a formal review letter. These review letters will also be available to the public on DWR's WUEdata portal. In cases where DWR finds that a Plan does not properly address item(s) in the Water Code, DWR will reach out to the water supplier to discuss needed corrections and correction procedures.

1.6 URBAN WATER MANAGEMENT PLANS AND GRANT OR LOAN ELIGIBILITY

CWC 10608.56.

(a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(c) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included

in the grant or loan agreement, for achieving the per capita reductions. The supplier may request grant or loan funds to achieve the per capita reductions to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(e) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community.

(f) The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier in compliance with the requirements of this part and Part 2.8 (commencing with Section 10800), that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the requirements of this part or Part 2.8 (commencing with Section 10800).

CWC 10656.

An urban water supplier is not eligible for a water grant or loan awarded or administered by the state unless the urban water supplier complies with this part.

California Code of Regulations Title 23 Division 2 Chapter 5.1 Article 1, Section 596.1

(b)(2) "disadvantaged community" means a community with a median household income that is less than 80 percent of the statewide annual median household income.

Pursuant to DWR's Final 2025 UWMP Guidebook:

"*For a Supplier to be eligible for any water grant or loan administered by DWR, the Supplier must have a current UWMP on file that has been determined by DWR to address the requirements of the Water Code. A current UWMP must also be maintained by the Supplier throughout the term of any grant or loan administered by DWR. A UWMP may also be required to be eligible for other State funding, depending on the conditions that are specified in the funding guidelines. Suppliers are encouraged to seek guidance on the specifics of any State funding source from the respective funding agencies.*"

The City's 2025 UWMP has been prepared to meet eligibility requirements for grants and loans administered by the State and/or DWR.

1.7 TIPS FOR URBAN WATER MANAGEMENT PLAN PREPARERS

The City's 2025 Plan (which includes the City's 2025 Water Shortage Contingency Plan (WSCP)) is considered an update to the City's 2020 UWMP. However, the 2025 Plan and the WSCP are considered stand-alone documents. As discussed in Section 1.3, the City's 2025 Plan was prepared consistent with the recommended organization provided in DWR's Final 2025 UWMP Guidebook. The City's 2025 Plan was also prepared based on the tips provided in DWR's Final 2025 UWMP Guidebook including the use of information from previous Plans and following the required Plan notification and adoption process.

In addition, a checklist of specific UWMP requirements is included in Appendix B. The checklist includes the page number where the required elements are addressed to assist in DWR's review of the submitted Plan.

CHAPTER 2

URBAN WATER MANAGEMENT PLAN PREPARATION

LAY DESCRIPTION – CHAPTER 2

PLAN PREPARATION

Chapter 2 (Plan Preparation) of the City's 2025 Plan discusses and provides the following:

- The basis for preparing an Urban Water Management Plan is provided. The City is required to prepare the 2025 Plan because it is an "urban water supplier" (The City serves more than 3,000 customers and it supplies more than 3,000 acre-feet of water annually to its customers for municipal purposes).
- The City is a "Public Water System" and is regulated by the State Water Resources Control Board - Division of Drinking Water. The City's Public Water System numbers are provided in Table 2-1.
- The City's Plan has been prepared as an "individual" plan rather than a "regional" plan in an effort to provide information specific to the City to best inform its employees, management and customers.
- Information presented in the City's 2025 Plan is provided on a "calendar year" basis which is from January through December 31, 2025.
- Water quantities presented in the City's 2025 Plan are provided on an "acre-foot" basis.
- The City's coordination and outreach efforts with wholesale water agencies, other retail water agencies, and the community are described. The City coordinated the preparation of its 2025 Plan with the Los Angeles County, Metropolitan Water District of Southern California, Central Basin Municipal Water District, Golden

State Water Company, the Water Replenishment District of Southern California, and the Cities of La Palma, Santa Fe Springs, and Norwalk.

- The City's notification process to the cities and county within which the City provides water supplies is discussed.

As discussed in Section 1.3, the City's 2025 Plan was prepared consistent with the recommended organization provided in DWR's Final 2025 UWMP Guidebook.

Pursuant to CWC requirements, the City's 2025 Plan incorporates DWR's water use and supply tables (standardized Submittal Tables) for the reporting and submittal of UWMP data.

2.1 BASIS FOR PREPARING A PLAN

CWC 10617.

"Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

CWC 10618.12.

(t) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(w) "Urban wholesale water supplier" means a water supplier, either publicly or privately owned, that provides more than 3,000 acre- feet of water annually at wholesale for potable municipal purposes.

CWC 10620.

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

CWC 10621.

(a) Each urban water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update.

The City's 2025 Plan was prepared in accordance with the UWMP Act which was established in 1983. The UWMP Act requires every "urban water supplier" to prepare and adopt a Plan, to periodically review its Plan at least once every five years and make any amendments or changes which are indicated by the review. An "Urban Water Supplier" is defined as a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet (AF) of water annually.

Section 10621(a) of the CWC states, "*Each urban water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update".* As a result, DWR requires the 2025 Plans be submitted by July 1, 2026.

The City is an "urban water supplier" pursuant to Section 10617 of the CWC and directly serves potable water to more than 3,000 customers and supplies more than 3,000 acre-feet per year (AFY) at retail for municipal purposes. The City's 2025 Plan is an update to the City's 2020 Plan.

2.1.1 SUPPLIERS WITH BOTH WHOLESALE AND RETAIL SALES

The City is a retail water supplier (and not a wholesale water supplier). The City's 2025 Plan was prepared based on the CWC requirements pertaining to retail water suppliers. The City relies on water supplies from wholesale water suppliers which are discussed in Section 2.4.1.

2.1.2 PUBLIC WATER SYSTEMS

California Health and Safety Code 116275.

(h) "Public water system" means a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

Pursuant to CWC requirements, the City's 2025 Plan incorporates DWR's standardized Submittal Tables for the reporting and submittal of UWMP data. The standardized Submittal Tables are provided within the body of the 2025 Plan text as well as in Appendix A. The City also submitted the UWMP data (from the Submittal Tables) electronically through DWR's Online Submittal Tool.

In addition, the City is a Public Water System and is regulated by the State Water Resources Control Board - Division of Drinking Water (SWRCB-DDW). The SWRCB-DDW requires water agencies provide the number of connections, water usage, and other information annually. The information provided to SWRCB-DDW indicates the City serves potable water to more than 3,000 customers and supplies more than 3,000 AFY. As indicated in Table 2-1, the City serves only a single Public Water System.

2.2 INDIVIDUAL OR REGIONAL PLANS

The City has developed its 2025 Plan reporting solely on its service area to address all requirements of the CWC. The City's 2025 Plan was not developed as a Regional Plan.

INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

As shown in Table 2-2, the City's 2025 Plan is an "Individual UWMP". The City has developed its 2025 Plan reporting solely on its service area to address all requirements of the CWC, including water use targets and baselines pursuant to SB X7-7 Water Conservation Act of 2009 reporting (discussed further in Chapter 5). The City notified and coordinated with appropriate regional agencies and constituents (see Section 2.4).

2.2.1 REGIONAL REPORTING

CWC 10620.

(d)(1) An urban water supplier may satisfy the requirements of this part by participation in area wide, regional, watershed, or basin wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

As indicated in Table 2-2, the City's 2025 Plan was developed as an "Individual UWMP" and not part of a Regional Plan or a Regional Alliance.

2.3 FISCAL OR CALENDAR YEAR AND UNITS OF MEASURE

CWC 10608.20.

(a)(1) Urban retail water suppliers…may determine the targets on a fiscal or calendar year basis.

2.3.1 FISCAL OR CALENDAR YEAR

The data provided in the City's 2025 Plan is reported on a calendar year (CY) basis, unless noted otherwise, as shown in Table 2-3. A calendar year begins on January 1st of every year.

2.3.2 UNITS OF MEASURE

As shown in Table 2-3, the data provided in the City's 2025 Plan is reported in units of AF, unless noted otherwise.

2.4 COORDINATION AND OUTREACH

CWC 10631.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

2.4.1 WHOLESALE AND RETAIL COORDINATION

The City is a sub-agency of CBMWD, a wholesale agency. As indicated in Table 2-4, the City has provided its 2025 Plan to CBMWD which includes water use projections in five-year increments for a normal year, a single dry year, and a five consecutive year drought condition over the next 25 years.

2.4.2 COORDINATION WITH OTHER AGENCIES AND THE COMMUNITY

CWC 10620.

(d)(3) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

CWC 10642.

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of both the plan…

The City is a retail water supplier that serves customers in the Cities of Cerritos and La Palma. The City also provides water to the City of Norwalk and Golden State Water Company. The City is required to coordinate the preparation of the Plan with appropriate agencies in the area, including appropriate water suppliers that share a common source. Therefore, the City coordinated the preparation of its 2025 Plan with the Los Angeles County, Metropolitan Water District of Southern California, Central Basin Municipal Water District, Golden State Water Company, the Water Replenishment District of Southern California, and the Cities of La Palma, Santa Fe Springs, and Norwalk. As discussed in Section 10.2, the City notified these agencies, as well as the cities and county within which the City provides water supplies, at least sixty (60) days prior to the public hearing of the preparation of the 2025 Plan and invited them to participate in the development of the 2025 Plan. A copy of the notification letters sent to these agencies is provided in Appendix D.

2.4.3 NOTICE TO CITIES AND COUNTIES

CWC 10621.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

As discussed in Section 10.2, notification was provided to the cities and county within which the City provides water supplies that the City was reviewing and considering amendments (updates) to the previous 2020 Plan, and as a result preparing the 2025 Plan. Notification was provided at least 60 days prior to the public hearing (see Appendix D).

2.5 SUBMITTAL TABLES

The applicable standardized Submittal Tables referenced within Chapter 2 are provided below.

2.5.1 SUBMITTAL TABLE 2-1: PUBLIC WATER SYSTEMS

Table 2-1 Public Water Systems

Submittal Table 2-1 Retail: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2025	Volume of Water Supplied 2025 (AF)
Add additional rows as needed			
CA1910019	City of Cerritos	15,342	9,584
	Total	15,342	9,584
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:			

2.5.2 SUBMITTAL TABLE 2-2: PLAN TYPE IDENTIFICATION

Table 2-2 Plan Identification Type

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

2.5.3 SUBMITTAL TABLE 2-3: SUPPLIER INFORMATION

Table 2-3 Supplier Information

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

2.5.4 SUBMITTAL TABLE 2-4: WATER SUPPLIER INFORMATION EXCHANGE

Table 2-4 Water Supplier Information Exchange

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.
Wholesale Water Supplier Name
Add additional rows as needed
Central Basin Municipal Water District
NOTES:
10631(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available.

CHAPTER 3

SERVICE AREA DESCRIPTION

LAY DESCRIPTION – CHAPTER 3

SERVICE AREA DESCRIPTION

Chapter 3 (Service Area Description) of the City's 2025 Plan discusses and provides the following:

- A description of the City's service area is provided. The City provides water service to residential (single-family and multi-family), commercial, institutional, and open space customers within the City of Cerritos and small portions of the City of La Palma. The City's service area is generally bordered on the north by the City of Norwalk and the City of Santa Fe Springs, on the east by the City of Buena Park and the City of La Mirada, on the south by the City of La Palma, on the southwest by the City of Lakewood, and on the west by the City of Bellflower.
- The City's water service area encompasses an area of approximately 9 square miles. The location of the City's water service area is provided in Figure 1.
- A description regarding the City's water service area climate is provided. The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly evapotranspiration in the vicinity of the City's service area is summarized. The sources of the climate information are also discussed.
- The population within the City's water service area is discussed and projected. The sources of the population information are also discussed. The City provides water

service to an area with a current population of 46,976. The City is projected to have a population of 52,915 by Calendar Year 2050.

- A discussion of land use information used by the City to develop the 2025 Plan is provided. The City reviewed the current and projected land uses within its service area. The City also reviewed data provided by the Southern California of Governments, the Department of Finance, and the United States Census Bureau and prepared for counties, cities, and unincorporated areas within Southern California.

3.1 GENERAL DESCRIPTION

CWC 10631.

(a) Describe the service area of the supplier, including current and projected population, climate, and other social, economic, and demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available. The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.

The City of Cerritos was officially incorporated in 1956 as the City of Dairy Valley. The City's water service area is approximately 9 square miles and is located within the southern region of Los Angeles County. The service area covers approximately 90 percent of the land within the City's municipal boundaries and a small area in the City of La Palma. The City is bounded on the north by the City of Norwalk and the City of Santa Fe Springs, on the east by the City of Buena Park and the City of La Mirada, on the south by the City of La Palma, on southwest by the City of Lakewood, and on the west by the

City of Bellflower. Figure 1 shows the City's service area boundaries. The service area consists of residential (single-family and multi-family), commercial, institutional, and open space land uses. The City provides domestic water from three groundwater wells within the Central Basin, imported surface water from MWD through CBMWD, and recycled water from the Sanitation Districts of Los Angeles County (LACSD).

3.2 SERVICE AREA BOUNDARY MAPS

As discussed in Section 3.1, the City's service area covers approximately 9 square miles in the southern region of Los Angeles County. A service area boundary map is provided on Figure 1. The City's water service area boundary relative to the municipal boundaries of the Cities of Artesia, Bellflower, Buena Park, La Palma, Lakewood, and Norwalk as well as unincorporated areas of Los Angeles County is provided on Figure 2.

The City's service area boundary was originally created in a Geographical Information Systems (GIS) shape file format and converted into a KML format. To the extent information was available, metadata was included in the KML file (including map projection, contact information, start and end dates for which the map is valid, constraints, attribute table definitions, and digitizing base).

3.3 SERVICE AREA CLIMATE

CWC 10631.

(a) Describe the service area of the supplier, including … "climate…"

CWC 10630.

It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied, while accounting for impacts from climate change.

The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly evapotranspiration (ETo) in the vicinity of the City's service area is summarized in the tabulation below. Historical climate information was obtained from the Western Regional Climate Center (WRCC) and from DWR's California Irrigation Management Information System (CIMIS).

The historical average rainfall in the vicinity of the City's service area is 14.5 inches. The City's service area has a dry climate where the average minimum monthly temperature reaches approximately 47 degrees Fahrenheit. The warm, dry summers reach average maximum monthly temperatures of approximately 89 degrees Fahrenheit. Although changes in climatic conditions may have an impact (as discussed in Section 4.5), the projected water supply demands will be based on an average year, a single dry year, and a five consecutive year drought condition, based on historical data and projected demands. Precipitation within the vicinity of the City's service area is discussed further in Section 7.2.

Service Area Climate Information

Month	Average Temperature (F)	Average Minimum Temperature (F)	Average Maximum Temperature (F)	Average Total Precipitation (Inches)	ETo (Inches)
January	58.6	47.8	69.6	3.2	2.02
February	60.2	48.8	71.4	3.2	2.47
March	61.6	50.4	72.9	2.2	3.88
April	65.5	53.3	77.6	1.0	4.59
May	68.3	57.3	79.4	0.2	5.02
June	72.5	60.9	84.0	0.1	5.25
July	76.5	64.2	88.6	0.0	5.83
August	77.2	65.1	89.5	0.1	5.77
September	75.6	63.6	87.7	0.3	4.61
October	70.6	58.5	82.9	0.5	3.33
November	63.4	51.5	75.4	1.4	2.24
December	59.0	47.4	70.5	2.0	1.70
Annual	67.0	55.3	79.1	14.5	46.7

Source:
Historical average monthly precipitation information was obtained from the Western Regional Climate Center (http://www.wrcc.dri.edu/) and is based on data collected from Station 049660 (Whittier City Yard, California) from 1949 through 2014. Historical average monthly temperature information was obtained from the Western Regional Climate Center (http://www.wrcc.dri.edu/) and is based on data collected from Station 045790 (Montebello, California) from 1979 through 2011. Historical monthly average ETo information was obtained from the California Irrigation Management Information Systems (http://wwwcimis.water.ca.gov) and is based on the weighted average of data collected from Station 174 (Long Beach) and Station 159 Monrovia.

A discussion of the City's source of supply, how that source may be impacted by climate change, and the proactive actions the City and other local/regional water managers may take to address the potential climate change on water supplies is provided in Section 4.2.5.6.

3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS

3.4.1 SERVICE AREA POPULATION

CWC 10631.

(a) Describe the service area of the supplier, including current and projected population… The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

The City provides water service to an area with a current population of approximately 46,976. Table 3-1 presents the current and projected population of the area encompassed by the City's service area from CY 2025 to CY 2050. The City is projected to have a population of 52,915 by CY 2050.

A GIS analysis using census tracts was performed to estimate the current population (CY 2025) within the City's service area. The City's service area is comprised of individual census tracts which represent smaller statistical areas for which population data is available. The smaller census tracts were combined to more accurately represent the total area within the City's service area.

Current census tract information was obtained in a GIS format from the advanced demographics dataset developed by Esri which includes source material supplied by the U.S. Census Bureau and the U.S. Census Bureau's American Community Survey. The City's service area boundary in a GIS format was overlayed on the census tract GIS layer. Each census tract located within the City's service area was identified (including the entire census tract or a portion of). For a census tract located entirely within the service area, the entire population (i.e. 100 percent) associated with the census tract was incorporated. For a census tract located partially within the service area, the portion (or

percentage) of the census tract located geographically within the service area was determined through GIS. The percentage was then applied to the census tract's population in order to estimate the population of the census tract within the service area. The total population within the City's service area was then estimated based on the sum of the populations within these census tracts.

The projected total population within the City's service area was based on growth rate projections included in the Southern California Association of Governments (SCAG) "Connect SoCal 2024, Demographics and Growth Forecast" report dated April 2024. The SCAG report incorporates demographic trends, existing land use, general plan land use policies, and input and projections through the year 2050 from the Department of Finance (DOF) and the U.S. Census Bureau for counties, cities and unincorporated areas within Southern California. Annual growth rate projections within the City's service area were estimated based on the SCAG report and applied to the City's current population to estimate projected populations through 2050.

The City's service area is almost built out with predominantly single and multi-family residential units and some commercial, institutional, and industrial establishments. Moving forward, the City will continue planning for the Regional Housing Needs Assessment (RHNA) allocations and future planned developments including the addition of apartment units and accessory dwelling units (ADUs) as the means of affordable housing.

Pursuant to the California State Housing Law, every jurisdiction (including the City of Cerritos) is required to plan for its RHNA allocation in the Housing Element of its General Plan. RHNA is a representation of future housing needs for all income levels in a jurisdiction. SCAG's "*6th Cycle Final RHNA Allocation*" was adopted March 2021 (and modified in July 2021) and covers the planning period from October 2021 through October 2029. The total RHNA allocation of housing within the City of Cerritos through 2029 is 1,908 units (including 679 "very-low" income units, 345 "low" income units, 332

"moderate" income units, and 552 "above moderate" income units). The City of Cerritos has identified in its 2021 - 2029 State-certified Housing Element adequate sites and establish policies and programs that will accommodate the estimated growth, however the City of Cerritos is not obligated to produce, construct, or develop these allocated units.

3.4.2 OTHER SOCIAL, ECONOMIC, AND DEMOGRAPHIC FACTORS

CWC 10631.

(a) Describe the service area of the supplier, including… other social, economic, and demographic factors affecting the supplier's water management planning.

No other demographic factors affect the City's water management planning. However, increased population will have an impact on water demand. At this time, there are no new developments in the City's service area that significantly impact current water demands. The Housing Element of the City's General Plan has been updated to include the 6th Cycle Final RHNA Allocation.

3.5 LAND USES WITHIN SERVICE AREA

CWC 10631.

(a) ...The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities…

The City reviewed the current and projected land uses within its service area during the preparation of this 2025 Plan. Information regarding current and projected land uses is

included in the City's "General Plan 2004". The existing land uses within the City's service area includes residential (single-family and multi-family), commercial, institutional, and open space. The projected land uses within the City's service area are expected to remain similar to the existing land uses. In addition, although mostly built-out, the projected population within the City's service area is anticipated to increase (as discussed in Section 3.4). A discussion of the existing and projected water uses for the individual water use sectors within the City's service area, which includes the different land uses, is provided in Section 4.2. As discussed in Section 2.4, the City coordinated the preparation of the 2025 Plan with the Cities of Cerritos, Norwalk, and Santa Fe Springs, the County of Los Angeles, and other agencies.

As discussed in Section 3.4, the City obtained data from the SCAG document entitled "Connect SoCal 2024, Demographics and Growth Forecast", dated April 2024. Projected populations in the City's service area were based on growth rate projections developed by SCAG. The data provided by SCAG incorporates demographic trends, existing land use, general plan land use policies, and input and projections through the year 2050 from the DOF and the U.S. Census Bureau for counties, cities, and unincorporated areas within Southern California

3.6 SUBMITTAL TABLES

The applicable standardized Submittal Table referenced within Chapter 3 is provided below.

3.6.1 SUBMITTAL TABLE 3-1: POPULATION - CURRENT AND PROJECTED

Table 3-1 Population - Current and Projected

Submittal Table 3-1 Retail: Population - Current and Projected Water Code Section 10631(a)						
Population Served	2025	2030	2035	2040	2045	2050(opt)
	46,976	52,624	52,624	52,721	52,818	52,915
NOTES:						

DISCLAIMER AND LEGAL NOTICE: This Urban Water Management Plan and Water Shortage Contingency Plan (collectively, the Plan) uses population projections based on data provided by the Southern California Association of Governments (SCAG), which provided to the City two different projections of population growth. The first projection had an increase from 2025 to 2030, a 5-year period, of limited population growth. The second projection had an increase from 2021 to 2029, an 8-year period, of 1,908 residential housing units, which equates to an increase in population for this 8-year period (assuming application of the City's average household size of 2.96 persons) of 5,648 persons as population growth. The City recognizes that two separate and potentially conflicting State laws apply with respect to SCAG and its population growth forecasts, with the first State law set forth in the Urban Water Management Planning Act (Water Code § 10610 et seq.), and the second State law set forth in the Planning and Zoning Law and, specifically, the statutes commonly referred to as the Housing Element Law (Government Code § 65580 et seq.). In order for this Plan to be consistent with the City's contemporaneous Housing Element Update, and in order for this Plan to more accurately describe and evaluate sources of water supply, reasonable and practical efficient uses of water, and water reclamation and demand management activities, as required by Water Code § 10615, this Plan uses the higher population projections from SCAG, i.e., an assumption of 5,648 persons over the 8-year period, for purposes of forecast population in the City for the applicable 5-year period covered by this Plan.

CHAPTER 4

WATER USE CHARACTERIZATION

LAY DESCRIPTION – CHAPTER 4

WATER USE CHARACTERIZATION

Chapter 4 (Water Use Characterization) of the City's 2025 Plan discusses and provides the following:

- The City provides water service to individual "water use sectors". These water use sectors include single-family residential, multi-family, commercial, institutional (and governmental), and open space. Individual descriptions for these water use sectors are provided in Section 4.2.1.
- The City's total water demands (including potable and recycled water) over the past 15 years have ranged from 8,380 AFY to 11,113 AFY, with an average of 9,653 AFY. The City currently measures its water use through meter data and billing records.
- The City conducts an annual water loss audit to identify distribution system water losses. Water losses can result from pipeline leaks and inaccurate metering due to faulty meters. Water loss estimates are incorporated into the City's projected water demands.
- The City's water demand projections incorporate passive savings from water savings which are the result of implementation of codes, water conservation standards, and/or ordinances.
- The projected water demands for lower income households are identified and are included in the City's total projected water demands.

- The City's source of water supply and how this source may be impacted by climate change are discussed. The proactive actions the City and other local/regional water managers may take to address the potential climate change impacts on water supplies are also discussed.

4.1 NON-POTABLE VERSUS POTABLE WATER USE

The CWC requires a description and quantification of water uses within the City's service area, including both non-potable and potable water. Recycled water (non-potable) uses are addressed in Section 6.2.5; however, a summary is provided in Table 4-1 and Table 4-2. Furthermore, Chapter 4 addresses the City's potable water demands.

4.2 PAST, CURRENT, AND PROJECTED WATER USE BY SECTOR

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

CWC 10631.

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following…

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(4)(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(4)(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.
(ii) 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.

The City's current and projected water demands are provided in five-year increments over the next 25 years (through CY 2050) in Tables 4-1 and 4-2. The City's total water demands were projected based on a review of the "2020 Water Use Target" pursuant to SB X7-7 calculations (discussed in Section 5.2), current water use factors based on recent water demands, Urban Water Use Objective standards (discussed in Section 5.2.6), and the total population projections based on land use trends within the City (discussed in Section 3.4).

The City provides water service to individual "water use sectors" as identified by the CWC. The water use sectors supplied by the City are discussed in Section 4.2.1. The water use for each of these sectors during CY 2025 is provided in Table 4-1. The projected water use for each individual water use sector is provided in Table 4-2 and is based on the percentage breakdown of water use from each individual water use sector in CY 2025 (the percentages were then applied to the projected total water use).

4.2.1 WATER-USE SECTORS LISTED IN WATER CODE

CWC 10631.

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following:

(A) Single-family residential.
(B) Multifamily.
(C) Commercial.
(D) Industrial.
(E) Institutional and governmental.
(F) Landscape.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural.
(J) Distribution system water loss.

As shown in Table 4-1, the City's service area includes the following water use sectors listed in the CWC:

- Single-family residential
  (A single-family dwelling unit is a lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling. Single-family residential water demands are included in retail demands.)

- Multi-family residential
  (Multiple dwelling units are contained within one building or several buildings within one complex. Multi-family residential water demands are included in retail demands.)

- Commercial
  (Commercial users are defined as water users that provide or distribute a product or service.)

- Landscape
  (Landscape connections supply water solely for landscape irrigation. Landscapes users may be associated with multi-family, commercial, industrial, or institutional/governmental sites, but are considered a separate water use sector if the connection is solely for landscape irrigation. Landscape water demands are included in retail demands.)

- Sales to Other Agencies
  (Water sales made to another agency. Projected sales may be based on projected demand provided by the receiving agency. There is inherent uncertainty in future projections, therefore, any projected sales reported in the Plan are for planning purposes only and are not considered a commitment on the part of the seller. This is a wholesale demand.)

  The City regularly sells potable water to the City of Norwalk and Golden State Water Company.

- Distribution system losses
  (Distribution system losses represent the potable water losses from the pressurized water distribution system and water storage facilities, up to the point of delivery to the customers. Additional information is discussed in Section 4.3)

4.2.2 OPTIONAL WATER-USE SECTORS IN ADDITION TO THOSE LISTED IN WATER CODE

The City's service area does not include other water demand sectors which are not listed in the California Water Code (including exchanges, transfers, wetlands or wildlife habitat, and surface water storage).

4.2.3 PAST WATER USE

Chapter 6 provides a discussion of the source of water supply the City uses to meet its water demands. Section 6.1 provides a tabulation of the City's historical annual water demands for its water supply source. Over the past 15 years, the City's total water demands (including potable and recycled water) have ranged from 8,380 AFY to 11,113 AFY, with an average of 9,653 AFY. In addition, the City previously experienced a five consecutive year drought within its service area from CY 2011 to CY 2015. The City also reviewed its historical water demands to determine the projected water demands and water supply reliability (discussed in Chapter 7). The City is able to provide sufficient water supplies to meet the projected water demands of its customers, including during a five consecutive year drought period.

4.2.4 CURRENT WATER USE

CWC 10631.

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past… water use… based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors…

The City currently measures its water use through meter data and billing records. The water use for the City's individual water use sectors during CY 2025 is provided in Table

4-1. Recycled water uses are addressed separately in Section 6.2.5; however, a summary is provided in Table 4-2.

DWR has created an optional "Planning Tool Worksheet" for water suppliers to review and assess monthly water use trends. DWR has deemed the tool as optional and the City is not required by DWR to use the tool. However, Section 6.1 provides a tabulation of the City's historical annual water uses for each water supply source. During the past 15 years, the City experienced a five consecutive year drought within its service area from CY 2011 to CY 2015. Historical records indicate the City's annual water demands had been greater prior to CY 2011. The City has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. In addition, the City has been able to provide water service to meet maximum day water demands for these years, including during the summer months. A further discussion regarding the reliability of the City's water supply sources is provided in Chapter 7.

4.2.5 PROJECTED WATER USE

4.2.5.1 GENERAL GUIDANCE ON PROJECTIONS

CWC 10631.

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, … projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors…

CWC 10633.

The plan shall provide, to the extent available, information on recycled water...and shall include all of the following:...

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

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

CWC 10631.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available…

As discussed above, the City's current and projected water demands are provided in five-year increments over the next 25 years (through CY 2050) in Tables 4-1 and 4-2. The City's total water demands were projected based on a review of the "2020 Water Use Target" pursuant to SB X7-7 calculations (discussed in Section 5.2), current water use factors based on recent water demands, Urban Water Use Objective standards (discussed in Section 5.2.6), and the total population projections based on land use trends within the City (discussed in Section 3.4). Chapter 6 provides a discussion of the sources of water supply the City will use to meet the projected water demands (including recycled water use). The City's projected water demands and water supplies during a normal year, a single dry year, and a five consecutive year drought are provided in Chapter 7.

Because the City relies on wholesale water supplies, the City has provided its 2025 Plan to CBMWD as discussed in Section 2.4.1.

4.2.5.2 WATER-USE PROJECTIONS BY SECTOR

CWC 10631.

(d)(1) For an urban retail water supplier, quantify, to the extent records are available … projected water use based upon information developed pursuant to subdivision (a),

The City provides water service to individual "water use sectors" as identified by the California Water Code. The water use sectors supplied by the City are discussed in Section 4.2.1. The water use for each of these sectors during CY 2025 is provided in Table 4-1. The projected water use for each individual water use sector through CY 2050 is provided in Table 4-2 and is based on the percentage breakdown of water use from each individual water use sector in CY 2025 (the percentages were then applied to the projected total water use).

4.2.5.3 STANDARDS, CODES, ORDINANCES, AND PLANS

CWC 10631.

(d)(4)(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(d)(4)(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.
(ii) 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.

The City's projected water demands are provided in five-year increments over the next 25 years (through CY 2050) in Table 4-2. The City's projected water demands and water supplies during a normal year, a single dry year, and a five consecutive year drought are provided in Chapter 7. The projected water demands for each of the City's water use sectors are provided in Table 4-2. As discussed in the following Section, the City's water demand projections incorporate "passive savings" which are the result of implementation of codes, standards, and/or ordinances.

4.2.5.4 RETAIL ONLY

The City's total water demands were projected based on a review of the "2020 Water Use Target" pursuant to SB X7-7 calculations (discussed in Section 5.2), current water use factors based on recent water demands, Urban Water Use Objective standards (discussed in Section 5.2.6), and the total population projections based on land use trends within the City (discussed in Section 3.4). The projected water demands for the water use sectors were based on the percentage breakdown of water demands from each individual water use sector in CY 2025 (the percentages were then applied to the projected total water demands). A discussion of the City's water supplies from CBMWD, a wholesaler, are discussed in Section 6.2. As discussed in Section 2.4.1, the City has coordinated its water demand projections with CBMWD for each water use sector.

The City's water demand projections incorporate water savings from "passive savings" which are the result of implementation of codes, standards, and/or ordinances. The City's Resolution No. 2015-16, "A Resolution of the City Council of the City of Cerritos Implementing Emergency Water Conservation Regulations", which was adopted in June 2015 (discussed in Section 9.1.3), includes methods for current and ongoing reduction in water use and water waste. Prior to the adoption of Resolution No. 2015-16, the City's water use rate ranged from approximately 150 gallons per capita per day (GPCD) to 182 GPCD (from CY 1997 through CY 2006). As identified in Section 5.2.2, the City's actual

water use rate during CY 2020 was 129 GPCD which is a decrease of up to 53 GPCD from the recent historical water use and includes passive savings. The City's projected water demands, incorporate water use targets less than its established SB X7-7 water use target for 2020 and incorporate ongoing water passive savings and reduced water use. As indicated in Table 4-3, estimated future water savings have been considered as part of the City's water use projections.

4.2.5.5 LOWER-INCOME HOUSEHOLDS

CWC 10631.1.

(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

California Health and Safety Code 50079.5.

(a) "Lower income households" means persons and families whose income does not exceed the qualifying limits for lower income families… In the event the federal standards are discontinued, the department shall, by regulation, establish income limits for lower income households for all geographic areas of the state at 80 percent of area median income, adjusted for family size and revised annually.

The City's water demand projections provided in Table 4-2 include projected water demands for lower income single-family and multi-family households. A lower income household is defined as a household with an income less than 80 percent of the area median income, adjusted for family size. For the purpose of this evaluation the entire Los Angeles County was used for the "area median income". The total number of lower income households within the City's service area was estimated based on billing records

provided by the City, a review of median household income range statistics provided by the U.S. Census Bureau (https://data.census.gov/cedsci/), and a review of GIS maps of Disadvantaged Communities[3] (DACs), including block groups, tracts, and places, provided by DWR. The estimated number of lower income households located within the City's service area is approximately 22.7 percent of the total number of households. As indicated in Table 4-2, the total projected residential water (single and multi-family) demands within the City in 2050 is estimated at about 4,870 AFY. Based on an 22.7 percent use factor of total residential water demands, the projected water demand for lower income households will be about 1,107 AFY by CY 2050. The projected water demands for lower income households were included in the City's total projected water demands, as indicated in Table 4-3.

4.2.5.6 CLIMATE CHANGE CONSIDERATIONS

CWC 10630.

It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied, while accounting for impacts from climate change.

CWC 10635.

(b) Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment… (and) shall include each of the following…

(4) 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.

[3] GIS information for DACs is based on data from the US Census showing census block groups, tracts, and places identified as disadvantaged communities (less than 80 percent of the State's median household income) or severely disadvantaged communities (less than 60 percent of the State's median household income)

Climate is defined as "the average course or condition of the weather at a place usually over a period of years as exhibited by temperature, wind velocity and precipitation[4]". A change in the climate which produces a greater amount of precipitation (i.e. more runoff and/or snowpack) and lower temperatures is generally a benefit to water supplies. However, drought conditions which may result in decreased precipitation, decreased runoff, and increased temperature may adversely affect an urban water supplier's ability to meet demands by potentially impacting supplies. Consequently, the focus of impacts of climate change is on these adverse consequences.

Section 6.2 of this Plan describes the City's source of water supply, management practices associated with this source, and the long-term reliability of this source. Section 7.3 includes a DRA which considers the potential impacts of climate change to the City's water supply source. Chapter 8 provides a detailed discussion of the City's WSCP, including, but not limited to, the six standard water shortage levels in the event climate change results in a reduction to water supplies associated with a periodic drought condition. The following is a discussion of the City's source of supply, how this source may be impacted by climate change, and the proactive actions the City and other local/regional water managers may take to address the potential climate change impacts on water supplies.

Imported Water Supplies

The City receives treated imported water as discussed in Section 6.2.1 and relies on the WRD to manage the groundwater supplies of the Central Basin. Consequently, the City indirectly relies on the Metropolitan Water District of Southern California for those imported water supplies. MWD has prepared a Regional 2025 Urban Water Management Plan which includes a discussion (Section 2.6 in MWD's 2025 UWMP) of the reliability of its water supplies and the impacts of climate change and is incorporated by reference in

[4] www.merriam-webster.com

this Plan. Furthermore, the City is a sub-agency of the Central Basin Municipal Water District which has also provided a discussion of climate change considerations and that discussion is included by reference. The following is a brief summary of MWD's efforts:

Resource Planning

- MWD has established the Robust Decision Making (RDM) approach to identify vulnerabilities to its water supplies. Climate change information was applied to MWD's simulated water supply scenarios to demonstrate the vulnerability of water supplies to climate change.

- MWD altered the inflow hydrology scenarios on the Colorado River simulation model to reflect modified inflow to MWD's Colorado River aqueduct.

Knowledge Sharing and Research Support

- MWD is an active and founding member of the Water Utility Climate Alliance (WUCA) which includes 12 nationwide partners collaborating on climate change considerations. As such, MWD shares agency actions on climate change and adaptation. WUCA has also released numerous research papers on climate change.

Implementation of Programs and Policies

- MWD's programs include the use of solar energy, use of ride share programs, and reduction of greenhouse emissions. Collectively these actions are intended to impact the effects of climate change.

Groundwater Supplies – Central Basin

The City relies on groundwater produced from the Central Basin as noted in Section 6.2.2 of this UWMP. The Central Basin has been identified by DWR as a very low-priority groundwater basin partially due to the fact it is adjudicated. In that regard, the Central Basin is actively managed by the Water Replenishment District of Southern California which serves as the Central Basin Watermaster and those management activities are described in detail in Section 6.2.2.

Recognizing the potential impacts of climate change on the Central Basin groundwater supplies (decreased local runoff and replenishment, along with increased groundwater production, may lead to decreased groundwater levels), the City has used climate tools available on the California Energy Commission's Cal-Adapt website (https://cal-adapt.org/) to identify potential future climate change cycles for the Central Basin. The Cal-Adapt website has been developed by the Geospatial Innovation Facility at the University of California, Berkeley with funding and advisory oversight by the California Energy Commission and California Strategic Growth Council.

To address the uncertainty in future greenhouse gas emissions, Cal-Adapt has developed a Representative Concentration Pathway 4.5 (RCP 4.5) scenario and a Representative Concentration Pathway 8.5 (RCP 8.5) scenario. RCP 4.5 represents a scenario in which greenhouse gas emissions peak around 2040, then decline and stabilize. RCP 8.5 represents a scenario in which emissions continue to strongly rise through 2050 and plateau around 2100. RCP 4.5 is a "medium" emissions scenario that models a future in which there is an effort made by societies to reduce greenhouse gas emissions, whereas RCP 8.5 is a "business-as-usual" scenario. For the City's climate change analysis, the RCP 4.5 scenario was selected.

The Cal-Adapt climate tools also incorporate several General Circulation Models (GCMs), which represent physical processes in the atmosphere, ocean, and land surface. These

GCMs projected future climates under conditions such as warm/dry, cooler/wetter, and average simulations. For the City's climate change analysis, the average condition GCM (CanESM2) was selected.

The climate tools available on the Cal-Adapt website were used to simulate projected annual precipitation and annual average maximum temperature in the Central Basin. An electronic boundary of the Central Basin was submitted online through the Cal-Adapt website in a "KML" file format (i.e. Google Earth format) and data using several of the available climate tools was generated.

Based on the data generated by the Cal-Adapt simulations (see Appendix E), the average annual rainfall in the Central Basin is projected to be 16.5 inches through 2099, compared to historical average of 15.1 inches (from 1961 through 1990). In addition, the average maximum temperature is projected to be 80.3 degrees Fahrenheit compared to a historical average of 74.7 degrees Fahrenheit. Although there may be more precipitation in the future, it may be more likely to fall as rainfall compared to snowfall. The simulations do not denote the duration or intensity of storms contributing to the annual precipitation. Notwithstanding, the San Gabriel River watershed includes a complex and interconnected series of dams, reservoirs and replenishment basins to capture stormwater runoff. In an average to below average year of precipitation, over 95 percent of the precipitation in the watershed is retained within the watershed and is not lost to the ocean. Consequently, most if not all precipitation (whether it is rain or snowfall) likely will be captured for use in the Central Basin area and not adversely impacted by a potentially higher average annual temperature.

Recognizing these potential impacts to local hydrology resulting from climate change and the resultant impacts to the groundwater supplies, WRD has taken (and may reinstate as needed) the following proactive actions to anticipate and circumvent the potential impacts of climate change. These actions will enable the City to rely on the Central Basin as a reliable source of supply.

Recycled Water Groundwater Replenishment

The WRD has actively used recycled water for groundwater replenishment for many decades. Historically the recycled water replenishment was supplemented with untreated imported water replenishment as part of Central Basin management. However, WRD has also established the Water Independence Now (WIN) program. The WIN program includes a treatment facility (previously referred to as the Groundwater Reliability Improvement Program) which includes ultrafiltration, reverse osmosis, and ultraviolet disinfection and advanced oxidation to treat recycled water by significantly reducing the total dissolved solids concentration. This action will gradually help to improve the water quality of the Central Basin, plus reduce or eliminate the future need to purchase untreated imported water.

Water Storage Programs

The Central Basin Adjudication allows Parties to the Judgment to pump up to 20 percent more of its annual Allowed Pumping Allocation plus any carry-over water rights as described in Section 6.2.2. In addition, the Central Basin Judgment includes an amendment which implemented a water storage program. A party may store up to 50 percent of the party's Allowed Pumping Allocation in an Individual Storage Account and 150 percent of the party's Allowed Pumping Allocation in a Community Storage Account if space is available. The amendments also allow parties to convert unused Allowed Pumping Allocation to stored water and revised the amount of carryover to be equal to 60 percent of the party's Allowed Pumping Allocation minus the amount of carryover water set aside for storage. The purpose of the storage program creates an added reliability in water supply from the Central Basin.

4.3 DISTRIBUTION SYSTEM WATER LOSS

CWC 10631.

(d)(3)(A) The distribution system water loss shall be quantified for each of the five years preceding the plan update, in accordance with rules adopted pursuant to Section 10608.34.

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

(C) In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34.

4.3.1 PREVIOUS FIVE YEARS DISTRIBUTION SYSTEM LOSSES

Distribution system water losses represent the potable water losses from the pressurized water distribution system and water storage facilities, up to the point of delivery to the customers. Sources of distribution system water loss can include: inaccurate metering due to faulty meters; water use not metered such as firefighting, flushing of the water system; and pipeline leaks.

The California Water Code Section 10608.34 requires “On or before October 1, 2017, and on or before October 1 of each year thereafter, each urban retail water supplier shall submit a completed and validated water loss audit report for the previous calendar year or the previous fiscal year...” The water loss audits must follow American Water Works Association (AWWA) guidance and be validated by a certified water audit validator. The City has completed the annual water loss audit process through January 1, 2026, as required by the California Water Code. As shown in Table 4-5, the City has completed water loss audits for the past five years representing calendar years 2020, 2021, 2022, 2023, and 2024. The City’s water loss audits were prepared and validated pursuant to DWR requirements. The annual water loss audit reports submitted by retail water

agencies in California, including the City, are available on DWR's WUEdata website (https://wuedata.water.ca.gov/awwa_plans).

The City's annual water loss audits identify real water losses (e.g. leaks and main failures) and apparent water losses (e.g. customer meter inaccuracies, systematic data handling errors in customer billing systems, and unauthorized consumption). The City's distribution system water losses are based on the sum of the real and apparent water losses. Over the past five years, the City's average distribution system water losses represent approximately 8.9 percent of its total water demands. This average water loss factor was incorporated into the City's total potable water demand projections (Tables 4-2 and 4-3).

4.3.2 PROGRESS TOWARD MEETING THE WATER LOSS PERFORMANCE STANDARD

Consistent with the California Code of Regulations, Title 23, Sections 980 through 986, retail water suppliers are required to comply with Real Water Loss Performance Standards by January 1, 2028 (pursuant to SWRCB requirements). Until then, a supplier may, when calculating its Urban Water Use Objective (discussed further in Section 5.2.6), use real losses reported in the water loss audits provided to the Department of Water Resources (discussed in Section 4.3.1), rather than the standard-based budget calculated according to the equation described Section 970 of the California Code of Regulations.

Pursuant to the California Water Code Section 10631(d)(3)(C), a retail water supplier is required to provide data in its 2025 Plan demonstrating whether the retail water supplier met its Water Loss Performance Standard. The California Code of Regulations includes the following methods for compliance:

- Retail suppliers may have met their Real Water Loss Performance Standard if their 2025 or 2026 annual water loss audits (currently not available) show actual real water loss at or below the standard (California Code of Regulations Section 981[b]).
- Retail suppliers may still meet the Real Water Loss Performance Standard if, by January 1, 2028, their 2027 annual water loss audit shows actual real water loss at or below the standard (California Code of Regulations Section 981[a] and [b]).
- Apparent Water Loss Performance Standards are evaluated at the time compliance with the Real Water Loss Performance Standard is assessed (California Code of Regulations Section 981[d]).

The City's 2025 water loss audit is due by January 1, 2027 and was not available during the preparation, completion, and submittal of the City's 2025 Plan. However, Table 4-6 presents the City's Real and Apparent Water Loss Performance Standards, as well as the real and apparent water losses included in the City's most recent 2024 water loss audit.

The City will continue to improve data collection for assessing and reducing water losses while performing proactive measures to minimize real losses. City field personnel are trained to spot leaks and verify if water from fire hydrants is metered, permitted, or if the water is taken without authorization.

4.4 SUBMITTAL TABLES

The applicable standardized Submittal Tables referenced within Chapter 4 are provided below.

4.4.1 TABLE 4-1: 2025 ACTUAL TOTAL USES FOR POTABLE AND NON-POTABLE WATER

Table 4-1 2025 Total Uses for Potable and Non-Potable Water - Actual

Submittal Table 4-1 Retail: Total Uses for Potable and Non-Potable Water — Actual Water Code Section 10631(d)(1)			
Use Type	Additional Description (as needed)	2025 Actual Water Use	
Drop down list May select each use multiple times These are the only use types that will be recognized by the WUEdata online submittal tool		**Potable or Non-Potable** (OPTIONAL) Drop down list	Volume (AF)
Add additional rows as needed			
Single Family		Potable	4,003
Multi-Family		Potable	390
Commercial		Potable	1,380
Landscape		Potable	497
Landscape	Recycled Water	Non-Potable	1,983
Sales/Transfers/Exchanges to other Suppliers	City of Norwalk and Golden State Water Company	Potable	722
Distribution System Water Loss		Potable	609
		Subtotal Potable	7601
		Subtotal Non-Potable	1983
		Total	9,584
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:			

4.4.2 TABLE 4-2: TOTAL USES OF POTABLE AND NON-POTABLE WATER—PROJECTED

Table 4-2 Total Uses of Potable and Non-Potable Water - Projected

Submittal Table 4-2 Retail: Total Uses for Potable, and Non-Potable Water — Projected Water Code Section 10631(d)(1)							
Use Type	Additional Description (as needed)	**Projected Water Use** (Report To the Extent that Records are Available)					
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		**Potable or Non-Potable** (OPTIONAL) Drop down list	**2030 (AF)**	**2035 (AF)**	**2040 (AF)**	**2045 (AF)**	**2050 opt (AF)**
Add additional rows as needed.							
Single Family		Potable	4,413	4,413	4,421	4,429	4,437
Multi-Family		Potable	430	430	431	432	433
Commercial		Potable	1,522	1,522	1,525	1,527	1,530
Landscape		Potable	549	549	550	551	552
Landscape	Recycled Water	Non-Potable	2,500	2,500	2,500	2,500	2,500
Sales/Transfers/Exchanges to other Suppliers	City of Norwalk and Golden State Water Company	Potable	477	477	477	477	477
Distribution System Water Loss		Potable	671	671	672	674	675
		Subtotal Potable	8,062	8,062	8,076	8,090	8,104
		Subtotal Non-Potable	2,500	2,500	2,500	2,500	2,500
		Total	10,562	10,562	10,576	10,590	10,604
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:							

4.4.3 TABLE 4-3: INCLUSION IN WATER-USE PROJECTIONS

Table 4-3 Inclusion in Water Use Projections

Submittal Table 4-3 Retail: Inclusion in Water Use Projections Water Code Section 10631 (a), 10631 (d)(4)(A), and 10631 (d)(4)(B)	
Are Future Water Savings Included in Projections? **Drop down list (y/n)**	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. ***Optional*** Suppliers may complete Optional Submittal Table 4-4 R to quantify the expected savings.	Section 4.2.5 and Chapter 8
Are Lower Income Residential Demands Included In Projections? **Drop down list (y/n)**	Yes
Optional If the method for accounting Lower Income Residential Demands has been included, provide page number where this accounting can be found.	
DWR NOTES: Additional guidance is provided in Appendix K.	
NOTES:	

4.4.4 OPTIONAL TABLE 4-4: PASSIVE WATER SAVINGS PROJECTION

DWR has deemed Table 4-4 to be optional.

Table 4-4 Passive Savings Projection

4.4.5 TABLE 4-5: WATER LOSS AUDIT REPORTING

Table 4-5 Water Loss Audit Report

Submittal Table 4-5 Retail: Water Loss Audit Reporting Water Code Section 10631(d)(3)(A)		
Public Water System ID # Reported in Table 2-1 R	Reporting Period	Submitted to DWR Water Loss Audit Program (yes/no)
Report submittal status for all five years for each Public Water System as available. Add rows as needed		
CA1910019	**2020**	Yes
	2021	Yes
	2022	Yes
	2023	Yes
	2024	Yes
DWR NOTES: Suppliers will provide a link to the WUEdata submittals of their Water Loss Audit Reports.		
NOTES:		

4.4.6 TABLE 4-6: PROGRESS TOWARD 2028 WATER LOSS STANDARD

Table 4-6 Progress Toward 2028 Water Loss Standard

Submittal Table 4-6 Retail: Progress Towards 2028 Water Loss Standard Water Code Section 10631(d)(3)(C)											
		Real Water Loss					Apparent Water Loss				
		State Water Board Standard		Most Recent AWWA Water Loss Audit			State Water Board Standard		Most Recent AWWA Water Loss Audit		
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.	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)	Real 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)	Apparent Water Loss Per Unit per Day
Add additional rows as needed.											
CA1910019	Yes	14.8	Gallons per Service Connection per Day (GPSCD)	15664	701.845	40.0	13.7	Gallons per Service Connection per Day (GPSCD)	15664	155.664	8.9
								Gallons per Service Connection per Day (GPSCD)			
								Gallons per Service Connection per Day (GPSCD)			
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:											

CHAPTER 5

SB X7-7 BASELINES, 2020 TARGETS, AND 2025 REPORTING

LAY DESCRIPTION – CHAPTER 5

SB X7-7 BASELINES, 2020 TARGETS, AND 2025 REPORTING

Chapter 5 (SB X7-7 Baselines, 2020 Targets, and 2025 Reporting) of the City's 2025 Plan discusses and provides the following:

- The Water Conservation Act of 2009 (or SB X7-7) required that the State of California achieve a 20 percent reduction in urban water use by the year 2020.
- SB X7-7 required urban water suppliers, including the City, to develop a "2020 Water Use Target" to assist the State of California to achieve the 20 percent reduction. The 2020 Water Use Target represents the amount of water each person should use per day (i.e. gallons per capita per day or GPCD) by the year 2020.
- The City previously determined its 2020 Water Use Target during the preparation of its 2015 Plan by completing standardized tables (or the SB X7-7 Verification Form) to demonstrate compliance with the Water Conservation Act of 2009. The City's 2020 Water Use Target was 142 GPCD.
- The City's per-capita water use during Calendar Year 2020 was 129 GPCD. The City's confirmed 2020 Water Use Target is 142 GPCD. The City's per-capita water use during Calendar Year 2020 met the 2020 Water Use Target.

5.1 REPORTING REQUIREMENTS FOR WHOLESALE SUPPLIERS

CWC 10608.12.

(aj) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

CWC 10608.36.

Urban wholesale water suppliers shall include in the urban water management plans required pursuant to Part 2.6 (commencing with Section 10610) an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

The City is not a wholesale agency and is not required by DWR to complete Section 5.1.

5.1.1 SUPPLIER WAS NOT AN URBAN RETAIL WATER SUPPLIER

Section 5.2.1 is not applicable to the City.

The City was an urban retail water supplier during and before the 2020 Plan cycle.

5.2 REPORTING REQUIREMENTS FOR RETAIL SUPPLIERS

CWC 10608.40.

Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631.

CWC 10608.12.

(af) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

The Water Conservation Act of 2009 (or SB X7-7) required the State of California achieve a 20 percent reduction in urban water use by the year 2020. SB X7-7 required urban water suppliers, including the City, to develop a "2020 Water Use Target" to assist the State of California to achieve the 20 percent reduction. The 2020 Water Use Target represents the amount of water each person should use per day (i.e. gallons per capita per day or GPCD) by the year 2020.

The City previously determined its 2020 Water Use Target during the preparation of its 2015 Plan by completing standardized tables (or the SB X7-7 Verification Form) to demonstrate compliance with the Water Conservation Act of 2009. The City's SB X7-7 Verification Form was also included in its 2020 Plan. The City's 2020 Water Use Target was 142 GPCD.

5.2.1 SUPPLIER WAS NOT AN URBAN RETAIL WATER SUPPLIER

Section 5.2.1 is not applicable to the City.

The City was an urban retail water supplier during and before the 2020 Plan cycle.

5.2.2 SUPPLIER MET 2020 TARGET IN 2020

The City previously calculated its "2020 Water Use Target" in its 2015 Plan pursuant to the methodology provided by DWR. The City's 2020 Water Use Target was confirmed to be 142 GPCD.

As discussed in the City's 2020 Plan, the annual gross water use by the City during CY 2020 was 7,227 AF. In addition, the estimated population within the City's service area for CY 2020 was 50,143. As a result, the City's per-capita water use during CY 2020 was 129 GPCD. As shown in Table 5-1, the City's per-capita water use during CY 2020 meets

the 2020 Water Use Target. The City also demonstrated compliance with the 2020 Water Use Target by completing the SB X7-7 2020 Compliance Form (included in the 2020 Plan).

5.2.3 SUPPLIER DID NOT MEET 2020 TARGET IN 2020—NO CHANGE TO SERVICE AREA

Section 5.2.3 is not applicable to the City.

As indicated in Section 5.2.2, the City previously met its 2020 Water Use Target as part of the 2020 Plan.

5.2.4 SUPPLIER DID NOT MEET 2020 TARGET—CHANGE TO SERVICE AREA SINCE 2020

Section 5.2.4 is not applicable to the City.

As indicated in Section 5.2.2, the City previously met its 2020 Water Use Target as part of the 2020 Plan.

5.2.5 FUNDING ELIGIBILITY

CWC 10608.56.

(a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

If a retail water supplier does not achieve its 2020 Water Use Target, the retail water supplier is not eligible to receive a water grant or loan from the State of California until it complies. The following two exceptions to this are provided:

- Water Code Section 10608.56(c) states that a water supplier shall be eligible for a water loan or grant if it "has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per-capita reductions."
- Water Code Section 10608.56(e) states that a water supplier can also be eligible for a water loan or grant if it "has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community."

As indicated in Section 5.2.2, the City previously met its 2020 Water Use Target as part of the 2020 Plan.

5.2.6 NEXUS TO STATE WATER BOARD URBAN WATER-USE OBJECTIVES (NOT REQUIRED FOR UWMPs)

SWRCB's "Making Conservation A Way of Life Regulation" (under the California Code of Regulations, Title 23, Section 965 et seq) requires urban retail water suppliers to annually calculate and comply with an Urban Water Use Objective (UWUO); carry out commercial, industrial, and institutional (CII) performance measures; and provide progress reports. The regulation is expected to reduce inefficient water use and protect water supplies from the effects of rising temperatures and drier conditions due to climate change.

The Urban Water Use Objective is the sum of standard-based water use budgets for efficient residential indoor use, residential outdoor use, CII landscapes with dedicated irrigation meters (DIMs), and real water losses. Each budget is the product of the

applicable standard and the water supplier's unique characteristics (e.g., population). Water suppliers will be assessed for compliance with their overall objective, not each standards-based budget.

The residential indoor water use standard is based on 55 GPCD (until December 31, 2024), 47 GPCD (from January 1, 2025 to January 1, 2030), and 42 GPCD (beginning January 1, 2030). The residential outdoor water standard is based on a landscape efficiency factor (representing plant factors and irrigation efficiency) of 0.80 (until June 30, 2035), 0.63 (from July 1, 2035 to June 30, 2040), and 0.55 (beginning July 1, 2040). The standard for commercial, industrial, and institutional (CII) landscapes is based on a landscape efficiency factor of 0.80 (until June 30, 2035), 0.63 (from July 1, 2035 to June 30, 2040), and 0.45 (beginning July 1, 2040). Urban retail water suppliers are also required to comply with real water loss standards by January 1, 2028.

DWR has indicated that compliance with the Urban Water Use Objective requirements are under the authority of the SWRCB and that the requirements are not part of Urban Water Management Plan content requirements. However, the SWRCB uses the 2020 Water Use Targets as a back stop for the Urban Water Use Objective calculations. The Urban Water Use Objectives, together with excluded demands, are to be more efficient than the 2020 Water Use Targets.

5.3 SUBMITTAL TABLES

The applicable standardized Submittal Table referenced within Chapter 5 is provided below.

Table 5-1 SB X7-7 2020 Target Progress

Submittal Table 5-1 Retail: SB X7-7 2020 Target Progress Water Code Section 10608.40						
☐	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	142	129	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.						
NOTES:						

CHAPTER 6

NORMAL-YEAR WATER SUPPLY CHARACTERIZATION

LAY DESCRIPTION – CHAPTER 6

NORMAL- YEAR WATER SUPPLY CHARACTERIZATION

Chapter 6 (Normal-Year Water Supply Characterization) of the City's 2025 Plan discusses and provides the following:

- The City's water supply sources include: groundwater pumped from the Central Basin, imported water purchased from MWD through CBMWD, and recycled water purchased from LACSD.
- A tabulation of the City's historical water supplies is provided in Section 6.1.
- A discussion regarding the City's imported water supplies purchased from Central Basin Municipal Water District is provided. Information regarding imported water connections, capacities, reliability, and historical production is provided.
- A discussion regarding the City's groundwater supplies from the Central Basin is provided. Information regarding basin location, adjudication, management, water levels, water quality, water rights, and historical production is provided.
- A discussion regarding the City's recycled water supplies is provided. The City's recycled water supplies are produced by the Sanitation Districts of Los Angeles County. The City uses recycled water for landscape irrigation at parks, schools, golf courses, Artesia Cemetery, Forest Lawn Cemetery in the City of Cypress, Cerritos College, medians and parkways, and two nurseries and greenbelts as well as industrial use at local companies for carpet dying and concrete mixing. The City also provides recycled water to the City of Lakewood.

- The City's proposed future projects to maximize its water supply resources are discussed.
- The City's "energy intensity" is discussed and represents the quantity of energy consumed, measured in kilowatt hours, divided by the volume of water, measured in acre-feet over a one-year period. The total energy intensity associated with the City's water management processes was estimated during CY 2025.

In this Chapter, the City will identify and describe each of its sources of water supply. In addition, the City will describe the following:

- Management of its water supply source;
- Current provisions of a basin adjudication or Groundwater Sustainability Plan, as applicable, pertaining to management of groundwater supplies;
- Measures the City is taking to develop potential new sources of water supply (as applicable); and,
- Opportunities for exchanges and transfers on a long- or short-term basis.

The characterization of the City's water supply source will account for the anticipated availability during a normal year, a single dry year, a five consecutive year drought, along with projections through CY 2050.

6.1 WATER SUPPLY ANALYSIS OVERVIEW

CWC 10631.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information, including all of the following:

(1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply,

consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

(2) When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies.

(3) For any planned sources of water supply, a description of the measures that are being undertaken to acquire and develop those water supplies.

CWC 10631.

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

The City's sources of water supply include: groundwater pumped from the Central Basin; treated, imported water from Metropolitan Water District of Southern California through Central Basin Municipal Water District; and recycled water purchased from the Sanitation Districts of Los Angeles County. A tabulation of the City's historical water supplies is provided below.

The City's main source of water supply is groundwater pumped from the Central Basin. As noted on the tabulation below, the City regularly sells potable water to the City of Norwalk and Golden State Water Company. A portion of these sales include treated imported water, while the balance is groundwater. As discussed in Section 6.2.2, the City's current Allowed Pumping Allocation in the Central Basin is 4,680.03 AFY. As discussed in Section 6.2.7, the City leases Central Basin water rights on an annual basis to allow for additional production above its Allowed Pumping Allocation.

City of Cerritos						
Calendar Year	System Water Supply Sources (AF)					Total
	Potable Water				Recycled Water	
	Central Basin Groundwater	Central Basin MWD Imported Water	Sales to Norwalk and GSWC	Subtotal		
2011	8,568	445	(860)	8,152	2,220	10,372
2012	8,830	407	(759)	8,477	2,465	10,942
2013	9,080	366	(797)	8,648	2,465	11,113
2014	9,079	108	(778)	8,409	2,630	11,039
2015	6,275	1,451	(726)	7,000	2,221	9,220
2016	7,531	314	(799)	7,046	2,298	9,344
2017	8,238	0	(878)	7,360	2,137	9,497
2018	8,382	0	(783)	7,599	2,512	10,111
2019	7,996	79	(1,230)	6,845	2,227	9,072
2020	8,448	7	(1,228)	7,228	2,159	9,387
2021	7,818	0	(436)	7,381	2,237	9,618
2022	7,447	129	(484)	7,091	2,255	9,346
2023	7,032	0	(447)	6,585	1,795	8,380
2024	7,126	0	(293)	6,833	1,662	8,495
2025	7,538	62	(722)	6,878	1,983	8,861

Source: Data provided by the City

6.1.1 SPECIFIC ANALYSIS APPLICABLE TO ALL WATER SUPPLY SOURCES

The section below provides a discussion of the following information to the extent practical:

- The City's existing and planned sources of water supply are identified;
- The City's source of supply is quantified in five-year increments through CY 2050;
- The anticipated supply availability under normal, single dry, and five consecutive dry years, and any other water year conditions included in the DRA (see Chapter 7) are described;
- The management of the City's water supply in correlation with other identified supplies is described; and,

- Information pertinent to the reliability analysis, including climate change effects, is considered.

The City historically has relied on groundwater pumped from the Central Basin; treated, imported water from Metropolitan Water District of Southern California through Central Basin Municipal Water District; and recycled water purchased from the Sanitation Districts of Los Angeles County. The following descriptions summarize the City's sources of supply (detailed descriptions are provided in Section 6.2).

Existing and Planned Sources of Supply

Purchased Treated Imported Water

The City has historically purchased treated imported water from CBMWD, as described in Section 6.2.1. In addition, Section 6.2.1 provides a detailed discussion of the existing and planned supply of the treated imported water, including a description of the management and reliability of those treated imported water supplies. Table 6-8 summarizes the actual treated imported water supply for CY 2025. In addition, Table 6-9 summarizes the projected water supply, in five-year increments, through CY 2050 under varying water supply conditions.

Groundwater

The City has historically pumped groundwater directly from the Central Basin as described in Section 6.2.2. In addition, Section 6.2.2 provides a detailed discussion of the existing and planned supply of the groundwater, including a description of the management and reliability of those groundwater supplies. Table 6-8 summarizes the actual groundwater supplies for CY 2025. In addition, Table 6-9 summarizes the projected water supply, in five-year increments, through CY 2050 under varying water supply conditions.

Surface Water

The City does not use surface water supplies to meet its water demands.

Storm Water

The City has historically received groundwater from the Central Basin. Management and use of the stormwater runoff from the groundwater basin watershed is crucial to groundwater management. However, the City currently does not have its own program to beneficially use stormwater runoff as a direct source of supply. However, a potential stormwater capture program within the City is discussed in Section 6.2.4.

Wastewater and Recycled Water

The City has historically purchased recycled water supplies from the Sanitation Districts of Los Angeles County as described in Section 6.2.5. In addition, Section 6.2.5 provides a detailed discussion of the existing and planned use of the recycled water, including a description of the management and reliability of those recycled water supplies. Table 6-8 summarizes the actual recycled water supplies for CY 2025. In addition, Table 6-9 summarizes the projected recycled water supply, in five-year increments, through CY 2050 under varying water supply conditions.

6.1.2 SPECIAL CONDITIONS

The City has considered the issues described below when developing its planned source of water supply.

6.1.2.1 CLIMATE CHANGE EFFECTS

Climate change has the possibility of impacting the availability of planned water supplies, particularly during a drought period. Section 4.2.5.6 of this Plan provides a discussion regarding climate change effects on the City's various sources of supply.

6.1.2.2 REGULATORY CONDITIONS AND PROJECT DEVELOPMENT

The City has considered the implications of emerging regulatory conditions and project development on the availability of planned water supplies. Section 1.4 provides a discussion of the reduced reliance on Delta water supplies as well as the proposed Pure Water Southern California recycled water project.

6.1.2.3 OTHER LOCALLY APPLICABLE CRITERIA

There are no locally applicable criteria which applies to the City.

6.1.2.4 WHOLESALE AND RETAILS SUPPLIERS COORDINATION

Because the City relies on wholesale water supplies, the City has provided its 2025 Plan to CBMWD as discussed in Section 2.4.1.

6.2 WATER SUPPLY CHARACTERIZATION

6.2.1 PURCHASED OR IMPORTED WATER

CENTRAL BASIN MUNICIPAL WATER DISTRICT

The City can purchase treated, imported water from Metropolitan Water District of Southern California through Central Basin Municipal Water District. MWD imports water from the Colorado River through the Colorado River Aqueduct, owned and operated by MWD, and the State Water Project, which utilizes the California Aqueduct for transmission to Southern California. Water delivered to CBMWD's sub-agencies can be treated at MWD's Weymouth Treatment Plant located in the City of La Verne.

CBMWD uses a tiered rate structure for water sales to its sub-agencies, including the City. Any water purchases in excess of the Tier 1 allocation may incur Tier 2 rates. The City can purchase treated, imported water directly from its CENB-46 connection with a capacity of 30 cubic feet per second). The City's purchases of treated, imported water from CBMWD over the past five years has been tabulated in Section 6.1. Over the past five years, the City has purchased 0 AFY to 129 AFY, with an average of 38 AFY from CBMWD. The City's projected purchases of treated, imported water from CBMWD, over the next 25 years in five-year increments, is provided in Table 6-9.

The City's treated imported water supplies from MWD, through CBMWD, may be impacted during a multi-year drought or other conditions which limits MWD from delivering sufficient water supplies to all of its member agencies, and consequently to the City. In anticipation of such a reduction in supplies, MWD developed a Water Supply Allocation Plan (WSAP) which is briefly described below. The WSAP provides a means of equitably providing reduced water supplies to each of MWD's member agencies for up to 10 levels of reduction representing up to a 50 percent reduction.

During CY 2007, critically dry conditions impacted MWD's water supply sources. In addition, a ruling in the Federal Courts in August 2007 provided protective measures for the Delta Smelt (and subsequently other aquatic species) in the Sacramento-San Joaquin River Delta resulting in restrictions on the availability of State Water Project water. As a result, MWD adopted a Water Supply Allocation Plan in February 2008 to allocate available water supplies to its member agencies. MWD revised the WSAP in December 2014.

The WSAP establishes ten different shortage levels and a corresponding Allocation to each member agency. Based on the shortage levels established by MWD, the WSAP provides a separate reduced Allocation to a member agency for its 1) Municipal and Industrial (M&I) retail demand and 2) replenishment demand. The WSAP formula considers historical local water production, full service treated water deliveries, agricultural deliveries and water conservation efforts when calculating each member agency's Allocation.

In general, the WSAP process calculates total historical member agency demand. That historical demand is then compared to member agency projected local supply for a specific Allocation year. The balance required from MWD, less an Allocation reduction factor, is the member agency's "Water Supply Allocation" of imported water from MWD. When a member agency reduces its local demand through conservation or other means, the Allocation of imported water will increase. Depending on MWD's available supply, MWD can establish a specific WSAP shortage level. The shortage level causes a regional reduction and calculates an allocation for each of its member agency. Additional information about MWD's WSAP is provided in MWD's Regional 2025 UWMP which is incorporated by reference. The following is a summary of MWD's water shortage levels:

Level 1 – Regional Percent Reduction of 5%
Level 2 – Regional Percent Reduction of 10%
Level 3 – Regional Percent Reduction of 15%

Level 4 – Regional Percent Reduction of 20%
Level 5 – Regional Percent Reduction of 25%
Level 6 – Regional Percent Reduction of 30%
Level 7 – Regional Percent Reduction of 35%
Level 8 – Regional Percent Reduction of 40%
Level 9 – Regional Percent Reduction of 45%
Level 10 – Regional Percent Reduction of 50%

In response to a fourth consecutive year of below average rainfall and critically dry conditions, MWD declared a WSAP Allocation Level 3 for fiscal year 2015-16, which represented a regional reduction of 15 percent. MWD rescinded the WSAP for fiscal year 2016-17 and has not reinstated the WSAP since that time.

6.2.2 GROUNDWATER

CWC 10631.

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

(A) The current version of any groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720), any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management for basins underlying the urban water supplier's service area.

(B) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For a basin that has not been adjudicated, information as to whether the department has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to coordinate with groundwater sustainability agencies or groundwater management agencies listed in subdivision (c) of Section 10723 to maintain or achieve sustainable groundwater conditions in accordance with a groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720).

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

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

CENTRAL BASIN

Central Basin - Sustainable Groundwater Management Act

The Central Basin is a subbasin of the Coastal Plain of Los Angeles Groundwater Basin pursuant to DWR Bulletin 118, Basin Number 4-11.04. Pursuant to the Sustainable Groundwater Management Act of 2014 (SGMA), the Central Basin was named as an adjudicated groundwater basin and is exempt from the requirements of developing a Groundwater Sustainability Plan (GSP) and subsequently was designated a very-low-priority basin in DWR's 2019 SGMA Basin Prioritization report. In compliance with SGMA, the Central Basin Watermaster (which is the Water Replenishment District of Southern California, or WRD) submits its Annual Report to DWR.

Central Basin - Adjudication

On January 2, 1962, the Central and West Basin Water Replenishment District (now the Water Replenishment District of Southern California) filed Case No. 786,656 in the Superior Court, County of Los Angeles, naming more than 700 parties as defendants. It sought to adjudicate water rights of groundwater and regulate pumping from the Central Basin. By September 1962, a proposed agreement had been approved by a sufficient number of water producers (producers owning over 75 percent of the Assumed Relative Rights within Central Basin) to guarantee control over groundwater pumping in Central Basin. On September 28, 1962, the Court signed the "Order Pursuant to Stipulation and

Interim Agreement and Petition for Order" and appointed the Department of Water Resources as Watermaster.

Subsequently, a stipulated judgment was drafted. Approval was received by public utility water companies and other producers representing well over 200,000 AF, or 75 percent, of the total rights within Central Basin. This was a prerequisite to filing the stipulated judgment with the Court. On May 17, 1965, the case went to trial before Judge Edmund M. Moor. Following testimony on engineering, geology, hydrology, and safe yield of Central Basin and arguments on water right entitlement, the case was continued to August 25, 1965. Shortly thereafter, Judge Moor appointed DWR as Watermaster. The final Judgment was signed on October 11, 1965 and became effective on October 1, 1966.[5]

The Judgment was amended on March 21, 1980, to provide for a transition in the administrative year from a water year (October 1 to September 30) to a fiscal year (July 1 to June 30). Under the Judgment, this transition in turn contained a "short" administrative year of nine months (from October 1, 1980 to June 30, 1981). The administrative year starting July 1, 1981 was on a fiscal year basis.

The Judgment was again amended on July 19, 1985, modifying the annual budget ($20 minimum assessment) and exchange pool provisions. The second amended Judgment of May 6, 1991 modified the carryover and overproduction provisions (to 20 percent of allowed pumping allocation or 20 AF, whichever is greater, from 10 percent of allowed pumping allocation or 10 AF), and defined drought carryover, and provided for exemptions for extractors of contaminated groundwater.

[5] Central and West Basin Water Replenishment District, etc. v. Charles E. Adams, et al, Los Angeles County Case No. 786,656.

In December 2013, the Central Basin Judgment was amended ("Third Amended" Central Basin Judgment) to confirm the retirement of DWR as the Watermaster of Central Basin. The Judgment established three separate bodies to assist the Court in the administration and enforcement of the provisions and stipulations of the Judgment. The first body is the Administrative Body, which administers Watermaster accounting and financial reporting activities. The Water Replenishment District of Southern California was appointed by the Court for this role. The second body is the Water Rights Panel, which enforces issues related to groundwater production rights as defined by the Judgment. The Water Rights panel comprises of seven elected water rights holders within the Central Basin. The third administrative body is the Storage Panel, which reviews and approves groundwater storage efforts. The Storage Panel is comprised of the Water Rights Panel and the WRD Board of Directors. A copy of the Central Basin Judgment is provided in Appendix F.

The Court approved 2013 Judgment amendments also implemented a water storage program. The amendment states, "…a party may store up to 200 percent of the party's Allowed Pumping Allocation, if space is available." In addition, the amendments allow parties to convert unused Allowed Pumping Allocation to stored water and revised the amount of carryover to be equal to 100 percent of the party's Allowed Pumping Allocation minus the amount of carryover water set aside for storage, as noted above. The purpose of the storage program creates an added reliability in water supply from the Central Basin. In addition, the amendments allow for transfer of water between Central Basin and West Basin by permitting parties with water rights in Central Basin to increase production in Central Basin, while another party decreases production in West Basin by the corresponding amount.

Under the Judgment, water rights are fixed and do not vary year to year. Water producers cannot exceed their water rights by more than 20 percent or 20 AF, whichever is greater, in any year and an adjustment is made the following year. In addition, water producers cannot carry over more than 20 percent or 20 AF, whichever is greater, of their water rights for use in the following year. In addition, the Central Basin Judgment includes an

amendment which implemented a water storage program. A party may store up to 50 percent of the party's Allowed Pumping Allocation in an Individual Storage Account and 150 percent of the party's Allowed Pumping Allocation in a Community Storage Account if space is available. The amendments also allow parties to convert unused Allowed Pumping Allocation to stored water and revised the amount of carryover to be equal to 60 percent of the party's Allowed Pumping Allocation minus the amount of carryover water set aside for storage. The purpose of the storage program creates an added reliability in water supply from the Central Basin.

Central Basin - Description

Central Basin is one of two groundwater basins in the Coastal Plain of Los Angeles County. It is comprised of Quaternary-age sediments (less than 1.8 million years old) of gravel, sand, silt, and clay that were deposited from the erosion of nearby hills and mountains, and from historical beaches and shallow ocean floors that covered the area in the past. Underlying these Quaternary sediments are basement rocks such as the Pliocene Pico Formation that generally do not provide sufficient quantities of groundwater for pumping. Separating the Central Basin from the West Coast Basin is the NIU, a series of discontinuous faults and folds that form a prominent line of northwest trending hills including the Baldwin Hills, Dominguez Hills, and Signal Hill.

Central Basin covers approximately 270 square miles and is bounded on the north by the Hollywood Basin and the Elysian, Repetto, Merced, and Puente Hills, to the east by the Los Angeles County/Orange County line, and to the south and west by the NIU. DWR divided the Central Basin into four sections: the Los Angeles Forebay, the Montebello Forebay, the Whittier Area, and the Pressure Area. Pursuant to DWR Bulletin 118 (for Basin Number 4-11.04), the total storage capacity of the Central Basin is estimated at approximately 13,800,000 AF.

The aquifers of Central Basin received their water supply primarily from the surface and subsurface inflow of water from the San Gabriel Valley. The water originates as rainfall in the San Gabriel Mountains, the runoff from which is conveyed to the Los Angeles River, the Rio Hondo, and the San Gabriel River. The Los Angeles River enters Central Basin through the Los Angeles Narrows, crosses the Los Angeles Forebay Area, and proceeds south across Central Basin, exiting Central Basin through the Dominguez Gap in West Basin. The Rio Hondo enters Central Basin at Whittier Narrows parallel to the San Gabriel River, proceeds southwesterly across the Montebello Forebay Area and joins the Los Angeles River midway across the Basin. The San Gabriel River also enters Central Basin through the Whittier Narrows, crosses the Montebello Forebay, and runs south to the Pacific Ocean near Long Beach at the Orange County line.

As the Rio Hondo and San Gabriel River flow through the Upper San Gabriel Valley toward Whittier Narrows, much of their flow percolates into the Main Basin. This water crosses the Whittier Narrows and enters Central Basin as subsurface flow into the aquifers of Central Basin. At the same time, the surface flows of the Rio Hondo and the San Gabriel River percolate downward into the aquifers of Central Basin in the Montebello Forebay. In the Montebello Forebay, the underground aquifers merge and are unconfined, and thus are capable of receiving large quantities of water from percolation through the sand and gravel surface of the forebay area.

The Los Angeles Forebay area is also favorably situated for percolation from the flows of the Los Angeles River, but the Los Angeles Forebay has been largely eliminated as a source of freshwater replenishment to Central Basin, due to lining of the Los Angeles River channel and the impervious surface in the forebay area. In the Montebello Forebay area, by contrast, flood flows have been largely controlled through the construction of the Whittier Narrows Dam, and the river channels have not been lined in the area, so percolation still occurs.

Groundwater in the Central Basin provides a substantial portion of the water supply needed by residents and industries in the overlying area. Groundwater occurs in the pore spaces of the sediments in the basin. The major aquifers identified in Central Basin include the following, from shallowest to deepest: a) the Gaspur and semi-perched aquifers of the Holocene Alluvium Formation; b) the Exposition, Artesia, Gage, and Gardena aquifers of the Upper Pleistocene Lakewood Formation; c) the Hollydale, Jefferson, Lynwood, and Silverado aquifers of the Lower Pleistocene Upper San Pedro Formation; and d) the Sunnyside Aquifer of the Lower Pleistocene Lower San Pedro Formation.

WRD's Leo J. Vander Lans Advanced Water Treatment Facility (LVL) was built in 2003 and expanded in 2014. The facility is located in the City of Long Beach and currently produces about 8 MGD of advanced treated water for injection at the Alamitos Barrier in Long Beach. The LVL also injects tertiary treated recycled water from LACSD's Long Beach Water Reclamation Plant. By injecting the LVL's advanced treated water and effluent from the Long Beach Water Reclamation Plant, groundwater supply is replenished and seawater intrusion is prevented.

The WRD Board of Directors established the WIN program in 2003 to protect the security of the region's groundwater supplies. The WIN program is comprised of various projects that include expansions to existing water treatment facilities, spreading activities, and stormwater capture. The largest component of the WIN program is the Albert Robles Center for Water Recycling & Environmental Learning (formerly the Groundwater Reliability Improvement Program), which was completed in 2019. The purpose of the Albert Robles Center is to reduce demand for imported water at the Rio Hondo and San Gabriel Coastal Spreading Grounds. The Albert Robles Center includes ultrafiltration, reverse osmosis, and ultraviolet disinfection and advanced oxidation to treat recycled water by significantly reducing the total dissolved solids concentration.

Groundwater quality is monitored by WRD. Groundwater in the Central Basin is currently contaminated with natural metals such as arsenic, iron and manganese, Volatile Organic Chemicals (VOCs), including trichloroethylene (TCE) and perchloroethylene (PCE), 1,4-Dioxane, Perchlorate, and Per- and Poly-Fluoroalkyl Substances (PFAS). In addition, Total Dissolved Solids (TDS) concentrations exceed drinking water quality standards. Wellhead treatment is necessary in these areas to allow delivery of the groundwater for potable purposes.

As previously discussed, DWR divided the Central Basin into four sections: the Los Angeles Forebay, the Montebello Forebay, the Whittier Area, and the Pressure Area. Below is a discussion of groundwater level changes, pursuant to WRD's 2026 Engineering Survey and Report.

- In the Los Angeles Forebay, the water level high was observed in 1938 with an elevation of approximately 70 feet above mean sea level (msl) and by 1962, the water levels had fallen by 180 feet to an elevation of 109 feet below msl due to over pumping and lack of recharge. Water levels have improved since then due to pumping rights adjudication and managed aquifer recharge. In 2023, the groundwater levels were at an elevation of 12.65 feet below msl.

- In the Montebello Forebay, the water level high was observed in 1942 with an elevation of approximately 137.8 feet above mean sea level (msl) and by 1958, the water levels had fallen by 117 feet to an elevation of 20.9 feet above msl due to over pumping and lack of recharge. Water levels have improved since then due to pumping rights adjudication and managed aquifer recharge. In 2025, the groundwater levels were at an elevation between 69.25 and 116.72 feet above msl.

- In the Pressure Area, the water level high was observed in 1935 at about 10 feet above msl when they began to continually decline by over 110 feet until the observed low of about 120 feet below msl in 1961 due to over pumping and lack of recharge. Groundwater levels improved during the early 1960s due to replenishment operations. Between 1995 and 2007, there were 100-foot swings in water levels as a result of seasonal pumping from producers. Water levels have improved since then due to pumping rights adjudication and managed aquifer recharge. In 2025, the groundwater levels were at elevations between 42.86 and 71.33 feet below msl.

- Long-term hydrographs and records were not maintained for the Whittier Area; however, groundwater levels have been tracked from recently constructed monitoring wells. Overall, groundwater elevations increased within the Whittier Area.

Central Basin - Historical and Projected Basin Production

The City currently produces groundwater from three wells in the Central Basin. The total capacity of the City's groundwater wells is approximately 7,800 gallons per minute (GPM). The City's current Allowed Pumping Allocation in the Central Basin is 4,680.03 AFY. As discussed in Section 6.2.7, the City leases Central Basin water rights on an annual basis to allow for additional production above its Allowed Pumping Allocation. The City's production over the past five years has been tabulated in Section 6.1. Over the past five years, the City has produced 7,032 AFY to 7,818 AFY, with an average of 7,392 AFY from the Central Basin. The City's projected production from the Central Basin, over the next 25 years in five-year increments, is provided in Table 6-9.

6.2.3 SURFACE WATER

The City does not use surface water supplies to meet its water demands.

6.2.4 STORMWATER

The City does not use stormwater supplies to meet its water demands. However, the City requested bids in November 2025 for design and engineering services for a proposed Regional Stormwater Capture Facility project. Based on the City's "*Cerritos Sports Complex Project Preliminary Design Report*", dated November 2019, the proposed stormwater capture program would capture about 300 AFY of stormwater, provide storage, and provide treated stormwater to the Coyote Creek, San Gabriel River, and the Cerritos Sports Complex site.

6.2.5 WASTEWATER AND RECYCLED WATER

CWC 10633R.

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

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

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

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

(f) A description of actions, including financial incentives, which 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.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

Discussion of wastewater collection, treatment, and recycled water use is included in this chapter. Municipal recycled water is municipal wastewater that has been treated at a municipal wastewater facility in a manner specified by the SWRCB-DDW to a specified quality to enable it to be used again for a beneficial purpose. Municipal wastewater must meet two requirements; it must be reused beneficially pursuant to Title 22 of the California Code of Regulations and it must be reused in accordance with a Regional Water Quality Control Board permit. Title 22 of the California Code of Regulations defines beneficial reuse of recycled water as "…the use of recycled water that has been transported from the point of treatment or production to the point of use without an intervening discharge to water of the State…"

The City uses recycled water which is produced by the LACSD from the Los Coyotes Water Reclamation Plant (WRP) located within the City's service area. The City serves recycled water to customers within the City's service area for landscape irrigation at parks, schools, residential developments, public and commercial buildings, Iron-Wood Nine Golf Course, Artesia Cemetery, Forest Lawn Cemetery in the City of Cypress, Cerritos College, medians and parkways, and two nurseries and greenbelts as well as industrial use at local companies for carpet dying and concrete mixing. The City also provides recycled water to the City of Lakewood.

6.2.5.1 RECYCLED WATER COORDINATION

CWC 10633.

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area…

The City's 2025 UWMP was prepared in coordination with local water, wastewater, groundwater, and planning agencies within its service area to analyze the current and projected wastewater supply for collection, treatment, disposal, and distribution. Wastewater from the City's service area is collected and treated at the Long Beach WRP and the A.K. Warren Water Resource Facility (formerly known as the Joint Water Pollution Control Plant) which is owned and operated by the Los Angeles County Sanitation District's (LACSD) . The City then purchases recycled water produced from LACSD's Los Coyotes WRP and distributes it throughout its service area.

6.2.5.2 WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL

CWC 10633.

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

Wastewater generated by the City is treated by LACSD. Wastewater is collected within the City's local sewer collection system. The City's local sewers tie into LACSD's regional trunk sewers at multiple locations within the City's service area. The regional trunk sewer

lines deliver wastewater for treatment outside of the City's service area to LACSD's Long Beach WRP and A.K. Warren Water Resource Facility.

Municipal wastewater is collected from residential, commercial, and industrial customers within the City's service area. The water reclamation plants serving the City include the Long Beach WRP and the A.K. Warren Water Resource Facility; however, the percentage breakdown between these two plants in treating the City's wastewater is unknown. LACSD estimates approximately 69 gallons per person per day of wastewater is generated within LACSD's service area. Based on a CY 2025 population of 46,976 within the City's service area, the estimated amount of wastewater collected by the City is approximately 3.24 million gallons per day (about 3,630 AFY), as shown in Table 6-2.

The Long Beach WRP, located in the City of Long Beach, was completed in 1973 and expanded in 1984 to its current design capacity of 25 MGD. Treatment at the Long Beach WRP includes primary, secondary, and tertiary treatment. Untreated wastewater from the Long Beach WRP is conveyed to the A.K. Warren Water Resource Facility for further treatment.

The A.K. Warren Water Resource Facility, which began operation in 1928 in the City of Carson, currently has a treatment capacity of about 400 MGD. The treatment level is primary and secondary treatment with disinfection. The plant serves a population of approximately 4.8 million people. Solids collected in primary and secondary treatment are processed in anaerobic digestion tanks where bacteria break down organic material and produce methane gas. Treated wastewater is ultimately disinfected prior to being discharged to the Pacific Ocean. All water discharged to the ocean is monitored to ensure compliance with applicable local, state, and federal standards for discharge water.

The City's wastewater is treated and disposed of outside of the City's service area as shown in Table 6-3.

6.2.5.3 RECYCLED WATER SYSTEM DESCRIPTION

CWC 10633.

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

Wastewater from the City's service area is collected and treated at the Long Beach WRP and the A.K Warren Water Resource Facility, which are owned and operated by LACSD. The City then purchases recycled water from LACSD's Los Coyotes WRP and distributes it throughout its service area which includes the City's service area. A map of the recycled water system is provided in Appendix G.

The Los Coyotes WRP is located within the City's service area. This treatment facility provides primary, secondary, and tertiary treatment for 37.5 MGD of wastewater and produces approximately 6 MGD of recycled water for use in areas including the City's service area.

The City's recycled water distribution system includes 142,600 feet of pipeline. A 14,800 GPM pump station next to Los Coyotes WRP delivers water to reuse sites through 30-inch cement-lined and coated steel line which branches into two 24-inch concrete cylinder pipes serving the north part of the City and the south part of the City.

6.2.5.4 POTENTIAL, CURRENT, AND PROJECTED RECYCLED WATER USES

CWC 10633.

(b) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use. A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

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

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

This section discusses the potential, current, and projected beneficial use of recycled water within the City. Beneficial use is defined by Title 22 of the California Code of Regulations as "the use of recycled water that has been transported from the point of treatment or production to the point of use without an intervening discharge to the waters of the State."

Currently, the City delivers recycled water provided by and purchased from LACSD. The City uses recycled water for landscape irrigation at parks, schools, golf courses, Artesia Cemetery, Cerritos College, medians and parkways, and a nursery.

Table 6-4 describes the supply currently being used and the supply available for use in a recycled water project. Table 6-5 compares the projected use for 2025 versus actual use of recycled water in 2025.

6.2.5.5 ACTIONS TO ENCOURAGE AND OPTIMIZE FUTURE RECYCLED WATER USE

CWC 10633.

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

The City provides incentives by setting recycled water rates below potable water rates to encourage recycled water use. There is also no minimum amount of recycled water available for purchase. The City also reserves funds within its budget each year to assist customers in converting their potable water connection to a recycled water system connection. The City continues to support the establishment of funding sources for further planning studies for future projects to increase recycled water demands. The City will also continue to support seeking funding for regional water recycling projects and programs.

6.2.6 DESALINATED WATER OPPORTUNITIES

CWC 10631.

(g) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

Central Basin

The average TDS concentrations for the Central Basin groundwater is less than its secondary MCL of 1,000 mg/l, based on most recent available data in the City's groundwater wells. Consequently, the City has not needed to investigate the use of desalination to develop or reestablish a new long-term supply. The City is currently not considering the development of a desalinated water project. However, there may be opportunities for use of desalinated ocean water as a future potential water supply source, if needed, through coordination with other agencies that have ocean desalination programs.

6.2.7 WATER EXCHANGES AND TRANSFERS

CWC 10631.

(c) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

6.2.7.1 EXCHANGES

Pursuant to DWR's 2025 Final Guidebook, "*Water exchanges are typically water delivered by one water user to another water user, with the receiving water user providing water in return at a specified time or when the conditions of the parties' agreement are met. Water exchanges can be strictly a return of water on a basis agreed upon by the participants or it can include payment and the return of water.*"

The City is currently not entered into any agreements for the exchange of water.

6.2.7.2 TRANSFERS

Pursuant to DWR's 2025 Final Guidebook, "*The Water Code defines a water transfer as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer, sale, lease, or exchange of water or water rights.*"

Pursuant to the Central Basin Judgment (discussed in Section 6.2), parties to the Judgment are allowed to assign, transfer, license, or lease their water rights. The Judgment also allows for the transfer of stored water between parties. The City is able to utilize the transfer opportunities available for Central Basin water when necessary.

As discussed in Section 6.2.2, the City can lease Central Basin water rights on an annual basis to allow for additional production above its Allowed Pumping Allocation. The City has consistently leased annual water rights from other parties to the Central Basin Judgment, including the City of Downey (2,000 AF), the City of South Gate (1,000 AF), ABC Unified School District (250 AF), PABCO Building Products (500 AF), and others.

6.2.7.3 EMERGENCY INTERTIES

Emergency interties (or interconnections) are distribution system interconnections between water agencies for use during critical situations where one system or the other is temporarily unable to provide sufficient potable water to meet its water demands and/or fire protection needs. An emergency interconnection will allow a water system to continue serving water during critical situations such as local water supply shortages as a result of earthquakes, fires, prolonged power outages, and droughts.

The City currently has 7 active emergency interconnections and 6 inactive emergency interconnections with neighboring cities including the Cities of Lakewood, La Palma, Santa Fe Springs, and Norwalk, and private water companies including Golden State Water Company, Suburban Water Systems, and Liberty Utilities.

6.2.8 SUPPLY FROM STORAGE

Section 6.2.8 is not applicable. The City does not remove water from either surface storage or underground storage for use (including surface water placed into storage in a given year and retrieved in the following year

6.2.9 OTHER

The City does not rely on any additional water supply sources.

6.2.10 FUTURE WATER PROJECTS

CWC 10631.

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

The City is planning to design and construct a new groundwater well and treatment facility (to remove PFAS, arsenic, and manganese) at its existing Well C-4 site within the City's service area. The cost estimate for design and construction will be determined by yield, water quality, water treatment, security, storage, and automated controls. The well is projected to reduce imported water demands by up to 2,400 GPM if additional groundwater rights can be leased.

The City is also planning to design and construct a new groundwater well (Well C-5) and treatment facility within the City's service area. The well is projected to reduce imported water demands by up to 2,200 GPM if additional groundwater rights can be leased.

6.3 ENERGY USE

CWC 10631.2.

(a) In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain:

(1) An estimate of the amount of energy used to extract or divert water supplies.

(2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.

(3) An estimate of the amount of energy used to treat water supplies.

(4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.

(5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.

(6) An estimate of the amount of energy used to place water into or withdraw from storage.

(7) Any other energy-related information the urban water supplier deems appropriate.

"Energy intensity" is defined as the quantity of energy consumed, measured in kilowatt hours (kWh), divided by the volume of water, measured in AF for a water management process over a one-year period. The information used to calculate the estimated energy intensity associated with the City's water system is provided below. The energy intensity information is based on readily obtainable energy and water use data for the following water management processes: 1) extraction or diversion of water supplies; 2) placement into storage; 3) conveyance to distribution; 4) treatment; and 5) water system distribution.

The City has tabulated its energy intensity using readily obtainable energy consumption data obtained from monthly electricity bills from Southern California Edison (SCE) for the whole water system and the corresponding water use data obtained from available water meter readings. The City has reported the energy intensity associated with the water management processes which occur within its operational control. Because the City does not track individual energy usage for each water management process identified above, the City has estimated the energy intensity using a "total utility approach" (i.e. sum of all water management processes). The total energy consumed was approximately 12,954,838 kWh during Calendar Year 2025. Although the total energy consumption reported includes electricity usage for general administration (e.g. at the City's headquarters) which is not associated with any water management processes, the general administration energy usage is considered negligible compared to overall water system use and has not been netted out.

The total volume of water entering the potable water system (from groundwater and imported water supplies) was approximately 7,600 AF during Calendar Year 2025 and is consistent with the total volume of water provided in Table 4-1 (less recycled water supplies).

The total energy intensity associated with the City's water management processes is estimated at 5,231 kWh per million gallons. The energy intensity data and calculations based on the "total utility approach" are provided in Table O-1B below.

The City's water management processes include "self-generated energy sources" including solar power through two photovoltaic arrays on top of the City's reservoirs. The estimated annual power generation is approximately 350,000 kWh.

The City's water management processes do not include "consequential hydropower generation" where the energy generation is a direct consequence of water delivery (i.e. all water passing through the energy generation devices is delivered to users). In

addition, the City's water management processes do not include "non-consequential hydropower generation" where the energy generation is not a direct consequence of water delivery (i.e. energy could be generated even if no water was being delivered to water users).

Table O-1B. Recommended Energy Reporting — Total Utility Approach

Optional Submittal Table O-1B: Recommended Energy Reporting - SINGLE DELIVERY PRODUCT - TOTAL UTILITY APPROACH				
Water Delivery Product drop down list (If delivering more than one type of product recommend using Table O-1C)	Retail Potable Deliveries	**Only for Water Delivery Products Under the Urban Water Supplier's Operational Control**		
Start Date of Reporting Period	1/1/2025	**Sum of All Water Management Processes**	**Non-Consequential Hydropower**	
End Date of Reporting Period	12/31/2025			
Is upstream embedded energy in the values reported?	No			
Units of Measure for Water	AF	**Total Utility** See DWR NOTES	**Hydropower**	**Net Utility**
Volume of Water Entering Process		7,600		7,600
Energy Consumed (kWh)		12,954,838		12,954,838
Energy Intensity (kWh/vol. converted to MG)		5,231	-	5,231
DWR NOTES: **Total Utility:** The volume of water entered in the "Total Utility" column should equal the volume of water entering the distribution system (excluding recycled water); in most cases, this is the total volume calculated in UWMP Table 4-1: 2025 Actual Total Uses for Potable and Non-Potable Water. Note if recycled water is included in your Submittal Table 4-1, you must exclude it from your volume in this table.				
Quantity of Self-Generated Renewable Energy				
350000 kWh				
Data Quality (Estimate, Metered Data, Combination of Estimates and Metered Data)				
Combination of Estimates and Metered Data				
Data Quality Narrative:				
The total energy consumed was identified based on Southern California Edison (SCE) billing records. Although the total energy consumed includes electricity usage for general administration (which is not an identified water management process), general administration energy use is considered to be negligible compared to overall water system use and has not been netted out.				
Narrative:				
The total energy consumption includes energy associated with operating groundwater production wells and booster pumps to deliver water in the distribution system. Energy consumption is associated with operating groundwater water treatment. Energy consumption is also associated with plant lighting and air conditioning, and operating the Supervisory Control and Data Acquisition (SCADA) system and chlorination injection pumps.				
NOTES:				

6.4 SUBMITTAL TABLES

The applicable standardized Submittal Tables referenced within Chapter 6 are provided below.

6.4.1 TABLE 6-1: GROUNDWATER VOLUME PUMPED

Table 6-1 Wastewater Treatment and Discharge within Service Area in 2020

Submittal Table 6-1 Retail: Groundwater Volume Pumped **Water Code Section 10631(4) and 10631(4)(c)**							
☐	Check the box if the Supplier does not pump groundwater. Proceed to the next table.						
☐	Check the box if all or part of the groundwater described below is desalinated. (OPTIONAL)						
Groundwater Type **Drop Down List** May use each category multiple times	Potable or Non-Potable (OPTIONAL) **Drop down list**	Location or Basin Name	2021 (AF)	2022 (AF)	2023 (AF)	2024 (AF)	2025 (AF)
Add additional rows as needed							
Alluvial Basin	Potable	Central Basin	7818	7447	7032	7126	7538
		Total	7,818	7,447	7,032	7,126	7,538
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							

6.4.2 TABLE 6-2: WASTEWATER COLLECTED WITHIN SERVICE AREA

Table 6-2 Wastewater Collected Within Area

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area Water Code Section 10633(a)				
☐	Check the box if there is no wastewater collection system. Proceed to the next table.			
	Percentage of 2025 service area served by wastewater collection system (OPTIONAL)			
	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				
LACSD	Estimated	3,630	Long Beach WRP, Place ID 238562	No
Total Wastewater Received from UWMP Service Area in 2025:		3,630		
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:				

6.4.3 TABLE 6-3: WASTEWATER TREATMENT AND OUTCOMES WITHIN UWMP SERVICE AREA

Table 6-3 Wastewater Treatment and Discharge within Service Area

Submittal Table 6-3 Retail: Wastewater Treatment and Outcomes Within UWMP Service Area
Water Code Section 10633(b)

☑ **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 **Drop down list**	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area? (OPTIONAL) **Drop down list**	2025 Volume of Wastewater Received from UWMP Service Area (As Reported in Submittal Table 6-2 R) (AF)	Total 2025 Volume of Water Treated (AF)	2025 Outcomes of Treated Wastewater										
				Water Recycled Within UWMP Service Area (enter data as applicable)		**Water Recycled Outside of UWMP Service Area** (enter data as applicable)		**Effluent Discharge that is not a Permitted Recycled Water Use** (enter data as applicable)		**Required Discharge for Instream Flow** (enter data as applicable)		**Delivered to Another Entity for Additional Treatment** (enter data as applicable)		
				Treatment Level **Drop down list**	Volume (AF)	Treatment Level **Drop down list**	Volume (AF)	Treatment Level **Drop down list**	Volume (AF)	Treatment Level **Drop down list**	Volume (AF)	Treatment Level **Drop down list**	Volume (AF)	Name of other entity
Add additional rows as needed														
Total		0	-		0		0		0		0		0	

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

NOTES:

6.4.4 TABLE 6-4: RECYCLED WATER DIRECT BENEFICIAL USES WITHIN SERVICE AREA

Table 6-4 Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area Water Code Section 10633 (c),(d),(e)										
☐	Check box if recycled water is not used and is not planned for use within the service area of the supplier. The supplier will only complete the column on "Potential Recycled Water Use" and submit an accompanying narrative on the feasibility of that potential recycled water use.									
Name(s) of Facility/ies Producing (Treating) the Recycled Water (OPTIONAL) :										
Name of Supplier Operating the Recycled Water Distribution System (OPTIONAL) :										
Volume of Supplemental Water Added in 2025 (OPTIONAL) :										
Source of 2025 Supplemental Water (OPTIONAL) :										
Use Type Drop down list	Potable or Non-Potable (after treatment if treated) (OPTIONAL) Drop down list	Additional Information (as needed)	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)	Potential Recycled Water Use	
									Volume	Narrative page number (OPTIONAL)
Add additional rows as needed										
Landscape irrigation (exc golf courses)	Non-Potable	Schools, Parks, City Landscape	1739	2193	2193	2193	2193	2193		
Commercial use	Non-Potable		244	307	307	307	307	307		
		Subtotal Potable	0	0	0	0	0	0	0	
		Subtotal Non-Potable	1,983	2,500	2,500	2,500	2,500	2,500	0	
		Total	1983	2500	2500	2500	2500	2500	0	0
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3. **Additional Guidance:** See Appendix M, Section M.21 for detailed guidance on this table. **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:										

6.4.5 TABLE 6-5: 2020 UWMP RECYCLED WATER-USE PROJECTION COMPARED TO 2025 ACTUAL

Table 6-5 2015 Recycled Water Use Projection Compared to 2020 Actual

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 (AF)	2025 Actual Use (AF)
Add additional rows as needed		
Landscape irrigation (exc golf courses)	1,894	1739
Commercial use	265	244
Total	2,159	1,983
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:		

6.4.6 TABLE 6-6: METHODS TO ENCOURAGE FUTURE RECYCLED WATER USE

Table 6-6 Methods to Expand Future Recycled Water Use

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.		
Section 6.2.5.5	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			
Provide Recycled Water Incentives	Provide financial incentives to encourage recycled water use	Ongoing	350
		Total (AF)	350
		Unit Conversion to AF	350
DWR NOTES: **Units of measure** (AF, CCF, MG) MUST remain consistent with units reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3. **The unit conversion to Acre Feet** addresses the Water Code's requirement that this value be provided in acre-feet.			
NOTES:			

6.4.7 TABLE 6-7: EXPECTED FUTURE WATER SUPPLY PROJECTS OR PROGRAMS

Table 6-7 Expected Future Water Supply Projects or Programs

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. Proceed to the next table.						
☑	Check the box if some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.						
Section 6.2.10	Provide page location of narrative in the UWMP						
Name of Future Projects or Programs	Joint Project with other suppliers?		Additional Description (as needed)	**Potable or Non-Potable** (after treatment if treated) (OPTIONAL) Drop Down list	Planned Implementation Year	Planned for Use in Year Type **Drop Down List**	Expected Increase in Water Supply to Supplier (This may be a range) (AF)
	Drop Down List (yes/no)	If Yes, Supplier Name					
Add additional rows as needed							
New groundwater well	No		Well C-5	Potable	2029	All Year Types	3,500
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:							

6.4.8 TABLE 6-8: WATER SUPPLIES— ACTUAL

As discussed in Section 6.2, the City's water supply sources consist of treated imported water purchased from MWD through CBMWD (see Section 6.2.1), groundwater from the Central Basin (see Section 6.2.2), and recycled water (see Section 6.2.5). The actual quantities of the water supply sources available to the City during CY 2025 are summarized in Table 6-8. The reliable quantities of projected water supply sources available to the City in five-year increments through CY 2050 during normal or average years are summarized in Table 6-9. The reliability of these sources of supply are addressed in Section 7.2.3, including during normal years, single dry years, and five consecutive year droughts.

The order of use of the City's projected reliable water supplies from CY 2025 through CY 2050 in five-year increments is based on historical practices, water supply availability, and the cost of water. It is anticipated the City will initially use groundwater produced from the Central Basin. At the same time, the City will continue to use recycled water for non-potable demands. The City will also use treated imported water. In addition, the City will continue to lease water rights from the Central Basin to produce sufficient groundwater supplies (as discussed in Sections 6.2.2 and 6.2.7).

The City's projected quantities of treated imported water supplies are based on historical long-term averages and available supplies during previous dry year conditions. The City's projected quantities of recycled water supplies to meet non-potable demands are based on historical long-term averages. The City's projected quantities of groundwater supplies from Central Basin are based on meeting the remainder of the City's total water demands. It is anticipated the City will have sufficient water supplies available to meet projected demands.

Table 6-8 Water Supplies - Actual

Submittal Table 6-8 Retail: Water Supplies — 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)	**Potable or Non-Potable** (after treatment if treated) (OPTIONAL) Drop Down list	Actual Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)
Add additional rows as needed				
Groundwater (not desalinated)	Central Basin	Potable	7,539	
Purchased or Imported Water	Central Basin Municipal Water Disctict	Potable	62	
Recycled Water		Non-Potable	1,983	
		Subtotal Potable	7,601	0
		Subtotal Non-Potable	1,983	0
		Total	9,584	0
DWR NOTES: **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3. **Total Entitlement:** e.g. Water Right, Groundwater Allocation, Contracted Amount.				
NOTES:				

6.4.9 OPTIONAL TABLE 6-8DS: SOURCE DESALINATION BY SUPPLIER

As discussed in Section 6.2.6, the City is currently not considering the development of a desalinated water project. As a result, optional Table 6-8DS is not included.

6.4.10 TABLE 6-9: WATER SUPPLIES—PROJECTED

Table 6-9 Water Supplies – Projected

Submittal Table 6-9 Retail: Water Supplies — Projected
Water Code Section 10631 (b)

Water Supply			Projected Water Supply (Report to the Extent Practicable)									
			2030		2035		2040		2045		2050 (opt)	
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool	Additional Detail on Water Supply	**Potable or Non-Potable** (after treatment if treated) (OPTIONAL) Drop Down list	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)
Add additional rows as needed												
Groundwater (not desalinated)	Central Basin	Potable	8,024		8,024		8,038		8,052		8,066	
Purchased or Imported Water	Central Basin Municipal Water Disctict	Potable	38		38		38		38		38	
Recycled Water		Non-Potable	2,500		2,500		2,500		2,500		2,500	
		Subtotal Potable	8,062	0	8,062	0	8,076	0	8,090	0	8,104	0
		Subtotal Non-Potable	2,500	0	2,500	0	2,500	0	2,500	0	2,500	0
		Total	10,562	0	10,562	0	10,576	0	10,590	0	10,604	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:

CHAPTER 7

WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

LAY DESCRIPTION – CHAPTER 7

WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

Chapter 7 (Water Service Reliability and Drought Risk Assessment) of the City's 2025 Plan discusses and provides the following:

- Calendar Year 2018 represents an "average" or "normal" water year for the City in which the total amount of rainfall was similar to the historical average rainfall.
- A "single dry" year for the City was represented in Calendar Year 2017, in which the total amount of rainfall was below the historical average rainfall.
- A "five consecutive year drought" period for the City is represented from Calendar Year 2011 to Calendar Year 2015, where the total amount of rainfall during each of these years was less than the historical average rainfall.
- The City's current and projected water supplies available during normal years in five-year increments over the next 25 years are provided (through Calendar Year 2050) as shown on Table 7-2.
- The City's current and projected water supplies available during single dry years in five-year increments over the next 25 years are provided (through Calendar Year 2050) as shown on Table 7-3.
- The City's current and projected water supplies available during each year of a five consecutive year drought in five-year increments over the next 25 years are provided (through Calendar Year 2050) as shown on Table 7-4.
- The reliability of the City's water supply sources, including a review of water supply constraints, is provided. A single dry year or a five consecutive year drought period

will not compromise the City's ability to provide a reliable supply of water to its customers.

- A Drought Risk Assessment is provided which includes an assessment of the City's water supply reliability over a five consecutive year drought period. The City's Drought Risk Assessment assumes a five consecutive year drought from CY 2026 through CY 2030 and includes a review of water supplies, water uses, and water supply reliability for each water supply source during this period. The City has the ability to enact varying water shortage levels (see Chapter 8) to help educate its customers and provide an economic incentive for the retail customers to reduce their water consumption.

7.1 CONSTRAINTS ON WATER SOURCES CONSIDERATIONS

CWC 10631.

(b)(1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

Water Code Section 10634

The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

Water Code Section 10635

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

Water Code Section 10635

(b)(4) 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.

The City's sources of supplies consist imported water purchased from MWD through CBMWD, groundwater from the Central Basin, and recycled water as described in Section 6.2. Although all of these supplies are managed, the following constraints may occur which the City has considered in this reliability analysis.

Imported Water

The City receives treated surface water from MWD through CBMWD. Water quality from MWD relating to supply reliability is addressed separately in MWD's 2025 Regional Urban Water Management Plan.

Groundwater

The City produces groundwater from the Central Basin. The groundwater has been impacted by contamination, including by manganese. However, the City is considering the development and implementation of appropriate treatment (including treatment facilities at its C-1, C-4, and C-5 well sites) which will be approved by SWRCB-DDW. These groundwater supplies are considered reliable both from a water quality and quantity standpoint.

7.2 WATER SERVICE RELIABILITY ASSESSMENT

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631,

including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

Information regarding the reliability of the City's water supplies is based on the historical precipitation data in the Central Basin area. Historical annual precipitation in the Central Basin area is discussed in Section 3.3 and is based on historical data collected from Station 049660 (Whittier City Yard, California). Furthermore, Section 4.2.5.6 of this Plan notes that potential future climate change impacts may result in an increase in the average annual precipitation within the City's service area, thus indicating use of historical data is a reasonable and conservative approach. As indicated in Section 3.3, the historical average rainfall in the vicinity of the City's service area is 14.5 inches. Calendar year 2018 represents an average or normal water year for the City in which the total amount of rainfall was similar to the historical average rainfall. A single dry year for the City was represented in CY 2017, in which the total amount of rainfall was below the historical average rainfall. A five consecutive year drought period for the City is represented from CY 2011 to CY 2015, where the total amount of rainfall during each of these years was less than the historical average rainfall. Table 7-1 summarizes these "base years" for average, single dry, and five consecutive year drought and provides the total amount of water supplies available to the City during those base years. The following discussion assesses the water service reliability of the City's water supply source.

Water Service Reliability - Imported Water

The City's treated imported water supplies from MWD, through CBMWD, may be impacted during a multi-year drought or other conditions which limits MWD from delivering sufficient water supplies to all of its member agencies, and consequently to the City. In anticipation of such a reduction in supplies, MWD developed a WSAP which is briefly described below. The WSAP provides a means of equitably providing reduced water supplies to each of MWD's member agencies for up to 10 levels of reduction representing up to a 50 percent reduction.

During CY 2007, critically dry conditions impacted MWD's water supply sources. In addition, a ruling in the Federal Courts in August 2007 provided protective measures for the Delta Smelt (and subsequently other aquatic species) in the Sacramento-San Joaquin River Delta resulting in restrictions on the availability of State Water Project water. As a result, MWD adopted a WSAP in February 2008 to allocate available water supplies to its member agencies. MWD revised the WSAP in December 2014.

The WSAP establishes ten different shortage levels and a corresponding Allocation to each member agency. Based on the shortage levels established by MWD, the WSAP provides a separate reduced Allocation to a member agency for its 1) Municipal and Industrial (M&I) retail demand and 2) replenishment demand. The WSAP formula considers historical local water production, full service treated water deliveries, agricultural deliveries and water conservation efforts when calculating each member agency's Allocation.

In general, the WSAP process calculates total historical member agency demand. That historical demand is then compared to member agency projected local supply for a specific Allocation year. The balance required from MWD, less an Allocation reduction factor, is the member agency's "Water Supply Allocation" of imported water from MWD. When a member agency reduces its local demand through conservation or other means, the Allocation of imported water will increase. Depending on MWD's available supply, MWD can establish a specific WSAP shortage level. The shortage level causes a regional reduction and calculates an allocation for each of its member agency. Additional information about MWD's WSAP is provided in MWD's Regional 2025 UWMP which is incorporated by reference. The following is a summary of MWD's water shortage levels:

Level 1 – Regional Percent Reduction of 5%
Level 2 – Regional Percent Reduction of 10%
Level 3 – Regional Percent Reduction of 15%

Level 4 – Regional Percent Reduction of 20%
Level 5 – Regional Percent Reduction of 25%
Level 6 – Regional Percent Reduction of 30%
Level 7 – Regional Percent Reduction of 35%
Level 8 – Regional Percent Reduction of 40%
Level 9 – Regional Percent Reduction of 45%
Level 10 – Regional Percent Reduction of 50%

In response to a fourth consecutive year of below average rainfall and critically dry conditions, MWD declared a WSAP Allocation Level 3 for fiscal year 2015-16, which represented a regional reduction of 15 percent. MWD rescinded the WSAP for fiscal year 2016-17 and has not reinstated the WSAP since that time.

Water Service Reliability - Groundwater

Central Basin

The Central Basin groundwater supplies are managed by WRD, as discussed in Section 6.2.2. During a normal year (CY 2018), the City met about 77 percent of its total demands with supplies from the Central Basin. During a single dry year (CY 2017), the City met about 79 percent of its total demands with supplies from the Central Basin. During a five consecutive year drought multiple dry year period (CY 2011 to CY 2015), the City met between 63 and 77 percent of its total demands with supplies from the Central Basin.

Water Service Reliability Summary

Table 7-1 shows the water supplies during the base years (for average year, single dry year and a five consecutive year drought). As a result of the City's diverse water supply portfolio, water supplies may be re-apportioned during a five consecutive year drought to meet the City's water demands.

7.2.1 WSRA YEAR-TYPE CHARACTERIZATION

7.2.1.1 TYPES OF YEARS

The City's base years for an average year, a single dry year, and a five consecutive year drought are discussed in Section 7.2 and are summarized in Table 7-1. As indicated in Chapter 6, the City's water supplies sources have been sufficient in meeting the City's historical water demands during an average year, a single dry year, and a five consecutive year drought. An average year was based on a historical year during the past 15 years with a total precipitation similar to the historical average precipitation in the vicinity of the City's service area. Because a single dry year or a five consecutive year drought period will not compromise the City's ability to provide a reliable supply of water to its customers, a single dry year in this Plan was selected based on one of the driest years during the past 15 years. The five consecutive year drought period was based on a period of five consecutive dry years during the past 15 years.

As indicated in Section 3.3, the historical average rainfall in the vicinity of the City's service area is 14.5 inches. CY 2018 represents an average or normal water year for the City in which the total amount of rainfall was similar to the historical average rainfall. A single dry year for the City was represented in CY 2017, in which the total amount of rainfall was less than the historical average rainfall. A five consecutive year drought period for the City is represented from CY 2011 to CY 2015, where the total amount of rainfall during each of these years was less than the historical average rainfall. Table 7-1 summarizes these "base years" for an average year, a single dry year and a five consecutive year drought period and provides the total amount of water supplies available to the City during those base years.

7.2.1.2 SOURCES OF WATER DATA

The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly ETo in the vicinity of the City's service area are discussed in Section 3.3. Historical climate information was obtained from the WRCC and from DWR's CIMIS.

7.2.2 WSRA SUPPLY AND DEMAND COMPARISON

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

The City primarily obtains its water supplies from three groundwater wells located in the Central Basin. As discussed in Section 7.3 and shown in Table 7-2, Table 7-3, and Table 7-4, each of the City's water supply sources share the same base years. As previously discussed in Section 7.2.1, a single dry year or a five consecutive year drought period will not compromise the City's ability to provide a reliable supply of water to its customers.

The City's projected normal year water demands over the next 25 years are discussed in Section 4.2.6. The ratio of total water supplies (including potable and non-potable water supplies) available to the City during a historical average year in CY 2018 (or 10,895 AF) and during a historical single dry year in CY 2017 (or 10,374 AF) was used to estimate the City's projected water demands during single dry years. The ratio of total water supplies available to the City during a historical average year in CY 2018 (or 10,895 AF) and a historical five consecutive year drought period from CY 2011 to CY 2015 (or 11,232

AF, 11,701 AF, 11,910 AF, 11,817 AF, and 9,946 AF respectively) was used to estimate the City's projected water demands during a five consecutive year drought period. The City's projected dry year water supplies over the next 25 years were based on the minimum supplies needed by the City to meet projected single-dry year demands. Table 7-2, Table 7-3, and Table 7-4 summarize the City's projected water demands and supplies over the next 25 years in five-year increments, including during normal years, single dry years, and a five consecutive year drought periods. These tables indicate the City can meet water demands during normal years, single dry years, and a five consecutive year drought period over the next 25 years.

7.2.2.1 NORMAL YEAR

Table 7-2 summarizes the City's projected water demands and supplies over the next 25 years in five-year increments during normal years. Table 7-2 indicates the City can meet water demands during normal years over the next 25 years.

7.2.2.2 SINGLE DRY YEAR

Table 7-3 summarizes the City's projected water demands and supplies over the next 25 years in five-year increments during single dry years. Table 7-3 indicates the City can meet water demands during single dry years over the next 25 years.

7.2.2.3 FIVE CONSECUTIVE DRY YEARS

Table 7-4 summarizes the City's projected water demands and supplies over the next 25 years in five-year increments during five consecutive year drought periods. Table 7-4 indicates the City can meet water demands during five consecutive year drought periods over the next 25 years.

7.2.3 WSRA DESCRIPTION OF MANAGEMENT TOOLS AND OPTIONS

CWC 10620.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

As noted in Section 6.2.2, the Central Basin is managed by WRD. During the period of management under the Judgment, significant drought events have occurred. In each drought cycle the Central Basin has been managed to maintain water levels. Therefore, based on historical and on-going management practices, the City will be able to rely on the Central Basin for adequate supply over the next 25 years under single dry years and five consecutive year drought periods.

Section 6.2.2 provides a description of the management of groundwater resources in the Central Basin, as well as information on basin management. Chapter 6 also demonstrates the management structure of the Central Basin provides a reliable source of groundwater supply for the City during a normal year, a single-dry year and a five consecutive year drought. Historical data indicates the Central Basin has been well managed for the full period of the adjudication, resulting in a stable and reliable water supply. Basin management changes are discussed in Section 6.2.2, and include increased direct use of recycled water (see Section 6.2.5) and the current and planned use of treated recycled water for groundwater replenishment in the Central Basin. Therefore, the groundwater supplies in the Central Basin are deemed reliable.

7.3 DROUGHT RISK ASSESSMENT

CWC 10612.

"Drought Risk Assessment" means a method that examines water shortage risks based on the driest five-year historic sequence for the agency's water supply, as described in subdivision (b) of Section 10635.

CWC 10635.

(b) Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following:

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

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

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

(4) 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.

The City's source of supplies consist of groundwater from the Central Basin (which is managed by WRD), treated imported water purchased through CBMWD and managed by the Metropolitan Water District of Southern California, and recycled water. The following discussion provides a Drought Risk Assessment (DRA) which assesses the City's water supply reliability over a five consecutive year drought period. The City's DRA incorporates a five consecutive year drought from CY 2026 through CY 2030 and includes a review of water supplies, water uses, and water supply reliability.

7.3.1 DRA DATA, METHODS, AND BASIS FOR WATER SHORTAGE CONDITIONS

The City's DRA was prepared using historical production data from the City's water supply sources. The following assumptions were considered during the preparation of the City's DRA for each year of the five consecutive year drought.

- The five consecutive year drought period associated with the 2025 Plan is based on five consecutive dry years from CY 2026 through CY 2030.
- The projected water supplies available during each year of this five consecutive year drought are assumed to be identical to the water supplies produced during each year between CY 2011 and CY 2015 (which represents the most recent and historical five consecutive year drought).
- The projected demands during this five consecutive year drought are based on water demands from CY 2020 (a normal year) which were adjusted based on projected population over the next five years along with the ratio of the normal year demands to actual demands over each year of the most recent and historical five consecutive year drought period (from CY 2011 and CY 2015).
- The projected demands were compared to the projected supplies to identify potential water supply deficits which may require implementation of the Water Shortage Contingency Plan (discussed further in Chapter 8).

The following methodologies were considered during the preparation of the City's DRA during for each year of the five consecutive year drought:

- Drought Year 1: The region had experienced an average to above average year of precipitation in the prior year. Water use in the prior year had been below average due to a reduced need for outdoor water use, the groundwater basin had been replenished from above average local stormwater runoff, and imported water supplies were not restricted.

- Drought Year 2: The region experienced a second year of below average precipitation and runoff. Retail customers increase water use for outdoor irrigation to compensate for lack of precipitation. Groundwater and imported water supplies have not been impacted.
- Drought Year 3: The region experienced a third year of below average precipitation and runoff. Retail customers increase water use for outdoor irrigation to compensate for lack of precipitation. Groundwater and imported water supplies have not been impacted. However, there is an increased demand on both groundwater and treated imported water.
- Drought Year 4: The region experienced a fourth year of below average precipitation and runoff. Groundwater supplies have not been impacted. However, there is an increased demand on groundwater.
- Drought Year 5: Fifth year of below average precipitation and runoff. Groundwater supplies have not been impacted. However, there is an increased demand on groundwater.

7.3.2 DRA INDIVIDUAL WATER SOURCE RELIABILITY

The City's DRA incorporates a five consecutive year drought based on five consecutive dry years commencing in CY 2026. The quantity of water supplies available for each year during this five consecutive year drought period included in the City's DRA is assumed to be the same as the quantity of water supplies produced by the City (i.e. demands) during the most recent and historical five consecutive year drought which occurred from CY 2011 through CY 2015. Production data for those years have been tabulated in Section 6.1. The following describes the anticipated reliability of its water source for each year of the five consecutive year drought based on recent experience.

Groundwater

The City produces water supplies from the Central Basin which is actively managed by WRD, as described in Section 6.2.2. The Central Basin is adjudicated; however, the City's water rights are fixed each year. Consequently, the City cannot produce in excess of its own water rights or rights it may have leased from others. The quantity of groundwater used (and reliably available) during the most recent and historical five consecutive year drought period have been tabulated in Section 6.1. The City manages its water supply portfolio to optimize the water supplies available each year and to avoid a water supply shortage. The City also had the ability to systematically implement aspects of its Water Shortage Contingency Plan (see Chapter 8). As a result of these collective actions (and experience during prior five consecutive year droughts), the City does not anticipate a water supply shortage.

Imported Water

The City obtains imported water from the Metropolitan Water District of Southern California through Three Valleys Municipal Water District. Section 6.2.1 describes the planning conducted by the Metropolitan Water District of Southern California regarding treated imported water supplies available to the City. The reliability of MWD's supplies is also discussed in its 2025 Regional UWMP and is incorporated by reference. The City purchases treated imported water which is delivered directly within its distribution system. The City's purchases of treated, imported water over the past 15 years have been tabulated in Section 6.1. In the event of a drought which limits imported water supplies, the City will rely on its groundwater production.

The imported water purchases by the City during the most recent and historical five consecutive year drought period have been tabulated in Section 6.1. Because the City's DRA assumes the most recent and historical five consecutive year drought scenario will be repeated over the next five years, it is assumed the quantity of treated imported water

supplies purchased during the most recent and historical five consecutive year drought scenario will be available. Furthermore, this constitutes the minimum amount of treated imported water which may be available in a future five consecutive year drought absent MWD's programs which it has since implemented.

Recycled Water

The City has a recycled water distribution system which it has developed over the years to reduce demands on its potable water supplies as described in Section 6.2.5. The availability of recycled water supplies is not adversely impacted by drought conditions and are locally available.

The quantity of recycled water used during the most recent and historical five consecutive year drought period have been tabulated in Section 6.1. The quantity of recycled water available during each year of the most recent and historical five consecutive year drought is expected to be available during a future five consecutive year drought.

Summary

The City's water system has experienced a prior five consecutive year drought with no limitation to its collective water supplies. However, the cost of those water supplies may have increased based on the mix of supplies which are used. Consequently, the City has the ability to enact varying Demand Management Measures (see Chapter 9) to help educate its customers and provide an economic incentive for the retail customers to reduce their water consumption.

7.3.3 DRA TOTAL WATER SUPPLY AND USE COMPARISON

Gross water use for the projected five consecutive year drought is shown on Table 7-5. Section 7.3.2 describes the water source reliability for each source of supply the City will

rely on during a five consecutive year drought. The annual quantities are summed and are also provided on Table 7-5. For the purposes of the City's DRA, as a worst-case scenario, the City has considered no water supply augmentation (as indicated in Table 7-5) from its groundwater supplies. When necessary, the City can implement various water shortage levels of its Water Shortage Contingency Plan (as discussed in Chapter 8) in order to reduce its water demands. The total water supplies available to the City in Table 7-5 are based on the quantity of supplies available to the City (i.e. demands) during the most recent historical five consecutive year drought period (from CY 2011 through CY 2015). As shown in Table 7-5, assuming no additional water supply benefits will be available from groundwater supplies, the City can implement various stages of its Water Shortage Contingency Plan to balance water demands with available supplies during each year of the projected five consecutive year drought.

OPTIONAL PLANNING TOOL WORKBOOK

DWR has deemed the "Planning Tool Worksheet" as optional and the City is not required by DWR to use the tool. The City has provided sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. The City has also been able to provide water service to meet maximum day water demands for these years, including during the summer months. The City obtains the majority of its water supplies from a managed groundwater basin which is not subject to seasonal fluctuation. Consequently, an evaluation regarding water supplies on a monthly basis was not considered.

7.4 SUBMITTAL TABLES

The applicable standardized Submittal Tables referenced within Chapter 7 are provided below.

7.4.1 OPTIONAL TABLE 7-1: BASIS OF WATER-YEAR DATA (WSRA)

Table 7-1 Basis of Water-Year Data (Reliability Assessment)

Optional Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2024-2025, use 2025	**Available Supplies if Year Type Repeats**	
		☐ Check the box if quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. **Location:** [insert location from UWMP]	
		Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available (AF)	**% of Average Supply**
Average Year	2018	10895	100%
Single-Dry Year	2017	10374	95.2%
Consecutive Dry Years 1st Year	2011	11232	103.1%
Consecutive Dry Years 2nd Year	2012	11701	107.4%
Consecutive Dry Years 3rd Year	2013	11910	109.3%
Consecutive Dry Years 4th Year	2014	11817	108.5%
Consecutive Dry Years 5th Year	2015	9946	91.3%

DWR NOTES: Supplier may use multiple versions of Submittal Table 7-1 R if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Submittal Table 7-1 R, in the "Note" section of each submittal table, state that multiple versions of Submittal Table 7-1 R are being used and identify the particular water source that is being reported in each submittal table. **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table reports the units of measure reported in Submittal Table 2-3.

NOTES:

7.4.2 TABLE 7-2: NORMAL-YEAR SUPPLY AND USE COMPARISON

Table 7-2 Normal-Year Supply and Use Comparison

Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison Water Code Section 10635 (a)					
	2030 (AF)	**2035 (AF)**	**2040 (AF)**	**2045 (AF)**	**2050 (AF)**
Supply totals (autofill from Submittal Table 6-9 R)	10,562	10,562	10,576	10,590	10,604
Use totals (autofill from Submittal Table 4-2 R)	10,562	10,562	10,576	10,590	10,604
Surplus/(shortfall)	0	0	0	0	0
OPTIONAL Planned WSCP Actions					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					
DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.					
NOTES:					

7.4.3 TABLE 7-3: SINGLE-DRY-YEAR SUPPLY AND USE COMPARISON

Table 7-3 Single Dry Year Supply and Use Comparison

Submittal Table 7-3 Retail: Single Dry Year Supply and Use Comparison Water Code Section 10635(a)					
	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)
Supply totals	10,057	10,057	10,070	10,084	10,097
Use totals	10,057	10,057	10,070	10,084	10,097
Surplus/(shortfall)	0	0	0	0	0
OPTIONAL Planned WSCP Actions					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					
DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.					
NOTES					

7.4.4 TABLE 7-4: MULTIPLE DRY YEARS SUPPLY AND USE COMPARISON

Table 7-4 Multiple Dry Years Supply and Use Comparison

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Use Comparison Water Code Section 10635(a)						
		2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)
First year	Supply totals	10,889	10,889	10,903	10,918	10,932
	Use totals	10,889	10,889	10,903	10,918	10,932
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Second year	Supply totals	11,343	11,343	11,358	11,373	11,388
	Use totals	11,343	11,343	11,358	11,373	11,388
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Third year	Supply totals	11,546	11,546	11,562	11,577	11,592
	Use totals	11,546	11,546	11,562	11,577	11,592
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fourth year	Supply totals	11,456	11,456	11,471	11,486	11,502
	Use totals	11,456	11,456	11,471	11,486	11,502
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fifth year	Supply totals	9,643	9,643	9,655	9,668	9,681
	Use totals	9,643	9,643	9,655	9,668	9,681
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.						
NOTES:						

7.4.5 TABLE 7-5: FIVE-YEAR DROUGHT RISK ASSESSMENT

Table 7-5 Five-Year Drought Risk Assessment

Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment Water Code Section 10635(b)(3)	
2026	**Total**
Total Water Use (AF)	10,082
Total Supplies (AF)	11,232
Surplus/Shortfall w/o WSCP Action	1,150
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2027	**Total**
Total Water Use (AF)	10,713
Total Supplies (AF)	11,701
Surplus/Shortfall w/o WSCP Action	988
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2028	**Total**
Total Water Use (AF)	11,119
Total Supplies (AF)	11,910
Surplus/Shortfall w/o WSCP Action	792
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2029	**Total**
Total Water Use (AF)	11,244
Total Supplies (AF)	11,817
Surplus/Shortfall w/o WSCP Action	573
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2030	**Total**
Total Water Use (AF)	9,643
Total Supplies (AF)	9,946
Surplus/Shortfall w/o WSCP Action	304
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.	
NOTES:	

CHAPTER 8

WATER SHORTAGE CONTINGENCY PLAN

LAY DESCRIPTION – CHAPTER 8

WATER SHORTAGE CONTINGENCY PLAN

Chapter 8 (Water Shortage Contingency Plan) of the City's 2025 Plan discusses and provides the following:

- The City's Water Shortage Contingency Plan is a detailed approach which presents how the City intends to act, or respond, in the case of an actual water shortage contingency.
- Preparation of the City's "Annual Water Supply and Demand Assessment" (or Annual Assessment) is discussed. The City is required to submit annually an Annual Assessment. The Annual Assessment includes a review of the City's "unconstrained" water demands for the current year and for a potential upcoming single dry year. Unconstrained water demands represent the City's water demands prior to any "response actions" the City may invoke pursuant to the City's Water Shortage Contingency Plan.
- The City will manage water supplies to minimize the adverse impacts of water shortages. The City's plan for water usage during periods of shortage is designed to incorporate six standard water shortage levels corresponding to progressive ranges from up to a 10, 20, 30, 40, and 50 percent shortage, and greater than a 50 percent shortage.
- For each declared water supply shortage level, customers will be required to reduce their consumption by the percentage specified in the corresponding water supply shortage level.

- For each declared water supply shortage level, the City has established response actions to reduce demand on water supplies and to reduce any shortage gaps in water supplies. These demand reduction actions include irrigation and other outdoor use restrictions, rate structure changes, and other water use prohibitions.
- The operational changes the City will consider in addressing water shortages on a short-term basis are discussed and include improved monitoring, analysis, and tracking of customer water usage to enforce demand reduction measures.
- The City's Emergency Response Plan is summarized. The Emergency Response Plan provides the management, procedures, and designated actions the City and its employees will implement during emergency situations (including catastrophic water shortages) resulting from natural disasters, system failures, and other unforeseen circumstances.
- The preparation of the City's seismic risk assessment and mitigation plan is discussed. The locations of earthquake faults in the vicinity of the City's water service area are provided.
- The effectiveness of the shortage response actions for each of the City's standard water shortage levels is presented. The City has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands.
- The communication protocols implemented by the City when it declares any water shortage level are presented.
- The compliance and enforcement procedures associated with the City's standard water shortage levels are presented.
- The legal authorities associated with the City's standard water shortage levels are presented.
- The financial consequences associated with the City's standard water shortage levels are presented.
- The City will evaluate the need for revising the Water Shortage Contingency Plan in order to resolve any water shortage gaps, as necessary. The steps necessary

for the City to adopt and amend its Water Shortage Contingency Plan are presented.

The following Water Shortage Contingency Plan includes references to Chapters and Sections from the City of Cerritos' 2025 Urban Water Management Plan:

8.1 WATER SUPPLY RELIABILITY ANALYSIS

CWC 10632.

(a)(1) The analysis of water supply reliability conducted pursuant to Section 10635.

CWC 10632.5.

(a) In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

The City's sources of supply were discussed in Section 6.2 of the 2025 Plan and consist of groundwater from the Central Basin and treated imported water purchased from CBMWD. In addition, the City provides recycled water for irrigation instead of potable supplies. The Central Basin is adjudicated, and groundwater supplies are managed. The reliability of the various sources of supply are discussed in Chapter 7 of the 2025 Plan. Imported water supplies may be impacted in the event MWD implements its WSAP due to a water supply shortage. Recycled water is locally generated and is not impacted by drought conditions. A seismic risk assessment and mitigation plan is discussed in Section 8.4.6.

8.2 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

CWC 10632.

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

CWC 10632.

(a)(2) The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

(i) 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.

(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

(iii) Existing infrastructure capabilities and plausible constraints.

(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.

(v) A description and quantification of each source of water supply.

CWC 10632.1.

An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

By July 1st of every year, the City is required to submit an "Annual Water Supply and Demand Assessment" (Annual Assessment) in accordance with DWR's guidance and requirements. The Annual Assessment includes a review of the City's unconstrained water demands (i.e. water demands prior to any projected response actions the City may trigger under this WSCP) for the current year and the upcoming (potential single dry) year. The Annual Assessment also includes information regarding anticipated shortages, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the City's WSCP.

During the preparation of each Annual Assessment, the City will evaluate the adequacy of its water supplies for the current and upcoming years. The evaluation will include a review of water supplies for at least a single dry year.

8.2.1 DECISION-MAKING PROCESS

The City produces groundwater from the Central Basin as its primary source of water supply and this basin is managed on a fiscal year basis. Consequently, during the third quarter of each fiscal year the City will review its water demands from the initial six months along with the current groundwater basin conditions and local hydrology. This information will be used to help develop the Annual Assessment. A draft of the Annual Assessment will be circulated internally within the City for peer review and comment. Based on comments received, a redraft will be prepared and provided to the City managers during the Spring of each year. The draft subsequently will be provided to the City Manager for final review. If necessary, a final draft of the Annual Assessment will be provided to the City Council for review and included in the agenda as part of a City Council meeting such that it can be approved and any recommended specific shortage response actions may be enacted. The final Annual Assessment will be provided to DWR no later than July 1 of each year.

The Annual Assessments will be instrumental in providing guidance to the City for decisions regarding potential declarations of a water supply shortage and implementation of water reduction stages, instituting mandatory water restrictions, promoting water use efficiency and conservation programs, water rates and drought rate surcharges, and the necessity of pursuing alternative water supplies. This process will help ensure adequate water supplies resources are available to the City.

8.2.2 DATA AND METHODOLOGIES

The key data inputs and methodologies which will be evaluated by the City during the preparation of the Annual Assessment will include the following:

1) Evaluation Criteria: The locally applicable evaluation criteria used to prepare the Annual Assessment will be identified. The evaluation criteria will include, but is not limited to, an analysis of current local hydrology (including rainfall and groundwater levels), current water demands, a review of water system improvement plans which may impact infrastructure availability, and water quality regulations which may impact groundwater availability.

2) Water Supply: A description of each available water supply source will be provided. The descriptions will include a quantification of each available water supply source and will be based on review of current production capacities, historical production, UWMPs, and prior water supply studies (including Water Supply Assessments and/or Master Plans).

3) Unconstrained Water Demand: The potential unconstrained water demands during the current year and the upcoming (potential single dry) year, prior to any special shortage response actions, will be reviewed. The review will include factors such as weather, existing and projected land uses and populations, actual customer consumption and water use factors, monthly Urban Water Supplier Monthly

Reports, existing water shortage levels (see Section 8.3), and existing water conservation resolutions (see Section 9.1).

4) Planned Water Use for Current Year Considering Dry Subsequent Year: The water supplies available to meet the demands during the current year and the upcoming (potential single dry) year will be considered and identified by each type of supply. The evaluation will include factors such as estimated water demands, weather, groundwater basin operating safe yields, water quality results, existing available pumping capacities, imported water allocations, contractual obligations, regulatory issues, use of emergency interconnections, and the costs associated with producing each water supply source.

5) Infrastructure Considerations: The capabilities of the water distribution system infrastructure to meet the water demands during the current year and the upcoming (potential single dry) year will be considered. Available production capacities (e.g. groundwater well capacities) and distribution system water losses (see Section 4.3) will be reviewed. In addition, capital improvement and replacement projects, as well as potential projects which may increase water system and production capacities (see Section 6.2.10), will be considered.

8.3 SIX STANDARD WATER SHORTAGE LEVELS

CWC 10632.

(a)(3)(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including,

but not limited to, a regional power outage, an earthquake, and other potential emergency events.

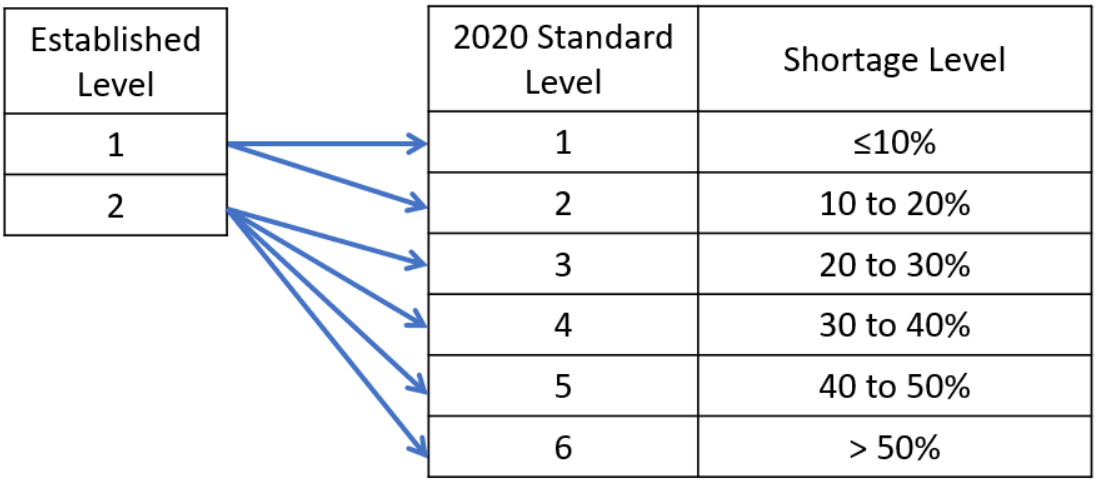
(a)(3)(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

The City will manage water supplies prudently to minimize the adverse impacts of water shortages. The City's plan for water usage during periods of shortage is designed to incorporate six standard water shortage levels corresponding to progressive ranges from up to 10, 20, 30, 40, and 50 percent shortages, and greater than 50 percent shortage.

For each declared water supply shortage level, customers will be required to reduce their consumption by the percentage specified in the corresponding water supply shortage level. The required percentage reduction for each customer will be based on water usage during the same billing period in the last calendar year during which there were no declared water shortages.

The City previously established two (2) stages of water shortages and corresponding water conservation measures pursuant to Resolution No. 91-6. The City Council expanded these measures by adopting Resolution No. 2015-16 in June 2015. A copy of the City's resolutions are provided in Appendix H. In accordance with CWC in which urban water suppliers are required to define six (6) standard water shortage levels, the City has developed the crosswalk illustrated below (also included in the City's 2020 Plan) that translates the City's previously established shortage levels to the mandated standard shortage levels. Table 8-1 also provides a cross-reference between the City's previously established shortage levels and the mandated standard shortage levels.

Corresponding Relationships Between Supplier's Established Shortage Levels and the WSCP Mandated Shortage Levels



Established Level	2020 Standard Level	Shortage Level
1	1	≤10%
2	2	10 to 20%
	3	20 to 30%
	4	30 to 40%
	5	40 to 50%
	6	> 50%

8.4 SHORTAGE RESPONSE ACTIONS

CWC 10632.

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

(A) Locally appropriate supply augmentation actions.

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

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

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

Shortage response actions are dependent on the severity of a declared shortage level. Response actions implement varying improvements and regulations of system infrastructure and operations, water supply augmentation, demand reduction initiatives and other water use functions to conserve water supplies.

8.4.1 SUPPLY AUGMENTATION

The City does not plan to add a new source of water supply to address customer demands, but instead will consider increased supplies from existing sources. Table 8-2 reflects this approach and does not identify any new supplies. Instead, the City will focus on demand reduction measures in the event existing source of supply are not sufficient to meet customer demands. As discussed in Chapter 6, the City's source of water supply is groundwater produced from the Central Basin, imported surface water purchased from MWD through CBMWD, and recycled water supplies. As noted in Section 8.2, , the City is required to annually prepare and submit an Annual Assessment which will include a review of water supplies available to meet water demands for the current and upcoming years. If the City is currently in, or considers entering into, one of the standard water shortage levels identified in Section 8.3, the City will consider the water supply (augmentation) actions described in Table 8-2.

8.4.2 DEMAND REDUCTION

The City may establish water shortage response actions to reduce demand on water supplies. These demand reduction actions include irrigation and other outdoor use restrictions, rate structure changes, and other water use prohibitions. Depending on the percent reduction in the City's water supply and corresponding water shortage level, regulations are made to conserve water and reduce the shortage gap in normal supply levels. The structure of water shortage levels are designed to strongly encourage customers with high per capita usage to achieve proportionally greater reduction than those with low usage. Violations of these demand reduction actions will be considered

waste and an unreasonable use of water. The following stages will be implemented as needed to achieve reduction in the shortage gap. Table 8-3 describes each demand reduction action and its effect on reducing the shortage gap.

The following water use actions are prohibited at all times:

- The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways/ roadways, parking lots or structures. Water runoff is defined as water accumulation sufficient to cause a flow of water off of landscaped areas.
- Use of potable water for irrigation during and 48 hours following measurable precipitation.
- Use of potable water for more than minimal landscaping.
- The use of potable water in a fountain or other decorative water feature, unless the water is part of a recirculating system.
- Residential and commercial landscape areas shall be watered between the hours of 5 p.m. and 9 a.m. for no more than ten (10) minutes per station. Watering shall be limited to two (2) times per week during the months of June through September, and one (1) time per week during the months of October through May. Landscape irrigation for commercial nurseries and growers, fire and erosion protection, the protection of endangered species, environmental mitigation projects, and properties using reclaimed water are exempt from this provision. Watering using a handheld container; a hose equipped with a shut off nozzle; or the use of an irrigation system for short durations to make repairs are also exempt from the provision;

<u>Water Supply Shortage Level 1</u>

The following restrictions are in effect during Water Supply Shortage Level 1:

- Washing of walkways, driveways, or parking areas with a hose.

- Using water to clean, fill, or maintain levels in decorative fountains unless a recycling system is used.
- Serving drinking water to any customer in a restaurant or other public place where food is served, sold, or offered for sale unless expressly requested by the customer.
- Failing to repair all water leaks as soon as possible.
- Watering or irrigating lawns, turf, or landscape areas between hours of 10:00 A.M. and 4:00 P.M.
- Watering or irrigating lawns, turf, or landscape areas beyond saturation causing runoff.
- Allowing a hose to run continuously while washing vehicles.
- Allowing sprinklers to direct water to areas other than landscape causing runoff.

Water Supply Shortage Level 2

In addition to the restrictions identified in Water Supply Shortage Level 1, the following allocations and drought emergency surcharges are in effect during Water Supply Shortage Level 2:

- Additional demand reduction actions deemed necessary by the City.

Water Supply Shortage Level 3

In addition to the restrictions identified in Water Supply Shortage Level 2, the following allocations and drought emergency surcharges are in effect during Water Supply Shortage Level 3:

- Bimonthly, each 5/8" x 3/4" or 1" water meter shall be billed at base consumption of 30 units, under the current water rate structure. All billing units used over the base consumption will be billed at one and one half times the quantity rate in existence in the current rate structure.
- Bimonthly, each 1-1/2" water meter shall be billed at a base consumption of 119 units under the current water rate structure.

- Bimonthly, each 2" water meter shall be billed at a base consumption of 277 units under the current water rate structure.
- Bimonthly, each 3" water meter shall be billed at a base consumption of 511 units under the current water rate structure.
- Bimonthly, each 4" water meter shall be billed at a base consumption of 1080 units under the current water rate structure.

Water Supply Shortage Level 4

In addition to the restrictions identified in Water Supply Shortage Level 3, the following allocations and drought emergency surcharges are in effect during Water Supply Shortage Level 4:

Additional demand reduction actions deemed necessary by the City.

Water Supply Shortage Level 5

In addition to the restrictions identified in Water Supply Shortage Level 4, the following allocations and drought emergency surcharges are in effect during Water Supply Shortage Level 5:

- Additional demand reduction actions deemed necessary by the City.

Water Supply Shortage Level 6

In addition to the restrictions identified in Water Supply Shortage Level 5, the following allocations and drought emergency surcharges are in effect during Water Supply Shortage Level 6:

- Additional demand reduction actions deemed necessary by the City.

8.4.3 OPERATIONAL CHANGES

During a water supply shortage situation, the City will manage its water supply resources to provide sufficient water supplies capable of meeting the demands of its customers.

Section 8.4.3 describes the City's water supply source and water supply augmentation actions available. Section 8.4.2 describes the City's standard water shortage levels and associated demand reduction measures. The supply augmentation actions and demand reduction measures, when implemented, may potentially result in short-term operational changes which are necessary to allow the City's to utilize all available water supply sources in response to water shortage situations.

As noted in Section 8.2, the City is required to annually prepare and submit an Annual Assessment which will include a review of the water supplies available to meet water demands for the current and upcoming years. Preparation of the Annual Assessment will assist the City in determining any potential operational changes. In addition, the City's standard water shortage levels and the associated demand reduction measures, in conjunction with the City's existing Demand Management Measures (DMM) (discussed in Chapter 9), will be essential to the City in reducing water demands during any water shortage period. The operational changes the City will consider in addressing non-catastrophic water shortages on a short-term basis include the following:

- Improved monitoring, analysis, and tracking of customer water usage to enforce demand reduction measures.
- Optimized production from existing available water supply sources.
- Potential use of emergency supply sources, including emergency interconnections.
- Potential blending of water supply resources.
- Improved monitoring, maintenance, and repairs to reduce water distribution system losses.

8.4.4 ADDITIONAL MANDATORY RESTRICTIONS

The mandatory restrictions which are implemented by the City to reduce customer demands are discussed in Section 8.4.2. There are no additional mandatory restrictions planned at this time.

8.4.5 EMERGENCY RESPONSE PLAN

Catastrophic water shortages are incorporated in the City's standard water shortage levels (identified in Section 8.3) and the associated demand reduction measures (described in Section 8.4.2). In addition to the water supply augmentation actions (Section 8.4.1) and potential operational changes (Section 8.4.3) which the City may consider in order to continue providing sufficient water supplies, the City will review and implement any necessary steps included in its "Emergency Response Plan".

As part of the "America's Water Infrastructure Act of 2018", community water systems serving a population greater than 3,300 people, including the City, are required to review and update their "Risk and Resilience Assessment" (RRA) and the associated "Emergency Response Plan" (ERP) every five (5) years. However, due to security concerns regarding the submitting of these reports, water systems are required to submit certifications to the United States Environment Protection Agency (USEPA), March 31, 2025 and December 31, 2026, confirming the current RRA and ERP have been reviewed and updated.

The City's RRA, updated in 2026, evaluates the vulnerabilities, threats, and consequences from potential hazards to the City's water system. The City's RRA is being prepared by evaluating the following items:

- Natural hazards and malevolent acts (i.e., all hazards);

- Resilience of water facility infrastructure (including pipes, physical barriers, water sources and collection, treatment, storage and distribution facilities, and electronic, computer and other automated systems);
- Monitoring practices;
- Financial systems (e.g., billing systems);
- Chemical storage and handling; and
- Operation and maintenance.

The City's RRA evaluates a series of potential malevolent acts, natural hazards, and other threats in order to estimate the potential "monetized risks" (i.e. associated economic consequences to both the water system and surrounding region, and the likelihood of occurrence) associated with the City's water facility assets. The cost-effectiveness of implementing potential countermeasures to reduce risks is also under review.

The City's ERP, updated in 2026, provides the management, procedures, and designated actions the City and its employees will implement during emergency situations (including catastrophic water shortages) resulting from natural disasters, system failures, and other unforeseen circumstances. The City's ERP provides the guidelines for evaluating an emergency situation, procedures for activating an emergency response, and details of the different response phases in order to ensure that customers receive a reliable and adequate supply of potable water. The scope of the ERP includes emergencies which directly affect the water system and the ability to maintain safe operations (such as a chlorine release, and earthquake, or a threat of contamination). The ERP also incorporates the results of the City RRA and includes the following:

- Strategies and resources to improve resilience, including physical and cybersecurity.
- Plans and procedures for responding to a natural hazard or malevolent act.
- Actions and equipment to lessen the impact of a natural hazard or malevolent act.

- Strategies to detect natural hazards or malevolent act.

The City will review the ERP for procedures regarding the utilization of alternative water supply sources in response to water supply shortages, including during the standard water shortage levels. The City will also review applicable procedures described in the ERP regarding any necessary temporary shutdown of water supply facilities, including appropriate regulatory and public notifications.

8.4.6 SEISMIC RISK ASSESSMENT AND MITIGATION PLAN

CWC 10632.5.

(a) In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

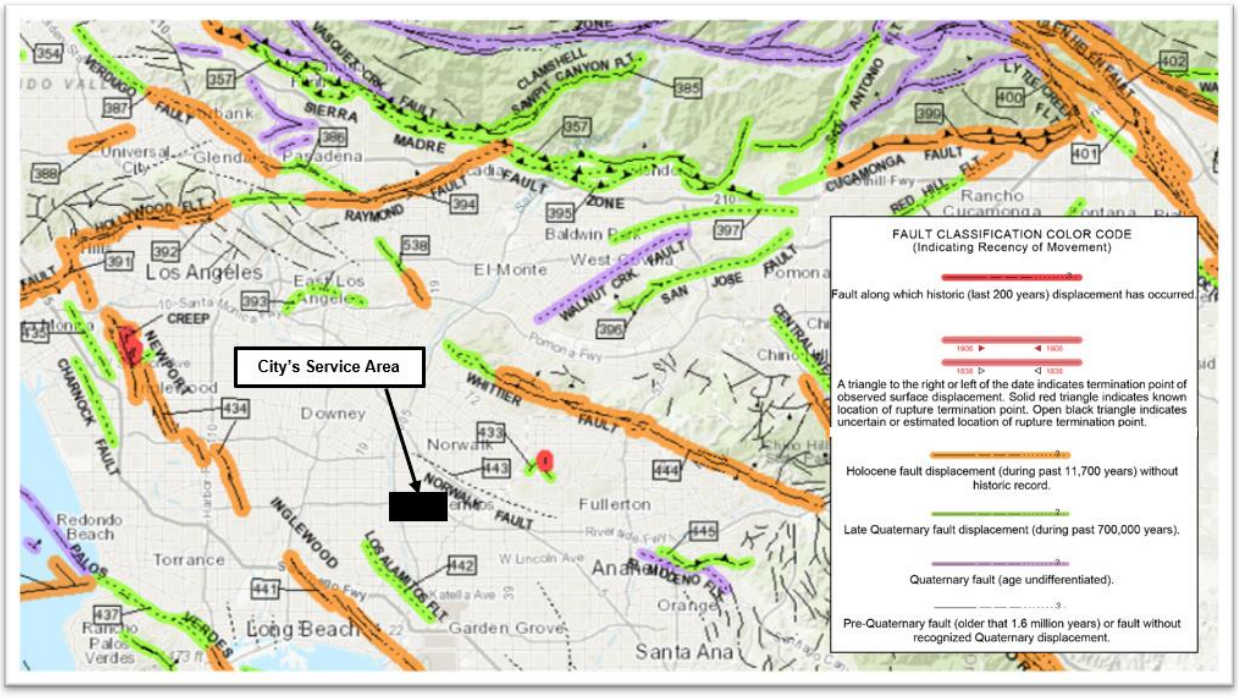
The City prepared a “Hazard Mitigation Plan” in 2022 which identified methods to assess significant natural hazards (including earthquakes) affecting areas throughout the City, and the mitigation strategies necessary to reduce risks, including seismic risk. The City’s Hazard Mitigation Plan is provided in Appendix I.

The County of Los Angeles prepared an “All-Hazards Mitigation Plan” in 2025 which identified methods to assess significant natural hazards (including earthquakes) affecting areas throughout Los Angeles County, and the mitigation strategies necessary to reduce

risks, including seismic risk. The County's All-Hazards Mitigation Plan is provided in Appendix J.

The California Geological Survey has published the locations of numerous faults which have been mapped in the Southern California region. Although the San Andreas fault is the most recognized and is capable of producing an earthquake with a magnitude greater than 8 on the Richter scale, some of the lesser-known faults have the potential to cause significant damage. The locations of these earthquake faults in the vicinity of the City's water service area are provided in the figure below. The faults that are located in close proximity to and could potentially cause significant shaking in the City's water service area include the San Andreas fault, the Whittier fault, the Los Alamitos Fault, the Norwalk Fault, the Inglewood Fault, and the Newport Fault.

Location of Earthquake Faults



Source: https://maps.conservation.ca.gov/cgs/fam/App/

The California Geological Survey provides earthquake hazard maps[6] based on the Modified Mercalli Intensity (MMI) scale, which measures earthquake shaking intensity and its impacts on people, objects, and buildings. The area within the City's service area has an MMI of approximately 9.4 calculated based on the level of shaking that has a 2 percent chance of being exceeded in 50 years (or the level of shaking with an approximate 2,500-year average repeat time). An MMI at this intensity (violent shaking) can result in buildings shifted off foundations, cracked, or tilted, the ground cracked, and underground pipes broken. As discussed in Section 8.4.5, the City prepared an Emergency Response Plan in 2021 which provides the management, procedures, and designated actions the City and its employees will implement during emergency situations resulting from natural disasters, including during earthquakes, to ensure that customers receive a reliable and adequate supply of potable water. The City's ERP is incorporated by reference.

8.4.7 SHORTAGE RESPONSE ACTION EFFECTIVENESS

The effectiveness of the shortage response actions for each of the standard water shortage levels identified in Section 8.3 is evident in the City's historical ability to meet its customer's water demands in response to a water supply shortage. In addition, the City imposes water consumption regulations and restrictions, and supports local agencies in efforts to enforce regulations and prohibitions on water use. The effectiveness of each of the City's shortage response actions, in order to reduce any potential gaps between supply and demand, has been quantified in the expected demand reduction provided in Table 8-2 and Table 8-3.

Section 6.1 provides a tabulation of the City's historical annual water demands for its water supply source. During the past 15 years, the City experienced a five consecutive year drought within its service area from CY 2011 to CY 2015. Throughout this extended dry year period, the City's annual water production ranged from 9,946 AF to 11,910 AF,

[6] https://conservation.ca.gov/cgs/sh/earthquake-shaking-potential

with an average of approximately 11,321 AF. In addition, historical records indicate the City previously produced a maximum of up to 11,910 AF during CY 2013. The City has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. In addition, the City has been able to provide water service to meet maximum day water demands for these years, including during the summer months.

The City's water demands during the most recent five years (from CY 2021 to CY 2025) averaged approximately 8,940 AFY. Due to conservation efforts and demand management measures (discussed in Chapter 9), the City's recent water demands have been less than its historical water demands, including during long-term droughts. The City's projected water demands (during a normal year, a single dry year, and a five consecutive year drought conditions) are provided in Section 7.2.3 and are anticipated to incorporate similar reductions in water use rates as a result of the shortage response actions, ongoing conservation efforts, and demand management measures. Because the City's projected water demands are similar to or less than its historical demands, it is anticipated the City will be able to continue providing sufficient water supplies to its customers to meet projected water demands, including during long-term droughts. In addition, as discussed in Section 8.4.2, based on historical and on-going management practices, the City will be able to continue relying on its water supply source from the Central Basin for adequate supply augmentation in response to each of the standard water shortage levels identified in Section 8.3.

Based on the City's demonstrated ability to meet water demands during past water supply shortages, the adopted water shortage levels, the adjusted operating safe yields, and water supplies during long-term droughts, it is anticipated that the City will be able to provide sufficient water supplies to its customers during each of its standard water shortage levels. Although adequate supplies are anticipated, the cost of those water supplies may become incrementally more expensive. The City will enact varying levels of its WSCP to encourage retail customers to reduce water consumption and at the same

time reduce the need to use the more expensive water supplies. Notwithstanding, the effectiveness of each of the City's shortage response actions, in order to reduce any potential gaps between supply and demand, has been quantified in the expected demand reduction section provided in Table 8-2 and Table 8-3. The effectiveness of the City's shortage response actions is based on the City's water demands prior to 2015 (unconstrained demands). The City's reduced its water demands in 2015 in response to the Governor's April 1, 2015 Executive Order B-29-15 which mandated statewide reduction in water use of 25 percent. The City's actual water demand reduction during this period was used to estimate the extent of water use reductions for the City's Water Shortage Levels. The City's Water Shortage Levels 1, 2, 3, 4, 5, and 6 are expected to reduce water demands by up to 10%, 20%, 30%, 40%, 50%, and greater than 50%, respectively.

Emergency regulations previously adopted by the SWRCB pursuant to Executive Order N-7-22 (issued on March 28, 2022 by California Governor Gavin Newsom) required urban water suppliers to implement Level 2 of their Water Shortage Contingency Plans meant to address up to a 20% shortage of water supplies. The regulations also required urban water suppliers to establish a ban on irrigating non-functional turf at commercial, industrial, and institutional properties (including grass in front of or next to large industrial or commercial buildings). The ban did not include watering turf that is used for recreation or other community purposes, water used at residences or water to maintain trees. Pursuant to Executive Order N-5-23 issued on March 24, 2023 by California Governor Gavin Newsom, the requirement for urban water suppliers to implement Level 2 of their Water Shortage Contingency Plans was removed. As of June 5, 2024, SWRCB statewide water conservation emergency regulations have expired. In October 2023, however, the California State Legislature passed Assembly Bill 1572, which phases in a ban on decorative grass watering in commercial, industrial, and institutional areas permanently beginning January 2027.

8.5 COMMUNICATION PROTOCOLS

CWC 10632.

(a)(5) Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications.

The City is required to submit an Annual Assessment in accordance with DWR's guidance and requirements. The Annual Assessment will include a review of the City's unconstrained water demands (i.e. water demands prior to any projected response actions the City may trigger under this WSCP) for the current year and the upcoming (potential single dry) year. The City will also include information regarding anticipated shortages, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the City's WSCP. Please see Section 8.2 for further discussion regarding the Annual Assessment.

The implementation of water shortage levels and corresponding water conservation measures may be adopted by a resolution by the City Council.

For each occurrence of improper water use, the City shall send to the customer where the improper water use occurred a notice of improper water use specifying the subsection or subsections of this WSCP that apply. Where possible, a copy of said notice shall be given to that individual who has improperly used water in writing and personally served or deposited in the U.S. Postal Service, first class, postage prepaid, addressed to the

billing address of the Customer and to the City of Cerritos, P.O. Box 3130, Cerritos, CA 90703, Attn: Water Superintendent.

8.6 COMPLIANCE AND ENFORCEMENT

CWC 10632.

(a)(6) For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.

Any violation of this WSCP is considered a waste and an improper use of water. For each occurrence of improper water use, the City shall send to the customer where the improper water use occurred a notice of improper water use specifying the subsection or subsections of this WSCP that apply.

- First Violation: The City shall issue a written notice of the improper water use to the customer.
- Second Violation: For a second violation during any water shortage level, the City shall impose a twenty-five dollar ($25) penalty, payable with the next subsequent water bill.
- Third and Subsequent Violations: Third and subsequent violation during any water shortage level, the City shall install a flow restricting device of one (1) GPM capacity for services up to one and on-half inch size, and comparatively sized for larger services, on the service of the customer at the premises at which the violation occurred for a period of not less than forty-eight (48) hours. The customer in violation will be responsible for paying the costs associated with the installation of said flow restricting device and for the restoration of normal service.

- Failure to pay the penalties will result in discontinuation of water service until all previous penalties are paid in full. A reactivation fee will also be imposed.

A customer shall have the right to a hearing to obtain relief from compliance with the WSCP by filing a written request for hearing within fifteen (15) days after receipt of a Notice of Improper Water User or receipt of a bill whichever is later. To the extent possible, the hearing shall be held by the Water Superintendent or designee within fifteen (15) days after receipt of the request. In determining whether or not relief shall be granted, the Water Superintendent shall consider all relevant factors including but not limited to:

- The fact that reduction in water consumption will result in unemployment;
- Increased number of employees in commercial or industrial business, and governmental offices;
- The existing of emergency health of safety hazards;
- The existence of family health problems;
- The fact that the current customer was not a customer at the water service address during the bae period and the nature of the current customer's water use is substantially different from the use during the base period;
- Special needs of medical care facilities or schools.

A customer shall have the right to appeal the decision of the Water Superintendent or designee to the City Council by filing a written request for appeal within fifteen (15) days after receipt of said decision. To the extent possible, the City Council shall hear the appeal at its first regular meeting occurring after the expiration of fifteen (15) days of receipt of the request for appeal. The decision of the City Council shall be final.

8.7 LEGAL AUTHORITIES

CWC 10632.

(a)(7)(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1. [see below]

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

CWC Division 1, Section 350

The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

The City Council is authorized to declare adoption of water shortage levels and implementation of water conservation measures by resolution.

The City may declare a water shortage emergency and implement any shortage response action deemed necessary. Upon declaration of a water shortage emergency (in accordance with Water Code Chapter 3 commencing with Section 350 of Division 1 regarding water shortage emergencies), the City shall coordinate with the local cities and counties within their service area for the possible proclamation of a local emergency, as defined in Section 8588 of the Government Code.

8.8 FINANCIAL CONSEQUENCES OF A WSCP

CWC 10632.

(a)(8) A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1. [retail urban suppliers only]

During a catastrophic interruption of water supplies, prolonged drought, or water shortage of any kind, the City will experience a reduction in revenue due to reduced water sales. Throughout this period of time, expenditures may increase or decrease with varying circumstances. Expenditures may increase in the event of significant damage to the water system, resulting in emergency repairs. Expenditures may also decrease as less water is pumped through the system, resulting in lower power costs.

The City receives water revenue from a service charge and a commodity charge based on consumption. The service charge recovers costs associated with providing water to the serviced property. The service charge does not vary with consumption and the commodity charge is based on water usage. Rates have been designed to recover the full cost of water service in the charges. Therefore, the total cost of purchasing water would decrease as the usage or sale of water decreases.

However, there are significant fixed costs associated with maintaining a minimal level of service. The City will monitor projected revenues and expenditures should an extreme shortage and a large reduction in water sales occur for an extended period of time. To overcome these potential revenue losses and/or expenditure impacts, the City may use

reserves. If necessary, the City may reduce expenditures by delaying implementation of its Capital Improvement Program and equipment purchases, and/or adjust the work force, implement a drought surcharge, and/or make adjustments to its water rate structure.

8.9 MONITORING AND REPORTING

CWC 10632.

(a)(9) For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

In normal water supply conditions, production figures are recorded daily and are incorporated into the water production report. During rationing conditions, water shortages will continue to be closely monitored on a daily or hourly basis depending on the severity of the drought. Production data from the City's MWD connection and wells can be retrieved on an hourly basis. This will allow City staff to determine the effects of a reduction on water production within the system. During a disaster shortage, production figures will be monitored on an ongoing basis. The City's SCADA system will warn of any critical conditions instantly. Once a shortage stage is implemented, actual reductions in water supply will be determined based on the SCADA system, which will allow monitoring on a daily basis. Reports will be provided on a daily basis to the City's Water Superintendent

8.10 WSCP REFINEMENT PROCEDURES

CWC 10632.

(a)(10) Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

The City's WSCP has been prepared as an adaptive management plan. As discussed in Section 8.9, the City will monitor and report on the implementation of the WSCP. The City will review the implementation results for any current or potential shortage gaps between water supplies and demands. The City will evaluate the need for revising the WSCP in order to resolve any shortage gaps, as necessary. The City will consider the following potential revisions in the event of a potential shortage gap:

- Implementation of additional public outreach, education, and communication programs (in addition to the programs discussed in Chapter 9).
- Implementation of more stringent water use restrictions under the standard water shortage levels (discussed in Section 8.4).
- Implementation of stricter enforcement actions and penalties (discussed in Section 8.6).
- Improvements to the water supply augmentation responses (discussed in Section 8.4.1), as well as any associated operational changes (discussed in Section 8.4.3) which may be required.
- Incorporation of additional actions recommended by the City staff or other interested parties.

The City will use the monitoring and reporting data to evaluate the ability for these potential revisions to resolve any shortage gaps which may occur within the standard water shortage levels.

This WSCP is adopted as part of the City's 2025 UWMP adoption process discussed in Section 10.3. It is anticipated the City will review, revise, and adopt an updated WSCP as part of preparing its 2030 UWMP as necessary. However, the City will continue to review the monitoring and reporting data, and if needed, update the WSCP more frequently. Any updates to the City's WSCP will include a public hearing and adoption process by the City Council (see Section 8.12).

8.11 SPECIAL WATER FEATURE DISTINCTION

CWC 10632.

(b) For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

The City's WSCP defines "decorative water features" as water features which are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, but excluding pools and spas. In general, there are additional health and safety considerations in the water supplied to pools and spas compared to decorative water features. As a result, the City's WSCP has reviewed the response actions, enforcement actions, and monitoring and reporting programs separately for decorative water features and for pools and spas, as applicable.

Please see Section 8.4.1. for demand reduction actions in relation to special water features.

8.12 PLAN ADOPTION, SUBMITTAL, AVAILABILITY, AND AMENDMENT PROCEDURES

CWC 10632.

(c) The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.

The City's WSCP is adopted as part of the City's 2025 UWMP adoption process discussed in Chapter 10. The process for adopting the City's WSCP includes the following:

- The City will conduct a public hearing and make the WSCP available for public inspection.
- The City will provide notification of the time and place of the public hearing to any city or county in which water is provided.
- The City will publish notice of public hearing in a newspaper once a week, for two successive weeks (with at least five days between publication dates).
- The City's Council will adopt the 2025 UWMP and the WSCP.
- As part of submitting the 2025 UWMP to DWR, the City will also submit the WSCP (electronically through DWR's online submittal tool) within 30 days of adoption and by July 1, 2026. The City will submit a copy of the WSCP to the California State Library and to any city or county in which water is provided within 30 days of adoption. In addition, the City will make the WSCP available for public review within 30 days of adoption.

If there are any subsequent amendments required, the process for adopting an amended WSCP includes the following:

- The City will conduct a public hearing and make the amended WSCP available for public inspection.
- The City's Council will adopt the amended WSCP.
- The City will submit the amended WSCP to DWR (electronically through DWR's online submittal tool) within 30 days of adoption.

Additional information regarding the adoption, submittal, and availability of the City's WSCP (and 2025 UWMP) is provided in Chapter 10.

8.13 RESOURCES AND REFERENCES

DWR's Final 2025 UWMP Guidebook provides a listing of resources and references which can be helpful during the preparation of a Water Shortage Contingency Plan.

8.14 SUBMITTAL TABLES

The applicable standardized Submittal Tables referenced within Chapter 8 are provided below.

8.14.1 TABLE 8-1: CROSS REFERENCE FOR STANDARD VS. SUPPLIER SHORTAGE LEVELS

Table 8-1 Cross-Reference for Standard vs. Supplier Shortage Levels

Submittal Table 8-1: Cross-reference for Standard vs Supplier Shortage Levels Water Code Section 10632(a)(3)(B)			
☐	Check the box if the Supplier uses the Standard six levels of water shortage. Proceed to the next table.		
Standard Shortage Levels	**Percent Shortage Range**	**Suppliers Shortage Levels**	**Percent Shortage Range**
1	Up to 10%	1	Up to 20%
2	Up to 20%	1	Up to 20%
3	Up to 30%	2	Up to 50%
4	Up to 40%	2	Up to 50%
5	Up to 50%	2	Up to 50%
6	>50%	2	>50%
NOTES:			

8.14.2 TABLE 8-2: SUPPLY AUGMENTATION AND OTHER ACTIONS

Table 8-2 Supply Augmentation and Other Actions

Submittal Table 8-2 Retail: Supply Augmentation and Other Actions Water Code Section 10632(a)(4)(A),(C) and (E)				
	Is the Supplier completing this table using the standard six levels? (yes/no)			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier **Drop down list** These are the only categories that will be accepted by the WUEdata online submittal tool	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)	
Add additional rows as needed				
1	Transfers	Volume	0	Not applicable (see Notes)
2	Transfers	Volume	0	Not applicable (see Notes)
3	Transfers	Volume	0	Not applicable (see Notes)
4	Transfers	Volume	0	Not applicable (see Notes)
5	Transfers	Volume	0	Not applicable (see Notes)
6	Transfers	Volume	0	Not applicable (see Notes)
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.				
NOTES: The City will consider increased production from the Central Basin using existing facilities to address increased demands. As noted on Table 8-3, the City plans to implement demand reduction measures in the event water supplies from existing sources are not sufficient to meet anticipated demands.				

8.14.3 TABLE 8-3: DEMAND-REDUCTION ACTIONS

Table 8-3 Demand Reduction Actions

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B),(D), and (E)					
	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions **Drop down list** These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)	Penalty, Charge, or Other Enforcement? **For Retail Suppliers Only** Drop Down List
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)		
Add additional rows as needed					
1	Other - Prohibit use of potable water for washing hard surfaces	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	CII - Restaurants may only serve water upon request	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Landscape - Limit landscape irrigation to specific times	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Other	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Other	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
2	Other	Volume	Collective reduction from Shortage Level 1 plus all Shortage Level 2 actions is up to 1,393 AFY		Yes
3	Other	Volume	Collective reduction from Shortage Level 2 plus all Shortage Level 3 actions is up to 2,090 AFY		Yes
3	Implement or Modify Drought Rate Structure or Surcharge	Volume	Collective reduction from Shortage Level 2 plus all Shortage Level 3 actions is up to 2,090 AFY		Yes
4	Other	Volume	Collective reduction from Shortage Level 3 plus all Shortage Level 4 actions is up to 2,786 AFY		Yes
5	Other	Volume	Collective reduction from Shortage Level 4 plus all Shortage Level 5 actions is up to 3,483 AFY		Yes
6	Other	Volume	Collective reduction from Shortage Level 5 plus all Shortage Level 6 actions is greater than 3,483 AFY		Yes
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.					
NOTES:					

CHAPTER 9

DEMAND MANAGEMENT MEASURES

LAY DESCRIPTION – CHAPTER 9

DEMAND MANAGEMENT MEASURES

Chapter 9 (Demand Management Measures) of the City's 2025 Plan discusses and provides the following:

- The City has implemented "Demand Management Measures" to reduce its water demands and achieve its water use targets (discussed in Chapter 5)
- The City's Demand Management Measures include metering of all its water supply connections with its retail member agencies.
- The City's Demand Management Measures include public education and outreach programs regarding water conservation.
- The City's Demand Management Measures include staffing of its water conservation program.
- Additional Demand Management Measures including rebate, conservation, asset management, and wholesale supplier assistance programs are discussed.
- A summary of the Demand Management Measures the City has implemented over the past five (5) years is provided.
- The City's Demand Management Measures include adoption of resolutions to prevent water waste.
- The City's Demand Management Measures include metering of all customer connections, including separate metering for residential, fire service, reclaimed water service, and construction water service.

- The City's Demand Management Measures include conservation pricing. The City's bimonthly fixed water charge and volumetric rate enable the City to encourage conservation, while reducing the burden on those already conserving.
- The City's Demand Management Measures include public education and outreach programs regarding water conservation.
- The City's Demand Management Measures include various actions to assess and manage water distribution system losses.
- Additional Demand Management Measures including rebate, conservation, and educational programs are discussed.
- A summary of the Demand Management Measures the City has implemented over the past five (5) years is provided. The City met the 2020 Water Use Target (discussed in Chapter 5) through the implementation of these Demand Management Measures.

9.1 EXISTING DEMAND MANAGEMENT MEASURES FOR RETAIL SUPPLIERS

CWC 10631.

(e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

(v) Programs to assess and manage distribution system real loss.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

9.1.1 IMPLEMENTATION OVER THE PAST FIVE YEARS

The City is committed to implementing water conservation programs and works collaboratively with regional partners to provide water conservation programs for its customers. The highlights of DMM implementation over the past five years are described below.

As discussed in Section 9.1.3.1, Resolution No. 91-6, when in effect, sets forth the procedures to implement water conservation measures during varying stages of drought conditions. Resolution No. 2015-16, when in effect, establishes water use restrictions which are designed to prevent water waste at all times. These water use restrictions have been in effect within the last five years.

As discussed in Section 9.1.3.2, the City meters all customer connections, including separate metering for single-family residential, commercial, industrial, and landscape customers. Furthermore, if there is new development within the City, each facility is individually metered. The City implements an AMR system which supports conservation efforts through improved meter reading accuracy and allows the City to effectively monitor and manage water supplies.

As discussed in Section 9.1.3.3, the City's bimonthly fixed water charge and volumetric rate enable the City to encourage conservation, while reducing the burden on those already conserving.

As discussed in Section 9.1.3.4, the City offers public information programs for its customers. The City provides marketing and outreach materials to its customers by issuing press releases, newsletters, and bill inserts. Customers learn about rebates and additional programs through the City's website. The City promotes water conservation through public information programs that offer brochures, posters, activity booklets, public outreach displays, oral presentations, and workshops to inform the public of conservation efforts. The City offers education and outreach programs directly to its customers. In coordination with MWD and CBMWD, a variety of water conservation public information programs are available to the public within the City. MWD's water education programs provide free teacher workshops, classroom materials, field trips, and class instruction to schools, including water conservation related education programs. CBMWD's school educational program includes a variety of elementary and high school programs within its service area, including the City.

As discussed in Section 9.1.3.5, the City's annual water loss audits identify real water losses (e.g. leaks and main failures) and apparent water losses (e.g. customer meter inaccuracies, systematic data handling errors in customer billing systems, and unauthorized consumption). The City also implements an AMR system which supports conservation efforts through improved meter reading accuracy and allows the City to effectively monitor and manage water supplies.

As described in Section 9.1.3.6, the City's water conservation program coordination and staffing support are provided by the CBMWD Conservation Coordinator. The CBMWD Conservation Coordinator investigates Federal, State, and local funding to develop new programs throughout CBMWD's service area, benefiting the City's service area through program implementation.

In addition to the above DMMs (and as described in Section 9.1.3.7), the City also provides information to its customers about various programs available from CBMWD and

MWD. MWD provides funding to its member agencies for locally administered conservation programs including rain barrel distribution, turf replacement programs, sustainable landscape irrigation programs, customer water use messaging, as well as residential water surveys. The City participates in CBMWD's high-efficiency toilet and high-efficiency clothes washer rebate programs and will continue to do so in the future. Residents in the City's service area can participate in CBMWD's Landscape Rotating Nozzles, Weather Based Irrigation Controller, and Soil Moisture Sensor System program that offers rebates through MWD's regional rebate program. In addition, CBMWD's Turf program offers rebates through MWD's program for replacement of the irrigated area with drought tolerant landscaping. CBMWD also offers landscape classes to residences within its service area, including the City, to teach residents about water conservation and to reduce urban runoff.

9.1.2 IMPLEMENTATION TO ACHIEVE WATER USE TARGETS

CWC 10631.

(e)(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

The Demand Management Measures implemented by the City are discussed in Section 9.1.3 Descriptions regarding the nature and extent of these Demand Management Measures implemented by the City over the past five years are discussed in Section 9.1.1. The City will continue to implement these Demand Management Measures and other water conservation programs and work collaboratively with CBMWD to provide water conservation programs for its residents.

As indicated in Section 5.2.2, the City previously met its 2020 Water Use Target as part of the 2020 Plan. The City met the 2020 Water Use Target through the implementation of the Demand Management Measures discussed in Section 9.1.3. Continued implementation of these Demand Management Measures will assist the City in meeting water use targets and objectives.

9.1.3 REQUIRED DEMAND MANAGEMENT MEASURES

9.1.3.1 WATER-WASTE PREVENTION ORDINANCES

The City implements Resolution No. 2015-16 ("A Resolution of the City Council of the City of Cerritos Implementing Emergency Water Conservation Regulations)" which prohibits water waste. This resolution was adopted pursuant to Resolution No. 91-6 which authorized the City Council to declare the implementation of water conservation measures by resolution and previously established two (2) stages of water shortages and corresponding water conservation measures. Copies of these resolutions are attached as Appendix H.

Resolution No. 91-6, when in effect, sets forth the procedures to implement water conservation measures during varying stages of drought conditions.

Resolution No. 2015-16, when in effect, sets forth the following water use actions which are prohibited at all times:

- Use of potable water for more than minimal landscaping.
- Use through a broken or defective water meter.
- Use of potable water which results in flooding or runoff in gutters or streets.

- Use of potable water for washing private cars or commercial aircrafts, cars, buses, boats, or trailers, except at a fixed location where water is properly maintained to avoid wasteful use.
- Use of potable water for washing buildings, structures, driveways, street cleaning, or other hard-surfaced areas.
- Use of potable water to irrigate turf, lawns, gardens, or ornamental landscaping.

9.1.3.2 METERING

CWC 526.

(a) Notwithstanding any other provision of law, an urban water supplier that, on or after January 1, 2004, receives water from the federal Central Valley Project under a water service contract or subcontract… shall do both of the following:

(1) On or before January 1, 2013, install water meters on all service connections to residential and nonagricultural commercial buildings… located within its service area.

CWC 527.

(a) An urban water supplier that is not subject to Section 526 shall do both of the following:

(1) Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.

The City meters all customer connections, including separate metering for single-family residential, commercial, industrial, and landscape customers. Furthermore, if there is new development within the City, each facility is individually metered.

Service charges for the City are based on the customers' connection size. Further information regarding the City's service fees and conservation pricing is provided in Section 9.1.3.3.

9.1.3.3 CONSERVATION PRICING

The City's current rate structure consists of: 1) bimonthly fixed meter charge, which is based on meter size and 2) the volumetric rate, which is based on all customer classes. The bimonthly fixed water charge and volumetric rate enable the City to encourage conservation, while reducing the burden on those already conserving, as shown in Appendix K. The City also has an inclining drought emergency surcharge pursuant to the City's Resolution No. 91-6, provided in Appendix H.

9.1.3.4 PUBLIC EDUCATION AND OUTREACH

The City offers public information programs for its customers. The City provides marketing and outreach materials to its customers by issuing press releases, newsletters, and bill inserts. Customers learn about rebates and additional programs through the City's website.

The City promotes water conservation through public information programs that offer brochures, posters, activity booklets, public outreach displays, oral presentations, and workshops to inform the public of conservation efforts. The City raises awareness through paid advertising, press releases, news ads, media events, and through the Speaker's Bureau.

In coordination with MWD and CBMWD, a variety of water conservation public information programs are available to the public within the City. MWD's water education programs provide free teacher workshops, classroom materials, field trips, and class instruction to schools, including water conservation related education programs. CBMWD's school educational program includes a variety of elementary and high school programs within its service area, including the City. Schools located within CBMWD's service area can receive educational materials and handouts about water conservation and water

awareness. CBMWD also provides information on its school education programs through its website links. More information about CBMWD's school education programs is provided in its 2025 Plan, which is incorporated by reference.

9.1.3.5 PROGRAMS TO ASSESS AND MANAGE DISTRIBUTION SYSTEM REAL LOSS

The City's system is comprised mainly of single-family and multi-family dwellings. The City's estimated water system losses are discussed in Section 4.3. The City has water conservation literature that alerts customers to be on the lookout for water system leaks and to correct them promptly. The City is available to assist customers in answering questions regarding system leaks or higher than expected water usage and also offers free water audits for customers.

The City's annual water loss audits identify real water losses (e.g. leaks and main failures) and apparent water losses (e.g. customer meter inaccuracies, systematic data handling errors in customer billing systems, and unauthorized consumption). The City also implements an AMR system which supports conservation efforts through improved meter reading accuracy and allows the City to effectively monitor and manage water supplies.

9.1.3.6 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT

The City's water conservation program coordination and staffing support are provided by the CBMWD Conservation Coordinator. The CBMWD Conservation Coordinator investigates Federal, State, and local funding to develop new programs throughout CBMWD's service area, benefiting the City's service area through program implementation.

9.1.3.7 OTHER DEMAND MANAGEMENT MEASURES

The City implements additional DMM programs using both the City -only programs and programs in collaboration with regional partners.

MWD provides funding to its member agencies for locally administered conservation programs including rain barrel distribution, turf replacement programs, sustainable landscape irrigation programs, customer water use messaging, as well as residential water surveys. The City also provides information to its customers about various programs available from CBMWD and MWD.

The City participates in CBMWD's high-efficiency toilet, and high-efficiency clothes washer rebate programs and will continue to do so in the future. Residents in the City's service area can participate in CBMWD's Landscape Rotating Nozzles, Weather Based Irrigation Controller, and Soil Moisture Sensor System program that offers rebates through MWD's regional rebate program. In addition, CBMWD's Turf program offers rebates through MWD's program for replacement of the irrigated area with drought tolerant landscaping.

CBMWD also offers landscape classes to residences within its service area, including the City, to teach residents about water conservation and to reduce urban runoff. Additional information on CBMWD's water conservation programs is available in CBMWD's 2025 Plan, which is incorporated by reference.

The City plans to continue implementation of the programs described above to promote water conservation.

9.2 DEMAND MANAGEMENT MEASURES FOR WHOLESALE SUPPLIERS

CWC 10631.

(e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(2) For an urban wholesale water supplier, as defined in Section 10608.12, a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph (B) of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs.

The City is not a wholesale agency and is not required by DWR to complete Section 9.2.

CHAPTER 10

PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

LAY DESCRIPTION – CHAPTER 10

PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

Chapter 10 (Plan Adoption, Submittal, and Implementation) of the City's 2025 Plan discusses and provides the following:

- The steps the City has performed to adopt and submit its 2025 Plan are detailed.
- The steps the City has performed to adopt and submit its Water Shortage Contingency Plan are detailed.
- The City coordinated the preparation of its 2025 Plan with the Cities of La Palma, Norwalk, and Santa Fe Springs, and the County of Los Angeles, and other agencies. The City notified these agencies at least sixty (60) days prior to the public hearing of the preparation of the 2025 Plan and invited these agencies to participate in the development of the 2025 Plan.
- The City provided public hearing notices to the same agencies regarding the time, date, and place of the public hearing.
- The City published newspaper notifications of the public hearing, once a week for two successive weeks
- The City conducted public hearings to discuss and adopt the City's 2050 Plan and the City's Water Shortage Contingency Plan.
- Within 30 days of adoption, the City submitted the 2025 Plan and Water Shortage Contingency Plan to the California Department of Water Resources.
- Within 30 days of adoption, the City submitted all data tables associated with the 2025 Plan to the California Department of Water Resources.

- Within 30 days of adoption, the City submitted a copy of the 2025 Plan to the State of California Library.
- Within 30 days of adoption, the City submitted a copy of the 2025 Plan (and Water Shortage Contingency Plan) to the Los Angeles Registrar / Recorder's office and the City Clerk's Office.
- Within 30 days after submittal of the 2025 Plan to the California Department of Water Resources, the City made the 2025 Plan (including the Water Shortage Contingency Plan) available on the City's website and the City Clerk's office.
- The steps the City will perform to amend the 2025 Plan and/or the Water Shortage Contingency Plan, if necessary, are provided.

10.1 PLAN COMPLETION TIMELINE

The data provided in the City's 2025 Plan is provided on a CY basis through December 31, 2025 (as discussed in Section 2.5).

10.2 60 DAY NOTIFICATION

CWC 10621.

(b) Every urban water supplier required to prepare a plan shall … at least 60 days prior to the public hearing on the plan … notify any city or county within which the supplier provides waters supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

As discussed in Section 2.4.2, the City coordinated the preparation of the 2025 Plan with the Metropolitan Water District of Southern California, Central Basin Municipal Water District, Golden State Water Company, and the Water Replenishment District of Southern

California. The City notified these agencies, as well as the cities and county within which the City provides water supplies, at least sixty (60) days prior to the public hearing of the preparation of the 2025 Plan and invited them to participate in the development of the Plan. A copy of the notification letters sent to these agencies is provided in Appendix D.

10.3 NOTICE OF PUBLIC HEARING

CWC 10642.

…Prior to adopting either, the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon. Prior to any of these hearings, notice of the time and place of the hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of a hearing to any city or county within which the supplier provides water supplies.

Government Code 6066.

Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

The City provided notices of the public hearings to the Los Angeles County, Metropolitan Water District of Southern California, Central Basin Municipal Water District, Golden State Water Company, the Water Replenishment District of Southern California, and the Cities of La Palma, Santa Fe Springs, and Norwalk. The notices included the time and place of the public hearings. Copies of the public hearing notices are provided in Appendix D. Table 10-1 summarizes the agencies which were provided notifications by the City.

The City encouraged the active involvement of the population within its service area prior to and during the preparation of the Plan. Pursuant to Section 6066 of the Government

Code, the City published a notice of public hearing in the newspaper during the weeks of May 1, 2026 and May 8, 2026. A copy of the published notice is provided in Appendix D. To ensure the draft 2025 Plan and the draft Water Shortage Contingency Plan were available for review, the City made a copy available for review at the City Clerk's office and on its website.

10.4 PUBLIC HEARING AND ADOPTION

CWC 10642.

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of both the plan and the water shortage contingency plan. Prior to adopting either, the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon…. After the hearing or hearings, the plan or water shortage contingency plan shall be adopted as prepared or as modified after the hearing or hearings.

Government Code Section 7291

…every local public agency… serving a substantial number of non- English-Speaking people, shall employ a sufficient number of qualified bilingual persons in public contact positions or as interpreters to assist those in such positions, to ensure provision of information and services in the language of the non-English-speaking person.

Prior to adopting the draft 2025 Plan and the draft Water Shortage Contingency Plan, the City held a public hearing before City Council on May 28, 2026 which included input from the community regarding the City's draft 2025 Plan and the draft Water Shortage Contingency Plan.

Following the public hearing, the City adopted both the draft 2025 Plan and the draft Water Shortage Contingency Plan (included in Chapter 8). A copy of the resolution adopting the 2025 Plan and the Water Shortage Contingency Plan is provided in Appendix L.

10.5 PLAN SUBMITTAL

CWC 10621.

(e) .Each urban water supplier shall update and submit its 2025 plan to the department by July 1, 2026…

CWC 10635.

(c) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

CWC 10644.

(a) (1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption.

The City's submittal process for its 2025 Plan and the WSCP is discussed below.

10.5.1 SUBMITTING A UWMP AND WATER SHORTAGE CONTINGENCY PLAN TO DWR

The City Council adopted the draft 2025 Plan and within 30 days of adoption, the City submitted the adopted 2025 Plan (including the WSCP) to DWR. The 2025 Plan and WSCP were submitted through DWR's "Water Use Efficiency (WUE) Data Portal" website.

DWR developed a checklist which was used by the City to assist DWR with its determination that the City's 2025 Plan has addressed the requirements of the CWC. The City has completed the DWR checklist by indicating where the required CWC elements can be found within the City's 2025 Plan (See Appendix B).

10.5.2 ELECTRONIC DATA SUBMITTAL

CWC 10644.

(a)(2) The plan, or amendments to the plan, submitted to the department …shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

Within 30 days of adoption of the 2025 Plan, the City submitted all data tables associated with the 2025 Plan through DWR's "Water Use Efficiency Data Portal" website.

10.5.3 SUBMITTING A UWMP, INCLUDING A WSCP, TO THE CALIFORNIA STATE LIBRARY

Within 30 days of adoption of the 2025 Plan by the City Council, a copy (CD or hardcopy) of the 2025 Plan was submitted to the State of California Library. A copy of the letter to the State Library will be maintained in the City's file. The 2025 Plan will be mailed to the following address if sent by regular mail:

California State Library
Government Publications Section
Attention: Coordinator, Urban Water Management Plans
P.O. Box 942837
Sacramento, CA 94237-0001

The 2025 Plan will be mailed to the following address if sent by courier or overnight carrier:

California State Library
Government Publications Section
Attention: Coordinator, Urban Water Management Plans
900 N Street
Sacramento, CA 95814

10.5.4 SUBMITTING A UWMP TO CITIES AND COUNTIES

Within 30 days of adoption of the 2025 Plan (including the WSCP) by the City Council, a copy of the 2025 Plan was submitted to the County of Los Angeles Registrar / Recorder's office and the City Clerk's office. A copy of the letter to the Los Angeles Registrar / Recorder's office will be maintained in the City's file.

10.6 PUBLIC AVAILABILITY

CWC 10645.

(a) Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

(b) Not later than 30 days after filing a copy of its water shortage contingency plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

Within 30 days after submittal of the 2025 Plan to DWR, the City made the 2025 Plan (including the WSCP) available at the City Clerk's office during normal business hours and on the City's website.

10.7 NOTIFICATION TO PUBLIC UTILITIES COMMISSION

CWC 10621.

(c) An urban water supplier regulated by the Public Utilities Commission shall include its most recent plan and water shortage contingency plan as part of the supplier's general rate case filings.

The City is not regulated by the California Public Utilities Commission.

10.8 PLAN IMPLEMENTATION

CWC 10643.

An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

The City will implement any schedules set forth in the adopted 2025 Plan.

10.9 AMENDING AN ADOPTED UWMP OR WATER SHORTAGE CONTINGENCY PLAN

CWC 10621.

(d) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

CWC 10644.

(a)(1) Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

The City amendment process for its 2025 Plan is discussed below.

10.9.1 AMENDING A UWMP

If the City amends the adopted 2025 Plan, the City will conduct a similar notification and public hearing process for the amended 2025 Plan as discussed in Sections 10.2, 10.3, and 10.4. The amended Plan will undergo adoption by the City's governing board. Within 30 days of adoption, the amended Plan will then be submitted to DWR, the State of California Library, the Los Angeles Registrar / Recorder's office, and the City Clerk's office.

10.9.2 AMENDING A WATER SHORTAGE CONTINGENCY PLAN

CWC 10644.

(a) If an urban water supplier revises its water shortage contingency plan, the supplier shall submit to the department a copy of its water shortage contingency plan prepared…no later than 30 days after adoption, in accordance with protocols for submission and using electronic reporting tools developed by the department.

If the City amends the adopted 2025 Plan (including the WSCP), the amended Plan (and WSCP) will undergo adoption by the City Council. Within 30 days of adoption, the amended Plan (and WSCP) will then be submitted to DWR, the State of California Library, the Los Angeles Registrar / Recorder's office, and the City Clerk's office.

10.10 CALIFORNIA DEPARTMENT OF WATER RESOURCES REVIEW OF SUBMITTED PLANS

As discussed in Section 1.5, DWR will review the 2025 Plans to ensure that they address the California Water Code requirements. Following DWR's review, water suppliers will be notified of the results of the review via a formal review letter. These review letters will also be available to the public on DWR's WUEdata portal. In cases where DWR finds that a Plan does not properly address item(s) in the Water Code, DWR will reach out to the water supplier to discuss needed corrections and correction procedures.

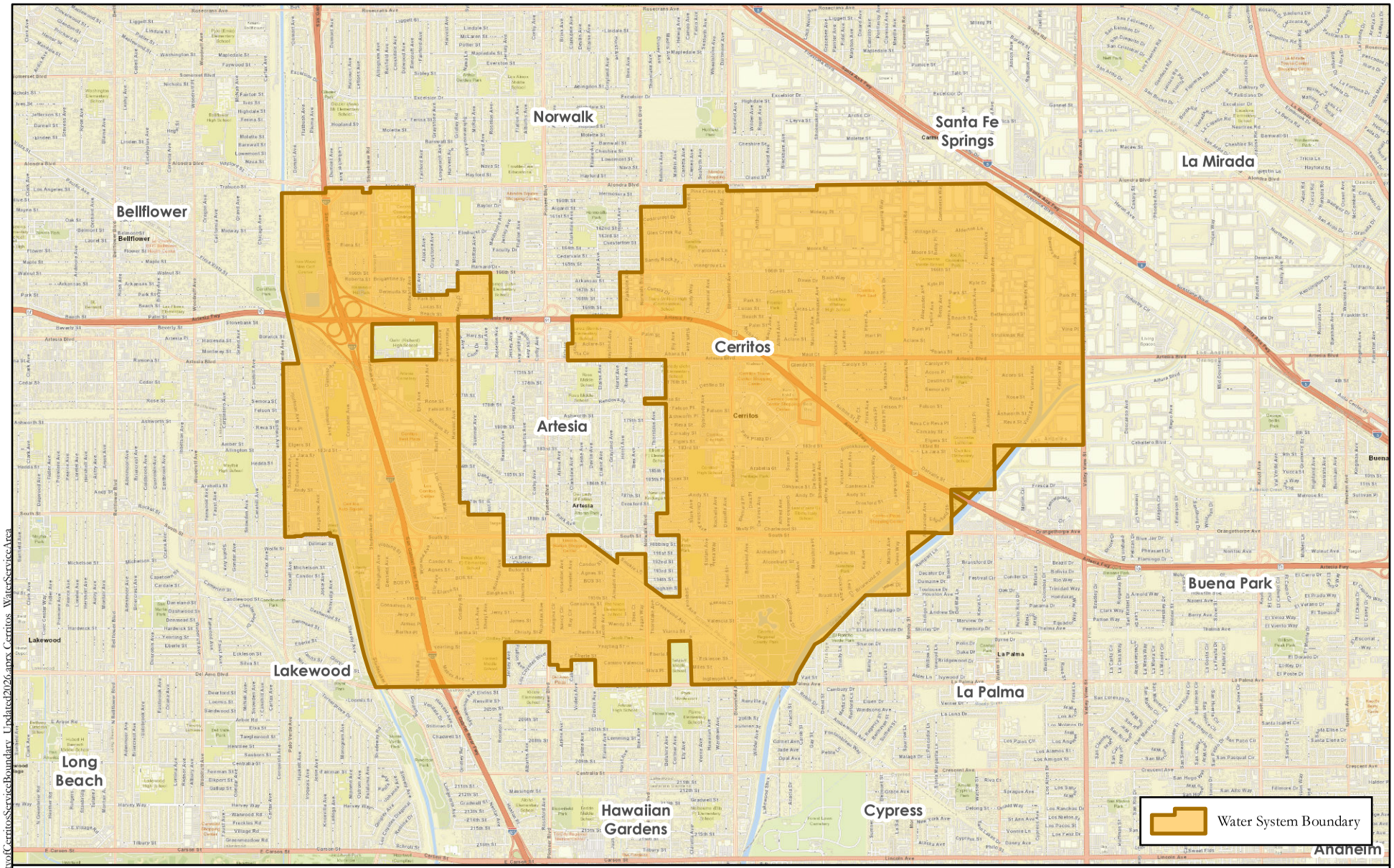
10.11 SUBMITTAL TABLES

The applicable standardized Submittal Tables referenced within Chapter 10 are provided below.

10.11.1 SUBMITTAL TABLE 10-1: NOTIFICATION TO CITIES AND COUNTIES

Table 10-1 Notification to Cities and Counties

Submittal Table 10-1 Retail: Notification to Cities and Counties Water Code Section 10621(b) and 10642		
City Name	60 Day Notice **Drop Down (yes/no)**	Notice of Public Hearing **Drop Down (yes/no)**
Add additional rows as needed		
La Palma	Yes	Yes
Norwalk	Yes	Yes
Santa Fe Springs	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
NOTES:		



STETSON ENGINEERS INC.

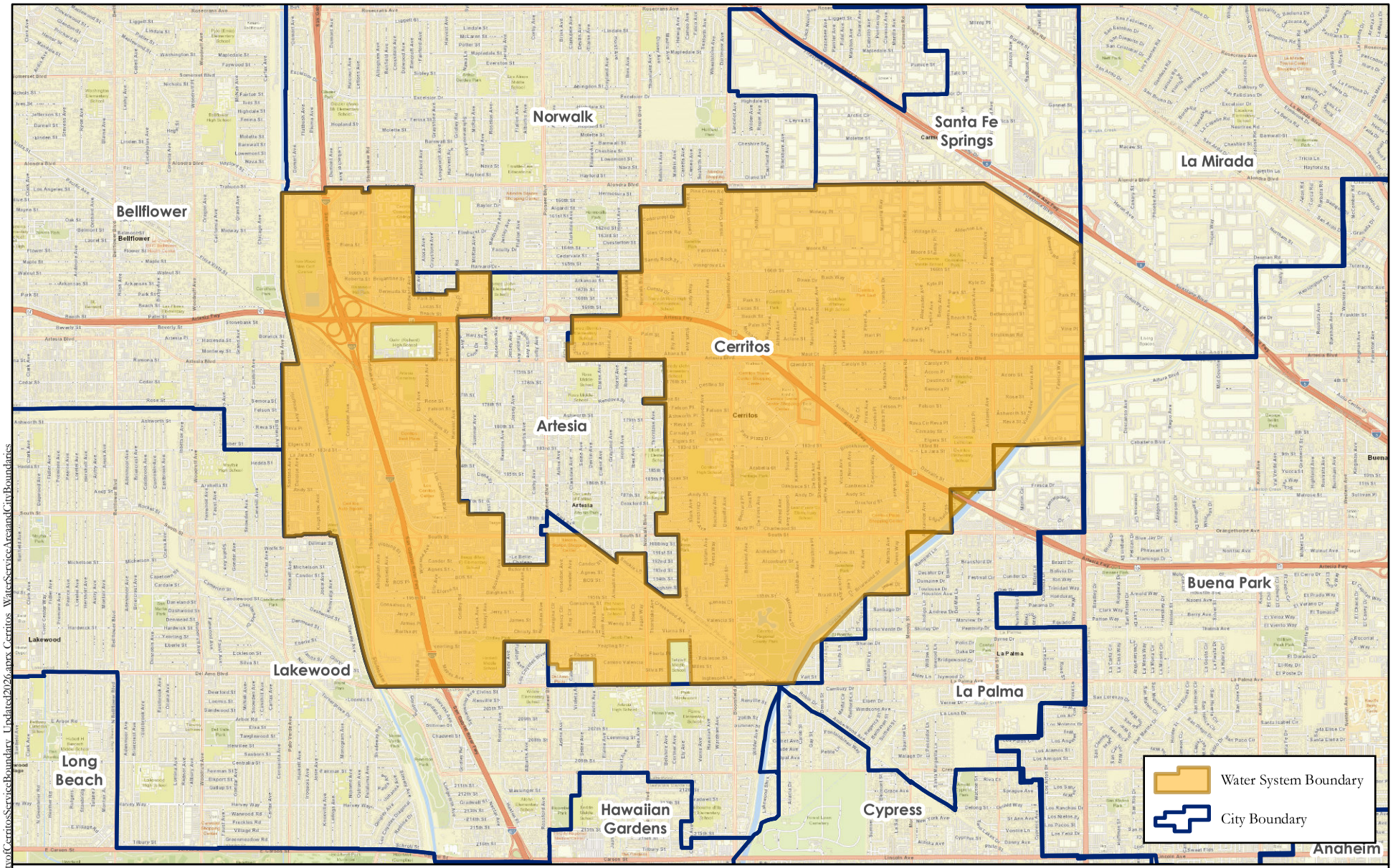
CITY OF CERRITOS
WATER SERVICE AREA

0 0.25 0.5 Miles

N

FIGURE 1

Document Path: F:\in2948\City\Cerritos\ServiceBoundary_Updated2026\aprx\Cerritos_WaterServiceArea



STETSON ENGINEERS INC.

CITY OF CERRITOS
WATER SERVICE AREA AND CITY BOUNDARIES

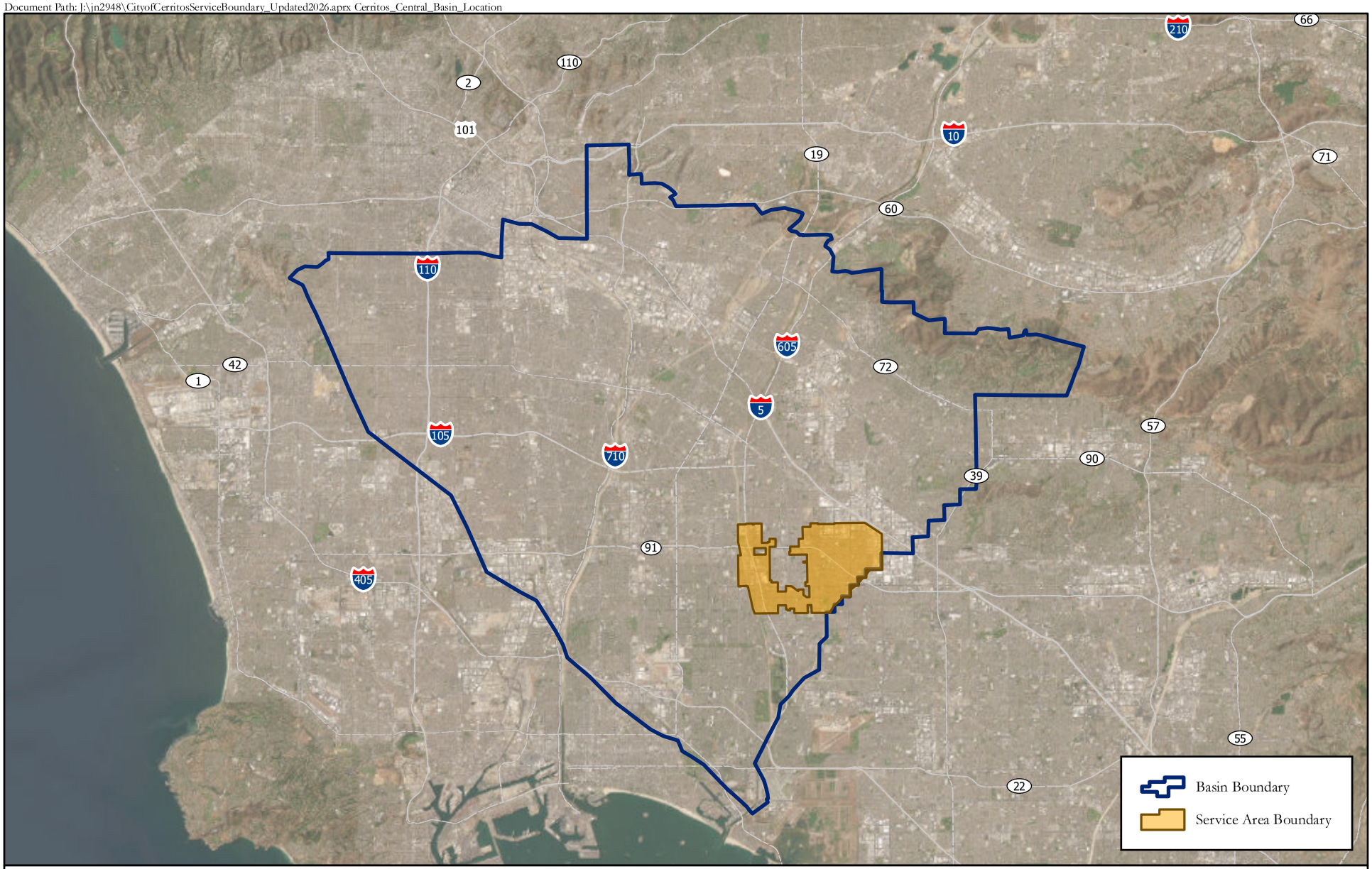
0 0.25 0.5 Miles

N

FIGURE 2

Document Path: J:\in2948\City\Cerritos\ServiceBoundary_Updated2026\aprx\Cerritos_WaterServiceAreaandCityBoundaries

Document Path: J:\jn2948\CityofCerritosServiceBoundary_Updated2026.aprx Cerritos_Central_Basin_Location



STETSON ENGINEERS INC.

CITY OF CERRITOS
CENTRAL BASIN LOCATION

0 2 4 Miles

N

FIGURE 3

CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX A

DWR STANDARDIZED SUBMITTAL TABLES

Submittal Table 2-1 Retail: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2025	Volume of Water Supplied 2025 (AF)
Add additional rows as needed			
CA1910019	City of Cerritos	15,342	9,584
	Total	15,342	9,584

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

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

Submittal Table 2-4 Retail: Water Supplier Information Exchange Water Code Section 10631(h)
The retail Supplier has informed the following wholesale supplier(s) of projected water use.
Wholesale Water Supplier Name
Add additional rows as needed
Central Basin Municipal Water District
NOTES:
10631(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available.

Submittal Table 3-1 Retail: Population - Current and Projected Water Code Section 10631(a)						
Population Served	2025	2030	2035	2040	2045	2050(opt)
	46,976	52,624	52,624	52,721	52,818	52,915
NOTES:						

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

Use Type	Additional Description (as needed)	2025 Actual Water Use	
Drop down list May select each use multiple times These are the only use types that will be recognized by the WUEdata online submittal tool		**Potable or Non-Potable** (OPTIONAL) Drop down list	Volume (AF)
Add additional rows as needed			
Single Family		Potable	4,003
Multi-Family		Potable	390
Commercial		Potable	1,380
Landscape		Potable	497
Landscape	Recycled Water	Non-Potable	1,983
Sales/Transfers/Exchanges to other Suppliers	City of Norwalk and Golden State Water Company	Potable	722
Distribution System Water Loss		Potable	609
		Subtotal Potable	7601
		Subtotal Non-Potable	1983
		Total	9,584

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 4-2 Retail: Total Uses for Potable, and Non-Potable Water — Projected
Water Code Section 10631(d)(1)

Use Type	Additional Description (as needed)	Projected Water Use (Report To the Extent that Records are Available)					
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		**Potable or Non-Potable** (OPTIONAL) Drop down list	**2030 (AF)**	**2035 (AF)**	**2040 (AF)**	**2045 (AF)**	**2050 opt (AF)**
Add additional rows as needed.							
Single Family		Potable	4,413	4,413	4,421	4,429	4,437
Multi-Family		Potable	430	430	431	432	433
Commercial		Potable	1,522	1,522	1,525	1,527	1,530
Landscape		Potable	549	549	550	551	552
Landscape	Recycled Water	Non-Potable	2,500	2,500	2,500	2,500	2,500
Sales/Transfers/Exchanges to other Suppliers	City of Norwalk and Golden State Water Company	Potable	477	477	477	477	477
Distribution System Water Loss		Potable	671	671	672	674	675
		Subtotal Potable	8,062	8,062	8,076	8,090	8,104
		Subtotal Non-Potable	2,500	2,500	2,500	2,500	2,500
		Total	10,562	10,562	10,576	10,590	10,604

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 4-3 Retail: Inclusion in Water Use Projections Water Code Section 10631 (a), 10631 (d)(4)(A), and 10631 (d)(4)(B)	
Are Future Water Savings Included in Projections? **Drop down list (y/n)**	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. ***Optional*** Suppliers may complete Optional Submittal Table 4-4 R to quantify the expected savings.	Section 4.2.5 and Chapter 8
Are Lower Income Residential Demands Included In Projections? **Drop down list (y/n)**	Yes
Optional If the method for accounting Lower Income Residential Demands has been included, provide page number where this accounting can be found.	
DWR NOTES: Additional guidance is provided in Appendix K.	
NOTES:	

Submittal Table 4-5 Retail: Water Loss Audit Reporting Water Code Section 10631(d)(3)(A)		
Public Water System ID # Reported in Table 2-1 R	Reporting Period	Submitted to DWR Water Loss Audit Program (yes/no)
Report submittal status for all five years for each Public Water System as available. Add rows as needed		
CA1910019	**2020**	Yes
	2021	Yes
	2022	Yes
	2023	Yes
	2024	Yes
DWR NOTES: Suppliers will provide a link to the WUEdata submittals of their Water Loss Audit Reports.		
NOTES:		

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

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					Apparent Water Loss				
		State Water Board Standard		Most Recent AWWA Water Loss Audit			State Water Board Standard		Most Recent AWWA Water Loss Audit		
		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)	Real 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)	Apparent Water Loss Per Unit per Day
Add additional rows as needed.											
CA1910019	Yes	14.8	Gallons per Service Connection per Day (GPSCD)	15664	701.845	40.0	13.7	Gallons per Service Connection per Day (GPSCD)	15664	155.664	8.9
								Gallons per Service Connection per Day (GPSCD)			
								Gallons per Service Connection per Day (GPSCD)			

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						
☐	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	142	129	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.

NOTES:

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

☐	Check the box if the Supplier does not pump groundwater. Proceed to the next table.
☐	Check the box if all or part of the groundwater described below is desalinated. (OPTIONAL)

Groundwater Type **Drop Down List** May use each category multiple times	Potable or Non-Potable (OPTIONAL) **Drop down list**	Location or Basin Name	2021 (AF)	2022 (AF)	2023 (AF)	2024 (AF)	2025 (AF)
Add additional rows as needed							
Alluvial Basin	Potable	Central Basin	7818	7447	7032	7126	7538
		Total	7,818	7,447	7,032	7,126	7,538

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
Water Code Section 10633(a)

☐	Check the box if there is no wastewater collection system. Proceed to the next table.
	Percentage of 2025 service area served by wastewater collection system (OPTIONAL)
	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				
LACSD	Estimated	3,630	Long Beach WRP, Place ID 238562	No
Total Wastewater Received from UWMP Service Area in 2025:		3,630		

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:

Submittal Table 6-3 Retail: Wastewater Treatment and Outcomes Within UWMP Service Area
Water Code Section 10633(b)

☑	**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 **Drop down list**	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area? (OPTIONAL) **Drop down list**	2025 Volume of Wastewater Received from UWMP Service Area (As Reported in Submittal Table 6-2 R) (AF)	Total 2025 Volume of Water Treated (AF)	**2025 Outcomes of Treated Wastewater**										
				Water Recycled Within UWMP Service Area (enter data as applicable)		**Water Recycled Outside of UWMP Service Area** (enter data as applicable)		**Effluent Discharge that is not a Permitted Recycled Water Use** (enter data as applicable)		**Required Discharge for Instream Flow** (enter data as applicable)		**Delivered to Another Entity for Additional Treatment** (enter data as applicable)		
				Treatment Level **Drop down list**	Volume (AF)	Treatment Level **Drop down list**	Volume (AF)	Treatment Level **Drop down list**	Volume (AF)	Treatment Level **Drop down list**	Volume (AF)	Treatment Level **Drop down list**	Volume (AF)	Name of other entity
Add additional rows as needed														
Total		0	-		0		0		0		0		0	

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

NOTES:

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

☐	Check box if recycled water is not used and is not planned for use within the service area of the supplier. The supplier will only complete the column on "Potential Recycled Water Use" and submit an accompanying narrative on the feasibility of that potential recycled water use.

Name(s) of Facility/ies Producing (Treating) the Recycled Water (OPTIONAL) :	
Name of Supplier Operating the Recycled Water Distribution System (OPTIONAL) :	
Volume of Supplemental Water Added in 2025 (OPTIONAL) :	
Source of 2025 Supplemental Water (OPTIONAL) :	

Use Type **Drop down list**	**Potable or Non-Potable** (after treatment if treated) (OPTIONAL) Drop down list	Additional Information (as needed)	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)	**Potential Recycled Water Use**	
									Volume	Narrative page number (OPTIONAL)
Add additional rows as needed										
Landscape irrigation (exc golf courses)	Non-Potable	Schools, Parks, City Landscape	1739	2193	2193	2193	2193	2193		
Commercial use	Non-Potable		244	307	307	307	307	307		
		Subtotal Potable	0	0	0	0	0	0	0	
		Subtotal Non-Potable	1,983	2,500	2,500	2,500	2,500	2,500	0	
		Total	1983	2500	2500	2500	2500	2500	0	0

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.
Additional Guidance: See Appendix M, Section M.21 for detailed guidance on this table.
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 (AF)	2025 Actual Use (AF)
Add additional rows as needed		
Landscape irrigation (exc golf courses)	1,894	1739
Commercial use	265	244
Total	2,159	1,983

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.
Section 6.2.5.5	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			
Provide Recycled Water Incentives	Provide financial incentives to encourage recycled water use	Ongoing	350
		Total (AF)	350
		Unit Conversion to AF	350

DWR NOTES:
Units of measure (AF, CCF, MG) MUST remain consistent with units reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.
The unit conversion to Acre Feet addresses the Water Code's requirement that this value be provided in acre-feet.

NOTES:

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. Proceed to the next table.
☑	Check the box if some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.
Section 6.2.10	Provide page location of narrative in the UWMP

Name of Future Projects or Programs	Joint Project with other suppliers?		Additional Description (as needed)	**Potable or Non-Potable** (after treatment if treated) (OPTIONAL) Drop Down list	Planned Implementation Year	Planned for Use in Year Type **Drop Down List**	Expected Increase in Water Supply to Supplier (This may be a range) (AF)
	Drop Down List (yes/no)	If Yes, Supplier Name					
Add additional rows as needed							
New groundwater well	No		Well C-5	Potable	2029	All Year Types	3,500

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 — 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)	**Potable or Non-Potable** (after treatment if treated) (OPTIONAL) Drop Down list	Actual Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)
Add additional rows as needed				
Groundwater (not desalinated)	Central Basin	Potable	7,539	
Purchased or Imported Water	Central Basin Municipal Water Disctict	Potable	62	
Recycled Water		Non-Potable	1,983	
		Subtotal Potable	7,601	0
		Subtotal Non-Potable	1,983	0
		Total	9,584	0

DWR NOTES:

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

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

NOTES:

Submittal Table 6-9 Retail: Water Supplies — Projected
Water Code Section 10631 (b)

Water Supply			Projected Water Supply (Report to the Extent Practicable)									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool	Additional Detail on Water Supply	**Potable or Non-Potable** (after treatment if treated) (OPTIONAL) Drop Down list	**2030**		**2035**		**2040**		**2045**		**2050 (opt)**	
			Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)	Reasonably Available Volume (AF)	Total Entitlement (OPTIONAL) See 'DWR Notes' below (AF)
Add additional rows as needed												
Groundwater (not desalinated)	Central Basin	Potable	8,024		8,024		8,038		8,052		8,066	
Purchased or Imported Water	Central Basin Municipal Water Disctict	Potable	38		38		38		38		38	
Recycled Water		Non-Potable	2,500		2,500		2,500		2,500		2,500	
Subtotal Potable			8,062	0	8,062	0	8,076	0	8,090	0	8,104	0
Subtotal Non-Potable			2,500	0	2,500	0	2,500	0	2,500	0	2,500	0
Total			10,562	0	10,562	0	10,576	0	10,590	0	10,604	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:

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

Water Delivery Product drop down list (If delivering more than one type of product recommend using Table O-1C)	Retail Potable Deliveries	**Only for Water Delivery Products Under the Urban Water Supplier's Operational Control**		
Start Date of Reporting Period	1/1/2025	**Sum of All Water Management Processes**	**Non-Consequential Hydropower**	
End Date of Reporting Period	12/31/2025			
Is upstream embedded energy in the values reported?	No			
Units of Measure for Water	AF	**Total Utility** See DWR NOTES	**Hydropower**	**Net Utility**
Volume of Water Entering Process		7,600		7,600
Energy Consumed (kWh)		12,954,838		12,954,838
Energy Intensity (kWh/vol. converted to MG)		5,231	-	5,231

DWR NOTES:

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

Quantity of Self-Generated Renewable Energy

350000 kWh

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

Combination of Estimates and Metered Data

Data Quality Narrative:

The total energy consumed was identified based on Southern California Edison (SCE) billing records. Although the total energy consumed includes electricity usage for general administration (which is not an identified water management process), general administration energy use is considered to be negligible compared to overall water system use and has not been netted out.

Narrative:

The total energy consumption includes energy associated with operating groundwater production wells and booster pumps to deliver water in the distribution system. Energy consumption is associated with operating groundwater water treatment. Energy consumption is also associated with plant lighting and air conditioning, and operating the Supervisory Control and Data Acquisition (SCADA) system and chlorination injection pumps.

NOTES:

Optional Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)

Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2024-2025, use 2025	Available Supplies if Year Type Repeats	
		☐	Check the box if quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. **Location:** [insert location from UWMP]
		Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available (AF)	**% of Average Supply**
Average Year	2018	10895	100%
Single-Dry Year	2017	10374	95.2%
Consecutive Dry Years 1st Year	2011	11232	103.1%
Consecutive Dry Years 2nd Year	2012	11701	107.4%
Consecutive Dry Years 3rd Year	2013	11910	109.3%
Consecutive Dry Years 4th Year	2014	11817	108.5%
Consecutive Dry Years 5th Year	2015	9946	91.3%

DWR NOTES: Supplier may use multiple versions of Submittal Table 7-1 R if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Submittal Table 7-1 R, in the "Note" section of each submittal table, state that multiple versions of Submittal Table 7-1 R are being used and identify the particular water source that is being reported in each submittal table. **Units of measure (AF, CCF, MG**) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table reports the units of measure reported in Submittal Table 2-3.

NOTES:

Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison Water Code Section 10635 (a)					
	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)
Supply totals (autofill from Submittal Table 6-9 R)	10,562	10,562	10,576	10,590	10,604
Use totals (autofill from Submittal Table 4-2 R)	10,562	10,562	10,576	10,590	10,604
Surplus/(shortfall)	0	0	0	0	0
OPTIONAL Planned WSCP Actions					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					
DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.					
NOTES:					

Submittal Table 7-3 Retail: Single Dry Year Supply and Use Comparison Water Code Section 10635(a)					
	2030 (AF)	**2035 (AF)**	**2040 (AF)**	**2045 (AF)**	**2050 (AF)**
Supply totals	10,057	10,057	10,070	10,084	10,097
Use totals	10,057	10,057	10,070	10,084	10,097
Surplus/(shortfall)	0	0	0	0	0
OPTIONAL Planned WSCP Actions					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					
DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.					
NOTES					

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

		2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)
First year	Supply totals	10,889	10,889	10,903	10,918	10,932
	Use totals	10,889	10,889	10,903	10,918	10,932
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Second year	Supply totals	11,343	11,343	11,358	11,373	11,388
	Use totals	11,343	11,343	11,358	11,373	11,388
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Third year	Supply totals	11,546	11,546	11,562	11,577	11,592
	Use totals	11,546	11,546	11,562	11,577	11,592
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fourth year	Supply totals	11,456	11,456	11,471	11,486	11,502
	Use totals	11,456	11,456	11,471	11,486	11,502
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fifth year	Supply totals	9,643	9,643	9,655	9,668	9,681
	Use totals	9,643	9,643	9,655	9,668	9,681
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					

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

NOTES:

Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment Water Code Section 10635(b)(3)	
2026	**Total**
Total Water Use (AF)	10,082
Total Supplies (AF)	11,232
Surplus/Shortfall w/o WSCP Action	1,150
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2027	**Total**
Total Water Use (AF)	10,713
Total Supplies (AF)	11,701
Surplus/Shortfall w/o WSCP Action	988
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2028	**Total**
Total Water Use (AF)	11,119
Total Supplies (AF)	11,910
Surplus/Shortfall w/o WSCP Action	792
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2029	**Total**
Total Water Use (AF)	11,244
Total Supplies (AF)	11,817
Surplus/Shortfall w/o WSCP Action	573
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
2030	**Total**
Total Water Use (AF)	9,643
Total Supplies (AF)	9,946
Surplus/Shortfall w/o WSCP Action	304
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit (AF)	
WSCP - use reduction savings benefit (AF)	
Revised Surplus/(shortfall)	
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.	
NOTES:	

Submittal Table 8-1: Cross-reference for Standard vs Supplier Shortage Levels Water Code Section 10632(a)(3)(B)			
☐	Check the box if the Supplier uses the Standard six levels of water shortage. Proceed to the next table.		
Standard Shortage Levels	**Percent Shortage Range**	**Suppliers Shortage Levels**	**Percent Shortage Range**
1	Up to 10%	1	Up to 20%
2	Up to 20%	1	Up to 20%
3	Up to 30%	2	Up to 50%
4	Up to 40%	2	Up to 50%
5	Up to 50%	2	Up to 50%
6	>50%	2	>50%
NOTES:			

Submittal Table 8-2 Retail: Supply Augmentation and Other Actions
Water Code Section 10632(a)(4)(A),(C) and (E)

	Is the Supplier completing this table using the standard six levels? (yes/no)			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier **Drop down list** These are the only categories that will be accepted by the WUEdata online submittal tool	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)	
Add additional rows as needed				
1	Transfers	Volume	0	Not applicable (see Notes)
2	Transfers	Volume	0	Not applicable (see Notes)
3	Transfers	Volume	0	Not applicable (see Notes)
4	Transfers	Volume	0	Not applicable (see Notes)
5	Transfers	Volume	0	Not applicable (see Notes)
6	Transfers	Volume	0	Not applicable (see Notes)

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

NOTES: The City will consider increased production from the Central Basin using existing facilities to address increased demands. As noted on Table 8-3, the City plans to implement demand reduction measures in the event water supplies from existing sources are not sufficient to meet anticipated demands.

Submittal Table 8-3 Retail: Demand Reduction Actions
Water Code Section 10632(a)(4)(B),(D), and (E)

	Is the Supplier completing this table using the standard six levels? (yes/no)

Shortage Level	Demand Reduction Actions **Drop down list** These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)	Penalty, Charge, or Other Enforcement? **For Retail Suppliers Only** Drop Down List
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)		
Add additional rows as needed					
1	Other - Prohibit use of potable water for washing hard surfaces	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	CII - Restaurants may only serve water upon request	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Landscape - Limit landscape irrigation to specific times	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Other	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
1	Other	Volume	Collective reduction from all Shortage Level 1 actions is up to 697 AFY		Yes
2	Other	Volume	Collective reduction from Shortage Level 1 plus all Shortage Level 2 actions is up to 1,393 AFY		Yes
3	Other	Volume	Collective reduction from Shortage Level 2 plus all Shortage Level 3 actions is up to 2,090 AFY		Yes
3	Implement or Modify Drought Rate Structure or Surcharge	Volume	Collective reduction from Shortage Level 2 plus all Shortage Level 3 actions is up to 2,090 AFY		Yes
4	Other	Volume	Collective reduction from Shortage Level 3 plus all Shortage Level 4 actions is up to 2,786 AFY		Yes
5	Other	Volume	Collective reduction from Shortage Level 4 plus all Shortage Level 5 actions is up to 3,483 AFY		Yes
6	Other	Volume	Collective reduction from Shortage Level 5 plus all Shortage Level 6 actions is greater than 3,483 AFY		Yes

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

NOTES:

Submittal Table 10-1 Retail: Notification to Cities and Counties Water Code Section 10621(b) and 10642		
City Name	60 Day Notice **Drop Down (yes/no)**	Notice of Public Hearing **Drop Down (yes/no)**
Add additional rows as needed		
La Palma	Yes	Yes
Norwalk	Yes	Yes
Santa Fe Springs	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
NOTES:		

CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX B

COMPLETED PLAN CHECKLIST

Retail (x = required)	Wholesale (x = required)	Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
x	x	1	Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and overview	n/a	Chapter 1 Lay Description
x	x	1	Chapter 1	10630.5	Each plan shall include a simple description of the Supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a Supplier may also choose to include a simple description at the beginning of each chapter.	Plan preparation	n/a	Beginning of each Chapter
x	x	2.1	Section 2.1	10620(b)	Every person that becomes a Supplier shall adopt UWMP within one year after it has become a Supplier.	Plan preparation	n/a	Section 2.1
x	n/a	2.5	Section 2.5	10644	Supplier shall report the Public Water Systems number, volume of delivered water, and number of connections that are included in this UWMP.	Plan preparation	2-1	Sections 2.1 and 2.5
x	x	2.5	Section 2.5	10644	Supplier shall report if this UWMP is an individual UWMP and whether the Supplier belongs to a regional UWMP or regional alliance.	Plan preparation	2-2	Sections 2.2 and 2.5
x	x	2.5	Section 2.5	10644	Supplier shall report whether the data is in fiscal or calendar years and the units of measure used for reporting water volumes.	Plan preparation	2-3	Sections 2.3 and 2.5
x	x	2.4	Section 2.4	10642	Provide supporting documentation that the Supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan preparation	n/a	Section 2.4
x	x	2.4	Section 2.4.2	10620(d)(3)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other Suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan preparation	n/a	Section 2.4.2
x	n/a	2.4	Section 2.4.1	10631(h)	Retail Suppliers will include documentation that they have provided their Wholesale Supplier(s)—if any—with water use projections from that source.	Plan preparation	2-4 R	Sections 2.4.1 and 2.5
n/a	x	2.4	Section 2.4.1	10631(h)	Wholesale Suppliers will provide their Suppliers with identification and quantification of the existing and planned sources of water available from the Wholesale Supplier to the Supplier during various water year types.	Plan preparation	2-4 W	n/a
x	x	3	Chapter 3.0	10631(a)	Describe the Supplier service area.	System description	n/a	Section 3.1 and 3.2
x	x	3.3	Section 3.3	10631(a)	Describe the climate of the Supplier's service area.	System description	n/a	Section 3.3
x	x	3.4	Section 3.4.1	10631(a)	Provide the current and projected service area populations for 2030, 2035, 2040, 2045 and optionally 2050.	System description	3-1	Sections 3.4 and 3.6
x	x	3.4	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the Supplier's water management planning.	System description	n/a	Section 3.4.2
x	x	3.5	Section 3.5	10631(a)	Describe the land uses within the service area… include the current and projected land uses within the existing or anticipated service area affecting the Supplier's water management planning. Describe the land uses within the service area.	System description and baselines	n/a	Section 3.5
x	Optional	4.2	Sections 4.2.3 and 4.2.4	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System water use	4-1 and 4-2	Sections 4.2 and 4.4
x	Optional	4.3	Section 4.3.1	10631(d)(3)(A)	Report the distribution system water loss for each of the five years preceding the plan update.	System water use	4-5	Sections 4.3 and 4.4
x	n/a	4.3	Section 4.3.2	10631(d)(3)(C)	Retail Suppliers shall provide data to show the distribution loss standards were met.	System water use	4-6	Sections 4.3 and 4.4
x	n/a	4.2	Section 4.2.5.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the Supplier.	System water use	4-3	Sections 4.2.5.5 and 4.4
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System water use	4-3	Section 4.2.5.3
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System water use	4-3	Sections 4.2.5.3 and 9.1
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(B)(ii)	To the extent that a Supplier reports the information described in subparagraph (A), an urban water Supplier shall… Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.	System water use	4-3	Section 4.2.5.3 and 4.2.5.4
x	x	4.2	Section 4.2.5.6	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System water use	n/a	Section 4.2.5.6
n/a	x	5.1	Section 5.1	10608.36	Wholesale Suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their Retail Suppliers achieve targeted water use reductions.	Baselines and targets	n/a	n/a
x	n/a	5.2	Section 5.2	10608.4	Retail Suppliers shall report on their compliance in meeting their water use targets. Reporting requirements will vary depending on whether the Supplier: - Was considered an urban retail water supplier in 2020, - Met its 2020 target in 2020, or - Was part of a merger or consolidation since 2020. Chapter 5 Subsections 5.2.1, 5.2.2, and 5.2.3 address each of these situations.	Baselines and targets	5-1	Sections 5.2 and 5.3
x	x	6.1	Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System supplies	n/a	Sections 6.1 and 6.2
x	x	6.1	Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, including changes in supply due to climate change.	System supplies	n/a	Sections 6.1, 6.2, 7.1, and 7.2
x	x	6.2	Section 6.2.2	10631(b)(4)(C)	Indicate whether groundwater is an existing or planned source of water available to the Supplier. If groundwater is identified as an existing or planned source of water… (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	Water supplies and recycled water	6-1	Sections 6.2.2 and 6.4
x	x	6.2	Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the Supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System supplies	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System supplies	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the Supplier has the legal right to pump.	System supplies	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	For unadjudicated basins… (include) information as to whether DWR has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin…	Water supplies and recycled water	n/a	Section 6.2.2

x	x	6.2	Section 6.2.2	10631(b)(4)(B)	For unadjudicated basins… describe efforts by the Supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	Water supplies and recycled water	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2.	10631(b)(4)(C)	If groundwater is identified as an existing or planned source of water… (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	System supplies	n/a	Sections 6.2.2 and 6.4
x	x	6.2	Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System supplies	6-9	Sections 6.2.2 and 6.4
x	x	6.1	Section 6.1	10631(b)	Identify and quantify the existing and planned sources of water available for 2025, 2030, 2035, 2040, 2045 and optionally 2050.	System supplies	6-8 and 6-9	Section 6.4
x	x	6.2	Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System supplies	n/a	Section 6.2.7
x	n/a	6.2	Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the Supplier's service area with quantified amount of collection and treatment and the disposal methods.	System supplies (recycled water)	6-2	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System supplies (recycled water)	6-3	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the Supplier's service area.	System supplies (recycled water)	6-4	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System supplies (recycled water)	6-4	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.5	10633(e)	Describe the projected use of recycled water within the Supplier's service area at the end of 5, 10, 15, and 20 years, and describe the actual use of recycled water in comparison to uses previously projected.	System supplies (recycled water)	6-4 and 6-5	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.5	10633(f)	Describe the actions that may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System supplies (recycled water)	6-6	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the Supplier's service area.	System supplies (recycled water)	n/a	Sections 6.2.5 and 6.4
x	x	6.2	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System supplies	6-7	Section 6.2.6
x	x	6.2	Section 6.2.10	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water Supplier to address water supply reliability in average, single-dry, and for a period of drought lasting five consecutive water years.	System supplies	6-7	Sections 6.2.10 and 6.4
x	x	6.3	Section 6.3 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a Supplier can readily obtain.	System suppliers, energy intensity	O-1A, O-1B, O-1C, and O-2	Section 6.3
x		7.1	Section 7.1	10634	Provide information on the quality of existing sources of water available to the Supplier and the manner in which water quality affects water management strategies and supply reliability.	Water supply reliability assessment	n/a	Section 7.1
x	x	7.2	Section 7.2	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the Supplier with the total projected water use over the next 20 years.	Water supply reliability assessment	7-2, 7-3, and 7-4	Sections 7.2
x	x	7.2	Section 7.2.3	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water supply reliability assessment	n/a	Section 7.2.3
x	x	7.3	Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water supply reliability assessment	n/a	Section 7.3
x	x	7.3	Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive years.	Water supply reliability assessment	n/a	Section 7.3
x	x	7.3	Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water supply reliability assessment	n/a	Section 7.3
x	x	7.3	Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the Supplier with the total projected water use for the drought period.	Water supply reliability assessment	7-5	Section 7.3
x	x	7.3	Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water supply reliability assessment	n/a	Section 7.3
x	x	8	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water shortage contingency planning	n/a	Chapter 8
x	x	8	Chapter 8	10632(a)(1)	Provide an analysis of water supply reliability (from Guidebook Chapter 7) in the WSCP.	Water shortage contingency planning	n/a	Chapter 8
x	x	8.2	Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the Supplier will use each year to determine its water reliability.	Water shortage contingency planning	n/a	Section 8.2
x	x	8.2	Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the Supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water shortage contingency planning	n/a	Section 8.2
x	x	8.3	Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10%, 20%, 30%, 40%, 50% shortage, and greater than 50% shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water shortage contingency planning	n/a	Section 8.3
x	x	8.3	Section 8.3	10632(a)(3)(B)	Suppliers with an existing WSCP that uses different water shortage levels must cross reference their categories with the six standard categories.	Water shortage contingency planning	8-1	Sections 8.3 and 8.14
x	x	8.4	Section 8.4	10632(a)(4)(A)	Suppliers with WSCPs that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water shortage contingency planning	8-2	Sections 8.4.1 and 8.14
x	x	8.4	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water shortage contingency planning	8-3	Sections 8.4.2 and 8.14
x	x	8.4	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water shortage contingency planning	8-2	Section 8.4.3
x	x	8.4	Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to State-mandated prohibitions are appropriate to local conditions.	Water shortage contingency planning	Table 8-3	Section 8.4.4
x	x	8.4	Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water shortage contingency planning	8-2 and 8-3	Sections 8.4.7 and 8.14
x	x	8.4	Section 8.4.6	10632.5	The UWMP shall include a seismic risk assessment and mitigation plan.	Water shortage contingency plan	n/a	Section 8.4.6
x	x	8.5	Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water shortage contingency planning	n/a	Section 8.5

x	x	8.5	Section 8.5	10632(a)(5)(B), 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water shortage contingency planning	n/a	Section 8.5
x	n/a	8.6	Section 8.6	10632(a)(6)	Retail Supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water shortage contingency planning	n/a	Section 8.6
x	x	8.7	Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the Supplier to enforce shortage response actions.	Water shortage contingency planning	n/a	Section 8.7
x	x	8.7	Section 8.7	10632(a)(7)(B)	Provide a statement that the Supplier will declare a water shortage emergency per Water Code Chapter 3, *Water Shortage Emergencies* .	Water shortage contingency planning	n/a	Section 8.7
x	x	8.7	Section 8.7	10632(a)(7)(C)	Provide a statement that the Supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water shortage contingency planning	n/a	Section 8.7
x	x	8.8	Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	Section 8.8
x	x	8.8	Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	Section 8.8
x	n/a	8.8	Section 8.8	10632(a)(8)(C)	Retail Suppliers must describe the cost of compliance with Water Code Chapter 3.3, *Excessive Residential Water Use During Drought* .	Water shortage contingency planning	n/a	Section 8.8
x	n/a	8.9	Section 8.9	10632(a)(9)	Retail Suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data are collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water shortage contingency planning	n/a	Section 8.9
x	x	8.10	Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the WSCP to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water shortage contingency planning	n/a	Section 8.10
x	n/a	8.11	Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water shortage contingency planning	n/a	Section 8.11
x	x	8.12	Section 8.12	10632(c)	Make available the WSCP to customers and any city or county where it provides water within 30 days after adoption of the plan.	Water shortage contingency planning	n/a	Sections 8.12 and 10.6
x	n/a	9.1	Sections 9.1	10631(e)(1)	Retail Suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand management measures	n/a	Section 9.1.1
n/a	x	9.2	Sections 9.2	10631(e)(2)	Wholesale Suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and Supplier assistance program.	Demand management measures	n/a	n/a
x	n/a	10	Chapter 10	10608.26(a)	Retail Suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan adoption, submittal, and implementation	n/a	Sections 10.3 and 10.4
x	x	10.2	Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the Supplier provides water that the Supplier will be reviewing the UWMP and considering amendments or changes to the plan.	Plan adoption, submittal, and implementation	10-1	Section 10.2
x	x	10.4	Section 10.4	10621(f)	Each urban water Supplier shall update and submit its 2025 plan to DWR by July 1, 202 6.	Plan adoption, submittal, and implementation	n/a	Section 10.5
x	x	10.2	Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the Supplier made the UWMP and WSCP available for public inspection, published notice of the public hearing, and held a public hearing about the UWMP and WSCP.	Plan adoption, submittal, and implementation	n/a	Sections 10.2, 10.3, and 10.4
x	x	10.2	Section 10.2.2	10642	The Supplier is to provide the time and place of the hearing to any city or county within which the Supplier provides water.	Plan adoption, submittal, and implementation	10-1	Section 10.3
x	x	10.3	Section 10.3.2	10642	Provide supporting documentation that the UWMP and WSCP has been adopted as prepared or modified.	Plan adoption, submittal, and implementation	n/a	Sections 10.4 and 10.9
x	x	10.4	Section 10.4	10644(a)	Provide supporting documentation that the Supplier has submitted their UWMP to the California State Library.	Plan adoption, submittal, and implementation	n/a	Section 10.5.3
x	x	10.4	Section 10.4	10644(a)(1)	Provide supporting documentation that the Supplier has submitted their UWMP to any city or county within which the Supplier provides water no later than 30 days after adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.5.4
x	x	10.4	Sections 10.4.1 and 10.4.2	10644(a)(2)	The UWMP, or amendments to the UWMP, submitted to DWR shall be submitted electronically.	Plan adoption, submittal, and implementation	n/a	Sections 10.5 and 10.9
x	x	10.7	Section 10.7.2	10644(b)	If revised, submit a copy of the WSCP to DWR within 30 days of adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.9
x	x	10.5	Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its UWMP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Section 10.6
x	x	10.5	Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its WSCP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Section 10.6
x	x	10.6	Section 10.6	10621(c)	If Supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan adoption, submittal, and implementation	n/a	Section 10.7

CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX C

DEMONSTRATION OF REDUCED IMPORTED WATER RELIANCE

DEMONSTRATION OF CONSISTENCY WITH THE DELTA PLAN FOR PARTICIPANTS IN COVERED ACTIONS (CY 2015 THROUGH CY 2050)

CITY OF CERRITOS

Introduction

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

> *(c)(1) Water suppliers that have done all of the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:*
>
> > *(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;*
> >
> > *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and*
> >
> > *(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).*

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

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

Reduced Reliance Calculation Tables

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

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

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

Since the Baseline year, the City has decreased its reduced regional reliance on imported water supplies in 2015, 2020, 2025, and anticipates doing so through 2050.

The City has reduced its reliance on imported water supply in up to three separate categories, as follows:

- The demand in GPCD for the "Baseline year" was compared to the GPCDs in subsequent years (from 2015 through 2050, in five-year increments). The reduced GPCD multiplied by the population in these subsequent years is indicative of the potential reduced regional reliance on imported water supplies and is included in Table C-1.
- The recycled water use from 2015 through 2050, in five-year increments, also demonstrates reduced regional reliance on imported water supplies and included in Table C-1
- To the extent the Water Replenishment District of Southern California (WRD) has, or plans to, use recycled water to replenish the Central Basin, the City's proportional share (up to the total replenishment water obligation) will be included on Table C-1.

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

Reduced GPCD

Section 6.2.2 of the 2025 UWMP describes the management of the Central Basin. The City produces groundwater from the Central Basin, which is adjudicated and managed by the WRD. The City's current Allowed Pumping Allocation in the Central Basin is 4,680.03 AFY. As discussed in Section 6.2.7 of the 2025 UWMP, the City can lease Central Basin water rights on an annual basis to allow for additional production above its Allowed Pumping Allocation. In addition, the City can purchase treated imported water from Central Basin Municipal Water District which is ultimately provided by the Metropolitan Water District of Southern California. The City regularly sells potable water to the City of Norwalk and Golden State Water Company. A portion of these sales include treated imported water, while the balance is groundwater.

Chapter 9 of the 2025 UWMP describes the Demand Management Measures which the City has implemented to reduce the amount water used by its customers. In addition, Chapter 6 of the 2025 UWMP describes the groundwater basin management measures implemented by WRD. Collectively these actions translate to a reduction in the GPCD usage rate which is described further in Chapter 5 of the 2025 UWMP. These actions directly impact total water demands, and consequently, the quantity of imported water which may be required. Absent the proactive measures taken by the City, it is anticipated there may have been a greater demand on imported water.

Pursuant to DWR guidance, reduced reliance on imported water supplies can be demonstrated by first selecting a “Baseline” water demand, represented by total potable water demands during CY 2008. Table C-1 summarizes the “Baseline” water usage by the City in 2008 (assuming demand reduction efforts had not been implemented); actual water usage in 2015, 2020, and 2025; and projected water usage through 2050 in five-year increments. Table C-2 demonstrates that, but for the water conservation efforts implemented by the City, there may have been a greater reliance on untreated imported water supplies during the Baseline year as compared to subsequent years. The reduction is considered the reduced imported water reliance.

The City’s potable water demand during 2008, along with the corresponding service area population, were used to determine the Baseline GPCD. Subsequently, the actual demands for 2015, 2020, and 2025 were compared to the calculated population to obtain the recent GPCD which includes the water conservations measures which have been implemented (those demand management measures are described in Chapter 9 of the 2025 UWMP). The “Water Supplies Contributing to Regional Self-Reliance" are also provided in Table C-1. The differences between the Baseline GPCD and the 2015, 2020, and 2025 GPCDs are effectively considered a demonstration of the reduced regional reliance on imported water supplies with the understanding that any potential increased demand by the City resulting from increased population could have been required, absent the City’s new water supplies which contribute to self-reliance. A similar methodology is

used for the projected potable water demands (2025 UWMP Table 4-2) and populations (2025 UWMP Table 3-1).

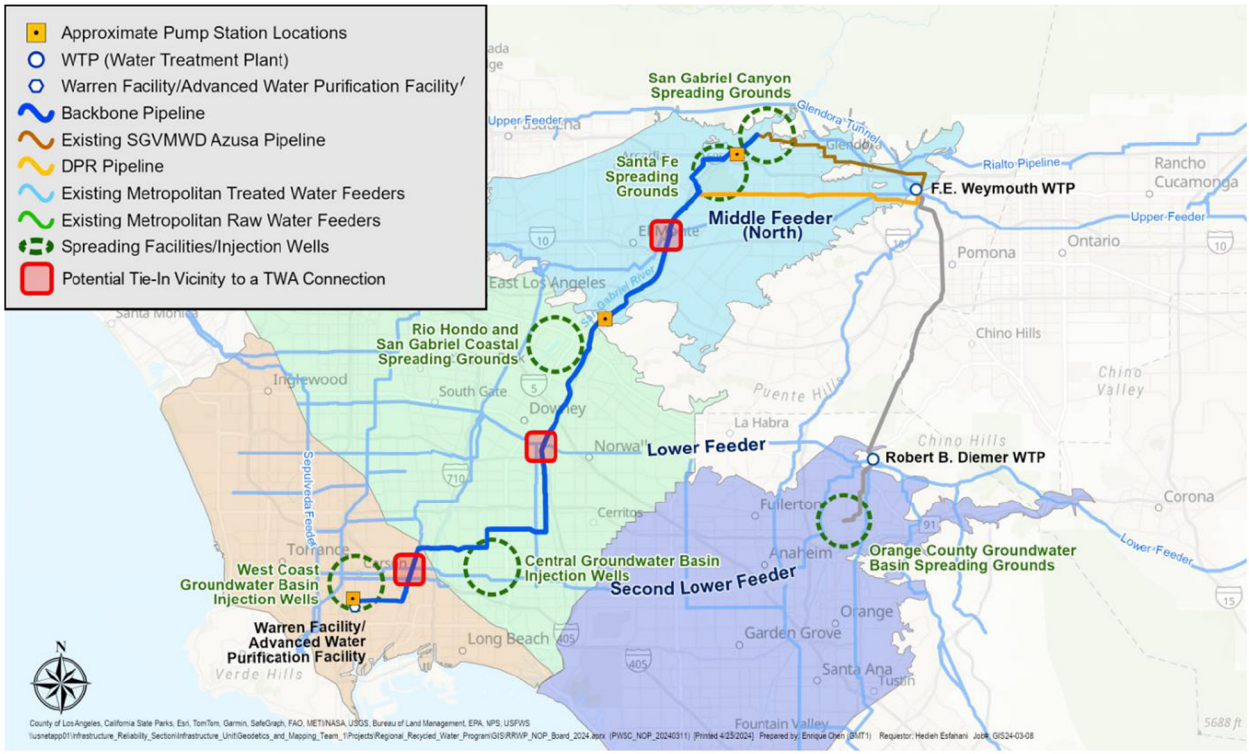
Recycled Water Use

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

Recycled Water for Groundwater Replenishment

MWD is currently partnering with LACSD to investigate the viability of providing up to 150 million gallons per day (MGD) (approximately 168,000 AFY) of advanced treated wastewater from LACSD's A.K. Warren Water Resource Facility (formerly Joint Water Pollution Control Plant) located in Carson, California (Carson Plant). The "Pure Water Southern California" (Pure Water) project would deliver purified water from the Carson Plant in up to 60 miles of transmission pipelines to groundwater basins within MWD's service area, including the Central, West Coast, Main San Gabriel, and Orange County Basins. The purified water would be used for groundwater recharge, groundwater storage, and industrial facilities. In addition, purified water could potentially be treated further at two of MWD's existing water treatment plants for direct potable reuse. The locations of the proposed pipeline alignments are provided in the figure below.

Regional Recycled Water Program Location



Source: https://www.mwdh2o.com/building-local-supplies/pure-water-southern-california/

MWD began construction of a $17 million small-scale demonstration plant (0.5 MGD) in late 2017 which was completed in October 2019. The results of the demonstration plant will allow MWD and others to determine if expansion to a full-scale plant is beneficial. The full-scale plant would take approximately 11 years to construct once approved (with a cost of over $3 billion).

Pursuant to MWD's "*Regional Recycled Water Program Conceptual Planning Studies Report*", February 2019, the proposed Pure Water project would potentially deliver up to 9 MGD (about 10,000 AFY) of purified water for injection at the Montebello Forebay or for spreading at the Rio Hondo Spreading Grounds in Pico Rivera for Central Basin replenishment purposes. Water produced from the proposed Pure Water project would offset an equal amount of untreated imported water from the State Water Project and/or the Colorado River, which otherwise historically may have been used for groundwater

replenishment (including in the Central Basin). For the Central Basin, MWD has entered into a letter of intent with Central Basin Municipal Water District for up to 69,000 AFY. As noted in Section 6.2.2 of the 2025 UWMP, all producers in Central Basin are levied a "Replenishment Assessment" to replenish Central Basin on each acre-foot of groundwater produced. Therefore, the benefit to each producer in this Plan is based on the proportional share of its anticipated production to the total Central Basin production.

WRD has developed the "Water Independence Now" (WIN) Project, formerly referred to as the Groundwater Reliability Improvement Program (GRIP), which consists of about 10,500 AFY of highly treated recycled water blended with an additional 10,500 AFY of recycled water, for a total of 21,000 AFY. This recycled water is produced from LACSD's San Jose Creek Water Reclamation Plant and is used to replenish the Central Basin. The WIN Project will offset an equal amount of SWP water. As noted in Section 6.2.2 of the 2025 UWMP, all producers in Central Basin are levied a "Replenishment Assessment" to replenish Central Basin on each acre-foot of groundwater produced. Therefore, the benefit to each producer in this Plan is based on the proportional share of its anticipated production to the total Central Basin production. The recharged water hypothetically assigned to the City is based on the City's share of the Central Basin's total Allowable Pumping Allocation (217,367 AFY) multiplied by the amount of recycled water replenished and is shown on Table C-3.

The decrease in GPCD, increase in recycled water use, and enhanced groundwater recharge programs compared to the Baseline year has resulted in an overall decrease in reliance on imported water supplies. As shown in Table C-4, the percentage of imported water supplies relative to the City's total supply has decreased, and is projected to decrease, from the percentage in the Baseline year.

Metropolitan Water District of Southern California

In addition, as the wholesale provider, the Metropolitan Water District of Southern California has included a detailed discussion regarding measurable reduction in Delta

reliance in Appendix 10 of its 2025 Regional Urban Water Management Plan. That discussion is included by reference and also included in Attachment 1 of this Plan.

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

Service Area Water Use Efficiency Demands (Acre-Feet)	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For[1]	15,606	9,946	10,614	9,584	10,562	10,562	10,576	10,590	10,604
Non-Potable Water Demands	2,164	2,221	2,159	1,983	2,500	2,500	2,500	2,500	2,500
Potable Service Area Demands with Water Use Efficiency Accounted For	13,442	7,726	8,455	7,601	8,062	8,062	8,076	8,090	8,104

Total Service Area Population	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Population	54,167	49,091	50,413	46,976	52,624	52,624	52,721	52,818	52,915

Water Use Efficiency Since Baseline (Acre-Feet)	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Per Capita Water Use (GPCD)	222	140	150	144	137	137	137	137	137
Change in Per Capita Water Use from Baseline (GPCD)		(81)	(72)	(77)	(85)	(85)	(85)	(85)	(85)
Estimated Water Use Efficiency Since Baseline		4,456	4,055	4,057	4,997	4,997	5,007	5,017	5,027

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

Total Service Area Water Demands (Acre-Feet)	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	15,606	9,946	10,614	9,584	10,562	10,562	10,576	10,590	10,604
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline		4,456	4,055	4,057	4,997	4,997	5,007	5,017	5,027
Service Area Water Demands without Water Use Efficiency Accounted For	15,606	14,403	14,669	13,641	15,559	15,559	15,583	15,607	15,631

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

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Use Efficiency	-	4,456	4,055	4,057	4,997	4,997	5,007	5,017	5,027
Water Recycling	2,164	2,221	2,159	1,983	2,500	2,500	2,500	2,500	2,500
Stormwater Capture and Use									
Advanced Water Technologies (WIN Project)[2]	-	-	-	220	220	220	220	220	220
Advanced Water Technologies (Pure Water - Central Basin)[3]	-	-	-	-	-	215	215	215	215
Conjunctive Use Projects									
Local and Regional Water Supply and Storage Projects									
Other Programs and Projects the Contribute to Regional Self-Reliance									
Water Supplies Contributing to Regional Self-Reliance	2,164	6,677	6,214	6,260	7,717	7,932	7,942	7,952	7,962

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	15,606	14,403	14,669	13,641	15,559	15,559	15,583	15,607	15,631

Change in Regional Self Reliance (Acre-Feet)	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Supplies Contributing to Regional Self-Reliance	2,164	6,677	6,214	6,260	7,717	7,932	7,942	7,952	7,962
Change in Water Supplies Contributing to Regional Self-Reliance		4,513	4,050	4,096	5,553	5,768	5,778	5,788	5,798

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Percent of Water Supplies Contributing to Regional Self-Reliance	13.9%	46.4%	42.4%	45.9%	49.6%	51.0%	51.0%	51.0%	50.9%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance		32.5%	28.5%	32.0%	35.7%	37.1%	37.1%	37.1%	37.1%

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

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
CVP/SWP Contract Supplies									
Delta/Delta Tributary Diversions									
Transfers and Exchanges									
Other Water Supplies from the Delta Watershed (Untreated)[4]	566	399	-	-	-	-	-	-	-
Other Water Supplies from the Delta Watershed (Treated)[5]	2,027	1,451	7	62	38	38	38	38	38
Total Water Supplies from the Delta Watershed	2,593	1,850	7	62	38	38	38	38	38

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	15,606	14,403	14,669	13,641	15,559	15,559	15,583	15,607	15,631

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Supplies from the Delta Watershed	2,593	1,850	7	62	38	38	38	38	38
Change in Water Supplies from the Delta Watershed		(743)	(2,586)	(2,531)	(2,555)	(2,555)	(2,555)	(2,555)	(2,555)

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2008)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Percent of Water Supplies from the Delta Watershed	16.6%	12.8%	0.0%	0.5%	0.2%	0.2%	0.2%	0.2%	0.2%
Change in Percent of Water Supplies from the Delta Watershed		-3.8%	-16.6%	-16.2%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%

[1] Does not include water deliveries made to the City of Norwalk or Golden State Water Company.

[2] As part of the Water Independence Now Project, the Albert Robles Center was completed in 2019 and supplies about 21,000 AFY to Central Basin for replenishment purposes. The projected amount available to the City is based on the City's share of the total Allowable Pumping Allocation (2.15305%) and recent historical replenishment.

[3] The Pure Water project is anticipated to result in 10,000 AFY for the Central Basin starting in 2035. The projected amount available to the City is based on the share of Central Basin's total Allowable Pumping Allocation (2.15305%).

[4] Represents imported water for replenishment purposes by the Water Replenishment District of Southern California in the Central Basin.

[5] Represents treated imported water supplies from Central Basin Municipal Water District, a member agency of Metropolitan Water District.

Attachment 1

Appendix 10

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

Appendix 10
METROPOLITAN'S
REDUCED DELTA RELIANCE REPORTING

A.10.1 Background

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

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

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

(a) Water shall not be exported from, transferred through, or used in the Delta if all of the following apply:

(1) One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);

(2) That failure has significantly caused the need for the export, transfer, or use; and

(3) The export, transfer, or use would have a significant adverse environmental impact in the Delta.

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

[1] Water Code, § 85057.5; Cal. Code Regs. tit. 23, § 5001.
[2] Water Code, § 85225; Delta Plan, App. D.
[3] Water Code, §§ 85225.10-85225.25; Delta Plan, App. D.
[4] Cal. Code Regs., tit. 23, § 5003.

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

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

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

(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).

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

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

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

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

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

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

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

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

Expected Outcomes for Regional Self-Reliance

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

Expected Outcomes for Reduced Reliance on Supplies from the Delta Watershed

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

A10.3 Demonstration of Reduced Reliance on the Delta

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

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

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

Baseline and Expected Outcomes

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

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

Service Area Demands Without Water Use Efficiency

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

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

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

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

Service Area Demands without Water Use Efficiency

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

Water Use Efficiency

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

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

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

Supplies Contributing to Regional Self-Reliance

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

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

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

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

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

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

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

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

Water Use Efficiency

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

Water Recycling

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

Stormwater Capture and Use

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

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

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

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

Advanced Water Technologies

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

Conjunctive Use Projects

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

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

Local and Regional Water Supply and Storage Programs

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

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

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

Other Programs and Projects that Contribute to Regional Self-Reliance

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

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

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

Reliance on Water Supplies from the Delta Watershed

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

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

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

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

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

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

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

CVP/SWP Contract Supplies

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

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

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

Transfers and Exchanges of Supplies from the Delta Watershed

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

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

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

A.10.4 UWMP Implementation

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

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

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

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

Water Use Efficiency

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

Water Recycling

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

Stormwater Capture and Use

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

Advanced Water Technologies

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

Conjunctive Use Projects

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

Local and Regional Water Supply and Storage Programs

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

Other Programs and Projects that Contribute to Regional Self-Reliance

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

CVP/SWP Contract Supplies

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

Transfers and Exchanges of Supplies from the Delta Watershed

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

CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX D

NOTIFICATION LETTERS AND NOTICES OF PUBLIC HEARING

CITY OF CERRITOS SM

CIVIC CENTER • 18125 BLOOMFIELD AVENUE
P.O. BOX 3130 • CERRITOS, CALIFORNIA 90703-3130
PHONE: (562) 860-0311 • CERRITOS.GOV

Cerritos All-America City 2008

January 16, 2026

Matthew Eaton
Deputy Assistant Chief Engineer
Los Angeles County Sanitation Districts
1955 Workman Mill Road
Whittier, CA 90601

SUBJECT: 2025 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Eaton:

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

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

If you have any questions or comments, please contact me at jarroyo@cerritos.gov or (562) 407-2673.

Sincerely,

Jose Arroyo
Water Superintendent

FRANK AURELIO YOKOYAMA, MAYOR
LYNDA P. JOHNSON, MAYOR PRO TEM
JENNIFER HONG, COUNCILMEMBER
MARK E. PULIDO, COUNCILMEMBER
SOPHIA M. TSE, COUNCILMEMBER

CITY OF CERRITOS SM

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Cerritos All-America City 2008

January 16, 2026

Shivaji Deshmukh
Manager of Water Resources Management
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054

SUBJECT: 2025 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Deshmukh:

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

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

If you have any questions or comments, please contact me at jarroyo@cerritos.gov or (562) 407-2673.

Sincerely,

Jose Arroyo
Water Superintendent

FRANK AURELIO YOKOYAMA, MAYOR
LYNDA P. JOHNSON, MAYOR PRO TEM
JENNIFER HONG, COUNCILMEMBER
MARK E. PULIDO, COUNCILMEMBER
SOPHIA M. TSE, COUNCILMEMBER

CITY OF CERRITOS SM
CIVIC CENTER • 18125 BLOOMFIELD AVENUE
P.O. BOX 3130 • CERRITOS, CALIFORNIA 90703-3130
PHONE: (562) 860-0311 • CERRITOS.GOV

Cerritos All-America City 2008

January 16, 2026

Nem Ochoa, P.E.
District Manager, Central District
Golden State Water Company
12035 Burke Street, Suite I
Santa Fe Springs, CA 90670

SUBJECT: 2025 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Ochoa:

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

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If you have any questions or comments, please contact me at jarroyo@cerritos.gov or (562) 407-2673.

Sincerely,

Jose Arroyo
Water Superintendent

FRANK AURELIO YOKOYAMA, MAYOR
LYNDA P. JOHNSON, MAYOR PRO TEM
JENNIFER HONG, COUNCILMEMBER
MARK E. PULIDO, COUNCILMEMBER
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Cerritos All-America City 2008

January 16, 2026

Jesus M. Gomez
City Manager
City of Norwalk
12700 Norwalk Boulevard
Norwalk, CA 90650

SUBJECT: 2025 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Gomez:

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

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Sincerely,

Jose Arroyo
Water Superintendent

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Cerritos All-America City 2008

January 16, 2026

Jake Chavira
Community Development & Public Works Director
City of La Palma
7822 Walker Street
La Palma, CA 90623

SUBJECT: 2025 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Chavira:

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

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Jose Arroyo
Water Superintendent

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Cerritos All-America City 2008

January 16, 2026

James Enriquez P.E.
Director of Public Works
City of Santa Fe Springs
11710 Telegraph Road
Santa Fe Springs, CA 90670

SUBJECT: 2025 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Enriquez:

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

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Cerritos All-America City 2008

January 16, 2026

Stephen Tucker
General Manager
Water Replenishment District of Southern California
4040 Paramount Boulevard
Lakewood, CA 90712

SUBJECT: 2025 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Tucker:

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Water Superintendent

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Cerritos All-America City 2008

January 16, 2026

General Manager
Central Basin Municipal Water District
6252 Telegraph Road
Commerce, CA 90040-2512

SUBJECT: 2025 URBAN WATER MANAGEMENT PLAN UPDATE

Dear General Manager:

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Cerritos All-America City 2008

January 16, 2026

Clerk-Recorder
County of Los Angeles
12400 Imperial Highway
Norwalk, CA 90650

SUBJECT: 2025 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Clerk-Recorder:

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

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Cerritos All-America City 2008

January 16, 2026

City Clerk's Office
City of Cerritos
18125 Bloomfield Ave
Cerritos, CA 90703

SUBJECT: 2025 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Cerritos City Clerk:

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

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Water Superintendent

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MARK E. PULIDO, COUNCILMEMBER
SOPHIA M. TSE, COUNCILMEMBER

CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX E

CLIMATE CHANGE CONSIDERATIONS (CAL- ADAPT DATA)

Annual Averages

Explore projected changes in annual average Maximum Temperature, Minimum Temperature and Precipitation through end of this century for California.

EXPLORE DATA
ABOUT THE TOOL
RESOURCES
HELP

Central Basin.kml

Change Location

Projected changes in **Annual Average Precipitation** under a **Medium Emissions (RCP 4.5) Scenario**.

MODELED HISTORICAL
Baseline (1961-1990)
Change Period

30 YEAR AVG	30 YEAR RANGE
15.1 inch	3.9–33.7 inch

Learn More

FUTURE PROJECTIONS
Mid-Century (2035-2064)
Change Period

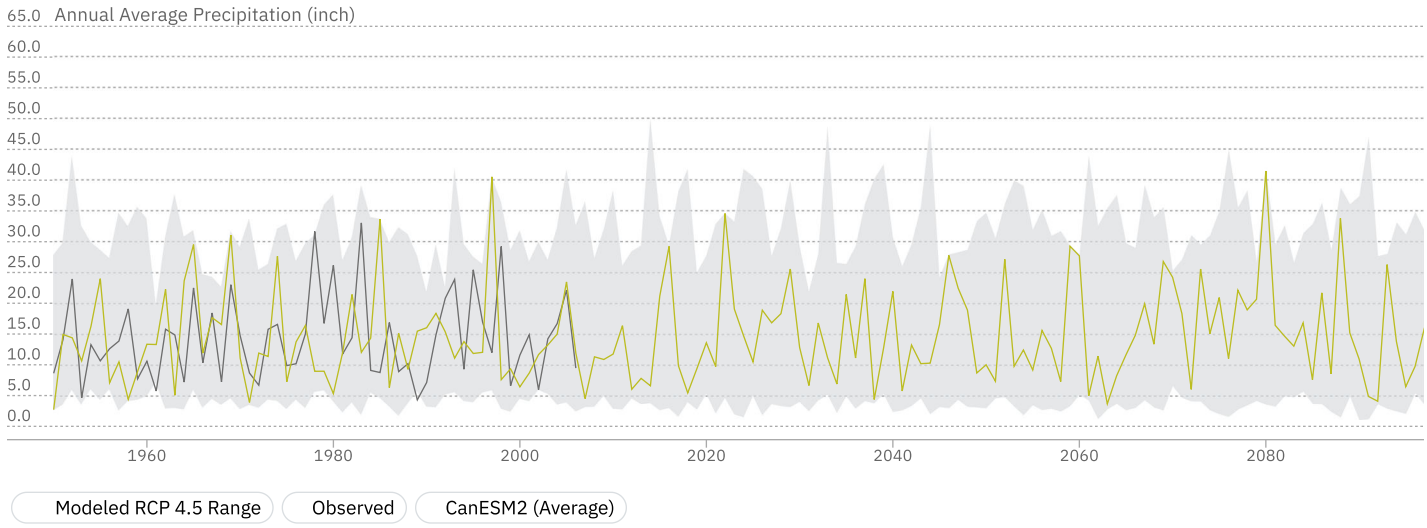
30 YEAR AVG	30 YEAR RANGE
14.2 inch	3.7–29.3 inch

Learn More

FUTURE PROJECTIONS
End-Century (2070-2099)
Change Period

30 YEAR AVG	30 YEAR RANGE
16.5 inch	4.1–41.5 inch

Learn More

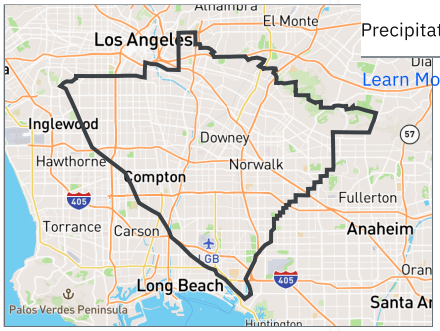


Source: Cal-Adapt. Data: LOCA Downscaled CMIP5 Climate Projections (Scripps Institution of Oceanography), Gridded Observed Meteorological Data (University of Colorado Boulder), LOCA Derived Products (Geospatial Innovation Facility).

Explain Chart

Download Chart Share

SELECT LOCATION



Learn More

SELECT CLIMATE VARIABLE

Precipitation

Learn More

SELECT SCENARIO

- Medium (RCP 4.5)
- High (RCP 8.5)

Learn More

SELECT MODELS

1 Select...

CanESM2

Learn More

About the Tool

Overall temperatures are projected to rise substantially throughout this century. These projections differ depending on the time of year and the type of measurement (highs vs. lows), all of which have different potential effects to the state's ecosystem health, agricultural production, water use and availability, and energy demand. On average, the projections show little change in total annual precipitation in California. Furthermore, among several models, precipitation projections do not show a consistent trend during the next century. The Mediterranean seasonal precipitation pattern is expected to continue, with most precipitation falling during winter from North Pacific storms. However, even modest changes would have a significant impact because California ecosystems are conditioned to historical precipitation levels and water resources are nearly fully utilized.

With this tool you can explore projections of annually averaged maximum temperature, minimum temperature and precipitation. These climate projections have been downscaled from global climate models from the CMIP5 archive, using the Localized Constructed Analogs (LOCA) statistical technique developed by Scripps Institution Of Oceanography. LOCA is a statistical downscaling technique that uses past history to add improved fine-scale detail to global climate models.

Data Sources

The following list of datasets were used to create this tool. Download data visualized in the charts by clicking the Download Chart button. For more download options follow the links below.



LOCA Downscaled CMIP5 Climate Projections

Scripps Institution of Oceanography

Daily climate projections for California at a resolution of 1/16° (about 6 km, or 3.7 miles) generated to support climate change impact studies for California's Fourth Climate Change Assessment. The data, derived from 32 coarse-resolution (~100 km) global climate models from the CMIP5 archive, were bias corrected and downscaled using the Localized Constructed Analogues (LOCA) statistical

method. The data cover 1950-2005 for the historical period and 2006-2100 (some models stop in 2099) for two future climate projections. Details are described in Pierce et al., 2018.

Download dataset:

- Cal-Adapt Data Download Tool
- Cal-Adapt Data Server - loca (netcdf)

References:

- LOCA Statistical Downscaling (link)
- Pierce et al. (2018). Climate, drought, and sea level rise scenarios for California's fourth climate change assessment. California's Fourth Climate Change Assessment, California Energy Commission. Publication Number: CNRA-CEC-2018-006. (link)



Gridded Observed Meteorological Data

University of Colorado Boulder

Historical observed daily temperature data from approximately 20,000 NOAA Cooperative Observer (COOP) stations form the basis of this gridded dataset from 1950–2013 at a spatial resolution of 1/16° (approximately 6 km). Observation-based meteorological data sets offer insights into changes to the hydro-climatic system by diagnosing spatio-temporal characteristics and providing a historical baseline for future projections. Details are described in Livneh et al., 2015.

Download dataset:

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- Cal-Adapt Data Server - livneh (netcdf)
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- Water and Climate Research Group, CIRES (link)
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LOCA Derived Products

Geospatial Innovation Facility

Datasets created from LOCA downscaled CMIP5 climate projections for Cal-Adapt tools. These currently include the modeled annual variability envelope (maximum and minimum from range of annual average values from all 32 GCMs); precalculated data tables of extreme heat counts for California counties and census tracts for 4 priority models and 2 scenarios.

Download dataset:

- Cal-Adapt Data Download Tool
- Extreme heat data for California counties and census tracts (csv)

References:

- Thomas, N., Mukhtyar, S., Galey, B., Kelly, M. (University of California Berkeley). 2018. Cal-Adapt: Linking Climate Science with Energy Sector Resilience and Practitioner Need. California's Fourth Climate Change Assessment, California Energy Commission. Publication Number: CCCA4-CEC-2018-015. (link)

Resources

California Adaptation Clearinghouse

The Adaptation Clearinghouse is the State of California's consolidated searchable database of resources for local, regional and statewide climate adaptation planning and decision-making.

VIEW RESOURCE

California's 4th Climate Change Assessment

California's Fourth Climate Change Assessment advances actionable science that serves the growing needs of state and local-level decision-makers from a variety of sectors.

VIEW RESOURCE

Related Cal-Adapt Tools



Maps of Projected Change

Maps depicting long-term (30 years) changes in annual average temperature and precipitation.

EXPLORE

Help

Get Started

An introduction to climate data, models, and projections.

LEARN MORE

FAQs

Frequently asked questions about Cal-Adapt's tools and data.

LEARN MORE

Cal-Adapt has been developed by the Geospatial Innovation Facility at the University of California, Berkeley with funding and advisory oversight by the California Energy Commission and the California Strategic Growth Council.

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State of California, Gavin Newsom, Governor.

Annual Averages

Explore projected changes in annual average Maximum Temperature, Minimum Temperature and Precipitation through end of this century for California.

EXPLORE DATA
ABOUT THE TOOL
RESOURCES
HELP

Central Basin.kml

Change Location

Projected changes in **Annual Average Maximum Temperature** under a **Medium Emissions (RCP 4.5) Scenario**.

MODELED HISTORICAL
Baseline (1961-1990)
Change Period

30 YEAR AVG	30 YEAR RANGE
74.7 °F	72.1–77.7 °F

Learn More

FUTURE PROJECTIONS
Mid-Century (2035-2064)
Change Period

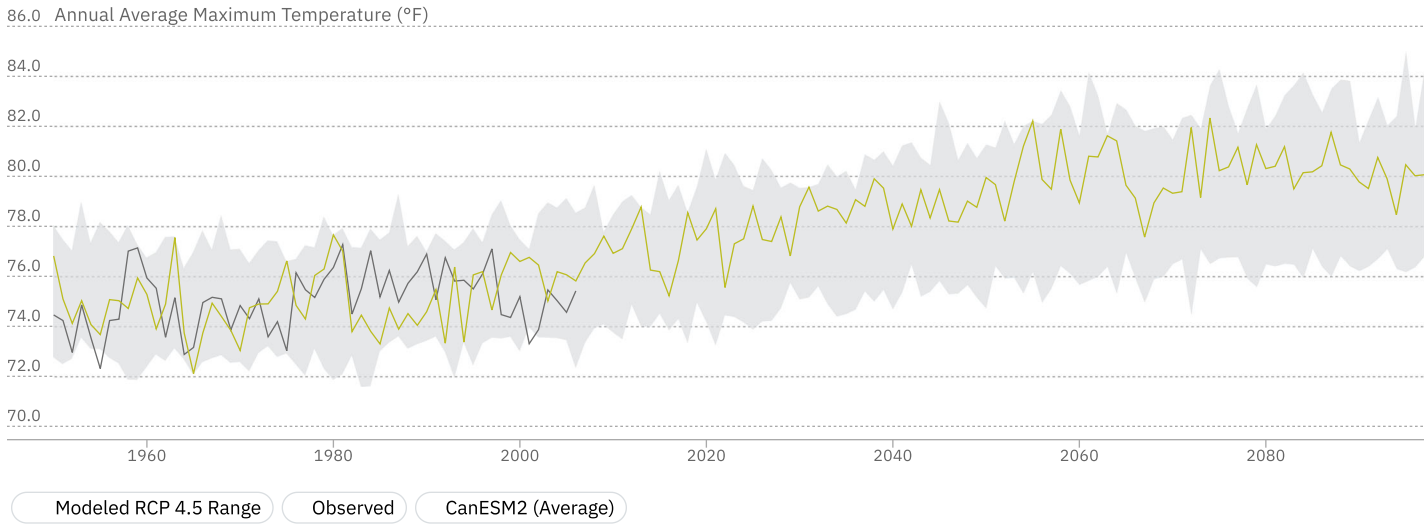
30 YEAR AVG	30 YEAR RANGE
79.6 °F	77.9–82.2 °F

Learn More

FUTURE PROJECTIONS
End-Century (2070-2099)
Change Period

30 YEAR AVG	30 YEAR RANGE
80.3 °F	78.5–82.3 °F

Learn More

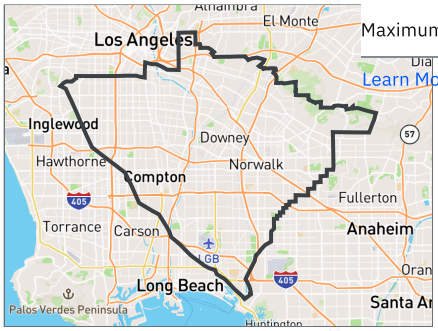


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Explain Chart

Download Chart Share

SELECT LOCATION



Learn More

SELECT CLIMATE VARIABLE

Maximum Temperature

Learn More

SELECT SCENARIO

- Medium (RCP 4.5)
- High (RCP 8.5)

Learn More

SELECT MODELS

1 Select...

CanESM2

Learn More

About the Tool

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CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX F

CENTRAL BASIN JUDGMENT

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SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

CENTRAL AND WEST BASIN WATER REPLENISHMENT DISTRICT, etc., Plaintiff, vs. CHARLES E. ADAMS, et al., Defendant	Case No.: 786,656 THIRD AMENDED JUDGMENT (Declaring and establishing water rights in Central Basin, enjoining extractions therefrom in excess of specified quantities and providing for the storage and extraction of stored water.)
CITY OF LAKEWOOD, a municipal corporation, Cross-Complainant vs. CHARLES E. ADAMS, et al., Cross-Defendants.	Assigned for all purposes to Hon. Abraham Khan Dept. 51

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The original judgment in this action was entered on or about August 27, 1965. Pursuant to the reserved and continuing jurisdiction of the court under the Judgment herein, certain amendments to said Judgment and temporary orders have heretofore been made and entered. Continuing jurisdiction of the court for this action is currently assigned to Hon. Abraham Khan.

The Motion of Plaintiff WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA (which originally brought this action under its former name "Central and West Basin Water Replenishment District"), and of defendants, City of Lakewood, City of Long Beach, Golden State Water Company, California Water Service Company, City of Los Angeles, City of Cerritos, City of Downey, City of Signal Hill, Pico Water District, Bellflower-Somerset Mutual Water Company, LaHabra Heights County Water District, City of Norwalk, Orchard Dale Water District, Montebello Land & Water Company, South Montebello Irrigation District, Sativa Los Angeles County Water District, City of Vernon and Central Basin Municipal Water District ("Moving Parties") herein for further amendments to the Judgment, notice thereof and of the hearing thereon having been duly and regularly given to all parties, came on for hearing in Department 51 of the above-entitled court on December 18, 2013 at 9:00 a.m. before said Hon. Abraham Khan. This "Third Amended Judgment" incorporates amendments and orders heretofore made to the extent presently operable and amendments pursuant to said last mentioned motion. To the extent this Amended Judgment is a restatement of the Judgment as heretofore amended, it is for convenience in incorporating all matters in one document, is not a readjudication of such matters and is not intended to reopen any such matters. As used hereinafter the word "Judgment" shall include the original Judgment entered in this action as amended to date, including this Third Amended Judgment.

There exists in the County of Los Angeles, State of California, an underground water basin or reservoir known and hereinafter referred to as the "Central Basin" or "Basin" described in Appendix "1" to this Judgment.

Within this Judgment, the following terms, words, phrases and clauses are used by the Court with the following meanings:

"Adjudicated Storage Capacity" means 220,000 acre-feet of the Available Dewatered

Space which has been apportioned herein for Individual Storage Accounts and Community Storage.

"Administrative Body" is defined in Section II(A).

"Administrative Year" means the twelve (12) month period beginning July 1 and ending June 30.

"Allowed Pumping Allocation" is that quantity in acre feet which the Court adjudges to be the maximum quantity which a party should be allowed to extract annually from Central Basin as set forth in Part I hereof, which constitutes 80% of such party's Total Water Right.

"Allowed Pumping Allocation for a particular Administrative Year" and "Allowed Pumping Allocation in the following Administrative Year" and similar clauses, mean the Allowed Pumping Allocation as increased in a particular Administrative Year by any authorized carryovers pursuant to Section III(A) of this Judgment and as reduced by reason of any over-extractions in a previous Administrative Year.

"Artificial Replenishment" is the replenishment of Central Basin achieved through the spreading or injection of imported or recycled water for percolation thereof into Central Basin by a governmental agency, including WRD.

"Artificial Replenishment Water" means water captured or procured by WRD to replenish the Basin, either directly by percolating or injecting the water into the Basin, or through in lieu replenishment by substituting surface water (or payment therefor) in lieu of production and use of groundwater.

"Available Dewatered Space" means the total amount of space available to hold groundwater within the Central Basin without causing Material Physical Harm, which space is allocated between Adjudicated Storage Capacity and Basin Operating Reserve.

"Base Water Right" is the highest continuous extractions of water by a party from Central Basin for a beneficial use in any period of five consecutive years after the commencement of overdraft in Central Basin and prior to the commencement of this action, as to which there has been no cessation of use by that party during any subsequent period of five consecutive years. As employed in the above definition, the words "extractions of water by a party" and "cessation

of use by that party" include such extractions and cessations by any predecessor or predecessors in interest.

"Basin Operating Reserve" means a total of 110,000 acre feet of Available Dewatered Space available for Basin operations as provided in Section IV(L). The Basin Operating Reserve added to the Adjudicated Storage Capacity equals the amount of Available Dewatered Space.

"Calendar Year" is the twelve month period commencing January 1 of each year and ending December 31 of each year.

"Carryover" is defined in Section III(A).

"Carryover Conversion" means the process of transferring water properly held as Carryover into Stored Water, or the water so converted to Stored Water.

"Central Basin" is the underground basin or reservoir underlying the Central Basin Area, the exterior boundaries of which Central Basin are the same as the exterior boundaries of Central Basin Area.

"Central Basin Area" is the territory described in Appendix "1" to this Judgment and is a segment of the territory comprising Plaintiff District.

"Central Basin Water Rights Panel" means the constituent body of Watermaster consisting of seven (7) Parties elected from among parties holding Allowed Pumping Allocations as provided in Section II(B).

"CEQA" refers to the California Environmental Quality Act, Public Resources Code §§ 21000 *et seq*.

"Community Storage Pool" is defined in Section IV(E).

"Declared Water Emergency" means a period commencing with the adoption of a resolution of the Board of Directors of WRD declaring that conditions within the Central Basin relating to natural and imported supplies of water are such that, without implementation of the water emergency provisions of this Judgment, the water resources of the Central Basin risk degradation. Such Declaration may be made as provided in Section III(A)(3).

"Disadvantaged Community" means any area that is served by a Water Purveyor and that consists of one or more contiguous census tracts which, based upon the most-recent United

States Census data, demonstrates a median household income which is less than eighty percent (80%) of the median household income for all Census Tracts within the state of California. The identification of Disadvantaged Communities shall be made by Watermaster following each decennial census.

"Extraction," "extractions," "extracting," "extracted," and other variations of the same noun and verb, mean pumping, taking, diverting or withdrawing groundwater by any manner or means whatsoever from Central Basin.

"Imported Water" means water brought into Central Basin Area from a non-tributary source by a party and any predecessors in interest, either through purchase directly from Metropolitan Water District of Southern California ("MWD"), the Central Basin Municipal Water District ("CBMWD"), or any other MWD member agency and additionally, as to the Department of Water and Power of the City of Los Angeles, water brought into the Central Basin Area by that party by means of the Owens River Aqueduct. In the case of water imported for storage by a party pursuant to this Judgment, "Imported Water" means water brought into the Central Basin from any non-tributary source as one method for establishing storage in the Central Basin.

"Imported Water Use Credit" is the annual amount, computed on a calendar year basis, of Imported Water which any party and any predecessors in interest, who have timely made the required filings under Water Code Section 1005.1, have imported into Central Basin Area in any calendar year and subsequent to July 9, 1951, for beneficial use therein, but not exceeding the amount by which that party and any predecessors in interest reduces his or their extractions of groundwater from Central Basin in that calendar year from the level of his or their extractions in the preceding calendar year, or in any prior calendar year not earlier than the calendar year 1950, whichever is the greater.

"Individual Storage Allocation" is defined in Section IV(D).

"Majority Protest" means a written protest filed with the Administrative Body of Watermaster within sixty (60) days following a protested event or decision, which evidences the concurrence of a majority of the Allowed Pumping Allocations held within the Basin as of the

date thereof.

"Material Physical Harm" means material physical injury or a material diminution in the quality or quantity of groundwater available within the Basin to support extraction of Total Water Rights or Stored Water, that is demonstrated to be attributable to the placement, recharge, injection, storage or recapture of Stored Water in the Central Basin, including, but not limited to, degradation of water quality, liquefaction, land subsidence and other material physical injury caused by elevated or lowered groundwater levels. Material Physical Harm does not include "economic injury" that results from other than direct physical causes, including any adverse effect on water rates, lease rates, or demand for water. Once fully mitigated, physical injury shall no longer be considered to be material.

"Natural Replenishment" means and includes all processes other than "Artificial Replenishment" by which water may become a part of the groundwater supply of Central Basin.

"Natural Safe Yield" is the maximum quantity of groundwater, not in excess of the long term average annual quantity of Natural Replenishment, which may be extracted annually from Central Basin without eventual depletion thereof or without otherwise causing eventual permanent damage to Central Basin as a source of groundwater for beneficial use, said maximum quantity being determined without reference to Artificial Replenishment.

"Outgoing Watermaster" is the State of California, Department of Water Resources, the Watermaster appointed pursuant to the terms of the Judgment before this Third Amendment.

"Overdraft" is that condition of a groundwater basin resulting from extractions in any given annual period or periods in excess of the long term average annual quantity of Natural Replenishment, or in excess of that quantity which may be extracted annually without otherwise causing eventual permanent damage to the basin.

"Party" means a party to this action. Whenever the term "party" is used in connection with a quantitative water right, or any quantitative right, privilege or obligation, or in connection with the assessment for the budget of the Watermaster, it shall be deemed to refer collectively to those parties to whom are attributed a Total Water Right in Part I of this Judgment.

"Person" or "persons" include individuals, partnerships, associations, governmental

agencies and corporations, and any and all types of entities.

"Recycled Water" means water that has been reclaimed through treatment appropriate for its intended use in compliance with applicable regulations.

"Regional Disadvantaged Communities Incentive Program" means a program to be developed by Watermaster in the manner provided in Section II(H) of this Judgment, and approved by the Court, whereby a portion of the Community Storage Pool is made available to or for the benefit of Disadvantaged Communities, on a priority basis within the Central Basin.

"Replenishment Assessment" means the replenishment assessment imposed by WRD upon each acre-foot of groundwater extracted from the Central Basin pursuant to WRD's enabling act, California Water Code §§ 60000 et seq.

"Small Water Producers Group" means a body consisting of parties holding no greater than 5,000 acre-feet of Allowed Pumping Allocation, as set forth on Appendix 3 hereto and as may be modified from time to time by the Group's own procedures and the requirements set forth in Appendix 3.

"Storage Panel" or "Central Basin Storage Panel" means a bicameral constituent body of Watermaster consisting of (i) the Central Basin Water Rights Panel and (ii) the Board of Directors of WRD.

"Storage Project" means an activity pertaining to the placement, recharge, injection, storage, transfer, or recapture of Stored Water within the Basin, but does not include actions by WRD undertaken in connection with its replenishment activities.

"Stored Water" means water, including Recycled Water, held within Available Dewatered Space as a result of spreading, injection, in-lieu delivery, or Carryover Conversion, where there is an intention to subsequently withdraw the water for reasonable and beneficial use pursuant to this Judgment.

"Total Water Right" is the quantity arrived at in the same manner as in the computation of "Base Water Right," but including as if extracted in any particular year the Imported Water Use Credit, if any, to which a particular party may be entitled.

"Water" includes only non-saline water, which is that having less than 1,000 parts of

chlorides to 1,000,000 parts of water.

"Water Augmentation Project" means pre-approved physical actions and management activities that provide demonstrated appreciable increases in long-term annual groundwater yield in the Basin that are initiated as provided in this Judgment after January 1, 2013.

"Water Purveyor" means a Party (and successors in interest) which sells water to the public, whether a regulated public utility, mutual water company or public entity. As that term is used in Section III(B)(6), "Water Purveyor," in addition to the foregoing, means a Party which has a connection or connections for the taking of Imported Water through the Metropolitan Water District of Southern California ("MWD"), or through a MWD-member agency, or access to such Imported Water through such connection, and which normally supplies at least a part of its customers' water needs with such Imported Water.

"Watermaster" is defined in Part II and is comprised of (i) the Administrative Body, (ii) the Central Basin Water Rights Panel, and (iii) the Central Basin Storage Panel. Watermaster, and the various constituent bodies of Watermaster, as designated in this Judgment, exist as a special master pursuant to this Judgment and Watermaster serves at the pleasure of the Court. Nothing herein shall be construed as creating an independent designation of "Watermaster" as a public agency subject to the provisions of CEQA, nor does membership or participation as the designated Watermaster expand any statutory, constitutional, or other powers of the members serving as part of the Watermaster.

"West Coast Basin" is the groundwater basin adjacent to the Central Basin which is the subject of a separate adjudication of groundwater rights in *California Water Service Company, et al. v. City of Compton, et al.*, Los Angeles Superior Court Case No. 506806.

"WRD" or "Water Replenishment District" is the plaintiff herein, the Water Replenishment District of Southern California, a special district of the State of California, which brought this action under its former name, "Central and West Basin Water Replenishment District."

In those instances where any of the above-defined words, terms, phrases or clauses are utilized in the definition of any of the other above-defined words, terms, phrases and clauses,

such use is with the same meaning as is above set forth.

NOW THEREFORE, IT IS ORDERED, DECLARED, ADJUDGED AND DECREED WITH RESPECT TO THE ACTION AND CROSS-ACTION AS FOLLOWS:

I. DECLARATION AND DETERMINATION OF WATER RIGHTS OF PARTIES; RESTRICTION ON THE EXERCISE THEREOF.[1]

A. Determination of Rights of Parties.

(1) Each party, except defendants The City of Los Angeles and Department of Water and Power of the City of Los Angeles, whose name is set forth in Appendix 2 and by this reference made a part hereof, and after whose name there appears under the column "Total Water Right" a figure other than "0," is the owner of and has the right to extract annually groundwater from Central Basin for beneficial use in the quantity set forth after that party's name under said column "Total Water Right" as of the close of the Administrative Year ending June 30, 2012 in accordance with the Watermaster Reports on file with this Court and the records of the Plaintiff. This tabulation does not take into account additions or subtractions from any Allowed Pumping Allocation of a producer for the 2012-2013 Administrative Year, nor other adjustments not representing change in fee title to water rights, such as leases of water rights, nor does it include the names of lessees of landowners where the lessees are exercising the water rights. The exercise of all water rights is subject, however, to the provisions of this Judgment as hereinafter contained. All of said rights are of the same legal force and effect and are without priority with reference to each other. Each party whose name is set forth in the tabulation in Appendix "2" of this

[1] Headings in the Judgment are for purposes of reference and the language of said headings do not constitute, other than for such purpose, a portion of this Judgment.

Judgment, and after whose name there appears under the column "Total Water Right" the figure "0," owns no rights to extract any groundwater from Central Basin, and has no right to extract any groundwater from Central Basin.

(2) Defendant The City of Los Angeles is the owner of the right to extract fifteen thousand (15,000) acre feet per annum of groundwater from Central Basin, but it has the right and ability to purchase or lease additional rights to extract groundwater and increase its Allowed Pumping Allocation. Defendant Department of Water and Power of the City of Los Angeles has no right to extract groundwater from Central Basin except insofar as it has the right, power, duty or obligation on behalf of defendant The City of Los Angeles to exercise the water rights in Central Basin of defendant The City of Los Angeles. The exercise of said rights is subject, however, to the provisions of this Judgment hereafter contained, including but not limited to, sharing with other parties in any subsequent decreases or increases in the quantity of extractions permitted from Central Basin, pursuant to continuing jurisdiction of the Court, on the basis that fifteen thousand (15,000) acre feet (and any increase in its Allowed Pumping Allocation) bears to the Allowed Pumping Allocations of the other parties.

(3) No party to this action is the owner of or has any right to extract groundwater from Central Basin except as herein affirmatively determined.

B. Parties Enjoined as to Quantities of Extractions.

(1) Each party, other than The State of California and The City of Los Angeles and Department of Water and Power of The City of Los Angeles, is enjoined and restrained in any Administrative Year commencing after the date this Judgment becomes final from extracting from Central Basin any quantity of Water greater than the party's Allowed Pumping Allocation as hereinafter set forth next to the name of the party in the tabulation appearing in Appendix 2 at the end of this Judgment, subject to further provisions of this Judgment. Subject to such further provisions, the officials, agents and employees of The State of

California are enjoined and restrained in any such Administrative Year from extracting from Central Basin collectively any quantity of water greater than the Allowed Pumping Allocation of The State of California as hereinafter set forth next to the name of that party in the same tabulation. Each party adjudged and declared above not to be the owner of and not to have the right to extract groundwater from Central Basin is enjoined and restrained in any Administrative Year commencing after the date this Judgment becomes final from extracting any groundwater from Central Basin, except as may be hereinafter permitted to any such party under this Judgment.

(2) The total extraction right for each party includes a party's Allowed Pumping Allocation (to the extent not transferred by agreement or otherwise), any contractual right acquired through lease or other agreement to extract or use the rights of another party, and any right to extract Stored Water or Carryover as provided in this Judgment. No party may extract in excess of 140% of the sum of (i) the party's Allowed Pumping Allocation and (ii) the party's leased water, except upon prior approval by the applicable body of Watermaster as required pursuant to Section IV(J)as provided herein. Upon application, the body specified in Section IV(J) shall approve a party's request to extract water in excess of such limit, provided there is no Material Physical Harm. Requests to extract water in excess of such limit shall be reviewed and either approved or denied within thirty (30) days of such request.

(3) Defendant The City of Los Angeles is enjoined and restrained in any Administrative Year commencing after the date this Judgment becomes final from extracting from Central Basin any quantity of water greater than fifteen thousand (15,000) acre feet or its Allowed Pumping Allocation, as recognized by the Watermaster, if it acquires additional rights to pump groundwater through purchase or lease, subject to further provisions of this Judgment, including but not limited to, sharing with other parties in any subsequent decreases or increases in

the quantity of extractions permitted from Central Basin by parties, pursuant to continuing jurisdiction of the Court, on the basis that fifteen thousand (15,000) acre feet (or the adjusted Allowed Pumping Allocation if additional rights are acquired) bears to the Allowed Pumping Allocations of the other parties. Defendant Department of Water and Power of The City of Los Angeles is enjoined and restrained in any Administrative Year commencing after the date this Judgment becomes final from extracting from Central Basin any quantity of water other than such as it may extract on behalf of defendant The City of Los Angeles, and which extractions, along with any extractions by said City, shall not exceed that quantity permitted by this Judgment to that City in any Administrative Year. Whenever in this Judgment the term "Allowed Pumping Allocation" appears, it shall be deemed to mean as to defendant The City of Los Angeles the quantity of fifteen thousand (15,000) acre feet unless the City of Los Angeles has acquired through purchase or lease right to extract additional groundwater. The limit on extraction as provided in the preceding Section I(B)(1) shall also apply to The City of Los Angeles.

(4) Any rights decreed and adjudicated herein may be transferred, assigned, licensed or leased by the owner thereof provided, however, that no such transfer shall be complete until compliance with the appropriate notice procedures established by Watermaster.

(5) Unless a party elects otherwise, production of water from the Basin for the use or benefit of the parties hereto shall be counted against the party's total extraction right in the following order: (i) Increased extractions by certain qualified water rights holders pursuant to Section IV(K), (ii) Exchange Pool production, (iii) production of Carryover water, (iv) production of leased water, , (v) production of Allowed Pumping Allocation, (vi) production of Stored Water, (vii) production of Drought Carryover (according to Watermaster's Rules), and (viii) production of water under an agreement with WRD during a period of

emergency pursuant to Section III(B)(6).

C. Parties Enjoined as to Export of Extractions.

Except as expressly authorized herein, or upon further order of the Court, all parties are enjoined and restrained from transporting water extracted from the Central Basin outside the boundaries of the Central Basin Area. For purposes of this Section, water supplied by a Water Purveyor to its customers located within any of its service areas contiguous to the Central Basin or within WRD's service area shall be exempt from the export prohibition of this Section provided that the Water Purveyor also provides water to a service area that overlies the Basin in whole or in part. The foregoing exemption is not made, nor is it related to, a determination of an underflow between the basins, a cost or benefit allocation, or any other factor relating to the allocation of the Replenishment Assessment by WRD. Further, this injunction and restriction does not apply to export of water that will take place pursuant to contractual obligations specifically identified on Appendix 4, nor does it apply to export of Stored Water not having its origin in Carryover Conversion. The export identified on Appendix 4 may continue to the extent that any such extraction does not violate any other provisions of this Judgment, provided however that no such export identified on Appendix 4 shall exceed 5,000 acre-feet in any Year.

II. APPOINTMENT OF WATERMASTER; WATERMASTER ADMINISTRATION PROVISIONS.

The particular bodies specified below are, jointly, hereby appointed Watermaster, for an indefinite term, but subject to removal by the Court, to administer this Judgment. Such bodies, which together shall constitute the "Watermaster," shall have restricted powers, duties and responsibilities as specified herein, it being the court's intention that particular constituent bodies of Watermaster have only limited and specified powers over certain aspects of the administration of this Judgment. The Outgoing Watermaster will exercise reasonable diligence in the complete transition of Watermaster duties and responsibilities within a reasonable time

following entry of this order, and to make available to the new Watermaster all records concerning Watermaster activities. The chair of the Central Basin Water Rights Panel (defined below) shall thereafter represent the Watermaster before the Court.

A. The Administrative Body.

Plaintiff Water Replenishment District of Southern California ("WRD") is appointed the Administrative Body of the Central Basin Watermaster ("Administrative Body"). In order to assist the Court in the administration of the provisions of this Judgment and to keep the Water Rights Panel and the Court fully advised in the premises, the Administrative Body shall have the following duties, powers and responsibilities:

(1) To Require Reports, Information and Records.

In consultation with the Water Rights Panel, the Administrative Body shall require the parties to furnish such reports, information and records as may be reasonably necessary to determine compliance or lack of compliance by any party with the provisions of this Judgment.

(2) Storage Projects.

The Administrative Body shall exercise such powers as may be specifically granted to it under this Judgment with regard to Stored Water.

(3) Annual Report.

The Administrative Body shall prepare, on or before the 15th day of the fourth month following the end of the preceding Administrative Year, an annual report for the consideration of the Water Rights Panel. The Chair of the Water Rights Panel shall submit to the Court either (1) the annual report prepared by the Administrative Body, following the adoption by the Water Rights Panel, or (2) an annual report separately prepared and adopted by the Water Rights Panel. The annual report prepared by the Administrative Body shall be limited to the following, unless otherwise required by the Court:

(a) Groundwater extractions

(b) Storage Accounts maintained by each party

(c) Status of the Regional Disadvantaged Community Incentive Program, if approved by the Court

(d) Exchange Pool operation

(e) Use of Imported Water

(f) Violations of this Judgment and corrective action taken by bodies of Watermaster having jurisdiction as provided in this Judgment

(g) Change of ownership of Total Water Rights

(h) Watermaster administration costs

(i) Water spread or imported into the Basin

(j) Water Augmentation Projects

(k) Whether the Administrative Body has become aware of the development of a Material Physical Harm, or imminent threat of the development of a Material Physical Harm, as required pursuant to Section IV(B) of this Judgment

(l) Other matters as agreed with the Water Rights Panel

(m) Recommendations, if any.

In consultation with the Water Rights Panel, the Administrative Body shall provide reasonable notice to all parties of all material actions or determinations by Watermaster or any constituent body thereof, and as otherwise provided by this Third Amended Judgment.

(4) Annual Budget and Appeal Procedure in Relation Thereto.

By April 1 of each Administrative Year, the Administrative Body shall prepare a proposed administrative budget for the subsequent year stating the anticipated expense for performing the administrative functions specified in this Judgment (the "Administrative Budget"). The Administrative Body shall mail a copy of the proposed Administrative Budget to each of the Parties at least 60 days

before the beginning of each Administrative Year. The Administrative Budget mailed to the Parties shall provide sufficient detail in the Administrative Budget to demonstrate a separation in accounting between the Administrative Budget and WRD's Replenishment Assessment and operating budget. For the first Administrative Year of operation under this Third Amended Judgment, if the Administrative Body is unable to meet the above time requirement, the Administrative Body shall mail said copies as soon as possible. The first year the Administrative Budget is prepared, the amount of that budget shall not exceed an amount equal to fifty percent (50%) of the 2012-2013 charge for Watermaster service for the Central Basin collected from Parties by the California Department of Water Resources. At all times, the Administrative Body shall maintain a separation in accounting between the Administrative Budget and WRD's Replenishment Assessment and operating budget. All increases in future budgets for the Administrative Body above the amount set forth above shall be subject to approval by the Water Rights Panel following a public meeting to be held prior to the beginning of the Administrative Year, provided that the approved budget shall not be less than the amount of the first-year budget for the Administrative Body, except upon further order of the Court. Any administrative function by WRD already paid for by the Replenishment Assessment shall not be added as an expense in the Administrative Budget. Similarly, any expense paid for by the Administrative Budget shall not be added to WRD's operating budget, or otherwise added to the calculation of the Replenishment Assessment. While WRD may approve the proposed Administrative Budget at the same meeting in which WRD adopts its annual Replenishment Assessment or annual budget, the Administrative Body's budget shall be separate and distinct from the Replenishment Assessment imposed pursuant to Water Code §60317 and WRD's operating budget.

If approval by the Water Rights Panel is required pursuant to the

foregoing, the Water Rights Panel shall act upon the proposed budget within 15 calendar days after the public meeting. If the Water Rights Panel does not approve the budget prior to such deadline, the matter may be appealed to the Court within sixty (60) days. If any Party hereto has any objection to the Administrative Budget, it shall present the same in writing to Watermaster within 15 days after the date of mailing of said tentative budget by the Administrative Body. The Parties shall make the payments otherwise required of them to the Administrative Body even though an appeal of such budget may be pending. Upon any revision by the Court, the Administrative Body shall either remit to the Parties their pro rata portions of any reduction in the budget, or shall credit their accounts with respect to their budget assessments for the next ensuing Administrative Year, as the Court shall direct.

The amount of the Administrative Budget to be assessed to each party shall be determined as follows: If that portion of the final budget to be assessed to the Parties is equal to or less than $20.00 per party then the cost shall be equally apportioned among the Parties. If that portion of the final budget to be assessed to Parties is greater than $20.00 per party then each Party shall be assessed a minimum of $20.00. The amount of revenue expected to be received through the foregoing minimum assessments shall be deducted from that portion of the final budget to be assessed to the Parties and the balance shall be assessed to the Parties having Allowed Pumping Allocation, such balance being divided among them proportionately in accordance with their respective Allowed Pumping Allocation.

Payment of the assessment provided for herein, subject to adjustment by the Court as provided, shall be made by each such party prior to beginning of the Administrative Year to which the assessment relates, or within 40 days after the mailing of the tentative budget, whichever is later. If such payment by any Party is not made on or before said date, the Administrative Body shall add a penalty of 5% thereof to such party's statement. Payment required of any Party hereunder

may be enforced by execution issued out of the Court, or as may be provided by order hereinafter made by the Court, or by other proceedings by the Watermaster or by any Party on the Watermaster's behalf.

Any money unexpended at the end of any Administrative Year shall be applied to the budget of the next succeeding Administrative Year. The Administrative Body shall maintain no reserves.

Notwithstanding the above, no part of the budget of the Administrative Body shall be assessed to WRD or to any Party who has not extracted water from Central Basin for a period of two successive Administrative Years prior to the Administrative Year in which the tentative budget should be mailed by the Administrative Body under the provisions of this subparagraph (4).

(5) Rules.

The Administrative Body may adopt, and amend from time to time, rules consistent with this Judgment as may be reasonably necessary to carry out duties under the provisions of this Judgment within its particular area of responsibility. The Body shall adopt its first set of rules and procedures within three (3) months following entry of this Third Amended Judgment. The rules shall be effective on such date after the mailing thereof to the Parties as is specified by the Body, but not sooner than thirty (30) days after such mailing.

B. The Central Basin Water Rights Panel.

The Central Basin Water Rights Panel of the Central Basin Watermaster ("Water Rights Panel") shall consist of seven (7) members, each of which is a Party. The term of each member of the Panel, with the exception of the seat held by the Small Water Producers Group, as provided herein, shall be limited to four years. The Court will make the initial appointments to the Central Basin Water Rights Panel upon motion by Parties consistent with the categories set forth below at or about the time of entry of this Third Amended Judgment, and shall establish a procedure for the staggered terms of such members. Thereafter, elections of members of the Panel shall be held as provided herein. One (1) such member of the Water Rights Panel shall be

elected by vote of the Small Water Producers Group conducted in accordance with its own procedures, provided such Group, as of the date of the election, consists of at least five (5) members who are Water Purveyors. One (1) such member of the Water Rights Panel shall be elected by vote of Parties with Allowed Pumping Allocation of less than 5,000 acre-feet who are not members of the Small Water Producers Group or, if the Small Water Producers Group does not then qualify following a continuous six-month period of non-qualification as provided herein, then two (2) such members shall be so selected. One (1) such member of the Water Rights Panel shall be elected by vote of Parties with Allowed Pumping Allocation of at least 5,000 acre-feet but less than 10,000 acre-feet. Three (3) such members of the Water Rights Panel shall be elected by vote of Parties with Allowed Pumping Allocation of 10,000 acre-feet or greater. One (1) such member of the Water Rights Panel shall be elected by a vote of all holders of Allowed Pumping Allocations, with each such holder being entitled to one vote, such member to be elected by a plurality of the votes cast, following a nomination procedure to be established in the Water Rights Panel's rules. In the event of a tie, the seventh member shall be determined as may be provided in the Water Rights Panel's rules, or otherwise by the court. Except as otherwise provided in this Section, each such rights holder shall have the right to cast a total number of votes equal to the number of acre-feet of its Allowed Pumping Allocation (rounded to the next highest whole number). With the exception of voting for the seventh member, Parties shall be entitled to vote only for candidates within the category(ies) that represent that Party's Allowed Pumping Allocation. For example, parties who are members of the Small Water Producers Group are entitled to vote only for the Small Water Producer Group member and the seventh member of the Water Rights Panel, and so on. Parties are not permitted to split votes. The results of such election shall be reported to the Court for confirmation of each member's appointment to the Water Rights Panel of Watermaster. The elected members of the Water Rights Panel shall be those candidates receiving the highest vote total in their respective categories. The Water Rights Panel shall hold its first meeting within thirty (30) days of the date this Third Amended Judgment becomes final. The Water Rights Panel shall develop rules for its operation consistent with this Judgment. The Water Rights Panel shall take action, including the

election of its Chair, by majority vote of its members. Election of the Chair shall occur every two years, with no Party serving as Chair for consecutive terms. Members of the Water Rights Panel shall serve without compensation. All references to Annual Pumping Allocation, as used herein, are as determined by the last published Watermaster report.

(1) The Water Rights Panel shall have the following duties and responsibilities:

(a) Enforcement of Adjudicated Rights. As against the other bodies of Watermaster, the Water Rights Panel shall have exclusive authority to move the Court to take such action as may be necessary to enforce the terms of the Judgment with regard to the extraction of Allowed Pumping Allocation and the maintenance of adjudicated groundwater extraction rights as provided in this Judgment.

(b) Requirement of Measuring Devices. The Water Rights Panel shall require all parties owning or operating any facilities for the extraction of groundwater from Central Basin to install and maintain at all times in good working order at such party's own expense, appropriate measuring devices at such times and as often as may be reasonable under the circumstances and to calibrate or test such devices.

(c) Inspections by Watermaster. The Water Rights Panel may make inspections of groundwater production facilities, including aquifer storage and recovery facilities, and measuring devices at such times and as often as may be reasonable under the circumstances and to calibrate or test such devices.

(d) Reports. Annually, the Water Rights Panel, in cooperation with the Administrative Body, shall report to the Court, concerning any or all of the following:

(i) Groundwater extractions

(ii) Exchange Pool operation

(iii) Status of the Regional Disadvantaged Community Incentive Program, if approved by the Court

(iv) Violations of this Judgment and corrective action taken or sought

(v) Change of ownership of Total Water Rights

(vi) Assessments made by the Water Rights Panel and any costs incurred

(vii) Whether the Water Rights Panel has become aware of the development of a Material Physical Harm, or imminent threat of the development of a Material Physical Harm, as required pursuant to Section IV(B) of this Judgment

(viii) Recommendations, if any.

As provided in Section II.A(3), the Water Rights Panel may adopt the annual report prepared by the Administrative Body, and submit the same to the Court, or the Water Rights Panel may prepare, adopt and submit to the Court a separate report. The Chair of the Water Rights Panel shall be responsible for reporting to the Court concerning adjudicated water rights issues in the Basin.

(2) Assessment. The Water Rights Panel shall assess holders of water rights within the Central Basin an annual amount not to exceed $1.00 per acre-foot of Allowed Pumping Allocation, by majority vote of the members of the Water Rights Panel. The body may assess a higher amount, subject to being overruled by Majority Protest. The assessment is intended to cover any costs associated with reporting responsibilities, any Judgment enforcement action, and the review of storage projects as a component of the "Storage Panel" as provided below. It is anticipated that this body will rely on the Administrative Body's staff for the functions related to the Administrative Body's responsibilities, but the

Water Rights Panel may engage its own staff if required in its reasonable judgment. Assessments will constitute a lien on the water right assessed, enforceable as provided in this Judgment.

(3) Rules. The Water Rights Panel may adopt and amend from time to time, at an open meeting of that Panel, rules consistent with this Judgment as may be reasonably necessary to carry out duties under the provisions of this Judgment within its particular area of responsibility. The Panel shall adopt its first set of rules and procedures within three (3) months following entry of this Third Amended Judgment. The rules shall be effective on such date after the mailing thereof to the Parties as is specified by the Panel, but not sooner than thirty (30) days after such mailing.

C. The Storage Panel.

The Storage Panel of the Central Basin Watermaster ("Storage Panel") shall be a bicameral body consisting of (i) the Water Rights Panel and (ii) the Board of Directors of WRD. Action by the Storage Panel shall require separate action by a majority of each of its constituent bodies. The Storage Panel shall have the duties and responsibilities specified with regard to the Provisions for the Storage and Extraction of Stored Groundwater as set forth in Part IV and the other provisions of this Judgment.

D. Use of Facilities and Data Collected by Other Governmental Agencies.

Where practicable, the three bodies constituting the Central Basin Watermaster should not duplicate the collection of data relative to conditions of the Central Basin which is then being collected by one or more governmental agencies, but where necessary each such body may collect supplemental data. Where it appears more economical to do so, the Watermaster and its constituent bodies are directed to use such facilities of other governmental agencies as are available to it under either no cost or cost agreements with respect to the receipt of reports, billings to parties, mailings to parties, and similar matters.

E. Appeal from Watermaster Decisions.

Appeals concerning the budget proposed by the Administrative Body shall be governed by Section II(A)(4) of this Judgment. Appeals concerning decisions by the Storage Panel shall be governed by Section IV(P) of this Judgment. With respect to all other objections by a Party to any action or decision by the Watermaster, such objections will be governed by this Section II(E). Any party interested therein who objects to any rule, determination, order or finding made by the Watermaster or any constituent body thereof, may object thereto in writing delivered to the Administrative Body within 30 days after the date the Watermaster, or any constituent body thereof, mails written notice of the making of such rule, determination, order or finding. Within 30 days after such delivery the Watermaster, or the affected constituent body thereof, shall consider said objection and shall amend or affirm his rule, determination, order or finding and shall give notice thereof to all parties. Any such party may file with the Court within 60 days from the date of said notice any objection to such rule, determination, order or finding of the Watermaster, or any constituent body thereof, and bring the same on for hearing before the Court at such time as the Court may direct, after first having served said objection upon all other parties. The Court may affirm, modify, amend or overrule any such rule, determination, order or finding of the Watermaster or its affected constituent body. Any objection under this paragraph shall not stay the rule, determination, order or finding of the Watermaster. However, the Court, by *ex parte* order, may provide for a stay thereof on application of any interested party on or after the date that any such party delivers to the Watermaster any written objection.

F. Effect of Non-Compliance by Watermaster With Time Provisions.

Failure of the Watermaster to perform any duty, power or responsibility set forth in this Judgment within the time limitation herein set forth shall not deprive the Watermaster or its applicable constituent body of authority to subsequently discharge such duty, power or responsibility, except to the extent that any such failure by the Watermaster may have rendered some otherwise required act by a party impossible.

G. Limitations on Administrative Body.

WRD shall not acquire Central Basin water rights, nor lease Central Basin water or water rights to or from any Party or third party. However, the foregoing shall (i) not be interpreted to restrict WRD's ability or authority to acquire water from any source for purposes of Artificial or Natural Replenishment or for water quality activities, and (ii) not restrict WRD's authority under California Water Code Section 60000 et seq. to develop reclaimed, recycled or remediated water for groundwater replenishment activities.

H. Regional Disadvantaged Communities Incentive Program.

The Water Rights Panel, acting through the General Manager of WRD, shall develop a Regional Disadvantaged Communities Incentive Program, pursuant to which a portion of the Community Storage Pool is reserved for the benefit of Disadvantaged Communities within the Central Basin. Nothing in this Judgment, nor the establishment of such a program, shall diminish the rights otherwise granted to Parties under this Judgment, including but not limited to the right to place water in storage in the Community Storage Pool. The Water Rights Panel shall meet within thirty (30) days of its formation to identify and consider potential third-party independent consultants who may be retained to design the program, including those recommended by the General Manager of WRD. The Water Rights Panel shall select a consultant within thirty (30) days thereafter. In the event the General Manager of WRD objects to the selected consultant, in writing, then the Water Rights Panel and the General Manager of WRD shall exchange a list of no more than two (2) consultants each for further consideration. If the Water Rights Panel and the General Manager of WRD are unable to agree to a consultant within an additional thirty (30) days, then the Chair of the Water Rights Panel shall file a request with the Court for an order appointing a consultant. Upon selection of a third-party independent consultant, whether through the Water Rights Panel process or the court process identified herein, the consultant shall design a detailed program and deliver it to the Water Rights Panel within ninety (90) days of the consultant's retention. All costs associated with design of the program shall be paid for out of the Water Rights

Panel's assessment, as provided in Section II.B(2). The Water Rights Panel shall present the program to the Court for its review and approval within one year of entry of this Third Amended Judgment. If approved by the Court, the Water Rights Panel, acting through the General Manager of WRD, shall be responsible for administration of the Regional Disadvantaged Communities Incentive Program, including insuring that any funds generated through the program benefit Disadvantaged Communities. Any Storage Project established pursuant to this Program shall have priority to use up to 23,000 acre-feet of Available Storage within the Community Storage Pool, as further provided in Section IV.E(2). Watermaster shall report to the Court concerning such program as a part of its annual report.

III. PROVISIONS FOR PHYSICAL SOLUTION TO MEET THE WATER REQUIREMENTS IN CENTRAL BASIN.

In order to provide flexibility to the injunction set forth in Part I of the Judgment, and to assist in a physical solution to meet water requirements in Central Basin, the injunction so set forth is subject to the following provisions.

A. Carryover of Portion of Allowed Pumping Allocation.

(1) Amount of Carryover.

Each party adjudged to have a Total Water Right or water rights and who, during a particular Administrative Year, does not extract from Central Basin a total quantity equal to such party's Allowed Pumping Allocation for the particular Administrative Year, less any allocated subscriptions by such party to the Exchange Pool, or plus any allocated requests by such party for purchase of Exchange Pool water, is permitted to carry over (the "One Year Carryover") from such Administrative Year the right to extract from Central Basin in the next succeeding Administrative Year so much of said total quantity as it did not extract in the particular Administrative Year, not to exceed (i) the Applicable Percentage of such party's Allowed Pumping Allocation for the particular Administrative

Year, or 20 acre-feet, whichever of said percentage or 20 acre-feet is the larger, less (ii) the total quantity of water then held in that party's combined Individual and Community Storage accounts, as hereinafter defined, but in no event less than 20% of the party's Allowed Pumping Allocation for the particular Administrative Year. For purposes of this Section, the "Applicable Percentage" shall be as follows for the years indicated:

For the Administrative Year in which this Third Amended Judgment becomes final:	30%
For the next Administrative Year:	40%
For the next Administrative Year:	50%
For the next Administrative Year and years following:	60%

(2) Conversion of Carryover to Stored Water.

A party having Carryover may, from time to time, elect to convert all or part of such party's Carryover to Stored Water as authorized herein ("Carryover Conversion") upon payment of the Replenishment Assessment to WRD. Such Stored Water shall be assigned to that party's Individual Storage Allocation, if available, and otherwise to the Community Storage Pool.

(3) Declared Water Emergency.

The Board of Directors of WRD may, from time to time, declare a water emergency upon a determination that conditions within the Central Basin relating to natural and imported water supplies are such that, without implementation of the Declared Water Emergency provisions of this subsection, the water resources of the Central Basin risk degradation. In making such declaration, the Board of Directors shall consider any information and requests provided by water producers, purveyors and other affected entities and shall, for that purpose, hold a public hearing in advance of such declaration. A Declared Water Emergency

shall extend to the end of the Administrative Year during which such resolution is adopted, unless sooner ended by similar resolution.

(4) Drought Carryover.

Following the declaration of a Declared Water Emergency and until the Declared Water Emergency ends either by expiration or by resolution of the Board of Directors of WRD, each party adjudged to have a Total Water Right or water rights and who, during a particular Administrative Year, does not extract from Central Basin a total quantity equal to such party's Allowed Pumping Allocation for the particular Administrative Year, less any allocated subscriptions by such party to the Exchange Pool, or plus any allocated requests by such party for purchase of Exchange Pool water, is permitted to carry over (the "Drought Carryover") from such Administrative Year the right to extract from Central Basin so much of said total quantity as it did not extract during the period of the Declared Water Emergency, to the extent such quantity exceeds the One Year Carryover, not to exceed an additional 35% of such party's Allowed Pumping Allocation, or additional 35 acre feet, whichever of said 35% or 35 acre feet is the larger, less the amount of such party's Stored Water. Carryover amounts shall first be allocated to the One Year Carryover and any remaining carryover amount for that year shall be allocated to the Drought Carryover.

(5) Accumulated Drought Carryover.

No further amounts shall be added to the Drought Carryover following the end of the Declared Water Emergency, provided however that in the event another Declared Water Emergency is declared, additional Drought Carryover may be added, to the extent such additional Drought Carryover would not cause the total Drought Carryover to exceed the limits set forth above. The Drought Carryover shall be supplemental to and shall not affect any previous drought carryover acquired by a party pursuant to previous order of the court.

B. When Over-Extractions May be Permitted.

(1) Underestimation of Requirements for Water.

Any party hereto without Stored Water, having an Allowed Pumping Allocation, and not in violation of any provision of this Judgment may extract in an Administrative Year an additional quantity of water not to exceed: (a) 20% of such party's Allowed Pumping Allocation or 20 acre feet, whichever is greater, and (b) any amount in addition thereto which may be approved in advance by the Water Rights Panel of Watermaster.

(2) Reductions in Allowed Pumping Allocations in Succeeding Years to Compensate for Permissible Overextractions.

Any such party's Allowed Pumping Allocation for the following Administrative Year shall be reduced by the amount over-extracted pursuant to paragraph 1 above, provided that if the Water Rights Panel determines that such reduction in the party's Allowed Pumping Allocation in one Administrative Year will impose upon such a party an unreasonable hardship, the said reduction in said party's Allowed Pumping Allocation shall be prorated over a period of five (5) Administrative Years succeeding that in which the excessive extractions by the party occurred. Application for such relief to the Water Rights Panel must be made not later than the 40th day after the end of the Administrative Year in which such excessive pumping occurred. The Water Rights Panel shall grant such relief if such over-extraction, or any portion thereof, occurred during a period of Declared Water Emergency.

(3) Reductions in Allowed Pumping Allocations for the Next Succeeding Administrative Year to Compensate for Overpumping.

Whenever, pursuant to Section III(B)(1), a party over-extracts in excess of such party's Allowed Pumping Allocation plus that party's available One-Year Carryover and any Stored Water held by that party, and such excess has not been approved in advance by the Water Rights Panel, then such party's Allowed Pumping Allocation for the following Administrative Year shall be reduced by an

amount equivalent to its total over-extractions in the particular Administrative Year in which it occurred.

(4) Reports of Certain Over-extractions to the Court.

Whenever a party over-extracts in excess of 20% of such party's Allowed Pumping Allocation for the particular Administrative Year plus that party's available One-Year Carryover and any Stored Water held by that party, without having obtained prior approval of the Water Rights Panel, such shall constitute a violation of the Judgment and the Water Rights Panel shall make a written report to the Court for such action as the Court may deem necessary. Such party shall be subject to such injunctive and other processes and action as the Court might otherwise take with regard to any other violation of such Judgment.

(5) Effect of Over-extractions on Rights.

Any party who over-extracts from Central Basin in any Administrative Year shall not acquire any additional rights by reason of such over-extractions; nor shall any required reductions in extractions during any subsequent years reduce the Total Water Right or water rights of any party to the extent said over-extractions are in compliance with paragraph 1 above.

(6) Pumping Under Agreement With Plaintiff During Periods of Emergency.

Plaintiff WRD overlies Central Basin and engages in activities of replenishing the groundwaters thereof. Plaintiff by resolution has appropriated for use during emergencies the quantity of 17,000 acre feet of imported and reclaimed water replenished by it into Central Basin, and pursuant to such resolution Plaintiff reserves the right to use or cause the use of such quantity during such emergency periods for the benefit of Water Purveyors.

(a) Notwithstanding any other provision of this Judgment, parties who are Water Purveyors (including successors in interest) are authorized to enter into agreements with Plaintiff for extraction of a

portion of Plaintiff's 17,000 acre-feet of appropriated water, in excess of their respective Allowed Pumping Allocations for the particular Administrative Year when the following conditions are met:

(i) Plaintiff is in receipt of a resolution of the Board of Directors of the Metropolitan Water District of Southern California ("MWD") that there is an actual or immediately threatened temporary shortage of MWD's imported water supply compared to MWD's needs, or a temporary inability to deliver MWD's imported water supply throughout its area, which will be alleviated by overpumping from Central Basin.

(ii) The Board of Directors of both Plaintiff and Central Basin Municipal Water District by resolutions concur in the resolution of MWD's Board of Directors, and the Board of Directors of Plaintiff finds in its resolution that the average minimum elevation of water surface among those wells in the Montebello Forebay of the Central Basin designated as Los Angeles County Flood Control District Wells Nos. 1601T, 1564P, 1615P, and 1626L, is at least 43.7 feet above sea level. This computation shall be based upon the most recent "static readings" taken, which shall have been taken not more than four weeks prior. Should any of the wells designated above become destroyed or otherwise be in a condition so that readings cannot be made, or should the owner prevent their use for such readings, the Board of Directors of the Plaintiff may, upon appropriate engineering recommendation, substitute such other well or wells as it

may deem appropriate.

(iii) In said resolution, Plaintiff's Board of Directors sets a public hearing, and notice of the time, place and date thereof (which may be continued from time to time without further notice) is given by First Class Mail to the current designees of the Parties, filed and served in accordance with Section VI(C) of this Judgment. Said notice shall be mailed at least five (5) days before the scheduled hearing date.

(iv) At said public hearing, parties (including successors in interest) are given full opportunity to be heard, and at the conclusion thereof the Board of Directors of Plaintiff by resolution decides to proceed with agreements under this Section III(B)(6).

(b) All such agreements shall be subject to the following requirements, and such others as Plaintiff's Board of Directors shall require:

(i) They shall be of uniform content except as to quantity involved, and any special provisions considered necessary or desirable with respect to local hydrological conditions or good hydrologic practice.

(ii) They shall be offered to all Water Purveyors, excepting those which Plaintiff's Board of Directors determines should not overpump because such overpumping would occur in undesirable proximity to a sea water barrier project designed to forestall sea water intrusion, or within or in undesirable proximity to an area within Central Basin wherein groundwater levels are at an

elevation where overpumping is under all the circumstances then undesirable.

(iii) The maximum terms for the agreements shall be four (4) months, which agreements shall commence on the same date and end on the same date (and which may be executed at any time within the four-month period), unless an extension thereof is authorized by the Court, under Part V of this Judgment.

(iv) They shall contain provisions requiring that the Water Purveyor executing the agreement pay to the Plaintiff a price in addition to the applicable replenishment assessment determined on the following formula. The normal price per acre-foot of Central Basin Municipal Water District's (CBMWD) treated domestic and municipal water, as "normal" price of such category of water is defined in Section III(C)(10) (price to be paid for Exchange Pool Water) as of the beginning of the contract term less the deductions set forth in said paragraph 10 for the Administrative Year in which the contract term commences. The agreement shall provide for adjustments in the first of said components for any proportional period of the contract term during which the CBMWD said normal price is changed, and if the agreement straddles two administrative years, the said deductions shall be adjusted for any proportionate period of the contract term in which the amount thereof or of either subcomponent changes for purposes of said paragraph 10. Any price for a partial acre-foot shall be computed pro rata. Payments shall be due and

payable on the principle that over extractions under the agreement are of the last water pumped in the Administrative Year, and shall be payable as the agreement shall provide.

(v) They shall contain provisions that: (1) All of such agreements (but not less than all) shall be subject to termination by Plaintiff if, in the Judgment of Plaintiff's Board of Directors, the conditions or threatened conditions upon which they were based have abated to the extent over extractions are no longer considered necessary; and (2) that any individual agreement or agreements may be terminated if the Plaintiff's Board of Directors finds that adverse hydrologic circumstances have developed as a result of over extractions by any Water Purveyor(s) which have executed said agreements, or for any other reason that Plaintiff's Board of Directors finds good and sufficient.

(c) Other matters applicable to such agreements and overpumping thereunder are as follows, without need for express provisions in the agreements;

(i) The quantity of overpumping permitted shall be additional to that which the Water Purveyor could otherwise overpump under this Judgment.

(ii) The total quantity of permitted overpumping under all said agreements during said four months shall not exceed seventeen thousand (17,000) acre feet, but the individual Water Purveyor shall not be responsible or affected by any violation of this requirement. That total is additional to over extractions otherwise permitted under

this Judgment.

(iii) Only one four month period may be utilized by Plaintiff in entering into such agreements, as to any one emergency or continuation thereof declared by MWD's Board of Directors under Section III(B)(6)(a).

(iv) If any party claims it is being damaged or threatened with damage by the over extractions by any party to such an agreement, the first party or the Water Rights Panel may seek appropriate action of the Court for termination of any such agreement upon notice of hearing to the party complaining, to the party to said agreement, to the plaintiff, and to any parties who have filed a request for special notice. Any termination shall not affect the obligation of the party to make payments under the agreement for over extractions which did occur thereunder.

(v) Plaintiff shall maintain separate accounting of the proceeds from payments made pursuant to agreements entered into under this Part. Said fund shall be utilized solely for purposes of replenishment in replacement of waters in Central Basin and West Basin. Plaintiff shall as soon as practicable cause replenishment in Central Basin by the amounts to be overproduced pursuant to this Paragraph 6, whether through spreading, injection, or in lieu agreements.

(vi) Over extractions pursuant to the agreements shall not be subject to the "make up" provisions of the Judgment as amended, provided that if any party fails to make payments as required by the agreement, Plaintiff may

require such "make up" under Section III(B)(3) of this Judgment.

(vii) A Water Purveyor under any such agreement may, and is encouraged to enter into appropriate arrangements with customers who have water rights in Central Basin under or pursuant to this Judgment whereby the Water Purveyor will be assisted in meeting the objectives of the agreement.

(7) Exemption for Extractors of Contaminated Groundwater.

Any party herein may petition WRD for a Non-consumptive Water Use Permit as part of a project to remedy or ameliorate groundwater contamination. If the petition is granted as set forth in this paragraph, the petitioner may extract the groundwater as permitted hereinafter, without the production counting against the petitioner's production rights.

(a) If the Board of WRD determines by Resolution that there is a problem of groundwater contamination that a proposed program will remedy or ameliorate, an operator may make extractions of groundwater to remedy or ameliorate that problem without the production counting against the petitioner's production rights if the water is not applied to beneficial surface use, its extractions are made in compliance with all the terms and conditions of the Board Resolution, and the Board has determined in the Resolution either of the following:

(i) The groundwater to be extracted is unusable and cannot be economically treated or blended for use with other water.

(ii) The proposed program involves extraction of usable water in the same quantity as will be returned to the

underground without degradation of quality.

(b) The Resolution may provide those terms and conditions the Board deems appropriate, including, but not limited to, restrictions on the quantity of the extractions to be so exempted, limitations on time, periodic reviews, requirement of submission of test results from a Board-approved laboratory, and any other relevant terms or conditions.

(c) Upon written notice to the operator involved, the Board may rescind or modify its Resolution. The rescission or modification of the Resolution shall apply to groundwater extractions occurring more than ten (10) days after the rescission or modification. Notice of rescission or modification shall be either mailed first class mail, postage prepaid, at least two weeks prior to the meeting of the Board at which the rescission or modification will be made to the address of record of the operator or personally delivered two weeks prior to the meeting.

(d) The Board's decision to grant, deny, modify or revoke a permit or to interrupt or stop a permitted project may be appealed to this court within thirty days of the notice thereof to the applicant and upon thirty days' notice to the designees of all parties herein.

(e) WRD shall monitor and periodically inspect the project for compliance with the terms and conditions for any permit issued pursuant to these provisions.

(f) No party shall recover costs from any other party herein in connection with determinations made with respect to this Part.

(8) "Call" on Carryover Converted to Stored Water.

Where any Party has elected, as permitted by Section III(A)(2), to convert Carryover to Stored Water, any other Party which has not, within the previous ten (10) years, been granted approval to extract Carryover Conversion under this

Section III(B)(8) more than five (5) times, may apply to the Storage Panel for the right to extract all or a portion of that Carryover Conversion in the year such Conversion occurs. The Storage Panel shall grant such request, providing there is no Material Physical Harm, if it determines that leased groundwater to meet the applicant's needs within the Basin cannot be obtained for less than forty-five percent (45%) of MWD's Imported Water rate for delivery of untreated water to the Central Basin spreading facilities (which rate is presently MWD's "Full Service Untreated Volumetric Cost, Tier 1"), and that the applicant will fully extract its Allowed Pumping Allocation, Carryover, and Stored Water, if any, in addition to its permitted overextraction under Section III(B)(1), prior to accessing such Carryover Conversion.

Upon such approval, the applicant may thereafter extract such water as provided herein. A Party so extracting groundwater shall fully restore such extracted water (either through under-extraction of its rights or through importing water) during the five-year period following the Year in which the extraction under this Section occurs. Otherwise, the extracting Party shall pay to the Watermaster an amount equal to 100% of MWD's Imported Water rate for purchase and delivery of untreated water to the Central Basin spreading facilities (which rate is presently MWD's "Full Service Untreated Volumetric Cost, Tier 1") whether or not such water is available that year, for the year during which is the fifth anniversary of the year during which such Carryover Conversion extraction occurs, multiplied by the amount of Carryover Conversion so extracted and not restored during such five-year period. Payment shall be made within thirty (30) days of demand by Watermaster. No Replenishment Assessment shall be due on Carryover Conversion so extracted. However, the Party must deposit with the Watermaster an amount equal to the Replenishment Assessment that would otherwise be imposed by WRD upon such extraction. If the party restores the water within the 5-year repayment period, then the Watermaster shall

promptly return the deposit to the Party, without interest. If the Party does not restore the water within the 5-year repayment period, the deposit shall be credited towards the Party's obligation to pay 100% of MWD's Imported Water rate as required herein.

Should there be multiple requests to so extract Carryover Conversion in the same year, the Storage Panel shall allocate such extraction right such that each requesting party may extract a pro rata portion of the available Carryover Conversion for that year. No party may extract in excess of 2,500 acre feet of groundwater pursuant to this Section III(B)(8) in a single Year. Amounts paid to Watermaster hereunder shall be used by WRD solely for purchase of water for replenishment in the Basin. Watermaster, through the Storage Panel, shall give reasonable notice to the Parties of any application to so extract Carryover Conversion in such manner as the Storage Panel shall determine, including, without limitation, notice by electronic mail or by website posting, at least ten (10) days prior to consideration of any such application.

C. Exchange Pool Provisions.

(1) Definitions.

For purposes of these Exchange Pool provisions, the following words and terms have the following meanings:

(a) "Exchange Pool" is the arrangement hereinafter set forth whereby certain of the parties, ("Exchangees") may, notwithstanding the other provisions of the Judgment, extract additional water from Central Basin to meet their needs, and certain other of the parties ("Exchangors"), reduce their extractions below their Allowed Pumping Allocations in order to permit such additional extractions by others.

(b) "Exchangor" is one who offers, voluntarily or otherwise, pursuant to subsequent provisions, to reduce its extractions below its Allowed Pumping Allocation in order to permit such additional

extractions by others.

(c) "Exchangee" is one who requests permission to extract additional water from Central Basin.

(d) "Undue hardship" means unusual and severe economic or operational hardship, other than that arising (i) by reason of any differential in quality that might exist between water extracted from Central Basin and water available for importation or (ii) by reason of any difference in cost to a party in subscribing to the Exchange Pool and reducing its extractions of water from Central Basin in an equivalent amount as opposed to extracting any such quantity itself.

(2) Parties Who May Purchase Water Through the Exchange Pool.

Any party not having existing facilities for the taking of imported water as of the beginning of any Administrative Year, and any party having such facilities as of the beginning of any Administrative Year who is unable, without undue hardship, to obtain, take, and put to beneficial use, through its distribution system or systems existing as of the beginning of the particular Administrative Year, imported water in a quantity which, when added to its Allowed Pumping Allocation for that particular Administrative Year, will meet its estimated needs for that particular Administrative Year, may purchase water from the Exchange Pool, subject to the limitations contained in this Section III(C) (Subpart "C" hereinafter).

(3) Procedure for Purchasing Exchange Pool Water.

Not later than the 40th day following the commencement of each Administrative Year, each such party desiring to purchase water from the Exchange Pool shall file with the Watermaster a request to so purchase, setting forth the amount of water in acre feet that such party estimates that it will require during the then current Administrative Year in excess of the total of:

(a) Its Allowed Pumping Allocation for that particular

Administrative Year; and

(b) The imported water, if any, which it estimates it will be able, without undue hardship, to obtain, take and put to beneficial use, through its distribution system or systems existing as of the beginning of that particular Administrative Year.

Any party who as of the beginning of any Administrative Year has existing facilities for the taking of imported water and who makes a request to purchase from the Exchange Pool must provide with such request substantiating data and other proof which, together with any further data and other proof requested by the Water Rights Panel, establishes that such party is unable without undue hardship, to obtain, take and put to beneficial use through its said distribution system or systems a sufficient quantity of imported water which, when added to its said Allowed Pumping Allocation for the particular Administrative Year, will meet its estimated needs. As to any such party, the Water Rights Panel shall make a determination whether the party has so established such inability, which determination shall be subject to review by the court under the procedure set forth in Part II of this Judgment. Any party making a request to purchase from the Exchange Pool shall either furnish such substantiating data and other proof, or a statement that such party had no existing facilities for the taking of imported water as of the beginning of that Administrative Year, and in either event a statement of the basis for the quantity requested to be purchased.

(4) Subscriptions to Exchange Pool.

(a) Required Subscription. Each party having existing facilities for the taking of imported water as of the beginning of any Administrative Year hereby subscribed to the Exchange Pool for purposes of meeting Category (a) requests thereon, as more particularly defined in paragraph 5 of this Subpart C, twenty percent

(20%) of its Allowed Pumping Allocation, or the quantity of imported water which it is able, without undue hardship, to obtain, take and put to beneficial use through its distribution system or systems existing as of the beginning of the particular Administrative Year in addition to such party's own estimated needs for imported water during that Administrative Year, whichever is the lesser. A party's subscription under this subparagraph (a) and subparagraph (b) of this paragraph 4 is sometimes hereinafter referred to as a "required subscription."

(b) Report to Watermaster Water Rights Panel by Parties with Connections and Unable to Subscribe 20%. Any party having existing facilities for the taking of imported water and estimating that it will be unable, without undue hardship, in that Administrative Year to obtain, take and put to beneficial use through its distribution system or systems existing as of the beginning of that Administrative Year, sufficient imported water to further reduce its extractions from the Central Basin by twenty percent (20%) of its Allowed Pumping Allocation for purposes of providing water to the Exchange Pool must furnish not later than the 40th day following the commencement of such Administrative Year substantiating data and other proof which, together with any further data and other proof requested by the Water Rights Panel, establishes said inability or such party shall be deemed to have subscribed twenty percent (20%) of its Allowed Pumping Allocation for the purpose of providing water to the Exchange Pool. As to any such party so contending such inability, the Water Rights Panel shall make a determination whether the party has so established such inability, which determination shall be subject to review by the Court under the procedure set forth in Part II of this Judgment.

(c) Voluntary Subscriptions. Any party, whether or not having

facilities for the taking of imported water, who desires to subscribe to the Exchange Pool a quantity or further quantity of its Allowed Pumping Allocation, may so notify the Water Rights Panel in writing of the quantity of such offer on or prior to the 40th day following the commencement of the particular Administrative Year. Such subscriptions are referred to hereinafter as "voluntary subscriptions." Any Exchangor who desires that any part of its otherwise required subscription not needed to fill Category (a) requests shall be available for Category (b) requests may so notify the Water Rights Panel in writing on or prior to said 40th day. If all of that Exchangor's otherwise required subscription is not needed in order to fill Category (a) requests, the remainder of such required subscription not so used, or such part thereof as such Exchangor may designate, shall be deemed to be a voluntary subscription.

(5) Limitations on Purchases of Exchange Pool Water and Allocation of Requests to Purchase Exchange Pool Water Among Exchangors.

(a) Categories of Requests. Two categories of Exchange Pool requests are established as follows:

(i) Category (a) requests. The quantity requested by each Exchangee, whether or not that Exchangee has an Allowed Pumping Allocation, which quantity is not in excess of 150% of its Allowed Pumping Allocation, if any, or 100 acre feet, whichever is greater. Requests or portions thereof within the above criteria are sometimes hereinafter referred to as "Category (a) requests."

(ii) Category (b) requests. The quantity requested by each Exchangee having an Allowed Pumping Allocation to the extent the request is in excess of 150% of that Allowed

Pumping Allocation or 100 acre feet, whichever is greater, and the quantity requested by each Exchangee having no Allowed Pumping Allocation to the extent the request is in excess of 100 acre feet. Portions of requests within the above criteria are sometimes hereinafter referred to as "Category (b) requests."

(b) Filling of Category (a) Requests. All Exchange Pool subscriptions, required and voluntary, shall be available to fill Category (a) requests. Category (a) requests shall be filled first from voluntary subscriptions, and if voluntary subscriptions should be insufficient to fill all Category (a) requests required subscriptions shall be then utilized to fill Category (a) requests. All Category (a) requests shall be first filled before any Category (b) requests are filled.

(c) Filling of Category (b) Requests. To the extent that voluntary subscriptions have not been utilized in filling Category (a) requests, Category (b) requests shall be filled only out of any remaining voluntary subscriptions. Required subscriptions will then be utilized for the filling of any remaining Category (b) requests.

(d) Allocation of Requests to Subscriptions When Available Subscriptions Exceed Requests. In the event the quantity of subscriptions available for any category of requests exceeds those requests in that category, or exceeds the remainder of those requests in that category, such requests shall be filled out of such subscriptions proportionately in relation to the quantity of each subscription.

(e) Allocation of Subscriptions to Category (b) Requests in the Event of Shortage of Subscriptions. In the event available subscriptions are insufficient to meet Category (b) requests, available subscriptions shall be allocated to each request in the proportion that

the particular request bears to the total requests of the particular category.

(6) Additional Voluntary Subscriptions.

If subscriptions available to meet the requests of Exchangees are insufficient to meet all requests, additional voluntary subscriptions may be solicited and received from parties by the Water Rights Panel. Such additional subscriptions shall be allocated first to Category (a) requests to the extent unfilled, and next to Category (b) requests to the extent unfilled. All allocations are to be otherwise in the same manner as earlier provided in paragraph 5 (a) through 5 (e) inclusive.

(7) Effect if Category (a) Requests Exceed Available Subscriptions, Both Required and Voluntary.

In the event that the quantity of subscriptions available to fill Category (a) requests is less than the total quantity of such requests, the Exchangees may, nonetheless, extract the full amount of their Category (a) requests otherwise approved by the Water Rights Panel as if sufficient subscriptions were available. The amounts received by the Water Rights Panel on account of that portion of the approved requests in excess of the total quantities available from Exchangors shall be paid by the Water Rights Panel to WRD in trust for the purpose of purchasing imported water and spreading the same in Central Basin for replenishment thereof. Thereafter WRD may, at any time, withdraw said funds or any part thereof so credited in trust for the aforesaid purpose, or may by the 40th day of any Administrative Year utilize all or any portion of said funds for the purchase of water available from subscriptions by Exchangors in the event the total quantity of such subscriptions exceeds the total quantity of approved requests by parties to purchase Exchange Pool water. To the extent that there is such an excess of available subscriptions over requests and to the extent that the existing credit in favor of WRD is sufficient to purchase such excess quantity at

the price established for Exchange Pool purchases during that Administrative Year, the money shall be paid to the Exchangors in the same manner as if another party had made such purchase as an Exchangee. WRD shall not extract any such Exchange Pool water so purchased.

(8) Additional Pumping by Exchangees Pursuant to Exchange Pool Provisions.

An Exchangee may extract from Central Basin in addition to its Allowed Pumping Allocation for a particular Administrative Year that quantity of water which it has requested to purchase from the Exchange Pool during that Administrative Year and which has been allocated to it pursuant to the provisions of paragraphs 5, 6 and 7. The first pumping by an Exchangee in any Administrative Year shall be deemed to be pumping of the party's allocation of Exchange Pool water.

(9) Reduction in Pumping by Exchangors.

Each Exchangor shall in each Administrative Year reduce its extractions of water from Central Basin below its Allowed Pumping Allocation for the particular year in a quantity equal to the quantity of Exchange Pool requests allocated to it pursuant to the provisions of paragraphs 4, 5, 6 and 7 of this Subpart C.

(10) Price to be Paid for Exchange Pool Water.

The price to be paid by Exchangees and to be paid to Exchangors per acre foot for required and voluntary subscriptions of Exchangors utilized to fill requests on the Exchange Pool by Exchangees shall be the dollar amount computed as follows by the Water Rights Panel for each Administrative Year. The "normal" price as of the beginning of the Administrative Year charged by Central Basin Municipal Water District (CBMWD) for treated MWD (Metropolitan Water District of Southern California) water used for domestic and municipal purposes shall be determined, and if on that date there are any changes

scheduled during that Administrative Year in CBMWD's "normal" price for such category of water, the weighted daily "normal" CBMWD price shall be determined and used in lieu of the beginning such price; and there shall be deducted from such beginning or weighted price, as the case may be, the "incremental cost of pumping water in Central Basin" at the beginning of the Administrative Year and any then current rate or rates, of assessments levied on the pumping of groundwater in Central Basin by Plaintiff District and any other governmental agency. The "normal" price charged by CBMWD shall be the highest price of CBMWD for normal service excluding any surcharge or higher rate for emergency deliveries or otherwise failing to comply with CBMWD rates and regulations relating to earlier deliveries. The "incremental cost of pumping water in Central Basin" as of the beginning of the Administrative Year shall be deemed to be the Southern California Edison Company Schedule No. PA-1 rate per kilowatt-hour, including all adjustments and all uniform authorized additions to the basic rate, multiplied by 560 kilowatt-hours per acre-foot, rounded to the nearest dollar (which number of kilowatt-hours has been determined to represent the average energy consumption to pump an acre-foot of water in Central Basin). In applying said PA-1 rate the charge per kilowatt-hour under the schedule shall be employed and if there are any rate blocks then the last rate block shall be employed. Should a change occur in Edison schedule designations, the Water Rights Panel shall employ that applicable to motors used for pumping water by municipal utilities.

(11) Carry-over of Exchange Pool Purchases by Exchangees.

An Exchangee who does not extract from Central Basin in a particular Administrative Year a quantity of water equal to the total of (a) its Allowed Pumping Allocation for that particular Administrative Year, reduced by any authorized amount of carryover into the next succeeding Administrative Year pursuant to the provisions of Section III(A) of this Judgment, and (b) the quantity

that it purchased from the Exchange Pool for that particular Administrative Year, may carry over into the next succeeding Administrative Year the right to extract from Central Basin a quantity equal to the difference between said total and the quantity actually extracted in that Administrative Year, but not exceeding the quantity purchased from the Exchange Pool for that Administrative Year. Any such carryover shall be in addition to that provided in said Section III(A).

If the "Basinwide Average Exchange Pool Price" in the next succeeding Administrative Year exceeds the "Exchange Pool Price" in the previous Administrative Year any such Exchangee exercising such carryover rights hereinabove provided shall pay to the Watermaster, forthwith upon the determination of the "Exchange Pool Price" in said succeeding Administrative Year, and as a condition to such carryover rights, an additional amount determined by multiplying the number of acre feet of carryover by the difference in "Exchange Pool Price" as between the two Administrative Years. Such additional payment shall be miscellaneous income to the Watermaster which shall be applied by it against that share of the Watermaster's Administrative Body's budget to be paid by the parties to this Agreement for the second Administrative Year succeeding that in which the Exchange Pool water was so purchased. For purposes of this paragraph, the term Basinwide Average Exchange Pool Price means the average price per acre foot paid for Exchange Pool water produced within the Central Basin during the year for which such determination is to be made, taking into account all Exchange Pool transactions consummated during that year.

(12) Notification by Watermaster to Exchangors and Exchangees of Exchange Pool Requests and Allocations Thereof and Price of Exchange Pool Water.

Not later than the 65th day after the commencement of each Administrative Year, the Administrative Body of Watermaster shall determine

and notify all Exchangors and Exchangees of the total of the allocated requests for Exchange Pool water and shall provide a schedule divided into categories of requests showing the quantity allocated to each Exchangee and a schedule of the allocation of the total Exchange Pool requirements among the Exchangors. Such notification shall also advise Exchangors and Exchangees of the prices to be paid to Exchangors for subscriptions utilized and the Exchange Pool Price for that Administrative Year as determined by the Water Rights Panel. The determinations of the Watermaster in this regard shall be subject to review by the Court in accordance with the procedure set forth in Part II of this Judgment.

(13) Payment by Exchangees.

Each Exchangee shall, on or prior to last day of the third month of each Administrative Year, pay to the Watermaster one-quarter of said price per acre-foot multiplied by the number of acre feet of such party's approved request and shall, on or before the last day of each of the next succeeding three months, pay a like sum to the Watermaster. Such amounts must be paid by each Exchangee regardless of whether or not it in fact extracts or uses any of the water it has requested to purchase from the Exchange Pool.

(14) Payments to Exchangors.

As soon as possible after receipt of moneys from Exchangees, the Watermaster shall remit to the Exchangors their pro rata portions of the amount so received in accordance with the provisions of paragraph 10 above.

(15) Delinquent Payments.

Any amounts not paid on or prior to any due date above shall carry interest at the rate of 1% per month or any part of a month. Any amounts required to be so paid may be enforced by the equitable powers of the Court, including, but not limited to, the injunctive process of the Court. In addition thereto, the Watermaster, as Trustee for the Exchangors and acting through the Water Rights Panel, may enforce such payment by any appropriate legal action, and shall be

entitled to recover as additional damages reasonable attorneys' fees incurred in connection therewith. If any Exchangee shall fail to make any payments required of it on or before 30 days after the last payment is due, including any accrued interest, said party shall thenceforward not be entitled to purchase water from the Exchange Pool in any succeeding Administrative Year except upon order of the Court, upon such conditions as the Court may impose.

IV. PROVISIONS FOR THE STORAGE OF WATER AND THE EXTRACTION OF STORED WATER.

A. Adjudication of Available Dewatered Space, Storage Capacity and Storage Apportionment.

There exists within the Basin a substantial amount of available space which has not been optimally utilized for basin management and for storage of native and imported waters. The Court finds and determines that (i) there is 330,000 acre feet of Available Dewatered Space in the Basin; (ii) use of this Available Dewatered Space will increase reasonable and beneficial use of the Basin by permitting the more efficient procurement and management of Replenishment Water, conjunctive use, and for direct and in-lieu recharge, thereby increasing the prudent storage and recovery of Stored Water for later use by parties to this Judgment, conservation of water and reliability of the water supply available to all Parties; and (iii) use of the Available Dewatered Space pursuant to the terms and conditions of this Judgment will not result in Material Physical Harm.

B. Avoidance of Material Physical Harm.

It is essential that the use of the Available Dewatered Space be undertaken for the greatest public benefit pursuant to uniform, certain, and transparent regulation that encourages the conservation of water and reliability of the water supply, avoids Material Physical Harm, and promotes the reasonable and beneficial use of water. Accordingly, in the event Watermaster becomes aware of the development of a Material Physical Harm, or imminent threat of the development of a Material Physical Harm, relating to the

use of the Available Dewatered Space, Watermaster shall, within thirty (30) days thereafter, notice a hearing before the Court and concurrently file a report with the Court, served on all parties, which shall explain the relevant facts then known to Watermaster relating to the Material Physical Harm, or imminent threat thereof, including without limitation, the location of the occurrence, the source or cause, existing and potential physical impacts or consequences of the identified or threatened material Physical Harm, and any recommendations to remediate the identified or threatened Material Physical Harm.

C. Apportionment of Available Dewatered Space.

To fairly balance the needs of the divergent interests of parties having water rights in the Basin, on the one hand, and the replenishment functions of WRD on the other hand, and in consideration of the shared desire and public purpose of removing impediments to the voluntary conservation, storage, exchange and transfer of water, all of the Available Dewatered Space is hereby adjudicated and apportioned into complimentary classifications of Stored Water and a Basin Operating Reserve as set forth in this Part IV. The apportionment contemplates flexible administration of storage capacity where use is apportioned among competing needs, while allowing all Available Dewatered Space to be used from time to time on a "space available" basis, subject to the priorities specified in this Judgment, and as further defined in Section IV(I) of this Judgment. The Court further finds and determines that, of the Available Dewatered Space, there is 220,000 acre-feet of storage capacity in the Central Basin which is presently available ("Adjudicated Storage Capacity"). The use of Adjudicated Storage Capacity as provided in this Judgment will not adversely affect the efficient operation of the Basin or the recharge of water necessary for the production of the parties' respective Allowed Pumping Allocations. The apportionment of Adjudicated Storage Capacity as provided herein will allow for flexible administration of groundwater storage within the Basin. The Adjudicated Storage Capacity is hereby assigned to Individual Storage Allocations and Community Storage as provided herein, provided however that if all

space in a particular classification is fully occupied then, on a "space available" basis, to available space within the other classifications of Adjudicated Storage Capacity and, only then, to available space within Basin Operating Reserve.

The Court further finds and determines that, out of the Available Dewatered Space, there is 110,000 acre feet that should be set aside for use by WRD as a Basin Operating Reserve, provided in Section IV(L), and subject to temporary occupancy by Stored Water as permitted hereunder.

No storage of water shall occur in the Basin except in conformity with this Judgment.

D. Individual Storage Allocation.

Each Party having an adjudicated groundwater extraction right hereunder shall have a priority right to store water in an Individual Storage Account, through conversion of Carryover to Stored Water as provided herein, or by any means authorized by this Judgment, up to a maximum of 50% of such party's Allowed Pumping Allocation. The cumulative quantity of Adjudicated Storage Capacity subject to individual storage allocation is 108,750 acre-feet. In recognition of prior importation of water which was introduced into the Basin as Stored Water, and which has not yet been extracted, the Court finds and determines that, as of the date of this Order, the following Parties have occupied a portion of their respective Individual Storage Allocations and have all associated rights therein, as follows:

City of Long Beach:	13,076.8 acre-feet
City of Lakewood:	500 acre-feet
City of Downey:	500 acre-feet
City of Cerritos	500 acre-feet

E. Community Storage; Regional Disadvantaged Communities Incentive Program.

In addition to Individual Storage Allocation, a Party that has fully occupied its Individual Storage allocation may, on a first in time, first in right basis (subject to the

limits expressed below) place water into storage in the "Community Storage Pool." The cumulative quantity of Adjudicated Storage Capacity allocated to Community Storage shall be 111,250 acre-feet. So long as there is available capacity in the Community Storage Pool, any Party may store water in the Community Storage Pool through conversion of Carryover to Stored Water as provided herein, or by any other means authorized by this Judgment, provided such Party has first fully occupied that party's available Individual Storage Allocation.

(1) Parties to this Judgment which, as of January 1, 2013, held Allowed Pumping Allocation of not greater than 5,000 acre-feet shall have a first priority right to occupy, in the aggregate, up to 10,000 acre-feet of storage space within the Central Basin Community Storage Pool, on the basis of first in time, first in right.

(2) Water stored pursuant to the Regional Disadvantaged Communities Incentive Program shall have a second priority right to occupy up to 23,000 acre-feet within the Community Storage Pool, on such terms as shall be determined by the Court.

(3) Any further storage in excess of the maximum quantity of Community Storage will be on a "space-available" interim basis. From time to time, and on a "space-available" basis, the total quantity of water available for storage is permitted to exceed Adjudicated Storage Capacity for the Community Storage Pool on an interim basis. This interim storage may occur if storage capacity exists as a result of unused Adjudicated Storage Capacity within other classifications, or available space exists in the Basin Operating Reserve. Such interim storage, however, is subject to priority rights to such Dewatered Space as provided in this Judgment. A party that seeks to convert the water temporarily held in interim storage to a more firm right, may contract for the use of another party's Individual Storage Allocation, or may add such water to the Community Storage Pool once space therein becomes available.

(4) After a party occupies available storage capacity within the Community Storage Pool and then withdraws water from the Community Storage Pool, the storing party will be allowed a period of twenty-four (24) months to refill the evacuated storage before the capacity will be determined excess and available for use by other parties. Once the Basin's Community Storage Pool has been filled for the first time, a party may exercise its twenty-four (24) month refill priority only once, and then only provided there is then capacity available to permit that party to refill the vacated space. Except to the extent Community Storage space may be subject to such priority right to re-fill, all space therein shall be occupied on a first in time, first in right basis.

(5) A party that has occupied storage in the Community Storage Pool for ten (10) consecutive years shall be deemed to extract its Stored Water first in subsequent years (notwithstanding the order of water production set forth in Section I(B)(3)) until its entire Community Storage account has been extracted, but thereafter may again make use of Community Storage on the same terms available to other parties on a first in time, first in right, space-available basis.

(6) Any quantity of water held in the Community Storage Pool for a term greater than ten (10) consecutive years shall be assessed an annual water loss equal to 5% of the lowest quantity of water held within the party's Community Storage Pool account at any time during the immediately preceding ten-year period. The lowest quantity means the smallest amount of water held by the Party in the Community Storage Pool during any of the preceding ten (10) years, with a new loss calculation being undertaken every year. Water subject to the loss assessment will be deemed dedicated to the Basin Operating Reserve in furtherance of the physical solution without compensation. Water lost to the Basin shall constitute water replenished into the Central Basin for the benefit of all parties

F. Limit on Storage.

Irrespective of the category of storage utilized, each party to this Judgment may not cumulatively have in storage at any time Stored Water totaling more than two hundred percent (200%) of that party's Allowed Pumping Allocation. Subject to the foregoing, the right to produce Stored Water may be freely transferred to another party to this Judgment, or as otherwise permitted herein.

G. Extractions of Stored Water; Exemption from Replenishment Assessment.

The Court finds and declares that the extraction of Stored Water as permitted hereunder does not constitute "production of groundwater" within the meaning of Water Code Section 60317 and that no Replenishment Assessment shall be levied on the extraction of Stored Water. WRD has stipulated to the same. This determination reflects the practical application of certain provisions of this Judgment concerning storage of water, including, without limitation, understanding the following: (1) payment of the Replenishment Assessment is required upon the conversion of Carryover Water into storage, and; (2) developed water introduced into the Basin for storage by or on behalf of a Party through spreading or injection need not be replenished by WRD and should not be subject to the Replenishment Assessment.

H. Storage Procedure.

The Administrative Body shall (i) prescribe forms and procedures for the orderly reporting of Stored Water, (ii) maintain records of all water stored in the Basin, and (iii) undertake monitoring and modeling of Stored Water as may be reasonably required. As to any Storage Projects that will require review and approval by the Storage Panel, the Administrative Body shall provide appropriate applications, and shall work with project applicants to complete the application documents for presentation to the Storage Panel. The Administrative Body shall be responsible for conducting any groundwater modeling necessary to evaluate a proposed Storage Project. The proponent of a proposed project will bear all costs associated with the review of the application for approval of the project and all costs associated with its implementation. Nothing in this Judgment shall alter the applicant(s) duty to comply with CEQA or to meet other legal requirements as to any

proposed Storage Project. Within thirty (30) days after final submission of the storage application documents, the Administrative Body shall provide notice of the storage application (either by electronic mail or U.S. postal mail), together with a copy of the application documents, to all parties possessing an Allowed Pumping Allocation, and to any other person requesting notice thereof. Following notice, any necessary hearings before the Storage Panel shall be conducted as provided in Section IV(O) of this Judgment.

I. Loss of Stored Water/Relative Priority.

To balance the need to protect priority uses of storage and to encourage the full utilization of Adjudicated Storage Capacity and Basin Operating Reserve where it can be accommodated without interference with priority uses, and except as otherwise provided in this Judgment, no water held in any authorized storage account will be deemed lost from that storage account unless the cumulative quantity of water held as Stored Water plus the quantity of water held within the Basin Operating Reserve exceeds 330,000 acre-feet. Where all Adjudicated Storage Capacity and Basin Operating Reserve has been occupied, the first Stored Water to be deemed lost shall be the last water stored as Community Storage. Upon receipt of a bona fide request by another use entitled to priority hereunder, Watermaster shall issue a notice requiring the other parties to evacuate their Stored Water. Any Stored Water that is not evacuated shall be deemed dedicated to the Basin Operating Reserve in furtherance of the physical solution without compensation and accounted for accordingly.

J. Limits on Extraction.

Anything in this Judgment to the contrary notwithstanding, no party shall extract greater than 140% of the sum of (i) the party's Allowed Pumping Allocation and (ii) the party's leased water, except upon prior approval by the Water Rights Panel. For this purpose, a party's total extraction right for a particular year shall include that party's Allowed Pumping Allocation and any contractual right through lease or other means to utilize the adjudicated rights of another party. Where such proposed extraction would

occur within the Central Basin Pressure Area as defined by Watermaster consistent with historical records, the Water Rights Panel shall submit such request for review by the Board of WRD. The Water Rights Panel shall not approve any request for over-extraction within the Pressure Area without a written finding by the Board of WRD that such over-extraction will not cause Material Physical Harm. The role of the Board of WRD in this process shall not be read to expand or restrict WRD's statutory authority. Consideration shall be on an expedited basis.

K. Increased Extractions in the Central Basin for Certain Water Purveyors.

(1) This Court also maintains continuing jurisdiction over the West Coast Basin, which bounds the Central Basin to the west.

(2) Certain Water Purveyors are parties to both this Amended Judgment and the judgment governing the West Coast Basin and serve communities overlying both the Central Basin and the West Coast Basin.

(3) Certain Water Purveyors may exceed their Allowed Pumping Allocation in any Administrative Year, subject to all of the following conditions:

(a) The Water Purveyor is one of the following eligible Parties:

(i) City of Los Angeles

(ii) Golden State Water Company

(iii) California Water Service Company.

(b) Increased extractions pursuant to this Section shall not exceed 5,000 acre-feet per Water Purveyor for the particular Administrative Year.

(c) Increased extractions pursuant to this Section shall not exceed the Water Purveyor's unused "Adjudicated Rights" in the West Coast Basin.

(d) Increased extractions pursuant to this Section shall not result in Material Physical Harm.

(4) Notwithstanding the foregoing, nothing herein permits extraction

of water within the Central Basin in excess of 140% of Allowed Pumping Allocation for the particular Administrative Year, except as otherwise permitted under this Judgment.

(5) Replenishment of any water extracted from the Central Basin pursuant to this Section shall occur exclusively in the Central Basin.

(6) The benefits of this Section are made available only to the certain Water Purveyors that serve communities overlying the Central Basin and communities overlying the West Basin, in recognition of the management of water resources by those Water Purveyors to serve such overlying communities. It is not made, nor is it related to, a determination of an underflow between the basins, a cost or benefit allocation, or any other factor relating to the allocation of the Replenishment Assessment.

L. Special Provisions for Temporary Storage within Community Storage Pool.

The Central Basin Municipal Water District ("CBMWD") shall take such action as may be necessary to reduce its Allowed Pumping Allocation to five (5) acre-feet or fewer by December 31, 2018, and has agreed, by stipulation, not to acquire any additional Central Basin water rights. Upon application by CBMWD, the Storage Panel may, after making each of the findings required in this subsection, approve storage of water by CBMWD within the Community Storage Pool subject to the stated conditions. The Storage Panel may only authorize such storage after finding each of the following to be true as of the date of such approval:

(1) CBMWD (a) then owns five (5) acre-feet or fewer of Allowed Pumping Allocation, and (b) has not produced water utilizing any extraction rights it holds within the Basin but has only engaged in the sale or leasing of those rights to others.

(2) There is available space for Storage within the Community Storage

Pool.

(3) CBMWD has identified a source of imported water that may be brought into the Basin and stored underground.

(4) The water identified for storage (a) is unlikely to be acquired by other parties through surface delivery for use within the Basin, and (b) was offered to WRD to purchase for replenishment purposes at the same price that CBMWD otherwise sells imported water to WRD and WRD declined to purchase said water, within a reasonable period of time.

(5) There will be no Material Physical Harm associated with the introduction of the water into storage, or its extraction, in the manner approved by the Storage Panel.

The condition expressed in Section IV(L)(1)(a) above shall not be operative until January 1, 2019, or upon reduction of CBMWD's Allowed Pumping Allocation to five (5) acre-feet or fewer, whichever first occurs. CBMWD may not extract the Stored Water, and may instead only transfer that Stored Water to a party having extraction rights, or to WRD for replenishment purposes only. Such Stored Water not so transferred within three (3) years following its storage may be purchased by WRD, at its option, for replenishment purposes only, at a price not exceeding the actual cost incurred by CBMWD in importing and storing the water in the first instance, plus a reasonable administrative charge for overhead not exceeding five percent (5%) of the price paid by CBMWD for the water with no other fees or markups imposed by CBMWD. Except as otherwise permitted in this Section, any such Stored Water held by CBMWD for a term greater than three (3) years shall be assessed an annual water loss equal to 10% of the amount of such Stored Water at the end of each year. Water subject to the loss

assessment will be deemed dedicated to the Basin Operating Reserve in furtherance of the physical solution without further compensation. The Storage Panel shall grant CBMWD one or more extensions of such term, not exceeding total extensions of three (3) additional years, following public hearing, if the Storage Panel determines that the Stored Water has been actively marketed by CBMWD for transfer to Parties on reasonable terms in the previous year. The Storage Panel may impose such additional reasonable conditions as it determines to be appropriate. Any review by the Storage Panel hereunder shall only occur at a public hearing held following at least 15 days' (but not more than 30 days') mailed notice to all Parties to this Judgment, at which hearing an opportunity for public comment shall be afforded in advance of any such decision. However, the Storage Panel may consider an application on shorter notice under exigent circumstances, including the potential loss of the water proposed to be stored if action is not taken sooner. CBMWD shall have the right to appeal any action or inaction by the Storage Panel to this court. The storage and extraction of Stored Water hereunder shall otherwise be subject to all other provisions of this Judgment. The court finds and declares that this subsection constitutes a "court order issued by a court having jurisdiction over the adjudication of groundwater extraction rights within the groundwater basin where storage is sought" within the meaning of Water Code §71610(b)(2)(B). Nothing in this provision impedes CBMWD's ability to store water pursuant to a contract with an adjudicated groundwater extraction rights holder as permitted by Water Code § 71610(b)(2)(A) and otherwise in accordance with this Judgment.

M. Basin Operating Reserve.

It is in the public interest and in furtherance of the physical solution for WRD to prudently exercise its statutory discretion to purchase, spread, and inject Replenishment Water, to provide for in-lieu replenishment, and otherwise to fulfill its replenishment function within the Basin as provided in Water Code Section 60000 et. seq. Hydrologic,

regulatory and economic conditions now prevailing within the State require that WRD be authorized to exercise reasonable discretion and have flexibility in the accomplishment of its replenishment function. Accordingly, WRD may pre-purchase or defer the purchase of Replenishment Water, and may otherwise purchase and manage available sources of Replenishment Water under the most favorable climatic and economic conditions as it may determine reasonable and prudent under the circumstances. It is the intent of the parties to preserve space for such replenishment activities, including capture of natural inflows during wet years, recapture of water when possible, and artificial replenishment when water is available at discounted rate, for the benefit of the Basin and the parties to the Judgment. The Basin Operating Reserve is intended to allow WRD to meet its replenishment needs to make APA available for extraction by all water rights holders. Accordingly, WRD shall have a priority right to occupy up to 110,000 acre-feet of the Available Dewatered Space as the "Basin Operating Reserve" for the acquisition and replenishment of water, or to ensure space remains available in the Basin to capture natural inflows during wet years for the benefit of the parties to the Judgment, to offset over-production. The priority right is not intended to allow WRD to sell or lease stored water, storage, or water rights. To the extent WRD does not require the use of all of such Basin Operating Reserve, that portion of the Basin Operating Reserve that is not then being used shall be available to other Parties to store water on a temporary and space-available basis. No Party may use any portion of the Basin Operating Reserve for space-available storage unless that Party has already maximized its allowed Storage pursuant to its Individual Storage Allocation and all available Community Storage is already in use. WRD's failure to use any portion of its Basin Operating Reserve shall not cause forfeiture or create a limitation of its right to make use of the designated space in the future. WRD's first priority right to this category of space shall be absolute. To the extent that there is a conflict between WRD and a third party regarding the availability of and desire to use any portion of the space available for replenishment up to the maximum limits set forth in this section, the interests of WRD will prevail. If a party other than

WRD is using the Basin Operating Reserve space on a "space available" basis and a conflict develops between WRD and the storing party, the storing party will, upon notice from WRD, evacuate the Stored Water within ninety (90) days thereafter. In such event, temporary occupancy within the Basin Operating Reserve shall be first in time, first in right, and the last Party to store water shall be required to evacuate first until adequate space shall be made available within the Basin Operating Reserve to meet WRD's needs. The storing party or parties assume all risks of waste, spill and loss regardless of the hardship. Stored Water that is not evacuated following WRD's notice of intent to occupy the Basin Operating Reserve will be deemed dedicated to the Basin Operating Reserve in furtherance of the physical solution without compensation and accounted for accordingly. Nothing herein shall permit WRD to limit or encumber, by contract or otherwise, its right to use the Basin Operating Reserve for Replenishment purposes for any reason, or to make space therein available to any person by any means. Notwithstanding the foregoing, to the extent excess space is available, water evacuated from the Basin Operating Reserve as provided in this Section shall be deemed added to available space within the Individual Storage Allocations and Community Storage Pool, subject to the priority rights otherwise provided in this Judgment.

N. Water Augmentation.

The parties, in coordination with WRD, may undertake projects that add to the long-term reliable yield of the Basin. Innovations and improvements in practices that increase the conservation and maximization of the reasonable and beneficial use of water should be promoted. To the extent that Parties to the Judgment, in coordination with WRD, implement a project that provides additional long-term reliable water supply to the Central Basin, the annual extraction rights in the Central Basin will be increased commensurately in an amount to be determined by the Storage Panel to reflect the actual yield enhancement associated with the project. Augmented supplies of water resulting from such a project may be extracted or stored as permitted in this Judgment in the same manner as other water. Participation in any Water Rights Augmentation Project shall be

voluntary. A party may elect to treat a proposed project as a Water Augmentation Project (for the purpose of seeking an increase in that party's Allowed Pumping Allocation) or may elect to treat such a project as a Storage Project under the other provisions of this Judgment. The terms of participation in any Water Augmentation Project will be at the full discretion of the participating parties. All Water Augmentation Projects will be approved by the Storage Panel.

(1) Participating Parties.

Parties who propose a Water Augmentation Project ("Project Leads") may do so in their absolute discretion, upon such terms as they may determine. All other parties to this Judgment will be offered an opportunity to participate in the Water Augmentation Project on condition that they share proportionally in common costs and benefits, and assume the obligation to bear exclusively the cost of any improvements that are required to accommodate their individual or particular needs. Notice shall be provided which generally describes the project and the opportunity to participate with sufficient time for deliberation and action by any of these parties who could potentially participate. Disputes over the adequacy of notice shall be referred to the Storage Panel, and then to the Court under its continuing jurisdiction. Parties who elect to participate ("Project Participants") may do so provided they agree to offer customary written and legally binding assurances that they will bear their proportionate costs attributable to the Water Rights Augmentation Project, or provide other valuable consideration deemed sufficient by the Project Leads and the Project Participants.

(2) Determination of Additional Extraction Rights.

The amount of additional groundwater extraction as a result of a Water Augmentation project will be determined by the Storage Panel, subject to review by the Court. The determination will be based upon substantial evidence which supports the finding that the Water Augmentation project will increase the long-term sustainable yield of the respective Basin by an amount at least equal to the

proposed increase in extraction rights.

(3) Increase in Extraction Rights.

A party that elects to participate and pays that party's full pro-rata share of costs associated with any Water Augmentation Project and/or reaches an agreement with other participants based upon other valuable consideration acceptable to the Project Leads and Project Participants, will receive a commensurate increase in extraction rights. Non-participating parties will not receive an increase or a decrease in extraction rights. Any party that elects not to participate will not be required to pay any of the costs attributable to the particular Water Augmentation Project, whether directly or indirectly as a component of the WRD Replenishment Assessment.

(4) Nominal Fluctuations.

Because water made available for Water Rights Augmentation will be produced annually, fluctuations in groundwater levels will be temporary, nominal and managed within the Basin Operating Reserve.

(5) Availability of New Water.

The amount of additional groundwater extraction established as a result of a Water Augmentation Project shall be equal to the quantity of new water in the Basin that is attributable to that Water Augmentation Project. No extraction shall occur and no extraction right shall be established until new water has been actually introduced into the Basin as a result of the Project. Any approval for a Water Augmentation Project shall include provisions (a) requiring regular monitoring to determine the actual amount of such new water made available, (b) requiring make-up water or equivalent payment therefor to the extent that actual water supply augmentation does not meet projections, and (c) adjusting extraction rights attributable to the Water Augmentation Project to match the actual water created. The right to extract augmented water from the Basin resulting from a party's participation in a Water Augmentation Project shall be accounted for

separately and shall not be added to a party's Allowed Pumping Allocation. No Replenishment Assessment shall be levied against the extraction of augmented water.

(6) Limitation.

Notwithstanding the foregoing, WRD will not obtain any water rights or extraction rights under this Judgment by virtue of its participation in a Water Augmentation Project. If WRD participates in a Water Rights Augmentation Project through funding or other investments, its allocation of new water from the project shall be used to offset its replenishment responsibilities.

O. Limits on Watermaster Review.

It shall not be necessary for Watermaster, or any constituent body thereof, to review or approve any of the following before the affected Party may proceed: (i) exercise of adjudicated water rights consistent with this Judgment, except for extraction above 140% of a Party's extraction right as set out in Section IV(J) of this Judgment; (ii) replenishment of the Basin with Replenishment Water by WRD consistent with Water Code Section 60000 et seq., including replenishment of water produced by water rights holders through the exercise of adjudicated water rights; (iii) WRD's operations within the Basin Operating Reserve; (iv) Carryover Conversion or other means of the filling of the Individual Storage Accounts and the Community Storage Pool, as provided in this Judgment, as long as existing water production, spreading, or injection facilities are used; and (v) individual transfers of the right to produce Stored Water as permitted in Section IV(F). All other Storage Projects and all Water Augmentation Projects shall be subject to review and approval as provided herein, including (i) material variances to substantive criteria governing projects exempt from the review and approval process, (ii) modifications to previously approved Storage Projects and agreements, (iii) a party's proposal for Carryover Conversion in quantities greater than the express apportionment of Adjudicated Storage Capacity on a non-priority, space-available, interim basis, and (iv) Storage, by means other than Carryover Conversion, when new production,

spreading, or injection facilities are proposed to be utilized.

P. Hearing Process For Watermaster Review.

The following procedures shall be followed by Watermaster where Watermaster review of storage or extraction of Stored Water is required or permitted under this Judgment:

(1) No later than thirty (30) days after notice has been issued for the storage application, the matter shall be set for hearings before the Storage Panel. A staff report shall be submitted by WRD staff in conjunction with the completed storage application documents and the Water Rights Panel may prepare an independent staff report, if it elects to do so.

(2) The Board of WRD and the Water Rights Panel (sitting jointly as the Storage Panel) shall conduct a joint hearing concerning the storage application.

(3) All Watermaster meetings shall be conducted in the manner prescribed by the applicable Rules and Regulations. The Rules shall provide that all meetings of Watermaster shall be open to water rights holders and that reasonable notice shall be given of all meetings.

(4) The Board of WRD and the Water Rights Panel shall each adopt written findings explaining its decision on the proposed Storage Project, although if both entities reach the same decision on the Storage Project, they shall work together to adopt a uniform set of findings.

(5) Unless both the Board of WRD and the Water Rights Panel approve the Storage Project, the Storage Project application shall be deemed denied (a "Project Denial"). If both the Board of WRD and the Water Rights Panel approve the Storage Project, the Storage Project shall be deemed approved (a "Project Approval").

Q. Trial Court Review

(1) The applicant may seek the Storage Panel's reconsideration of a

Project Denial. However, there shall be no process for mandatory reconsideration or mediation of a Project Approval or a Project Denial either before the Administrative Body, or before the Water Rights Panel.

(2) Any Party may file an appeal from a Project Approval or Project Denial with this Court, as further described in Section II(F).

(3) In order to (a) promote the full presentation of all relevant evidence before the Storage Panel in connection with its consideration of any proposed Storage Project, (b) achieve an expeditious resolution of any appeal to the Court, and (c) accord the appropriate amount of deference to the expertise of the Storage Panel, the appeal before the Court shall be based solely on the administrative record, subject only to the limited exception in California Code of Civil Procedure section 1094.5(e).

(4) If both the WRD Board and the Water Rights Panel each vote to deny or approve a proposed Storage Project, it shall be an action by the Storage Panel and that decision shall be accorded by the Court deference according to the substantial evidence test. If one of the reviewing bodies votes to approve the proposed Storage Project and the other reviewing body votes to deny the proposed storage project, then the Court's review shall be *de novo*, although still restricted to the administrative record. In the case of any *de novo* Trial Court review, the findings made by the respective Watermaster bodies shall not be accorded any weight independent of the evidence supporting them.

R. Space Available Storage, Relative Priority, and Dedication of "Spilled" Water.

To balance the need to protect priority uses of storage and to encourage the full utilization of Available Dewatered Space within the Adjudicated Storage Capacity and the Basin Operating Reserve, any Party may make interim, temporary use of then currently unused Available Dewatered Space within any category of Adjudicated Storage Capacity, and then if all Adjudicated Storage Capacity is being fully used for Stored

Water within the Basin Operating Reserve ("Space-Available Storage"), subject to the following criteria:

(1) Any Party may engage in Space-Available Storage without prior approval from Watermaster provided that the storing Party or Parties shall assume all risks of waste, spill, and loss regardless of the hardship. Whenever the Storage Panel determines that a Party is making use of excess Available Dewatered Space for Space-Available Storage, the Storage Panel shall issue written notice to the Party informing them of the risk of spill and loss.

(2) Whenever the Available Dewatered Space is needed to accommodate the priority use within a respective category of Adjudicated Storage Capacity, or WRD seeks to make use of its priority right to the Basin Operating Reserve to fulfill its replenishment function, the Storage Panel shall issue a notice to evacuate the respective category of Adjudicated Storage Capacity or Basin Operating Reserve, as applicable, within the time-periods set forth within this Amended Judgment. To the extent the Stored Water is not timely evacuated such Stored Water will be placed into any other excess Available Dewatered Space, first within the Adjudicated Storage Capacity, if available, and then if all Adjudicated Storage Capacity is being fully used for Stored Water within the Basin Operating Reserve. If no excess Available Dewatered Space is available within the Basin Operating Reserve, then the Stored Water shall be deemed spilled and will be deemed dedicated to the Basin Operating Reserve in furtherance of the physical solution without compensation and accounted for accordingly. A Party that seeks to convert the Stored Water temporarily held in interim storage as Space-Available Storage to a more firm right, may in its discretion, contract for the use of another Party's Individual Storage Allocation, or may add such water to the Community Storage Pool once space therein becomes available.

(3) No Stored Water will be deemed abandoned unless the cumulative

quantity of water held as Stored Water plus the quantity of water held in the Basin Operating Reserve exceeds 330,000 (three hundred and thirty thousand) acre-feet in the Central Basin.

V. CONTINUING JURISDICTION OF THE COURT.

The Court hereby reserves continuing jurisdiction and upon application of any interested party, or upon its own motion, may review and redetermine the following matters and any matters incident thereto:

A. Its determination of the permissible level of extractions from Central Basin in relation to achieving a balanced basin and an economic utilization of Central Basin for groundwater storage, taking into account any then anticipated artificial replenishment of Central Basin by governmental agencies for the purpose of alleviating what would otherwise be annual overdrafts upon Central Basin and all other relevant factors.

B. Whether in accordance with applicable law any party has lost all or any portion of his rights to extract groundwater from Central Basin and, if so, to ratably adjust the Allowed Pumping Allocations of the other parties and ratably thereto any remaining Allowed Pumping Allocation of such party.

C. To remove any Watermaster or constituent body appointed from time to time and appoint a new Watermaster; and to review and revise the duties, powers and responsibilities of the Watermaster or its constituent bodies and to make such other and further provisions and orders of the Court that may be necessary or desirable for the adequate administration and enforcement of the Judgment.

D. To revise the price to be paid by Exchangees and to Exchangors for Exchange Pool purchases and subscriptions.

E. In case of emergency or necessity, to permit extractions from Central Basin for such periods as the Court may determine: (i) ratably in excess of the Allowed Pumping Allocations of the parties; or (ii) on a non-ratable basis by certain parties if

either compensation or other equitable adjustment for the benefit of the other parties is provided. Such overextractions may be permitted not only for emergency and necessity arising within Central Basin area, but to assist the remainder of the areas within The Metropolitan Water District of Southern California in the event of temporary shortage or threatened temporary shortage of its imported water supply, or temporary inability to deliver the same throughout its area, but only if the court is reasonably satisfied that no party will be irreparably damaged thereby. Increased energy cost for pumping shall not be deemed irreparable damage. Provided, however, that the provisions of this subparagraph will apply only if the temporary shortage, threatened temporary shortage, or temporary inability to deliver was either not reasonably avoidable by the Metropolitan Water District, or if reasonably avoidable, good reason existed for not taking the steps necessary to avoid it.

F. To review actions of the Watermaster.

G. To assist the remainder of the areas within The Metropolitan Water District of Southern California within the parameter set forth in subparagraph (e) above.

H. To provide for such other matters as are not contemplated by the Judgment and which might occur in the future, and which if not provided for would defeat any or all of the purposes of this Judgment to assure a balanced Central Basin subject to the requirements of Central Basin Area for water required for its needs, growth and development.

The exercise of such continuing jurisdiction shall be after 30 days' notice to the parties, with the exception of the exercise of such continuing jurisdiction in relation to subparagraphs E and G above, which may be *ex parte*, in which event the matter shall be forthwith reviewed either upon the Court's own motion or the motion of any party upon which 30 days' notice shall be so given. Within ten (10) days of obtaining any *ex parte* order, the party so obtaining the same shall mail notice thereof to the other parties. If any other party desires Court review thereof, the party obtaining the *ex parte* order shall bear the reasonable expenses of mailing notice of the proceedings, or may in lieu thereof undertake the mailing. Any contrary or

modified decision upon such review shall not prejudice any party who relied on said *ex parte* order.

VI. GENERAL PROVISIONS.

A. Judgment Constitutes Inter Se Adjudication.

This Judgment constitutes an inter se adjudication of the respective rights of all parties, except as may be otherwise specifically indicated in the listing of the water rights of the parties of this Judgment, or in Appendix "2" hereof. All parties to this Judgment retain all rights not specifically determined herein, including any right, by common law or otherwise, to seek compensation for damages arising out of any act or omission of any person. This Judgment constitutes a "court order" within the meaning of Water Code Section 71610(B)(2)(b).

B. Assignment, Transfer, Etc., of Rights.

Subject to the other provision of this Judgment, and any rules and regulations of the Watermaster requiring reports relative thereto, nothing herein contained shall be deemed to prevent any party hereto from assigning, transferring, licensing or leasing all or any portion of such water rights as it may have with the same force and effect as would otherwise be permissible under applicable rules of law as exist from time to time.

C. Service Upon and Delivery to Parties of Various Papers.

Service of the Judgment on those parties who have executed that certain Stipulation and Agreement for Judgment or who have filed a notice of election to be bound by the Exchange Pool provisions shall be made by first class mail, postage prepaid, addressed to the designee and at the address designated for that purpose in the executed and filed Counterpart of the Stipulation and Agreement for Judgment or in the executed and filed "Notice of Election to be Bound by Exchange Pool Provisions," as the case may be, or in any substitute designation filed with the Court.

Each party who has not heretofore made such a designation shall, within 30 days after the Judgment shall have been served upon that party, file with the Court, with proof

of service of a copy upon the Watermaster, a written designation of the person to whom and the address at which all future notices, determinations, requests, demands, objections, reports and other papers and processes to be served upon that party or delivered to that party are to be so served or delivered.

A later substitute designation filed and served in the same manner by any party shall be effective from the date of filing as to the then future notices, determinations, requests, demands, objections, reports and other papers and processes to be served upon or delivered to that party.

Delivery to or service upon any party by the Watermaster, by any other party, or by the Court, or any item required to be served upon or delivered to a party under or pursuant to the Judgment may be by deposit in the mail, first class, postage prepaid, addressed to the designee and at the address in the latest designation filed by that party.

D. Judgment Does Not Affect Rights, Powers, Etc., of Plaintiff District.

Nothing herein constitutes a determination or adjudication which shall foreclose Plaintiff District from exercising such rights, powers, privileges and prerogatives as it may now have or may hereafter have by reason of provisions of law.

E. Continuation of Order under Interim Agreement.

The order of Court made pursuant to the "Stipulation and Interim Agreement and Petition for Order" shall remain in effect through the Administrative Year in which this Judgment shall become final (subject to the reserved jurisdiction of the Court).

F. Effect of Extractions by Exchangees; Reductions in Extractions.

With regard to Exchange Pool purchases, the first extractions by each Exchangee shall be deemed the extractions of the quantities of water which that party is entitled to extract pursuant to his allocation from the Exchange Pool for that Administrative Year. Each Exchangee shall be deemed to have pumped his Exchange Pool request so allocated for and on behalf of each Exchangor in proportion to each Exchangor's subscription to the Exchange Pool which is utilized to meet Exchange Pool requests. No Exchangor shall ever be deemed to have relinquished or lost any of its rights determined in this

Judgment by reason of allocated subscriptions to the Exchange Pool. Each Exchangee shall be responsible as between Exchangors and that Exchangee, for any tax or assessment upon the production of groundwater levied for replenishment purposes by WRD or by any other governmental agency with respect to water extracted by such Exchangee by reason of Exchange Pool allocations and purchases. No Exchangor or Exchangee shall acquire any additional rights, with respect to any party to this action, to extract waters from Central Basin pursuant to Water Code Section 1005.1 by reason of the obligations pursuant to and the operation of the Exchange Pool.

G. Judgment Binding on Successors, Etc.

This Judgment and all provisions thereof are applicable to and binding upon not only the parties to this action, but as well to their respective heirs, executors, administrators, successors, assigns, lessees, licensees and to the agents, employees and attorneys in fact of any such persons.

H. Costs.

No party shall recover its costs herein as against any other party.

I. Intervention of Successors in Interest and New Parties.

Any person who is not a party (including but not limited to successors or parties who are bound by this Judgment) and who proposes to produce water from the Basin, store water in the Basin, or exercise water rights of a predecessor may seek to become a party to this Judgment through a Stipulation in Intervention entered into with the Plaintiff. Plaintiff may execute said Stipulation on behalf of the other parties herein, but such Stipulation shall not preclude a party from opposing such intervention at the time of the court hearing thereon. Said Stipulation for Intervention must thereupon be filed with the Court, which will consider an order confirming said intervention following thirty (30) days' notice to the parties. Thereafter, if approved by the Court, such intervenor shall be a party bound by this Judgment and entitled to the rights and privileges accorded under the physical solution herein.

J. Effect of this Amended Judgment on Orders Filed Herein.

This Third Amended Judgment shall not abrogate such rights of additional carryover of unused water rights as may otherwise exist pursuant to orders herein filed June 2, 1977 and September 29, 1977.

THE CLERK WILL ENTER THIS THIRD AMENDED JUDGMENT FORTHWITH.

DATED: _____

_____
Judge of the Superior Court

CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX G

RECYCLED WATER SYSTEM





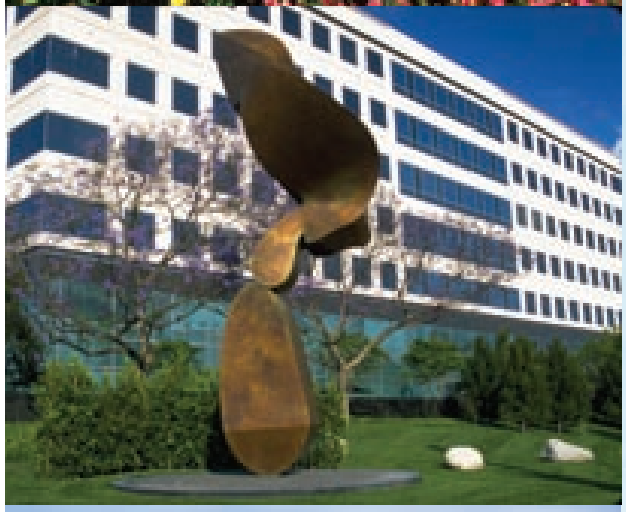


Cerritos Recycled Water Distribution System

20 year anniversary
1988~2008

CITY OF CERRITOS
RECYCLED WATER DISTRIBUTION SYSTEM









Verdant parks, median strips with blooming flowers and lush grass surrounding meandering sidewalks create a park-like atmosphere in the City of Cerritos.

To irrigate its 200 acres of attractively landscaped public property, the City of Cerritos constructed a Recycled Water Distribution System. By using recycled water for irrigation, the City and its customers save some 713 million gallons of drinking water every year. During the first 20 years of the system's operation, the City saved $5,969,470 as recycled water is less costly than drinking water. In addition, the Recycled Water Distribution System ensures an adequate supply of water for irrigation purposes, even during Southern California's drought years.

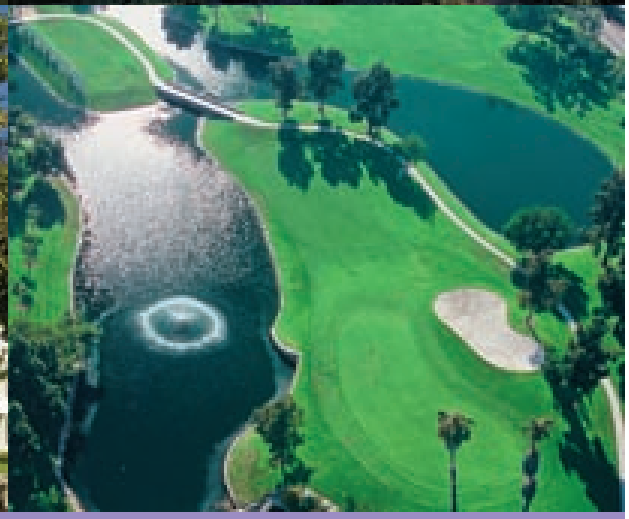
Cerritos receives its recycled water from the Sanitation Districts of Los Angeles County's Los Coyotes Water Reclamation Plant. The plant is located next to the 605 Freeway in Cerritos, and produces up to 37.5 million gallons of recycled water every day.

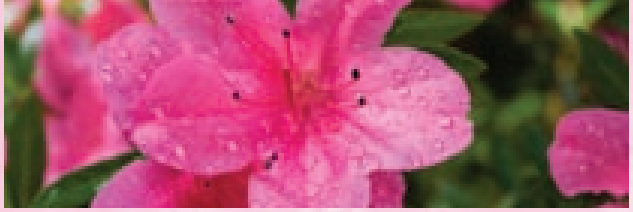












Sites irrigated with recycled water

In addition to the City's neighborhood parks, community centers, landscaped medians and parkways, the Recycled Water Distribution System transports water to the agencies listed below. Each gallon of recycled water used by government agencies and private property owners saves one gallon of precious drinking water. The agencies and the City collectively save 634,902,400 gallons of drinking water every year by using recycled water for irrigation.

Agency	Gallons of Drinking Water Saved Annually	Agency	Gallons of Drinking Water Saved Annually
ABC Unified School District	151,131,156	Cerritos College	46,838,264
Artesia Cemetery District	9,879,584	Cerritos Post Office	3,195,456
Caltrans	52,275,476	Cerritos Regional Park	34,954,788
Central Basin Municipal Water District	176,937,156	City of Lakewood	143,251,724
		Valley Christian Schools	16,438,796

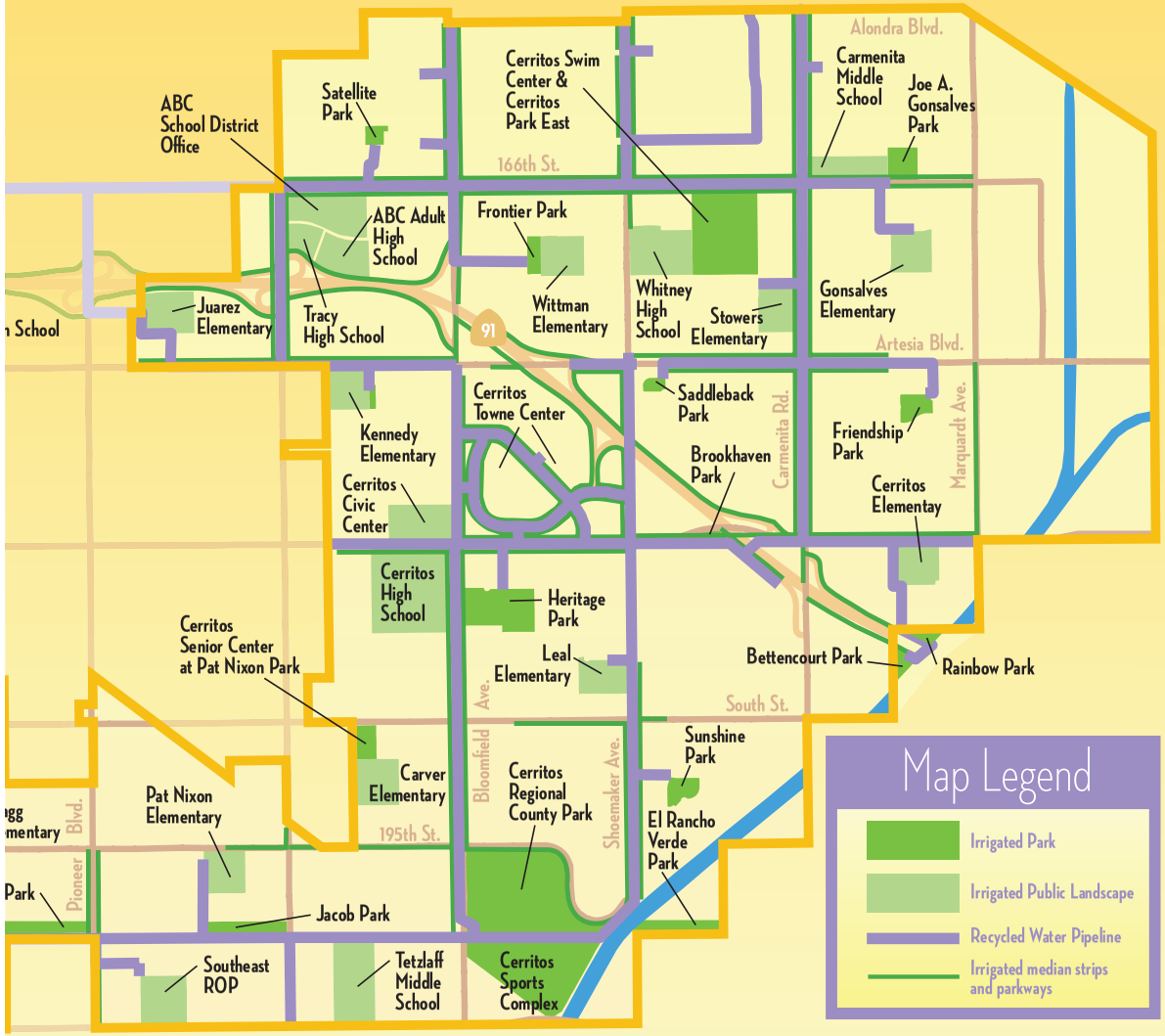
Since 1988, the use of recycled water from the Cerritos system has saved 11.8 billion gallons of drinking water. Private property owners also purchase recycled water from the City. Landscaping at Cerritos Towne Center, portions of Cerritos Auto Square and some churches, nurseries and housing developments in the City is irrigated with recycled water.

In addition, recycled water costs are significantly less than those of drinking water, and users are not required to purchase a minimum amount. From 2002 to 2007, agencies in Cerritos saved $2,357,378 in drinking water costs.

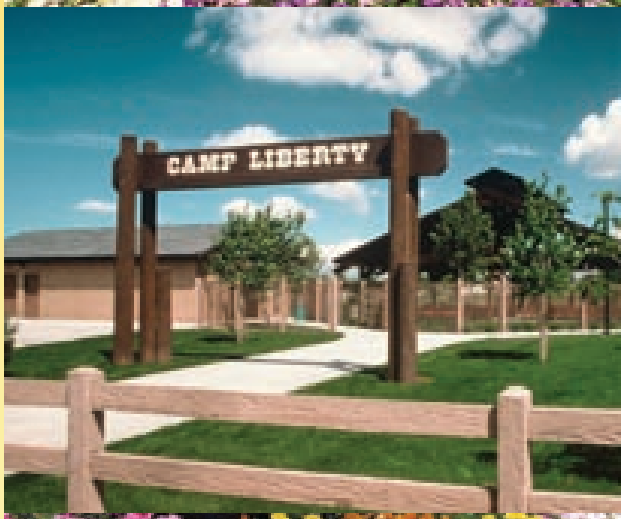
City of Cerritos



Recycled Water Distribution System Map

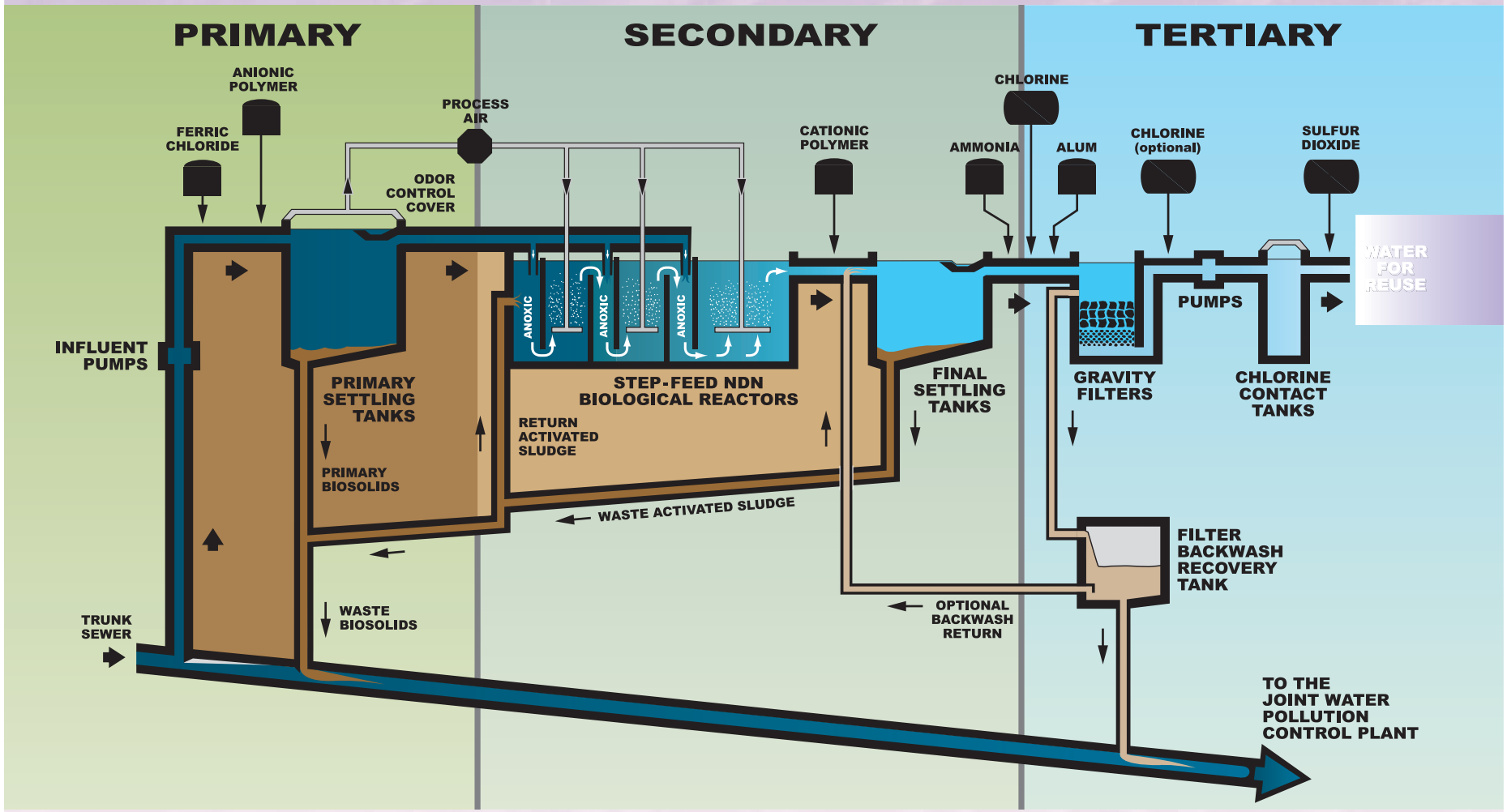








Los Coyotes Water Reclamation Plant 2008











Recycled water process

Recycled water is derived from a three-stage process. The first stage is primary settling, in which solid materials are removed from the wastewater as they settle to the bottom or float to the top of the primary settling tank. These solids are returned to the sewer to be treated at the main Sanitation Districts' treatment plant. After primary settling, the water still contains dissolved and suspended organic material, which is removed in the second stage.

During the second stage of the process, a dense biological culture of bacteria and microbes breaks down and feeds on the remaining organic material in the wastewater. After the organic material is consumed, the fattened bacteria and other organisms still suspended in the water form clumps and are carried into a final settling tank where they settle to the bottom and are removed and returned to the sewer to be treated at the main Sanitation Districts' treatment plant.

In the third stage, the water flows through filters composed of anthracite coal on top of sand, which remove suspended particles that remain in the water. The filtered water is then pumped into chlorination tanks to kill any harmful organisms. It is then delivered to the City and its customers for landscape irrigation.

More than 99 percent of the suspended solids and color are removed during the three-stage treatment process. After the water is treated, it is suitable for public contact, but not drinking, and is monitored in accordance with Health Department requirements.



Benefits to plant life

Compared to drinking water, recycled water contains higher levels of potassium, phosphorus and nitrogen. These nutrients are excellent for plants, and reduce the need for fertilizer. Recycled water also has a higher salinity level, so the City has planted salt-tolerant landscaping such as tif green and paspalum vegetatum (Australian salt grass). Colorful gazanias and ice plants also thrive on recycled water.



History of the system

Located adjacent to the Los Coyotes Water Reclamation Plant, Cerritos Iron-Wood Nine Golf Course was the first City site irrigated with recycled water. After switching to recycled water at the golf course in 1978, the City saved $4,800 per year in irrigation expenses.

Based on this success, and concerned by California's drought in the 1970s, the City began researching the feasibility of constructing a system to transport recycled water to irrigate other public areas. In May 1980, the City was awarded a $4.5 million grant from the State Office of Water Recycling to design and construct a recycled water distribution system.

In 1984, the City Council authorized construction of a system which would transport up to 4,000 acre feet of recycled water annually to irrigate public landscaping in Cerritos. The City also entered into a 20-year agreement with the Los Angeles County Sanitation Districts to purchase up to 4,000 acre feet of recycled water per year from the Los Coyotes Water Reclamation Plant.

Construction of the system was completed in 1988 and a dedication ceremony was held on January 23, 1988. The recycled water pipeline consists of a main loop and laterals which total approximately 22 miles of underground piping ranging in size from 4 inches to 24 inches in diameter. Construction costs for these water lines, along with a water pumping facility at the Los Coyotes Sanitation Plant, totaled $8.9 million, excluding engineering and inspection services. The City and the Cerritos Redevelopment Agency funded costs not covered by the $4.5 million grant.

For more information about the Cerritos Recycled Water Distribution System, call the City's Water Operations Division at (562) 916-1223.



20 year anniversary
1988~2008

CITY OF CERRITOS
RECYCLED WATER DISTRIBUTION SYSTEM

CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX H

WATER WASTE RESOLUTIONS

CITY OF CERRITOS

RESOLUTION NO. 91-6

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CERRITOS IMPLEMENTING PHASE I AND II OF THE EMERGENCY WATER CONSERVATION PLAN

WHEREAS, on May 2, 1990, the City Council of the City of Cerritos adopted Resolution No. 90-14 entitled "A Resolution of the City Council of the City of Cerritos Adopting a Program of Voluntary Water Conservation to Reduce Water Consumption by Ten (10) Percent"; and,

WHEREAS, the City Council of the City of Cerritos has established an Emergency Water Conservation Plan in light of the current drought conditions in Southern California, particularly in Cerritos, and desires to rescind Resolution No. 90-14.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF CERRITOS DOES RESOLVE AS FOLLOWS:

SECTION 1. Scope. Phase I and II of City of Cerritos Emergency Water Conservation Plan are hereby implemented, effective February 21, 1991.

SECTION 2. Purpose. The City Council hereby declares that a water shortage emergency exists, and this Emergency Water Conservation Plan shall be implemented to provide a vehicle to protect public peace, health and safety by significantly and equitably reducing the consumption of potable water over an extended period. The Conservation Plan shall remain in effect until the Council declares that the water shortage emergency has ended.

SECTION 3. Application. The provisions of this Conservation Plan shall apply to all customers and property receiving potable water from the City wherever situated, and shall also apply to all property and facilities owned, maintained, operated or under the jurisdiction of the various officials, bureaus or agencies of the City of Cerritos. The provisions of this Conservation Plan shall not apply to the use of reclaimed water.

SECTION 4. Authorization. The various officials, bureaus, and agencies of the City are hereby authorized and directed to implement immediately the applicable provisions of this Conservation Plan upon the effective date of the implementation of any Phase.

SECTION 5. Water Conservation Phases. No customer of the City shall make, cause, use, or permit the use of water from the City for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of, or in an amount in excess of that use permitted by the Phase then in effect pursuant to action taken by the City Council. The City Council shall determine by resolution which Phase is necessary to accomplish water conservation, based on the severity of the water shortage emergency.

SECTION 6. Phase I. The following occurrences shall be deemed improper water use:

(a) Washing of walkways, driveways, or parking areas with a hose;

(b) Using water to clean, fill, or maintain levels in decorative fountains unless a recycling system is used;

(c) Serving drinking water to any customer in a restaurant or other public place where food is served, sold, or offered for sale unless expressly requested by the customer;

(d) Failing to repair all water leaks as soon as possible;

(e) Watering or irrigating lawns, turf, or landscape areas between the hours of 10:00 A.M. and 4:00 P.M.;

(f) Watering or irrigating lawns, turf, or landscape areas beyond saturation causing runoff;

(g) Allowing a hose to run continuously while washing vehicles;

(h) Allowing sprinklers to direct water to areas other than landscape causing runoff.

SECTION 7. Notice of Improper Water Use. For each occurrence of improper water use, the City shall send to the customer where the improper use occurred a notice of Improper Water use specifying the subsection or subsections of Section 6 that apply. Where possible, a copy of said Notice shall be given to the individual who has improperly used water in addition to being given as required in Section 11.

(A) Failure to Comply

(1) First Violation: The City shall issue a written notice of the improper water use to the customer.

(2) Second Violation: For a second violation during any one water shortage emergency, the City shall impose a $25.00 penalty, payable with the next subsequent water bill.

(3) Third and Subsequent Violations. For a third and each subsequent violation during any one water shortage emergency, the City shall install a flow restricting device of one (1) gallon per minute capacity for services up to one and one-half (1-1/2) inch size, and comparatively sized for larger services, on the service of the customer at the premises at which the violation occurred for a period of not less than forty-eight (48) hours. The City shall charge the customer the reasonable costs incurred for installing and for restoration of normal service. The charge shall be paid before normal service can be restored.

(4) Failure to pay penalties described in subsection (2) and (3) will result in discontinuation of water service until all previous penalties are paid in full. In addition, a reactivation fee will be imposed.

SECTION 8. Phase II

(A) Section 6 and 7 of the Conservation Plan shall apply in Phase II.

(B) Bimonthly, each 5/8" x 3/4" or 1" water meter shall be billed at a base consumption of 30 units, under the current water rate structure. All billing units of water used over the aforementioned base consumption will be billed at one and one half times the quantity rate in existence in the current rate structure.

(C) Bimonthly, each 1-1/2" water meter shall be billed at a base consumption of 119 units under the current water rate structure.

Bimonthly, each 2" water meter shall be billed at a base consumption of 277 units under the current water rate structure.

Bimonthly, each 3" water meter shall be billed at a base consumption of 511 units under the current water rate structure.

Bimonthly, each 4" water meter shall be billed at a base consumption of 1080 units under the current water rate structure.

Under each condition in Section C, if the bimonthly usage exceeds the aforementioned base consumption, a comparison to the previous years water consumption, during a similar bimonthly period will be made. The customer will be allowed ninety percent (90%) of the previous years use. Any water used in excess of the greater of the following, will be billed at one and one half times the quantity rate in existence under the current rate structure:

(a) the base consumption for a 1-1/2", 2", 3" or 4" meter as applicable, or

(b) ninety percent (90%) of the previous years use comparison.

SECTION 9. Exceptions. The improper use of water specified in Section 6 of this Conservation Plan are not applicable to that use of water necessary for public health and safety or for essential governmental services such as police, fire, and other similar emergency services.

SECTION 10. Failure to Comply. A flow restricting device may be installed for a period of three (3) months in the water service of any customer whose bill shows an excess rate, as established in Section 8 above, for three (3) consecutive months. The charge for installation and removal of the flow restricting device shall be as established in Section 7.

SECTION 11. Notice. Except as otherwise provided in this Conservation Plan, all notices required or desired to be given under the Conservation Plan shall be in writing and personally served or deposited in the U.S. Postal Service, first class, postage prepaid, addressed to the billing address of the customer and to the City of Cerritos, P. O. Box 3130, Cerritos, CA 90703, Attn: Water Superintendent. Notice shall be effective on the date personal service is obtained or the date on which the notice is deposited in the mail. If the customer is absent from this residence or place of business so that personal service cannot be obtained, notice may be given by leaving a copy thereof with some responsible person at either place and then sending a copy by regular mail addressed to the customer at his billing address, or if the residence or place of business cannot be ascertained or a responsible

person cannot be found there, then notice may be given by affixing a copy thereof in a conspicuous place on the property where the improper water use occurred and delivering a copy thereof to a person residing there if such person can be found and sending a copy thereof by regular mail addressed to the customer at his or her billing address.

SECTION 12. Relief from Compliance.

(A) Administrative Hearing. A customer shall have the right to a hearing to obtain relief from compliance with the Conservation Plan by filing a written request for hearing within fifteen (15) days after receipt of a Notice of Improper Water Use or receipt of a bill whichever is later. To the extent possible, the hearing shall be held by the Water Superintendent or designee within fifteen (15) days after receipt of the request therefor. In determining whether or not relief shall be granted, the Water Superintendent shall consider all relevant factors including but not limited to:

(1) The fact that reduction in water consumption will result in unemployment;
(2) Increased number of employees in commercial or industrial business, and governmental offices;
(3) The existence of emergency health or safety hazards;
(4) The existence of family health problems;
(5) The fact that the current customer was not a customer at the water service address during the base period and the nature of the current customer's water use is substantially different from the use during the base period;
(6) Special needs of medical care facilities or schools.

The Water Superintendent or designee shall give the customer notice of his decision, including notice of the customer's right to appeal the decision to the City Council. No customer shall appeal to the City Council prior to receipt of a decision from the Water Superintendent or designee.

(B) Appeal to Council. A customer shall have the right to appeal the decision of the Water Superintendent or designee to the City Council by filing a written request for appeal within fifteen (15) days after receipt of said decision. To the extent possible, the City Council shall hear the appeal at its first regular meeting occurring after the expiration of fifteen (15) days of receipt of the request for appeal. The decision of the City Council shall be final.

SECTION 13. General Provisions.

(A) Reduction in Water Supplied. If any customer fails to comply with any provision of this Conservation Plan, the City may reduce the amount of water provided to that customer to the level which that customer would be using if he were complying with the provisions of this Conservation Plan. The provisions of this subsection shall be applied in lieu of, or in addition to, any of the other provisions of this Conservation Plan, in the discretion of the City and shall be applied without regard to the status or nature of the customer.

(B) Public Health and Safety Not to be Affected. Nothing contained in this Conservation Plan shall be construed to require the City to curtail the supply of water to any customer when, in the discretion of the Council, such water is required by that customer to maintain an adequate level of public health and safety.

(C) Base Period. The base period shall be the historic period designated by the Council and is hereby established as the period June 1989 through May 1990.

SECTION 14. Severability. If any section, subsection, sentence, clause and phrase in this Conservation Plan or the application thereof to any person or circumstances is for any reason held invalid, the validity of the remainder of the Conservation Plan or the application of such provisions to other persons or circumstances shall not be affected thereby. The City Council declares that it would have passed this Conservation Plan and each section, subsection, sentence, clause, and phrase thereof irrespective of the fact that one or more sections, subsections, sentences, clauses, or phrases or the application thereof to any person or circumstances be held invalid.

SECTION 15. Resolution No. 90-14 is hereby rescinded.

SECTION 16. The City Clerk of the City of Cerritos shall certify to the approval of this Resolution cause the same to be published one time only in a newspaper of general

circulation in Cerritos, which publication shall be made on or after the effective date of the Resolution of the City Council approving this Resolution.

PASSED, APPROVED and ADOPTED this 21st day of February, 1991.

MAYOR

ATTEST:

CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss
CITY OF CERRITOS)

I, Caroline deLlamas, City Clerk of the City of Cerritos, California, DO HEREBY CERTIFY that the foregoing Resolution No. 91-6 was duly adopted by the City Council of said City and was approved by the Mayor of said City at a regular meeting of said City Council held on the 21st day of February, 1991, and that it was so adopted as follows:

AYES: COUNCILMEMBERS - Crawley, Kappe, Wong, Bowlen and Joynt.

NOES: COUNCILMEMBERS - None.

ABSENT: COUNCILMEMBERS - None.

ABSTAIN: COUNCILMEMBERS - None.

Caroline deLlamas
City Clerk of the City of Cerritos

DATED: February 22, 1991

CITY OF CERRITOS

RESOLUTION NO. 2015-16

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CERRITOS IMPLEMENTING EMERGENCY WATER CONSERVATION REGULATIONS

WHEREAS, On January 17, 2014, Governor Jerry Brown declared a state of emergency in California and called for a 20 percent reduction in water use due to the ongoing drought conditions throughout the state; and Governor Brown issued an executive order on April 25 calling on California residents to refrain from wasting water; and

WHEREAS, On May 5, 2015, the State Water Resources Control Board adopted revised emergency water conservation regulations in response to Governor Brown's executive order; and

WHEREAS, The adopted regulations require the City of Cerritos to reduce its water consumption by 28%; and

WHEREAS, the City of Cerritos City Council adopted an Emergency Water Conservation Ordinance in February 1991;

WHEREAS, said ordinance authorizes the City Council to declare the implementation of water conservation measures by resolution; and

WHEREAS, it is necessary to comply with the State of California Water Resources Control Board regulations.

NOW, THEREFORE, THE CITY OF CERRITOS CITY COUNCIL DOES FIND, DETERMINE AND DECLARE AS FOLLOWS:

Section 1. Except when necessary to address an immediate health and safety need or to comply with a term or condition in a permit issued by a state or federal agency, the following actions are prohibited:

a. The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots or structures. Water runoff is defined as water accumulation sufficient to cause a flow of water off of landscaped areas; and

b. Use of potable water for irrigation during and 48 hours following measurable precipitation;

c. The use of a hose that dispenses potable water to wash a motor vehicle, except when the hose is equipped with a shut-off nozzle; and

d. The application of potable water to driveways and sidewalks; and

e. The use of potable water in a fountain or other decorative water feature, unless the water is part of a recirculating system.

Section 2. Residential and commercial landscape areas shall be watered between the hours of 5 p.m. and 9 a.m. for no more than ten (10) minutes per station. Watering shall be limited to two (2) times per week during the months of June through September, and one (1) time per week during the months of October through May. Landscape irrigation for commercial nurseries and growers, fire and erosion protection, the protection of endangered species, environmental mitigation projects, and properties using reclaimed water are exempt from this provision. Watering using a handheld container; a hose equipped with a shut off nozzle; or the use of an irrigation system for short durations to make repairs are also exempt from the provision; and

Section 3. Use of a drip irrigation system shall be subject to State mandated restrictions; and

Section 4. Violation of the regulations is an infraction punishable by a fine of up to five hundred dollars ($500) per day; and

Section 5. The emergency regulations will remain in effect until the state mandated restrictions expire, at which time the City Council shall review the water supply conditions to determine the need for continued mandatory conservation measures.

PASSED, APPROVED and ADOPTED this 11th day of June 2015.

Carol K. Chen, Mayor

ATTEST:

Vida Barone, City Clerk

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.
CITY OF CERRITOS)

I, Vida Barone, City Clerk of the City of Cerritos, California, DO HEREBY CERTIFY that the foregoing **Resolution No. 2015-16** was duly adopted by the City Council of the City of Cerritos at a Regular Meeting held on the **11th Day of June, 2015,** and that it was so adopted as follows:

AYES:	Councilmembers –	**Chen, Edwards, Pulido, Ray, Solanki**
NOES:	Councilmembers –	None.
ABSENT:	Councilmembers –	None.
ABSTAIN:	Councilmembers –	None.

DATED: **June 11, 2015**

Vida Barone, City Clerk

CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX I

CITY OF CERRITOS HAZARD MITIGATION PLAN



City of Cerritos
2022 Hazard Mitigation Plan

Prepared: October 2022
Adopted: April 2023

Prepared By:
Risk Management Professionals
8717 Research Drive, Suite 150, Irvine, California 92618
949/282-0123 www.RMPCorp.com

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ES.1 Plan Requirements and Objectives

The City of Cerritos (City) Hazard Mitigation Plan (HMP) is a living document that reflects ongoing hazard mitigation activities. Hazard mitigation involves strategies to reduce short- and long-term vulnerability to identified hazards. This document serves as the framework for the ongoing identification and implementation of hazard mitigation strategies developed in the City.

The City updated its 2004 Natural Hazards Mitigation Plan in 2016. This document serves as an update to that Plan.

Background Information

In 2000, the United States Congress determined that disasters and, more importantly, lack of preparedness for disasters, were significant causes of loss of life, human suffering, loss of income, and property loss and damage. Furthermore, since disasters often disrupt the normal functioning of governments and communities and adversely affect individuals and families with great severity, special measures designed to assist the efforts of the affected States in expediting the rendering of aid, assistance, and emergency services, and the reconstruction and rehabilitation of devastated areas, were necessary. As a result, Congress passed the Disaster Mitigation Act of 2000 (DMA 2000), or Public Law 106-390, to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act. This provides an opportunity for States, Tribal governments, and local jurisdictions to apply for assistance from the Federal government in carrying out their responsibilities to alleviate the suffering and damage which results from such disasters by:

a. revising and broadening the scope of existing disaster relief programs;

b. encouraging the development of comprehensive disaster preparedness and assistance plans, programs, capabilities, and organizations by the States and by local governments;

c. achieving greater coordination and responsiveness of disaster preparedness and relief programs;

d. encouraging individuals, States, and local governments to protect themselves by obtaining insurance coverage to supplement or replace governmental assistance;

e. encouraging hazard mitigation measures to reduce losses from disasters, including development of land use and construction regulations; and

f. providing Federal assistance programs for both public and private losses sustained in disasters.

DMA 2000 allows State, Tribal, and local jurisdictions to obtain Federal assistance through pre-disaster hazard mitigation planning. Guidance is provided in 44 Code of Federal Regulation (CFR) 201.6. Excerpts from these regulatory guidelines are included throughout the document to demonstrate compliance.

As part of the requirements for receiving Federal grants for improving a locality's resistance to disasters, each locality must determine its existing vulnerabilities and develop a plan to reduce or eliminate these vulnerabilities and must have this plan approved by the appropriate State officials. Upon approval of this plan, each locality is eligible to receive various types of disaster-related assistance through FEMA's Hazard Mitigation Assistance (HMA) Program. This includes the Pre-Disaster Mitigation (PDM) program and Hazard Mitigation Grant Program (HMGP) which releases grant funds before and after a hazard event as well as the Flood Mitigation Assistance Grant (FMA) Program which appropriates funds for projects and planning that will reduce long-term risk of flood damage to structures insured under the National Flood Insurance Program (NFIP).

The PDM program provides funds for hazard mitigation planning and the implementation of mitigation actions prior to a disaster event. These grants are funded and approved through the Federal Emergency Management Agency (FEMA) on a competitive basis. The HMGP provides grants to implement long-term hazard mitigation measures after a major disaster declaration. These grants are funded by FEMA but are distributed by the State. In California, the agency that distributes FEMA funds is the Governor's Office of Emergency Services (Cal OES).

FEMA has developed guidance to assist communities in developing both the vulnerability assessments and plans to reduce or eliminate their vulnerabilities to disasters. These tools, coupled with techniques from the safety and security industries, were used to develop the City's Hazard Mitigation Plan. Additional information regarding the HMGP and PDM programs can be found in FEMA's "Hazard Mitigation Assistance Unified Guidance" document, located in FEMA's Hazard Mitigation Assistance portal. Additional information including guidance and regulations can be found at the Cal OES's Local Hazard Mitigation Planning Program portal.

In order to be eligible for certain Federal disaster assistance and mitigation funding, the City is required to have a Cal OES- and FEMA-approved Hazard Mitigation Plan in place. As a result, the City contracted Risk Management Professionals to assist in updating this document to fulfill Cal OES and FEMA requirements and provide direction and guidance

on implementing hazard mitigation actions on a hazard-level, probability, and cost-priority basis. The overall goal of the Hazard Mitigation Plan is to reduce the potential for damage to critical assets from natural and man-made hazards. In addition, the plan describes past and current hazard mitigation activities and philosophies and outlines future mitigation goals and strategies.

FEMA Requirements

FEMA requires that the Hazard Mitigation Plan meet certain requirements. First, the planning process must be open and public, and must allow the public to have an opportunity to comment during the drafting stage and prior to plan approval. Second, the process must allow other local jurisdictions to be involved in the planning process. Third, the Plan must incorporate, if appropriate, existing plans, studies, reports, and technical information.

FEMA expects that each Hazard Mitigation Plan have the following information:

1. Documentation of the ***planning process*** used to develop the plan
2. A ***risk assessment*** that provides a factual basis for upgrades and recommendations
3. A ***description of the natural hazards*** that can affect the jurisdiction
4. A ***description of the jurisdiction's vulnerability*** to these hazards
5. A ***description of land usage***, and an ***estimate of losses*** should a disaster occur
6. A ***mitigation strategy***
7. A plan ***maintenance process***
8. ***Documentation*** that the plan has been adopted by the jurisdiction's governing body
9. ***Review*** by the State Hazard Mitigation Officer

ES.2 Mitigation Definition

Mitigation is the ongoing effort to prevent or lessen future emergency or disaster incidents, and the impacts they might have on people, property, and the environment. Examples of mitigation activities include the following:

- Legislation, laws and regulations;
- Variances;
- Zoning and land use management;
- Engineering and building codes;
- Hazard mitigation plans & teams;
- Technical guidance & assistance;
- Financial assistance;
- Hazard Identification;
- Risk Analysis;
- Evaluation;
- Research; and
- Education.

Mitigation decreases the demand for emergency response resources, reduces the principal causes of injuries and deaths, enables a quicker lifesaving response and economic recovery because the community infrastructure remains intact, and reduces the societal impacts of the emergency because it results in less disruption to the social environment. In essence, mitigation is the foundation of sustainable community development.

ES.3 Planning Process Summary

Hazard mitigation planning is a dynamic process built on realistic assessments of past and present information that enables the City to anticipate future hazards and provide mitigation strategies to address possible impacts and identified needs. The overall approach to the HMP included developing a baseline understanding of natural and man-made hazards, determining ways to reduce those risks, and prioritizing mitigation recommendations for implementation.

To complete these objectives, the City compiled a qualified team with various expertise, including risk management, public safety and health, engineering and public works, water infrastructure, and emergency response agencies to participate on a Steering Committee to guide the development of the City's comprehensive Hazard Mitigation Plan. In addition, the Steering Committee solicited public involvement throughout the planning process, including the release of a public survey through the City's newsletter and website, allowing the public to comment during the drafting stage, and making the draft Plan available to allow the public to comment on its content. Chapter 1: Planning Process, contains descriptions of the Planning process, including information on the Steering Committee and public involvement.

ES.4 Hazard Analysis

The City is vulnerable to a wide range of natural and man-made hazards that threaten life and property. In order to identify the hazards that the City and neighboring communities perceive as the largest threat, each member of the Steering Committee participated in the hazard identification exercise during the first Steering Committee Meeting. The Steering Committee brainstormed potential hazards based on past incidents that have impacted the City and information incorporated from other studies. (Incorporated Plans and studies are described in Section 1.3 "Review and Incorporation of Existing Plans"). Each identified hazard was then qualitatively ranked based upon hazard probability/frequency, consequence/severity, and the City's overall vulnerability using an interactive model. Section 3.2 Hazard Identification and Profiling, contains detailed information regarding the hazard ranking. Table ES.1 provides a summary of the hazard ranking.

Table ES.1: City of Cerritos Hazard Ranking Summary

Hazard Rank
High
Earthquake
Moderately High
Moderate
Urban Fire
Disease Outbreak
Windstorm
Transportation Accident/ Incident
Adversarial Events
Moderately Low
Flood/ Dam Failure
Pipeline Failure/ Hazardous Material Release
Drought
Low

Asset Inventory and Loss Estimates

In addition to the hazard profiles, the Risk Assessment contains a detailed asset inventory that lists the City's assets, such as buildings, parks, and public facilities. This asset inventory was used in the vulnerability assessment to estimate potential losses for each hazard. The Steering Committee reviewed each hazard and assigned a potential percentage of damage expected. This also included loss of function values for lifeline and emergency service interruptions. Section 3.14, Loss Estimates, includes a detailed breakdown of the vulnerability assessment calculations.

Table ES.2: Loss Estimate Summary

Hazard	Estimated Losses
Earthquake	$114,101,000
Urban Fire	$79,041,000
Flood/ Dam Failure	$62,388,000
Adversarial Events	$42,404,000
Pipeline Failure/ Hazardous Material Release	$23,119,000
Transportation Accident/Incident	$22,683,000
Windstorm	$8,964,000
Drought	$8,850,000
Disease Outbreak	$2,930,000

Note: A total value is not included since it is not expected for all hazards to occur simultaneously. Loss estimate values were determined through an in-person exercise and values are rounded to the nearest thousand. Supporting data can be found in Section 3.13 "Loss Estimates"

ES.5 Mitigation Strategies and Implementation Plan

Plan Goals and Objectives

As part of the development process, Plan goals and objectives were revalidated to provide a framework for mitigating hazards and proposing potential mitigation actions. The goals are congruent with the California State Hazard Mitigation Plan and the Los Angeles County Hazard Mitigation Plan and were developed by the Steering Committee. The City's overall Plan goals are to:

1. Protect Life, Public Health, Property, and Commerce
2. Promote Public Awareness
3. Protect the Environment
4. Develop and Expand Partnerships and Implementation
5. Enhance Emergency Services Capabilities

In addition to the overall Plan goals, individual objectives were developed that more specifically address mitigation strategies. Section 4.1, Mitigation Goals and Objectives, contains the full list of the Plan goals and objectives.

Mitigation Strategies

Mitigation strategies are administrative and/or engineering project recommendations to reduce the vulnerability to the identified hazards. The Steering Committee identified specific mitigation actions to reduce the impact or likelihood of the hazards. The specific objectives served as a starting point for developing the mitigation actions, and additional actions were taken from the Safety Element of the City's General Plan.

Implementation Plan

Following the identification of mitigation actions, a simplified Benefit-Cost Review was applied in order to prioritize the mitigation actions for implementation. The priority for implementing mitigation actions depended upon the overall cost effectiveness of the action, when taking into account monetary and non-monetary costs and benefits associated with each action. Additionally, the following questions were considered when developing the Benefit-Cost Review:

- How many people will benefit from the action?
- How large of an area is impacted?
- How critical are the facilities that benefit from the action?

- Environmentally, does it make sense to do this project for the overall community?

The Benefit-Cost Review yielded a relative priority ranking (High, Medium, or Low) for each mitigation action. Each ranking was defined as follows:

- High: Benefits are perceived to exceed costs without further study or evaluations; or the action is critical.
- Medium: Benefits are perceived to exceed costs but may require further study or evaluation prior to implementation.
- Low: Benefits and costs require evaluation prior to implementation.

Mitigation actions identified as high priority are typically implemented before lower ranked actions. Results from the Benefit-Cost Review are located in Chapter 4.4 Prioritization of Mitigation Recommendations. The Steering Committee considered responsible departments, funding resources, and estimated implementation timeframe when developing the implementation plan.

Chapter 4 Mitigation Strategies contains additional information regarding the mitigation strategies and implementation plan. Table ES.3 on the following pages provides a summary of each mitigation action, including the hazard(s) mitigated, responsible agency/department, and relative priority rank taken from the Benefit-Cost Review.

Table ES.3: Mitigation Action Summary

Action ID	Mitigation Action	Hazards Mitigated	Responsible Department/ Division	Priority
2022.HMP.01	Develop public and private partnerships to foster hazard mitigation program coordination and collaboration in the City of Cerritos.	Multi-Hazard	Community Safety	High
2022.HMP.02	Conduct evaluations of critical facilities to develop inventories of at-risk buildings and identify areas for improvement. This includes, but is not limited to, incorporating alternative power sources, security features, environmental controls, and identifying vulnerabilities to fire and earthquake. Initiate mitigation projects accordingly.	Multi-Hazard	Engineering	High
2022.HMP.03	Strengthen emergency services preparedness and response by linking emergency services with hazard mitigation programs and enhancing public education on a regional scale.	Multi-Hazard	Community Safety	Medium
2022.HMP.04	Conduct annual tabletop multi-hazard disaster exercises with local law enforcement, emergency managers, city and county officials, the Local Emergency Planning Committee and other disaster response agencies to identify vulnerabilities in emergency services and response.	Multi-Hazard	Community Safety	High
2022.HMP.05	Retrofit Traffic Signals for coordination with Emergency Vehicles to decrease response time during a hazard event.	Multi-Hazard	Engineering	Low

Action ID	Mitigation Action	Hazards Mitigated	Responsible Department/ Division	Priority
2022.HMP.06	Develop a Business Continuity Planning Display. The display will be designed to raise awareness of why it is important to have a Business Continuity Plan, how to develop a Plan, and will encourage businesses to make sure that their Plan fits in the City's Plan. The display will be appropriate for use at local Chamber of Commerce meetings and activities, civic group gatherings, and other business-related gatherings.	Mutli-Hazard	Community Development	Medium
2022.HMP.07	Work with the U.S. Geological Survey (USGS) to verify current GIS earthquake hazard mapping data is accurate for the City of Cerritos and utilize technical analysis of earthquake hazards to identify vulnerabilities in accordance with the Safety Element of the City's General Plan (Policy SAF-2.3).	Earthquake	GIS Division	High
2022.HMP.08	In accordance with the Safety Element of the City's General Plan (Policy SAF-2.3), conduct new seismic strength evaluations of critical City facilities built before 1980 to identify vulnerabilities and initiate improvement projects accordingly. These evaluations should highlight potential mitigation actions that would improve public infrastructure and reinforce critical facilities to meet current seismic standards.	Earthquake	Engineering	Low

Action ID	Mitigation Action	Hazards Mitigated	Responsible Department/ Division	Priority
2022.HMP.09	In accordance with the Safety Element of the City's General Plan (Policy SAF-2.1), expand and distribute outreach materials that will increase public awareness to encourage the initiation of projects to minimize vulnerability to earthquakes in the local community.	Earthquake	Communications	Medium
2022.HMP.10	Provide information to new home and property buyers on earthquake, fire and multi-hazard safety and encourage the public sector to identify vulnerabilities and initiate improvement projects.	Urban Fire	Communications	High
2022.HMP.11	Coordinate with County and State (i.e., Local Emergency Planning Committee (LEPC)) representatives to maintain awareness of current trends in illegal transportation of hazardous materials within the City or that may impact the City.	Transportation Accident/ HazMat Release	Community Safety	High
2022.HMP.12	Analyze traffic patterns throughout the City to identify high-collision areas and adjust flow to assist in collision event reduction. Apply for grant funding to update infrastructure to improve traffic flow.	Transportation Accident/ HazMat Release	Engineering	Medium
2022.HMP.13	In accordance with the Safety Element of the City's General Plan (Policies SAF-1.4 & SAF-1.2), conduct evaluations of City flood controls within the City to ensure efficient operations and identify potential storm drain improvements. Then, identify key areas to initiate improvement projects accordingly.	Flood/ Dam Failure	Public Works Department	Medium

Action ID	Mitigation Action	Hazards Mitigated	Responsible Department/ Division	Priority
2015.HMP.14	In accordance with the Safety Element of the City's General Plan (Policy SAF-5.3), ensure current maps of underground, city-managed, utility pipelines are up-to-date and educate the public regarding the availability for pipeline safety information (Dig Alert).	Pipeline Failure/ Hazardous Materials Release	Communications/ Community Development	High
2022.HMP.15	Continue to add recycled water channels to the City's water system to help conserve potable water.	Drought	Public Works	Low
2022.HMP.16	Continue public outreach on water conservation.	Drought	Public Works	High
2022.HMP.17	Continue to expand public education regarding Adversarial Events similar, but not limited to, "See Something-Say Something" and Active Shooter Survival.	Adversarial Events	Communications	Low
2022.HMP.18	Continue coordination with existing high-profile, private facilities to ensure security and anti-terrorism safety features are in use. (i.e., appropriate venue monitoring, access control, bag checks, awareness training for staff etc.)	Adversarial Events	Sheriff's Department	Medium
2022.HMP.19	Continue to update the City's tree inventory and identify vulnerabilities. All trees should be maintained according to the standards in the City's Municipal Code to minimize potential hazards.	Windstorm	Public Works	High

Action ID	Mitigation Action	Hazards Mitigated	Responsible Department/ Division	Priority
2022.HMP.20	Expand remote work capabilities for City employees to maximize City continuity during emergency events including, but not limited to, acquisition of tools/equipment to maximize communication within the City and with the Public and updating of emergency plans to include considerations for Management Information System (MIS) upgrades in emergency operations.	Disease Outbreak	MIS	High
2022.HMP.21	Formalize and exercise a Business Continuity Plan identifying essential services.	Disease Outbreak	Dir. Emergency Services/ City Manager	Medium
2022.HMP.22	Improve communication and coordination with local agencies and the private sector to bring resource (i.e., vaccinations) opportunities into the City.	Disease Outbreak	City Manager/ City Council	High

ES.6 Monitoring, Evaluating, and Updating the Plan

The HMP is a living document that reflects ongoing hazard mitigation activities and requires monitoring, evaluating, and updating to ensure the mitigation actions are implemented. To facilitate the Hazard Mitigation Planning process and adhere to regulatory requirements, the Plan will be reviewed annually, and any major revisions will be incorporated into the five-year update. In addition, public involvement will be requested when applicable. Chapter 5: Plan Maintenance outlines the update requirements and planning mechanisms the City has in place for ongoing hazard mitigation.

1 PLANNING PROCESS

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1.1 Narrative Description of the Planning Process

44 CFR 201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and

(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

44 CFR 201.6(c)(1): [The plan **shall** document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Hazard mitigation planning is a dynamic process built on realistic assessments of past and present information that engages the City of Cerritos (City) to anticipate future hazards and provide meaningful strategies to address possible impacts and identified needs. The hazard mitigation planning process involves the following tasks.



- Organizing resources
- Assessing risks
- Developing mitigation strategies, goals, and priorities
- Adopting a plan
- Implementing the plan
- Monitoring progress
- Revising the plan as necessary

The overall approach to updating the Hazard Mitigation Plan included building off the baseline understanding of the natural hazards as defined in the 2016 Hazard Mitigation Plan, determining ways to continue reducing those risks, and prioritizing those

recommendations for implementation. The following task descriptions provide a detailed narrative of the overall project progression.

Organize Resources

Identify Stakeholders and Compile Steering Committee

City staff invited and coordinated participation for a Steering Committee from the appropriate law enforcement, emergency response, health organizations, City personnel, and local government representatives. The Steering Committee was responsible for providing essential insight into the past hazard events, current hazard vulnerability (including specific locations), critical assets, and possible mitigation projects. The following groups were invited to participate in the plan development:

- City Key Personnel (Finance, City Planning, Emergency Preparedness, Water, Administration, and Recreation)
- Los Angeles County Fire Department
- The American Red Cross
- Los Angeles County Sheriff's Department
- ABC Unified School District
- Los Angeles County Office of Emergency Management
- Neighboring City Personnel

Public Process

The Disaster Mitigation Act of 2000 requires an "Open and Public Process" for developing the Hazard Mitigation Plan. This process requires, at a minimum, that the public be allowed to comment on the Hazard Mitigation Plan during the drafting phase and prior to adoption. To meet this requirement, the City published a public survey to allow for public comment during the drafting stage of the Hazard Mitigation Plan prior to submittal of the Hazard Mitigation Plan for Federal Emergency Management Agency (FEMA) review. The public survey was advertised in the May 2021 issue of The Cerritos News and on the City's website. Documentation of public outreach is provided in Appendix D.

Risk Assessment

Identify Hazards

This task was designed to identify all the natural and man-made hazards that *might* affect the City and then narrow the list to the hazards that are most likely to occur. The hazards included natural, technical, and human-caused events, with an emphasis on the effect of disasters on the City's critical facilities. In order to compile the list, the Project Team built upon the list of hazards identified in the 2016 Hazard Mitigation Plan and then continued to research newspapers, historical records, and websites to determine any additional hazards. In addition, the Steering Committee reviewed a list of hazards that have affected the City in the past with specific information regarding frequency, magnitude, and associated consequences. A Hazard Identification exercise was conducted during the first Steering Committee Meeting to identify and evaluate each selected hazard. The following hazards were included in the Hazard Mitigation Plan:

- Earthquake,
- Urban Fire,
- Disease Outbreak,
- Windstorm,
- Transportation Accident/Incident,
- Adversarial Events,
- Flood/ Dam Failure,
- Pipeline Failure/ Hazardous Materials Release, and
- Drought

This list is not all-inclusive to the hazards discussed during the Hazard Identification exercise. Hazards not thought to pose significant risk to the City were not included. In addition, some items were captured as sub-items of the hazards listed above. For example, climate change is discussed with hazards where the impact of changes in weather patterns could act as a catalyst for those scenarios.

Profile Hazard Events

The hazard event profiles consist of either a map indicating the area impacted by each hazard or an important piece of data regarding the characteristics of hazard events within the City and surrounding area. To update the detailed hazard profiles, the Project Team

researched and reviewed relevant open-source natural hazard studies and mapping projects. In addition, the City supplied any hazard studies that have been developed specifically for the City. This task determined the hazard magnitude, frequency, and location characteristics (e.g., predicted ground acceleration values, fault locations, flood plains, etc.) that were used as the design-basis for the loss estimates and hazard ranking.

Asset Inventory

The purpose of this task was to determine the quantity of City facilities and assets that lie in the different hazard areas and what proportion of the City this represents. The asset inventory was compiled with data taken from the City's 2020 property schedule. The completed asset inventory enables the Planning Team to estimate losses resulting from hazard events and to determine where resources should be allocated to address mitigation issues.

Loss Estimates

The Project Team developed loss assessment tables for each specific hazard which identify potential damages within the City, critical infrastructure, and buildings. This task was crucial in determining which assets are subject to the greatest potential damages and which hazard event is likely to produce the greatest potential losses. The conclusion of this task precipitated a comprehensive loss estimate (vulnerability assessment) for each identified hazard for each specific asset in terms of damages, economic loss, and the associated consequences.

Mitigation Strategy Development

Development of Mitigation Goals and Objectives

The Project Team, based upon information provided by the Steering Committee, discussed the mitigation features and resources that the City currently has in place. These mitigation features provided a framework to determine where practical improvements could be made and where sufficient improvements would be prohibitive due to cost, schedule, or impracticality of implementation.

For each of the hazard events, mitigation goals and objectives were developed with the intention of reducing or eliminating the potential hazard impacts. The mitigation goals and objectives were developed at a Steering Committee Meeting to provide the basis for determining the associated mitigation projects.

Identify and Prioritize Mitigation Actions

Mitigation strategies are administrative and/or engineering project recommendations to reduce the vulnerability to the identified hazards. It was imperative to have City Planners and community developers involved in this phase of the Plan in order to develop strategies and projects that will mitigate the hazards cost-effectively, as well as ensure consistency with the City's long-term mitigation goals and capital improvements. At a Steering Committee Meeting, a team-based approach was used to brainstorm mitigation projects based on the identified hazards and associated loss estimates. The evaluation and prioritization of the mitigation actions produced a list of recommended mitigation actions to incorporate into the Hazard Mitigation Plan. A separate Steering Committee meeting was held to conduct a Benefit-Cost Review for each proposed mitigation action to determine the relative priority level of the recommendation.

Implementation & Monitoring

Preparation of Implementation Strategy

The Project Team developed an action plan to detail how the mitigation recommendations will be prioritized, implemented, and administered by the City. During the Hazard Mitigation Plan creation process, the Project Team coordinated with the Steering Committee to determine the mitigation project implementation strategy (including identifying responsible departments, funding resources, and estimated implementation timeframe).

1.2 Steering Committee & Public Involvement

While the City and Risk Management Professionals, consultant for the City, had lead responsibility for the update of the City's Hazard Mitigation Plan, neighboring communities, agencies, businesses, and other interested parties were invited to participate on the Steering Committee to review the Hazard Mitigation Plan during each phase of the document development. Each member of the Steering Committee had the opportunity to participate in all aspects of the planning process.



1.2.1 Steering Committee Participant Solicitation

The City solicited participation in the Hazard Mitigation Plan Steering Committee by contacting both internal and external stakeholders via email. Internal stakeholders included members of various City departments. External stakeholders were comprised of representatives from local agencies and neighboring communities, including the Los Angeles County Fire and Sherriff's Departments, the Red Cross, and ABC Unified School District.

1.2.2 Steering Committee Participants

The City brought together personnel from management, finance, City planning, engineering, facility maintenance, public safety, environmental services and recreation divisions to ensure the Steering Committee included a variety of departments and provided a mechanism for receiving input from each participant. Additionally, the City compiled historical hazard data, provided relevant planning documents for incorporation into the Hazard Mitigation Plan, and coordinated participation with the public. Each draft chapter was reviewed by the Steering Committee and specific comments and input were incorporated into the plan. The multidisciplinary Steering Committee enabled the City to work together and incorporate each individual's expertise to provide for a comprehensive Hazard Mitigation Plan.

The Hazard Mitigation Plan was developed with assistance and advice from participants from the City and several neighboring agencies. Table 1.1 provides a list of the Steering Committee participants' affiliations and titles.

Table 1.1: Steering Committee Participants

Affiliation	Title
ABC Unified School District	Communications Officer
City of Cerritos	Advance Planning Manager
City of Cerritos	Assistant City Clerk
City of Cerritos	Assistant Civil Engineer
City of Cerritos	City Clerk/Treasurer
City of Cerritos	Community Development Management Analyst
City of Cerritos	Community Services Supervisor
City of Cerritos	Deputy City Clerk/ Records Coordinator
City of Cerritos	Director of Public Works/Water & Power, City Engineer
City of Cerritos	Electric Utility Manager
City of Cerritos	Environmental Services Manager
City of Cerritos	Finance Manager
City of Cerritos	Maintenance Supervisor
City of Cerritos	Manager of Community Safety Services
City of Cerritos	Public Works Management Analyst
City of Cerritos	Recreation Services Coordinator
City of Cerritos	Water Inspector
City of Cerritos	Water Superintendent
City of Santa Fe Springs	Lead Public Safety Officer
County of Los Angeles Board of Supervisors	Field Deputy
Los Angeles County Office of Emergency Management	Senior Program Manager
Los Angeles County Department of Public Works	Senior Civil Engineer
Los Angeles County Fire Department	Captain
Los Angeles County Sheriff's Department	Captain
Los Angeles County Sheriff's Department	Lieutenant
Red Cross	2nd Chairman of the Board
Red Cross	Disaster Program Manager
Red Cross	Disaster Program Specialist
Risk Management Professionals	Scribe
Risk Management Professionals	Senior Technical Consultant

The Steering Committee met five times during the course of the project to discuss project progress and obtain valuable input and information for documenting the Hazard Mitigation Plan. The meetings are detailed over the subsequent pages. Appendix D – Public Participation contains copies of the presentations used at each meeting and specific meeting handouts.

1.2.3 Steering Committee Meeting Descriptions

Steering Committee Meeting #1 – Project Initiation, Hazard Identification, and Information Collection

Date: March 31, 2021

During the Project Initiation, Hazard Identification, and Information Collection Meeting of the Steering Committee, Risk Management Professionals presented an overview presentation that detailed the objectives and scope of the project. After a review of the project schedule and key tasks, the Steering Committee discussed participants' areas of expertise, resultant member responsibilities, and the community meeting process.



The Steering Committee Meeting also served as a mechanism to determine the hazards to profile in detail. To effectively characterize the City's risk and vulnerability, Risk Management Professionals facilitated a discussion of the historical hazards with the Steering Committee members during this meeting. This meeting also served as a forum to discuss information for the Plan's background information and asset inventory.

The Steering Committee determined the initial hazard profile ranking through a facilitated exercise using an automated interactive spreadsheet that asked specific questions on potential hazards and then assigned a relative value to each potential hazard, accordingly, including numerical rankings (1-5) of the following criteria:

- **Consequence/Severity** – How widespread is the impact area?
- **Secondary Effects** – Could the event trigger another event and separate response?
- **Probability/Frequency** – Historical view of how often this type of event occurs locally and projected recurrence intervals.
- **Warning/Onset** – Advance warning of the event, or none.

- **Duration** – Length of elapsed time in which response resources are active.
- **Recovery** – Length of time until lives and property return to normal.

Chapter 3: Risk Assessment outlines the methodology used for hazard rankings. All Steering Committee participants were requested to provide existing plans and technical studies, GIS data, and identify existing mitigation features as part of a detailed information request.

Steering Committee Meeting #2 – Hazard Risk Rank Review, Mitigation Goals and Objectives

Date: April 21, 2021

The hazard risk ranking from Steering Committee Meeting #1 was reviewed, updated, and validated by the Steering Committee with a review of the hazard profiles. Additionally, the Plan's mitigation goals and objectives were updated with the intention of reducing or eliminating the potential hazard impacts, which also provided the basis for determining the associated mitigation projects. The Steering Committee reviewed the goals and objectives from the City's 2016 Hazard Mitigation Plan, the California State Multi-Hazard Mitigation Plan, and the Los Angeles County Hazard Mitigation Plan as a baseline for determining the City's current mitigation goals and objectives.

Steering Committee Meeting #3 – Asset Inventory and Vulnerability Assessment

Date: May 26, 2021

The asset inventory was developed to determine the quantity of buildings, facilities, and other assets in the City that lie in the different hazard areas and what proportion of the City this represents. The asset inventory included locations and specifications for general buildings: city well sites, civic buildings, parks, hospitals, schools, and other facilities. The asset inventory was reviewed by the Steering Committee for completeness and assignments were given to those who could retrieve missing information.

Asset Inventory Summary – City of Cerritos								
Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
Public Buildings	Performing Arts Center	12700 Center Ct Dr S, Cerritos, CA 90703	150,000	NA	78,607,367	NA	16,425,867	$95,033,234
Public Buildings	Libray	18025 Bloomfield Ave Cerritos, CA	88,780	NA	65,724,027	NA	10,951,708	$76,675,735
City Property	Cerritos Park East (CPE)	13234 E 166th St, Cerritos, CA 90703	15,500	NA	7,535,821	NA	895,093	$8,430,914
City Property	City Hall	18125 Bloomfield Ave, Cerritos, CA 90703	53,288	NA	14,522,688	NA	4,880,262	$19,402,950
City Property	City Yard	16540 Marquardt Ave, Cerritos , CA 90703	24,257	NA	3,064,373	NA	1,345,694	$4,410,067
Fire Building	Fire Station	13717 Artesia Boulevard, Cerritos, CA 90703	10,575	NA	3,188,956	100%	3,188,956	$6,377,912

The asset inventory was then used to develop loss estimates for all hazard scenarios. The hazard probabilities and recurrence intervals were applied to the City assets to determine which assets were subject to the greatest potential damages and which hazard events were likely to produce the greatest potential losses.

Additionally, each Steering Committee participant was given a Mitigation Activity Identification worksheet to document potential projects to be discussed during Steering Committee Meeting #4.

Steering Committee Meeting #4 – Mitigation Action Identification

Date: June 16, 2021

The purpose of this meeting was to identify potential mitigation actions and projects that will reduce the impact of identified hazards. First, the mitigation goals and objectives from Steering Committee Meeting #2 were reviewed and validated. Then, during the meeting, the Steering Committee participants brainstormed possible projects and actions to mitigate the effects of the identified hazards.

As the mitigation projects were identified, the Steering Committee discussed the mitigation action implementation plan according to the following characteristics:

- Mitigation Action Category – Prevention, Property Protection, Public Education and Awareness, Natural Resource Protection, Emergency Services, and Structural Projects
- Corresponding Goals and Objectives
- Responsible Department – Building and Safety, Engineering, Administration, Community Development, Public Works, etc.
- Resources – General Fund, Grant Programs, Staff Time, Capital Improvements, etc.

- Implementation Timeframe – Ongoing, Short-Term (within two years), Medium-term (between three and ten years), and Long-Term (greater than ten years)
- Whether or not the project protects new or future buildings

The result of this meeting was a full list of potential mitigation actions for the City to consider in order to improve resilience throughout the City.

Steering Committee Meeting #5 – Mitigation Action Benefit-Cost Review

Date: July 7, 2021

During the fifth Steering Committee Meeting, the identified mitigation actions from Steering Committee Meeting #4 were reviewed and validated with the Steering Committee. The Steering Committee then performed a high-level Benefit-Cost Review of each of the identified mitigation actions. The review consisted of identifying all benefits and costs associated with implementing each mitigation action. Typical benefits include:

- Avoided physical damages (e.g., to buildings, infrastructure, and equipment)
- Avoided loss of function costs (e.g., loss of utilities and lifelines)
- Avoided casualties
- Avoided emergency management costs (e.g., emergency operations center costs, evacuation/rescue costs, and other management costs)

Once the benefits and costs were estimated, a relative priority was assigned for each action based upon the evaluation. More detailed information can be found in Section 4.4, “Prioritization of Mitigation Recommendations.”

1.2.4 Public Meetings & Outreach

The City actively solicited public involvement through several advertisements and other media. The City published an article in the May 2021 issue of the Cerritos News inviting the public to participate in a survey on the City’s website. The survey assessed the community’s level of concern with various hazards and the steps each respondent had taken to prepare for a disaster. Members of the public were also able to provide direct input for Hazard Mitigation Plan development and attend a City Council Meeting in order to review the Hazard Mitigation and provide comments. The Draft Hazard Mitigation Plan was provided on the City website two weeks prior to the City Council meeting to allow the public to review the document before providing comments Additional documentation regarding public involvement is provided in Appendix D.

The public was given the opportunity to provide feedback on the Draft Plan at a City Council Meeting on October 13, 2022. Copies of the Draft Hazard Mitigation Plan were made available to interested members of the public and a presentation was prepared to provide an overview of the planning process and the results of the analyses. In addition, the draft Plan was posted on the City's website for two weeks prior to the date of the meeting. Although the plan was made available, no comments were received by the public to incorporate into the Plan update.

Additional information on the City Council Meeting can be found in Appendix D.

1.3 Review and Incorporation of Existing Plans

44 CFR 201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

While developing the City's Hazard Mitigation Plan, the Project Team reviewed existing plans (detailed below) and incorporated relevant information into the planning efforts.

City of Cerritos 2016 Hazard Mitigation Plan

The City of Cerritos 2016 Hazard Mitigation Plan is crucial in comparing the previous mitigation ideas and attitudes to the City's current needs and concerns. The project team referred to this plan constantly throughout the updating process. The 2016 Hazard Mitigation Plan provides insight into hazard ranking, hazard history, and previously proposed mitigation projects.

City of Cerritos General Plan

The City of Cerritos General Plan 2004, inclusive of the 2022 update to the Housing Element, contains guidelines and policies that serve as the City's vision for future planning and development. Mitigation projects defined in the Hazard Mitigation Plan will be required to align with the objectives outlined in the Safety Element of the General Plan. Proposed mitigation actions are found in Chapter 4 of this document.

Cerritos 2020 Urban Water Management Plan

The City of Cerritos Urban Water Management Plan is updated every five years to monitor water supply issues and mitigate drought situations. As part of Urban Water Management Plan updates, the City reviewed the drought hazard profile in the Hazard Mitigation Plan and incorporated the drought mitigation actions identified in the plan.

City of Cerritos Emergency Operations Plan

The City of Cerritos periodically updates its Emergency Operations Plan (EOP). The EOP, last updated in 2000, includes specific response procedures for earthquake, hazardous material incident, and flooding among other hazards. In order to ensure the plan includes an appropriate response, the City will incorporate the Risk Assessment element of the Hazard Mitigation Plan into a future EOP update, as appropriate.

California State Hazard Mitigation Plan (2018)

The State Hazard Mitigation Plan was reviewed to ensure consistency between the State and City Plan, with respect to identified hazards and vulnerability, goals and objectives, and mitigation actions. The State goals served as the basis for developing the goals at the City level. City goals and objectives are outlined in Chapter 4.

County of Los Angeles 2019 All-Hazard Mitigation Plan

Los Angeles County's All-Hazard Mitigation Plan was reviewed to ensure consistency between the County and City Plan. The County Plan, updated in 2019, outlines the County's approach to hazard mitigation, focusing on natural hazards, human-caused events, and technological emergencies.

California Fire Plan

The State Board of Forestry and the California Department of Forestry and Fire Protection have developed the Fire Plan for wildland fire protection in California. The plan defines a level of service measurement, considers assets at risk, incorporates the cooperative interdependent relationships of wildland fire protection providers, provides for public stakeholder involvement, and creates a fiscal framework for policy analysis. This information was used when developing the Urban Fire hazard profile.

California Water Plan

The state updated the California Water Plan in 2018 in order to address drought hazard mitigation over the long term. This Plan outlines the state's approach to integrated water management and sustainability. This information was used when developing the drought hazard profile.

California Adaptation Planning Guide 2020

FEMA, California Governor's Office of Emergency Services (Cal OES), and the California Natural Resources Agency developed the California Adaptation Planning Guide to assist municipalities in recognizing local climate change and to provide guidance with addressing potential vulnerabilities. The information was used to identify potential hazards and to provide background information that allowed the Steering Committee to make educated decisions regarding mitigation actions designed to alleviate the effects of climate change.

2 PLANNING AREA PROFILE

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2.1 Region Description

The City of Cerritos (City) is a municipality characterized by a combination of residential, industrial, and commercial developments. The City is located in the southern part of Los Angeles County, California, about 21 miles southeast of the City of Los Angeles, and is positioned on the border between Los Angeles County and Orange County. The City is bordered by the cities of Buena Park, La Mirada, and La Palma to the east; Santa Fe Springs, Norwalk, and Artesia to the north; and Bellflower and Lakewood to the west and south. Cerritos is located near three major freeways, including Interstates 5 and 605 and California State Route 91. Additionally, the City is in close proximity to Los Angeles International Airport, Long Beach Municipal Airport, John Wayne Airport, and the ports of Los Angeles and Long Beach, and is about 10 miles northeast of the Pacific Ocean. Cerritos has a total area of 8.86 square miles.

The City's climate is consistent with coastal Southern California and is generally characterized by warm summers and cool winters. Average temperatures range from the mid-80's in the summer to the mid-60's in the winter. Precipitation occurs mainly in the colder months, between November and March, with an average annual rainfall of 10 to 15 inches according to the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service. According to NOAA's Long Beach Daugherty Field Weather Station, February is recorded as the wettest month based on records between 1949 and 2016, with an average precipitation of 2.9 inches.

The City was incorporated on April 24, 1956, as the City of Dairy Valley due to the prominence of dairy farms in the area. However, by 1967, the focus of the community changed from agriculture to residential. On January 10, 1967, the City's name was officially changed to Cerritos. By the 1970s, the City was one of the fastest growing communities in California. Guided by the Cerritos General Plan, the City has become a state-of-the-art municipal city valued at 10.9 billion dollars. Figure 2.1, below, provides an overview map of the City.

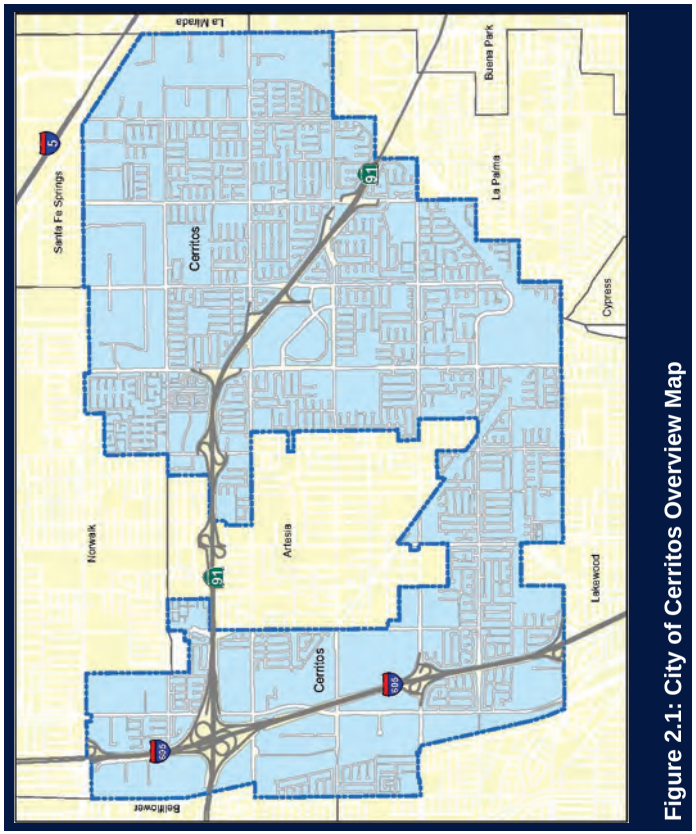


Figure 2.1: City of Cerritos Overview Map

2.2 Development Trends

44 CFR 201.6(c)(2)(ii)(C): [The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

The City is 8.86 square miles in area. The Land Use Element of the City's General Plan provides a guide for land use, future growth, and development within the City. Since the 2016 Hazard Mitigation Plan, there have been no major changes in development that have greatly affected the City's vulnerability to the identified hazards. However, the State of California is mandating the City add 1908 housing units within the next 8-year period. At the time of this report, the City has not received any new applications for development, so the future changes in vulnerability cannot be estimated. City staff will monitor the situation and incorporate a hazard review into future proposed developments.

The following describes land use designations, as amended, for the City. These descriptions were excerpted from the City's 2004 General Plan, as amended, in an attempt to designate the proposed general distribution and intensity of uses of the land for housing, business, industry, open space, public facilities, and other categories of public and private uses. During the update to this plan, the housing element underwent an extensive update and was adopted by the City Council in early 2022. However, the changes to the element did not make a significant impact on hazard vulnerability for the community.

Residential Land Uses

Low Density Residential Development

Land uses within this designation are characterized by single-family residential. This type of development accounts for 33 percent of the City's land. Generally, housing in this class was built in the 1960s as the City converted the agricultural land to residential. Today, new low density residential developments could occur only on vacant or underdeveloped parcels which account for about 0.5 percent of City land.

Medium Density Residential Development

This land use designation consists of multi-family housing stock typically comprised of townhomes and condominiums. About 3.6 percent of the City's total acreage was categorized under this type of residential classification. The majority of medium density

housing stock was built post-1970 due to a rise in the demand for housing. Recent development projects in this area were completed to comply with State affordable housing mandates.

High Density Residential Development

This land designation consists of high-density multi-family housing stock and is a new designation for the City. These areas are currently limited to 60 units per net acre this land use designation is anticipated to utilizes roughly 5.9 acres which accounts for less than 1% of the City's land area. Specifications for this land use category are tied to the City's Area Development Plan Sixteen (ADP-16) zone.

Commercial & Industrial Land Uses

Office- Professional Commercial

Land designated under this category is intended for office and professional employment and services. Included in this category are medical, professional, financial, administrative, religious, and private school establishments. This land use designation accounts for 0.3 percent of the overall land area of the City.

Community Commercial

This land use designation applies to a wide range of land uses involved in retail sales and services. Development included in this land use designation are concentrated in shopping centers as opposed to "strip" or "ribbon" commercial centers, which are discouraged by the City. This class of development accounts for 1.7 percent of the overall land area of the City.

Regional Commercial

Making up 6.6 percent of the overall land use, this designation applies to several major regional commercial centers with the City, including Los Cerritos Center, Cerritos Auto Square, and Cerritos Towne Center. Developments under this designation provide a significant volume of employment opportunities and revenue for the City.

Industrial/Commercial

The industrial classification includes those land uses involved in manufacturing, processing, and warehousing activities. Light Industrial areas make up 12.5 percent of the City. With an additional 0.5 percent labeled only as industrial/commercial, this designation accounts for more than 13 percent of overall City land area.

Parks and Open Space

The Parks and Open Space designation includes twenty (20) City-operated parks. The combined land mass for these parks is 187 acres. Additionally, the City is home to a 22.1-acre golf course, Senior Center, and three community facilities that provide recreational opportunities to residents including, but limited to, playing courts, athletic fields, picnic shelters and meeting rooms. This designation accounts for 4.9 percent of the City's overall land area.

Public and Quasi-Public

This designation includes publicly owned lands and properties for quasi-public institutions containing existing or proposed support uses for local community-wide or regional support facilities. Examples of these land uses include, but are not limited to, schools, parks, power line easements, flood control facilities, churches, and similar uses that are ancillary to quasi-public uses. This land designation makes up 0.4 percent of the overall City land area.

Vacant and Underutilized Land

Making up 0.5 percent of the overall City land area, vacant and underutilized land represents the portion of the City that has no development or that fails to meet the potential use or capacity of the location. While vacant land is undeveloped, underutilized land might include land with a high percent of vacant structures, a location with dilapidated buildings, areas with obsolete structures, or large areas with non-building uses such as excessive parking or outdoor storage areas.

Figures 2.2 and 2.3 illustrate the City's zoning and land use designations, respectively, and were extracted from the 2004 General Plan, as amended.

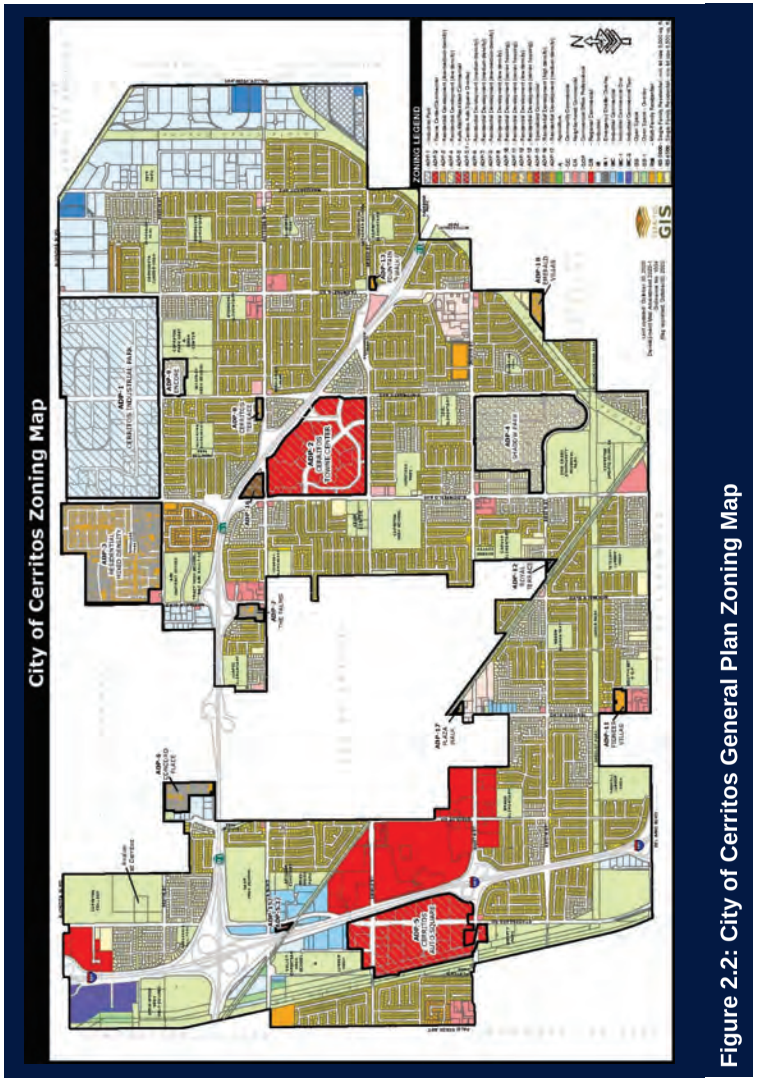


Figure 2.2: City of Cerritos General Plan Zoning Map

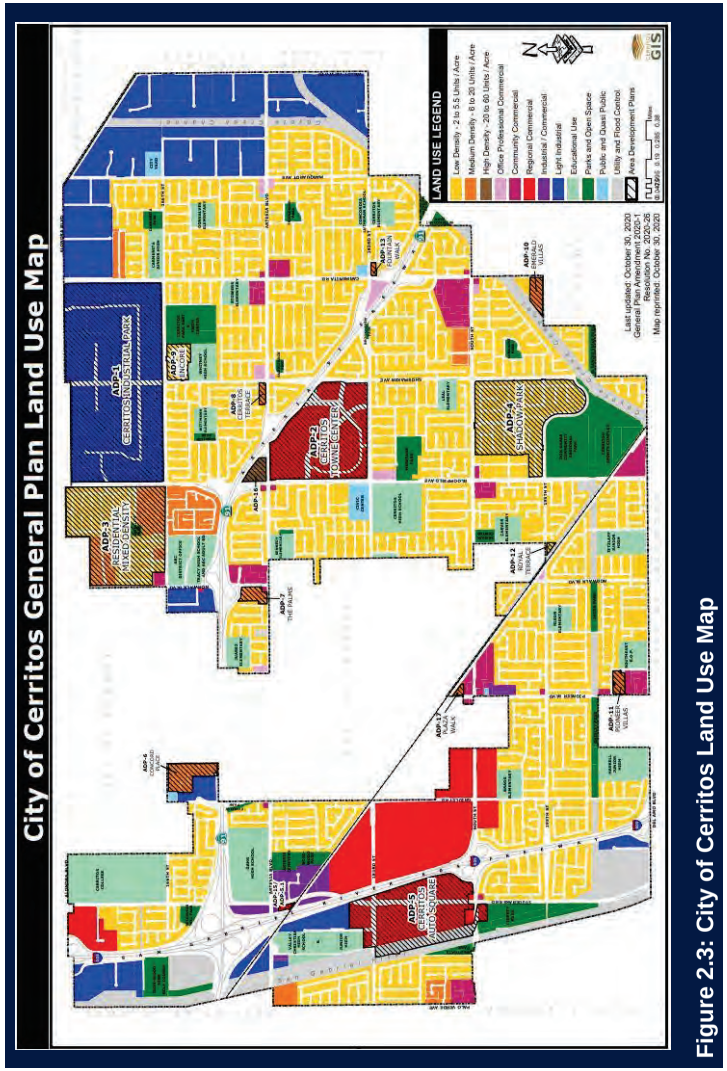


Figure 2.3: City of Cerritos Land Use Map

2.3 Population

Since its incorporation in 1956, the City's population has increased from 3,439 residents to 50,143, according to the American Community Survey (2019). The City's population rapidly increased from 16,000 to over 38,000 between 1970 and 1972. Conversely, future population growth is expected to grow slowly as development opportunities become increasingly limited and the City reaches its potential for building out. The following table taken from the City's Urban Water Management Plan outlines the City's estimate for population growth through 2045.

Table 2.1: Estimated Population Growth

Year	2020	2025	2030	2035	2040	2045
Population	50,143	53,172	56,199	56,276	56,354	56,433

It should be noted, the City's population will increase marginally as the City meets the State's mandate to include 1908 housing units within the next eight years. As mentioned in Section 2.1, City personnel will consider the dynamics in vulnerability when proposals for development are submitted to the City for review. At the time of this report, the City has not received any formal application for new developmental proposals.

2.4 Demographics

When considering the impacts of hazard scenarios on the community, the City is cognizant that some portions of the community will be impacted to a greater extent than others. A better understanding of how disasters impact the community, even disproportionately, can help guide resiliency efforts to better serve the entire community. Although other factors may be present, this section will focus on how low economic status can exacerbate the impacts of a hazard scenario. At the time of this report, economic status is the clearest indicator of increased/reduced suffering during a disaster situation based on the information available.

Economic Status

The July 2017 issue of the Supplemental Research Bulletin published by the Substance Abuse and Mental Health Services Administration (SAMSA) states that disasters are experienced differently by people in poverty, even at the preparedness stage. The Supplemental Research Bulletin also notes, according to a 2004 report by Fothergill and Peek, people in poverty are likely to have less access to education regarding

vulnerabilities to disasters and are therefore typically not able to be as prepared. It is also speculated that preparedness actions may be costly, and possibly too expensive, for people with low incomes to be able to implement. The bulletin also cites a 1983 report (Rossi, Wright, Weber-Burdin, & Pereira) which found higher rates of injury during natural disasters for lower income households. This also may be tied to the high cost of preparedness measures leaving the poor at a higher rate of vulnerability. World Bank and Global Facility for Disaster Reduction and Recovery (GFDRR) report authors note that people in poverty around the world are more likely than others to live in areas at high risk of disaster impacts. They explain that this may be the case because these more dangerous areas are less expensive, or simply more available, in parts of the world with limited space for housing (Hallegatte et al., 2017).

Age

According to a statement from the Red Cross, "new research has found that older adults are more vulnerable and experience more casualties after natural disasters compared to other age groups". While not universal, older adults are more likely to have a greater prevalence for chronic conditions, multi-morbidity, cognitive impairment, and medical concerns than other age groups. Generally, older adults are more likely to be dependent on assistive devises and caregivers, more likely to be isolated, more likely to have gaps in preparedness, and potentially be at higher risk for psychological distress. All of these factors increase the potential for injury during a disaster event.

Youth can also be factor in determining the impacts of disasters on the community; especially long-term. According to the Center for Disease Control and Prevention (CDC), children may experience anxiety, fear, sadness, sleep disruption, irritability, difficulty concentrating, and anger outburst following a disaster. Furthermore, the CDC states children under 8 years of age are at particular risk for long-term mental health issues after experiencing a disaster.

City Vulnerability

To estimate the impacts of low income on the City, Table 2.2 summarizes some of the applicable estimates provided by the United States Census regarding the economic status of the community.

Table 2.2: Demographic Estimates

Estimate Category	Census Estimates
Population (2019) *	50,143
Persons under 5 years	5.1%
Persons under 18 years	19.3%
Persons 65 years and over	24.5%
Households (2015-2019)	15,378
Persons per household (2015-2019)	3.25
Households with a computer (2015-2019)	94.9%
Households with a broadband internet subscription, percent (2015-2019)	93.1%
High School graduate or higher, percent of persons aged 25 years+ (2015-2019)	93.7%
Bachelor's degree or higher percent of persons aged 25 years+ (2015-2019	52.9%
Median Household income (in 2019 dollars, 2015-2019)	$106,109
Per capita income in past 12 months (in 2019 dollars 2015-2019)	$39,714
Persons in poverty, percent	4.9%

Source: United States Census Bureau
*Source: American Community Survey

Although many inferences could be made based on the table above, it is clear 4.9% of the community is recorded being at or below poverty level. Additionally, 24.5% of the community is over the age of 65 while 5.1% are under the age of 5. While each of these groups represent a small portion of the City, it can be assumed this percentage of the public with be impacted by disasters at a higher degree than the rest of the community. As the City moves forward, considerations for this small sector of the population should be made to provide effective resilience measures.

3 RISK ASSESSMENT

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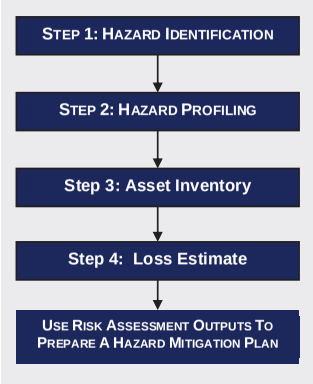
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3.1 Risk Assessment

The Risk Assessment consists of four steps: Hazard Identification, Hazard Profiling, Asset Inventory, and Loss Estimates. This chapter includes the Hazard Identification and Hazard Profiling steps to evaluate the hazards of primary concern to local decision-makers and provide a basis for loss estimates included later in this chapter. Additionally, this Risk Assessment provides a foundation for the evaluation of mitigation measures, included in Chapter 4 of this plan, which can help reduce the impacts of a potential hazard event.



Step 1: Identify Hazards

In this step, the Steering Committee identified the natural and man-made hazards which might affect the City and then narrowed the list to the hazards that are most likely to occur. These hazards included natural, technical, and human-caused events with an emphasis on the effect of natural disasters on critical facilities, services, and roadways (e.g., government buildings, schools, and public services including police and fire). The Steering Committee participated in a hazard identification exercise during the first Steering Committee Meeting to identify and rank the potential hazards within the City of Cerritos (City).

Step 2: Hazard Profiling

The hazard profiles consist of either a map indicating the area impacted by each hazard or key information regarding the characteristics of hazard events within the planning area. To develop detailed hazard profiles, relevant open-source hazard studies and mapping projects were reviewed and documented within this report. In addition, the City supplied historical accounts of man-made hazard events (e.g., transportation incidents, etc.) that included specific hazard and emergency information. This planning step also includes a summary of the magnitude, frequency, and location characteristics of relevant natural hazards (urban fire, fault locations, flood plains, etc.) that were utilized as the design-basis for the loss estimates.

Step 3: Inventory Assets

The purpose of this step is to determine the quantity of buildings, people, and assets in the City that lie in the different hazard areas and what proportion of the City this represents. The asset inventory was completed utilizing spatial Geographic information Systems (GIS) asset locations and specifications for the following assets:

- General Buildings: City Well Sites, Civic Buildings, Parks, etc.
- Critical Facilities: Hazmat Facilities, Schools, etc.

The development of the comprehensive inventory facilitated the development of loss estimates for all hazard scenarios.

Step 4: Loss Estimates

The loss estimate step relied on detailed information regarding the hazard probability and maps that were completed as part of the hazard profiles. This information was utilized to apply the hazard probabilities and recurrence intervals to the City's assets and inventory (buildings and infrastructure). This step was critical in determining which assets were subject to the greatest potential damages and which hazard event was likely to produce the greatest potential losses.

The conclusion of this step precipitated a comprehensive loss estimate (vulnerability assessment) for each identified hazard for each specific asset in terms of damages, economic loss, and the associated consequences for the City.

3.2 Hazard Identification and Profiling

44 CFR 201.6(c)(2)(i): [The risk assessment shall include a] description of the type, location, and extent of all-natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

44 CFR 201.6(c)(2)(ii): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

44 CFR 201.6(c)(2)(ii): [The risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.

44 CFR 201.6(c)(2)(iii): For multi-jurisdictional plans, the risk assessment must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

The hazard identification and ranking were obtained from the hazard identification exercise. Each hazard profile includes a summary of the hazard identification exercise identified risk factors and overall rank for each hazard, in addition to the detailed hazard description, historical occurrences, and projected future probability, magnitude, and frequency.

Each member of the Steering Committee participated in the hazard identification exercise to update the perceived vulnerability for the identified hazards within the City. As during the list development during the last update, the hazard identification exercise was facilitated utilizing an interactive spreadsheet program that asks specific questions on potential hazards and then rates them accordingly. These questions guide the team in the correct facilitation and application of the program. Table 3.1 summarizes the hazard identification exercise risk factors, lists the descriptions of each factor, provides the specific descriptor choices for each risk factor and description, and summarizes the risk ranking associated with each hazard:

Table 3.1: Risk Factors for Hazard Identification

Risk Factor	Description	Descriptors	Value
Probability/ Frequency	Prediction of how often a hazard will occur in the future	Infeasible event - not applicable due to geographic location characteristics	0
		Rare event - occurs less than once every 50 years	1
		Infrequent event - occurs between once every 8 years and once every 50 years (inclusive)	2
		Regular event - occurs between once a year and once every 7 years	3
		Frequent event - occurs more than once a year	4
Consequence/ Severity	Physical Damage - structures and lifelines; Economic Impact – loss of function for power, water, sanitation, roads, etc.	No damage	1
		Minor/slight damage to buildings and structures, no loss of lifelines	2
		Moderate building damage, minor loss of lifelines (less than 12 hours)	3
		Moderate building damage, lifeline loss (less than 24 hours)	4
		Extensive building damage, widespread loss of lifelines (water, gas, electricity, sanitation, roads), loss of life	5
Vulnerability	Impact Area - area impacted by a hazard event; Secondary Impacts - Capability of triggering	No physical damage, no secondary impacts	1
		Localized damage area	2
		Localized damage area, minor secondary impacts, delayed hazard onset	3
		Moderate damage area, moderate secondary impacts, moderate warning time	4

Risk Factor	Description	Descriptors	Value
	additional hazards; Onset - Period of time between initial recognition of an approaching hazard and when the hazard begins to impact the community	Widespread damage area, significant secondary impacts, no warning time	5

Each profile also includes a ranking of the hazard (ranging from low hazard to high hazard). Table 3.2 illustrates the matrix for how each hazard was ranked according to all of the previously mentioned factors. Table 3.3 provides the value determinations for each ranking. The Steering Committee determined this initial profile ranking based on all of the hazard identifications, profile research, group discussion, and evaluation of all of the data.

Table 3.2 Risk Ranking Matrix

Probability/Frequency Description	Risk Ranking Matrix				
Rare Event: Occurs less than once every 50 years	Probability/Frequency	1	2	3	4	5
	Consequence/Severity	1	2	3	4	5
	Vulnerability	1	2	3	4	5
	1	1	2	3	4	5
	2	2	4	6	8	10
	3	3	6	9	12	15
	4	4	8	12	16	20
	5	5	10	15	20	25
Infrequent Event: Occurs between once every 8 years and once every 50 years (inclusive)	Probability/Frequency	2	3	4	5	
	Consequence/Severity	1	2	3	4	5
	Value	2	4	6	8	10
	Vulnerability	1	2	3	4	5
	1	2	4	6	8	10
	2	4	8	12	16	20
	3	6	12	18	24	30
	4	8	16	24	32	40
	5	10	20	30	40	50
Regular Event: Occurs between once a year and once every 7 years	Probability/Frequency	3	4	5		
	Consequence/Severity	1	2	3	4	5
	Value	3	6	9	12	15
	Vulnerability	1	2	3	4	5
	1	3	6	9	12	15
	2	6	12	18	24	30
	3	9	18	27	36	45
	4	12	24	36	48	60
	5	15	30	45	60	75
Frequent Event: Occurs more than once a year	Probability/Frequency	4	5			
	Consequence/Severity	1	2	3	4	5
	Value	4	8	12	16	20
	Vulnerability	1	2	3	4	5
	1	4	8	12	16	20
	2	8	16	24	32	40
	3	12	24	36	48	60
	4	16	32	48	64	80
	5	20	40	60	80	100

Table 3.3: Risk Rank Categorization

Hazard Ranking	Matrix Value
High Hazard	50 to 100
Moderately High Hazard	25 to 49
Moderate Hazard	15 to 24
Moderately Low Hazard	5 to 14
Low Hazard	1 to 4

3.2.1 Hazard Profiling

This section presents additional information regarding the hazards of concern (detailed below) as hazard profiles. Hazard profiles are designed to assist communities in evaluating and comparing the hazards that can impact their community by comparing a number of hazard factors. Each type of hazard has unique characteristics, and the impact associated with a specific hazard can vary depending on the magnitude and location of each event (a hazard event is a specific, uninterrupted occurrence of a particular type of hazard). Furthermore, the probability of occurrence of a hazard in a given location impacts the priority assigned to that hazard. Finally, each hazard will impact different communities in different ways, based on geography, local development, population distribution, age of buildings, and mitigation measures already implemented. Table 3.4 summarizes the hazard ranking summary for the City.

Table 3.4: Hazard Ranking Summary

Hazard Rank	Score
High	
Earthquake	50
Moderately High	
Moderate	
Urban Fire	18
Disease Outbreak	18
Windstorm	18
Transportation Accident/Incident	16
Adversarial Events	16
Moderately Low	
Flood/ Dam Failure	12
Pipeline Failure/ Hazardous Materials Release	12
Drought	12
Low	

3.2.1 Trends in Perceived Vulnerability

As illustrated above, the Steering Committee reviewed its perceived vulnerability to determine the potential impact of each hazard on the City. The Steering Committee began with the hazards identified in the 2013 Hazard Mitigation Plan and used the lists as a springboard in determining current perceived vulnerability. One of the major changes was the inclusion of Disease Outbreak as one of the perceived hazards. On the heels of the Coronavirus pandemic, the City was acutely aware of the impacts a disaster of this nature could have a significant impact on the City. Another notable change was the reclassification of Terrorism as Adversarial Events. The new term combines the general understanding of terrorism, typically a foreign organization committing violence on America/Americans with domestic events such as school and office shootings.

3.3 Earthquake Hazard Profile

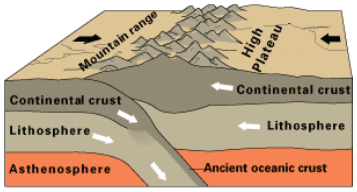
Earthquake Risk Assessment Summary

Risk Rank: High

Probability/ Frequency:	Infrequent event - occurs between once every 8 years and once every 50 years (inclusive)	
Consequence/ Severity:	Extensive building damage, widespread loss of lifelines (water, gas, electricity, sanitation, roads), loss of life	
Vulnerability:	Widespread damage area, significant secondary impacts, no warning time	
Hazard Risk Rank Score:	50	

3.3.1 Earthquake Hazard Information and Background

Plate tectonics is a starting point for understanding the forces within the Earth that cause earthquakes. Plates are thick slabs of rock that make up the outermost 100 kilometers of the Earth. The term "tectonics" describes the deformation of the Earth's crust, the forces producing such deformation, and the geologic and structural features that result. The constant motion of the plates causes stress in the brittle upper crust of the Earth. These tectonic stresses build as the rocks are gradually deformed. The rock deformation, or strain, is stored in the rocks as elastic strain energy. When the strength of the rock is exceeded, ruptures occur along a fault. The rocks on opposite sides of the fault slide past each other as they spring back into a relaxed position.



Continental-continental convergence

The strain energy is released partly as heat and partly as elastic waves called seismic waves. The passage of these seismic waves produces the ground shaking in earthquakes.

Faults are more likely to produce future earthquakes if they have rapid rates of movement, have had recent earthquakes along them, experience greater total displacements, and are aligned so that movement can relieve the accumulating tectonic stresses. Geologists classify faults by their relative hazards. “Active” faults, which represent the highest hazard, are those that have ruptured to the ground surface during the Holocene period (about the last 11,000 years). In contrast, “potentially active” faults are those that displaced layers of rock from the Quaternary period (the last 1,800,000 years). Determining if a fault is “active” or “potentially active” depends on geologic evidence, which may not be available for every fault.

Shaking

The amount of energy released during an earthquake is usually expressed as a magnitude and is measured directly from the earthquake as recorded on seismographs. An earthquake’s magnitude is expressed in whole numbers and decimals (e.g., 6.8). Seismologists have developed several magnitude scales. One of the first was the Richter scale, developed in 1932 by Dr. Charles F. Richter of the California Institute of Technology. The most commonly used scale today is the Moment Magnitude (Mw) Scale. Moment magnitude is related to the total area of the fault that ruptured and the amount of offset (displacement) across the fault. It is a more uniform measure of the energy released during an earthquake.

The other commonly used measure of earthquake severity is intensity. Intensity is an expression of the amount of shaking at any given location on the ground surface. In general, it decreases with distance from the source of an earthquake, but it may be increased or decreased by a number of factors.

The Modified Mercalli Intensity Scale and Corresponding Richter Scale Magnitudes

Shaking intensity is often described using the Modified Mercalli Intensity Scale which rates an earthquake’s effects based on human observation. While an earthquake has only one magnitude, it may have many intensity values which will generally decrease with distance from the epicenter. Table 3.5 lists the Mercalli Scale’s various intensity levels and corresponding Richter scale magnitudes.

Table 3.5: Modified Mercalli Intensity Scale

Mercalli Intensity		Description	Richter Scale Magnitude
I	Instrumental	Detected only by a seismograph	
II	Feeble	Noticed by sensitive people	0.1 to 3.4
III	Slight	Like the vibrations due to a passing truck	3.5 to 4.2
IV	Moderate	Felt by people while walking, rocking of loose objects, including standing vehicles	4.3 to 4.8
V	Rather Strong	Felt generally; most sleepers are awakened and bells ring	
VI	Strong	Trees sway and all suspended objects swing; damage by over-turning and falling of loose objects	4.9 to 5.4
VII	Very Strong	General alarm; walls crack; plaster falls	
VIII	Destructive	Car drivers seriously disturbed; masonry fissured; chimneys fall; poorly constructed buildings damaged	5.5 to 6.1
IX	Ruinous	Some houses collapse where ground begins to crack, and pipes break	6.2 to 6.9
X	Disastrous	Ground cracks badly; many buildings destroyed, and railway lines bent; landslides on steep slopes	7.0 to 7.3
XI	Very disastrous	Few buildings remain standing; bridges destroyed; all services (railway, pipes, and cables) out of action; great landslides and floods	7.4 to 8.1
XII	Catastrophic	Total Destruction; objects thrown into air; ground rises and falls in waves	8.1 +

Amplification of Seismic Shaking

Although seismic waves radiate from their source like ripples on a pond, the radiation is not uniform due to the complex nature of an earthquake rupture, the different paths the waves follow through the earth, and the different rock and soil layers near the earth's surface. Large earthquakes begin to rupture at their hypocenter deep in the earth and the fault ruptures outward from that point. Because the speed of an earthquake rupture on a fault is similar to the speed of seismic waves, waves closer to the epicenter can be compounded by waves from farther along the rupture, creating a pulse of very strong seismic waves that moves along the fault in the direction of the fault rupture. Seismic waves may also be modified as they travel through the earth's crust.

As seismic waves approach the ground surface, they commonly enter areas of loose soils where the waves travel more slowly. As the waves slow down, their amplitude increases, resulting in larger waves with frequencies that are more likely to damage structures. Waves can also be trapped within soft sediments between the ground surface and deep, hard basement rocks, their destructive energy multiplying as they bounce back and forth, producing much greater shaking at the ground surface.

Ground Failure

Fissuring, settlement, and permanent horizontal and vertical shifting of the ground often accompanies large earthquakes. Although not as pervasive or as costly as the shaking itself, these ground failures can significantly increase damage and, under certain circumstances, can be the dominant cause of damage. The following is a list of different ground failure scenarios.

Fault Rupture

The sudden sliding of one part of the earth's crust past another releases the vast store of elastic energy in the rocks as an earthquake. The resulting fracture is known as a fault, while the sliding movement of earth on either side of a fault is called fault rupture. Fault rupture begins below the ground surface at the earthquake hypocenter, typically between three and ten miles below the ground surface in California. If an earthquake is large enough, the fault rupture will actually travel all the way to the ground surface, severely damaging structures built across its path.

Liquefaction

In addition to the primary fault rupture that occurs right along a fault during an earthquake, the ground many miles away can also fail during the intense shaking. One common type of failure occurs when soft, water-saturated soil settles, causing the water to eject sediment particles as it works its way to the ground surface. This phenomenon, known as liquefaction, turns the soil into a fluid, causing it to lose the ability to support buildings and other structures. Areas susceptible to liquefaction include places where sandy sediments have been deposited by rivers along their course or by wave action along beaches.

Landslides

Landslides are the result of the down-slope movement of unstable hillside materials under the influence of weathering and gravity over time. Strength of rock and soil, steepness of slope, and weight of the hillside material all play an important role in the stability of hillside areas. Weathering and absorption of water can weaken slopes, while the added weight of saturated materials or overlying construction can increase the chances of slope failure. Sudden failure can be triggered by heavy rainfall, excavation of weak slopes, and earthquake shaking, among other factors.

3.3.2 Earthquake History

To indicate the potential for an earthquake event, Table 3.6 lists significant recorded earthquakes in Southern California and the associated magnitudes over the last hundred years (excerpted from the Southern California Earthquake Data Center):

Table 3.6 Southern California Historical Earthquakes

	Magnitude 4.5 - 5.4		**Magnitude 5.5 - 6.4**
	Magnitude 6.5 to 7.4		**Magnitude > 7.5**

Magnitude	Year	Earthquake Name
Magnitude 5.5 - 6.4	1922	Parkfield Earthquake
Magnitude 5.5 - 6.4	1923	North San Jacinto Fault Earthquake
Magnitude 5.5 - 6.4	1925	Santa Barbara Earthquake
Magnitude 6.5 to 7.4	1927	Lompoc Earthquake
Magnitude 5.5 - 6.4	1933	Long Beach Earthquake

	Magnitude 4.5 - 5.4		**Magnitude 5.5 - 6.4**
	Magnitude 6.5 to 7.4		**Magnitude > 7.5**

Magnitude	Year	Earthquake Name
Magnitude 5.5 - 6.4	1934	Parkfield Earthquake
Magnitude 5.5 - 6.4	1937	San Jacinto Fault ("Terwilliger Valley") Earthquake
Magnitude 6.5 to 7.4	1940	Imperial Valley Earthquake
Magnitude 5.5 - 6.4	1941	Santa Barbara Earthquake
Magnitude 4.5 - 5.4	1941	Torrance-Gardena Earthquakes
Magnitude 6.5 to 7.4	1942	Fish Creek Mountains Earthquake
Magnitude 5.5 - 6.4	1946	Walker Pass Earthquake
Magnitude 6.5 to 7.4	1947	Manix Earthquake
Magnitude 5.5 - 6.4	1948	Desert Hot Springs Earthquake
Magnitude > 7.5	1952	Kern County Earthquake
Magnitude 5.5 - 6.4	1952	Bakersfield Earthquake
Magnitude 5.5 - 6.4	1954	San Jacinto Fault Earthquake
Magnitude 5.5 - 6.4	1966	Parkfield Earthquake
Magnitude 6.5 to 7.4	1968	Borrego Mountain Earthquake
Magnitude 4.5 - 5.4	1970	Lytle Creek Earthquake
Magnitude 6.5 to 7.4	1971	San Fernando (Sylmar) Earthquake
Magnitude 4.5 - 5.4	1973	Point Mugu Earthquake
Magnitude 4.5 - 5.4	1975	Galway Lake Earthquake
Magnitude 4.5 - 5.4	1978	Santa Barbara Earthquake
Magnitude 4.5 - 5.4	1979	Malibu Earthquake

	Magnitude 4.5 - 5.4		Magnitude 5.5 - 6.4
	Magnitude 6.5 to 7.4		Magnitude > 7.5

Magnitude	Year	Earthquake Name
Magnitude 5.5 - 6.4	1979	Imperial Valley Earthquake
Magnitude 5.5 - 6.4	1980	White Wash Earthquake
Magnitude 4.5 - 5.4	1982	"Anza Gap" Earthquake
Magnitude 5.5 - 6.4	1986	North Palm Springs Earthquake
Magnitude 4.5 - 5.4	1986	Oceanside Earthquake
Magnitude 6.5 to 7.4	1987	Elmore Ranch/Superstition Hills Earthquakes
Magnitude 5.5 - 6.4	1987	Whittier Narrows Earthquake
Magnitude 4.5 - 5.4	1988	Tejon Ranch Earthquake
Magnitude 4.5 - 5.4	1988	Upland Earthquake
Magnitude 4.5 - 5.4	1988	Pasadena Earthquake
Magnitude 4.5 - 5.4	1989	Malibu Earthquake
Magnitude 4.5 - 5.4	1989	Newport Beach Earthquake
Magnitude 4.5 - 5.4	1989	Montebello Earthquake
Magnitude 4.5 - 5.4	1990	Upland Earthquake
Magnitude 5.5 - 6.4	1991	Sierra Madre Earthquake
Magnitude 5.5 - 6.4	1992	Joshua Tree Earthquake
Magnitude 6.5 to 7.4	1992	Landers Earthquake
Magnitude 5.5 - 6.4	1992	Big Bear Earthquake
Magnitude 5.5 - 6.4	1992	Mojave (Garlock) Earthquake
Magnitude 4.5 - 5.4	1993	Wheeler Ridge Earthquake

	Magnitude 4.5 - 5.4		Magnitude 5.5 - 6.4
	Magnitude 6.5 to 7.4		Magnitude > 7.5

Magnitude	Year	Earthquake Name
Magnitude 6.5 to 7.4	1994	Northridge Earthquake
Magnitude 5.5 - 6.4	1995	Ridgecrest Earthquakes
Magnitude 4.5 - 5.4	1996	Coso Earthquake
Magnitude 4.5 - 5.4	1997	Calico Earthquake
Magnitude 4.5 - 5.4	1998	Coso Earthquake
Magnitude 4.5 - 5.4	1998	Crafton Hills (Redlands) Earthquake
Magnitude 4.5 - 5.4	1998	San Bernardino Earthquake
Magnitude 4.5 - 5.4	1998	Whiskey Springs (Big Bear City) Earthquake
Magnitude 6.5 to 7.4	1999	Hector Mine Earthquake
Magnitude 4.5 - 5.4	2001	Anza Earthquake
Magnitude 5.5 - 6.4	2002	Laguna Salada Earthquake
Magnitude 6.5 to 7.4	2003	San Simeon Earthquake
Magnitude 4.5 - 5.4	2005	Mettler Earthquake
Magnitude 4.5 - 5.4	2008	Chino Hills Earthquake
Magnitude 4.5 - 5.4	2009	Inglewood Earthquake
Magnitude 5.5 - 6.4	2009	Baja California Earthquake
Magnitude 6.5 to 7.4	2010	El Mayor-Cucapah Earthquake
Magnitude 6.5 to 7.4	2010	Sierra El Mayor Earthquake
Magnitude 4.5 - 5.4	2011	Calexico Earthquake
Magnitude 4.5 - 5.4	2012	Brawley Earthquake

	Magnitude 4.5 - 5.4		**Magnitude 5.5 - 6.4**
	Magnitude 6.5 to 7.4		**Magnitude > 7.5**

Magnitude	Year	Earthquake Name
Magnitude 4.5 - 5.4	2012	Westmoreland Earthquake
Magnitude 4.5 - 5.4	2013	Isla Vista Earthquake
Magnitude 4.5 - 5.4	2014	Brea Earthquake
Magnitude 4.5 - 5.4	2015	Stovepipe Wells Earthquake
Magnitude 4.5 - 5.4	2016	Borrego Springs Earthquake
Magnitude 4.5 - 5.4	2018	Santa Cruz Island Earthquake
Magnitude 5.5 - 6.4	2019	Ridgecrest Earthquake
Magnitude 6.5 to 7.4	2019	Ridgecrest Earthquake
Magnitude 5.5 - 6.4	2020	Lone Pine Earthquake

Source. Southern California Earthquake Date Center

Southern California Historic Earthquakes

One of the best indicators of earthquake potential is learning the earthquake history of the area. The following is a discussion on large earthquakes that affected the City of Cerritos and Southern California in general, which were also included in Table 3.6.

1857 Fort Tejon Earthquake

On January 9, 1857, one of the greatest recorded earthquakes in the United States occurred. The Fort Tejon earthquake measured 7.9 on the Richter scale and left a surface rupture scare of over 350 kilometers along the San Andreas Fault. Strong shaking was said to have lasted for over a minute, and water from the Los Angeles River was reportedly thrown out of its bed. Damage was not nearly as serious as it would be today since Southern California was sparsely populated at the time. Were the Fort Tejon earthquake to occur today, the damage would easily run into billions of dollars, and the loss of life would be substantial. The present-day communities of Wrightwood and Palmdale lie upon or near the 1857 rupture area.

1933 Long Beach Earthquake

In 1933, the Long Beach 6.4 magnitude earthquake struck the Los Angeles Basin on March 10. The earthquake occurred on the Newport-Inglewood Fault, causing serious damage in Long Beach and other communities. The earthquake resulted in 120 deaths and over $50 million in property damage. Most of the damaged buildings were of unreinforced masonry construction. The following images of the damage were taken from the Southern California Earthquake Data Center website.





Damage resulting from the 1933 Long Beach Earthquake

1971 Sylmar Earthquake (San Fernando)



On February 9, 1971, the Los Angeles basin shook for over one minute. There were 65 deaths and a financial cost of over $500 million. The earthquake resulted in a crack in the Van Norman Dam where an 80-square mile area had to be evacuated due to fear the dam would break. Numerous people were trapped in



buildings and fires were started from natural gas line breaks. Two hospitals collapsed killing nine people. The Veterans Administration Hospital had seven deaths (photos left) and the Olive View Hospital had two deaths. Following this earthquake, the Alquist Hospital Seismic Act was passed establishing structural and non-structure classifications for hospital building seismic –safety levels.

1987 Whittier Narrows Earthquake

In October 1987, the Whittier Narrows Earthquake struck the Los Angeles area with a 5.9 magnitude earthquake. This earthquake occurred on a fault system not previously known for seismic activity. There were 8 deaths and 200 injuries. The earthquake damage was estimated at $358 million.



1994 Northridge Earthquake



On January 17, 1994, the Northridge Earthquake struck at a 6.7 magnitude in the Los Angeles area. There were 57 deaths and over 1,500 people were injured. The earthquake caused billions of dollars in damage and disrupted the lives of thousands of residents, schools, and businesses in Southern California.

For days afterward, thousands of homes and businesses were without electricity; tens of thousands had no gas; and nearly 50,000 had little or no water. Approximately 15,000 structures were moderately to severely damaged, which left thousands of people temporarily homeless. Over 66,500 buildings were inspected, and nearly 4,000 were severely damaged and over 11,000 were moderately damaged. Several collapsed bridges and overpasses created commuter havoc on the freeway system. Ground shaking caused extensive damage, but the earthquake triggered liquefaction and dozens of fires also caused additional severe damage.





However, the earthquake occurred early in the morning on a holiday. This circumstance considerably reduced the potential effects. Many collapsed buildings were unoccupied, and most businesses were not yet open. The direct and indirect economic losses ran into the tens of billions.

2019 Ridgecrest Earthquakes



The 2019 Ridgecrest Earthquake event s began on July 4, 2019, with a magnitude 6.4 quake near the town of Ridgecrest. Then, at 6:32PM on July 6th, 2019, a 7.1 magnitude struck again east of the town. This quake moved along 30 miles of Garlock strike-slip fault line and was followed by 26,000 aftershocks over multiple days. The shaking was felt in Stockton, Las Vegas, and downtown Los Angeles; near the City. According to the United States Geological Survey, five people were injured, 50 homes were structurally damaged, and many more homes were damaged by fire from broken gas lines and power outages. Damages from the quake were estimated to exceed $100,000,000 USD.

Even if the epicenter of a major earthquake is not located directly within the City, the aftershocks associated with that earthquake can cause significant damage. The hazards associated with aftershock earthquakes are the same as mainshock earthquakes and may cause significant damage and disruption. The primary difference between mainshock and aftershock earthquakes is aftershock earthquakes are categorized by the following two guidelines. First, it must occur within one rupture length of the mainshock rupture surface,

or alternatively, within an "aftershock zone" based upon early aftershock activity and defined by seismologists. Second, it must occur within that designated area before the seismicity rate in that area returns to its "background", meaning pre-mainshock, level. Figure 3.1 from the Southern California Earthquake Data Center details the locations and magnitudes for historic Southern California earthquakes.

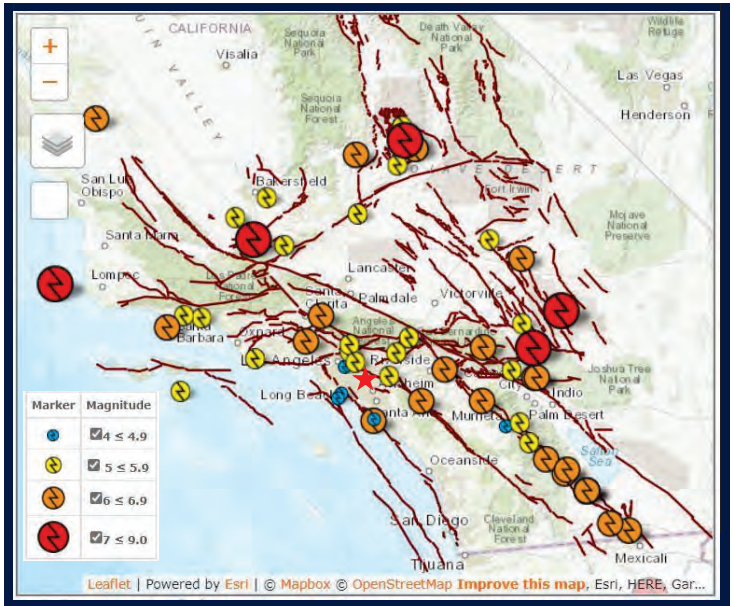


Figure 3.1: Southern California Historic Earthquakes Map

Southern California Earthquake Data Center at Caltech

3.3.3 Earthquake Probability, Frequency, and Magnitude

The Steering Committee ranked earthquake as the greatest threat to the City. The City is located in a seismic fault zone near the Newport-Inglewood Fault according to a Preliminary Alquist-Priolo Earthquake Fault Zone map provided by the California Department of Conservation website and is located in a moderately high seismic risk zone.

Fault Zones

There are many faults and fault zones throughout Southern California. After reviewing maps of the United States, California and specifically the Southern California area, the research showed potential earthquake areas that could impact the City. Faults that were reviewed include: the San Andreas, Newport-Inglewood, Rose Canyon, Cristianos, San Joaquin Hills, Rose Canyon, Coronado Bank, Whittier-Elsinore, Palos Verdes, San Diego Trough, and San Clemente Faults. These faults, all considered active, are capable of producing earthquakes in the 4.5 – 8+ magnitude range. This report focused on the four faults that could most seriously impact the area.

1. San Andreas Fault
2. Newport-Inglewood Fault
3. Whittier-Fault
4. Palos Verdes Fault

A major earthquake along any of these four faults could result in substantial casualties and damage resulting from collapsed buildings, damaged roads and bridges, fires, flooding, and other threats to life and property. There may still be unmapped earthquake faults throughout Southern California that could also affect the City. Figures 3.1 provides the local earthquake faults in Southern California and in the areas around the City. In addition, Tables 3.7 through 3.11 give fault-specific information from the Southern California Earthquake Data Center for local faults that could affect the City.

The San Andreas Fault

Table 3.7: San Andreas Fault Information

Type of fault:	Right-lateral strike-slip
Length:	1200 kilometers (km)
Nearby Communities:	Parkfield, Frazier Park, Palmdale, Wrightwood, San Bernardino, Banning, Indio
Last Major Rupture:	January 9, 1857 (Mojave segment); April 18, 1906 (Northern segment)
Slip rate:	20-35 millimeters/year (mm/yr.)
Interval Between Major Ruptures:	Average of about 140 years on the Mojave segment; recurrence interval varies greatly from under 20 years (at Parkfield only) to over 300 years
Probable Magnitudes:	6.8 to 8.0
Distance and Direction from City:	Approximately 70 miles east

Source: Southern California Earthquake Data Center at Caltech

This fault marks the boundary between the North American and Pacific tectonic plates and is capable of producing earthquakes in the magnitude 8+ range. It has been scientifically determined through a carbon dating process that a major earthquake on this fault has occurred approximately every 145 years plus or minus 20 years. The last major earthquake on the Mojave segment of the fault occurred in 1857 (158 years ago as of 2015). The San Andreas Fault is considered one of the most active faults in the world today, and a major earthquake up to an 8.3 magnitude is expected to occur again within the next 20 years. The Fault traverses the Southern California region and is located approximately 70 miles east of the City. The ground shaking of an 8.3 magnitude earthquake on the Southern San Andreas Fault would result in serious damage in Southern California, including the City.

The Newport-Inglewood Fault

Table 3.8: Newport-Inglewood Fault Information

Type of fault:	Right lateral: local reverse slip associated with fault steps
Length:	75 km
Nearby Communities:	Culver City, Inglewood, Gardena, Compton, Signal Hill, Long Beach, Seal Beach, Huntington Beach, Newport Beach, Costa Mesa
Last Major Rupture	March 10, 1933, M_W 6.4
Slip rate:	0.6 mm/yr.
Interval Between Major Ruptures:	Unknown
Probable Magnitudes:	6.0-7.4
Distance and Direction from City:	Approximately 8 miles southwest

Source: **Southern California Earthquake Data Center at Caltech**

The Newport-Inglewood Fault is considered the second most active fault in California. It runs from the City of Inglewood through the City of Huntington Beach and out into the Pacific Ocean in the Newport Beach area. At its closest point, the fault lies about 8 miles southwest of the City. This fault is capable of producing earthquakes in the range of 6.3 to 7.5 magnitude. The 6.5 magnitude, 1933 Long Beach earthquake occurred on the Newport-Inglewood fault causing 120 deaths and severe damage. Unreinforced masonry buildings collapsed leaving people trapped beneath the rubble.

Earthquakes are to be considered a major threat to the City. When scientists refer to the San Andreas Fault, they often call it “The Big One.” In 1990, the Los Angeles Times newspaper did a series of articles on the Newport-Inglewood Fault and described it as “The Bigger One.” Both faults would cause considerable damage; however, a 7.5 magnitude Newport-Inglewood earthquake could be more severe to the City of Cerritos than an 8.3 on the San Andreas due to the fault’s proximity to the City. The cost estimates of damage are

much greater for the Newport-Inglewood worst-case scenario than the San Andreas worst-case scenario.

Whittier-Elsinore Fault

Table 3.9: Whittier-Fault Information

Type of fault:	Right-lateral strike-slip with some reverse slip
Length:	40 km
Nearby Communities:	Yorba Linda, Hacienda Heights, Whittier
Most Recent Surface Rupture	Holocene
Slip rate:	Between 2.5 and 3.0 mm/yr.
Interval Between Major Ruptures:	Unknown
Probable Magnitudes:	6.0-7.2
Distance and Direction from City:	Approximately 10 miles northeast

Source Southern California Earthquake Data Center at Caltech

The Whittier Fault runs along the Chino Hills range between Chino Hills and Whittier. Earthquakes with surface rupture on the Whittier Fault are estimated to have return intervals for a M6.5 and M7.5 of 100 and 1,200 years, respectively. An unpublished paleoseismic investigation suggests that the Whittier segment has not moved for 2,000 years. Since the average interval between major characteristic (extreme) events on the Whittier segment is estimated to be on the order of 1,200 years, the fault is considered long overdue. The Whittier fault joins the Chino Fault near Prado Dam where they merge into the Elsinore Fault.

Table 3.10: Elsinore Fault Information

Type of fault:	Right-lateral strike-slip
Length:	180 km
Nearby Communities:	Temecula, Lake Elsinore, Julian
Last Major Rupture	May 15, 1910; Magnitude 6.0
Slip rate:	Roughly 4.0 mm/yr.
Interval Between Major Ruptures:	Roughly 250 years
Probable Magnitudes:	6.5-7.5
Distance and Direction from City:	Approximately 10 miles northeast

Source: Southern California Earthquake Data Center at Caltech

The Elsinore Fault trends along the eastern base of the Santa Ana Mountains and is one of the largest in Southern California, and in historical times, has been one of the quietest. The main trace of the Elsinore Fault has only seen one historical event greater than magnitude 5.2, which was the M6.0 Elsinore Earthquake of 1910.

At the northern end, the fault splays into several faults, creating the Whittier-Elsinore Fault Zone about 10 miles northeast of the City. A “characteristic” Magnitude M6.9 on the northwest segment of the Whittier-Elsinore Fault Zone has been estimated to have a return period of 450 years. This “characteristic” earthquake would be expected to cause ground movement on the order of 3 to 6 feet, with peak horizontal ground accelerations up to one multiplier of gravity (1 g). Most structures built prior to 1997 were designed to withstand peak ground accelerations, described in further detail below, of up to 0.4 g, so a “characteristic” earthquake along this fault zone would have devastating consequences.

Palos Verdes Fault

Table 3.11: Palos Verdes Fault Information

Type of fault:	Right-reverse
Length:	Roughly 80 km
Nearby Communities:	San Pedro, Palos Verdes Estates, Torrance, Redondo Beach
Most recent surface rupture:	Holocene offshore; Late Quaternary onshore
Slip rate:	Between 0.1 and 3.0 mm/yr.
Interval between major ruptures:	Unknown
Probable magnitudes:	6.0 – 7.0 (or greater); fault geometries may allow only partial rupture at any one time.
Distance and Direction from City:	Approximately 12 miles southwest

Source: Southern California Earthquake Data Center at Caltech

The Palos Verdes Hills Fault is capable of a 6.0 to 7.0 magnitude earthquake. It has two main branches and continues southward as the Palos Verdes-Coronado Bank Fault Zone.

This fault is located off the coast of Redondo Beach and Torrance, and continues southward through the Palos Verdes peninsula and offshore, outside the San Pedro Bay. The issue of concern is the fault causing shaking and liquefaction within the City.

Peak Ground Acceleration

Peak Ground Acceleration (PGA) mapping represents peak horizontal acceleration of the ground on firm-rock conditions. The approach of representing peak horizontal ground acceleration on firm-rock is a common and widely used method of showing ground accelerations. The development of probabilistic acceleration maps is a result of three types of basic input parameters:

1) Attenuation of ground shaking with distance from the earthquake source.
2) Frequency of earthquakes within an area or region, termed recurrence; and

3) The character and extent of regions and faults that generate earthquakes.

According to the following Peak Ground Acceleration Map, the City is located in an area that will experience a .59 g PGA with 2% exceedance in 50 years (0.0004 annual probability).

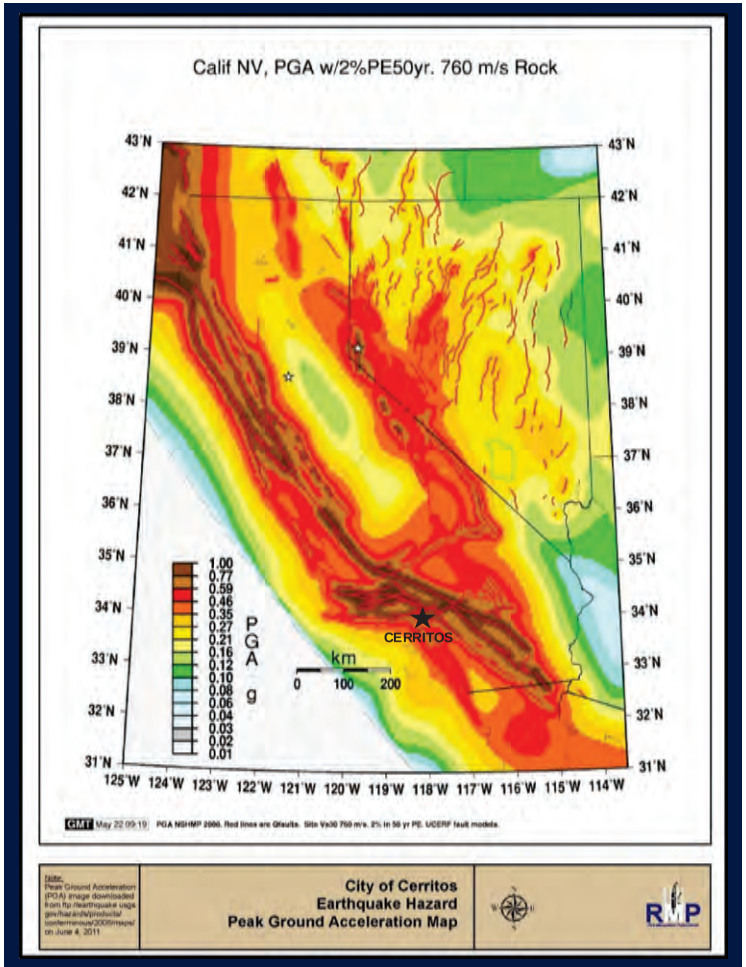


Figure 3.2: City of Cerritos Peak Ground Acceleration Map

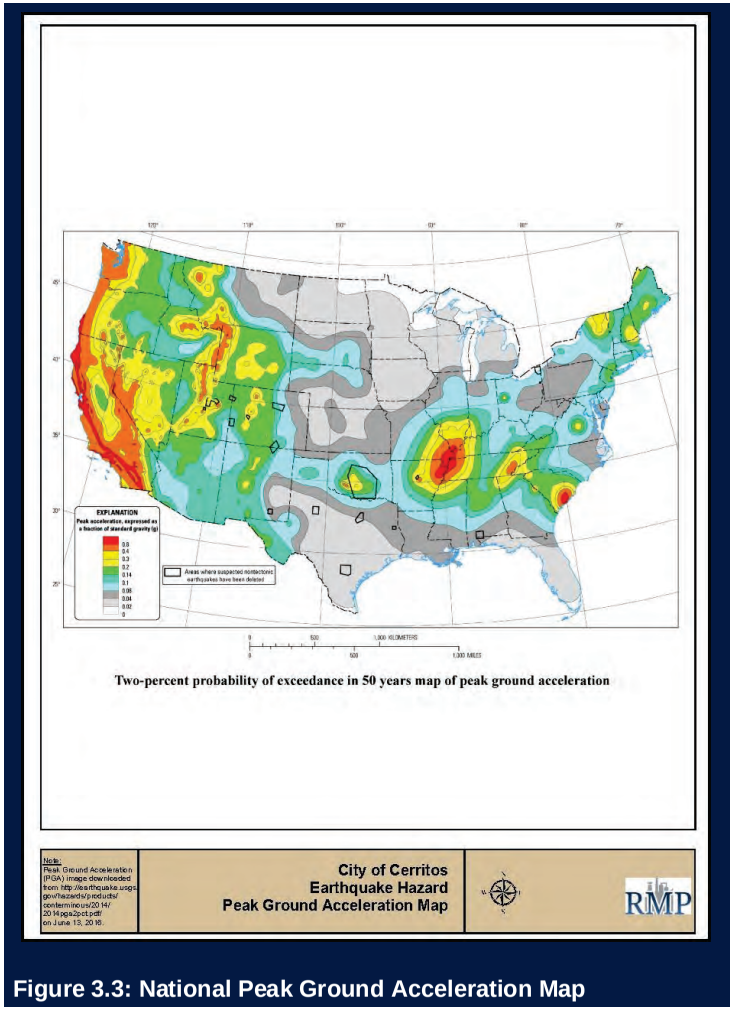


Figure 3.3: National Peak Ground Acceleration Map

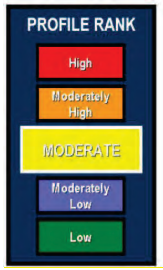
According to Table 3.12 below (provided by the United States Geographic Survey), this PGA Value is typically associated with a 6.2 magnitude earthquake. Thus, there is a 0.21% annual possibility of a 6.2 magnitude earthquake affecting the City.

Table 3.12: Mercalli Intensity and Corresponding Peak Group Acceleration

Mercalli Intensity	Richter Intensity	Acceleration (%g)	Velocity (cm/s)	Perceived Shaking	Potential Damage
I	3.5	< 0.17	< 0.1	Not Felt	None
II-III	4.2 – 4.3	0.17 - 1.4	0.1 - 1.1	Weak	None
IV	4.8	1.40 – 3.9	1.1 - 3.4	Light	None
V	4.9 – 5.4	3.9 - 9.2	3.4 - 8.1	Moderate	Very light
VI	5.5 – 6.0	9.2 - 18	8.1 - 16	Strong	Light
VII	6.1	18 - 34	16 - 31	Very Strong	Moderate
VIII	6.2	34 - 65	31 - 60	Severe	Moderate to Heavy
IX	6.9	65 - 124	60 - 116	Violent	Heavy
X+	> 7.0	> 124	> 116	Extreme	Very Heavy

The City has been impacted by earthquakes numerous times over the years. Typical of many locations in Southern California, seismic building standards have prevented these earthquakes from causing any severe damage within the City. However, as noted above, the potential for a large-scale earthquake is possible. Given the frequency, and likelihood, of earthquake occurrences in the area coupled with the possibility of a large-scale scenario, the City has ranked earthquakes as the hazard with highest vulnerability for the City.

3.4 Urban Fire Hazard Profile

Urban Fire Risk Assessment Summary		
Risk Rank: Moderate		
Probability/ Frequency:	Infrequent event - occurs between once every 8 years and once every 50 years (inclusive)	
Consequence/ Severity:	Moderate building damage, minor loss of lifelines (less than 12 hours), lost time injury but no disability	
Vulnerability:	Localized damage area, minor secondary impacts, delayed hazard onset	
Hazard Risk Rank Score:	18	

3.4.1 Hazard Information and Background



Fire is a rapid oxidation process that can lead to uncontrolled burning, exposing and possibly consuming structures. Fires often spread quickly and are usually signaled by dense smoke that may fill the area for miles around. Fires can be human caused through acts such as arson or can be caused by natural events such as lightning. Fires are typically classified according to the following categories:

- **Urban fires** are primarily those associated with structures and the activities in and around them.
- **Wildland fires** occur in forests or other generally uninhabited areas and are fueled primarily by natural vegetation.

- **Urban Interface fires** occur where development and forest interface, with both vegetation and structures providing fuel, and are sometimes referred to as urban-wildland interface fires.

The following factors contribute significantly to aforementioned fire behavior.

- **Slope/Topography**: As slope increases the rate of fire spread increases. In the northern hemisphere, south facing slopes are also subject to greater solar radiation, making them drier and thereby intensifying fire behavior.
- **Fuel**: Weight and volume are the two methods of classifying fuel, with volume also referred to as fuel loading. Each fuel is assigned a burn index (the estimated amount of potential energy released during a fire), an estimate of the effort required to contain a fire, and an expected flame length.
- **Weather**: Variations in weather conditions have a significant effect on the occurrence and behavior of fires.

Firestorms that occur during extreme weather (e.g., high temperatures, low humidity, and high winds) have high intensity, which makes fire suppression virtually impossible. These events typically burn until the conditions change, or the fuel is exhausted. Even small fires can threaten lives and resources and destroy properties. It is also important to note that, in addition to affecting people, fires may severely affect livestock and pets. Such events may require the emergency watering/feeding, shelter, evacuation, and even burying of animals.

Fire Secondary Events

The aftermath of a fire can be as disastrous, if not more so, than the fire. A particularly destructive fire burns away plants and trees that prevent erosion. If heavy rains occur after such a fire, landslides, ash flows, and flash floods can occur. This can result in property damage outside the immediate fire area, and can affect the water quality of streams, rivers, and lakes.

Fire as a Secondary Event

In addition to typical ignition sources for fires, earthquakes and floods have the potential to rupture buried gas lines, and high winds or accidents could cause overhead electric lines to break, creating ignition sources for fires. Catastrophic earthquakes could cause widespread urban fires, as multiple gas and electrical lines could be broken or disrupted.

3.4.2 Urban Fire Hazard History

Los Angeles County is well known as one of the world's great urban centers, but the county is also home to the 655,000-acre Angeles National Forest and a large portion of the Santa Monica Mountains National Recreational Area. Thousands of homes are located in foothill communities near these great natural areas, creating unique challenges for local fire agencies. The following is a summary of recent urban fires and wildfires that have occurred in Southern California.

2018 Pico Rivera Apartment Fire



Around 4 p.m. on February 22, 2018, a fire was reported an apartment building in the 9100 block of Burke Street. The fire, which started in the attic of the structure, quickly engulfed the first and second floors. Fortunately, only 3 injuries were reported, but around 300 residents were displaced after more than 141 unites were impacted by the fire: 45 of them with fire and smoke damage. More than 100 firefighters were dispatched to fight the flames while City officials worked with property owners to provide hotel vouchers for displaced residents. Due to the need for critical repairs, residents could not begin to return home for at least 3 to 5 days after the fire. Although specifics were not provided to the public, in the aftermath, the Los Angeles County Sherriff's Department stated that investigators believed a problem with the building's plumbing caused the fire. Pico Rivera is less than 10 miles from the City.

2018 Wildfire Season



The 2018 wildfire season in California was one of the deadliest seasons in California's recorded history. There were a total of 8,527 reported fires during this period, which burned more than 1,627,652 acres, according to The Sacramento Bee. Notable fires included the Thomas Fire in Santa Barbara County, which burned 281,893 acres, and the Mendocino

Complex Fire, which burned more than 459,000 acres, becoming the largest complex fire in California history. Estimated damages are more than $3 billion to clear debris and $11.8 billion to victims, according to NBC News. As temperatures began to cool in late November and the fire subsided, the death toll was estimated at around 104 that year with more injured.

2017 Canyon Fire II



On the morning of October 9, 2017, a fast-moving brush fire was noted near the 91 freeway and Gypsum Canyon Road. By noon, the fire had scorched 800 acres and by 6:00AM the following day, the fire had spread to 7,500 acres damaging at least 24 structures and dozens of homes. By the time, the fire was fully contained on October 17, 2017, 9,217 acres had been burned, 25 structures had been destroyed, and 55 more were damaged. 16,570 people had to be evacuated from their homes in Orange and Riverside Counties.

2017-2018 Thomas Fire

The Thomas Fire started December 4, 2017, near Santa Paula and burned for three weeks raging across Ventura and Santa Barbara Counties. The fire consumed over 280,000 acres before it was extinguished on January 12, 2018. 8,500 firefighters from all over the United States were deployed to fight the fire and over 1,063 structures, mostly houses, were destroyed before it was extinguished. The Thomas Fire was almost immediately followed by massive mudslides in Montecito, CA triggered by a combination of heavy rainfall and the charred landscape. On January 9, 2018, massive flows of mud and debris traveling at 20 miles per hour demolished homes and businesses in the area. Over 400 homes were damaged or destroyed, and 21 people were killed.



Table 3.13: Southern California Historical Fires (2005-2020)

Fire Name	Date	Description
Topanga Fire	9/28/2005	The Topanga Fire burned 24,175 acres in the Chatsworth area.
Empire Fire	7/22/2006	The Empire Fire burned 1,094 acres on Catalina Island near the airport.
Quail Fire	8/13/2006	The Quail Fire burned 4,864 acres near the northbound Interstate 5 at Quail Lake Road in Gorman.
Cross Fire	8/28/2006	The Cross Fire burned 665 acres near Placerita Canyon Road and Sand Canyon Road in Santa Clarita.
Pines Fire	9/19/2006	The Pines Fire burned 113 acres in the Angeles National Forest near the Angeles Forest Highway and Angeles Crest Highway Junction.
Island Fire	5/10/2007	The Island Fire burned 4,750 acres near Avalon on Catalina Island.
Gorman Fire	5/19/2007	The Gorman Fire burned 2,500 acres at the edge of Los Padres National Forest.
Canyon Fire	7/7/2007	The Canyon Fire burned 815 acres near Agua Dulce Canyon and 14 Freeway.
North Fire	9/2/2007	The North Fire burned 2,200 acres 6 miles southwest of Acton in the Angeles National Forest.
Ranch Fire	10/20/2007	The Ranch Fire burned 58,401 acres near Townsend Peak southwest of Templin Highway and Interstate 5.
Buckweed (Agua Dulce) Fire	10/21/2007	The Buckweed (Agua Dulce) Fire burned 38,000 acres near Mint Canyon Road and Sierra Highway.
Canyon Fire	10/21/2007	The Canyon Fire burned 4,521 acres in the Malibu Canyon south of the Pacific Coast Highway.
Magic Fire	10/22/2007	The Magic Fire burned 2,824 acres near Magic Mountain Parkway and The Old Road.

Fire Name	Date	Description
Corral Fire	11/24/2007	The Corral Fire burned 4,901 acres near Malibu Creek State Park.
Santa Anita Fire	4/26/2008	The Santa Anita Fire burned 584 acres in the mountains above the cities of Sierra Madre and Arcadia in the Angeles National Forest.
Big Horn Fire	5/13/2008	The Big Horn Fire burned 490 acres North of Mt. Baldy Village near Claremont.
Sesnon Fire	10/13/2008	The Sesnon Fire burned 14,703 acres in the Porter Ranch Community, Twin Lakes, and Indian Hills area.
Marek Fire	10/28/2008	The Marek Fire burned 4,824 acres near the West Side Little Tujunga Canyon.
Sayre Fire	11/14/2008	The Sayre Fire burned 11,262 acres near Sylmar.
Osito Fire	7/15/2009	The Osito Fire burned 304 acres north of Castaic in the Angeles National Forest.
Morris Fire	8/25/2009	The Morris Fire burned 2,168 acres by San Gabriel Canyon near Morris Dam.
Station Fire	8/26/2009	The Station Fire burned 160,577 acres over 3 weeks by Highway 2, 1.5 miles north of USFS Angeles Crest Station.
PV Fire	8/27/2009	The PV Fire burned 235 acres near Rancho Palos Verdes.
Crown Fire	7/29/2010	The Crown Fire burned 14,000 acres over 6 days, north of Sierra Highway at Anthony Road, southwest of Palmdale.
Mint Fire	9/17/2011	The Mint Fire burned 634 acres near the Sierra Highway at Mint Canyon Road, north of Agua Dulce.
5 Mile Fire	7/6/2012	The 5 Mile Fire burned 525 acres off the I-5, north of Parker Road near Castaic.

Fire Name	Date	Description
Lake Fire	05/28/2013	The Lake Fire burned 712 acres off the southbound I-5 and Lake Hughes Road.
Magic Fire	6/10/2013	The Magic Fire burned 149 acres around Magic Mountain Parkway in Valencia.
Hunters Fire	6/2/2014	The Hunters Fire burned 677 acres near the southeast shore of Lake McClure.
Gulch Fire	9/10/2014	The Gulch Fire burned 1,375 acres east of Bella Vista.
Black Fire	9/13/2014	The Black Fire burned 403 acres north of Lake Mendocino.
Highway Fire	4/18/2015	The Highway Fire burned 1,049 acres near Prado Basin.
Park Hill Fire	6/20/2015	The Park Hill Fire burned 1,791 acres east of Santa Margarita.
Swedes Fire	7/29/2015	The Swedes Fire burned 400 acres off Swedes Flat Road, 3 miles north of Bangor.
Thomas Fire	12/4/2017	The Thomas Fire burned 280,000 acres across Ventura and Santa Barbara Counties.
Rye Fire	12/5/2017	The Rye Fire burned 7,000 acres in Santa Clarita near Rye Canyon Loop.
Creek Fire	12/20/2017	The Creek Fire burned 15,619 acres 4 miles east of Sylmar.
Stone Fire	6/4/2018	The Stone Fire burned 1,352 acres near Anthony Road in Agua Dulce.
Woolsey Fire	11/8/2018	The Woolsey Fire burned 96,949 acres across many cities north of LA County.
Saddleridge Fire	10/10/2019	The Saddleridge Fire burned 7,500 acres off the 210 FWY near Yarnell Street

Fire Name	Date	Description
Tick Fire	10/24/2019	The Tick Fire burned 4,615 acres near Tick Canyon Road
Soledad Fire	7/5/2020	The Soledad Fire burned 1,300 acres near Soledad Canyon Road and the 14 Fwy
Lake Fire	8/12/2020	The Lake Fire burned 31,000 acres near Lake Hughes.
Bobcat Fire	9/6/2020	The Bobcat fire burned 115,796 acres in the central San Gabriel Mountains

Source: Major Incident Archive – Fire Department (lacounty.gov) (for fires after 2015)

3.4.3 Urban Fire Hazard Probability, Frequency, and Magnitude

Since the City consists of urban terrain, the expected type of fire is an urban fire. Urban Fire is considered a natural hazard by FEMA, but the steering committee opted to include this hazard profile as a place holder. Urban fires often consume buildings with the potential to spread to adjoining buildings leading to air pollution and potential for injury in the areas surrounding the hazard event. Although there are no severity zones within the City and urban fires have a small likelihood, all structures are at risk to an urban fire.

Wildfires are a major environmental hazard that have historically cost California more than $800 million each year and contribute to "bad air days" throughout the state. Heat and smoke from fires can be more dangerous than the flames. Inhaling the smoke can sear the lungs, and fire also produces poisonous gases that cause disorientation and drowsiness, eventually leading to asphyxiation. As a result, asphyxiation is the leading cause of fire deaths, exceeding burns by a three-to-one ratio.

While the City has never experienced a large-scale fire, the Steering Committee included urban fire as an identified hazard after considering the following factors. In response to the 2012-2017 California drought, water conservation efforts are imperative to ensure a reliable water source. As a result, water restrictions for landscaping have left much of the plant life dry and more susceptible to fire. Should drought conditions continue, the City's vulnerability will only increase. During a Steering Committee meeting, the Committee discussed Fire response times and determined they would likely be sufficient to control most fires occurring

within the City. Figure 3.6 on the following page illustrates the fire threat to the City. As shown in the figure, the expected fire hazard is low

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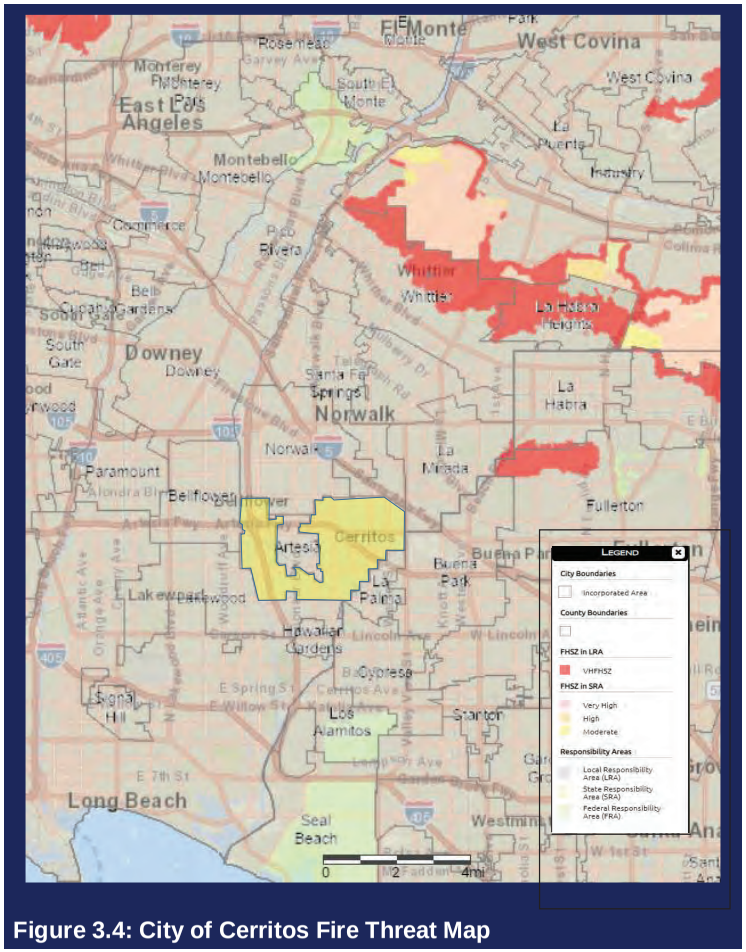


Figure 3.4: City of Cerritos Fire Threat Map

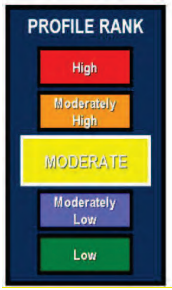
Note: Image taken from FRAP FHSZ Viewer (1/30/2023)

With regard to Wildfire, a member of the Steering Committee who administer the Cerritos Electric Utility made the following remark.

"City of Cerritos is located in a region of the state with a very low wildfire risk. No part of the Cerritos Electric Utility (CEU) service territory is located in or near the High Fire Threat District designated in the California Public Utilities Commission's (CPUC) Fire Threat Map and all of CEU's service territory is designated as "non-fuel" or "moderate" in the California Department of Forestry and Fire Protection's (CALFIRE) Fire and Resource Assessment Program (FRAP) Fire Threat Map.

Despite this low risk, CEU takes appropriate actions to help its region prevent and respond to the increasing risk of wildfires. In its role as a public agency, CEU closely coordinates with other local safety and emergency officials to help protect against fires and respond to emergencies. The Wildfire Mitigation Plan describes the safety-related measures that CEU follows to reduce its risk of causing wildfires."

3.5 Disease Outbreak Hazard Profile

Disease Outbreak Risk Assessment Summary		
Risk Rank: Moderate		
Probability/ Frequency:	Infrequent event - occurs between once every 8 years and once every 50 years (inclusive)	
Consequence/ Severity:	Moderate building damage, minor loss of lifelines (less than 12 hours), lost time injury but no disability	
Vulnerability:	Localized damage area, minor secondary impacts, delayed hazard onset	
Hazard Risk Rank Score:	18	

3.5.1 Disease Outbreak Hazard Information and Background

A disease outbreak happens when a disease occurs in greater numbers than expected in a community of region or during a certain season. A pandemic is an outbreak of an infectious disease that spreads across a large region. A flu pandemic occurs when a new influenza virus emerges for which people have little or no immunity, or possibly for which there is no vaccine. The disease spreads easily person-to-person, causes serious illness, and can sweep across the country and around the world in very short time.

According to the Department of Health and Human Services, an especially severe influenza pandemic could lead to high levels of illness, death, social disruption, and economic loss. Numerous people in a wide range of locations will become seriously ill at the same time. Impacts can range from school and business closings to the interruption of basic services such as public transportation and food delivery. Additionally, a substantial percentage of

the population will require some form of medical care. Health care facilities can be overwhelmed, creating a shortage of hospital staff, beds, ventilators, and other supplies.

In order to define and prepare for an influenza pandemic, the World Health Organization (WHO) has developed a global influenza preparedness plan, which defines the stages of a pandemic, outlines the role of WHO, and makes recommendations for national measures before and during a pandemic. The pandemic phases are detailed below:

Interpandemic period:

- Phase 1: No new influenza virus subtypes have been detected in humans.
- Phase 2: No new influenza virus subtypes have been detected in humans, but an animal variant threatens human disease.

Pandemic alert period:

- Phase 3: Human infection(s) with a new subtype but no human-to-human spread.
- Phase 4: Small cluster(s) with limited localized human-to-human transmission.
- Phase 5: Larger cluster(s) but human-to-human spread still localized.

Pandemic period:

- Phase 6: Pandemic: increased and sustained transmission in general population.

3.5.2 Disease Outbreak Hazard History

There have been several major outbreaks that have resulted in many fatalities in the past. More recently, however, there have been fewer outbreaks of biological diseases that cause catastrophic loss of life. However, there continue to be outbreaks of biological/human diseases.

Recent Influenza Outbreaks

Influenza (flu) season occurs every year, but some years may be worse than others when a new strain emerges. Health professionals were concerned in 2006 that the continued spread of a highly pathogenic avian H5N1 virus across eastern Asia and other countries represented a significant threat to human health. The H5N1 virus has raised concerns about a potential human pandemic because:

- It is especially virulent
- It is being spread by migratory birds

- It can be transmitted from birds to mammals and in some limited circumstances to humans, and
- Like other influenza viruses, it continues to evolve.

There was an outbreak of H1N1, known as the swine flu, in 2009. Figure 3.14 illustrates how widespread the strain became in 2009.



Figure 3.5: Locations with confirmed Cases H1N1 (August 4, 2009)

Middle East Respiratory Syndrome

Middle East respiratory syndrome (MERS) is a respiratory infection caused by a virus. The first patient found to be infected with MERS was in London in 2012. MERS is suspected to spread from an infected person's respiratory secretions through close contact. According to the WHO, as of June 2014, there have been 707 confirmed cases of MERS resulting in at least 252 fatalities. An additional 113 cases have been reported by Saudi Arabia. According to the Centers for Disease Control and Prevention (CDC), in the U.S., there have been two confirmed cases of MERS. Both were healthcare providers who recently traveled from Saudi Arabia. Even though MERS in the U.S. is a low risk to the general public, the CDC is closely monitoring the situation.

Ebola

Ebola, previously known as Ebola hemorrhagic fever, is a rare and deadly disease caused by infection with one of the Ebola virus species. Researchers believe that the virus is animal-borne and that bats are the most likely reservoir. Ebola is spread through direct contact from an infected person through blood or body fluids, infected objects or through contact with infected animals. According to the CDC, there have been four cases of Ebola diagnosed in the U.S. in 2014. Of the four cases, two of them had travelled back from Africa and the other two were involved in treating one of the infected persons. The medical and public health professionals across the U.S. along with the CDC are taking precautions to ensure the Ebola situation in the U.S. is a low risk to the general public.

2015 California Measles Outbreak

On January 5, 2015, five patients were hospitalized for suspected cases of measles all tied to December travels to Disneyland in Anaheim, California the previous year. By February 2015, 125 measles cases could be linked to the Disney theme park across several states with additional cases reported in Canada and Mexico. The event sparked national concern and exacerbated debates about vaccination rights throughout the country. Although the number of victims in this instance do not rival the MERS outbreak mentioned about, this event was close enough to the City to impact the public. Disneyland caters to more than 16 million guests annually, many of them coming from Southern California: including citizens of the City.

2019 Coronavirus (COVID-19)

The novel coronavirus outbreak began in Wuhan China when, on December 31, 2019, the WHO identified a pneumonia-like illness impacting dozens. By January 11, 2020, according to ABC NEWS, China reported its first death due to the Coronavirus. Ten days later, the United States confirmed its first case of the virus. According to the Center for Disease Control and Prevention (CDC), and at the time of this report, the U.S. had reported 88,056,795 cases of coronavirus including victims from all 50 states.

According to Harvard Health Publishing, coronaviruses are common and often are the cause of colds and other upper respiratory infections. SARS-CoV-2, short for severe acute respiratory syndrome coronavirus 2, is the official name for the coronavirus responsible for COVID-19. While severity can vary between cases, common symptoms include fever, aches, cough, fatigue, chills, headache, loss of appetite, and loss of smell. Generally, symptoms appear within six days of exposure, but in some cases, symptoms have taken

up to 13 days to materialize. Current evidence suggests, according to the World Health Organization, that the virus spreads mainly between people who are in close contact with each other. A person can be infected when aerosols or droplets containing the virus are inhaled or come directly into contact with the eyes, nose, or mouth.

3.5.3 Disease Outbreak Hazard Probability, Frequency, and Magnitude

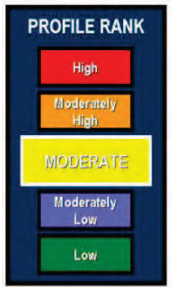
It is difficult to predict the probability and severity of the next biological/human disease pandemic. In contrast to many other illnesses, highly contagious diseases spread rapidly and often unexpectedly. However, in light of the recent COVID-19 pandemic, the City has gained a renewed perspective on the potential for a disease outbreak scenario to impact the community. At the time of this report, the County of Los Angeles Public Health Department recorded 2,978,601 laboratory confirmed COVID-19 cases in Los Angeles County. The Steering Committee agreed that all areas of the City could be equally vulnerable. The City has limited medical capabilities; however, City staff will work with the Los Angeles County Public Health Department and other outside organizations in the event of an outbreak.

3.6 Windstorm Hazard Profile

Windstorm Risk Assessment Summary

Risk Rank: Moderate

Probability/ Frequency:	Regular event - occurs between once a year and once every 7 years
Consequence/ Severity:	Moderate building damage, minor loss of lifelines (less than 12 hours), lost time injury but no disability
Vulnerability:	Localized damage area
Hazard Risk Rank Score:	18



3.6.1 Windstorm Hazard Information and Background

Wind can be described as the flow of air caused by a difference in air pressure within the Earth's atmosphere. Differences in atmospheric pressure cause air to move from high pressure areas to lower. The greater the difference between the two pressure areas, the greater the speed at which the air moves from one pressure area to the other. Strong winds have been known to cause minor property damage and, in extreme cases, destroy large structures in its path.

The Beaufort Scale is widely used to describe wind speeds based on observed ocean conditions. Since its most recent modification in the 1940s, the scale utilizes a seventeen-level system ranging from no air flow to winds that exceed 140 miles per hour (mph; 120 knots) and describes wind speeds in empirical terms. According to this scale, air speeds during a windstorm usually fall between 65 mph (56 knots) and 72 mph (63 knots). Winds of this speed and greater have been known to cause tornado-like property damage and

could inhibit utility, telecommunications, and transportation systems in and around the City of Cerritos.

3.6.2 Windstorm History

To indicate the potential for a severe storm event, Table 3.14 lists an excerpt of large-scale severe storms extracted from the NOAA National Climatic Data Center, including lightning, thunderstorms, hail, fog, winter weather, and wind, some of which have resulted in extensive regional damage. This list is not considered to be comprehensive, since severe storms are an annual event causing minor damage and economic disruption (closed roads, fallen power lines, etc.).

Table 3.14: Historical Severe Weather Damage in Los Angeles County

Date	Fatalities	Injuries	Property Damage ($)
8/07/1990	0	8	0
2/23/1993	0	0	50,000
4/25/1994	0	0	5,000
3/14/1996	0	1	0
12/14/1996	1	2	0
1/20/1997	0	4	0
7/20/1998	0	1	0
5/23/1999	1	0	0
7/13/1999	0	1	0
2/23/2000	0	1	0
4/20/2001	0	1	0
7/28/2003	0	1	0

Date	Fatalities	Injuries	Property Damage ($)
11/12/2003	0	0	3,500,000
1/07/2005	0	0	5,000,000
9/01/2007	0	0	0
09/03/2017	0	0	0
10/09/2017	0	0	0
10/15/2018	0	0	0
10/10/2019	0	0	0

Note: Property damage may not have been reported for each incident.

Microbursts

As stated by the National Weather Service, a microburst is a downdraft in a thunderstorm that is less than 2.5 miles in scale. Microbursts can be driven by a number of factors including mid-level dry air entrainment, cooling beneath the thunderstorm cloud base, sublimation, and the existence of rain and/or hail within the thunderstorm. Although microbursts are not widely recognized as tornadoes, they can cause comparable, and in some cases worse, damage than some tornadoes.



In April 2000, a microburst ripped through 4.9 square miles of the city of Paramount: less than 5 miles from the heart of the Cerritos. Hardest hit were mobile homes where at least 141 structures were reported to have sustained damage, ranging from total loss to minor structural damage. The local Fire Department estimated at least $843,000 in damage losses. Families were immediately placed in a Red Cross Shelter at a nearby park.

Santa Ana Winds

The Santa Ana Winds are a seasonal phenomenon in Southern California occurring between October and March. According to the California Climate Change Center, these dry winds occur when cold air moves southward into the Great Basin between the Sierra Nevada Mountain Range and the Southern California Coastal Range. The cold air mass is characterized by unusually high pressure near the land surface. As the wind moves through canyons and passes, the wind accelerates to speeds of 40 mph (35 knots) with gusts up to about 70 mph (60 knots). These magnitudes represent a range of levels 9 to 11 on the Beaufort Wind Scale (see image). This phenomenon has occurred irregularly since at least the mid-1800s. While generally overlooked, Santa Ana winds have been reported to have caused property damage, power outages, blocked roads due to fallen trees, increased fire threats, and even loss of life as the result of a secondary impact.

Beaufort Wind Chart – Estimating Winds Speeds

Beaufort Number	MPH Range	MPH Average	Terminology	Description
0	0	0	Calm	Calm. Smoke rises vertically.
1	1-3	2	Light air	Wind motion visible in smoke.
2	4-7	6	Light breeze	Wind felt on exposed skin. Leaves rustle.
3	8-12	11	Gentle breeze	Leaves and smaller twigs in constant motion.
4	13-18	15	Moderate breeze	Dust and loose paper is raised. Small branches begin to move.
5	19-24	22	Fresh breeze	Smaller trees sway.
6	25-31	27	Strong breeze	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult.
7	32-38	35	Near gale	Whole trees in motion. Some difficulty when walking into the wind.
8	39-46	42	Gale	Twigs broken from trees. Cars veer on road.
9	47-54	50	**Severe gale**	**Light structure damage.**
10	55-63	60	**Storm**	**Trees uprooted. Considerable structural damage.**
11	64-73	70	**Violent storm**	**Widespread structural damage.**
12	74-95	90	**Hurricane**	**Considerable and widespread damage to structures.**

Webpage: http://www.weather.gov/iwx
Twitter: @nwsiwx
Facebook: NWSNorthernIndiana

Figure 3.6: Beaufort Wind Scale

3.6.3 Windstorm Probability, Frequency, and Magnitude

Taking into account that Santa Ana Winds are (typically) an annual occurrence in Southern California, strong winds are very likely to continue to occur although infrequently in the City. In the past, high winds have toppled trees, damaged traffic signals, and in rare cases caused minor injury to residents. In response, the Steering Committee determined windstorm was still a possible threat to the City and warranted inclusion in the Plan update. Figure 3.10 below provides information on the average wind speeds for the Fullerton Municipal Airport Weather Station region. The map serves to provide an indication of the frequency and magnitude of windstorms within the City.

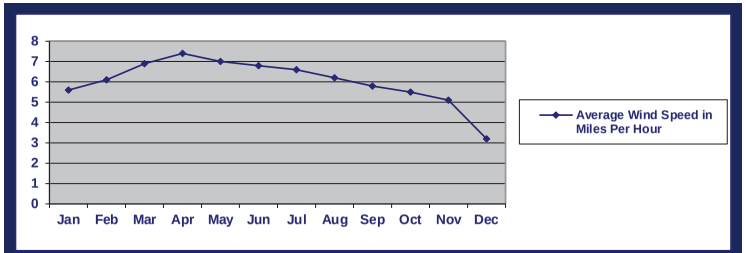
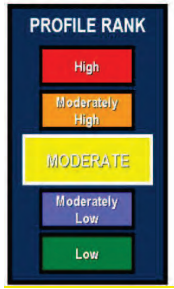


Figure 3.7: City of Cerritos Average Wind Speeds

Note: Data taken from the Western Regional Climate Center (2022)

3.7 Transportation Accident/ Incident Hazard Profile

Transportation Accident/ Incident Risk Assessment Summary		
Risk Rank: Moderate		
Probability/ Frequency:	Rare event - occurs less than once every 50 years	
Consequence/ Severity:	Moderate building damage, lifeline loss (less than 24 hours), severe injury or disability	
Vulnerability:	Moderate damage area, moderate secondary impacts, moderate warning time	
Hazard Risk Rank Score:	16	

3.7.1 Transportation Accident/ Incident Hazard Information and Background

Roadway Incident

Freeway accidents occur very frequently in the Los Angeles County region. In the last few years, California has averaged about 3,000 freeway accident-related deaths annually. Major local transportation routes include Interstates 5 and 605, and California State Route 91, creating local traffic congestion and increasing the potential for transportation accidents in the City of Cerritos.

Railway Incident

In addition to freeway accidents, a number of freight trains travel near the northeast border of the City hauling various types of hazardous materials. A major train derailment that occurs in a heavily populated industrial area could result in significant damage and potential loss of life. Both freeway and rail accidents can be a further hazard if the impacted vehicles

are transporting hazardous materials. As noted in the hazardous material release hazard profile found in Section 3.10 of this Plan, accidents in these cases can result in hazardous materials releases.

Airborne Incident

The City is also located in the flight path to the Los Angeles International Airport (LAX). With a high volume of flights over the City, there is the potential for airborne accidents as was experienced by the City in August 1986 when Aeromexico DC-9 Flight 498 collided with a single-engine Piper Archer 6,500 feet above a residential area. More detailed information about the incident can be found in the following section. Daily air traffic creates the potential for hazard events to occur in the skies over the City.

3.7.2 Transportation Accident/ Incident History

The City is located in close proximity to several busy highways and railways. According to the Bureau of Transportation Statistics, California has averaged 3299 deaths a year, which is the second highest of any state, behind Texas. Table 3.15, taken from the Bureau of Transportation Statistics, presents recent traffic fatalities in California.

Table 3.15: Traffic Fatalities in California

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg.
Highway Fatalities	2720	2816	2966	3102	3107	3387	3837	3884	3563	3606	3299
Rail Fatalities	90	77	100	106	128	131	140	157	151	194	127

Cerritos Air Disaster



On August 31, 1986, Aeromexico DC-9 Flight 498 collided with a single-engine Piper Archer at 6,500 feet above the City at about 11:52 AM. The collision sent the smaller airplane into an empty playground at Cerritos Elementary School while the larger DC-9 crashed into a residential neighborhood at Holmes Avenue and Reva Circle. All 67 of the passengers and crew aboard each of the aircraft, along with 15 residents on the ground, died in the aftermath with an additional eight injured. As a result of the accident, the aviation industry changed and now requires anti-collision instruments in jetliners. In addition, smaller airplanes must now carry Mode C transponders that broadcast altitudes to air traffic controllers. The accident also pushed forward the idea of providing mental health support to victims and first responders, which is a concept now practiced at the national level. Still, aircraft pass over the City daily, which presents the potential for future incidents.

3.7.3 Transportation Accident/ Incident Probability, Frequency, and Magnitude

Due to the high volume of commuter traffic traveling through the streets, freight transportation on the railways, and air traffic in the skies above the City of Cerritos, there is a high potential for a transportation accident. In the event of a major incident, roadways could be populated by vehicles carrying hazardous chemicals and flammable materials, which could create the potential for fire, hazardous material releases, and other harmful events. As the City has already experienced, the aftermath of an airborne incident could be devastating to the community resulting in extensive property damage and loss of lives.

Figure 3.12 on the following page depicts the transportation routes for the City and the potential areas for freeway-related accidents.

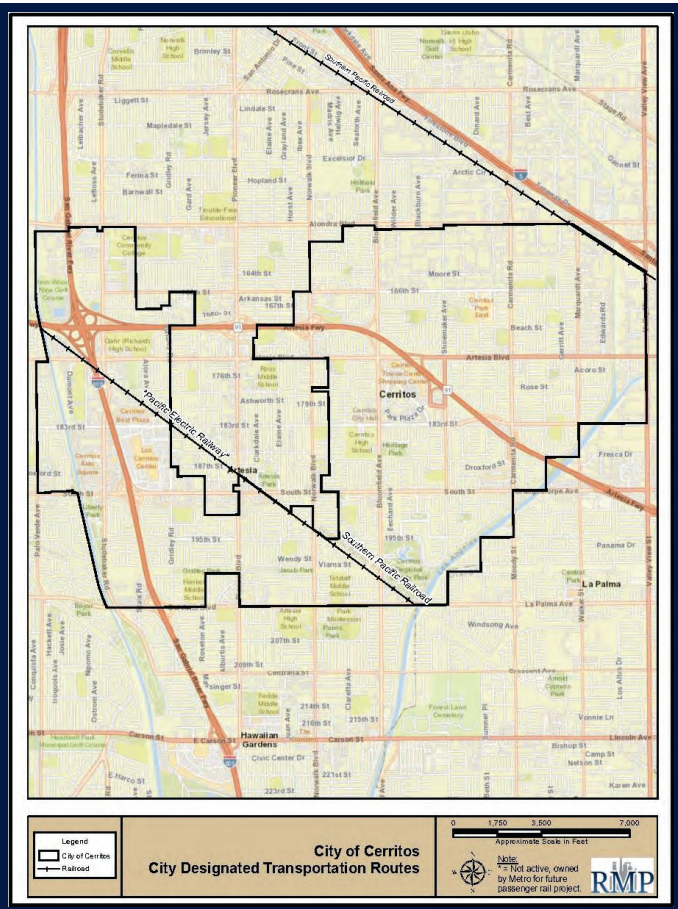


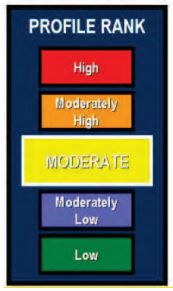
Figure 3.8: City of Cerritos Transportation Routes Map

3.8 Adversarial Event Hazard Profile

Adversarial Event Risk Assessment Summary

Risk Rank: Moderate

Probability/ Frequency:	Rare event - occurs less than once every 50 years
Consequence/ Severity:	Minor/slight damage to buildings and structures, no loss of lifelines, first aid injury and no disability
Vulnerability:	Localized damage area
Hazard Risk Rank Score:	16



3.8.1 Adversarial Event Hazard Information and Background

Terrorism is the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of a political or social objective.

A weapon of mass destruction (WMD) is a type of weapon that can bring significant harm to a large number of people or structures. Examples of WMD include nuclear, radiological, biological, or chemical agents. Aside from attacking local targets, terrorists might also use WMD to inflict harm on a large population.

The Federal Bureau of Investigation (FBI) has categorized two types of terrorism in the United States.

International Terrorism involves terrorist activity committed by groups or individuals who are foreign-based and/or directed by countries or groups outside the United States, or whose activities transcend national boundaries.

Domestic Terrorism involves groups or individuals whose terrorist activities are directed at elements of our government or population without foreign direction.

Well-known international terrorist groups include Islamic fundamentalist groups, such as Islamic State in Iraq and Syria (ISIS); European terrorists, including the Red Brigade in Italy, Spain's Euskadi Ta Askatasuna (ETA), and the Japanese Red Army; and separatist groups, such as Sierra Lumenoso, and the "Shining Path" in Peru. Additionally, there are several narco-terrorists, such as the Medellin and Cali drug cartels.

In the United States, a number of animal rights activists; environmentalist groups; white supremacists, such as the League of Aryan nations; and groups including the Covenant, Sword and Arm of the Lord, New World Order, and skinheads have been responsible for acts of terrorism on United States soil. Added to these are groups like the Klu Klux Klan; survivalists, such as the Freemen in Montana; and doomsday cults, such as those led by David Koresh in Waco, Texas, and Jim Jones in Guyana.

There are a number of methods a terrorist may use to carry out their objective, including attacks of a chemical, biological, radiological, nuclear, explosive, and cyber nature. In addition, terrorists conduct hijackings, assassinations, armed assaults, kidnappings/hostage taking, arson fires, sabotage of critical infrastructures such as utilities and transportation, and the dissemination of confidential or otherwise sensitive information for the planning of terrorist attacks.

Chemical

Chemical agents involve the use of chemical compounds to kill or seriously injure victims. There are numerous kinds of chemical weapons, and their effectiveness is determined by a number of factors, including age, purity, weather conditions, wind direction, and means of dissemination.

Biological

Biological agents include microbes, such as bacteria or viruses, and toxins derived from plants or animals that can produce illness or death. Illegal facilities that manufacture these substances are difficult to detect because they employ fermentation technology commonly used in the production of legitimate products such as antibiotics, vaccines, and consumables.

Radiological and Nuclear

Radiological or nuclear terrorism is the use of radioactive materials and/or nuclear explosives, as well as any terrorist actions against nuclear facilities by individuals or groups, to inflict harm on a population and advance political or social objectives. Sources of radiological material including nuclear fuel cycle waste, medical and dental equipment, military weaponry, and machines used in private industry.

Explosive

The impact of a bombing depends largely on the type, size, and placement of the device used. Additionally, a weapon of mass destruction (WMD) in combination with an explosive device expands the lethality, physical damage, and economic disruption. The use of an explosive device can also inflict significant disruption of society through destruction of critical infrastructure and widespread fear amongst the target population.

Cyber

Cyber terrorism is a premeditated, politically motivated attack against information, computer systems, computer programs, and data which results in violence against noncombatant targets by sub-national groups or clandestine agents. Cyber terrorists can be domestic or international. Classification of being a cyber-terrorist depends on if the terrorist relies on cyber terrorism to further their cause or uses it in addition to conventional terrorism.

Additional Terrorism Methods

Additional terrorism methods include hijackings, kidnappings, and the taking of hostages; armed assaults and mass shootings; assassinations of public figures; sabotage of transportation systems and utility infrastructure; the dissemination of confidential information that would aid terrorist organizations when planning an attack; arson fires; and many other means of disrupting normal society or endangering lives and property.

3.8.2 Adversarial Event Hazard History

The United States has proven to be a high priority target for both domestic and international terrorists. Acts of terror have become increasingly alarming in their magnitude in recent years. Examples of this include the 1995 bombing of the Alfred P. Murrah Federal Building in Oklahoma City and the attacks of September 11, 2001, on the World Trade Center complex and the Pentagon. Not all attacks, however, are at this level of intensity. The United

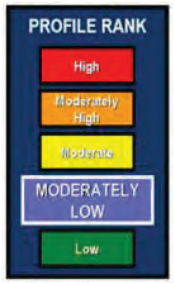
States has also been subject to small scale attacks in the past such as the bombing at the Boston Marathon in 2013 and Las Vegas Shooting in 2017. Specifically, the City of Cerritos has not been directly impacted by terrorism events in the past.

3.8.3 Adversarial Event Hazard Probability, Frequency, and Magnitude

While the City has never fallen victim to a terrorist attack, the City recognizes the potential for a terrorism event to impact the City. Given current escalating terrorism trends, the threat of a terrorist event within the United States is a credible possibility and the City ranked the probability of terrorism accordingly during the Hazard Identification Workshop. Although Cerritos does not have any hard targets within the City's boundaries, the potential threat exists due to its proximity to the City of Los Angeles, the Los Angeles Airport, and other identified targets.

Additionally, the City of Cerritos completed a Security Vulnerability Assessment to comply with the Bioterrorism Act of 2002. The Security Vulnerability Assessment evaluated the City's vulnerability to malevolent attacks, including terrorism and contamination, and developed recommendations to protect against the malevolent attacks. However, because of the security-sensitive nature of the information, the terrorism risk assessment results are not repeated as part of the Hazard Mitigation Plan.

3.9 Flood/ Dam Failure Hazard Profile

Flood/ Dam Failure Risk Assessment Summary		
Risk Rank: Moderately Low		
Probability/ Frequency:	Rare event - occurs less than once every 50 years	
Consequence/ Severity:	Moderate building damage, minor loss of lifelines (less than 12 hours), lost time injury but no disability	
Vulnerability:	Moderate damage area, moderate secondary impacts, moderate warning time	
Hazard Risk Rank Score:	12	

3.9.1 Flood/ Dam Failure Hazard Information and Background

According to the National Flood Insurance Program (NFIP), flood is the most common type of disaster including both man made and naturally occurring incidents in the United States. Land along rivers, streams, lakeshores, and coastlines are particularly susceptible to flooding.

The primary responsibility of the local governments during widespread flooding is to protect public safety. The second responsibility is protection of the environment followed by property such as highways, streets, bridges, and structure protection.

The types and causes of flooding that can occur within the City of Cerritos are the result of:

- Heavy rains,

- Dam failure,
- Flood control channel overflow,
- Wastewater flooding within residences as a result of lift station failures,
- Coastal, tropical, and/or hurricane storms, and
- Accidents such as reservoir leaks and water main breaks.

Due to light annual rain fall and the City's location on the flood plain protecting it from channel overflow, dam failure is the most likely cause of flooding with the City of Cerritos.

What are Floods?

A flood occurs any time a body of water rises to cover what is usually dry land. Floods have many causes, including heavy rains, spring snowmelt, coastal storms, and dam or levee failure. When flooding occurs, affected areas may sustain damage to structures and personal property, as well as severe damage to the environment in the form of soil erosion, deforestation and damage to utilities and transportation systems.

Floods can take several hours to days to develop. The following flood characterizations designate the amount of time for response.

- **Flood Watch** – a flood is possible in the area.
- **Flood Warning** – flooding is already occurring or will occur soon in the area.
- **Flash Flood Watch** – a flash flood is possible in the area. Those affected should seek immediate shelter or higher ground.
- **Flash Flood Warning** – flooding is already occurring or will occur soon in the area. Flash floods can occur without warning, during heavy rain in mountainous regions. Ensure that precautions and flash flood warnings are adhered to.

Alluvial Fan Flooding

Alluvial fan flooding occurs in the steep arid or semiarid mountains found throughout California. Alluvial fans are fan-shaped deposits of eroded rock and soil carried out of mountains and into valley floors by landslides, mudslides, mudflows, and surface runoff. At the beginning of the valley, alluvial fans are steep and narrow with boulders and other course material. The deposited material becomes increasingly fine as the gradient decreases and the material, mainly gravel, sand and mud, spreads.

When rain falls, runoff from the canyon walls flows as a high-velocity sheet that channels into rivulets, and then to natural drainage courses. The rapidly moving water often carries large boulders and other material from the watershed depositing them into runoff channels, blocking the flow of water. Floodwater then spills out onto the fan, with each event finding a new channel that soon fills up with deposits and overflows. Flooding in alluvial fans often can cause greater damage than clear-water flooding.

Flash Flooding

A flash flood is a rapid flooding of low-lying areas, rivers and streams that is caused by the intense rainfall associated with a thunderstorm or multiple thunderstorms. Flash floods also occur when a man-made structure, such as a dam, collapses. Flash flooding occurs when the ground under a storm becomes saturated with water so quickly that it cannot be absorbed. The runoff collects in low-lying areas and flows rapidly downhill. As a result, anything in its path is suddenly in rising water. Typically, flash floods begin with a slow-moving thunderstorm. A slow-moving thunderstorm usually takes longer to move out of the affected areas and causes the area to endure a greater amount of rainfall for a longer period of time. In addition, a thunderstorm may pass over an affected area repeatedly, dumping even more rainfall.

The heavy rainfall associated with these storm systems contributes to urban flooding in a number of ways. Primarily, heavy rainfall will often overwhelm the capacity of the conventional drainage system made up of storm drains, catch basins, sewers, and additional natural mechanisms for storm-water management. These systems typically cannot handle more than one or two inches of rainfall per hour before they begin to backup and overflow. This amount is further diminished if the storm drains, and other components of the storm-water management system, have not been adequately maintained, are clogged with debris such as trash or natural waste, or are old and in a state of disrepair. Heavy rainfall, combined with storm-water runoff, can cause local waterways to rise and overflow their banks.

3.9.2 Flood/ Dam Failure History

A flood event in Los Angeles County can range from a few isolated areas where a number of streets are flooded preventing temporary access to homes and businesses, to numerous homes inundated with several feet of water causing millions of dollars of damage. Floods in the City of Cerritos area can cause extensive damage to residential and business

properties, parks and recreational facilities, road and highway infrastructure, and critical utility facilities.

To indicate the potential for a flooding event, Table 3.16 below, taken from National Oceanic and Atmospheric Administration's (NOAA) National Climatic Data Center, lists an excerpt of large-scale flooding events that have resulted in damage within Los Angeles County.

Table 3.16: Historical Flooding Damage in Los Angeles County

Date	Injuries	Fatalities	Property Damage ($)	Crop Damage ($)
2/17/1994	1	0	0	0
2/20/1994	0	0	50,000	0
1/04/1995	0	1	50,000,000	0
1/10/1995	0	0	500,000	0
2/07/1998	0	3	0	0
10/20/2004	0	1	0	0
1/09/2005	0	1	0	0
1/11/2005	0	0	2,000,000	0
2/20/2005	0	0	1,000,000	0
12/21/2005	1	0	0	0
9/22/2007	0	0	300,000	0
11/26/2008	0	0	10,000	0
1/19/2010	0	0	0	3,000,000
10/11/202	0	0	0	0

Date	Injuries	Fatalities	Property Damage ($)	Crop Damage ($)
2/28/2014	0	0	0	0

Historical Flooding Events

Los Angeles County Flood of 1938

According to the Suburban Emergency Management Project, the Los Angeles County Flood of 1938 was caused by two oceanic storms that swept through the Los Angeles Basin to the San Gabriel Mountains in late February and early March of 1938. Rainfall from the two storms totaled nearly 9.5 inches over a three-day period, resulting in a large natural disaster. The flood was responsible for destroying 5,601 homes, damaging another 1,500, and killing nearly 110 people. The Los Angeles River reached a maximum flow rate of 130,000 cubic feet per second. As a result, the U.S. Army Corps of Engineers channelized the local rivers and built more flood control dams.





The above photographs are courtesy of California State University Northridge. The photograph on the left illustrates flooding of the Los Angeles River along Victory Blvd. The photograph on the right illustrates the levee failures along the Los Angeles River.

Historical Dam Failure Events

As stated previously, the most likely cause of flood within the City would be dam failure. The City has never been impacted by a dam failure. However, there have been a total of

45 dam failures in California's history. Failures have occurred for a variety of reasons. According to the United States Bureau of Reclamation, overtopping accounts for 30 percent of all dam failures in the United States in the last 75 years. Other dams have failed due to specific shortcomings in the dam itself or an inadequate assessment of the surrounding geomorphologic characteristics. The first notable dam failure occurred in 1883 in Sierra County, while the most recent failure occurred in 1965. The greatest catastrophe relating to California dam failures was William Mulholland's infamous St. Francis Dam, which failed in 1928 and resulted in a major disaster. Because of this failure and the exposure to potential risk to the general populace from a number of water storage dams in California, the Legislature in 1929 enacted legislation providing for supervision over non-federal dams in the State. Before the enactment of this legislation, either the State Engineer or the State Railroad Commission exercised State supervision over dams. This supervision was limited in scope and extended to less than half of the dams in the State.

The statute enacted in 1929 provided for:

- examination and approval or repair of dams completed prior to the effective date of the statute, August 14, 1929,
- approval of plans and specifications, and supervision of construction of new dams, and of the enlargement, alteration, repair, or removal of existing dams, and
- supervision over maintenance and operation of all dams of jurisdictional size.

Overall, there have been at least 460 deaths from dam failures in California. These failures are outlined in Table 3.17.

Table 3:17: Dam Failure Events in California

Year Failed	Dam	Location	Cause of Failure/Deaths
1883	English	Sierra County	Dam crumbles to foundations, decay of timber used
1892	Long Valley Creek	San Jacinto	Heavy rains, dam carried away by flood
1895	The Angels	Calaveras County	Undetermined during flood, poor foundation/ 1 death reported
1896	Vernon Heights	Oakland	Shallow foundation
1898	Snake Ravine	Stanislaus County	Poor compaction
1905	Piedmont No.1	Oakland	Outlet pipe sheared off at core wall
1906	San Andreas	San Mateo County	Crack along axis
1912	Morena	San Diego	Overtopping
1916	Lower Otay	San Diego	Leakage and overtopping due to inadequate spillway
1918	Lake Hodges	San Diego	Cracks in pier
1963	Baldwin Hills	Los Angeles	Leak through embankment turned into washout/ 3 Deaths
1964	Hell Hole	Rubicon River	Failed during construction due to unprecedented rains
1965	Matilija	Ventura	Bad foundation and concrete disintegrating

Note: Information was taken from UC Davis Civil & Environmental Engineering

Although no significant dam failure has occurred in California within the last half century, California contains several high-hazard dams that could pose a risk in the future. As a whole, the U.S. dam infrastructure has received a D rating by the American Society of Civil Engineers and several near misses have shown how vulnerable the aging dams are.

The Oroville Dam Crisis.

Built in 1968, the Oroville dam is the tallest dam in the country and forms Lake Oroville, the second largest reservoir in California. The dam and its corresponding hydroelectric power plant provide water and electricity to much of Sacramento and the surrounding area. The dam had been regarded as a marvel of modern engineering, however during the 2000's several notable environmental and civil engineering groups, including American Rivers, raised concerns regarding the dam's emergency spillway and its foundation. These concerns were largely ignored until February 2017. On February 7th, after a period of heavy rain, a large crater appeared in the main spillway causing it to fail and blocking the release of water leading to an increase in reservoir level. This caused 188,000 people in the surrounding Butte and Sacramento counties to be evacuated. As the heavy rain continued for several days, the emergency spillway had to be used on February 11th. It quickly became clear that the emergency spillway would not withstand this event. The hillside eroded causing large chunks of the concrete spillway and sediment to be washed into the feather river.



Photo taken from American Rivers, 2020.

The environmental and economic damage caused to the surrounding communities is impossible to measure; however, in total, the repairs alone cost the State over $1 billion. This failure threatened the lives of thousands and put at risk the electrical and water infrastructure of Northern California.

3.9.3 Flood/ Dam Failure Probability, Frequency, and Magnitude

The City is not prone to urban flooding and has not experienced a large-scale flood event. Figure 3.6 on the following page provides FEMA Flood Insurance Rate Maps (FIRM) for the City of Cerritos, as well as surrounding communities. According to the maps, the City is located in an area with a 0.2% annual probability of a flooding event. This is generally referred to as the 500-year zone.

As stated above, there is still the potential for flooding as the result of dam failure. The Whitter-Narrows and Prado dams present the greatest threat based on their distance from the City. Still, it is stated in the City's SEMS Multi-Hazard Functional Plan that it is unlikely either Dam would fail during a catastrophic event. Nonetheless, should these dams fail, according to recent estimates, waters from the Whittier-Narrows Dam would reach the City in 15 hours and would be about four feet deep. Waters from the Prado Dam would take 8.5 hours to reach the City and would be about 7 feet deep.

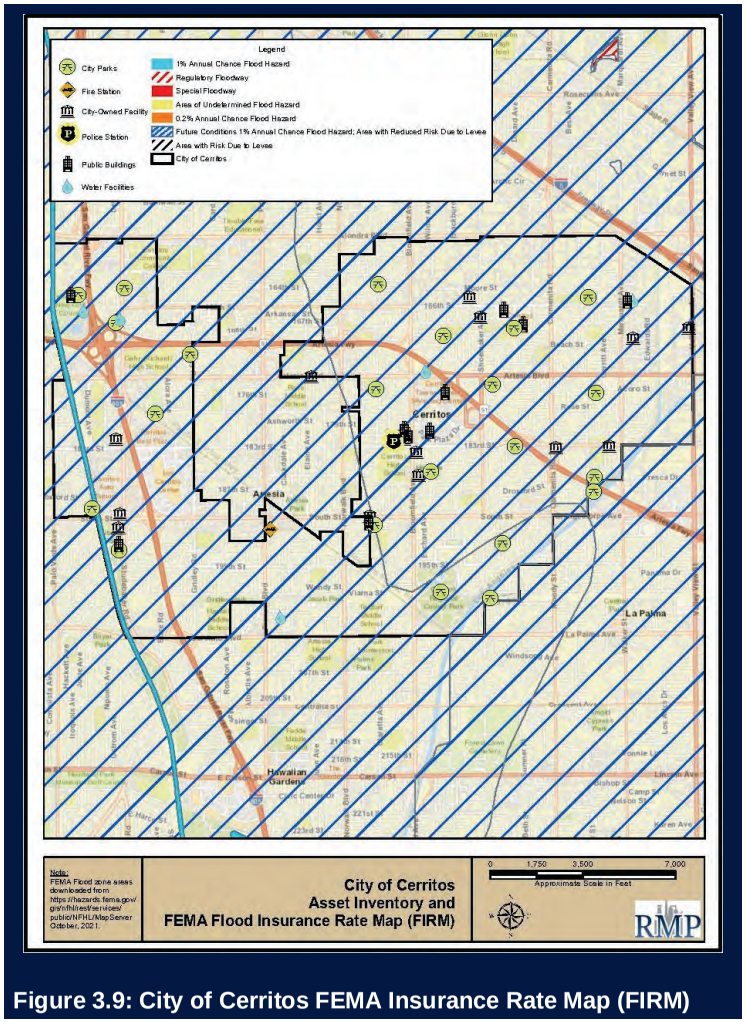


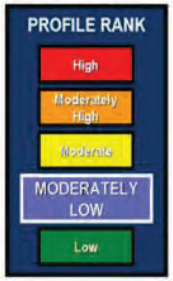
Figure 3.9: City of Cerritos FEMA Insurance Rate Map (FIRM)

3.10 Pipeline Failure/ Hazardous Material Release Hazard Profile

Pipeline Failure/ Hazardous Material Release Risk Assessment Summary

Risk Rank: Moderately Low

Probability/ Frequency:	Rare event - occurs less than once every 50 years
Consequence/ Severity:	Moderate building damage, minor loss of lifelines (less than 12 hours), lost time injury but no disability
Vulnerability:	Localized damage area, minor secondary impacts, delayed hazard onset
Hazard Risk Rank Score:	12



3.10.1 Pipeline Failure/ Hazardous Material Release Information and Background

Hazardous materials include hundreds of substances that can potentially pose a significant risk to the general population if released. These substances may be highly toxic, reactive, corrosive, flammable, radioactive or infectious. They are present in nearly every community in the United States where they may be manufactured, used, stored, transported, or disposed. According to reports obtained through the Toxic Release Inventory (TRI) Program, there are thousands of hazardous material release events annually that contaminate air, soil, and groundwater resources. These events can potentially trigger millions of dollars in clean-up costs, human and wildlife injuries, and occasionally human deaths.

Accidents which result in chemical clouds or release of hazardous materials into public water or sewer systems may affect outlying neighborhoods or the community at large. Depending upon the scale of the release, large segments of the residential and business populations may need to be evacuated quickly for extended periods of time. Effective emergency planning with regard to hazardous materials, therefore, requires the concentrated efforts of the Fire and Sheriff Departments as well as other public safety officials and private organizations such as the Red Cross. Hazardous material releases may occur from any of the following:

Table 3.18: Types of Hazardous Material Incidents

Fixed-Site	Includes all releases involving the production and manufacturing, handling, and storage of a hazardous product at a single facility as well as any releases that may occur at a designated hazardous waste disposal site.
Transportation	Includes all releases that occur while the product is in transit from one facility to another or en route to be disposed of at a designated hazardous waste disposal site, of which the main concerns for the City of Cerritos are the 5, 605, and 91 freeways.
Intentional Spills and Releases	Includes all criminal acts and acts of terrorism in which a hazardous material is used to intentionally cause injuries and/or fatalities, damage the environment and/or property, or advance a political or social agenda. Terrorism and Weapons of Mass Destruction are discussed in further detail in the Adversarial Events Hazard section of this document.

In response to concerns over the environmental and safety hazards posed by the storage and handling of toxic chemicals, Congress passed the Emergency Planning and Community Right to Know Act (EPCRA) in 1986. To reduce the likelihood of hazardous material releases, EPCRA established specific requirements on federal, state, and local governments, Indian tribes, and industry to plan for hazardous materials emergencies. EPCRA's Community Right-to-Know provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. States and communities working with facilities can use the information to

improve chemical safety and protect public health and the environment. Under EPCRA, hazardous materials must be reported to the Environmental Protection Agency (EPA), even if they do not result in human exposure.

Hazardous material releases may include the following.

- Air emissions (e.g., pressure relief valves, smokestacks, broken pipes, water, or ground emissions with vapors)
- Discharges into bodies of water (e.g., outflows to sewers, spills on land, water runoff, contaminated groundwater)
- Discharges onto land
- Solid waste disposals in onsite landfills
- Transfer of wastewater to public sewage plants
- Transfers of waste to offsite facilities for treatment or storage

In addition to accidental human-caused hazardous material events, natural hazards may cause the release of hazardous materials and complicate response activities. The impact of earthquakes on fixed facilities may be particularly damaging due to the impairment of the physical integrity or even failure of containment facilities. The threat of any hazardous material event may be magnified due to restricted access, reduced fire suppression and spill containment, and even complete cut-off of response personnel and equipment.

In recognition of the dangers associated with keeping hazardous substances, the California State legislature has enacted several laws regulating the use and transport of identified hazardous materials. In particular, Chapter 6.95 of the Health and Safety Code requires all businesses using these materials to inform local government agencies of the types and quantities of materials stored on site. This disclosure enables emergency response agencies to respond quickly and appropriately to accidents involving dangerous substances. Chapter 6.95 of the California Health and Safety Code and Title 19 of the California Code of Regulations describe the requirements for chemical disclosure, business emergency plans, and community right to know programs. According to these state requirements, a business that uses or handles hazardous materials in amounts equal to or greater than 55 gallons, 500 pounds or 200 cubic feet at any one time must prepare a business emergency plan and chemical inventory. The inventory must be updated annually, and the business plan must be updated every two years. The chapter also has incorporated

certain requirements from Federal Superfund Amendments and Reauthorization Act (SARA) Title III for chemicals designated as acutely hazardous. In addition, these regulations apply to industrial accidents, refinery explosions and incidences of high-volume releases.

3.10.2 Pipeline Failure/ Hazardous Material Release History

Compared to other methods of fuel transportation, pipelines are considered the safest means to transport vast quantities of petroleum and natural gas (compared to rail or truck). However, failure incidents regularly occur, causing substantial losses to property and life. According to the Pipeline and Hazardous Materials Safety Administration, there has been an annual average of 287.5 significant pipeline failure incidents for the past twenty years. These events have resulted in a total of 256 deaths, 1,142 injuries, and over $10.7 billion in property damage.

Pipeline failures are caused by a variety of factors. The most common cause is corrosion of the pipeline. Corrosion weakens the structural integrity of the pipeline and makes it more susceptible to rupture and failure. Accidental rupture at a construction site from excavation is another common failure cause. Many natural gas and oil pipelines are buried underground, becoming a potential hazard for excavation projects. Other sources of failure include natural forces such as earthquakes, equipment failure and operations failure, materials failures, including defects and fatigue, and weld failures, as occurred in the well-known 2010 San Bruno pipeline explosion. No pipeline failures have occurred within the City of Cerritos; however, the prevalence of hazardous and flammable gas and liquid distribution pipelines throughout the City gives the potential for a future event.

2010 San Bruno Pipeline Explosion

On September 9, 2010, a 30-inch steel natural gas transmission pipeline owned by Pacific Gas and Electric (PG&E) ruptured in a residential neighborhood in San Bruno, California. The rupture released approximately 47.6 million standard cubic feet of natural gas. The released gas then ignited, resulting in an explosion and fire that killed 8, injured 60, and forced the evacuation of many more people. The fire also caused substantial property damage, destroying 38 homes, and damaging 70 homes. The rupture created a crater 72 feet long by 26 feet wide in the middle of the street. The ruptured pipe segment was 28 feet long, weighed approximately 3,000 pounds, and was found 100 feet from the crater.

An investigation was immediately conducted by the National Transportation Safety Board (NTSB). A review of PG&E records revealed that the pipeline had been labeled in PG&E drawings as seamless API 5L Grade X42 pipe. However, upon examination of the ruptured pipe segment, the NTSB found that it was actually constructed of smaller segments of pipe of unknown origin welded together. The NTSB concluded that the poorly welded pipe section had a visible seam weld flaw that grew over time. As a result, the pipe was not as strong as the listed API 5L Grade X42 steel pipe and ruptured under increased pressure during electrical maintenance at the Milpitas Terminal.

2012 Richmond Refinery Fire

On August 6, 2012, a piping segment at the Number 4 Crude Unit at a Chevron refinery in Richmond, California, failed, leading to a release of hydrocarbons. The hydrocarbon vapor cloud then ignited, resulting in a large, uncontrolled fire. The fire burned for several hours before being contained later that night. The picture below illustrates the smoke plume from the fire.



Photo taken from a Cal/OSHA presentation on 2/26/2014

Fortunately, there were no fatalities from the fire. According to the final investigation report completed by the United States Chemical Safety and Hazard Investigation Board, over 15,000 residents surrounding the refinery sought medical treatment for respiratory irritation.

The incident tied up many local emergency response agencies and also shut down local service for the Bay Area Rapid Transit (BART). Although the 2012 Richmond Refinery Fire did not impact the City, the incident illustrates the potential major impacts to residential areas that a release of this magnitude could have on the City.

3.10.3 Pipeline Failure/ Hazardous Material Release Probability, Frequency, and Magnitude

While the City has never experienced a large-scale release, hazardous material emergencies can occur during transportation, and all major highways are susceptible to releases of toxic and flammable chemicals. While the City has taken measures to reduce the potential for hazardous materials events, Interstates 5 and 605, and California State Route 91 are still located in and around the City. Due to the volume of traffic and the nature of the materials transported, there is a risk of a hazardous material leak or spill within the City. The ongoing use, production, and transportation of hazardous materials in and through the City pose constant and real threats to the safety of the community. An accidental release of a hazardous substance into the environment has the potential to cause localized or widespread upset.

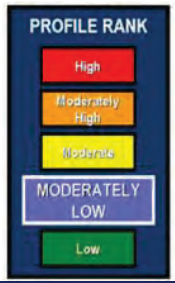
While there is currently no mechanism to assign a true probability of a fixed-site or transportation hazardous material emergency, it is important to consider a relatively high likelihood of occurrence and conduct planning and training accordingly. Figure 3.6 (in the previous section) provides an overview of the transportation corridors throughout the City of Cerritos, including Interstates 5 and 605, and the 91 freeway, which are considered major shipping and transportation routes.

3.11 Drought Hazard Profile

Drought Risk Assessment Summary

Risk Rank: Moderately Low

Probability/ Frequency:	Regular event - occurs between once a year and once every 7 years
Consequence/ Severity:	Minor/slight damage to buildings and structures, no loss of lifelines, first aid injury and no disability
Vulnerability:	Localized damage area
Hazard Risk Rank Score:	12



3.11.1 Drought Information and Background

A drought or an extreme dry periodic climate is an extended period where water availability falls below the statistical requirements for a region. Drought is not a purely physical phenomenon, but rather an interplay between natural water availability and human demands for water supply. The precise definition of drought is made complex owing to political considerations, but there are generally four types of conditions that are referred to as drought.

- **Meteorological drought** is brought about when there is a prolonged period with less than average precipitation.
- **Agricultural drought** is brought about when there is insufficient moisture for average crop or range production. This condition can arise, even in times of average precipitation, owing to soil conditions or agricultural techniques.

- **Hydrologic drought** is brought about when the water reserves available in sources such as aquifers, lakes, and reservoirs fall below the statistical average. This condition can arise, even in times of average (or above average) precipitation, when increased usage of water diminishes the reserves.
- **Socioeconomic drought** associates the supply and demand of water services with elements of meteorological, hydrologic, and agricultural drought. Socioeconomic drought occurs when the demand for water exceeds the supply as a result of weather-related supply shortfall.

Due to the extensive nature of water supply infrastructure – reservoirs, groundwater basins, and inter-regional conveyance facilities – mitigation for the effect of short-term dry periods is implicit for most systems. Defining when a drought begins is a function of drought impacts to water users. Hydrologic conditions constituting a drought for water users in one location may not constitute a drought for water users elsewhere, or for water users having a different water supply. Individual water suppliers may use criteria such as rainfall/runoff, amount of water in storage, or expected supply from a water wholesaler to define their water supply conditions.

Drought is a gradual phenomenon. Although droughts are sometimes characterized as emergencies, they differ from typical emergency events. Most natural disasters, such as floods or wildland fires, occur relatively rapidly and afford little time for preparing for disaster response. Droughts, however, occur slowly and over a multi-year period. There is no universal definition of when a drought begins or ends. Impacts of drought are typically felt first by those most reliant on annual rainfall – ranchers engaged in dryland grazing, rural residents relying on wells in low-yield rock formations, or small water systems lacking a reliable source. Drought impacts increase with the length of a drought, as carry-over supplies in reservoirs are depleted and water levels in groundwater basins decline.

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

3.11.2 Drought History

As stated in the City's Urban Water Management Plan, the City of Cerritos supplies most of its water from groundwater pumped from the Central Ground Basin. Additionally, the City is a member agency of the Central Basin Municipal Water District (CBMWD). The CBMWD imports water from the Metropolitan Water District of Southern California (MWD) and distributes it to its member agencies. Purchased imported water made up only .07 percent of the City's total potable water supplies in 2020. Additionally, the City utilizes recycled water to meet its nonpotable demands. Furthermore, the City is a retailer, providing potable water to the Golden State Water Company and the City of Norwalk. The City boundaries, as shown previously in Figure 2.1, provide an estimate of the service area of the City of Cerritos.

Because water systems are interconnected, the regional impacts of drought may have adverse impacts for the City of Cerritos. For example, as stated in the City's Urban Water Management Plan, the Colorado River, which supplies potable water to the City though CBMWD and MWD, is impacted by climatic changes. Therefore, any significant rise in temperature, due to an unseasonably hot summer or perhaps the impacts of climate change, could reduce the available water supply for each retailer decreasing the available water supply for the City's use. It is important to consider droughts that have occurred and currently are occurring throughout the State. Figure 3.7 provides the annual runoff in California for the last century as provided by the United States Geological Survey.

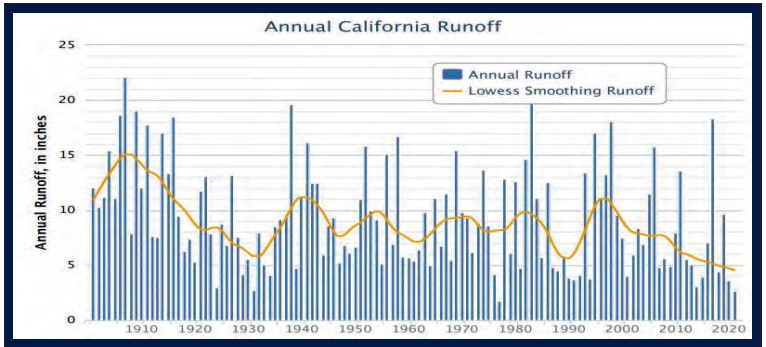


Figure 3.10: Annual Runoff in California

Figure 3.8 illustrates the current state of drought in California as provided by the U.S. Drought Monitor.

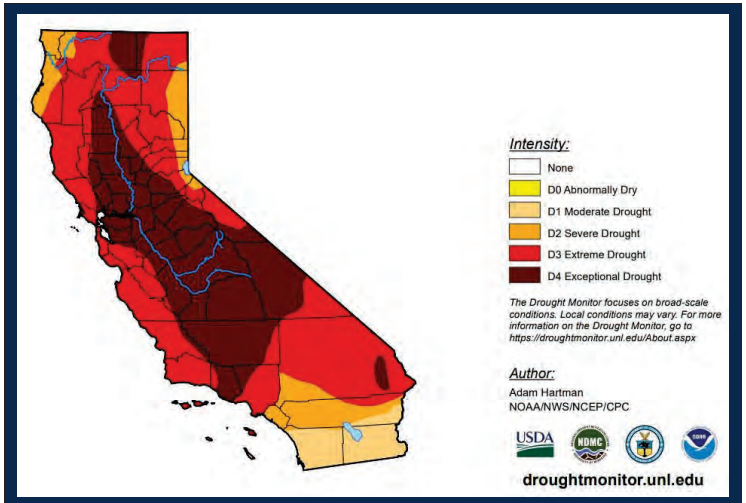


Figure 3.11: Western United States Drought Conditions, 2021

As stated by the California Department of Water Resources, the western U.S. is entering a third year of a severe drought. After previously lifting drought restrictions on April 2nd, 2017, Governor Gavin Newsom declared a drought state of emergency on October 19th, 2021 and encouraged civilians to minimize water usage. This triggered municipalities to take preventative actions. While the City has continued to provide potable water to its residents, the County of Los Angeles has imposed conservation measures to circumvent potential drought hazards. The City will rely on the previously discussed infrastructure to maintain water services for its residents.

3.11.3 Drought Probability, Frequency, and Magnitude

For years, the City has enjoyed an abundant supply of high-quality water. However, as water demand continues to increase statewide and the supply fluctuates with current drought conditions, the City must be even more conscientious about the water supply and

maximize the efficient use of natural resources as drought has the capacity to impact all areas within the City. The City and the Metropolitan Water District of Southern California work closely together to evaluate new and innovative water management and supply development programs, including water reuse and recycling, recharge facility construction, ocean and brackish water desalination, surface storage, and water use efficiency programs. These efforts are helping to enhance long-term water reliability and water quality.

As a result of the inherent uncertainty in the Colorado River and State Water Project supplies given various hydrologic, environmental, and legal considerations, the Metropolitan Water District of Southern California has undertaken several planning initiatives to broaden its water resource's reliability. The 2020 update to their Integrated Resources Plan outlines strategies and implementation plans to better manage resources, including the development of local resources and the furthering of existing conservation efforts to meet the requirements of the Water Conservation Act of 2009. These measures are anticipated to provide a buffer for member agencies to rely upon in times of drought and long-term climatic changes.

3.12 Climate Change

With the release of the updated California Adaptation Planning Guide (APG) in June 2020, the City aimed to include the effects of climate change into the Hazard Mitigation Plan update. Cerritos is located in the South Coastal Region of California. As a result, the City considered the following climate change impacts as recommended by the APG:

- Increased Temperatures
- Reduced Precipitation
- Sea Level Rise
- Reduced Tourism
- Reduced Water Supply
- Wildfire Risk
- Public Health – Heat and Air Quality
- Coastal Erosion

The Steering Committee engaged in a discussion to determine which impacts posed a viable threat to the City. While some impacts clearly applied to the City, some required additional research. Studies were conducted to look at recorded trends for sea level rise, wildfire, and regional temperature increases. The result of the study was the following list of perceived, feasible impacts that might affect the City over the next 5 to 10 years:

- Increased Temperatures
- Reduced Precipitation
- Reduced Water Supply
- Fire Risk

After reviewing the results of each of these impacts, the Steering Committee decided to include hazards in the Plan update that represented how the impacts would be felt by the City. For example, increased temperatures, reduced precipitation, and reduced water supply would be recognized as a drought. Additionally, increased temperatures and reduced precipitation might result in a fire hazard. Therefore, the Steering Committee identified Drought and Urban Fire as perceived hazards. Any information regarding the

effects of these impacts on the City will be found under the hazard profiles listed above. Additionally, mitigation strategies that apply to these impacts will be classified under Drought and Urban Fire in the mitigation actions identified in Chapter 4.

3.13 Asset Inventory

44 CFR 201.6(c)(2)(ii)(A): [The plan should describe vulnerability in terms of] the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.

A critical step required to complete the Risk Assessment is to develop a detailed asset inventory and document potential asset damages due to each identified hazard. The calculated loss estimates will be based on the values determined during the initial asset inventory. In order to produce accurate loss estimates, the City developed a comprehensive inventory of all assets, including asset locations.

In order to develop loss estimates, specific values were assigned to the critical City facilities in the asset inventory. The following tables summarize the assigned values, as well as the sources utilized as the basis for the values including the following:

- FEMA's guidance document entitled "What is a Benefit? - Guidance on Benefit-Cost Analysis of Hazard Mitigation Projects, Draft Revision 2.0"

Replacement Values

Replacement values were based on the most recent CJPIA Property Schedule Prepared by Alliant Insurance Services, Inc. and input from various City personnel based on current projections and recent studies which have developed asset replacement values. It should be noted these values are the best estimates which could be developed at the time of this report. True replacement values would require a more in-depth assessment. These values are meant for planning purposes only.

Loss of Function Values

In order to provide a mechanism for evaluating the importance of lifelines and critical services, the following tables were used to identify per capita values for each category. Based upon the population in the City of Cerritos, the following values were assigned.

Table 3.19 - Loss of Function Values Per Capita – Utilities & Lifelines

Loss of Electric Power	Cost of Complete Loss of Service
Reduced Regional Economic Activity	$87
Impacts on Residential Customers	$101
Total Economic Impact	**$188**

Loss of Potable Water Service	Cost of Complete Loss of Service	Cost of Water Unsafe for Drinking
Reduced Regional Economic Activity	$35	$8.75
Impacts on Residential Customers	$68	$34
Total Economic Impact	**$103**	**$43**

Loss of Wastewater Service	Cost of Complete Loss of Service	Cost of Partial Treatment Only
Reduced Regional Economic Activity	$33.50	$8.50
Impacts on Residential Customers	None	None
Total Economic Impact	**$33.50**	**$8.50**

Note: The values listed in this table were obtained from FEMA's guidance document entitled "What is a Benefit? - Guidance on Benefit-Cost Analysis of Hazard Mitigation Projects, Draft Revision 2.0"

Table 3.20 - Asset Inventory Summary – City of Cerritos

Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
Public Buildings	Cerritos Center for the Performing Arts	18000 Park Plaza Dr. Cerritos, CA 90703	150,000	NA	125,994,967	NA	27,657,432	$153,652,399
Public Buildings	Library	18025 Bloomfield Ave. Cerritos, CA 90703	88,500	NA	72,076,500	NA	3,750,000	$75,826,500
City Property	Library Fine Arts	18025 Bloomfield Ave. Cerritos, CA 90703	0	NA	0	NA	1,416,606	$1,416,606
Public Buildings	Sculpture Garden	18125 Bloomfield Ave. Cerritos, CA 90703	0	NA	3,905,986	NA	0	$3,905,986
Public Buildings	Cerritos Park East (CPE) Community Center	13234 E 166th St. Cerritos, CA 90703	15,500	NA	4,565,000	NA	985,000	$5,550,000
Public Buildings	Cerritos Park East (CPE) Pavilion 1	13234 E 166th St. Cerritos, CA 90703	2,814	NA	2,453,400	NA	0	$2,453,400
Public Buildings	Cerritos Park East (CPE) Pavilion 2	13234 E 166th St. Cerritos, CA 90703	611	NA	24,000	NA	0	$24,000
Public Buildings	Cerritos Park East (CPE) Restroom Building	13234 E 166th St. Cerritos, CA 90703	415	NA	115,000	NA	0	$115,000

Future Developments

As mentioned in Chapter 2, the State of California is mandating the City add 1908 housing units within the next 8-year period. At the time of this report, the City has not received any proposals for development, so the future changes in vulnerability cannot be estimated. City staff will monitor the situation and incorporate a hazard review into future proposed developments, as required.

Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
Public Buildings	Cerritos Park East (CPE) Restroom - Concession Building	13234 E 166th St. Cerritos, CA 90703	1,280	NA	284,500	NA	0	$284,500
Public Buildings	City Hall	18125 Bloomfield Ave. Cerritos, CA 90703	57,300	NA	18,070,700	NA	1,433,000	$19,503,700
Public Buildings	Corporate Yard	16540 Marquardt Ave. Cerritos, CA 90703	24,257	NA	4,053,900	NA	635,000	$4,688,900
Public Buildings	Corporate Yard Vehicle Storage	16540 Marquardt Ave. Cerritos, CA 90703	10,400	NA	1,354,000	NA	170,000	$1,524,000
Public Buildings	Corporate Yard Fuel Shelter - Wash Bay	16540 Marquardt Ave. Cerritos, CA 90703	1,800	NA	151,000	NA	0	$151,000
Fire Building	Fire Station	19030 Pioneer Blvd. Cerritos, CA 90703	10,575	NA	3,112,100	NA	159,000	$3,271,100
Public Buildings	Swim Center	13150 E 166th St. Cerritos, CA 90703	38,909	NA	8,273,100	NA	240,000	$8,513,100
Public Buildings	Senior Center at Pat Nixon Park	12340 South St. Cerritos, CA 90701	27,500	NA	8,085,500	NA	550,000	$8,635,500
Parks	Pat Nixon Park Shelter	12340 South St. Cerritos, CA 90701	174	NA	54,700	NA	0	$54,700
Public Buildings	Sports Complex	12340 South St. Cerritos, CA 90701	676	NA	6,092,623	NA	247,636	$6,340,259

Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
Police Building	Sheriff's Substation	18135 Bloomfield Ave. Cerritos, CA 90703	15,000	NA	5,002,100	NA	600,000	$5,602,100
Public Buildings	Civic Center Parking Structure	18027 Bloomfield Ave. Cerritos, CA 90703	15,000	NA	17,295,233	NA	44,283	$17,339,516
Parks	Frontier Park Building	16910 Maria Ave. Cerritos CA 90703	634	NA	256,700	NA	27,243	$283,943
Parks	Heritage Park Old State House	18600 Bloomfield Ave. Cerritos, CA 90703	1,294	NA	1,908,900	NA	0	$1,908,900
Parks	Heritage Park Pavilion 1	18600 Bloomfield Ave. Cerritos, CA 90703	782	NA	33,000	NA	0	$33,000
Parks	Heritage Park Pavilion 2	18600 Bloomfield Ave. Cerritos, CA 90703	400	NA	18,000	NA	0	$18,000
Parks	Heritage Park Pavilion 3	18600 Bloomfield Ave. Cerritos, CA 90703	400	NA	18,000	NA	0	$18,000
Parks	Heritage Park Restroom - Storage Building	18600 Bloomfield Ave. Cerritos, CA 90703	2,371	NA	495,500	NA	0	$495,500
Parks	Heritage Park Child Care and Office Building	18600 Bloomfield Ave. Cerritos, CA 90703	2,915	NA	1,325,000	NA	45,000	$1,370,000
Parks	Heritage Park Heritage Center Play Hall	18600 Bloomfield Ave. Cerritos, CA 90703	252	NA	83,000	NA	0	$83,000

Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
Parks	Heritage Park Henry Pelham Art Playhouse	18600 Bloomfield Ave. Cerritos, CA 90703	265	NA	73,000	NA	0	$73,000
Parks	Heritage Park William Penn Playhouse	18600 Bloomfield Ave. Cerritos, CA 90703	216	NA	60,000	NA	0	$60,000
Parks	Heritage Park Charlestown Covered Bridge	18600 Bloomfield Ave. Cerritos, CA 90703	240	NA	62,000	NA	0	$62,000
Parks	Heritage Park Medford Covered Bridge	18600 Bloomfield Ave. Cerritos, CA 90703	192	NA	49,500	NA	0	$49,500
City Property	Heritage Park Single Family home for recreation purposes	18616 Bloomfield Ave. Cerritos, CA 90703	1,949	NA	1,173,162	NA	0	$1,173,162
Public Buildings	Golf Course Clubhouse	16401 Piuma Ave. Cerritos, CA 90703	1,815	NA	524,200	NA	45,000	$569,200
Parks	Golf Course Maintenance Shed	16401 Piuma Ave. Cerritos, CA 90703	1,271	NA	89,000	NA	6,000	$95,000
Public Buildings	Liberty Park Raquetball Building	19211 Studebaker Rd. Cerritos, CA 90703	3,200	NA	1,248,000	NA	40,000	$1,288,000
Parks	Liberty Park Grand Pavilion	19211 Studebaker Rd. Cerritos, CA 90703	3,000	NA	285,000	NA	0	$285,000

Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
Parks	Liberty Park Restroom Building 1	19211 Studebaker Rd. Cerritos, CA 90703	1,008	NA	267,000	NA	0	$267,000
Parks	Liberty Park Restroom Building 2	19211 Studebaker Rd. Cerritos, CA 90703	484	NA	135,500	NA	0	$135,500
Parks	Liberty Park Storage Building 1	19211 Studebaker Rd. Cerritos, CA 90703	400	NA	36,000	NA	0	$36,000
Parks	Liberty Park Storage Building 2	19211 Studebaker Rd. Cerritos, CA 90703	120	NA	16,200	NA	0	$16,200
Parks	Liberty Park Pavilion 2 19211 Studebaker	19211 Studebaker Rd. Cerritos, CA 90703	1,600	NA	80,000	NA	0	$80,000
Parks	Liberty Park Community Center	19211 Studebaker Rd. Cerritos, CA 90703	11,500	NA	5,195,500	NA	142,000	5,337,500
Parks	Westgate Park Park Building	18830 South San Gabriel Cerritos, CA 90703	880	NA	363,500	NA	0	$363,500
Parks	Westgate Park Pavilion	18830 South San Gabriel Cerritos, CA 90703	314	NA	13,300	NA	0	$13,300
Parks	Friendship Park Pavilion	13650 Acoro St. Cerritos, CA 90703	482	NA	212,800	NA	0	$212,800
Parks	Joe. A. Gonzalves Park	13611 East 166th St. Cerritos, CA 90703	855	NA	310,400	NA	0	$310,400

Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
Parks	Ecology Park	17133 Gridley Rd. Cerritos, CA 90703	0	NA	33,800	NA	0	$33,800
Parks	Estella Utility Clearance	16400 Studebaker Rd. Cerritos, CA 90703	0	NA	40,200	NA	0	$40,200
Parks	Gridley Park	Gridley Road & Yearling Cerritos, CA 90703	0	NA	358,644	NA	0	$358,644
Parks	Jim Edwards Park	Jacob Avenue & Yearling Cerritos, CA 90703	0	NA	307,700	NA	0	$307,700
Parks	Rainbow Park	18600 Linda Cir. Cerritos, CA 90703	0	NA	46,100	NA	0	$46,100
Parks	Reservoir Hill Park	16733 Studebaker Rd. Cerritos, CA 90703	0	NA	126,800	NA	0	$126,800
Parks	Saddleback Park	13037 Acoro St. Cerritos, CA 90703	0	NA	117,400	NA	0	$117,400
Parks	Satellite Park Pavilion	12410 Ash Creek Rd. Cerritos, CA 90703	482	NA	67,300	NA	0	$67,300
Parks	Sunshine Park	19310 Vickie Ave. Cerritos, CA 90703	233	NA	96,300	NA	0	$96,300
Parks	Rosewood Park Pavilion 1	17715 Eric St. Cerritos. CA 90703	480	NA	128,000	NA	0	$128,000
Parks	Rosewood Park Pavilion 2	17715 Eric St. Cerritos. CA 90703	253	NA	11,400	NA	0	$11,400
Parks	Bettencourt Park	13575 E. Andy St. Cerritos, CA 90703	0	NA	169,100	NA	700,000	$869,100

Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
Parks	El Rancho Verde Park	7815 Denni St. Cerritos, CA 90703	0	NA	121,100	NA	0	$121,100
Parks	Loma Park	17503 Stark St. Cerritos, CA 90703	0	NA	131,200	NA	0	$131,200
Parks	Brookhaven Park	13167 Brookhaven St. Cerritos, CA 90703	0	NA	66,100	NA	0	$66,100
Water	Water Well C-1	12701 Artesia Blvd. Cerritos, CA 90703	1,700	NA	1,370,000	NA	3,000,000	$4,370,000
Water	Water Well C-2 and Booster	16540 Marquardt Ave. Cerritos, CA 90703	1,611	NA	1,000,000	NA	8,717,000	$9,717,000
Water	Water Well C-4 and Booster	16807 Studebaker Rd Cerritos, CA 90703	2,025	NA	1,500,000	NA	6,000,000	$7,500,000
Water	Water Well C-5	20101 Cabrillo Ln. Cerritos, CA 90703	0	NA	1,049,577	NA	0	$1,049,577
Water	Reclaimed Water Booster	16515 Piuma Cerritos, CA 90703	0	NA	2,925,000	NA	3,000,000	$5,925,000
Water	C-46B MWD COM	10810 South St. Cerritos, CA 90703 (Castle & South St.)	0	NA	136,293	NA	56,682	$192,975
Water	La Palma Interconnect	Valley View Ave. & 183rd St. Cerritos, CA 90703	0	NA	9,507	NA	0	$9,507
Water	Santa Fe Interconnect	13501 Alondra Blvd. Cerritos, CA 90703	0	NA	27,538	NA	0	$27,538

Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
Water	Kings Row/South Vault	Kings Row Ave. & South St. Cerritos, CA 90703	18	NA	45,500	NA	491	$45,991
Water	Studebaker/South Vault	Studebaker Rd. & South St. Cerritos, CA 90703	0	NA	81,181	NA	0	$81,181
Water	Canehill/South Vault	6200 South St. Lakewood, CA 90713 (Canehill Ave. & South St.)	0	NA	47,699	NA	$543	$48,242
Water	South St. Blow-off	San Gabriel River & South St. Cerritos, CA 90703	0	NA	47,699	NA	$543	$48,242
City Property	Grayland Sewer Lift Station	12015 Artesia Blvd. Cerritos, CA 90703	16	NA	35,500	NA	0	$35,500
City Property	Civic Center Parking Structure (Groundwater Lift Station)	18125 Bloomfield Ave. Cerritos, CA 90703	0	NA	150,000	NA	0	$150,000
City Property	Civic Center Parking Structure (Stationary Generator)	18125 Bloomfield Ave. Cerritos, CA 90703	0	NA	150,000	NA	0	$150,000
City Property	City Hall (Stormwater Lift Station)	18125 Bloomfield Ave. Cerritos, CA 90703	0	NA	150,000	NA	0	$150,000

Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
City Property	Bettencourt Sewer Lift Station	16924 Marquardt Ave. Cerritos, CA 90703	49	NA	147,000	NA	0	$147,000
City Property	Parkvalle Sewer Lift Station	Near 13700 183rd Street Cerritos, CA 90703 (Parkvalle Ave. & 183rd St.)	90	NA	159,000	NA	0	$159,000
City Property	183rd Street & Marquardt Avenue Lift Station	16924 Marquardt Ave. Cerritos, CA 90703	0	NA	100,972	NA	27,350	$128,322
City Property	Shoemaker Sewer Lift Station	Near 16714 Shoemaker Rd. Cerritos, CA 90703	90	NA	129,500	NA	0	$129,500
City Property	Carmenita Sewer Lift Station	Carmenita Road and Houston Avenue	90	NA	189,500	NA	0	$189,500
City Property	Lakewood Cerritos Interconnection	West end of Andy Street on Palo Verde	0	NA	25,000	NA	25,000	$50,000
City Property	Emerald Villas Senior Housing Interconnection	Westside of Carmenita Rd. (Moody St.) north of Houston Ave.	0	NA	25,000	NA	25,000	$50,000
City Property	Interconnection with Golden State Water Company	Northeast corner of 195th Street and Pioneer Blvd.	0	NA	25,000	NA	25,000	$50,000
City Property	Interconnection with Golden State Water Company	Southeast corner of 195th Street and Pioneer Blvd.	0	NA	25,000	NA	25,000	$50,000

Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
City Property	Interconnection with Golden State Water Company	Gridley Rd. and 186th Street	0	NA	25,000	NA	25,000	$50,000
City Property	Interconnection with Golden State Water Company	South St. on easterly property line of Lincoln Station	0	NA	25,000	NA	25,000	$50,000
City Property	Interconnection with City of Norwalk (Main Line TU 10")	Northeast corner of Blackburn Ave. and Alondra Blvd.	0	NA	25,000	NA	25,000	$50,000
City Property	Interconnection with City of Norwalk (4" T Bypass)	Northeast corner of Blackburn Ave. and Alondra Blvd.	0	NA	25,000	NA	25,000	$50,000
City Property	Interconnection with City of Norwalk (6" line with Hersey meter)	Northeast corner of Blackburn Ave. and Alondra Blvd.	0	NA	25,000	NA	25,000	$50,000
City Property	Interconnection with City of Norwalk (4")	Northeast corner of Wilder Ave. and Alondra Blvd.)	0	NA	25,000	NA	25,000	$50,000
City Property	Interconnection with City of Norwalk (8" Turbine)	Northeast corner of Wilder Ave. and Alondra Blvd.)	0	NA	25,000	NA	25,000	$50,000
City Property	Interconnection with City of Norwalk (4" T Bypass)	Northwest corner of Wilder Ave. and Alondra Blvd.)	0	NA	25,000	NA	25,000	$50,000

Type	Name	Address	Square Footage	Cost / Square Foot	Structure Value	Contents Value %	Contents Value	TOTAL
City Property	Interconnection with City of Norwalk (6")	166th St. and Flallon Ave.	0	NA	25,000	NA	25,000	$50,000
City Property	Interconnection with City of Norwalk (4" Micrometer)	166th St. and Flallon Ave.	0	NA	25,000	NA	25,000	$50,000
City Property	Interconnection with City of Norwalk (8")	South of 18200 Ely Avenue	0	NA	25,000	NA	25,000	$50,000
City Property	State Farm Property & Storage	19033 Studebaker Rd. Cerritos, CA 90703	11,682	NA	3,440,282	NA	0	$3,440,282
City Property	City-Owned Office Building	12616 E. 183rd St. Cerritos, CA 90703	33,378	NA	6,208,500	NA	0	$6,208,500
City Property	Office - Warehouse	12880 Moore St. Cerritos, CA 90703	35,571	NA	6,773,000	NA	0	$6,773,000
City Property	Auto Dealership	18201 Studebaker Rd. Cerritos, CA 90703	0	NA	8,614,000	NA	0	$8,614,000
							Subtotal	**398,038,786**
Note: All Projected values were listed from FEMA's "Multi-hazard Loss Estimation Methodology, Earthquake Model, HAZUS MR5"								
Note: Stated values extracted from the CJPIA Property Schedule Prepared by Alliant Insurance Services, Inc.								

Table 3.21 Loss of Function

Loss of Function / Continuity Premium (1 day) - City of Cerritos				
Population: 50,0143				
Category	**Value Per Person**	**Value Per Day**	**Continuity Premium**	**Total**
Fire Service	-	$21,204	10	$212,040
Police Service	-	$36,589	10	$365,890
Water Service	$103	$5,164,729	-	$5,164,729
Electricity	$188	$9,426,884	-	$9,426,884
Wastewater	$34	$1,704,862	-	$1,704,862
			Subtotal	**$16,874,405**
Note: Values were listed from FEMA's "BCA Reference Guide, June 2009" except Fire Service				
Note: Fire Service values were provided by the LA County Fire Department				

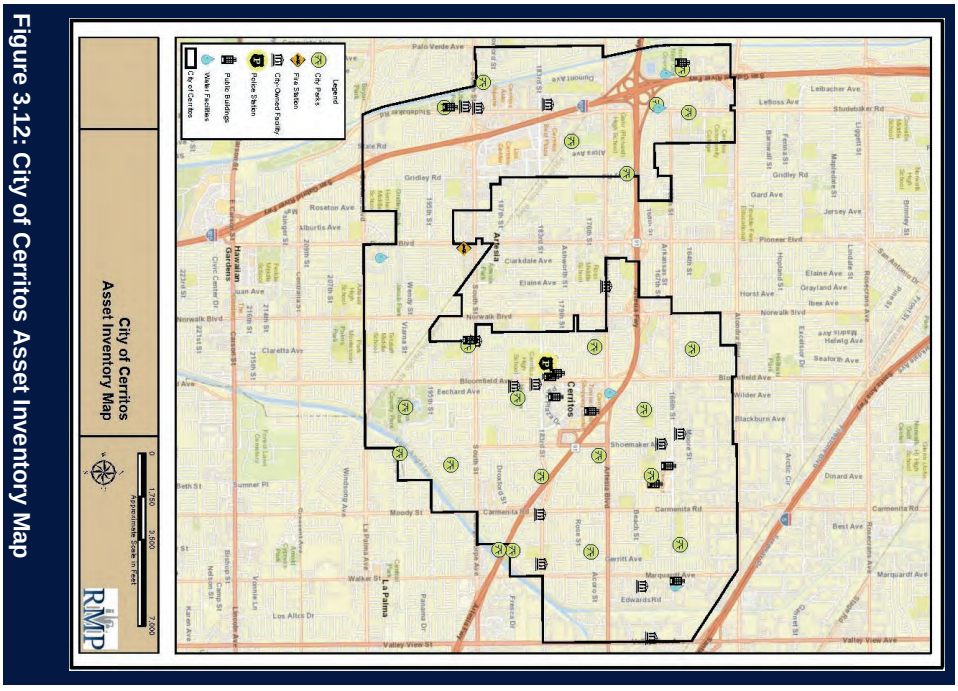


Figure 3.12: City of Cerritos Asset Inventory Map

3.14 Loss Estimates

44 CFR 201.6(c)(2)(ii)(B): [The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate.

Loss Assessment Calculations

The Steering Committee reviewed each asset category and assigned a potential percentage of damage expected due to each identified hazard. In addition, if there were identified lifeline or emergency service interruptions the loss of function value was also included. The tables of the following pages identify each asset category, name, total value, and the percent damage/damage value for each asset. The damages for each asset are totaled for each hazard to obtain the overall loss estimate for each hazard.

Table 3.22 Los Estimates/ Vulnerability Assessment – Earthquake through Flood/ Dam Failure

City of Cerritos Vulnerability Assessment Calculations			Earthquake		Urban Fire		Transportation Accident/Incident		Flood/ Dam Failure	
Type	Name	Total Value	% Damage	Loss Estimate	%	Loss Estimate	%	Loss Estimate	% Damage	Loss Estimate
Public Buildings	Cerritos Center for the Performing Arts	1800 Park Plaza Dr. Cerritos, CA 90703	$153,652,399	35%	$53,778,340	15%	$23,047,860	5%	$7,682,620	20%	$30,730,480
Public Buildings	Library	18025 Bloomfield Ave. Cerritos, CA 90703	$75,826,500	25%	$18,956,625	25%	$18,956,625	5%	$3,791,325	10%	$7,582,650
City Property	Library Fine Arts	18025 Bloomfield Ave. Cerritos, CA 90703	$14,416,606	25%	$3,541,52	25%	$3541,52	5%	$70,830	10%	$141,661
Public Buildings	Sculpture Garden	18125 Bloomfield Ave. Cerritos, CA 90703	$3,905,986	80%	$3,124,789	25%	$976,497	5%	$195,299	10%	$390,599
Public Buildings	Cerritos Park East (CPE) Community Center	13234 E 166th St. Cerritos, CA 90703	$5,550,000	20%	$1,110,000	20%	$1,110,000	5%	$277,500	10%	$555,000
Public Buildings	Cerritos Park East (CPE) Pavilion 1	13234 E 166th St. Cerritos, CA 90703	$2,453,400	20%	$490,680	20%	$490,680	5%	$122,670	10%	$245,340
Public Buildings	Cerritos Park East (CPE) Pavilion 2	13234 E 166th St. Cerritos, CA 90703	$24,000	20%	$4,800	20%	$4,800	5%	$1,200	10%	$2,400
Public Buildings	Cerritos Park East (CPE) Restroom Building	13234 E 166th St. Cerritos, CA 90703	$115,000	25%	$28,750	20%	$23,000	5%	$5,750	10%	$11,500
Public Buildings	Cerritos Park East (CPE) Restroom - Concession Building	13234 E 166th St. Cerritos, CA 90703	$284,500	25%	$71,125	20%	$56,900	5%	$14,225	10%	$28,450
Public Buildings	City Hall	18125 Bloomfield Ave. Cerritos, CA 90703	$19,503,700	30%	$5,851,110	25%	$4,875,925	5%	$975,185	15%	$2,925,555
Public Buildings	Corporate Yard	16540 Marquardt Ave. Cerritos, CA 90703	$4,688,900	40%	$1,875,560	40%	$1,875,560	10%	$468,890	10%	$468,890
Public Buildings	Corporate Yard Vehicle Storage	16540 Marquardt Ave. Cerritos, CA 90703	$1,524,000	20%	$304,800	40%	$609,600	10%	$152,400	10%	$152,400
Public Buildings	Corporate Yard Fuel Shelter - Wash Bay	16540 Marquardt Ave. Cerritos, CA 90703	$151,000	20%	$30,200	40%	$60,400	10%	$15,100	10%	$15,100

City of Cerritos Vulnerability Assessment Calculations				Earthquake		Urban Fire		Transportation Accident/Incident		Flood/ Dam Failure	
Type	Name		Total Value	% Damage	Loss Estimate	%	Loss Estimate	%	Loss Estimate	% Damage	Loss Estimate
Fire Building	Fire Station	19030 Pioneer Blvd. Cerritos, CA 90703	$3,271,100	15%	$490,665	10%	$327,110	10%	$327,110	5%	$163,555
Public Buildings	Swim Center	13150 E 166th St. Cerritos, CA 90703	$8,513,100	25%	$2,128,275	20%	$1,702,620	10%	$851,310	10%	$851,310
Public Buildings	Senior Center at Pat Nixon Park	12340 South St. Cerritos, CA 90701	$8,635,500	25%	$2,158,875	15%	$1,295,325	5%	$431,775	15%	$1,295,325
Public Buildings	Pat Nixon Park Shelter	12340 South St. Cerritos, CA 90701	$54,700	25%	$13,675	15%	$8,205	5%	$2,735	15%	$8,205
Public Buildings	Sports Complex	12340 South St. Cerritos, CA 90701	$6,340,259	20%	$1,268,052	15%	$951,039	5%	$317,013	15%	$951,039
Police Building	Sheriff's Substation	18135 Bloomfield Ave. Cerritos, CA 90703	$5,602,100	15%	$840,315	15%	$840,315	5%	$280,105	20%	$1,120,420
Public Buildings	Civic Center Parking Structure	18027 Bloomfield Ave. Cerritos, CA 90703	$17,339,516	20%	$3,467,903	5%	$866,976	5%	$866,976	15%	$2,600,927
Parks	Frontier Park Building	16910 Maria Ave. Cerritos CA 90703	$283,943	15%	$42,591	15%	$42,591	5%	$14,197	10%	$28,394
Parks	Heritage Park Old State House	18600 Bloomfield Ave. Cerritos, CA 90703	$1,908,900	15%	$286,335	15%	$286,335	10%	$190,890	10%	$190,890
Parks	Heritage Park Pavilion 1	18600 Bloomfield Ave. Cerritos, CA 90703	$33,000	15%	$4,950	15%	$4,950	5%	$1,650	10%	$3,300
Parks	Heritage Park Pavilion 2	18600 Bloomfield Ave. Cerritos, CA 90703	$18,000	15%	$2,700	15%	$2,700	5%	$900	10%	$1,800
Parks	Heritage Park Pavilion 3	18600 Bloomfield Ave. Cerritos, CA 90703	$18,000	15%	$2,700	15%	$2,700	5%	$900	10%	$1,800
Parks	Heritage Park Restroom - Storage Building	18600 Bloomfield Ave. Cerritos, CA 90703	$495,500	15%	$74,325	15%	$74,325	5%	$24,775	10%	$49,550
Parks	Heritage Park Child Care and Office Building	18600 Bloomfield Ave. Cerritos, CA 90703	$1,370,000	20%	$274,000	15%	$205,500	5%	$68,500	10%	$137,000
Parks	Heritage Park Heritage Center Play Hall	18600 Bloomfield Ave. Cerritos, CA 90703	$83,000	15%	$12,450	15%	$12,450	5%	$4,150	10%	$8,300
Parks	Heritage Park Henry Pelham Art Play House	18600 Bloomfield Ave. Cerritos, CA 90703	$73,000	15%	$10,950	15%	$10,950	5%	$3,650	10%	$7,300

City of Cerritos Vulnerability Assessment Calculations				Earthquake		Urban Fire		Transportation Accident/Incident		Flood/ Dam Failure	
Type	Name		Total Value	% Damage	Loss Estimate	%	Loss Estimate	%	Loss Estimate	% Damage	Loss Estimate
Parks	Heritage Park William Penn Play House	18600 Bloomfield Ave. Cerritos, CA 90703	$60,000	15%	$9,000	15%	$9,000	5%	$3,000	10%	$6,000
Parks	Heritage Park Charlestown Covered Bridge	18600 Bloomfield Ave. Cerritos, CA 90703	$62,000	35%	$21,700	15%	$9,300	5%	$3,100	10%	$6,200
Parks	Heritage Park Medford Covered Bridge	18600 Bloomfield Ave. Cerritos, CA 90703	$49,500	15%	$7,425	15%	$7,425	5%	$2,475	10%	$4,950
City Property	Heritage Park Single Family home for recreation purposes	18616 Bloomfield Ave. Cerritos, CA 90703	$1,173,162	15%	$175,974	15%	$175,974	5%	$58,658	10%	$117,316
Public Buildings	Golf Course Clubhouse	16401 Piuma Ave. Cerritos, CA 90703	$569,200	15%	$85,380	15%	$85,380	5%	$28,460	10%	$56,920
Public Buildings	Golf Course Maintenance Shed	16401 Piuma Ave. Cerritos, CA 90703	$95,000	15%	$14,250	15%	$14,250	5%	$4,750	10%	$9,500
Public Buildings	Liberty Park Racquetball Building	19211 Studebaker Rd. Cerritos, CA 90703	$1,288,000	15%	$193,200	15%	$193,200	10%	$128,800	15%	$193,200
Parks	Liberty Park Grand Pavilion	19211 Studebaker Rd. Cerritos, CA 90703	$285,000	15%	$42,750	15%	$42,750	10%	$28,500	15%	$42,750
Parks	Liberty Park Restroom Building 1	19211 Studebaker Rd. Cerritos, CA 90703	$267,000	15%	$40,050	15%	$40,050	10%	$26,700	15%	$40,050
Parks	Liberty Park Restroom Building 2	19211 Studebaker Rd. Cerritos, CA 90703	$135,500	15%	$20,325	15%	$20,325	10%	$13,550	15%	$20,325
Parks	Liberty Park Storage Building 1	19211 Studebaker Rd. Cerritos, CA 90703	$36,000	15%	$5,400	15%	$5,400	10%	$3,600	10%	$3,600
Parks	Liberty Park Storage Building 2	19211 Studebaker Rd. Cerritos, CA 90703	$16,200	15%	$2,430	15%	$2,430	10%	$1,620	15%	$2,430
Parks	Liberty Park Pavilion 2 19211 Studebaker	19211 Studebaker Rd. Cerritos, CA 90703	$80,000	15%	$12,000	15%	$12,000	10%	$8,000	15%	$12,000
Parks	Liberty Park Community Center	19211 Studebaker Rd. Cerritos, CA 90703	$5,337,500	15%	$800,625	15%	$800,625	10%	$533,750	15%	$800,625
Parks	Westgate Park Park Building	18830 South San Gabriel Cerritos, CA 90703	$363,500	50%	$181,750	15%	$54,525	10%	$36,350	15%	$54,525

City of Cerritos Vulnerability Assessment Calculations				Earthquake		Urban Fire		Transportation Accident/Incident		Flood/ Dam Failure	
Type	Name		Total Value	% Damage	Loss Estimate	%	Loss Estimate	%	Loss Estimate	% Damage	Loss Estimate
Parks	Westgate Park Pavilion	18830 South San Gabriel Cerritos, CA 90703	$13,300	50%	$6,650	15%	$1,995	5%	$665	15%	$1,995
Parks	Friendship Park Pavilion	13650 Acoro St. Cerritos, CA 90703	$212,800	50%	$106,400	15%	$31,920	5%	$10,640	10%	$21,280
Parks	Joe. A. Gonzalves Park	13611 East 166th St. Cerritos, CA 90703	$310,400	50%	$155,200	15%	$46,560	5%	$15,520	10%	$31,040
Parks	Ecology Park	17133 Gridley Rd. Cerritos, CA 90703	$33,800	35%	$11,830	15%	$5,070	5%	$1,690	10%	$3,380
Parks	Estella Utility Clearance	16400 Studebaker Rd. Cerritos, CA 90703	$40,200	20%	$8,040	15%	$6,030	5%	$2,010	10%	$4,020
Parks	Gridley Park	Gridley Road & Yearling Cerritos, CA 90703	$358,644	20%	$71,729	15%	$53,797	5%	$17,932	10%	$35,864
Parks	Jim Edwards Park	Jacob Avenue & Yearling Cerritos, CA 90703	$307,700	20%	$61,540	15%	$46,155	5%	$15,385	10%	$30,770
Parks	Rainbow Park	18600 Linda Cir. Cerritos, CA 90703	$46,100	20%	$9,220	15%	$6,915	5%	$2,305	10%	$4,610
Parks	Reservoir Hill Park	16733 Studebaker Rd. Cerritos, CA 90703	$126,800	20%	$25,360	15%	$19,020	5%	$6,340	10%	$12,680
Parks	Saddleback Park	13037 Acoro St. Cerritos, CA 90703	$117,400	20%	$23,480	15%	$17,610	5%	$5,870	10%	$11,740
Parks	Satellite Park Pavilion	12410 Ash Creek Rd. Cerritos, CA 90703	$67,300	20%	$13,460	15%	$10,095	5%	$3,365	10%	$6,730
Parks	Sunshine Park	19310 Vickie Ave. Cerritos, CA 90703	$96,300	20%	$19,260	15%	$14,445	5%	$4,815	10%	$9,630
Parks	Rosewood Park Pavilion 1	17715 Eric St. Cerritos. CA 90703	$128,000	35%	$44,800	15%	$19,200	5%	$6,400	10%	$12,800
Parks	Rosewood Park Pavilion 2	17715 Eric St. Cerritos. CA 90703	$11,400	35%	$3,990	15%	$1,710	5%	$570	10%	$1,140
Parks	Bettencourt Park	13575 E. Andy St. Cerritos, CA 90703	$869,100	35%	$304,185	15%	$130,365	5%	$43,455	10%	$86,910

City of Cerritos Vulnerability Assessment Calculations				Earthquake		Urban Fire		Transportation Accident/Incident		Flood/ Dam Failure	
Type	Name		Total Value	% Damage	Loss Estimate	%	Loss Estimate	%	Loss Estimate	% Damage	Loss Estimate
Parks	El Rancho Verde Park	7815 Denni St. Cerritos, CA 90703	$121,000	35%	$42,350	15%	$18,150	5%	$6,050	10%	$12,100
Parks	Loma Park	17503 Stark St. Cerritos, CA 90703	$131,200	35%	$45,920	15%	$19,680	5%	$6,560	10%	$13,120
Parks	Brookhaven Park	13167 Brookhaven St. Cerritos, CA 90703	$66,100	35%	$23,135	15%	$9,915	5%	$3,305	10%	$6,610
Water	Water Well C-1	12701 Artesia Blvd. Cerritos, CA 90703	$4,370,000	20%	$874,000	40%	$1,748,000	5%	$218,500	15%	$655,500
Water	Water Well C-2	16540 Marquardt Ave. Cerritos, CA 90703	$9,717,000	20%	$1,943,400	40%	$3,886,800	5%	$485,850	15%	$1,457,550
Water	Water Well C-4	16807 Studebaker Rd Cerritos, CA 90703	$7,500,000	20%	$1,500,000	40%	$3,000,000	5%	$375,000	15%	$1,125,000
Water	Water Well C-5	20101 Cabrillo Ln. Cerritos, CA 90703	$1,049,577	20%	$209,915	40%	$419,831	5%	$52,479	15%	$157,437
Water	Reclaimed Water Pump	16515 Piuma Cerritos, CA 90703	$5,925,000	20%	$1,185,000	40%	$2,370,000	5%	$296,250	15%	$888,750
Water	C-46B MWD COM	Castle & South St. Cerritos, CA 90703	$192,975	15%	$28,946	10%	$19,298	5%	$9,649	15%	$28,946
Water	La Palma Interconnect	Valley View Ave. & 183rd St. Cerritos, CA 90703	$9,507	15%	$1,426	10%	$951	5%	$475	15%	$1,426
Water	Santa Fe Interconnect	13501 Alondra Blvd. Cerritos, CA 90703	$27,538	15%	$4,131	10%	$2,754	5%	$1,377	15%	$4,131
Water	Kings Row/South Vault	Kings Row Ave. & South St. Cerritos, CA 90703	$45,991	15%	$6,899	10%	$4,599	5%	$2,300	15%	$6,899
Water	Studebaker/South Vault	Studebaker Rd. & South St. Cerritos, CA 90703	$81,181	15%	$12,177	10%	$8,118	5%	$4,059	15%	$12,177
Water	Canehill/South Vault	Canehill Ave. & South St. Cerritos, CA 90703	$48,242	15%	$7,236	10%	$4,824	5%	$2,412	15%	$7,236
Water	South St. Blow-off	San Gabriel River & South St. Cerritos, CA 90703	$48,242	15%	$7,236	10%	$4,824	5%	$2,412	15%	$7,236
City Property	Grayland Vault	12015 Artesia Blvd. Cerritos, CA 90703	$35,500	15%	$5,325	10%	$3,550	5%	$1,775	15%	$5,325

City of Cerritos Vulnerability Assessment Calculations				Earthquake		Urban Fire		Transportation Accident/Incident		Flood/ Dam Failure	
Type	Name		Total Value	% Damage	Loss Estimate	%	Loss Estimate	%	Loss Estimate	% Damage	Loss Estimate
City Property	Civic Center Parking Structure (Groundwater Lift Station)	18125 Bloomfield Ave. Cerritos, CA 90703	$150,000	20%	$30,000	15%	$22,500	5%	$7,500	15%	$22,500
City Property	Civic Center Parking Structure (Stationary Generator)	18125 Bloomfield Ave. Cerritos, CA 90703	$150,000	20%	$30,000	15%	$22,500	5%	$7,500	15%	$22,500
City Property	City Hall (Stormwater Lift Station)	18125 Bloomfield Ave. Cerritos, CA 90703	$150,000	20%	$30,000	15%	$22,500	5%	$7,500	15%	$22,500
City Property	Bettencourt Sewer Lift Station	16924 Marquardt Ave. Cerritos, CA 90703	$147,000	20%	$29,400	15%	$22,050	5%	$7,350	15%	$22,050
City Property	Parkvalle Sewer Lift Station	Near 13700 183rd Street Cerrito, Ca 90703	$159,000	20%	$31,800	15%	$23,850	5%	$7,950	15%	$23,850
City Property	183rd & Marquardt Lift Station	16924 Marquardt Ave. Cerritos, CA 90703	$128,322	20%	$25,664	15%	$19,248	5%	$6,416	15%	$19,248
City Property	Shoemaker Sewer Lift Station	Near 16714 Shoemaker Rd. Cerritos, CA 90703	$129,500	20%	$25,900	15%	$19,425	5%	$6,475	15%	$19,425
City Property	Carmenita Sewer Lift Station	Carmenita Road and Houston Avenue	$189,500	20%	$37,900	15%	$28,425	5%	$9,475	15%	$28,425
City Property	Lakewood Cerritos Interconnection	West end of Andy Street on Palo Verde	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Emerald Villas Senior Housing Interconnection	Westside of Carmenita Rd. (Moody St.) north of Houston Ave.	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with Golden State Water Company	Northeast corner of 195th Street and Pioneer Blvd.	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with Golden State Water Company	Southeast corner of 195th Street and Pioneer Blvd.	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with Golden State Water Company	Gridley Rd. and 186th Street	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500

City of Cerritos Vulnerability Assessment Calculations				Earthquake		Urban Fire		Transportation Accident/Incident		Flood/ Dam Failure	
Type	Name		Total Value	% Damage	Loss Estimate	%	Loss Estimate	%	Loss Estimate	% Damage	Loss Estimate
City Property	Interconnection with Golden State Water Company	South St. on easterly property line of Lincoln Station	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with City of Norwalk (Main Line TU 10")	Northeast corner of Blackburn Ave. and Alondra Blvd.	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with City of Norwalk (4" T Bypass)	Northeast corner of Blackburn Ave. and Alondra Blvd.	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with City of Norwalk (6" line with Hersey meter)	Northeast corner of Blackburn Ave. and Alondra Blvd.	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with City of Norwalk (4")	Northeast corner of Wilder Ave. and Alondra Blvd.)	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with City of Norwalk (8" Turbine)	Northeast corner of Wilder Ave. and Alondra Blvd.)	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with City of Norwalk (4" T Bypass)	Northwest corner of Wilder Ave. and Alondra Blvd.)	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with City of Norwalk (6" line with Hershey meter)	166th St. and Flallon Ave.	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with City of Norwalk (4" McCrometer)	166th St. and Flallon Ave.	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	Interconnection with City of Norwalk (8")	South of 18200 Ely Avenue	$50,000	20%	$10,000	10%	$5,000	5%	$2,500	15%	$7,500
City Property	State Farm Property & Storage	19033 Studebaker Rd. Cerritos, CA 90703	$3,440,282	15%	$516,042	15%	$516,042	5%	$172,014	15%	$516,042
City Property	City-owned Building	12616 E. 183rd St. Cerritos, CA 90703	$6,208,500	15%	$931,275	15%	$931,275	5%	$310,425	10%	$620,850
City Property	Office/Warehouse	12880 Moore St. Cerritos, CA 90703	$6,773,000	15%	$1,015,950	15%	$1,015,950	5%	$338,650	10%	$677,300
City Property	Auto Dealership	18201 Studebaker Rd. Cerritos, CA 90703	$8,614,000	15%	$1,292,100	15%	$1,292,100	5%	$430,700	10%	$861,400

City of Cerritos Vulnerability Assessment Calculations			Earthquake		Urban Fire		Transportation Accident/Incident		Flood/ Dam Failure	
Type	Name	Total Value	% Damage	Loss Estimate	%	Loss Estimate	%	Loss Estimate	% Damage	Loss Estimate
	Fire Service	$212,040	40%	$84,816	25%	$53,010	10%	$21,204	10%	$21,204
	Police Service	$365,890	40%	$146,356	25%	$91,473	10%	$36,589	10%	$36,589
	Water Service	$5,164,729	35%	$1,807,655	25%	$1,291,182	10%	$516,473	10%	$516,473
	Electricity	$9,426,884	20%	$1,885,377	10%	$942,688	10%	$942,688	20%	$1,885,377
	Wastewater	$1,704,862	35%	$596,702	10%	$170,486	10%	$170,486	15%	$255,729
			Earthquake	$114,101,129	Urban Fire	$79,040,608	Transportation Accident/Incident	$,25422,683	Flood/ Dam Failure	$62,387,526

Table 3.23 Loss Estimates / Vulnerability Assessment – Pipeline Failure/ Hazardous Material Release through Windstorm

City of Cerritos Vulnerability Assessment Calculations				Pipeline Failure/ Hazardous Material Release		Drought		Adversarial Events		Windstorm		Disease Outbreak	
Type	Name		TOTAL	% Damage	Loss Estimate	% Damage	Loss Estimate	% Damage	Loss Estimate	% Damage	Loss Estimate	% Damage	Loss Estimate
Public Buildings	Cerritos Center for the Performing Arts	1800 Park Plaza Dr. Cerritos, CA 907030	$153,652,399	5%	$7,682,620	2%	$3,073,048	10%	$15,365,240	2%	$3,073,048	3%	$1,613,350
Public Buildings	Library	18025 Bloomfield Ave. Cerritos, CA 90703	$75,826,500	5%	$3,791,325	2%	$1,516,530	10%	$7,582,650	2%	$1,516,530	3%	$568,699
City Property	Library Fine Arts	18025 Bloomfield Ave. Cerritos, CA 90703	$1,416,606	5%	$70,830	2%	$28,332	10%	$141,661	2%	$28,332	3%	$10,625
Public Buildings	Sculpture Garden	18125 Bloomfield Ave. Cerritos, CA 90703	$3,905,986	5%	$195,299	2%	$78,120	5%	$195,299	2%	$78,120	1%	$31,248
Public Buildings	Cerritos Park East (CPE) Community Center	13234 E 166th St. Cerritos, CA 90703	$5,550,000	5%	$277,500	2%	$111,000	5%	$277,500	2%	$111,000	1%	$11,100
Public Buildings	Cerritos Park East (CPE) Pavilion 1	13234 E 166th St. Cerritos, CA 90703	$2,453,400	5%	$122,670	2%	$49,068	5%	$122,670	2%	$49,068	1%	$4,907
Public Buildings	Cerritos Park East (CPE) Pavilion 2	13234 E 166th St. Cerritos, CA 90703	$24,000	5%	$1,200	2%	$480	5%	$1,200	2%	$480	1%	$48
Public Buildings	Cerritos Park East (CPE) Restroom Building	13234 E 166th St. Cerritos, CA 90703	$115,000	5%	$5,750	2%	$2,300	5%	$5,750	2%	$2,300	1%	$288
Public Buildings	Cerritos Park East (CPE) Restroom - Concession Building	13238 E 166th St. Cerritos, CA 90703	$284,500	5%	$14,225	2%	$5,690	5%	$14,225	2%	$5,690	1%	$711
Public Buildings	City Hall	18125 Bloomfield Ave. Cerritos, CA 90703	$19,503,700	5%	$975,185	2%	$390,074	25%	$4,875,925	2%	$390,074	5%	$292,556
Public Buildings	Corporate Yard	16540 Marquardt Ave. Cerritos, CA 90703	$4,688,900	20%	$937,780	2%	$93,778	5%	$234,445	2%	$93,778	1%	$18,756

City of Cerritos Vulnerability Assessment Calculations				Pipeline Failure/ Hazardous Material Release		Drought		Adversarial Events		Windstorm		Disease Outbreak	
Type	**Name**		**TOTAL**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**
Public Buildings	Corporate Yard Vehicle Storage	16540 Marquardt Ave. Cerritos, CA 90703	$1,524,000	20%	$304,800	2%	$30,480	5%	$76,200	2%	$30,480	1%	$3,048
Public Buildings	Corporate Yard Fuel Shelter - Wash Bay	16540 Marquardt Ave. Cerritos, CA 90703	$151,000	20%	$30,200	2%	$3,020	5%	$7,550	2%	$3,020	1%	$302
Fire Building	Fire Station	19030 Pioneer Blvd. Cerritos, CA 90703	$3,271,100	5%	$163,555	2%	$65,422	10%	$327,110	2%	$65,422	1%	$4,907
Public Buildings	Swim Center	13150 E 166th St. Cerritos, CA 90703	$8,513,100	15%	$1,276,965	2%	$170,262	10%	$851,310	2%	$170,262	1%	$21,283
Public Buildings	Senior Center at Pat Nixon Park	12340 South St. Cerritos, CA 90701	$8,635,500	5%	$431,775	2%	$172,710	10%	$863,550	2%	$172,710	1%	$21,589
Public Buildings	Pat Nixon Park Shelter	12340 South St. Cerritos, CA 90701	$54,700	5%	$2,735	2%	$1,094	10%	$5,470	2%	$1,094	5%	$684
Public Buildings	Sports Complex	12340 South St. Cerritos, CA 90701	$6,340,259	5%	$317,013	2%	$126,805	10%	$634,026	2%	$126,805	1%	$12,681
Police Building	Sheriff's Substation	18135 Bloomfield Ave. Cerritos, CA 90703	$5,602,100	10%	$560,210	2%	$112,042	10%	$560,210	2%	$112,042	1%	$8,403
Public Buildings	Civic Center Parking Structure	18027 Bloomfield Ave. Cerritos, CA 90703	$17,339,516	5%	$866,976	2%	$346,790	10%	$1,733,952	2%	$346,790	1%	$34,679
Parks	Frontier Park Building	16910 Maria Ave. Cerritos CA 90703	$283,943	5%	$14,197	2%	$5,679	5%	$14,197	2%	$5,679	1%	$426
Parks	Heritage Park Old State House	18600 Bloomfield Ave. Cerritos, CA 90703	$1,908,900	5%	$95,445	2%	$38,178	5%	$95,445	2%	$38,178	1%	$2,863
Parks	Heritage Park Pavilion 1	18600 Bloomfield Ave. Cerritos, CA 90703	$33,000	5%	$1,650	2%	$660	5%	$1,650	2%	$660	1%	$50

City of Cerritos Vulnerability Assessment Calculations				Pipeline Failure/ Hazardous Material Release		Drought		Adversarial Events		Windstorm		Disease Outbreak	
Type	**Name**		**TOTAL**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**
Parks	Heritage Park Pavilion 2	18600 Bloomfield Ave. Cerritos, CA 90703	$18,000	5%	$900	2%	$360	5%	$900	2%	$360	1%	$27
Parks	Heritage Park Pavilion 3	18600 Bloomfield Ave. Cerritos, CA 90703	$18,000	5%	$900	2%	$360	5%	$900	2%	$360	1%	$27
Parks	Heritage Park Restroom - Storage Building	18600 Bloomfield Ave. Cerritos, CA 90703	$495,500	5%	$24,775	2%	$9,910	5%	$24,775	2%	$9,910	1%	$743
Parks	Heritage Park Child Care and Office Building	18600 Bloomfield Ave. Cerritos, CA 90703	$1,370,000	5%	$68,500	2%	$27,400	5%	$68,500	2%	$27,400	1%	$2,740
Parks	Heritage Park Heritage Center Play Hall	18600 Bloomfield Ave. Cerritos, CA 90703	$83,000	5%	$4,150	2%	$1,660	5%	$4,150	2%	$1,660	1%	$125
Parks	Heritage Park Henry Pelham Art Play House	18600 Bloomfield Ave. Cerritos, CA 90703	$73,000	5%	$3,650	2%	$1,460	5%	$3,650	2%	$1,460	1%	$110
Parks	Heritage Park William Penn Play House	18600 Bloomfield Ave. Cerritos, CA 90703	$60,000	5%	$3,000	2%	$1,200	5%	$3,000	2%	$1,200	1%	$90
Parks	Heritage Park Charlestown Covered Bridge	18600 Bloomfield Ave. Cerritos, CA 90703	$62,000	5%	$3,100	2%	$1,240	5%	$3,100	2%	$1,240	1%	$217
Parks	Heritage Park Medford Covered Bridge	18600 Bloomfield Ave. Cerritos, CA 90703	$49,500	5%	$2,475	2%	$990	5%	$2,475	2%	$990	1%	$74
City Property	Heritage Park Single Family home for recreation purposes	18616 Bloomfield Ave. Cerritos, CA 90703	$1,173,162	5%	$58,658	2%	$23,463	5%	$58,658	2%	$23,463	1%	$1,760

City of Cerritos Vulnerability Assessment Calculations				Pipeline Failure/ Hazardous Material Release		Drought		Adversarial Events		Windstorm		Disease Outbreak	
Type	**Name**		**TOTAL**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**
Public Buildings	Golf Course Clubhouse	16401 Piuma Ave. Cerritos, CA 90703	$569,200	5%	$28,460	2%	$11,384	5%	$28,460	5%	$28,460	1%	$854
Public Buildings	Golf Course Maintenance Shed	16401 Piuma Ave. Cerritos, CA 90703	$95,000	5%	$4,750	2%	$1,900	5%	$4,750	5%	$4,750	1%	$143
Public Buildings	Liberty Park Racquetball Building	19211 Studebaker Rd. Cerritos, CA 90703	$1,288,000	5%	$64,400	2%	$25,760	5%	$64,400	2%	$25,760	1%	$1,932
Parks	Liberty Park Grand Pavilion	19211 Studebaker Rd. Cerritos, CA 90703	$285,000	5%	$14,250	2%	$5,700	5%	$14,250	2%	$5,700	1%	$428
Parks	Liberty Park Restroom Building 1	19211 Studebaker Rd. Cerritos, CA 90703	$267,000	5%	$13,350	2%	$5,340	5%	$13,350	2%	$5,340	1%	$401
Parks	Liberty Park Restroom Building 2	19211 Studebaker Rd. Cerritos, CA 90703	$135,500	5%	$6,775	2%	$2,710	5%	$6,775	2%	$2,710	1%	$203
Parks	Liberty Park Storage Building 1	19211 Studebaker Rd. Cerritos, CA 90703	$36,000	5%	$1,800	2%	$720	5%	$1,800	2%	$720	1%	$54
Parks	Liberty Park Storage Building 2	19211 Studebaker Rd. Cerritos, CA 90703	$16,200	5%	$810	2%	$324	5%	$810	2%	$324	1%	$24
Parks	Liberty Park Pavilion 2	19211 Studebaker Rd. Cerritos, CA 90703	$80,000	5%	$4,000	2%	$1,600	5%	$4,000	2%	$1,600	1%	$120
Parks	Liberty Park Community Center	19211 Studebaker Rd. Cerritos, CA 90703	$5,337,500	5%	$266,875	2%	$106,750	5%	$266,875	2%	$106,750	1%	$8,006
Parks	Westgate Park Park Building	18830 South San Gabriel Cerritos, CA 90703	$363,500	5%	$18,175	2%	$7,270	5%	$18,175	2%	$7,270	1%	$1,818
Parks	Westgate Park Pavilion	18830 South San Gabriel Cerritos, CA 90703	$13,300	5%	$665	2%	$266	5%	$665	2%	$266	1%	$67

City of Cerritos Vulnerability Assessment Calculations				Pipeline Failure/ Hazardous Material Release		Drought		Adversarial Events		Windstorm		Disease Outbreak	
Type	**Name**		**TOTAL**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**
Parks	Friendship Park Pavilion	13650 Acoro St. Cerritos, CA 90703	$212,800	5%	$10,640	2%	$4,256	5%	$10,640	2%	$4,256	1%	$1,064
Parks	Joe. A. Gonzalves Park	13611 East 166th St. Cerritos, CA 90703	$310,400	5%	$15,520	2%	$6,208	5%	$15,520	2%	$6,208	1%	$1,552
Parks	Ecology Park	17133 Gridley Rd. Cerritos, CA 90703	$33,800	5%	$1,690	2%	$676	5%	$1,690	2%	$676	1%	$118
Parks	Estella Utility Clearance	16400 Studebaker Rd. Cerritos, CA 90703	$40,200	5%	$2,010	2%	$804	5%	$2,010	2%	$804	1%	$80
Parks	Gridley Park	Gridley Road & Yearling Cerritos, CA 90703	$358,644	5%	$17,932	2%	$7,173	5%	$17,932	2%	$7,173	1%	$717
Parks	Jim Edwards Park	Jacob Avenue & Yearling Cerritos, CA 90703	$307,700	5%	$15,385	2%	$6,154	5%	$15,385	2%	$6,154	1%	$615
Parks	Rainbow Park	18600 Linda Cir. Cerritos, CA 90703	$46,100	5%	$2,305	2%	$922	5%	$2,305	2%	$922	1%	$92
Parks	Reservoir Hill Park	16733 Studebaker Rd. Cerritos, CA 90703	$126,800	5%	$6,340	2%	$2,536	10%	$12,680	2%	$2,536	1%	$254
Parks	Saddleback Park	13037 Acoro St. Cerritos, CA 90703	$117,400	5%	$5,870	2%	$2,348	5%	$5,870	2%	$2,348	1%	$235
Parks	Satellite Park Pavilion	12410 Ash Creek Rd. Cerritos, CA 90703	$67,300	5%	$3,365	2%	$1,346	5%	$3,365	2%	$1,346	1%	$135
Parks	Sunshine Park	19310 Vickie Ave. Cerritos, CA 90703	$96,300	5%	$4,815	2%	$1,926	5%	$4,815	2%	$1,926	1%	$193
Parks	Rosewood Park Pavilion 1	17715 Eric St. Cerritos. CA 90703	$128,000	5%	$6,400	2%	$2,560	5%	$6,400	2%	$2,560	1%	$448

City of Cerritos Vulnerability Assessment Calculations				Pipeline Failure/ Hazardous Material Release		Drought		Adversarial Events		Windstorm		Disease Outbreak	
Type	**Name**		**TOTAL**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**
Parks	Rosewood Park Pavilion 2	17715 Eric St. Cerritos. CA 90703	$11,400	5%	$570	2%	$228	5%	$570	2%	$228	1%	$40
Parks	Bettencourt Park	13575 E. Andy St. Cerritos, CA 90703	$869,100	15%	$130,365	2%	$17,382	5%	$43,455	2%	$17,382	1%	$3,042
Parks	El Rancho Verde Park	7815 Denni St. Cerritos, CA 90703	$121,000	5%	$6,050	2%	$2,420	5%	$6,050	2%	$2,420	1%	$424
Parks	Loma Park	17503 Stark St. Cerritos, CA 90703	$131,200	5%	$6,560	2%	$2,624	5%	$6,560	2%	$2,624	1%	$459
Parks	Brookhaven Park	13167 Brookhaven St. Cerritos, CA 90703	$66,100	5%	$3,305	2%	$1,322	5%	$3,305	2%	$1,322	1%	$231
Water	Water Well C-1	12701 Artesia Blvd. Cerritos, CA 90703	$4,370,000	5%	$218,500	2%	$87,400	10%	$437,000	2%	$87,400	1%	$8,740
Water	Water Well C-2	16540 Marquardt Ave. Cerritos, CA 90703	$9,717,000	5%	$485,850	2%	$194,340	10%	$971,700	2%	$194,340	1%	$19,434
Water	Water Well C-4	16807 Studebaker Rd Cerritos, CA 90703	$7,500,000	5%	$375,000	2%	$150,000	10%	$750,000	2%	$150,000	1%	$15,000
Water	Water Well C-5	20101 Cabrillo Ln. Cerritos, CA 90703	$1,049,577	5%	$52,479	2%	$20,992	10%	$104,958	2%	$20,992	1%	$2,099
Water	Reclaimed Water Pump	16515 Piuma Cerritos, CA 90703	$5,925,000	5%	$296,250	2%	$118,500	10%	$592,500	2%	$118,500	1%	$11,850
Water	C-46B MWD COM	Castle & South St. Cerritos, CA 90703	$192,975	5%	$9,649	2%	$3,860	10%	$19,298	2%	$3,860	1%	$289
Water	La Palma Interconnect	Valley View Ave. & 183rd St. Cerritos, CA 90703	$9,507	5%	$475	2%	$190	5%	$475	2%	$190	1%	$14
City Property	Santa Fe Interconnect	1350 Alondra Blvd. Cerritos, CA 90703	$27,538	5%	$1,377	2%	$551	5%	$1,377	2%	$551	1%	$41

City of Cerritos Vulnerability Assessment Calculations				Pipeline Failure/ Hazardous Material Release		Drought		Adversarial Events		Windstorm		Disease Outbreak	
Type	**Name**		**TOTAL**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**
Water	Kings Row/South Vault	Kings Row Ave. & South St. Cerritos, CA 90703	$45,991	5%	$2,300	2%	$920	5%	$2,300	2%	$920	1%	$69
Water	Studebaker/South Vault	Studebaker Rd. & South St. Cerritos, CA 90703	$81,181	5%	$4,059	2%	$1,624	5%	$4,059	2%	$1,624	1%	$122
Water	Canehill/South Vault	Canehill Ave. & South St. Cerritos, CA 90703	$48,242	5%	$2,412	2%	$965	5%	$2,412	2%	$965	1%	$72
Water	South St. Blow-off	San Gabriel River & South St. Cerritos, CA 90703	$48,242	5%	$2,412	2%	$965	5%	$2,412	2%	$965	1%	$72
City Property	Grayland Vault	12015 Artesia Blvd. Cerritos, CA 90703	$35,500	5%	$1,775	2%	$710	5%	$1,775	2%	$710	1%	$53
City Property	Civic Center Parking Structure (Groundwater Lift Station)	18125 Bloomfield Ave. Cerritos, CA 90703	$150,000	5%	$7,500	2%	$3,000	10%	$15,000	2%	$3,000	1%	$300
City Property	Civic Center Parking Structure (Stationary Generator)	18125 Bloomfield Ave. Cerritos, CA 90703	$150,000	5%	$7,500	2%	$3,000	10%	$15,000	2%	$3,000	1%	$300
City Property	City Hall (Stormwater Lift Station)	18125 Bloomfield Ave. Cerritos, CA 90703	$150,000	5%	$7,500	2%	$3,000	10%	$15,000	2%	$3,000	1%	$300
City Property	Bettencourt Sewer Lift Station	16924 Marquardt Ave. Cerritos, CA 90703	$147,000	5%	$7,350	2%	$2,940	10%	$14,700	2%	$2,940	1%	$294
City Property	Parkvalle Sewer Lift Station	Near 13700 183rd Street Cerrito, Ca 90703	$159,000	5%	$7,950	2%	$3,180	10%	$15,900	2%	$3,180	1%	$318
City Property	183rd & Marquardt Lift Station	16924 Marquardt Ave. Cerritos, CA 90703	$128,322	5%	$6,416	2%	$2,566	10%	$12,832	2%	$2,566	1%	$257

City of Cerritos Vulnerability Assessment Calculations				Pipeline Failure/ Hazardous Material Release		Drought		Adversarial Events		Windstorm		Disease Outbreak	
Type	**Name**		**TOTAL**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**
City Property	Shoemaker Sewer Lift Station	Near 16714 Shoemaker Rd. Cerritos, CA 90703	$129,500	5%	$6,475	2%	$2,590	10%	$12,950	2%	$2,590	1%	$259
City Property	Carmenita Sewer Lift Station	Carmenita Road and Houston Avenue	$189,500	5%	$9,475	2%	$3,790	10%	$18,950	2%	$3,790	1%	$379
City Property	Lakewood Cerritos Interconnection	West end of Andy Street on Palo Verde	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Emerald Villas Senior Housing Interconnection	Westside of Carmenita Rd. (Moody St.) north of Houston Ave.	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with Golden State Water Company	Northeast corner of 195th Street and Pioneer Blvd.	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with Golden State Water Company	Southeast corner of 195th Street and Pioneer Blvd.	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with Golden State Water Company	Gridley Rd. and 186th Street	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with Golden State Water Company	South St. on easterly property line of Lincoln Station	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with City of Norwalk (Main Line TU 10")	Northeast corner of Blackburn Ave. and Alondra Blvd.	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with City of Norwalk (4" T Bypass)	Northeast corner of Blackburn Ave. and Alondra Blvd.	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100

City of Cerritos Vulnerability Assessment Calculations				Pipeline Failure/ Hazardous Material Release		Drought		Adversarial Events		Windstorm		Disease Outbreak	
Type	**Name**		**TOTAL**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**	**% Damage**	**Loss Estimate**
City Property	Interconnection with City of Norwalk (6" line with Hershey meter)	Northeast corner of Blackburn Ave. and Alondra Blvd.	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with City of Norwalk (4")	Northeast corner of Wilder Ave. and Alondra Blvd.)	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with City of Norwalk (8" Turbine)	Northeast corner of Wilder Ave. and Alondra Blvd.)	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with City of Norwalk (4" T Bypass)	Northwest corner of Wilder Ave. and Alondra Blvd.)	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with City of Norwalk (6" line with Hersey meter)	166th St. and Flallon Ave.	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with City of Norwalk (4" McCrometer)	166th St. and Flallon Ave.	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	Interconnection with City of Norwalk (8")	South of 18200 Ely Avenue	$50,000	5%	$2,500	2%	$1,000	5%	$2,500	2%	$1,000	1%	$100
City Property	State Farm Property & Storage	19033 Studebaker Rd. Cerritos, CA 90703	$3,440,282	5%	$172,014	2%	$68,806	5%	$172,014	2%	$68,806	1%	$5,160
City Property	City-owned Building	12616 E. 183rd St. Cerritos, CA 90703	$6,208,500	5%	$310,425	2%	$124,170	5%	$310,425	2%	$124,170	1%	$9,313

City of Cerritos Vulnerability Assessment Calculations				Pipeline Failure/ Hazardous Material Release		Drought		Adversarial Events		Windstorm		Disease Outbreak	
Type	Name		TOTAL	% Damage	Loss Estimate	% Damage	Loss Estimate	% Damage	Loss Estimate	% Damage	Loss Estimate	% Damage	Loss Estimate
City Property	Office/Warehouse	12880 Moore St. Cerritos, CA 90703	$6,773,000	5%	$338,650	2%	$135,460	5%	$338,650	2%	$135,460	1%	$10,160
City Property	Auto Dealership	18201 Studebaker Rd. Cerritos, CA 90703	$8,614,000	5%	$430,700	2%	$172,280	5%	$430,700	2%	$172,280	1%	$12,921
Fire Service			$212,040	10%	$21,204	2%	$4,241	25%	$53,010	2%	$4,241	25%	$21,204
Police Service			$365,890	10%	$36,589	2%	$7,318	25%	$91,473	5%	$18,295	1%	$1,464
Water Service			$5,164,729	5%	$258,236	15%	$774,709	30%	$1,549,419	2%	$103,295	5%	$90,383
Electricity			$9,426,884	10%	$942,688	2%	$188,538	15%	$1,414,033	10%	$942,688	1%	$18,854
Wastewater			$1,704,862	5%	$85,243	2%	$34,097	15%	$255,729	2%	$34,097	1%	$5,967
				Pipeline Failure/ Hazardous Material Release	$23,119,400	Drought	$8,849,914	Terrorism	$42,403,754	Windstorm	$8,963,553	Disease Outbreak	$2,930,047

Table 3.24 summarizes the loss estimates for each hazard.

Table 3.24: Loss Estimates Summary

Hazard	Estimated Losses
Earthquake	$95,530,000
Urban Fire	$71,935,000
Flood/ Dam Failure	$50,784,000
Adversarial Events	$36,584,000
Pipeline Failure/ Hazardous Material Release	$20,794,000
Transportation Accident/Incident	$19,831,000
Windstorm	$7,929,000
Drought	$7,816,000
Disease Outbreak	$2,334,000

*Values are rounded to the nearest thousand

4 MITIGATION STRATEGIES

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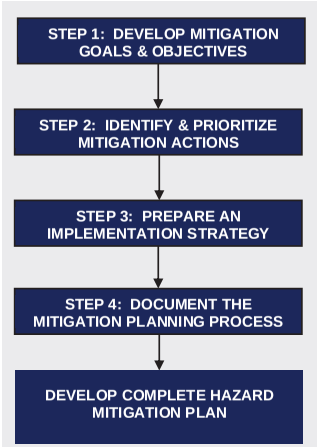
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4.1 Mitigation Goals and Objectives

To structure goals and objectives that produce appropriate mitigation actions, the hazard profiles and loss estimates were thoroughly reviewed to identify patterns in the location of potential hazard events and the vulnerability of the infrastructure identified within those locations. This information was used to develop clear goals to mitigate the effects of hazard events.



The mitigation goals provide guidelines for developing mitigation projects to provide prioritized hazard reduction. The goals are based on the goals from the 2016 Hazard Mitigation Plan, the findings of the Risk Assessment, and input from the Steering Committee and characterize long-term hazard reduction targets as well as the enhancement of current mitigation capabilities.

44CFR 201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Table 4.1 includes the Plan goals and corresponding mitigation objectives. These strategies were developed and reviewed by the Steering Committee using knowledge of the local area (including high-hazard areas and sensitive populations), review of past efforts, findings of the Risk Assessment, and identification of mitigation projects.

Table 4.1: Overall Plan Goals and Objectives

1. Protect Life, Public Health, Property, and Commerce

- *Strategy 1a:* Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from hazards.
- *Strategy 1b:* Reduce losses and repetitive damages for chronic hazard events while promoting loss prevention options for catastrophic hazards.
- *Strategy 1c:* Improve hazard assessment information to make recommendations for encouraging preventative measures for new and existing developments which are vulnerable to hazards.
- *Strategy 1d:* Promote business continuity planning for local businesses.

2. Promote Public Awareness

- *Strategy 2a:* Enhance and implement educational and outreach programs/materials to increase public awareness of the risks associated with, and preparations for, identified hazards.
- *Strategy 2b:* Provide information on tools, partnership opportunities, and funding resources to assist in implementing mitigation activities for citizens and industry.

3. Protect The Environment

- *Strategy 3a:* Balance natural resource management and land use planning with hazard mitigation to protect wildlife and the environment.
- *Strategy 3b:* Improve hazard assessment information to make recommendations for encouraging preventative measures for new and existing developments vulnerable to hazards with regard to environmental protection.

4. Develop and Expand Partnerships and Implementation

- *Strategy 4a:* Strengthen communication and encourage participation among and within public agencies, citizens, businesses, and industries to gain a vested interest in hazard mitigation.
- *Strategy 4b:* Encourage leadership within public and private sector organizations (i.e. Gateway Council of Governments & LA Gateway Water Management Authority) to prioritize and implement local and regional hazard mitigation activities.

5. Enhance Emergency Services Capabilities

- *Strategy 5a:* Establish a mechanism that outlines the procedures for the creation of mitigation projects for critical facilities, services, and infrastructure that will encourage prioritized implementation.
- *Strategy 5b:* Strengthen emergency operations by increasing collaboration and coordination among public agencies, non-profit organizations, businesses, and industries exploring modern methods for encouraging participation.
- *Strategy 5c:* Coordinate and integrate all-hazard mitigation activities, where appropriate, with emergency operations plans and procedures.

It should be noted the overall priorities for mitigation planning did not change much during the Plan update. However, the current Plan goals were revised to be clearer and more direct. Figure 4.1 provides an overview of the mitigation process.

Figure 4.1: Mitigation Process



As illustrated in the figure, the hazard mitigation process involves building off of previous steps in order to mitigate each identified hazard.

4.2 Identification of Mitigation Recommendations

44 CFR 201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

Mitigation actions are administrative and/or engineering project recommendations to reduce the City of Cerritos' (City's) vulnerability to the identified hazards. Vital City employees are required in the development of actions and projects that are designed to mitigate these hazards and solve problems cost-effectively, as well as ensure consistency with the City's long-term mitigation goals and capital improvements. During the fourth Steering Committee meeting, a team-based approach was used to brainstorm mitigation projects based on the identified hazards and associated loss estimates. In addition, FEMA's Local Mitigation Planning Handbook and the California Adaptation Planning Guide were used to identify actions to mitigate the effects of climate change.

The evaluation and prioritization of the mitigation actions were used as aids to produce a list of recommended mitigation actions to incorporate into the mitigation plan. Each of the mitigation recommendations listed in Table 4.2 fell into one or more of the following categories:

- Prevention – planning and zoning, building codes, capital improvement projects, open space preservation, and storm water management
- Property Protection – acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass
- Personnel Education and Awareness – outreach projects, real estate disclosure, hazard information centers, and education programs
- Natural Resource Protection – sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation
- Emergency Services – warning systems, emergency response services, and protection of critical facilities
- Structural Projects – dams, levees, floodwalls, seawalls, retaining walls, and safe rooms

Table 4.2 provides an overview of the mitigation actions and other relevant information, in no specific order. Following the identification of mitigation actions, a Cost-Benefit Review was conducted in order to determine a prioritization of the items. Section 4.4 contains more information on the Cost-Benefit Review and the prioritization of the projects.

Table 4.2: Mitigation Action Identification

Mitigation Activity	Hazards Mitigated	Mitigation Action Category	Corresponding Goals & Objectives	Responsible Department/ Division	Resources	Estimated Project Cost[1]	Timeframe	Protects New Buildings	Protects Existing Buildings
2022.HMP.01 - Develop public and private partnerships to foster hazard mitigation program coordination and collaboration in the City of Cerritos.	Mutli-Hazard	Prevention	4A	Community Safety	Staff Time	Staff Time	Ongoing	N	Y
2022.HMP.02 - Conduct evaluations of critical facilities to develop inventories of at-risk buildings and identify areas for improvement. This includes, but is not limited to, incorporating alternative power sources, security features, environmental controls, structural improvements, and identifying vulnerabilities to fire and earthquake. Initiate mitigation projects (structural & non-structural) accordingly.	Mutli-Hazard	Property Protection	1C	Engineering	Staff Time/ General Fund	$500,000	Medium	N	Y
2022.HMP.03 - Strengthen emergency services preparedness and response by linking emergency services with hazard mitigation programs and enhancing public education on a regional scale.	Mutli-Hazard	Emergency Services	5C	Community Safety	Staff Time	$5,000/ Staff Time	Ongoing	N	Y
2022.HMP.04 - Conduct annual tabletop multi-hazard disaster exercises with local law enforcement, emergency managers, town and county officials, the Local Emergency Planning Committee and other disaster response agencies to identify vulnerabilities in emergency services and response.	Mutli-Hazard	Emergency Services	5B	Community Safety	Staff Time	$1,000/ Staff Time	Ongoing	N	Y
2022.HMP.05 - Retrofit Traffic Signals for coordination with Emergency Vehicles to decrease response time during a hazard event and improve infrastructure.	Mutli-Hazard	Emergency Services	5A	Engineering	General Fund/ Grant Funding	2,000,000	Short	N	Y
2022.HMP.06 - Develop a Business Continuity Planning Display. The display will be designed to raise awareness of why it is important to have a Business Continuity Plan, how to develop a Plan, and will encourage businesses to make sure that their Plan fits in the City's Plan. The display will be appropriate for use at local Chamber of Commerce meetings and activities, civic group gatherings, and other business-related gatherings.	Mutli-Hazard	Prevention/ Education and Awareness	1D	Community Development	Staff Time/ General Fund	$1,500/ Staff Time	Short	N	Y
2022.HMP.07 – Work with the U.S. Geological Survey (USGS) to verify current GIS earthquake hazard mapping data is accurate for the City of Cerritos and utilize technical analysis of earthquake hazards to identify vulnerabilities in accordance with the Safety Element of the City's General Plan (Policy SAF-2.3). Implement structural improvement projects as appropriate based on new data.	Earthquake	Prevention	1B	GIS Division	General Fund/ Grant Funding	Staff Time	Medium	N	Y
2022.HMP.08 - In accordance with the Safety Element of the City's General Plan (Policy SAF-2.3), conduct new seismic strength evaluations of critical City facilities built before 1980 to identify vulnerabilities and initiate structural improvement projects accordingly. These evaluations should highlight potential mitigation actions that would improve public infrastructure and reinforce critical facilities to meet current seismic standards.	Earthquake	Prevention/ Property Protection	IA	Engineering	General Fund/ Grant Funding	$250,000	Short	N	Y

Mitigation Activity	Hazards Mitigated	Mitigation Action Category	Corresponding Goals & Objectives	Responsible Department/ Division	Resources	Estimated Project Cost[1]	Timeframe	Protects New Buildings	Protects Existing Buildings
2022.HMP.09 - In accordance with the Safety Element of the City's General Plan (Policy SAF-2.1), expand and distribute outreach materials that will increase public awareness to encourage the initiation of projects (structural and non-structural) to minimize vulnerability to earthquakes in the local community.	Earthquake	Education and Awareness	3A	Communications	General Fund	$5,000/ Staff Time	Ongoing	N	Y
2022.HMP.10 - Provide information to new home and property buyers on earthquake, fire and multi-hazard safety and encourage the public sector to identify vulnerabilities and initiate structural/non-structural improvement projects.	Urban Fire	Education and Awareness	2B	Communications	General Fund/ Grant Funding	$5,000/ Staff Time	Short	Y	N
2022.HMP.11- Coordinate with County and State (i.e. Local Emergency Planning Committee (LEPC)) representatives to maintain awareness of current trends in illegal transportation of hazardous materials within the City or that may impact the City.	Transportation Accident/ HazMat Release	Education and Awareness	TA02	Community safety	Staff Time/ General Fund	Staff Time	Short	N	Y
2022.HMP.12 - Analyze traffic patterns throughout the City to identify high-collision areas and adjust flow to assist in collision event reduction. Apply for grant funding to update infrastructure to improve traffic flow.	Transportation Accident/ HazMat Release	Prevention/ Property Protection	1C	Engineering	Staff Time/ Grant Funding	$250,000	Medium	Y	Y
2022.HMP.13 - In accordance with the Safety Element of the City's General Plan (Policies SAF-1.4 & SAF-1.2), conduct evaluations of City flood controls within the City to ensure efficient operations and identify potential storm drain/infrastructure improvements. Then, identify key areas to initiate improvement projects accordingly.	Flood/ Dam Failure	Prevention/ Property Protection	1C	Public Works Department	General Fund	$50,000/ Staff Time	Short	N	Y
2022.HMP.14 - In accordance with the Safety Element of the City's General Plan (Policies SAF-5.3), ensure current maps of underground, city-managed, utility pipelines are up-to-date and educate the public regarding the availability for pipeline safety information (Dig Alert).	Pipeline Failure/ Hazardous Materials Release	Prevention/ Education and Awareness	1A	Communications/Community development	Staff Time/ General Fund	$500/ Staff Time	Medium	Y	Y
2022.HMP.15 - Continue to expand infrastructure by adding recycled water channels to the City's water system to help conserve potable water.	Drought	Structural Projects/ Natural Resource Protection	3A	Public Works	General Fund/ Grant Funding	$50,000	Ongoing	Y	Y
2022.HMP.16 - Continue public outreach on water conservation.	Drought	Education and Awareness/ Natural Resource Protection	2A	Public Works	Staff Time	$10,000/ Staff Time	Ongoing	Y	Y

4.3 National Flood Insurance Program Compliance

§201.6(c)(3)(ii): [The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.

The National Flood Insurance Program (NFIP) is a Federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for State and community floodplain management regulations that reduce future flood damages. Participation in the NFIP is based on an agreement between communities and the Federal Government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the Federal Government will make flood insurance available within the community as a financial protection against flood losses. This insurance is designed to provide an alternative to disaster assistance and reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Table 4.3 summarizes the City' participation in the program.

Table 4.3: NFIP Participation

CID	Community Name	County	Init. FHBM Identified	Init. FIRM Identified	Curr. Eff. Map Date	Reg-Emer. Date	Tribal
060108	City of Cerritos	Los Angeles	06/28/74	09/26/08	09/26/08	02/20/79	No

Note: Source information obtained through FEMA

Continued Compliance

As part of the City's continued compliance with NFIP, the Cerritos Municipal Code includes Chapter 6.36: Floodplain Management Program and Regulations. This is designed to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in flood-prone areas. The ordinance outlines several methods of reducing flood losses including documenting standards of construction for utilities, subdivisions, and manufactured homes

Flood Recommendations/Repetitive Loss Properties

There were no properties identified as having repetitive losses or assets impacted by regular flooding. In fact, the City is located in a Flood Zone X according to FEMA. Areas of this designation are expected to have minimal flood incidents, are outside the 500-year

Mitigation Activity	Hazards Mitigated	Mitigation Action Category	Corresponding Goals & Objectives	Responsible Department/ Division	Resources	Estimated Project Cost*	Timeframe	Protects New Buildings	Protects Existing Buildings
2022.HMP.17 - Continue to expand public education regarding Adversarial Events similar, but not limited to, "See Something-Say Something" and Active Shooter Survival.	Adversarial Events	Education and Awareness	2A	Communication s	Staff Time/ General Fund	Staff Time	Ongoing	Y	Y
2022.HMP.18 – Continue coordination with existing high-profile, private structures to ensure security and anti-terrorism safety features are in use.(i.e. appropriate venue monitoring, access control, bag checks, awareness training for staff etc.)	Adversarial Events	Prevention	2B	Sheriff's Department	Staff Time	Staff Time	Ongoing	N	Y
2022.HMP.19 - Continue to update the City's tree inventory and identify vulnerabilities. All trees should be maintained according to the standards in the City's Municipal Code to minimize potential hazards.	Windstorm	Natural Resource Protection	3B	Public Works	Staff Time	Staff Time	Ongoing	Y	Y
2022.HMP.20 - Expand remote work capabilities for City employees to maximize City continuity during emergency events including, but not limited to, acquisition of tools/equipment to maximize communication within the City and with the Public and updating of emergency plans to include considerations for Management Information System (MIS) upgrades in emergency operations.	Disease Outbreak	Emergency Services	5A	MIS	Staff Time/ variable project costs	Staff Time	Medium	N	N
2022.HMP.21 - Formalize and exercise a Business Continuity Plan identifying essential services.	Disease Outbreak	Prevention/ Emergency Services	5A	Dir. Emergency Services/ City Manager	Staff Time/ Grant Funds	$30,000	Medium	N	N
2022.HMP.22 - Improve communication and coordination with local agencies and the private sector to bring resource (i.e. vaccinations) opportunities into the City.	Disease Outbreak	Prevention/ Emergency Services	4B	City Manager/ City Council	Staff Time	Staff Time	Short	N	N

Note: Values provided by Steering Committee as estimates only
Note: Timeframe definitions are as follows.
a) Short: Task to be completed within 1-2 years
b) Medium Task to be completed within 3-5 years
c) Long: Task to be completed beyond the 5-year planning period

flood level, and are protected by levee from the 100-year flood. However, the City identified a recommendation for mitigating flood hazards in the "Mitigation Action Identification" table. Specifically, action 2022.HMP.13 is designed to minimize losses to critical City facilities as a result of flooding.

4.4 Prioritization of Mitigation Recommendations

44CFR 201.6(c)(3)(iii): [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

A simplified Benefit-Cost Review was applied in order to prioritize the mitigation recommendations for implementation. The priority for implementing mitigation recommendations depends upon the overall cost effectiveness of the recommendation, when taking into account monetary and non-monetary costs and benefits associated with each action. Additionally, the following questions were considered when developing the Benefit-Cost Review:

- How many people will benefit from the action?
- How large an area is impacted?
- How critical are the facilities that benefit from the action?
- Environmentally, does it make sense to do this project for the overall community?

Table 4.5 provides a detailed benefit-cost review for each mitigation recommendation, as well as a relative priority rank (High, Medium, and Low) based upon the judgment of the Steering Committee. The general category guidelines are listed below.

- High – Benefits are perceived to exceed costs without further study or evaluation
- Medium – Benefits are perceived to exceed costs, but may require further study or evaluation prior to implementation
- Low – Benefits and cost evaluations requires additional evaluation prior to implementation

It should be noted that the values for costs (cons), are estimates only.

Table 4.4: Mitigation Action Prioritization: Benefit-Cost Review

Mitigation Activity	Benefits (Pros)	Costs (Cons)	Priority
2022.HMP.01 - Develop public and private partnerships to foster hazard mitigation program coordination and collaboration in the City of Cerritos.	• Avoided Emergency Management Costs	• Staff time for coordination	High
2022.HMP.02 - Conduct evaluations of critical facilities to develop inventories of at-risk buildings and identify areas for improvement. This includes, but is not limited to, incorporating alternative power sources, security features, environmental controls, structural improvements, and identifying vulnerabilities to fire and earthquake. Initiate mitigation projects (structural & non-structural) accordingly.	• Avoided Physical Damage • Avoided Loss-of-Function Costs • Avoided Casualties	• $500,000 (evaluations of all forty-five (45) critical facilities in the City with special attention given to identifying vulnerabilities and mitigation actions. Note: all critical facilities may not require evaluation) • Construction costs for resulting mitigation projects	High
2022.HMP.03 - Strengthen emergency services preparedness and response by linking emergency services with hazard mitigation programs and enhancing public education on a regional scale.	• Avoided Emergency Management Costs • Avoided Loss-of-Function Costs	• Staff time for coordination and to establish the capability of the City to participate in regional safety efforts • $5,000 (Material costs of outreach program)	Medium

Mitigation Activity	Benefits (Pros)	Costs (Cons)	Priority
2022.HMP.04 - Conduct annual tabletop multi-hazard disaster exercises with local law enforcement, emergency managers, town and county officials, the Local Emergency Planning Committee and other disaster response agencies to identify vulnerabilities in emergency services and response.	• Avoided Emergency Management Costs • Avoided Loss-of-Function Costs	• $1,000 (Material costs for exercise development) • Staff time for coordination	High
2022.HMP.05 - Retrofit Traffic Signals for coordination with Emergency Vehicles to decrease response time during a hazard event and improve infrastructure.	• Avoided Physical Damages (Emergency Authorities can respond faster therefore potentially reducing the amount of damage) • Avoided Loss-of-Function Costs	• $2,000,000 (City-wide traffic signal upgrades to respond to Emergency Vehicles)	Low
2022.HMP.06 - Develop a Business Continuity Planning Display. The display will be designed to raise awareness of why it is important to have a Business Continuity Plan, how to develop a Plan, and will encourage businesses to make sure that their Plan fits in the City's Plan. The display will be appropriate for use at local Chamber of Commerce meetings and activities, civic group gatherings, and other business-related gatherings.	• Avoided Loss-of-Function Costs	• Staff time for coordination • $1,500 (Material costs of display development)	Medium

Mitigation Activity	Benefits (Pros)	Costs (Cons)	Priority
2022.HMP.07 – Work with the U.S. Geological Survey (USGS) to verify current GIS earthquake hazard mapping data is accurate for the City of Cerritos and utilize technical analysis of earthquake hazards to identify vulnerabilities in accordance with the Safety Element of the City's General Plan (Policy SAF-2.3). Implement structural improvement projects as appropriate based on new data.	• Avoided Physical Damages • Avoided Loss-of-Function Costs	• Staff time to ensure the City acquires all new USGS map updates	High
2022.HMP.08 - In accordance with the Safety Element of the City's General Plan (Policy SAF-2.3), conduct new seismic strength evaluations of critical City facilities built before 1980 to identify vulnerabilities and initiate structural improvement projects accordingly. These evaluations should highlight potential mitigation actions that would improve public infrastructure and reinforce critical facilities to meet current seismic standards.	• Avoided Physical Damages • Avoided Casualties • Avoided Loss-of-Function Costs	• $250,000 (Cost of new evaluations to pre-1980 facilities including, but not limited to, City Hall, Heritage Park, and Swim Center locations) • Construction costs for resulting mitigation projects	Low
2022.HMP.09 - In accordance with the Safety Element of the City's General Plan (Policy SAF-2.1), expand and distribute outreach materials that will increase public awareness to encourage the initiation of projects (structural and non-structural) to minimize vulnerability to earthquakes in the local community.	• Avoided Physical Damages • Avoided Casualties • Avoided Loss of Function Costs	• $5,000 (Material costs of outreach program) • Staff time for coordination	Medium

Mitigation Activity	Benefits (Pros)	Costs (Cons)	Priority
2022.HMP.10 - Provide information to new home and property buyers on earthquake, fire and multi-hazard safety and encourage the public sector to identify vulnerabilities and initiate structural/non-structural improvement projects.	• Avoided Physical Damages • Avoided Casualties • Avoided Loss of Function Costs	• Staff time for coordination • $5,000 annually (Material costs of outreach program)	High
2022.HMP.11- Coordinate with County and State (i.e. Local Emergency Planning Committee (LEPC)) representatives to maintain awareness of current trends in illegal transportation of hazardous materials within the City or that may impact the City.	• Avoided Physical Damages • Avoided Casualties	• Staff time for coordination	High
2022.HMP.12 - Analyze traffic patterns throughout the City to identify high-collision areas and adjust flow to assist in collision event reduction. Apply for grant funding to update infrastructure to improve traffic flow.	• Avoided Physical Damages • Avoided Loss-of-Function Costs	• Grant funded, Construction costs for resulting mitigation projects • Staff time for coordination	Medium
2022.HMP.13 - In accordance with the Safety Element of the City's General Plan (Policies SAF-1.4 & SAF-1.2), conduct evaluations of City flood controls within the City to ensure efficient operations and identify potential storm drain/infrastructure improvements. Then, identify key areas to initiate improvement projects accordingly.	• Avoided Loss-of-Function Costs • Avoided Physical Damages • Avoided Casualties	• $50,000 (Flood control evaluation) • Construction costs for resulting mitigation projects • Staff time for coordination	Medium

Mitigation Activity	Benefits (Pros)	Costs (Cons)	Priority
2022.HMP.14 - In accordance with the Safety Element of the City's General Plan (Policies SAF-5.3), ensure current maps of underground, city-managed, utility pipelines are up-to-date and educate the public regarding the availability for pipeline safety information (Dig Alert).	• Avoided Loss-of-Function Costs • Avoided Physical Damages • Avoided Casualties	• $500 (Annual cost of map evaluation) • Staff time needed to implement public outreach	High
2022.HMP.15 - Continue to expand infrastructure by adding recycled water channels to the City's water system to help conserve potable water.	• Avoided Physical Damages to landscaping • Avoided Loss-of-Function Costs	• $50,000 (project cost to add additional water channels)	Low
2022.HMP.16 - Continue public outreach on water conservation.	• Avoided Loss-of-Function Costs	• $10,000 (Material costs of a variety of printed materials to continue high-priority outreach program) • Staff time for coordination	High
2022.HMP.17 - Continue to expand public education regarding Adversarial Events similar, but not limited to, "See Something-Say Something" and Active Shooter Survival.	• Avoided Physical Damages • Avoided Casualties • Avoided Loss-of-Function Costs	• Staff time for coordination	Low
2022.HMP.18 – Continue coordination with existing high-profile, private structures to ensure security and anti-terrorism safety features are in use.(i.e. appropriate venue monitoring, access control, bag checks, awareness training for staff etc.)	• Avoided Emergency Management Costs • Avoided Loss-of-Function Costs • Avoid Casualties • Avoided Physical Damages	• Staff time for coordination	Medium

Mitigation Activity	Benefits (Pros)	Costs (Cons)	Priority
2022.HMP.19 - Continue to update the City's tree inventory and identify vulnerabilities. All trees should be maintained according to the standards in the City's Municipal Code to minimize potential hazards.	• Avoided Physical Damages • Avoided Loss-of-Function Costs • Avoided Casualties	• Staff Time for coordination	High
2022.HMP.20 - Expand remote work capabilities for City employees to maximize City continuity during emergency events including, but not limited to, acquisition of tools/equipment to maximize communication within the City and with the Public and updating of emergency plans to include considerations for Management Information System (MIS) upgrades in emergency operations.	• Avoids Physical Damages • Avoids Loss-of-Function Costs • Avoids Casualties	• Staff Time	High
2022.HMP.21 - Formalize and exercise a Business Continuity Plan identifying essential services.	• Avoids Loss-of-Function Costs	• Staff Time • $30,000 in Grant Funding	Medium
2022.HMP.22 - Improve communication and coordination with local agencies and the private sector to bring resource (i.e. vaccinations) opportunities into the City.	• Avoided Emergency Management Costs • Avoided Loss-of-Function Costs • Avoid Casualties • Avoided Physical Damages	• Staff Time	High

4.5 Implementation Strategy

Mitigation Actions classified as high-priority mitigation actions provide the most significant vulnerability reduction, as related to cost and probability, and are typically implemented before lower ranked improvements. The City, however, may find that under some circumstances a recommendation classified as a low-priority mitigation action may need to be implemented before a higher priority recommendation. The priority levels associated with each improvement are indicated on the "Mitigation Action Prioritization: Benefit-Cost Review" table in the previous section.

2016 Hazard Mitigation Plan Strategies

The Project Team reviewed the mitigation strategies and actions from the 2016 Local Hazard Mitigation Plan. The 2016 Plan outlined mitigation strategies scheduled for completion in the near future and additional projects for consideration. However, as many of these projects are contingent on the City receiving grant funding to implement, only some of them have been implemented.

Several of the Future Mitigation Strategies from the 2016 Plan have been carried through into the current update. Table 4.6 on the following page provides the mitigation strategies from the 2016 Plan and their correlation to the current Plan. As mentioned, previously, only some of the mitigation actions garnered the funding necessary for implementation. The table on the following page denoted whether or not an action was completed since the last Plan update.

Table 4.5: Ongoing Mitigation Strategies

2016 Plan Mitigation Strategies	Correlated Current Mitigation Strategies	Completed
2015.HMP.01 - Establish a formal role for the City of Cerritos Hazard Mitigation Steering Committee for implementing, monitoring, and evaluating citywide mitigation activities.	The Planning Team determined the City would not be able to sustain a permanent committee to focus specifically on hazard mitigation. However, the responsibility to identify and minimize hazards within the City already lie with City Department Heads who consider hazards on an ongoing basis. As such, the purpose of this strategy is being met albeit not in the manner outlined by the previous Planning Team.	Yes
2015.HMP.02 - Develop public and private partnerships to foster hazard mitigation program coordination and collaboration in the City of Cerritos.	2022.HMP.01 - Develop public and private partnerships to foster hazard mitigation program coordination and collaboration in the City of Cerritos.	Ongoing
2015.HMP.03 - Conduct evaluations of critical facilities to develop inventories of at-risk buildings and identify areas for improvement. This includes, but is not limited to, incorporating alternative power sources, and identifying vulnerabilities to fire and earthquake. Initiate mitigation projects accordingly.	2022.HMP.02 - Conduct evaluations of critical facilities to develop inventories of at-risk buildings and identify areas for improvement. This includes, but is not limited to, incorporating alternative power sources, security features, environmental controls, and identifying vulnerabilities to fire and earthquake. Initiate mitigation projects accordingly. While some evaluations have been completed, the Planning Team decided to leave this strategy in the Plan to encourage future evaluations and continued mitigation efforts.	Yes, ongoing
2015.HMP.04 - Strengthen emergency services preparedness and response by linking emergency services with hazard mitigation programs and enhancing public education on a regional scale.	2022.HMP.03 - Strengthen emergency services preparedness and response by linking emergency services with hazard mitigation programs and enhancing public education on a regional scale.	Ongoing
2015.HMP.05 - Conduct annual tabletop multi-hazard disaster exercises with local law	2022.HMP.04 - Conduct annual tabletop multi-hazard disaster exercises with local law enforcement, emergency	Yes

2016 Plan Mitigation Strategies	Correlated Current Mitigation Strategies	Completed
enforcement, emergency managers, town and county officials, the Local Emergency Planning Committee and other disaster response agencies to identify vulnerabilities in emergency services and response.	managers, town and county officials, the Local Emergency Planning Committee and other disaster response agencies to identify vulnerabilities in emergency services and response. The Planning Committee acknowledged the City's participation in local planning committees but felt there was opportunity to expand the City's presence. Therefore, the strategy was maintained for the Plan update.	
2015.HMP.06 - Retrofit Traffic Signals for coordination with Emergency Vehicles to decrease response time during a hazard event.	2022.HMP.05 - Retrofit Traffic Signals for coordination with Emergency Vehicles to decrease response time during a hazard event.	No
2015.HMP.07 - Develop a Business Continuity Planning Display. The display will be designed to raise awareness of why it is important to have a Business Continuity Plan, how to develop a Plan, and will encourage businesses to make sure that their Plan fits in the County's Plan. The display will be appropriate for use at local Chamber of Commerce meetings and activities, civic group gatherings, and other business-related gatherings.	2022.HMP.06 - Develop a Business Continuity Planning Display. The display will be designed to raise awareness of why it is important to have a Business Continuity Plan, how to develop a Plan, and will encourage businesses to make sure that their Plan fits in the City's Plan. The display will be appropriate for use at local Chamber of Commerce meetings and activities, civic group gatherings, and other business-related gatherings.	No
2015.HMP.08 – Work with the U.S. Geological Survey (USGS) to verify current GIS earthquake hazard mapping data is accurate for the City of Cerritos and utilize technical analysis of earthquake hazards to identify vulnerabilities in accordance with the Safety Element of the City's General Plan (Policy SAF-2.3).	2022.HMP.07 – Work with the U.S. Geological Survey (USGS) to verify current GIS earthquake hazard mapping data is accurate for the City of Cerritos and utilize technical analysis of earthquake hazards to identify vulnerabilities in accordance with the Safety Element of the City's General Plan (Policy SAF-2.3).	No
2015.HMP.09 - In accordance with the Safety Element of the City's General Plan (Policy SAF-2.3), conduct new seismic strength evaluations of	2022.HMP.08 - In accordance with the Safety Element of the City's General Plan (Policy SAF-2.3), conduct new seismic strength evaluations of critical City facilities built	No

2016 Plan Mitigation Strategies	Correlated Current Mitigation Strategies	Completed
critical City facilities built before 1980 to identify vulnerabilities and initiate improvement projects accordingly. These evaluations should highlight potential mitigation actions that would improve public infrastructure and reinforce critical facilities to meet current seismic standards.	before 1980 to identify vulnerabilities and initiate improvement projects accordingly. These evaluations should highlight potential mitigation actions that would improve public infrastructure and reinforce critical facilities to meet current seismic standards.	
2015.HMP.10 - In accordance with the Safety Element of the City's General Plan (Policy SAF-2.1), create and distribute outreach materials that will increase public awareness to encourage the initiation of nonstructural and structural projects to minimize vulnerability to earthquakes in the local community.	2022.HMP.09 - In accordance with the Safety Element of the City's General Plan (Policy SAF-2.1), expand and distribute outreach materials that will increase public awareness to encourage the initiation of projects to minimize vulnerability to earthquakes in the local community. The Planning Team acknowledges that information is already being disseminated to the public. However, the Team believes there is opportunity to expand public outreach.	Yes, ongoing
2015.HMP.11 - Provide information to new home and property buyers on earthquake, fire and multi-hazard safety and encourage the public sector to identify vulnerabilities and initiate improvement projects.	2022.HMP.10 - Provide information to new home and property buyers on earthquake, fire and multi-hazard safety and encourage the public sector to identify vulnerabilities and initiate improvement projects.	Yes
2015.HMP.12- Coordinate with County and State (i.e. Local Emergency Planning Committee (LEPC)) representatives to maintain awareness about of current trends in illegal transportation of hazardous materials within the City or that may impact the City.	2022.HMP.11- Coordinate with County and State (i.e. Local Emergency Planning Committee (LEPC)) representatives to maintain awareness about of current trends in illegal transportation of hazardous materials within the City or that may impact the City.	Yes
2015.HMP.13 - In accordance with the Safety Element of the City's General Plan (Policies SAF-1.4 & Policies-1.2), conduct evaluations of City flood controls within the City to ensure efficient	2022.HMP.13 - In accordance with the Safety Element of the City's General Plan (Policies SAF-1.4 & 1.2), conduct evaluations of City flood controls within the City to ensure efficient operations and identify potential storm drain	Yes, ongoing

2016 Plan Mitigation Strategies	Correlated Current Mitigation Strategies	Completed
operations and identify potential storm drain improvements. Then, identify key areas to initiate improvement projects accordingly.	improvements. Then, identify key areas to initiate improvement projects accordingly.	
2015.HMP.14 - In accordance with the Safety Element of the City's General Plan (Policy SAF-5.3), ensure current maps of underground pipelines are up-to-date and educate the public for pipeline safety (Dig Alert).	2022.HMP.14 - In accordance with the Safety Element of the City's General Plan (Policy SAF-5.3), ensure current maps of underground, city-managed, utility pipelines are up-to-date and educate the public regarding the availability for pipeline safety information (Dig Alert).	Yes, ongoing
2015.HMP.15 - Continue to add recycled water channels to the City's water system to help conserve potable water.	2022.HMP.15 - Continue to add recycled water channels to the City's water system to help conserve potable water.	Yes, ongoing
2015.HMP.16 - Continue public outreach on water conservation.	2022.HMP.16 - Continue public outreach on water conservation.	Yes, ongoing
2015.HMP.17 - Continue public education regarding "See Something-Say Something" for terrorism.	2022.HMP.17 - Continue to expand public education regarding Adversarial Events similar, but not limited to, "See Something-Say Something" and Active Shooter Survival.	Yes
2015.HMP.18 - Coordinate with existing high-profile, private facilities to ensure security and anti-terrorism safety features are in use.	2022.HMP.18 – Continue coordination with existing high-profile, facilities to ensure security and anti-terrorism safety features are in use. (i.e. appropriate venue monitoring, access control, bag checks, awareness training for staff etc.)	Yes, ongoing
2015.HMP.19 - Update the General Plan to include anti-terrorism requirements for new projected high-profile, private building projects. Anti-terrorism requirements should include, but are not limited to, adequate escape routes for pedestrians & motorists and built-in security systems.	The Planning Team removed this strategy as City procedures have been updated to include coordination with the Los Angeles County Fire Department to consider whether a new build project is defensible.	Yes
2015.HMP.20 - Continue to update the City's tree inventory and identify vulnerabilities. All trees should be maintained according to the standard in	2022.HMP.19 - Continue to update the City's tree inventory and identify vulnerabilities. All trees should be maintained	Yes, ongoing

2016 Plan Mitigation Strategies	Correlated Current Mitigation Strategies	Completed
the City's Municipal Code to minimize potential hazards.	according to the standard in the City's Municipal Code to minimize potential hazards.	

5 PLAN MAINTENANCE

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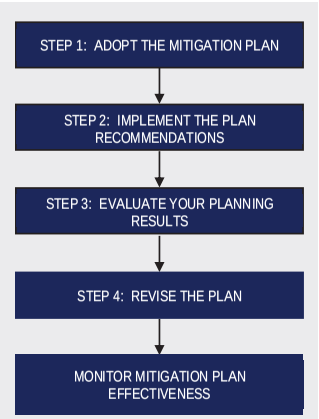
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5.1 Mitigation Progress Monitoring

The Mitigation Strategy section in the Hazard Mitigation Plan identifies mitigation actions that have been prioritized based on the loss estimates and the probability of each hazard, which will typically be implemented according to the priority rank. To thoroughly track hazard mitigation status, the City of Cerritos (City) must continuously monitor and document the progress of the implementation of mitigation actions. Though mitigation actions may be delegated to different departments within the City, the Public Works Management Analyst will have the responsibility of monitoring overall progress.



44 CFR 201.6(c)(4)(i): [The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

To facilitate this monitoring process, Table 5.7: "Action Item Implementation" was developed to provide a mechanism for monitoring the overall implementation progress. The table is designed to monitor mitigation actions according to project managers, project status, and project milestones. The table can be found at the end of this chapter.

5.2 Planning Mechanisms

44 CFR 201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

5.2.1 Process to Incorporate the Mitigation Strategy into Other Planning Mechanisms

The City maintains the following processes to incorporate mitigation strategies of the Hazard Mitigation Plan into planning mechanisms.

Website

The City's Hazard Mitigation Plan will be posted on the City's website to enable citizens to review and provide feedback regarding mitigation objectives and strategies. Feedback from residents can be incorporated during the annual review or five-year update of the HMP and expand the Steering Committee's understanding of the public's opinion on hazard vulnerability. In addition, the website can be used as a vehicle to maintain an ongoing conversation with the public regarding upcoming mitigation projects and provide an avenue for hazard education.

City Council

The City Council is responsible for approving projects, plans, and programs on a City-wide level. By providing mitigation planning concepts to the City Council, mitigation actions and projects will be incorporated into relevant planning efforts. Department heads can expand mitigation efforts by working with Council Members to encourage the inclusion of mitigation goals and objectives for any project or planning efforts which are reviewed by the City council.

Public Works/Water & Power Department

This department provides infrastructure and maintenance services to City assets and to the public. Hazard mitigation will be integrated into Public Works/Water & Power programs through its involvement in the Steering Committee. The Public Works/Water & Power Department has the ability to expand mitigation activities by implementing safety mechanisms throughout the City to maximize resiliency.

Commissions

To assist the City Council in reviewing prominent issues, the City has established the four (4) commissions listed below.

- Fine Arts and Historical
- Planning
- Parks and Recreation
- Property Preservation

As necessary, each specialized commission can review and implement hazard mitigation activities that affect its goals and objectives.

Committees

In addition to the four (4) commissions, the City has also established the Community Safety and Let Freedom Ring Committees to educate and assist the community with relevant safety issues and coordinate local gatherings.

These committees can help raise awareness about hazardous events that can affect the City, educate the public about the actions the City is taking to reduce loss, and supply avenues for the community to provide feedback.

Community Development Department

The Advance Planning and Current Planning Divisions of the City's Community Development Department work closely with the Planning Commission to ensure that development within the City is consistent with the General Plan goals and policies, as well as in the best interest of the City. This includes development of land use, general planning, zoning requirements, and residential projects. Mitigation measures can be incorporated into potential projects.

The Building and Safety Division of the City's Community Development Department is responsible for reviewing construction plans and various building inspection activities. The objective of this Division is to protect the public in regard to building design and construction. Hazard mitigation activities that get incorporated into building codes will be enforced by this Division.

Community Safety Division

The Community Safety Division develops and administers programs designed to enhance public safety, crime prevention and emergency preparedness. Community Safety Services provides oversight of the City's law enforcement program and directs the City's Code Enforcement Detail, Parking Enforcement Detail, Community Safety Officer Cadre, Animal Services program, Crossing Guard program, Latent Print program, Neighborhood

Watch program, Community Emergency Response Team (C.E.R.T.) program and the City's Emergency Operations Center.

Resource Tables

This section serves as a high-level capability assessment of the City's resources through which hazard mitigation objectives may be achieved. The following subsections attempt to document the Regulatory, Administrative/Technical, Fiscal, Grant funding, and Outreach/Partnership resources available to the City.

Regulatory Resources

Table 5.1: Regulatory Tools Table

Regulatory Tool	Updated	Comments
General Plan	2004	The General Plan outlines how the City is organized with regard to areas such as land use, safety, different conservation efforts, and economic resilience and develop. The City updated its Housing Element during the development of this report. The element was adopted in January 2022. The newly develop section will help promote housing resiliency.
Urban Water Management Plan	2022	This plan outlines forecasts for drought probability and magnitude while expanding upon awareness of drought hazard vulnerability.

Administrative/Technical Resources

Table 5.2: Administrative/Technical Tools Table

Administrative/Technical Tool	Personnel/Resources
Sheriff's Department	The Sheriff's Department is able to support public outreach and may assist in identifying areas of improvement for resistance to civil unrest and adversarial events.
City Council	City Council can review and approve mitigation propositions for implementation.
Community Safety Division	The Community Safety Division is responsible for monitoring and promoting Hazard Mitigation objectives and disaster preparedness efforts.

Administrative/Technical Tool	Personnel/Resources
Community Development Department	The Community Development Department is response for all developments within the City. This department will be able to include considerations for local hazards into new projects.
Public Works/Water & Power Department	The Public Works/Water & Power Department is responsible for street improvements, public facility construction, and overall City maintenance. This department can implement hazard mitigation activities as part of planned maintenance and City upgrades.
Administrative Services Department	The Department of Administrative Services is organized and responsible for coordinating the day-to-day activities of various internal operations and supplying specialized staff to all operating departments. The department is divided into several operational divisions that include the Office of the Director of Administrative Services/Budget, Communications, Finance, Water Billing, Human Resources, Support Services, Property Control, Management Information Services, and the Cerritos Library.

Fiscal Resources

Table 5.3: Fiscal Tools Table

Fiscal Tool	Available for Use
General Fund	Yes, with approval
Capital Improvement Plan	Yes, with approval
Authority to impose taxes for specific purposes	Yes, with voter approval

Grant Funding

Table 5.4: Grant Funding Tools Table

Grant Funding Tool	Agency	Purpose	Contact
Pre-Disaster Mitigation Program (PDM)	U.S. Department of Homeland Security, Federal Emergency Management Agency	To provide funding for States, and communities for cost-effective hazard mitigation activities which complement a comprehensive hazard mitigation program and reduce injuries, loss of life, and damage and deconstruction of property.	FEMA 500 C. Street, SW Washington, DC 20472 Phone: (202) 646-4621 www.fema.gov
Hazard Mitigation Grant Program	U.S. Department of Homeland Security,	To prevent future losses of lives property due to disasters; to implement State of local	FEMA 500 C Street S.W.

Grant Funding Tool	Agency	Purpose	Contact
	Federal Emergency Management Agency	hazard mitigation plans; to enable mitigation measures to be implemented during immediate recovery from a disaster; and to provide funding for previously identified mitigation measures to benefit the disaster area.	Washington, DC 20472 Phone (202) 646-4621 www.fema.gov
Flood Mitigation Assistance (FMA)	U.S. Department of Homeland Security, Federal Emergency Management Agency	To help States and communities plan and carry out activities designed to reduce the risk of flood damage to structures insurable under the NFIP.	FEMA 500 C Street S.W. Washington, DC 20472 Phone (202) 646-4621 www.fema.gov
Emergency Management Performance Grants (EMPG)	U. S. Department of Homeland Security; Federal Emergency Management Agency	To encourage the development of comprehensive emergency management at the State and local level and to improve emergency management planning, preparedness, mitigation, response, and recovery capabilities.	FEMA 500 C Street S.W. Washington, DC 20472 Phone (202) 646-4621 www.fema.gov
Community Development Block Grant Program (CDBG)	U.S. Department of Housing and Urban Development	To develop viable urban communities by providing decent housing and a suitable living environment. Principally for low-to-moderate income individuals.	HUD 451 7th Street, S. W. Washington, DC 20410-7000 Phone: (202) 708-3587 www.hud.gov
Public Assistance (PA) Program	U.S. Department of Homeland Security, Federal Emergency Management Agency	To provide supplemental assistance to States, local governments, and certain private nonprofit organizations to alleviate suffering and hardship resulting from major disasters or emergencies declared by the President. Under Section 406, Public Assistance funds may be used to mitigate the impact of future disasters.	FEMA 500 C Street S.W. Washington, DC 20472 Phone (202) 646-4621 www.fema.gov

Grant Funding Tool	Agency	Purpose	Contact
Emergency Watershed Protection	U.S. Department of Agriculture, Natural Resource Conservation Service	To provide emergency technical and financial assistance to install or repair structures that reduce runoff and prevent soil erosion to safeguard life and property.	NRCS PO BOX 2890 Washington, DC 20013 Phone: (202) 720-3527 www.nrcs.usda.gov
Disaster Mitigation and Technical Assistance Grants	U.S. Department of Commerce, Economic Development Administration	To help States and localities to develop and /or implement a variety of disaster mitigation strategies.	EDA Herbert C. Hoover Building Washington, DC 20230 Phone: (800) 345-1222 www.eda.gov
Watershed Surveys and Planning	U.S. Department of Agriculture, Natural Resource Conservation Service	To provide planning assistance to Federal, State, and local agencies for the development and coordination of water and related land resource programs in watersheds and river basins	NRCS PO Box 2890 Washington, DC 20013 Phone: (202) 720-3527 www.nrcs.usda.gov
National Earthquake Hazards Reduction Program (NEHRP)	U.S. Department of Homeland Security, Federal Emergency Management Agency	To mitigate earthquake losses that can occur in many parts of the nation providing earth science data and assessments essential for warning of imminent damaging earthquakes, land-use planning, engineering design, and emergency preparedness decisions.	FEMA 500 C Street S.W. Washington, DC 20472 Phone (202) 646-4621 www.fema.gov
Engineering for Natural Hazards	National Science Foundation	Supports fundamental research that advances knowledge for understanding and mitigating the impact of natural hazards on constructed civil infrastructure	National Science Foundation Phone: (703) 292-7024 https://www.nsf.gov

Outreach and Partnership Resources

Table 5.5: Outreach and Partnership Tools

Outreach/Partnership Tools	Comments
City Website	The City website is an open forum for providing hazard information and for accepting ongoing comments from the public. The City website will likely be the main avenue for maintaining an open dialogue with the public for hazard mitigation throughout the planning period.
Public Outreach	The City holds several training opportunities throughout the year. Public safety training will be able to be expanded to include hazard-specific information to improve hazard awareness.
Mutual Aid Agreements	As part of expanding its resilience to the impacts of hazard events, the City intends to review its current mutual aid agreements, identify gaps, and secure new agreements to expand its available mutual resources.

Building on Existing Capabilities

As part of the Plan update, potential improvements to the City's existing capabilities were discussed. The City is cognizant of the need to continually evaluate its efforts and take an active role in promoting resiliency within the City. The City currently utilizes its Community Safety Division to train its staff and reach out to the community regarding preventative and preparedness strategies for hazard event. The Capital Improvement Program (CIP) directs funding to improve infrastructure and the City continually searches for grant opportunities to allow the City to accomplish additional improvements that address hazard mitigation efforts for public facilities. In addition to the City's current efforts, the following is a list of potential new initiatives that would improve the City's ability to promote resiliency.

- **Regulatory/Fiscal:** Enhance the CIP proposal procedure to include a Mitigation/Resiliency element to be considered for each project proposal. The intent is to consider how each CIP project might contribute to mitigation efforts, citing the HMP when proposed projects align with hazard mitigation planning efforts.
- **Administrative:** Expand the Community Safety Division's programs sufficient to provide specialized natural disaster training and safety for City personnel and the public, as appropriate.
- **Grant Funding:** Expand search for grant funding specifically to assist with aging infrastructure improvements, rehabilitation of open spaces, energy efficiency, and facility upgrades.
- **Outreach/Education:** Engage City commissions and committees and increase volunteer opportunities to work with the public to gain community participation in resiliency efforts and voluntary resilience projects for privately-owned properties.

Progress for Mitigation Incorporation

The sections above demonstrate the many resources available to the City for successful mitigation action implementation. Some of these resources have already proven their usefulness through successful action implementation over the last planning period. For example, since the last update, the City has implemented reviews of its existing ordinances, building codes and safety inspection procedures to help ensure they meet current generally accepted standards. Therefore, new developments within the City will be required to comply with new standards for safety, security, and resiliency. In addition, multiple department heads have taken an even more active role in coordinating Area E emergency preparedness activities.

5.2.2 Available Planning Mechanisms to Incorporate Mitigation Requirements

The City uses the following local planning mechanisms for incorporating the mitigation requirements of the Hazard Mitigation Plan.

General Plan

The City is responsible for updating and incorporating mitigation actions and concepts in the General Plan. The General Plan is evaluated on a periodic basis, which includes a review of the policies and programs associated with land use and development, among other things. Mitigation actions from the Hazard Mitigation Plan will be reviewed during the next scheduled update of the General Plan and incorporated as applicable. As part of this review, ordinances and codes will be reviewed to ensure they are consistent with the mitigation strategies and referred to the appropriate regulatory authority as needed.

Urban Water Management Plan

The City is responsible for updating and incorporating mitigation actions and concepts into its Urban Water Management Plan (UWMP). The UWMP is updated every five years, which includes a review of the policies and programs associated with providing adequate water supplies to meet demands under a range of water supply conditions. Mitigation actions from the Hazard Mitigation Plan will be reviewed during the next scheduled update of the plan and incorporated as applicable. As part of this review, ordinances and codes will be reviewed to ensure they are consistent with the mitigation strategies and referred to the appropriate regulatory authority as needed. The UWMP was recently updated in 2022.

Emergency Operations Plan

The City maintains an Emergency Operations Plan (EOP) that includes profiles and specific responses for earthquake, hazardous materials incident, flooding and several other hazards mentioned in the Hazard Mitigation Plan. The City will incorporate the Risk Assessment into the EOP in addition to using emergency scenarios outlined in the report to flush out potential mitigation actions.

Capital Improvement Program

The City maintains a Capital Improvement Program (CIP) with projects that are budgeted over a five-year period. Engineering mitigation projects are included within the CIP. Additionally, the projects already included within the CIP are reviewed for mitigation improvements (e.g., areas prone to flooding are configured with mitigation elements,

current seismic design criteria is applied to construction, facility locations are reviewed for special hazards, etc.).

5.3 Periodic Assessment Requirements

44 CFR 201.6(c)(4)(i): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Mitigation planning is an ongoing process and, as such, the Hazard Mitigation Plan should be treated as a living document that must grow and adapt in order to keep pace with changes within the City. Continuing from the 2016 Hazard Mitigation Plan, an annual assessment will be completed to document any changes in site hazards (e.g., updated FIRM maps, contemporary seismic studies, etc.) or the installation and purchase of new equipment (e.g., back-up generators, emergency response equipment, etc.) to ensure they do not have any major effects on City's hazard vulnerabilities that would impact the conclusions or actions associated with the Hazard Mitigation Plan. In addition, these reviews will track the progress of proposed mitigation actions and the incorporation of mitigation planning in other City planning documents. As needed, these reviews can be used to promote mitigation action with the City or alter mitigation strategies within the plan, as appropriate.

Prior to the fifth year of the revision cycle, these annual observations and assessments will be reviewed to determine what changes should be implemented in the required Hazard Mitigation Plan Update and what progress can be documented. The results of the annual evaluations will be folded back into each phase of the planning process and should yield decisions on how to update each section of the Plan.

The Management Analyst has the responsibility of implementing these annual and five-year requirements. During the annual review, if any updates are deemed minor, then the Management Analyst or designee will perform the updates. However, if more major updates are required, then the Steering Committee will be reconvened to discuss the effects on the Plan. For the fifth year revision, the entire Steering Committee will reconvene in order to use their expertise to update the Plan in its entirety.

In addition to these periodic requirements, any significant modification to the City's facilities should be considered with respect to a possible impact on the Hazard Mitigation

Plan. All Steering Committee members are responsible for providing updates for the Plan to the Management Analyst as necessary. As noted in the following section, the completed Hazard Mitigation Plan will be available on the City's website to allow the public to continue to be involved during these periodic reviews.

5.4 Update Requirements

§201.6(c)(4)(i): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

§201.6(c)(4)(iii): [The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

The Emergency Management and Assistance regulations (44 CFR Part 201) state that it is the responsibility of local agencies (i.e., the City) to "at a minimum, review and, if necessary, update the local mitigation plan every five years from date of plan approval to continue program eligibility." As stated in Section 5.3, this responsibility lies with the Management Analyst. The evaluation procedures listed below will provide insight into the major changes that need to be included in the five-year update and resubmission to FEMA.

- Annual Hazard Mitigation Plan review with respect to changes in hazard vulnerability (e.g., additional hazards identified, natural hazard events, etc.)
- Annual Hazard Mitigation Plan review with respect to development of new facilities
- Five year comprehensive update to address the findings of the annual reviews
- Re-submittal of the updated Hazard Mitigation Plan to CalOES/FEMA

Additionally, the risk assessment portion of the plan will be reviewed to determine if the information should be updated or modified. Each division/department responsible for the various implementation actions will report on:

- Status of their projects,
- Implementation processes,
- Any difficulties encountered,
- How coordination efforts are proceeding, and
- Strategies that should be revised.

5.4.1 Plan Update

The City's Hazard Mitigation Plan was last updated in 2016. During Steering Committee Meeting #2, the Plan goals were reviewed for consistency and applicability to the City, along with the goals from the 2018 California State Hazard Mitigation Plan and 2019 Los Angeles County Hazard Mitigation Plan. Table 5.6 illustrates the changes in the priorities of the Plan.

Table 5.6: Hazard Mitigation Plan Goals

2016 Plan Goals	Current Plan Goals
1. Protect life, property, and commerce	1. Protect life, property, and commerce
2. Promote public awareness	2. Promote public awareness
3. Protect the environment	3. Protect the environment
4. Develop and expand partnerships and implementation	4. Develop and expand partnerships and implementation
5. Enhance emergency services capabilities	5. Enhance emergency services capabilities

As shown in Table 5.1, the overall Plan goals did not change. However, Plan objectives were updated to further clarify how the City wanted to achieve the Plan Goals. Details of the Plan objectives can be found in Chapter 4 of this Plan.

5.4.2 Continued Public Involvement

To facilitate ongoing public input, the completed and adopted Hazard Mitigation Plan will be posted on the City's website to allow the public to remain engaged and provide feedback. The website will include a link to a contact form allowing the public to submit comments. When updating the Hazard Mitigation Plan, the City will solicit participation from Steering Committee participants to discuss any issues that need to be addressed in the Hazard Mitigation Plan update. Public participation will be solicited through public notices and advertised on the website.

The goal of outreach regarding update meetings is to solicit public involvement in the Steering Committee, which brainstorms the hazards facing the City and discusses ways to mitigate those hazards. The public was encouraged to participate in the hazard

mitigation process through the release of a public survey. Results from the survey highlighted the hazards that were of most concern to the community. The City can use the information from the survey results when deciding which mitigation actions to implement. It can generally be assumed that actions reducing risk for the top-rated hazards will be well received by the community. More detailed information regarding the survey results can be found in Chapter 1 and Appendix D.

Table 5.7: Action Item Implementation

Action ID	Recommendation Description	Responsible Department	Completion Timeframe	Status	Details/Status Summary
2022.HMP.01	Develop public and private partnerships to foster hazard mitigation program coordination and collaboration in the City of Cerritos.	Community Safety	Ongoing	Open	
2022.HMP.02	Conduct evaluations of critical facilities to develop inventories of at-risk buildings and identify areas for improvement. This includes, but is not limited to, incorporating alternative power sources, and identifying vulnerabilities to fire and earthquake. Initiate mitigation projects accordingly.	Engineering	Medium	Open	
2022.HMP.03	Strengthen emergency services preparedness and response by linking emergency services with hazard mitigation programs and enhancing public education on a regional scale.	Community Safety	Ongoing	Open	

Action ID	Recommendation Description	Responsible Department	Completion Timeframe	Status	Details/Status Summary
2022.HMP.04	Conduct annual tabletop multi-hazard disaster exercises with local law enforcement, emergency managers, City and county officials, the Local Emergency Planning Committee and other disaster response agencies to identify vulnerabilities in emergency services and response.	Community Safety	Ongoing	Open	
2022.HMP.05	Retrofit Traffic Signals for coordination with Emergency Vehicles to decrease response time during a hazard event	Engineering	Short	Open	
2022.HMP.06	Develop a Business Continuity Planning Display. The display will be designed to raise awareness of why it is important to have a Business Continuity Plan and how to develop a Plan, and will encourage businesses to make sure that their Plan fits in the City's Plan. The display will be appropriate for use at local Chamber of Commerce meetings and activities, civic group gatherings, and other business-related gatherings.	Community Development	Short	Open	

Action ID	Recommendation Description	Responsible Department	Completion Timeframe	Status	Details/Status Summary
2022.HMP.07	Work with the U.S. Geological Survey (USGS) to verify current GIS earthquake hazard mapping data is accurate for the City of Cerritos and utilize technical analysis of earthquake hazards to identify vulnerabilities in accordance with the Safety Element of the City's General Plan (Policy SAF-2.3)	GIS Division	Medium	Open	
2022.HMP.08	In accordance with the Safety Element of the City's General Plan (Policy SAF-2.3), conduct new seismic strength evaluations of critical City facilities built before 1980 to identify vulnerabilities and initiate improvement projects accordingly. These evaluations should highlight potential mitigation actions that would improve public infrastructure and reinforce critical facilities to meet current seismic standards.	Engineering	Short	Open	

Action ID	Recommendation Description	Responsible Department	Completion Timeframe	Status	Details/Status Summary
2022.HMP.09	In accordance with the Safety Element of the City's General Plan (Policy SAF-2.1), expand and distribute outreach materials that will increase public awareness to encourage the initiation of projects to minimize vulnerability to earthquakes in the local community.	Communications	Ongoing	Open	
2022.HMP.10	Provide information to new home and property buyers on earthquake, fire and multi-hazard safety and encourage the public sector to identify vulnerabilities and initiate improvement projects.	Communications	Short	Open	
2022.HMP.11	Coordinate with County and State (i.e. Local Emergency Planning Committee (LEPC)) representatives to maintain awareness about of current trends in illegal transportation of hazardous materials within the City or that may impact the City.	Community safety	Short	Open	
2022.HMP.12	Analyze traffic patterns throughout the City to identify high-collision areas and adjust flow to assist in collision event reduction. Apply for grant funding to update infrastructure to improve traffic flow	Engineering	Medium	Open	

Action ID	Recommendation Description	Responsible Department	Completion Timeframe	Status	Details/Status Summary
2022.HMP.13	In accordance with the Safety Element of the City's General Plan (Policies SAF-1.4 & SAF-1.2), conduct evaluations of City flood controls within the City to ensure efficient operations and identify potential storm drain improvements. Then, identify key areas to initiate improvement projects accordingly.	Public Works/Water & Power Department	Short	Open	
2022.HMP.14	In accordance with the Safety Element of the City's General Plan (Policy SAF-5.3), ensure current maps of underground, city-managed, utility pipelines are up-to-date and educate the public regarding the availability for pipeline safety information (Dig Alert).	Communications /Community development	Medium	Open	
2022.HMP.15	Continue to add recycled water channels to the City's water system to help conserve potable water.	Public Works/Water & Power Department	Ongoing	Open	
2022.HMP.16	Continue public outreach on water conservation	Public Works/Water & Power Department	Ongoing	Open	

Action ID	Recommendation Description	Responsible Department	Completion Timeframe	Status	Details/Status Summary
2022.HMP.17	Continue public education regarding “See Something-Say Something” for Adversarial Events	Communications	Ongoing	Open	
2022.HMP.18	Continue coordination with existing high-profile, private facilities to ensure security and anti-terrorism safety features are in use.	Sheriff’s Department	Ongoing	Open	
2022.HMP.19	Continue to update the City’s tree inventory and identify vulnerabilities. All trees should be maintained according to the standard in the City’s Municipal Code to minimize potential hazards.	Public Works/Water & Power Department	Ongoing	Open	
2022.HMP.20	Expand remote work capabilities for City employees to maximize City continuity during emergency events including, but not limited to, acquisition of tools/equipment to maximize communication within the City and with the Public and updating of emergency plans to include considerations for Management Information System (MIS) upgrades in emergency operations.	MIS	Medium	Open	

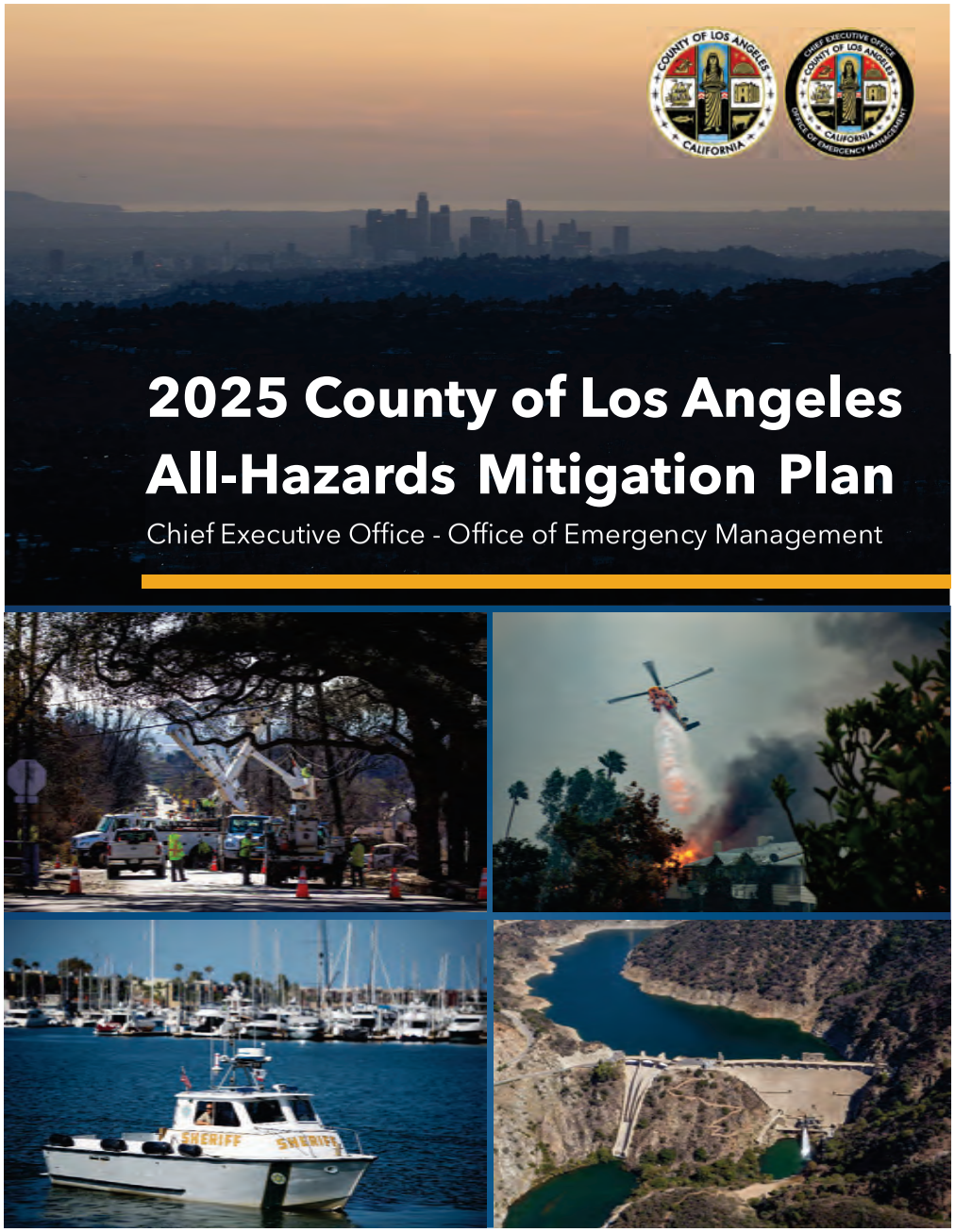
Action ID	Recommendation Description	Responsible Department	Completion Timeframe	Status	Details/Status Summary
2022.HMP.21	Formalize and exercise a Business Continuity Plan identifying essential services.	Dir. Emergency Services/ City Manager	Medium	Open	
2022.HMP.22	Improve communication and coordination with local agencies and the private sector to bring resource (i.e. vaccinations) opportunities into the City.	City Manager/ City Council	Short	Open	

CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX J

LOS ANGELES COUNTY ALL-HAZARDS MITIGATION PLAN



Acknowledgement

The Los Angeles County Board of Supervisors gratefully acknowledges the following agencies/jurisdictions who contributed to the development of this plan.

County Departments

Aging and Disabilities
Chief Executive Office
Chief Sustainability Office
Beaches and Harbors
Economic Opportunity
Health Services
Human Resources
Parks and Recreation
Public Health
Public Social Services
Public Works
Regional Planning
Fire (LACoFD)
Internal Services
Sheriff (LASD)

Disaster Management Area Coordinators

State of California

California Governor's Office of Emergency Services (Cal OES)
California State Council on Developmental Disabilities (SCCD)

External Partners

Access Services
Alzheimer's Association
Catholic Charities
City of Beverly Hills
City of Long Beach
Disability Community Resource Center
Eastern Los Angeles Regional Center
Emergency Network Los Angeles
Habitat for Humanity
Harbor Regional Center
Lanterman Regional Center
Los Angeles County Office of Education
Los Angeles County Sanitation Districts
Los Angeles County Metropolitan Transportation Authority
Los Angeles Regional Food Bank
Neighborhood Legal Services of Los Angeles County
Puente Hills Habitat Preservation Authority
South Central Los Angeles Regional Center
Westside Regional Center

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Letter of Promulgation

To: Residents, Officials, and Employees of Los Angeles County

Preservation of life and property is an inherent responsibility of local, state, and federal government. The County of Los Angeles produced this updated 2025 All-Hazard Mitigation Plan (AHMP) to delineate mitigation responsibilities of County departments and describe mitigation support to communities.

While no plan can guarantee prevention of death and destruction, a well-developed AHMP can guide mitigation efforts aimed at decreasing the amount of loss experienced after an emergency. The Federal Disaster Mitigation Act of 2000 (DMA 2000) requires that local jurisdictions have an updated mitigation plan in order to be eligible for mitigation project activities. The intent of the 2025 AHMP also ensures that mitigation actions are based on sound planning processes that account for the risks and capabilities of communities within Los Angeles County of Mitigation plans are strategic and policy level documents, forming the foundation of a community's long-term strategy to reduce disaster losses.

The AHMP should be reviewed on an annual basis and approved every five years. The AHMP conforms to the requirements set forth the by the Federal Emergency Management Agency (FEMA) and the California Governor's Office of Emergency Services (Cal OES). The Los Angeles County Board of Supervisors gives its full support to the 2025 All-Hazards Mitigation Plan and urges all residents, officials, and employees to collectively share in our commitment to hazard mitigation.

This letter promulgates the 2025 All-Hazards Mitigation Plan which becomes effective upon approval by the Los Angeles County Board of Supervisors.

Kathryn Barger

Kathryn Barger, Chair
Los Angeles County Board of Supervisors

9/9/25
Date

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1 Introduction, Purpose, and Scope

1.1 Purpose

The 2025 All-Hazard Mitigation Plan (AHMP) was developed in collaboration with a wide range of stakeholders representing County Departments and other external stakeholders from cities, local utilities, non-governmental organizations, and state agencies. The purpose of this AHMP is to form the strategic-level foundation for hazard mitigation efforts undertaken by the County of Los Angeles. The 2025 AHMP is an update to the 2020 version of the plan and seeks to maintain the County's continuing commitment to hazard mitigation as a critical step in reducing hazard risks, making communities safer, and building countywide resilience.

1.2 Scope

Hazard mitigation is defined in the Code of Federal Regulations (CFR) as "any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards." This AHMP identifies and profiles hazards, analyzes the people and critical infrastructure at risk, and provides a series of mitigation strategies aimed at reducing hazard risk. The plan also describes actions to integrate vulnerable communities including people with Access and Functional Needs (AFN) into hazard mitigation planning and other efforts. The AHMP is intended to function as a strategic plan for hazard mitigation and, while not an emergency plan, complements the Los Angeles County Operational Area Emergency Operations Plan. This plan contains mitigation strategies for County-owned facilities or other areas under the jurisdiction of the County of Los Angeles. Hazard mitigation strategies for incorporated cities within Los Angeles County may be found in that city's hazard mitigation plan.

1.3 Legal Authority and Requirements

Historically local hazard mitigation planning has been driven by federal law. The Disaster Mitigation Act (DMA) of 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 with new requirements for hazard mitigation. The DMA of 2000 emphasized the need for state, tribal, and local entities to closely coordinate on hazard mitigation efforts and formed the legal basis for the Federal Emergency Management Agency's (FEMA) current mitigation plan requirements in order to utilize Hazard Mitigation Assistance grant programs. This plan was prepared

pursuant to the requirements set forth in the DMA of 2000 and other FEMA hazard mitigation policy guidance.

1.4 Plan Organization

The AHMP is organized into nine (9) sections, excluding the Appendices, including:

1. **Introduction:** Discusses the purpose, scope, and legal authority of the plan.
2. **Planning Process:** Describes the planning process that was undertaken by the Hazard Mitigation Planning Committee to create this updated 2025 AHMP.
3. **Community Profile:** Overviews the unique geographic, climatic, environmental, and socioeconomic factors that make up Los Angeles County and their implications for hazard mitigation planning.
4. **Climate Change:** Outlines the impacts of climate change in Los Angeles County and potential mitigation and adaptation measures.
5. **Integrating AFN into Hazard Mitigation:** Discusses strategies for integrating people with Access and Functional Needs (AFN) into prevention and hazard mitigation efforts.
6. **Hazard Identification and Risk Assessment:** Identifies and profiles nine (9) natural and four (4) human-caused hazards that may impact Los Angeles County including: wildfire, earthquake, extreme heat, drought, flooding, dam failure, land movement, tsunami, severe wind and tornado, mass violence, cybersecurity incidents, transportation incidents, and public health emergencies.
7. **Mitigation Strategy:** Delineates the overall strategy for the County's hazard mitigation efforts including goals and objectives, existing mitigation capabilities, and an analysis of mitigation actions.
8. **Plan Maintenance:** Outlines how the plan will be maintained annually ahead of the next full plan update in five years.
9. **Plan Adoption:** Discusses updates to the plan and implementation following plan adoption.

Following these sections, there are an additional six (6) appendices with supporting materials such as hazard maps, meeting minutes from planning meetings, and information about the public engagement efforts during the planning process.

2 Planning Process

2.1 Overview of the Planning Process

The 2025 Los Angeles County All-Hazard Mitigation Plan (AHMP) update builds upon the robust all-hazard planning framework established by the 2020 All-Hazards Mitigation Plan, while incorporating new methodologies, stakeholder engagement, and compliance requirements. The planning process for this update emphasized inclusivity, transparency, and the integration of emerging climate adaptation considerations.

This planning process followed a structured, phased approach aligned with FEMA's Local Mitigation Planning Policy Guide (2022), 44 CFR requirements, and guidance from the California Governor's Office of Emergency Services (Cal OES). This approach began with project initiation where the scope, timeline, and stakeholders were defined. Stakeholder and public engagement were prioritized to ensure representation from diverse groups, including historically underrepresented communities and climate-vulnerable populations.

Data collection and analysis leveraged updated hazard, climate, and vulnerability data from local, state, and federal sources, providing a foundation for enhanced risk and vulnerability assessments. Hazard profiles were updated to include climate projections and cascading impact scenarios. Mitigation strategies were revised and prioritized with a renewed focus on climate resilience and nature-based solutions. Strategies were also developed incorporating people with access and functional needs throughout each component of the AHMP. Finally, methods for monitoring and evaluation of mitigation efforts were defined in the plan maintenance and implementation strategy. Table 2-1 provides a timeline of the major plan update tasks and milestones over the planning process.

Table 2-1 AMHP Planning Timeline

Date	Tasks	People Involved
February 2025	Reviewed the 2020 AHMP and identified components that require update.	OEM AHMP Project Team
	Collected and reviewed existing documents, including the Threat and Hazard Identification and Risk Assessment (THIRA) along with resources for people with access and functional needs and people experiencing homelessness.	OEM AHMP Project Team

Date	Tasks	People Involved
February 2025	Met with state Hazard Mitigation Planning Team.	OEM AHMP Project Team, Cal OES Mitigation Division
	Identified the initial list of stakeholders and ensured organizations that work with and represent people with access and functional needs were engaged in the planning process. External stakeholders include neighboring communities, local and regional agencies, and others.	OEM AHMP Project Team
	Conducted 2025 AHMP Kickoff Meetings with internal stakeholders.	OEM AHMP Project Team, Internal County Stakeholder Group, Cal OES Mitigation Division
	Determined hazards to be profiled including both natural (i.e., wildland fire, earthquake, etc.) and human-caused (i.e., cybersecurity, terrorism, etc.).	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group
	Drafted initial sections of the 2025 AHMP.	OEM AHMP Project Team
	Shared drafts of initial sections with internal and external stakeholders for their review.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division
	Met with internal and external stakeholders to obtain feedback on draft plan elements.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division

Date	Tasks	People Involved
March 2025	Developed the Public Outreach Engagement Plan to collect feedback from the public on the public draft of the 2025 AHMP.	OEM AHMP Project Team, Cal OES Mitigation Division
	Drafted subsequent sections of the 2025 AHMP including updating existing mitigation actions and developing new mitigation actions as needed.	OEM AHMP Project Team
	Shared drafts of the subsequent sections with internal and external stakeholders for their review.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division
	Met with internal and external stakeholders to obtain feedback on subsequent draft plan elements.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division
April/May 2025	Drafted final sections of the 2025 AHMP and produced a Final Draft AHMP.	OEM AHMP Project Team
	Shared Final Draft of the AHMP with internal and external stakeholders for their review.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division
	Met with internal and external stakeholders to obtain feedback on subsequent Final Draft AHMP.	OEM AHMP Project Team, Internal County Stakeholder Group, External Stakeholder Group, Cal OES Mitigation Division
	Produced Final AHMP.	OEM AHMP Project Team

2.2 Stakeholder Engagement

Inclusive stakeholder involvement was essential to the planning process. The County ensured broad representation and participation, consistent with the "Whole Community Approach" outlined in the 2023 Operational Area Emergency Operations Plan (OAEOP). Key stakeholders that comprised the Hazard Mitigation Advisory Committee included:

- County departments such as, but not limited to, Public Works, Public Health, and Regional Planning.
- Cities within the operational area (OA) and neighboring communities through Disaster Management Area Coordinators (DMACs) and city representation.
- Non-governmental organizations (NGOs), including environmental and disability advocacy groups.
- Special District partners managing critical infrastructure.
- Representatives of academia and school districts.
- Community representatives from Access and Functional Needs (AFN) populations and historically underrepresented populations.

Regular meetings, workshops, and focus groups were held to gather input and refine mitigation strategies. Stakeholders were contacted and invited to participate in the 2025 AHMP planning process through email (please see email template in Appendix B-3). Stakeholder feedback was documented and incorporated into the plan, ensuring diverse perspectives informed the process. Tables 2-2 and 2-3 includes a list of representatives of each agency that contributed to the planning process.

Table 2-2 Hazard Mitigation Advisory Committee – Internal Stakeholder Group

Department/ Agency	Name	Title	Planning Contribution
Los Angeles County Office of Emergency Management (OEM AHMP Project Team)	Michael Morin	Emergency Management Coordinator	Functioned as lead planners, led planning meetings, drafted plan, reviewed mitigation actions submitted by departments.
	Matthew Topoozian	Emergency Management Coordinator	

Department/ Agency	Name	Title	Planning Contribution
	Karen Haro	Emergency Management Coordinator	
	Girma Wollela	Emergency Management Coordinator	
Los Angeles County Department of Aging and Disabilities	Mike Tsao	Administrative Deputy	Attended planning meetings, reviewed section drafts, and provided feedback.
	Henry Lopez	Program Manager	
	Carin Anderson	Administrative Services Manager	
	Keilah Kelso	Administrative Services Manager	
Los Angeles County Chief Executive Office – Anti-Racism, Diversity, and Inclusion Initiative	Cesar Sanchez	Senior Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Chief Executive Office – Homeless Initiative	Onnie Williams III	Principal Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Chief Sustainability Office	Matthew Gosner	Climate Resilience Officer	Attended planning meetings, reviewed section drafts, and provided feedback.

Department/ Agency	Name	Title	Planning Contribution
Los Angeles County Department of Beaches and Harbors	Katharine de la Cruz	Administrative Services Manager	Attended planning meetings, reviewed section drafts, and provided feedback.
	Vanessa Huerta	Safety Officer	
Los Angeles County Department of Economic Opportunity	Maritza Dubie	Human Services Administrator	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Department of Health Services	Elaine Forsyth	Senior Nursing Instructor	Attended planning meetings, reviewed section drafts, and provided feedback.
	Isabel Sanchez	Disaster Services Specialist	
Los Angeles County Department of Human Resources	Kevin Halbritter	Deputy Compliance Officer	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Department of Parks and Recreation	Ramon Bernal	Disaster Services Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Department of Public Health	Elizabeth Rubin	Epidemiologist	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Department of Public Social Services	Manuel Gutierrez	Disaster Services Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.

Department/ Agency	Name	Title	Planning Contribution
Los Angeles County Department of Public Works	Joseph Marble	Disaster Services Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.
	Loni Eazell	Disaster Services Specialist	
Los Angeles County Department of Regional Planning	Thuy Hua	Supervising Planner	Attended planning meetings, reviewed section drafts, and provided feedback.
	Edgar De La Torre	Principal Regional Planner	
Los Angeles County Fire Department	Nick Duvally	Deputy Fire Chief	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Internal Services Department	Juan-Raul Cardenas	GIS Analyst	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Sheriff's Department	Jordan Kennedy	Sergeant	Attended planning meetings, reviewed section drafts, and provided feedback.

Table 2-3 Hazard Mitigation Advisory Committee – External Stakeholder Group

Department/Agency	Planning Contribution
Access Services	Attended planning meetings, reviewed section drafts, and provided feedback.
Alzheimer's Association California	Attended planning meetings, reviewed section drafts, and provided feedback.
California Governor's Office of Emergency Services	Attended planning meetings, reviewed section drafts, and provided feedback.
Catholic Charities	Attended planning meetings, reviewed section drafts, and provided feedback.

Department/Agency	Planning Contribution
City of Beverly Hills Emergency Management Division	Attended planning meetings, reviewed section drafts, and provided feedback.
City of Long Beach Disaster Preparedness & Emergency Communications	Attended planning meetings, reviewed section drafts, and provided feedback.
City of Los Angeles Emergency Management Department	Attended planning meetings, reviewed section drafts, and provided feedback.
Disability Community Resource Center	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area A	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area B	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area C	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area D	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area E	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area F	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area G	Attended planning meetings, reviewed section drafts, and provided feedback.
Disaster Management Area Coordinator, Area H	Attended planning meetings, reviewed section drafts, and provided feedback.
Eastern Los Angeles Regional Center	Attended planning meetings, reviewed section drafts, and provided feedback.
Emergency Network Los Angeles	Attended planning meetings, reviewed section drafts, and provided feedback.
Habitat for Humanity	Attended planning meetings, reviewed section drafts, and provided feedback.

Department/Agency	Planning Contribution
Harbor Regional Center	Attended planning meetings, reviewed section drafts, and provided feedback.
Lanterman Regional Center	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Office of Education	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles County Sanitation Districts	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles Metropolitan Transportation Authority	Attended planning meetings, reviewed section drafts, and provided feedback.
Los Angeles Regional Food Bank	Attended planning meetings, reviewed section drafts, and provided feedback.
Neighborhood Legal Services of Los Angeles County	Attended planning meetings, reviewed section drafts, and provided feedback.
Puente Hills Habitat Preservation Authority	Attended planning meetings, reviewed section drafts, and provided feedback.
South Central Los Angeles Regional Center	Attended planning meetings, reviewed section drafts, and provided feedback.
Westside Regional Center	Attended planning meetings, reviewed section drafts, and provided feedback.

2.3 Public Involvement and Outreach

Public outreach efforts aimed to foster transparency, inclusivity, and fortify public trust. The County engaged the public during the planning process through multiple media formats to share information and collect feedback taking into account language and other access and functional needs. A rolling outreach strategy was used to ensure that as each section was drafted and reviewed by planning stakeholders, it was concurrently made available for public commentary. To accomplish this, each section was posted to the Los Angeles County Hazard Mitigation Program website as it was completed by the planning team. A survey designed to gauge community perceptions of hazard risks and mitigation priorities was used on the website (Appendix D). This approach ensured that the public was a key partner in every step of the planning process and had a voice as

each section was being developed by the planning team. A social media campaign using all LA County OEM social media channels was initiated to direct the public to the survey.

To address equity, targeted outreach efforts focused on engaging historically underrepresented communities and AFN populations, using multilingual and accessible materials and culturally appropriate techniques. Aside from public outreach, stakeholders that work with or represent people with access and functional needs, people experiencing homelessness, and a diverse array of cultural groups were targeted to participate in the Hazard Mitigation Advisory Committee. These measures ensured that the public had meaningful opportunities to participate in shaping the plan.

2.4 Review and Incorporation of Existing Plans and Reports

The planning process included a comprehensive review of existing documents and protocols to ensure consistency and alignment. The 2020 All-Hazards Mitigation Plan served as the foundational document for this update. Additionally, key concepts from the 2023 Operational Area Emergency Operations Plan (OAEOP), such as Emergency Support Functions (ESFs) and disaster management areas, were integrated. The Los Angeles County Climate Vulnerability Assessment provided valuable insights into climate risks and social sensitivity, while local Climate Action Plans ensured alignment with municipal climate adaptation initiatives. Furthermore, the 2021 UASI THIRA (Threat and Hazard Identification and Risk Assessment) provided critical data for identifying evolving threats and capability targets, enhancing the accuracy and relevance of the plan. The demographic data from the 2020 U.S. Census was utilized to ensure an accurate representation of Los Angeles County's population, now estimated at over 10 million residents. The demographic breakdown includes 48% Hispanic or Latino, 26% White, 15% Asian, 8% African American, and 3% other, with over 40% speaking a language other than English at home, emphasizing the need for multilingual and culturally appropriate outreach.

Table 2-4 Existing Plans, Maps, and Reports

Plan, Map, or Report	Information to be Incorporated into the 2025 Updated AHMP
Los Angeles County Operational Area Emergency Operations Plan (2023)	Used to inform Section 6: Hazard Identification and Risk Assessment and Section 7: Mitigation Strategy
Los Angeles County 2035 General Plan (2024)	Safety element mitigation policies used to inform Section 7 – Mitigation Strategy
Los Angeles County Comprehensive Floodplain Management Plan (2021)	Used to inform Section 6: Hazard Identification and Risk Assessment and Section 7: Mitigation Strategy for elements related to flood hazards
County of Los Angeles Floodplain Management Plan Progress Report from (2024)	Used to inform Section 6: Hazard Identification and Risk Assessment and Section 7: Mitigation Strategy for elements related to flood hazards
County of Los Angeles Repetitive Loss Area Analysis Progress Report (2021)	Used to inform Section 6: Hazard Identification and Risk Assessment and Section 7: Mitigation Strategy for elements related to flood hazards
Los Angeles County 2045 Climate Action Plan (2024)	Used to inform Section 6: Hazard Identification and Risk Assessment, Section 7: Mitigation Strategy, and Section 4: Climate Change for elements related to hazard risk posed by climate change
Los Angeles County Fire Department Fire Plan (2023)	Used to inform Section 6: Hazard Identification and Risk Assessment and Section 7: Mitigation Strategy for elements related to wildland fire hazards
Our County: Los Angeles Countywide Sustainability Plan (2019)	Used to inform Section 6: Hazard Identification and Risk Assessment, Section 7: Mitigation Strategy, and Section 4: Climate Change for elements related to hazard risk posed by climate change
Los Angeles County Homeless Initiative Strategy Plan (2022)	Used to inform vulnerable populations information across all sections of the plan.
Disability Among Adults in Los Angeles County (2019)	Used to inform vulnerable populations information across all sections of the plan.
Southern California Earthquake Data Center's Earthquake Catalogs (Current as of 2025)	Historical seismic information used in Section 6: Hazard Identification and Risk Assessment.

Plan, Map, or Report	Information to be Incorporated into the 2025 Updated AHMP
Maritime Tsunami Response Playbooks: Background Information and Guidance for Response and Hazard Mitigation Use (2016)	Historical tsunami information used in Section 6: Hazard Identification and Risk Assessment.
FEMA Flood Insurance Study, Los Angeles County, California (2020)	Historical flood information used in Section 6: Hazard Identification and Risk Assessment.
U.S. Geological Survey (USGS): Rainfall and Landslides in Southern California (2015)	Historical landslide information used in Section 6: Hazard Identification and Risk Assessment.
Burn Scar Information and Maps	Historical fire information used in Section 6: Hazard Identification and Risk Assessment.

3 Community Profile

3.1 Los Angeles County Overview



Los Angeles County is the most populous county in the United States, encompassing a diverse array of communities, landscapes, and infrastructure. According to the most recent census data, Los Angeles County has a population of approximately 10 million residents of which more than 1 million reside in unincorporated areas. The County's demographics, geographic features, and economic activities present both unique opportunities and significant challenges for hazard mitigation planning. This updated community profile integrates insights from the 2023 Operational Area Emergency Operations Plan (OAEOP) and reflects changes in population trends, infrastructure development, and climate risks.

The County Operational Area (OA) consists of all political subdivisions within the geographical boundaries of Los Angeles County. It encompasses five supervisorial districts, eight Disaster Management Areas (DMAs), 88 incorporated cities, 80 school districts, and approximately 142 special districts.

3.2 Geography and Land Use



Spanning over 4,000 square miles, Los Angeles County features diverse terrain, including coastal plains, valleys, mountains, islands, and deserts. The County's varied geography includes multiple microclimates that influence its exposure to natural hazards, such as earthquakes, tsunamis, wildfires, floods, and landslides. Urban areas, particularly the City of Los Angeles and its surrounding metropolitan region, are densely populated and heavily developed. In contrast, rural and unincorporated areas often face unique vulnerabilities due to limited infrastructure and resources. Rural areas include the Angeles and Los Padres National Forests, which have small communities, campgrounds, and day use areas. There are also two islands within the County, Santa Catalina and San Clemente. The County also includes a significant amount of Wildland Urban Interface (WUI) areas where residential and commercial development meets underdeveloped wildland with vegetative fuels. Land use within the County is equally diverse, with a mix of residential, commercial, industrial, agricultural, and open spaces. Recent urban development in densely populated areas has increased impervious surfaces like concrete and asphalt, which retain heat and create urban heat islands (UHI) that are much hotter than nearby rural areas. This phenomenon elevates temperatures, especially in low-income communities lacking green spaces for cooling. Additionally, urbanization affects stormwater management by reducing natural drainage and exacerbating flooding risks in low-lying areas.

These trends underscore the need for sustainable planning strategies, such as promoting green infrastructure, enhancing stormwater systems, and mitigating heat islands through tree planting and reflective materials. The County's diverse land use must be carefully managed to reduce vulnerabilities while supporting economic growth and environmental sustainability.

3.3 Social Vulnerability

Social vulnerability is a crucial component to Los Angeles County's hazard mitigation planning. The County is home to a diverse population with disparities in income, housing stability, and access to resources. The Los Angeles County Anti-Racism, Diversity, and Inclusion (ARDI) Initiative created a comprehensive Equity Explorer, which is a geospatial tool that explores multiple equity data points across Los Angeles County. The ARDI Equity Explorer includes various layers that visualize social equity, economic opportunity, housing and homelessness, health, justice, built environment, and disaster recovery data. The public can access this data at ceo.lacounty.gov/ardi/tools. Maps created using data from the ARDI Equity Explorer are in Appendix A-8.

The US Centers for Disease Control and Prevention (CDC) defines social vulnerability as a community's capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters to human caused threats. The CDC's Social Vulnerability Index (Figure 3.1) is designed to identify and quantify communities experiencing social vulnerability.

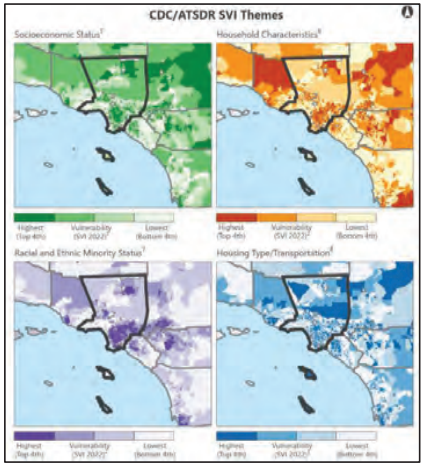


Figure 3.1 CDC Social Vulnerability Index (CDC 2022)

The most recent CDC Social Vulnerability Index score from 2022 for Los Angeles County indicated a high level of vulnerability across four themes: socioeconomic status, household characteristics, racial and ethnic minority status, and housing type/transportation.

Vulnerable populations identified for Los Angeles County that will be considered in the AHMP include:

- **Low-Income Residents**: Individuals living below or near the poverty line are often disproportionately affected by disasters due to limited financial resources for emergency preparedness, response, and recovery.

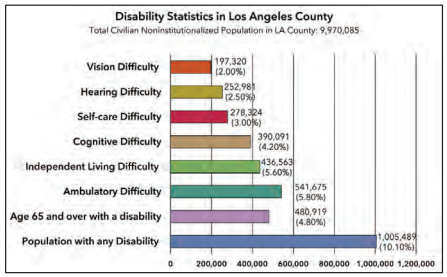


Figure 3.2 Disability Statistics in Los Angeles County (OAEOP 2023)

- **People with Access and Functional Needs (AFN)**: Individuals with Access and Functional needs have increased challenges in preparedness, evacuation, sheltering, accessing emergency services and recovery. Access and Functional Needs include but are not limited to people who have any combination in varying degree of: physical disabilities, intellectual disabilities, developmental disabilities, mental health-related issues, visual impairments, hearing impairments/deaf, mobility impairments, or chronic conditions. AFN also include older adults, infants and children, people living in institutionalized settings, people living below the poverty line or experiencing homelessness, people with limited English proficiency or are non-English speakers, or people who are transportation disadvantaged.



Figure 3. 3 Breakdown of Language at Home in Los Angeles County (OAEOP 2023)

- **People Experiencing Homelessness (PEH)**: With an estimated over 75,000 individuals experiencing homelessness, this population is particularly at risk during extreme weather events and other disasters.
- **Immigration Status**: Fear of engaging with government services based on immigration status can prevent residents from accessing critical resources.

- **Limited English Proficiency:** Over 40% of residents speak a language other than English at home, highlighting the need for multilingual and culturally appropriate outreach efforts. Language accessibility is critical to ensure all residents and visitors can obtain information and services during a disaster. See Figure 3.3 for a breakdown of languages spoken at home in Los Angeles County not including American Sign Language.

The figure below highlights certain variables in Los Angeles County that may increase vulnerability to emergencies and disasters. To address these vulnerabilities, the County's mitigation planning includes equitable strategies designed to reduce risk and enhance resilience among these populations. Targeted outreach, improved access to resources, preparedness education events, and collaboration with community organizations are integral to these efforts.

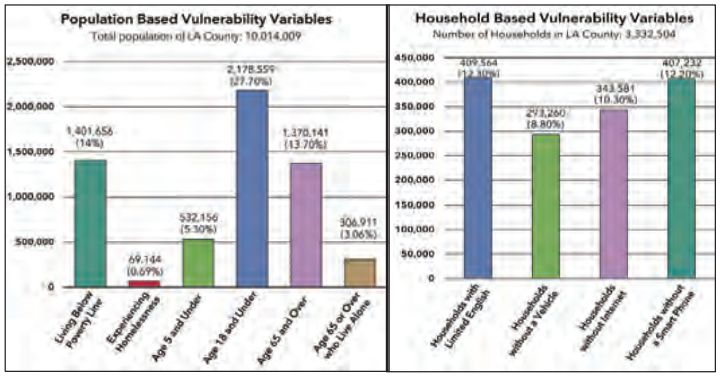


Figure 3.4 Los Angeles County Vulnerability Variables (OAEOP 2023)

The Federal Emergency Management Agency (FEMA) maintains the National Risk Index, a mapping tool that assesses 18 possible hazards a jurisdiction is susceptible to in combination with the amount of loss that could result from those hazards. Los Angeles County ranks as the community with the most risk in the United States according to the FEMA National Risk Index. According to the National Risk Index, hazards with the highest risk for Los Angeles County include earthquake, wildfires, extreme heat, flooding, high winds, and landslides.

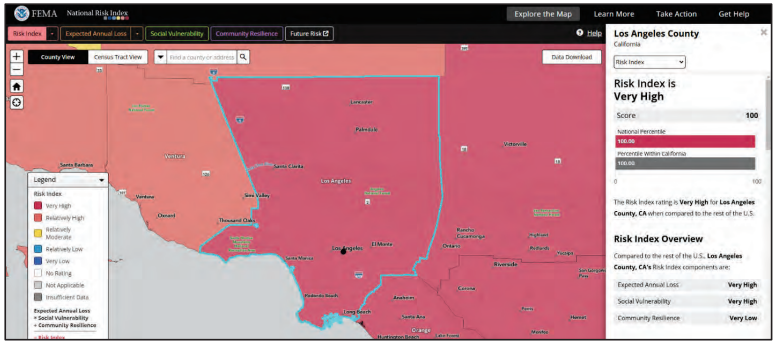


Figure 3.5 FEMA National Risk Index (2025)

3.4 Economy and Critical Infrastructure

Los Angeles County is a global economic hub, hosting industries such as entertainment, technology, manufacturing, and international trade. The Port of Los Angeles and the Port of Long Beach collectively form one of the world's busiest trade gateways, underscoring the importance of protecting critical infrastructure from hazards including those exacerbated by climate change. Critical facilities provide services and functions essential to a community, especially during and after a disaster. Common types of critical facilities include but are not limited to fire stations, police stations, hospitals, schools, and utilities. Critical facilities may also include places that can be used for sheltering, cooling centers, staging purposes, or other large public gathering spots such as community centers and libraries. Critical facilities include those operated by non-governmental and business partners vital for redevelopment or

economic security. When these are affected by a disaster, the County provides businesses and workers impacted by the disaster with vital information and resources. This allows them to maneuver effectively through disaster response toward recovery using its network of job centers and business hubs.

Other critical infrastructure includes the facilities and industries that enable all facets of society to function, including but not limited to the following community lifelines:

- **Safety and Security**: The myriad of local law enforcement, fire and rescue, emergency management, schools, and other government services that maintain public safety and security.
- **Communications:** The interconnected network of infrastructure owners and operators of communications systems such as internet, telephone, cellular and other communications towers, cable, satellite, and more.
- **Transportation Networks**: The County's extensive network of roadways, highways, railways, transit systems, and airports is essential for daily operations and disaster response.
- **Energy Systems**: Power generation facilities, energy distribution networks, and pipelines are vulnerable to multiple types of hazards and threats.
- **Water and Wastewater Systems**: Drought conditions and aging infrastructure at the over 220 different water agencies in Los Angeles County pose risks to water availability and quality.
- **Healthcare Facilities**: Over 100 hospitals and numerous clinics serve the County, requiring robust contingency plans to maintain operations during disasters.
- **Food and Shelter:** The vast system of food production (i.e., agriculture), distribution, and retail along with community housing or sheltering.

3.5 Climate and Environmental Conditions

Los Angeles County faces escalating risks from climate change, significantly impacting its environment, economy, and communities. These challenges include rising temperatures, prolonged droughts, more frequent and severe extreme weather events, and their cascading effects. These risks highlight the critical need for adaptive planning to protect vulnerable populations, infrastructure, and natural resources. Key climate-

related considerations referenced in the Los Angeles County Climate Action Plan that will be addressed in this AHMP include, but are not limited to:

- **Extreme Weather Events:** Extreme temperatures in the Los Angeles region are expected to increase. Both dry and wet extremes are projected to intensify, leading to longer dry periods than historically experienced. These dry periods are expected to be followed by significantly wetter conditions, including atmospheric rivers bringing more intense rainfall. This pattern may result in increased water scarcity, mudslides, and flooding.
- **Sea-Level Rise**: Coastal communities are at heightened risk of flooding and erosion, threatening homes, businesses, and critical infrastructure. Sea level rise can exacerbate the impacts of high tides, storm surges, and heavy precipitation, and can lead to increased coastal flooding and shoreline erosion.
- **Increasing Wildfire Risk**: Climate change has intensified wildfire seasons, particularly in the County's mountainous, wildland urban interface (WUI), and new and undeveloped regions. Wildfires are projected to increase in frequency and intensity including in some areas not historically impacted by wildfire.

In response, the County has prioritized integrating climate adaptation strategies into its hazard mitigation planning, as outlined in the Climate Vulnerability Assessment and the OAEOP.

3.6 Regional Collaboration and Planning Efforts

Los Angeles County's size and complexity necessitates collaboration with numerous jurisdictions, agencies, and community organizations. The County is designated as the Operational Area Coordinator and functions as an intermediate level in the State of California's Standardized Emergency Management System (SEMS). In accordance with SEMS, the County serves as the communications and coordination link between local governments within Los Angeles County and the state government. Partnerships with academic institutions, non-profits, and private sector stakeholders support data collection, public engagement, and innovative mitigation strategies. Additionally, the County has also adopted Emergency Support Functions (ESFs) as the primary emergency management coordination structure. ESFs group function-specific stakeholders who will coordinate throughout all phases of emergency management,

including function-specific mitigation activities. For more information on regional emergency management collaboration and planning, reference the OAEOP.

3.7 Implications for Hazard Mitigation Planning

Understanding the community is a critical aspect in hazard mitigation planning. This community profile will inform key considerations in subsequent sections of the AHMP including but not limited to the following:

- **Targeted Outreach:** Include vulnerable populations and the business community in the planning process through equitable public outreach.
- **Infrastructure Resilience:** Prioritize the protection of critical infrastructure, including ports and transportation networks, energy systems, and water and wastewater systems, among others.
- **Climate Adaptation:** Develop strategies to mitigate the impacts of climate change, focusing on urban heat islands, sea-level rise, and wildfire risks.
- **Regional Coordination:** Strengthen direct collaboration within the OA between the County, local jurisdictions, special districts, unified school districts, the business community and cross-sector non-governmental partners to enhance awareness, preparedness, and response capabilities.
- **Transparent & Open Communication:** Ensure communications are accessible, and clear to advance public trust and safety. Develop dashboards to demonstrate progress.

4 Climate Change

4.1 Climate Change Overview

Climate change refers to the changing effect of the Earth's climate system over time, including changes in temperature, precipitation, and wind patterns. Climate change had significant impacts on Los Angeles County, affecting various aspects of life, environment, infrastructure, and sustainable development, and presents increasing risks from amplified hazards and changing baselines (e.g., sea level) into the future. The rate of climate change has significantly accelerated over the last three decades and trends continues. This plan addresses the effects of climate change related to disasters within the County and strategies to mitigate risks, focusing on preparedness, resilience and equity.

Climate change contributes to more frequent and intense disasters, such as floods, wildfires, drought and excessive heat. Rising temperatures and changing weather patterns pose health risks, like heat-related illnesses, respiratory issues, and the spread of diseases. Hazard mitigation efforts aim to reduce the impacts and effects of greater hazards due to climate change. The economic impact of climate change has been substantial, affecting industries such as agriculture, tourism, and insurance with increasing risks due to accelerating climate changes.

Greenhouse Gas (GHG) emissions are the main driver of climate change, which causes increased frequency, duration, and severity of extreme weather and climate-related disasters. Climate change exacerbates air pollution, leading to poor air quality and health issues. GHG emissions from residential buildings, commercial and institutional facilities, manufacturing industries and construction, energy industries, oil and natural gas systems. transportation, fossil energy, wildfires and other sources contribute to increased particulate matter and other pollutants in the air.

4.2 Integrating Climate Change into Hazard Profiles

Integrating climate change into hazard profiles involves assessing the current and future impacts of climate change on various hazards and incorporating this information into planning and mitigation strategies. This section highlights how climate change relates to these hazards and how the county is addressing climate change through hazard mitigation efforts which help protect the county's residents and economies from the adverse effects of climate changes and climate-amplified events.

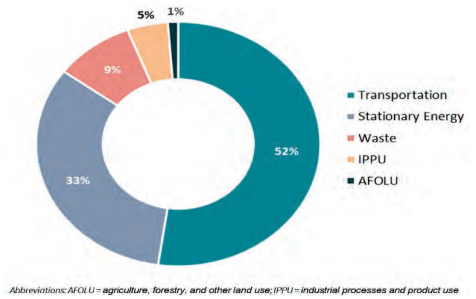


Figure 4.1 Sources of GHG Emissions from within Los Angeles County (LA County 2024; 2045 Climate Action Plan)

4.2.1 Extreme Heat

Increasing temperatures and high heat events is one of the most conspicuous results of and a direct correlation between GHG pollution and climate change. Excessive temperatures in the Los Angeles region are expected to increase significantly more very hot days and warm nights. In addition to increasing baseline temperatures and extreme heat due to climate change, heat islands exacerbate temperatures and high heat events. As development occurs and darker paved surfaces replace open land and vegetation, these areas become warmer forming an "island" of heat. Los Angeles County experiences more frequent and excessive heat due to climate change. This is currently a major risk and with unmitigated GHG emissions increasing heat will lead to even greater health issues, increased energy demand for cooling, and other strains on infrastructure.

4.2.2 Flooding

Flooding in Los Angeles County occurs due to extreme rainfall events causing flash floods, riverine flooding, and increased surface water. Coastal areas in Los Angeles County are vulnerable to sea- level rise (SLR), which exacerbates coastal hazards like floods, storm surges, and chronic erosion. Other related hazards include flooding near

the mouths of streams and channels, landslides, and seawater well intrusion. SLR exacerbates the impacts of high tides, storm surges, and heavy precipitation flooding, and continued SLR will lead to more life safety concerns and increased damage to property and infrastructure.

4.2.3 Drought

Prolonged droughts have become more common, affecting the water supply, agriculture, and ecosystems of Los Angeles County. Dry and wet extremes are projected to increase and are likely to cause drier periods than what the region has historically experienced.

Southern California projected to get drier, while Northern California will increase in temperature. This will result in loss of snowpack within the Sierra Nevada Mountain range, meaning less water for all Californians including farmers, residents, and utilities. The State Water Resource Control Board proclaimed several water conservation emergency regulations due to severe drought conditions that requires commercial, industrial, and residential conservation efforts. Proclamations include:

- **January 4, 2022:** State Water Board adopted the prohibited wasteful water uses emergency regulation
- **May 24, 2022:** the State Water Board adopted the emergency regulation to ban decorative grass watering like non-functional turf irrigation
- **December 7, 2022:** the State Water Board readopted the prohibited wasteful water uses emergency regulation,
- **May 26, 2023:** the State Water Board readopted the emergency regulation to ban decorative grass watering.

4.2.4 Wildfire

A wildfire is an unplanned and uncontrolled fire in an area of combustible vegetation. These fires can easily spread beyond the natural areas primarily involving and have a potential to cause damages outside of the perimeter. Wildfire probability depends on local weather conditions, outdoor activities and any preceding conditions (e.g., lots of rain leading to vegetation growth and then drying conditions), and a potential ignition (e.g., lightning strike, arson, debris burning, electrical equipment failure, car tailpipe, etc.). The frequency and intensity of wildfires has increased driven by higher

temperatures, lower precipitation, lower relative humidity, and prolonged droughts. These events have caused loss of life, destroy and/or damage to property, infrastructure, the environment and pose greater risks due to historical development patterns. The timeline of major wildfire events and acreage burned in Los Angeles County is listed at Section 6.2 of the plan.

4.3 Climate Mitigation Strategies

Los Angeles County is actively addressing climate change and implementing hazard mitigation strategies to reduce its impacts and build long-term resilience. The County faces increasing risks from excessive heat, wildfires, droughts, floods, and sea-level rise, all of which threaten communities, infrastructure, and natural resources.

To address many of these challenges, the County has developed comprehensive climate plans and strategies that integrate climate adaptation, sustainable land use, emergency preparedness, and environmental conservation. By enforcing building codes, investing in green infrastructure, and strengthening community preparedness, Los Angeles County aims to minimize risks and enhance disaster resilience. These efforts align with state and federal climate policies and are designed to protect both current and future generations while encouraging a more sustainable and livable environment for all.

4.3.1 Climate Resilience Plans and Actions

- **Los Angeles County 2045 Climate Action Plan (2045 CAP):** Establishes aggressive targets to reduce greenhouse gas emissions and achieve carbon neutrality by 2045.
- **Water Conservation & Drought Resilience Measures:** Implements mandatory water restrictions, promotes rainwater harvesting, and expands groundwater recharge and water recycling projects.
- **Wildfire Mitigation & Vegetation Management Programs:** Enforces Wildland Urban Interface (WUI) codes, increases forest management techniques, aligned with Traditional Ecological Knowledge (TEK) principles and practices of our native indigenous communities, and strengthens fire-resistant building and landscape requirements.

- **Green Infrastructure & Urban Cooling Initiatives:** Expands tree planting aligned with TEK principles and practices, investigates removing hard (paved) surfaces, and planting groundcover, utilizes and promotes public cooling centers and home heat preparedness, and encourages the use of reflective "cool" roofing and surfaces to mitigate the urban heat island (UHI) effect.
- **Heat Action Plan:** Develops strategies to reduce the adverse health impacts of excessive heat through public shade structures, cooling centers, building codes, and increased public awareness campaigns for all susceptible to extreme heat.

These strategic actions reflect Los Angeles County's commitment to tackling climate change. By integrating proactive policies, indigenous-informed practices, community-driven solutions, and resilient infrastructure, Los Angeles County, is not only mitigating current risks but also preparing for a future where communities can thrive in an ever-changing dynamic environment.

4.4 Climate Change Conclusion

Through proactive policies and community engagement, Los Angeles County strives to navigate the complexities of a changing climate and safeguard its people, environment, infrastructure and economies. This approach helps minimize the risks and impacts associated with climate-related hazards. Addressing climate change in hazard mitigation help enhance safer, healthier, and more sustainable communities.

5 Integrating Access and Functional Needs (AFN) into Hazard Mitigation

5.1 AFN Introduction

Modern hazard mitigation planning increasingly recognizes that resilient communities must address the needs of all residents –including those with access and functional needs (AFN). Historically, individuals with disabilities (i.e. including but not limited to, youth, those economically depressed, pregnant, etc.), chronic health conditions, language barriers, or transportation disadvantages have been underrepresented in emergency planning. As evidenced by the best practices for stakeholder inclusion and further supported by national preparedness frameworks, integrating AFN considerations leads to plans that are more inclusive and effective. By proactively engaging AFN populations and support agencies in every phase, from preparedness through recovery, a hazard mitigation plan can reduce losses, improve evacuation and sheltering outcomes, and build trust between emergency management agencies and the communities they serve.

5.2 Inclusion of AFN and Vulnerable Populations in Planning

A major component of effective mitigation planning is a "whole community" approach. Incorporating AFN voices into the planning process is crucial because these stakeholders offer real-world insights into the challenges they face during emergencies. Key steps to this process include, but are not limited to:

- **Stakeholder Engagement:** Ensure that representatives from disability advocacy groups, community-based organizations, and service providers (such as local health departments and transportation agencies) are engaged early in the planning process. Their firsthand experiences help identify practical barriers that might otherwise be overlooked.
- **Public Participation:** Incorporating public stakeholders through meetings, surveys, and other outreach to capture the diverse needs of AFN populations. This input is vital to overcoming historical marginalization and ensuring that mitigation actions are relevant and equitable to the entire population.
- **Ongoing Interagency Collaboration:** Develop a hazard mitigation planning advisory committee and interagency working groups that include AFN stakeholders. These groups can guide both the planning process and the review of existing plans, ensuring that AFN issues are fully integrated from the outset.

5.2.1 Integrating AFN into the Overall AHMP

Integrating AFN considerations is not a stand-alone task; it must be interlaced throughout the entire hazard mitigation planning process. This includes:

- **Risk Assessments:** Incorporate AFN data into all risk assessments to ensure that the specific vulnerabilities of these populations are reflected in hazard maps and vulnerability index data.
- **Mitigation Strategy Development:** Ensure that every mitigation action is examined for its impact on AFN populations. For example, when planning for flood control or wildfire prevention projects, review how these projects can be improved to meet the needs of people with access and functional needs.
- **Plan Review and Update:** Ensure planning processes include regular AFN review and updates. Includes but not limited to:
    - Surveys of community needs
    - Consultations with AFN advisory groups
    - Integration of new technological or infrastructural solutions
- **Funding and Resource Allocation:** Clearly identify funding streams and resource commitments for AFN-specific projects. This could involve targeted grants from federal programs (e.g., Hazard Mitigation Assistance), state funding dedicated to accessible infrastructure improvements, and local resources such as the Productivity Investment Fund that can be accessed to improve the effectiveness and efficiency of County operations.

5.3 Assessment of AFN Needs

Understanding the specific needs of AFN populations requires both quantitative and qualitative approaches:

- **Data Collection and Risk Assessment:** Use existing resources, community surveys, outreach and risk assessments to help identify the number and types of individuals with AFN at the local community level. Evaluate the regional geographic distribution, vulnerabilities, and specific requirements before and after emergencies.

- **Frameworks for Analysis:** Adopt structured methodologies such as C-MIST (Communication, Maintaining Health, Independence, Support, Safety, and Transportation) to assess/ document AFN requirements.



- **C-MIST Explanation**
    - **Communication**: Individuals with hearing, vision, cognitive, or speech limitations may require alternative communication methods to receive or express information during emergencies.
    - **Medical / Health Needs**: People with complex medical conditions rely on medications, medical equipment, or specialized care to maintain their health and prevent complications.
    - **Independence**: Those who use mobility devices, assistive technology, or service animals need uninterrupted access to maintain their independence and daily functions.
    - **Supervision & Safety**: Some individuals require continuous support for safety, comfort, or emotional well-being, including those with memory issues, psychiatric conditions, or intellectual disabilities.
    - **Transportation**: Individuals without personal transportation or with mobility limitations need accessible and reliable options, especially in emergencies and evacuations.
- **Integrating Vulnerability Assessments:** Leverage tools from local climate vulnerability assessments and hazard mitigation plan reviews to identify areas where AFN populations overlap with high-risk zones (e.g., flood plains,

wildfire-prone areas). This integration helps prioritize mitigation actions in regions where vulnerable populations are most exposed.

5.4 Coordination with AFN Support Agencies

Effective mitigation planning requires robust coordination with both governmental and nongovernmental agencies that serve AFN populations. Best practices include:

- **Formal Partnerships:** Establish relationships and partnerships with agencies such as public health departments, social services, transportation authorities, community-based organizations, and disability advocacy organizations. These partnerships ensure that there is clear, ongoing communication and that roles and responsibilities are delineated before, during, and after disasters.
- **Joint Training and Exercises:** Conduct regular joint meetings, and exercises that include AFN components and identify additional resources to support the needs of the AFN community. These actions will help prepare all stakeholders to work together during a crisis and help identify gaps in current plans.
- **Outreach and Information Dissemination:** Ensure that all information, both pre-incident preparedness messages, response measures and post-incident recovery plans are accessible to all audiences. This includes using multiple languages, various communication formats (e.g., large-print, audio, sign-language, and digital formats), and culturally appropriate messaging to reach all segments of the community.

5.5 AFN Conclusion

A hazard mitigation plan builds a foundation for a resilient, inclusive community. By ensuring that AFN and other vulnerable populations are included in every phase of planning, from initial stakeholder engagement to the development of tailored mitigation actions and coordinated response strategies, communities can minimize disaster impacts and foster long-term resilience. Drawing on best practices from national frameworks and local planning guides, and by implementing ADA-compliant shelter operations, emergency managers can create a plan that truly serves every member of the community. This inclusive approach not only saves lives and property during disasters but also strengthens community trust and the overall effectiveness of emergency management efforts.

6 Hazard Identification and Risk Assessment

6.1 Hazard Identification Overview

The hazard identification and risk assessment process provide a foundation for Los Angeles County's hazard mitigation planning efforts by identifying, profiling, and assessing the risks associated with natural, technological, and human-caused hazards. This section builds on the framework established in the 2020 Hazard Mitigation Plan, incorporating insights from the 2023 Operational Area Emergency Operations Plan (OAEOP), the 2024 Los Angeles Threat and Hazard Identification and Risk Assessment (THIRA), the Los Angeles County Climate Vulnerability Assessment, the State of California Hazard Mitigation Plan (SHMP), and the Federal Emergency Management Agency (FEMA) National Risk Index.

Based on these sources hazards were included and addressed in the 2025 AHMP according to their frequency, severity and impact to Los Angeles County, see below Table 6-1. Hazards that did not meet the threshold of moderate risk will not be prioritized within the plan. Additionally, three new natural hazards (Extreme Heat, Drought, and Severe Wind/Tornado) and four human-caused hazards (Mass Violence, Cyber Incidents, Transportation Incidents, and Public Health Emergencies) are included in the 2025 AHMP.

Table 6-1 Hazard Inclusion/ Omission

Hazard	Comment
Earthquake	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County.
Wildfire	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County.
Heat Wave	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County.
Tornado	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County. Tornado is incorporated with the Severe Wind/ Tornado hazard profile.
Land Movement	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County.

Hazard	Comment
Lightning	Hazard is included in the plan due to its high frequency, severity, and impact to Los Angeles County. Lightening is incorporated with the Wildfire and Flooding hazard profiles.
Flooding	Hazard is included in the plan due to its frequency, severity, and impact to Los Angeles County. The Flooding hazard profile incorporates both Riverine and Coastal Flooding.
Drought	Hazard is included in the plan due to its frequency, severity, and impact to Los Angeles County.
Strong Wind	Hazard is included in the plan due to its frequency, severity, and impact to Los Angeles County. Strong Wind is incorporated with the Severe Wind and Tornado hazard profile.
Tsunami	Hazard is included in the plan due to its frequency, severity, and impact to Los Angeles County.
Winter Weather	Hazard is omitted from the plan due to its minimal frequency, severity, and impact to Los Angeles County.
Hail	Hazard is omitted from the plan due to its minimal frequency, severity, and impact to Los Angeles County.
Avalanche	Hazard is omitted from the plan due to its minimal frequency, severity, and impact to Los Angeles County.
Cold Wave	Hazard is omitted from the plan due to its lack of frequency, severity, and impact to Los Angeles County.
Hurricane	Hazard is omitted from the plan due to its lack of frequency, severity, and impact to Los Angeles County.
Ice Storm	Hazard is omitted from the plan due to its lack of frequency, severity, and impact to Los Angeles County.
Volcanic Activity	Hazard is omitted from the plan due to its lack of frequency, severity, and impact to Los Angeles County.

Los Angeles County faces a wide range of hazards due to its geographic diversity, population density, and economic significance. The following hazards were identified and prioritized from the previously mentioned sources based on historical occurrences, potential impacts, and future risks:

1. Wildfire
2. Earthquake
3. Extreme Heat
4. Drought
5. Flooding
6. Dam Failure
7. Land Movement
8. Tsunami
9. Severe Wind and Tornado
10. Mass Violence
11. Cybersecurity Incidents
12. Transportation Incidents
13. Public Health Emergencies

Among these hazards, six were identified to be potentially exacerbated by climate change including wildfire, extreme heat, drought, flooding, land movement, and severe wind and tornadoes. Additional human-caused hazards were included based on the 2024 THIRA including mass violence, cybersecurity incidents, transportation incidents, and public health emergencies. The results of the public Personal Disaster Impact Survey validated that these hazards are of significant concern to county residents. A risk assessment table comparing hazards to critical infrastructure is in Appendix C.

Table 6-2 Changes in Development and Vulnerability

Hazard	Change (Increase/ Decrease)	Reason
Earthquake	No Change	While new construction adheres to modern seismic codes aging infrastructure in high seismic zones remain vulnerable. Continued population growth in older neighborhoods with limited

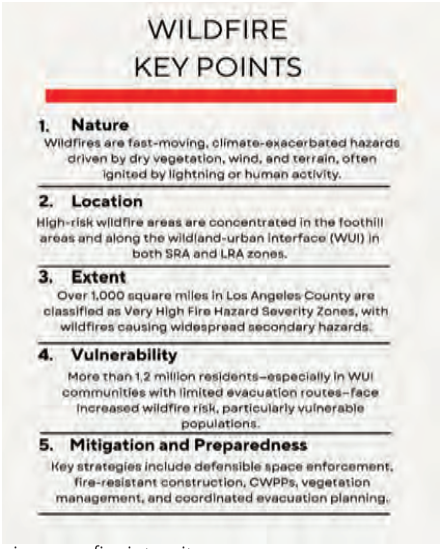
Hazard	Change (Increase/ Decrease)	Reason
		retrofitting increases overall exposure.
Wildfire (Lightning)	Increase in Vulnerability	Urban expansion into Wildland-Urban Interface (WUI) areas has increased the number of homes at risk. Post 2020 development in high fire severity zones has continued, though defensible space regulations and new fire-safe planning are improving resilience for new builds.
Extreme Heat	Increase in Vulnerability	Population density, urban heat islands, and development in inland valleys increases exposure. Older multi-family units without air conditioning remain a concern. More outdoor workers and people experiencing homelessness (PEH) add to vulnerable population.
Land Movement	Stable to Slight Increase	Most new development avoids known landslide-prone areas due to zoning and geotechnical review. However, climate-driven precipitation variability and wildfires continue to destabilize slopes in developed areas.
Flooding (Lightning)	Increase in Vulnerability	New impervious surfaces from development increase stormwater runoff. Older flood control infrastructure is strained under heavier, more frequent rain events.

Hazard	Change (Increase/ Decrease)	Reason
Drought	Increase in Vulnerability	Continued population growth and water demand in arid and semi-arid zones has outpaced gains in conservation. Agricultural vulnerability persists in high desert areas.
Severe Wind and Tornado	Increase in Vulnerability	Los Angeles County is experiencing more frequent and intense wind events, including tornadoes. As urban development expands, tree canopies and overhead utilities in densely developed areas continue to contribute to cascading hazards. In response, efforts are underway to underground utility lines in high-risk areas.
Tsunami	Stable	Revised tsunami inundation maps have refined the at-risk zones. New developments in coastal areas are largely outside the updated hazard areas or comply with stricter coastal building codes.
Dam Failure	Stable/ Slight Increase	While no new major dams have been constructed in recent years, downstream development continues to increase population and critical infrastructure exposure within inundation zones.



6.2 Wildfire

6.2.1 Nature



Wildfires are fast-moving, uncontrolled fires that consume vegetation and rapidly spread, often threatening lives, structures, and infrastructure. These fires can be ignited by natural causes, such as lightning, or human activities, including unattended campfires, downed power lines, and arson. The increasing frequency, duration, and intensity of wildfires in Los Angeles County are possibly linked to the changing climate, with hotter temperatures, prolonged droughts, and reduced humidity levels making the region highly susceptible to fires.

Factors Influencing Wildfire Behavior

- **Topography**: Fires spread more rapidly on steep slopes and are often driven by the Santa Ana winds.
- **Fuel Load**: Dense, dry vegetation and high tree mortality increase fire intensity.
- **Weather Conditions**: High temperatures, strong winds, and low humidity elevate fire risk, with the changing climate contributing to a lengthened fire season.

Wildfires also create secondary hazards such as poor air quality, landslides, flooding, and debris flows–especially in areas with recent burn scars where vegetation loss increases soil instability.

6.2.2 Location

Los Angeles County is one of the most wildfire-prone regions in the United States. Based on the Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone (FHSZ) maps, significant wildfire risk exists in the Santa Monica Mountains, San Gabriel Mountains, Palos Verdes Hills, and Puente Hills. The 2024 THIRA and Los Angeles County Climate Vulnerability Assessment identify an increasing risk to communities located in or near these high-risk areas.

Los Angeles County has three primary wildfire management zones:

- **Federal Responsibility Areas (FRAs):** Lands administered or controlled by the federal government where federal agencies have administrative and protection responsibility for wildfires.
- **State Responsibility Areas (SRAs):** Wildland areas where CAL FIRE is responsible for suppression efforts.
- **Local Responsibility Areas (LRAs):** Developed regions where local agencies, such as Los Angeles County Fire Department (LACoFD), provide fire protection.

For a better visual representation of this Wildfire Hazard within the LA County planning area, please reference Appendix A. Included in Appendix A are several Fire Hazard Severity Zone maps for reference.

6.2.3 Extent

According to CAL FIRE's Fire Hazard Severity Zone (FHSZ) maps, Los Angeles County contains:

- 386.06 square miles (8.11%) classified as Very High Fire Hazard Severity Zone (FHSZ) in Local Responsibility Areas, LRAs.
- 625.01 square miles (13.13%) classified as Very High (FHSZ) in State Responsibility Areas, SRAs.

Wildfires pose a significant threat not only through the immediate damage they cause to lives, property, and natural resources, but also through the secondary hazards that continue after the flames are extinguished.

In the aftermath of a fire, communities often face increased risks of flash floods, debris flows, and degraded air quality. These post-fire impacts can compound the initial destruction, placing additional strain on infrastructure, health systems, and recovery efforts.

6.2.4 History

Los Angeles County has experienced numerous devastating wildfires in recent decades, including:

- **Canyon Fire (1968) –** Burned 22,000 acres, destroyed 147 homes, and led to mass evacuations.
- **Old Topanga Fire (1993) –** Consumed 16,516 acres, destroying 388 structures and causing three fatalities.
- **Sayre Fire (2008) –** Destroyed 489 structures, including over 600 mobile homes.
- **Station Fire (2009) –** The largest fire in Los Angeles County history, burning 160,577 acres, destroying 209 structures, and causing two firefighter fatalities.
- **Woolsey Fire (2018) –** Burned 96,949 acres, destroyed 1,643 structures, and resulted in three fatalities.
- **Bobcat Fire (2020) –** Scorched 115,796 acres, destroying 171 structures and damaging numerous infrastructures in the Angeles National Forest.
- **Palisades Fire (2025) –** Resulted in significant destruction and loss of life, burning 23,707 acres, destroyed approximately 6,833 structures, and causing 12 civilian fatalities.
- **Eaton Fire (2025) –** Resulted in significant destruction and loss of life, burning 14,021 acres, destroying approximately 9,418 structures, and causing 17 civilian fatalities.

These fires highlight the increasing frequency and intensity of wildfires, emphasizing the urgent need for stronger mitigation and preparedness efforts.

The Los Angeles County area has experienced federally declared wildfires and are shown in the table below. There have been no state proclamations for wildfires in the last five years.

Federally Declared Wildfire/Fire Management Assistance Declaration in Los Angeles County from 1/1/2020 to 3/28/2025

Date	Incident Name	No.	Category
1/8/2025	California Wildfires and Winds	4856	Federal Declaration
1/8/2025	California Eaton Fire	5550	Fire Management Assistance Declaration
1/8/2025	California Hurst Fire	5551	Fire Management Assistance Declaration
1/7/2025	California Palisades Fire	5549	Fire Management Assistance Declaration
12/10/2024	California Franklin Fire	5548	Fire Management Assistance Declaration
9/11/2024	California Bridge Fire	5537	Fire Management Assistance Declaration
10/16/2020	California Wildfires	4569	Federal Declaration
9/13/2020	California Bobcat Fire	5374	Fire Management Assistance Declaration

6.2.5 Probability

With several guaranteed wildfires each year, the probability of wildfire ignition in Los Angeles County is gradually increasing, driven largely by climate change. There is a 100% chance of a fire occurring each year within the geographic planning area. Historically, wildfires occurred between June and November, but recent years have shown a year-round fire season due to hotter, drier conditions and more intense weather variability.

Longer dry periods, reduced humidity, and increased temperatures, coupled with historic drought and vegetation die-off, have created critically dry fuel beds. These events make even small ignition sources capable of generating major wildfires.

Santa Ana winds continue to serve as a major accelerant, contributing to rapid fire spread and severe fire behavior. When combined with urban encroachment into fire-prone areas, these conditions elevate both the frequency and destructiveness of wildfires.

Projections from the 2024 THIRA and the LA County Climate Vulnerability Assessment confirm that wildfire probability will continue to rise unless significant fuel reduction, land use planning, and climate adaptation strategies are implemented across all jurisdictions.

The 2024 THIRA estimates that:

- Over 1.2 million residents live in high-risk wildfire zones.
- Communities near the Wildland-Urban Interface (WUI) are at the greatest risk, especially those with limited evacuation routes, and the Access and Functional Needs community.
- Vulnerable populations, including seniors, low-income households, and people with disabilities, face heightened challenges during evacuations.

6.2.6 Vulnerability

Los Angeles County faces high wildfire vulnerability due to its extensive Wildland-Urban Interface (WUI), with over 1.2 million residents that live in Very High Fire Hazard Severity Zones (FHSZs). These communities are particularly susceptible because many homes lack defensible space, fire-resistant construction, or adequate emergency access.

Vulnerable populations including (but not limited to): seniors, individuals with disabilities, low-income households, and those dependent on electrical medical equipment, face significant evacuation and health risks during wildfire events, especially in WUI communities with limited ingress/egress and high fuel loads.

SUPERVISORIAL DISTRICT BREAKDOWN		
Supervisorial District	**Population in High-Risk Wildfire Zones**	**Percentage of District Population**
District 1	**150,000**	**12%**
District 2	**75,000**	**6%**
District 3	**425,000**	**30%**
District 4	**250,000**	**20%**
District 5	**500,000**	**32%**

Contextual Overview

Very High FHSZ in LRA jurisdiction includes dense hillside residential areas under local fire authority responsibility. These are some of the most vulnerable communities due to terrain, vegetation, and constrained emergency access.

Critical infrastructure is also at risk, with wildfire exposure threatening fire stations, law enforcement facilities, hospitals, utilities, transportation corridors, and emergency communication systems. Disruption to these essential services during wildfire events can compound vulnerabilities and delay response and recovery. For a better understanding of critical infrastructure at risk please see Appendix C.

Total Facilities Affected:

- **Very High LRA**: 120
- **High SRA**: 8
- **Very High SRA**: 76

With the continued expansion of developments into fire-prone areas has significantly increased wildfire risk. Many homes in the WUI lack proper defensible space and fire-resistant building materials, making them particularly vulnerable. Additionally, limited evacuation routes in some WUI communities create challenges for emergency response and evacuations. Stricter zoning laws, building regulations, and vegetation management policies are the best practices to reduce risk.

Department/ Agency	Very High FHSZ (LRA)	High FHSZ (SRA)	Very High FHSZ (SRA)
Animal Care and Control	1	0	1
Fire Department	39	1	14
Health Services	1	0	0
Library	7	1	2
LACMA / NHM	1	0	0
Office of Education	3	0	3
Other County Offices	0	0	0
Parks & Recreation	13	1	12
Public Health	52	4	41
Public Works	0	0	0
Sheriff's Department	3	1	3

Wildfires threaten essential infrastructure, including:

- **Transportation**: Damage to roads and bridges affects evacuation and emergency response.
- **Utilities**: Power lines, gas pipelines, and water infrastructure, including dams, are vulnerable to fire damage.
- **Emergency Services**: Public safety and healthcare facilities near wildfire-prone areas face operational disruptions.
- **Public Services**: Parks, libraries, schools, and other public areas could be lost or damaged.

New emerging patterns suggest that climate change may be influencing wildfire risks in Los Angeles County through:

- **Extending fire seasons:** Historically, peak fire season occurred from June to November, but fires are now starting and burning year-round.
- **Increasing fuel dryness:** Higher temperatures and prolonged droughts reduce vegetation moisture levels, making fires more intense.
- **Raising fire frequency:** Hotter, drier conditions contribute to more frequent ignitions, particularly in WUI areas.

Extent of Exposure

- **Total Area Exposed**: 243.72 sq mi
- **Supervisorial Districts (SD) Impacted**:
    - **SD3**: 117.95 sq mi (27.29%)
    - **SD5**: 95.61 sq mi (3.36%)
    - **SD1**: 16.23 sq mi (4.60%)
    - **SD4**: 9.10 sq mi (4.27%)
    - **SD2**: 4.83 sq mi (1.33%)

For a better visual representation of this Wildfire Hazard within the LA County planning area, please reference Appendix A for several Fire Hazard Severity Zone maps.

6.2.7 Impacts

Impacts for past fires vary depending on scope and severity, including the January 2025 fires, including the Palisades and Eaton Fires, resulted in widespread destruction across Los Angeles County, burning over 37,000 acres and destroying more than 16,000 structures combined, with nearly 30 civilian fatalities. These events caused cascading impacts such as prolonged power outages, degraded water pressure affecting firefighting and residential supply, and overwhelmed emergency services. Transportation routes and communications infrastructure were disrupted. Communities, especially in the Wildland-Urban Interface (WUI), experienced major economic losses due to the destruction of homes, businesses, and public facilities. Post-fire hazards like debris flows and landslides further compounded recovery challenges, with water infrastructure contamination and sedimentation requiring emergency remediation. The scope and severity of these fires underscore the increasing vulnerability of critical infrastructure and the urgent need for enhanced mitigation strategies across high-risk zones.

Problem Statement

Many hillside communities within LRA Very High FHSZ zones face critical access and water supply issues during fires. These areas often include aging structures and narrow roads, complicating firefighting and evacuation. Investments in defensible space, local code enforcement, and community wildfire protection planning are vital to saving lives and minimizing losses.

6.2.8 Mitigation and Preparedness

Los Angeles County is implementing a multi-agency approach to mitigate wildfire risks.

Key strategies include:

- **Community Wildfire Protection Plans (CWPPs):** Strengthening fire prevention measures in high-risk areas.
- **Community Preparedness:** Educating residents on wildfire readiness through outreach campaigns, emergency alert systems, and neighborhood preparedness programs.
- **Defensible Space Requirements:** Enforcing brush clearance around structures.
- **Enhanced Building Codes:** Promoting fire-resistant materials for new developments.
- **Vegetation Management:** Reducing fuel loads through prescribed burns and hazardous tree removal.
- **Evacuation Planning:** Improving coordination between OEM, LASD, LACoFD, and other jurisdictions to ensure clear evacuation policies and procedures.

Additional details on the County's proactive and ongoing efforts to reduce wildfire risk, including long-term planning, infrastructure hardening, and community-based initiatives, is located in the dedicated section titled "Mitigation Strategies."

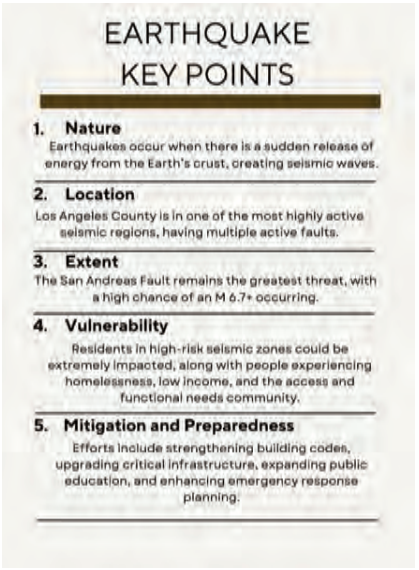
6.2.9 Summary

Wildfires remain one of the most significant hazards in Los Angeles County, posing risks to life, property, and critical infrastructure. The expansion of development into WUI areas, increasing fire severity due to climate change, and ongoing challenges with evacuation and mitigation require proactive, coordinated efforts across agencies. Strengthening fire prevention policies, improving emergency response coordination, and integrating climate adaptation measures are essential to enhancing wildfire resilience for Los Angeles County.



6.3 Earthquake

6.3.1 Nature



Earthquakes occur due to the sudden release of energy in the Earth's crust, generating seismic waves that cause ground shaking. These events, often triggered by movement along fault lines, vary in intensity depending on factors such as magnitude, depth, and proximity to populated areas. In addition to the initial shaking, secondary hazards such as surface faulting, liquefaction, landslides, tsunamis, and aftershocks can worsen the damage. Los Angeles County, located in a highly active seismic region, faces significant risks from these natural events, necessitating extensive mitigation efforts and preparedness planning.

- The most common effects of earthquakes include violent shaking, structural damage, and disruptions to infrastructure.
- Secondary effects can include, but are not limited to, utilities outages, traffic congestion and transportation systems being impassable, and an increase of fire risks, from broken gas and water lines.

- Earthquakes occur with little to no warning, making preparedness essential for minimizing loss of life and property.

6.3.2 Location

Los Angeles County is one of the most seismically active regions in the United States, with multiple active fault systems capable of generating destructive earthquakes.

Major faults include:

- San Andreas Fault – Capable of M 8.0+
- Newport-Inglewood Fault – M 7.4
- Malibu Coast Fault System – M 6.7
- San Fernando Fault – M 6.6
- Santa Monica Fault – M 7.0
- Whittier Fault – M 7.2
- Sierra Madre Fault – M 6.0-7.0

For a better visual representation of this Earthquake Hazard within LA County planning area, please reference Appendix A for earthquake fault maps.

6.3.3 Extent

According to US Geological Survey, there are two types of earthquake measurements, magnitude (Mw) and intensity (i). Magnitude is a measure of the energy released at the source of the earthquake. Intensity scale help measure impact on people and structures.

Earthquake impact is based on magnitude scale is as follows:

- Great–Mw > 8,
- Major–Mw = 7.0 – 7.9
- Strong–Mw = 6.0 – 6.9
- Moderate–Mw = 5.0 – 5.9
- Light–Mw = 4.0 – 4.9
- Minor–Mw = 3.0 – 3.9
- Micro–Mw < 3

Modified Mercalli Intensity Scale is from I to XII, which refers I, as not felt and XII as extreme.

Figure 6.3.1 Modified Mercalli Intensity Scale

CIIM Intensity	People's Reaction	Furnishings	Built Environment	Natural Environment
I	Not felt			Changes in level and clarity of well water are occasionally associated with great earthquakes at distances beyond which the earthquakes felt by people.
II	Felt by a few.	Delicately suspended objects may swing.		
III	Felt by several; vibration like passing of truck.	Hanging objects may swing appreciably.		
IV	Felt by many; sensation like heavy body striking building.	Dishes rattle.	Walls creak; window rattle.	
V	Felt by nearly all; frightens a few.	Pictures swing out of place; small objects move; a few objects fall from shelves within the community.	A few instances of cracked plaster and cracked windows with the community.	Trees and bushes shaken noticeably.
VI	Frightens many; people move unsteadily.	Many objects fall from shelves.	A few instances of fallen plaster, broken windows, and damaged chimneys within the community.	Some fall of tree limbs and tops, isolated rockfalls and landslides, and isolated liquefaction.
VII	Frightens most; some lose balance.	Heavy furniture overturned.	Damage negligible in buildings of good design and construction, but considerable in some poorly built or badly designed structures; weak chimneys broken at roof line, fall of unbraced parapets.	Tree damage, rockfalls, landslides, and liquefaction are more severe and widespread wiht increasing intensity.
VIII	Many find it difficult to stand.	Very heavy furniture moves conspicuously.	Damage slight in buildings designed to be earthquake resistant, but severe in some poorly built structures. Widespread fall of chimneys and monuments.	
IX	Some forcibly thrown to the ground.		Damage considerable in some buildings designed to be earthquake resistant; buildings shift off foundations if not bolted to them.	
X			Most ordinary masonry structures collapse; damage moderate to severe in many buildings designed to be earthquake resistant.	

Over 75% of unincorporated Los Angeles County is at risk for severe to extreme shaking in a future earthquake.

The region's dense urban environment, combined with aging infrastructure, increases the likelihood of extensive damage and prolonged recovery times.

Faults running beneath critical infrastructure corridors, including freeways and power grids, pose a significant threat to public safety and economic stability of the planning area.

6.3.4 History

Los Angeles County has a long history of destructive earthquakes, with some of the earliest recorded events dating back to the early 19th century. The San Juan Capistrano Earthquake of 1812 (M 7.5) was among the first to be documented, causing the collapse of Mission San Juan Capistrano and resulting in 40 fatalities. Over the years, the county has experienced numerous significant quakes, including the devastating 1857 Fort Tejon Earthquake (M 7.9), the 1971 San Fernando Earthquake (M 6.6), and the infamous 1994 Northridge Earthquake (M 6.7), which caused billions in damages and led to widespread infrastructure failures. There have been no federal declarations or state proclamations for earthquakes in the last five years.

Major Earthquakes in Los Angeles County (1812 – Present)

Date	Magnitude	Name / Location	Notable Impact
December 8, 1812	7.5	San Juan Capistrano Earthquake	Destroyed Mission San Juan Capistrano, killed 40 people.
December 21, 1812	7.1	West Ventura Earthquake	Caused significant shaking in Southern California.
January 9, 1857	7.9	Fort Tejon Earthquake	Largest earthquake on the San Andreas Fault; ruptured 225 miles.
July 21, 1952	7.5	Kern County Earthquake	Strong shaking felt in Los Angeles; major damage to Bakersfield.
February 9, 1971	6.6	San Fernando Earthquake	65 deaths, $553 million in damages, collapse of Veterans Hospital.
October 1, 1987	5.9	Whittier Narrows Earthquake	8 deaths, 200 injuries, $358 million in damages.
February 28, 1990	5.7	Upland Earthquake	30 injuries, $12.7 million in damages.

June 28, 1991	5.6	Sierra Madre Earthquake	1 death, 100+ injuries, $40 million in damages.
January 17, 1994	6.7	Northridge Earthquake	57 deaths, 8,700 injuries, $40 billion in damages, freeways collapsed.
July 29, 2008	5.5	Chino Hills Earthquake	8 injuries, minor structural damage.
March 28, 2014	5.1	La Habra Earthquake	Few injuries, $10 million in damages.
July 6, 2019	7.1	Ridgecrest Earthquake	Widespread damage in Southern California, infrastructure impacts.

6.3.5 Probability

Trends in Seismic Activity

Over 163 earthquakes of M 5.0 or greater have been recorded in Southern California since 1812.

The San Andreas Fault remains the greatest seismic hazard, with a 59% chance of an M 6.7+ event in the next 30 years.

Future Earthquake Occurrence

The U.S. Geological Survey (USGS) estimates the following probabilities for a major earthquake in Los Angeles County in the next 30 years:

- 60% chance of an M 6.7+ earthquake
- 46% chance of an M 7.0+ earthquake
- 31% chance of an M 7.5+ earthquake

6.3.6 Vulnerability

The county's vulnerability to earthquakes extends beyond physical infrastructure, affecting its residents and essential services. Older buildings, particularly unreinforced masonry and soft-story structures, are at high risk of collapse, posing significant

dangers to residents and businesses. Seismic retrofitting, early warning systems, and stricter building codes have improved resilience, but vulnerabilities remain in older structures and critical infrastructure.

Critical Infrastructure at Risk

- **Highways, bridges, and transportation routes:** A major earthquake could severely disrupt mobility, shipment of goods and services while also delaying emergency response and evacuations. Major highways such as, but not limited to the I-5, I-10, US-101, CA-60, CA-14, I-405, I-710, and I-105 could be impacted.
- **Energy grids and water system:** Disruptions could leave millions without power and clean water.
- **Hospitals and emergency services:** 325 hospitals and 1,299 fire stations in the Los Angeles County could suffer functional impairments.
- **Unreinforced masonry and soft-story buildings:** Many older structures are highly susceptible to collapse during strong ground shaking.

County Specific Critical Facilities Affected:

- Fire Department: 314 facilities (93.18%)
- Public Works: 201 facilities (87.39%)
- Health Services: 56 facilities (85.71%)
- Public Health: 37 facilities (92.50%)
- Libraries: 78 branches (89.66%)
- Parks: 179 (97.79%)
- Education: 70 (85.37%)

Los Angeles County lies at the intersection of multiple major fault lines, including the San Andreas Fault. According to the hazard matrix, the risk of violent ground shaking is prevalent countywide, particularly in urban centers and regions with critical infrastructure. The potential consequences of violent seismic shaking include widespread structural damage, disruption of services, economic losses, and human casualties.

Populations at Risk

- The THIRA estimates over 2 million residents could be significantly impacted in a major seismic event, particularly those in high-risk seismic zones.

- People Experiencing Homelessness (PEH) populations: 75,000+ unhoused individuals in Los Angeles County live in areas at risk of violent shaking.
- Low-income and individuals with access and functional needs (AFN): For more details on impacted population please see Section 5.

Extent of Exposure

- **Total Area Exposed**: 3,041.91 sq mi
- **Supervisorial Districts (SD) Impacted**:
  - **SD5**: 1,950.78 sq mi (69.50%)
  - **SD3**: 379.41 sq mi (87.99%)
  - **SD1**: 349.17 sq mi (98.95%)
  - **SD2**: 362.95 sq mi (99.99%)
  - **SD4**: 210.92 sq mi (99.10%)

6.3.7 Impacts

Los Angeles County has a long history of experiencing damaging earthquakes due to its location along multiple active fault systems, including the San Andreas, Newport-Inglewood, and Whittier faults. Historic earthquakes such as the 1971 San Fernando (M6.6) and 1994 Northridge (M6.7) events caused catastrophic losses. The San Fernando earthquake resulted in 65 deaths, the collapse of hospital structures, and over $550 million in damages, while the Northridge earthquake caused 57 deaths, more than 8,700 injuries, and an estimated $40 billion in economic losses, including widespread infrastructure failures such as collapsed freeways and damaged utility systems.

Impacts from future major seismic events are projected to be even more severe due to population density, aging infrastructure, and increasing development in seismically vulnerable areas. Over 75% of unincorporated Los Angeles County is at risk of severe to extreme ground shaking. Current estimates suggest that a large-magnitude earthquake could displace up to 2.2 million people, injure or kill thousands, and result in over $200 billion in combined economic losses, including $113 billion in property damage and $68 billion in business interruptions.

The County's critical systems; power, water, transportation, healthcare, and communications, are especially vulnerable. A major earthquake could impair up to 325 hospitals and 1,299 fire stations and disrupt critical infrastructure for millions. Populations with heightened vulnerability include the 75,000+ people experiencing homelessness, those with access and functional needs, and residents of older, unreinforced masonry and soft-story structures.

Without sufficient mitigation, a future earthquake could result in cascading failures across multiple sectors and prolong the County's recovery for years. These risks highlight the urgency for continued investment in seismic retrofitting, stricter enforcement of building codes, expanding statewide early warning systems, and equitable preparedness programs targeting at-risk vulnerable populations.

- **Casualties and injuries:** Depending on the time of day and location, thousands could be injured or killed in a severe earthquake.
- **Economic disruption:** A significant earthquake could halt business operations, damage supply chains, and force thousands into unemployment.
- **Housing displacement:** An estimated 2.2 million residents could be displaced, with tens of thousands requiring emergency sheltering.

Economic Impact

A major earthquake in Los Angeles County could result in over $200 billion in economic losses, with a total of $118 trillion-dollar exposure. Losses can include:

- $68 billion in business interruptions
- $51 billion in lost economic activity
- $113 billion in property damages

Problem Statement

The pervasive exposure of Los Angeles County to violent earthquake shaking presents a systemic threat to public safety, economic stability, and essential services. Nearly all major departments and infrastructure elements are located within high-shaking hazard zones. The extensive reach across all five Supervisorial Districts (SD) amplifies the challenge, highlighting the urgent need for retrofitting, public education, preparedness programs, and resilient design policies. Failure to address this hazard could lead to catastrophic loss of life and functionality in the event of a major seismic event.

6.3.8 Mitigation and Preparedness

Efforts to reduce earthquake risks in Los Angeles County include strengthening building codes, enhancing emergency preparedness, and retrofitting vulnerable structures.

Key efforts to mitigate earthquake risks include:

- Strengthening building codes and enforcing retrofitting laws
- Upgrading critical infrastructure
- Expanding public education and early warning systems
- Enhancing emergency response planning

By proactively implementing these measures, Los Angeles County aims to reduce casualties, infrastructure damage, and economic losses in future seismic events.

Seismic Retrofitting Programs

- **Soft story retrofit program**: Mandates seismic upgrades for older apartment buildings.
- **Non-ductile concrete building retrofits**: Strengthens older commercial and residential structures.
- **Hospitals and emergency facilities retrofitting**: Ensures critical services remain operational post-earthquake.

Policy and Regulatory Measures

- Assembly Bill (AB) 1857: Strengthens building standards for multi-story structures.
- AB 2681: Requires cities and counties to inventory vulnerable buildings.
- Updated California Building Code (CBC): Enforces stricter seismic design criteria for new construction.
- Public Education: Teaching to Drop, Cover and Hold On; the household preparedness checklist, educate residents on emergency response, retrofitting, and disaster preparedness.
- Early Warning/ ShakeAlert System: Provides real-time earthquake early warnings to residents via mobile alerts and public messaging.
- Public earthquake drills: Annual Great California ShakeOut encourages preparedness.

6.3.9 Summary

Los Angeles County remains at high risk for devastating earthquakes, with scientific projections indicating a strong likelihood of a significant seismic event in the coming decades. The region has experienced numerous historic earthquakes, and the potential for future large-scale disasters remains ever-present. While advances in engineering, emergency preparedness, and mitigation efforts have improved resilience, challenges persist, particularly regarding aging infrastructure and vulnerable communities. Continued investments in retrofitting, public education, and early warning systems will be critical in minimizing casualties, economic losses, and recovery challenges in future earthquakes.



6.4 Extreme Heat

6.4.1 Nature

Extreme heat refers to prolonged periods of high temperatures, often accompanied by high humidity, posing significant health risks such as heat exhaustion and heat stroke. The urban heat island (UHI) effect, prevalent in densely built areas like Los Angeles County, intensifies these conditions by absorbing and retaining heat. The changing climate conditions through time in the region exacerbate for the rising of daily temperature and for the increasing of extreme heat days in the County. This leads to health issues, increase energy demand, and strain on infrastructure.



6.4.2 Location

Los Angeles County is particularly susceptible to extreme heat due to its diverse geography and urban density. All of Los Angeles County may experience extreme heat, nonetheless inland regions, including the valleys and high desert areas experience

higher temperatures compared to coastal areas. The urban heat island (UHI) effect can increase temperatures in cities and developed areas than the less developed areas. Urban centers with extensive concrete and asphalt surfaces further amplify heat retention, contributing to elevated temperatures and increased UHI effect in the county.

6.4.3 Extent

The severity of heat events in Los Angeles County has been increasing. Projections indicate a significant rise in the frequency and intensity of heat waves, with inland areas potentially experiencing temperatures exceeding 110°F. The urban heat island effect can cause urban areas to be several degrees warmer than their rural counterparts, exacerbating the impact of heat waves. The chart below shows the levels of heat wave impacts used to measure heatwave severity. HeatRisk, an experimental measure developed by the NWS in collaboration with the CDC, classifies heat events by their impact on human health. It ranges from Green (0) which is little or no risk to Magenta (4), which means extreme heat with no overnight relief.

Category	Figure 6.4.1 Risk of Heat-Related Impacts
Green 0	Little to no risk from expected heat.
Yellow 1	Minor - This level of heat affects primarily those individuals extremely sensitive to heat, especially when outdoors without effective cooling and/or adequate hydration.
Orange 2	Moderate - This level of heat affects most individuals sensitive to heat, especially those without effective cooling and/or adequate hydration. Impacts possible in some health systems and in heat-sensitive industries.
Red 3	Major - This level of heat affects anyone without effective cooling and/or adequate hydration. Impacts likely in some health systems, heat-sensitive industries and infrastructure.
Magenta 4	Extreme - This level of rare and/or long-duration extreme heat with little to no overnight relief affects anyone without effective cooling and/or adequate hydration. Impacts likely in most health systems, heat-sensitive industries and infrastructure.

National Weather Service (NWS), 2024

August, being the hottest month of the year that the planning area experiences the Figure 6.4.2 below shows, the average high temperature for August 2024 in Los Angeles County. As shown, the temperature varies by location but remains higher than average monthly temperature.



Figure 6.4.2, Mean Max Temperature for August 2024, National Weather Service

6.4.4 History

Because of the changing climate conditions and the geographical location, Los Angeles County has been experiencing extreme heat waves in the past years. It has a history of extreme heat events, with temperatures frequently reaching 100 degrees or more, especially during the summer months. In some cases, these extreme heat events are record-breaking heat waves surpassing their all-time highs.

Extreme Heat events include:

- **August 2020:** A severe heatwave led to widespread power outages, affecting nearly 500,000 residents.

- **September 2020:** The San Fernando Valley recorded a record high temperature of 121°F.
- **August 2022:** A record-breaking heatwave in late summer exceeded 100°F
- **September 2024:** A severe September heatwave pushed temperatures 10-20°F above normal, hitting 109°F in Long Beach

The History of Extreme heat events highlight the increasing trend of extreme heat occurrences in the region. There have been no federal declarations or state proclamations for extreme heat in the last five years. Even though there were no declared extreme heat emergencies, the county has issued several heat alerts and taken measures to protect residents from the impacts of heat waves during these periods.

6.4.5 Probability

Extreme heat events are an annual occurrence in Los Angeles County, though severity of such events vary per year based on other conditions, such as El Niño. Climate models project a substantial increase in the likelihood of extreme heat events in Los Angeles County. By mid-century, the county could experience more than five major heat waves annually, with some models suggesting up to tenfold increases in frequency. This heightened probability necessitates proactive mitigation and adaptation strategies.



Figure 6.4.3, Average Temperature 1900-2025, NOAA, NCEI, 2025.

6.4.6 Vulnerability

Extreme heat poses a significant and growing threat to Los Angeles County, where rising temperatures, urban heat islands, and widespread social vulnerability intersect. Those most at risk include the elderly, low-income households lacking air conditioning,

people experiencing homelessness (PEH), individuals with access and functional needs (AFN), and the County's large population of outdoor and non-air-conditioned indoor workers. Infrastructure is also strained; electricity demand spikes during heatwaves, often overwhelming the power grid and triggering outages. Water systems experience increased demand and evaporation losses, while roadways and rail lines are subject to buckling or operational delays. In recent years, Los Angeles County has experienced severe consequences from prolonged heat events, reinforcing the urgent need for heat resilience strategies targeting both people and critical services.

Los Angeles County-Specific Impacts and Data

- 491,600 residents experienced power outages during the August 2020 heatwave.
- 96% of the County's 1,000 miles of high-voltage transmission lines are exposed to moderate to high extreme heat risk.
- 1.7 million residents are considered highly vulnerable due to age, income, disability, or chronic health conditions.
- Over 300,000 outdoor workers are at elevated risk for heat-related illness and injury.
- Thousands of heat-related emergency visits occurred during multi-day heat events in 2020 and 2022; especially in neighborhoods with limited shade and high surface temperatures.
- 50+ cooling centers have been activated across the County during recent heatwaves to support at-risk populations.
- High heat contributes to worsened air quality, increased wildfire smoke exposure, and economic losses due to infrastructure damage, productivity decline, and rising healthcare costs.

6.4.7 Impacts

Los Angeles County has faced significant and growing impacts from extreme heatwaves over the past two decades. In August 2020, a prolonged heatwave caused rolling blackouts affecting nearly 500,000 customers, overwhelmed the state's electrical grid, and forced the activation of emergency conservation protocols. That same summer, the San Fernando Valley hit 121°F, leading to widespread strain on

HVAC systems and increased emergency room visits for heat-related illnesses. The 2022 and 2024 heatwaves brought similar conditions—temperatures over 100°F across the region led to localized transformer failures, asphalt buckling, and strain on water delivery systems due to elevated demand. During these events, outdoor workers, the elderly, and low-income residents without access to cooling systems were among the most affected. Economic activity was disrupted, with reports of business closures, service delays, and increased healthcare costs. In 2024, Long Beach reached a record 109°F, causing a spike in electricity demand and triggering emergency energy alerts across Southern California. Heat-related deaths and hospitalizations have also trended upward, particularly in neighborhoods with low tree canopy and high impervious surfaces. These impacts underscore the need for resilient infrastructure and targeted adaptation strategies to safeguard health and essential services.

6.4.8 Mitigation and Preparedness

The most effective way to reduce the negative impacts of an extreme heat event is to develop a comprehensive heat response plan that has individual strategies to effectively manage heat waves during peak seasons of the year. The plan might include forecasting and monitoring, education and awareness, and heat wave response.

To address extreme heat, Los Angeles County has implemented several measures:

- **Cooling Centers:** Establishment of air-conditioned public spaces where residents can seek relief during heatwaves. These centers are facilities such as libraries, community centers, and senior centers. Residents can locate the nearest cooling center using resources provided by the county. *Additional resources can be found at https://ready.lacounty.gov/heat/*
- **Urban Greening Initiatives:** Programs aimed at increasing green spaces, planting trees, and creating parks to provide shade and reduce ambient temperatures. These efforts help mitigate the urban heat island effect.
- **Public Awareness Campaigns:** Educational initiatives to inform residents about heat risks, prevention strategies, and resources available during extreme heat events. These campaigns emphasize the importance of hydration, recognizing heat-related illness symptoms, and utilizing cooling centers.
- **Building Codes and Regulations:** Incorporation of heat-mitigating designs and materials in new constructions and retrofits, such as cool roofs and reflective

pavements, to reduce heat absorption. These measures aim to lower indoor temperatures and decrease reliance on air conditioning.

These strategies are designed to reduce heat exposure, protect vulnerable populations, and enhance community resilience against extreme heat events.

6.4.9 Summary

Extreme heat poses a growing threat to Los Angeles County, with increasing frequency and intensity of heat waves exacerbated by urban heat island (UHI) effects. Understanding these impacts of extreme heat and taking appropriate precautions, residents of Los Angeles County can protect themselves and their communities from this growing climate hazard. The county has undertaken various mitigation efforts, including the establishment of cooling centers, urban greening projects, public education campaigns, and the implementation of heat-conscious building practices. Ongoing adaptation and proactive planning are essential to safeguard public health, infrastructure, and the environment from the adverse effects of extreme heat.

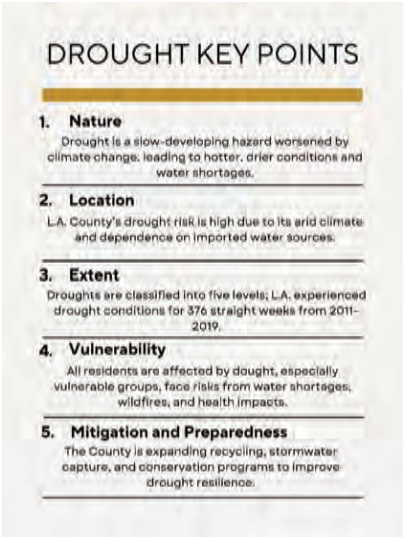


6.5 Drought

6.5.1 Nature

Drought is a prolonged period of below-average precipitation that leads to water shortages, impacting agriculture, ecosystems, and urban water supplies. Unlike other natural disasters, drought develops gradually, making it difficult to predict and mitigate. In Los Angeles County, droughts are a recurring issue due to the region's arid climate and dependence on imported water supplies.

Drought severity is determined by its duration, intensity, geographic extent, and water demand. Climate change is exacerbating these factors, leading to hotter temperatures, reduced precipitation, and increased evaporation rates. Wildfires are also projected to increase in frequency and intensity during drought season.



There are four common classifications of drought:

- **Meteorological Drought**: A prolonged period of below-normal precipitation.

- **Hydrological Drought**: A reduction in surface and groundwater levels due to prolonged precipitation deficits.
- **Agricultural Drought:** A lack of soil moisture that affects crop growth and livestock sustainability.
- **Socioeconomic Drought:** When water shortages impact drinking water supplies, sanitation, public services, and economic activities.

6.5.2 Location

Drought is regional in nature and typically affects the entire Los Angeles County planning area. Given the county's reliance on imported water from the Sierra Nevada snowpack and the Colorado River, reduced availability of these sources significantly increases vulnerability.

6.5.3 Extent

Drought is a recurring natural hazard that can severely impact agriculture, water supply, ecosystems, and communities. To monitor and communicate drought conditions across the United States, the National Drought Mitigation Center (NDMC), in partnership with the U.S. Department of Agriculture (USDA) and the National Oceanic and Atmospheric Administration (NOAA), produces weekly U.S. Drought Monitor maps. These maps categorize drought conditions into five levels based on intensity, duration, and impact on various sectors, including agriculture, water resources, and public health.

Each drought category reflects a different level of severity, from short-term dry conditions that may slow crop growth, to long-term, widespread water shortages that require emergency response. These classifications help decision-makers, farmers, and water managers respond appropriately to emerging or ongoing drought conditions. See Figure 6.5.1 below for more information.

Drought Categories and Associated Impacts:

CATEGORY	DESCRIPTION	POSSIBLE IMPACTS
D4	EXCEPTIONAL DROUGHT	• Exceptional and widespread crop/pasture losses • Critical shortages of water in reservoirs, streams, and wells • Water emergencies and possible mandatory rationing • Severe impacts on ecosystems and wildlife habitats
D3	EXTREME DROUGHT	• Major agricultural losses and pasture failure • Widespread water shortages • Water use restrictions likely enforced • Increased risk of wildfires and heat-related stress
D2	SEVERE DROUGHT	• Crop and pasture losses becoming likely • Water shortages becoming common • Local governments may implement water restrictions • Hydropower generation and irrigation potentially impacted
D1	MODERATE DROUGHT	• Noticeable damage to crops and pastures • Water levels in streams and reservoirs begin to decline • Voluntary water-use restrictions may be requested • Some stress on fish and wildlife populations
D0	ABNORMALLY DRY	• Early signs of drought, with short-term dryness slowing planting and crop growth • If improving lingering water deficits as area recovers from drought • Pastures or vegetation may show signs of delayed recovery

Figure 6.5.1 Drought Categories and Associated Impacts

These classifications not only help guide resources and planning but also raise awareness about the broader consequences of prolonged dryness. Understanding the extent and severity of drought helps ensure timely response and mitigation efforts at local, state, and federal levels.

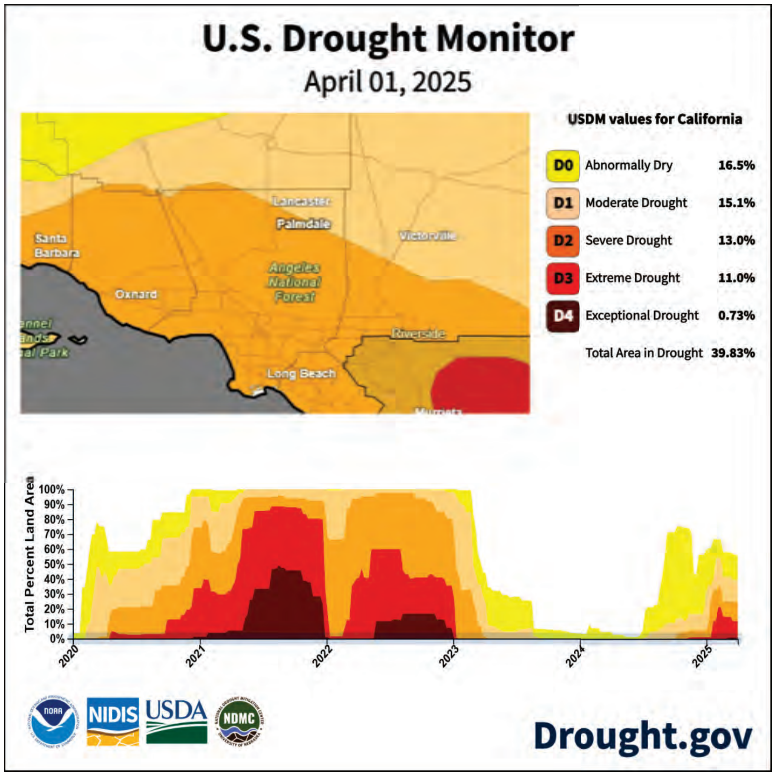


Figure 6.5.2, U.S. Drought Monitor, 2025

6.5.4 History

Los Angeles County has experienced multiple significant droughts, with some lasting several years. There have been no federal declarations or state proclamations for drought in the last five years.

Notable historical drought periods include:

1. 1917-1921 – A widespread drought affecting most of California.
2. 1976-1977 – One of the driest two-year periods in recorded history.
3. 1987-1992 – A six-year drought that severely impacted water supplies and agriculture.
4. 2007-2009 – A prolonged drought leading to state-imposed water restrictions.
5. 2011-2017 – The most severe drought in modern history, resulting in groundwater depletion and mandatory conservation measures.
6. 2020-2022 – California experienced a significant drought, with Los Angeles County experiencing "abnormally dry" conditions.
7. 2024-2025 – Los Angeles County is continuing to experience abnormally dry conditions, with lower average rainfalls and arid conditions.

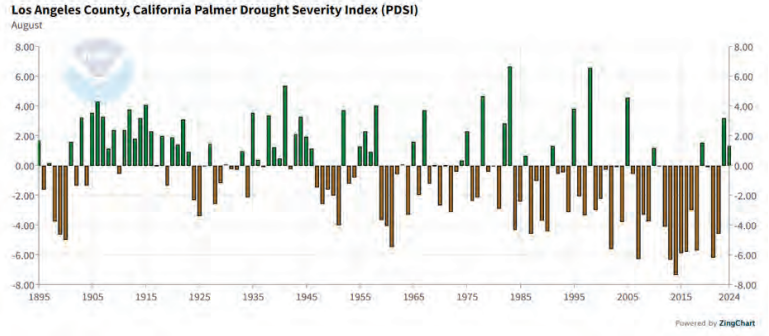


Figure 6.5.3, NOAA Drought Severity Index, 2024

The chart above, the Palmer Drought Severity Index, shows how drought conditions have been changing since 1895. The Palmer Drought Severity Index measures how dry or wet an area is by comparing rainfall and temperature to long-term averages. It gives a number (positive or negative) showing drought severity or excess moisture.

Los Angeles County was in some form of drought for 376 consecutive weeks from December 20, 2011, until March 14, 2019. The State and the County passed several resolutions and regulations at different times to mitigate drought impacts like water

conservation regulations. There were no federally declared drought disasters in the area in the past five years in the planning area.

6.5.5 Probability

Climate scientists predict that Los Angeles County and the rest of Southern California will get drier, while Northern California will get hotter. Rising temperatures contribute to higher evaporation rates and declining snowpack in the Sierra Nevada, a critical source of water for Southern California. The frequency of extreme droughts is expected to increase, reducing available water resources and heightening competition between urban, agricultural, and environmental needs. Long-term droughts have a 100% of occurring every ten-years, with potential for longer and more destructive drought events due to climate change.

6.5.6 Vulnerability

Los Angeles County's 10 million residents face growing vulnerabilities during prolonged droughts, with over 75% of community water systems exhibiting at least one drought-related risk, such as reliance on a single source or aging infrastructure. The County's dependence on imported water—serving over 60% of residents—increases exposure to supply disruptions from reduced Sierra Nevada snowpack and Colorado River allocations. All residents, and visitors of Los Angeles County are affected by water shortages during a prolonged drought conditions.

Vulnerabilities include:

- **Low-income households**, often lacking water-efficient appliances and cooling systems.
- **Agricultural industry** with over 140,000 acres of irrigated farmland in the County is at risk of reduced water allocation and drying pastures for livestock.
- **Wildland-urban interface (WUI) communities**, where over 1 million residents face heightened wildfire risk due to dry vegetation and limited firefighting water supply.
- **Critical infrastructure** operations may be impacted by a range of factors from reduced hydropower availability when reservoir levels decrease to power station cooling challenges.

These vulnerabilities illustrate the far-reaching, cross-sector impacts of drought on the County's economy, environment, and most at-risk communities.

6.5.7 Impacts

Over the past five years, Los Angeles County has experienced intensifying drought conditions marked by rising temperatures, reduced snowpack, and persistent water shortages. By 2022, 75% of the County's community water systems showed at least one drought vulnerability, including reliance on a single water source or aging infrastructure. Public health impacts have also emerged, with 1,113 cases of Valley fever reported in 2020, linked to dry soil and dust exposure. Hydropower reductions during drought periods increased reliance on natural gas, contributing to elevated energy costs for residents. These compounding impacts have strained water supply, health systems, and infrastructure, reinforcing drought as a major and growing hazard for Los Angeles County.

6.5.8 Mitigation and Preparedness

To combat increasing drought risks, Los Angeles County has implemented water conservation policies, infrastructure investments, and emergency response measures. Key strategies include:

Water Management and Conservation

- Expanding water recycling and desalination programs to reduce reliance on imported water.
- Implementing drought-tolerant landscaping initiatives to lower residential and commercial water use.
- Enforcing water efficiency regulations for new developments and upgrading older properties with water-saving strategies.

Infrastructure Improvements

- Enhancing groundwater recharge projects to increase local water storage.
- Upgrading stormwater capture systems to maximize water retention during rainy seasons.
- Developing new water storage facilities to provide additional supply resilience.

Community Preparedness and Public Awareness

- Launching county-wide conservation campaigns to encourage sustainable water use.
- Increasing financial incentives for water-efficient appliances and irrigation systems.
- Strengthening emergency drought response plans to ensure equitable water distribution during crises.

6.5.9 Summary

Drought remains a persistent and growing threat to Los Angeles County's water security and economic stability. Climate change projections indicate more frequent and severe droughts, placing greater strain on water supply systems, public health, and agriculture. By implementing proactive water management strategies, investing in infrastructure resilience, and promoting community awareness, the County can mitigate the long-term impacts of drought and ensure sustainable water resources for future generations.



6.6 Flooding

6.6.1 Nature



Flooding is a persistent and increasingly severe hazard in Los Angeles County, driven by heavy rainfall, storm surge, stormwater drainage, and rising sea levels. The county's complex hydrology, which includes rivers, creeks, and an extensive urban flood control system, is highly susceptible to overflow events when precipitation exceeds drainage capacity. The effects of climate change are exacerbating flood risks by intensifying storms, altering precipitation patterns, and increasing sea levels, leading to greater coastal inundation and inland flash floods.

Unlike other regions that experience seasonal flooding due to snowmelt, flooding in Los Angeles County primarily occurs during winter storms and atmospheric river events, which bring intense rainfall and lightning over short periods.

- The region's high degree of urbanization contributes to flash flooding, as paved surfaces prevent natural absorption of water, leading to rapid runoff and street flooding.

- Burn scars from recent wildfires further compound flood risks by reducing vegetation cover, destabilizing hillsides, and increasing the likelihood of land movement.

Flooding also creates secondary hazards, including erosion, infrastructure damage, water contamination, and transportation disruptions. Stormwater runoff can overwhelm wastewater treatment facilities, leading to hazardous spills. Landslides and mudflows in post-wildfire areas pose additional risks to homes, roads, and critical infrastructure. These compounding threats highlight the urgent need for comprehensive flood mitigation efforts to protect communities, infrastructure, and the environment.

6.6.2 Location

Flood hazards are geographically widespread, with more than 240 square miles of land located within the 100- and 500-year floodplains. Historically significant events, such as the 1938 and 1969 floods, as well as more recent storms in 2023 and 2024, have caused substantial damage to infrastructure, triggered evacuations, and challenged long-term recovery efforts. Socially vulnerable populations, including older adults, individuals with access and functional needs, and low-income households, face disproportionate impacts due to limited financial resources, inadequate insurance coverage, and reduced access to services. The County's flood control system includes concrete river channels, levees, storm drains, debris basins and reservoirs; has helped mitigate some flood risks but remains vulnerable to high-intensity storms that exceed design capacities.

Major Flood-Prone Areas:

- Los Angeles River, San Gabriel River, and Santa Clara River: These major waterways are prone to overflow during extreme storm events, particularly during El Niño years.
- Ballona Creek and Malibu Creek: These urban watersheds experience rapid runoff and flash flooding, especially in developed areas.
- Foothills, Valleys, and Recent Burn Scar Areas: Post-wildfire regions face heightened risk of flash floods and debris flows following storms.
- Antelope Valley: In desert regions, stormwater pools into temporary lakes, causing flooded roadways and infrastructure damage.

- Coastal Communities: Rising sea levels and storm surges threaten beachfront properties, harbors, and businesses.

Urban areas are particularly vulnerable due to impervious surfaces and outdated drainage systems. During intense storms, neighborhoods in Downtown Los Angeles, South LA, and the San Fernando Valley frequently experience street flooding and traffic disruptions, demonstrating the limitations of existing infrastructure in handling modern storm events.

For a better visual representation of this Flooding Hazard within the LA County planning area, please reference Appendix A for flood and inundation maps.

6.6.3 Extent

Los Angeles County faces a significant and evolving flood risk, with impacts ranging from localized urban inundation to widespread riverine flooding and destructive debris flows. Although the County has invested heavily in flood control infrastructure; including an extensive network of dams and debris basins; these systems are increasingly strained and cannot fully eliminate the threat. A growing number of residents are exposed to dangerous flooding each year, a situation made worse by the limitations of aging infrastructure and the complexities of urban hydrology. Intense rainfall events, especially those associated with atmospheric rivers, are occurring more frequently and with greater severity, often overwhelming drainage systems and resulting in severe flooding of streets and neighborhoods. Compounding this risk are burn scars from recent wildfires, which heighten the likelihood of mudslides and debris flows that threaten both life and property. As climate patterns shift and extreme weather events become more common, the flood vulnerability of Los Angeles County continues to deepen across its diverse geography.

Flood severity is typically measured using the 100-year and 500-year flood recurrence intervals, which indicate a 1% and 0.2% annual probability of flooding, respectively. These designations guide floodplain management and mitigation efforts.

Key Flood Hazard Statistics in Los Angeles County:

- 243.32 square miles (5.11%) of land have a 0.2% annual flood probability.
- 4.19 square miles (0.09%) have a 1% annual flood probability.

Key Flood Hazard Statistics for Unincorporated Los Angeles County:

- 64.77 square miles (2.13%) have a 0.2% flood probability.
- 1.23 square miles (0.04%) have a 1% flood probability.

As climate change accelerates sea-level rise and extreme rainfall events, these flood-prone areas may expand, affecting more residents, infrastructure, and businesses.

FLOOD IMPACT ON LAND AREA		
Area	**0.2% Annual Flood Probability**	**1% Annual Flood Probability**
Los Angeles County	243.32 sq. mi. (5.11%)	4.19 sq. mi. (0.09%)
Unincorporated LA County	64.77 sq. mi. (2.13%)	1.23 sq. mi. (0.04%)

6.6.4 History

Los Angeles County has experienced numerous severe flood events, many of which have caused catastrophic damage to infrastructure, property, and human life. Over the decades, climate variability, rapid urbanization, and an aging flood control system have led to repeated flooding disasters. There have been no federal declarations or state proclamations for earthquakes in the last five years.

Below are some of the most significant historical and recent flood events affecting the region.

Notable Flood and Lightning Events in Los Angeles County:

- **1938 Los Angeles Floods**: One of the deadliest floods in county history, caused by weeks of torrential rainfall, resulting in over 100 deaths, the destruction of thousands of homes, and widespread infrastructure damage, particularly to bridges and roadways.
- **1969 Winter Storms**: Heavy rains led to massive debris flows in the San Gabriel Mountains, severe urban flooding across Los Angeles, and multiple dam breaches, prompting major evacuations.
- **1992-1993 El Niño Floods**: A series of storms triggered landslides, flash flooding, and major coastal erosion, with significant damage to Pacific Coast Highway and residential areas.
- **2017 Winter Storms (DR-4305)**: Record-breaking rainfall led to significant urban flooding, road closures, and mudslides, with severe impacts across multiple communities.

- **October 2021**: Los Angeles County experienced a rare and intense thunderstorm with a significant amount of lightning.
- **September 2022 Hurricane Kay**: A pacific hurricane that caused significant rainfall along with risk of mudflows, coastal flooding, and coastal erosion.
- **January 2023 Atmospheric River Event (DR-4683)**: Heavy rainfall overwhelmed storm drains, causing significant flooding in Hollywood, Baldwin Hills, and low-lying inland areas, leading to evacuations and infrastructure damage.
- **February 2023 Los Angeles Floods (DR-4699)**: A series of intense storms caused widespread flash flooding, freeway closures, and landslides, demonstrating the increasing vulnerability of the county's urban areas to extreme precipitation events.
- **August 2023 Tropical Storm Hilary (DR-4750)**: Several locations in the mountains of Southern California received over 10 inches of rainfall which set daily and/or monthly rainfall records, in many locations in Southern California, including within Los Angeles County. It also created significant threat of flash and riverine flooding prompted the evacuation of numerous vulnerable communities near burn scars in the region.
- **December 2023 Pacific Storm**: Storm surges and extreme coastal flooding led to significant erosion along the coastline, particularly impacting Marina del Rey, Long Beach, and Venice Beach.
- **February - March 2024 Atmospheric River Storm (DR-4769)**: One of the most intense rainfall events in recent history, resulting in severe flash floods, mudslides, and power outages, with many homes and businesses sustaining flood damage.

6.6.5 Probability

Flood recurrence in Los Angeles County is influenced by both natural climate variability and the increasing effects of climate change. Historically, severe flooding is most likely during strong El Niño events, which occur approximately every 2 to 7 years and can persist for several months to multiple years. These events bring elevated precipitation levels and increase the likelihood of both inland and coastal flooding.

As climate change accelerates, the frequency and intensity of flood-generating events are expected to increase, altering traditional recurrence intervals and expanding the areas at risk. There is a 95% chance of a flooding event occurring each year withing Los Angeles County.

Key climate-related drivers include:

- **Sea-Level Rise**: Projected to rise by 6 inches to over 2 feet by 2050, increasing the risk of tidal and storm surge flooding in coastal communities.
- **Atmospheric River Events**: According to the 2024 THIRA, these events are becoming more frequent and intense, leading to elevated flash flood and debris flow risks.
- **El Niño Cycles**: Still expected every 2 to 7 years, but with increased variability and storm intensity that can overwhelm local drainage and flood control systems.

These evolving conditions challenge existing floodplain maps and design assumptions, highlighting the need for adaptive planning, updated risk models, and continued investment in resilient infrastructure and flood mitigation strategies.

6.6.6 Vulnerability

Los Angeles County faces widespread and layered vulnerabilities to flooding, shaped by a combination of environmental exposure and complex social factors. Physical vulnerability is pronounced in areas located within FEMA-designated Special Flood Hazard Areas (SFHAs), post-wildfire burn scars, and low-lying urban drainage basins that are prone to flooding. However, the degree of risk is significantly heightened for certain populations who may lack the resources or capacity to prepare for, respond to, and recover from flood events. Socially vulnerable groups, including older adults, individuals with disabilities or access and functional needs (AFN), mobile home residents, people experiencing homelessness, and low-income households; are more likely to reside in structurally vulnerable housing.

According to the 2021 Los Angeles County Comprehensive Floodplain Management Plan, more than a quarter of residents living within the 100-year floodplain earn less than $20,000 annually, underscoring the disproportionate economic burden faced by those least able to absorb the costs of recovery. Climate vulnerability data further demonstrates that marginalized communities in flood-exposed areas face elevated risks due to flooding events. The vulnerability landscape is further complicated by a shortage of affordable flood-resilient structures, and an increasing number of residents living in areas newly exposed due to climate-driven changes in precipitation and runoff patterns.

6.6.7 Impacts

Flooding in Los Angeles County leads to a broad range of direct and cascading impacts on people, infrastructure, environment, and the economy. The County's extensive network of critical facilities, including hospitals, fire stations, wastewater treatment plants, schools, and power substations. These areas face recurring exposure within both 100- and 500-year floodplains. Damage to these facilities not only compromises their physical integrity but also threatens their functionality during emergency response operations.

Flooding often disrupts lifeline services such as electricity, potable water, sanitation, and transportation, with rural and unincorporated areas facing the greatest challenges to rapid restoration. Mobile homes, frequently concentrated in low-lying or under-drained neighborhoods, are especially susceptible to flood damage due to construction limitations and inadequate protective measures. Previous flood events have resulted in significant debris flows, road closures, train stoppages, and damage to public and private structures.

Primary Vulnerabilities & Impacts:

- Over 1,470 structures are estimated to be damaged in a 100-year flood event, with total damages exceeding $769.7 million in property losses in unincorporated Los Angeles County.
- Additionally, more than 180 critical facilities are exposed in the 500-year floodplain, while 70 are within the 100-year floodplain, including transportation assets, utilities, emergency services, and hazardous materials facilities.
- A 100-year flood event could displace over a thousand people with many requiring sheltering, support and recovery efforts.
- Approximately 19,563 tons of building-related debris could be generated by a 100-year flood event, with clean-up requiring more than 780 truckloads, posing logistical, environmental, and public health challenges.
- 28.6% of households in the 100-year floodplain are economically disadvantaged, earning under $20,000 per year, limiting their ability to evacuate, recover, or pay for mitigation improvements.
- A large share of flood-prone properties are either uninsured or underinsured. The average flood insurance claim payout is $7,298, which is only about 1% of the 2019

average replacement cost of structures in the floodplain—indicating significant gaps in financial resilience.

- Wildfire burn scars and post-fire hydrophobic soils significantly increase flood and debris flow risks, particularly in foothill and canyon communities. This hazard continues to grow in severity with climate-driven fire seasons.

Estimated Damage to Critical Facilities in Unincorporated Areas from 100-Year Flood

Sector	Number of Facilities Affected	Average % of Total Value Damaged	
		Structure	Content
Safety & Security	1	7.56	10.24
Food, Water & Sheltering	9	6.72	18.73
Health & Medical	0	N/A	N/A
Energy	1	23.90	47.79
Communications	0	N/A	N/A
Transportation	59	1.41	8.86
Hazardous Materials	0	N/A	N/A
Total/Average	**70**	**9.90**	**21.40**

Estimated Damage to Critical Facilities in Unincorporated Areas from 500-Year Flood

Sector	Number of Facilities Affected	Average % of Total Value Damaged	
		Structure	Content
Safety & Security	4	28.39	37.56
Food, Water & Sheltering	41	7.73	27.01
Health & Medical	0	N/A	N/A
Energy	1	23.90	47.79
Communications	2	5.00	16.00
Transportation	107	3.38	19.74
Hazardous Materials	30	10.00	15.00
Total/Average	**185**	**13.07**	**27.18**

Charts Source: LA County Public Works; 2021 County Comprehensive Flood Plan

6.6.8 Mitigation and Preparedness

Los Angeles County's flood mitigation strategy reduces hazard exposure, enhances community resilience, and supports long-term climate adaptation. Grounded in FEMA's National Mitigation Framework, CalOES planning guidance, and local policy, the County implements both structural and non-structural measures to address current and future flood risks. Core actions include regular maintenance and targeted upgrades to

stormwater infrastructure, restoration of floodplains, and integration of flood hazard data into land use planning. The County also prioritizes the protection of critical facilities and vulnerable housing through site retrofits, property acquisition, and elevation programs. Public outreach is conducted through a bilingual, ADA-accessible Program for Public Information, which promotes flood safety awareness, emergency preparedness, and participation in the National Flood Insurance Program (NFIP).

To ensure that mitigation is both data-driven and community-centered, the County utilizes climate projections and FEMA's HAZUS modeling to inform investments, while coordinating with regional partners to align local actions with broader watershed strategies. Key components of the approach include:

- Upgrading culverts, debris basins, and drainage systems to manage increased runoff
- Promoting low-impact development (LID) and incorporating green infrastructure in urban design
- Updating ordinances and the General Plan to discourage development in high-risk areas
- Maintaining inventories of repetitive loss areas and prioritizing resources for the most vulnerable populations

This comprehensive strategy ensures Los Angeles County not only meets federal and state standards but advances flood risk reduction in a way that safeguards people, property, and natural systems for the future.

6.6.9 Summary

Flooding is one of the most persistent and complex natural hazards in Los Angeles County, intensified by climate change, urbanization, and aging infrastructure. The Los Angeles County region experiences a range of flood types, including stormwater runoff, flash flooding, coastal inundation, and post-wildfire debris flows. These events are most common during winter storms and atmospheric river systems. High-density development, extensive paved surfaces, and fire-damaged hillsides contribute to rapid runoff and increased overall flood vulnerability. Areas along (but not limited to) the Los Angeles, San Gabriel, and Santa Clara Rivers, as well as coastal communities and foothill regions, are particularly at risk.

Los Angeles County's mitigation strategy is proactive and multifaceted. It includes infrastructure upgrades, nature-based solutions, land use policy updates, and public education. Core priorities focus on protecting critical facilities, reducing exposure in high-risk housing, and promoting community resilience. Planning efforts are supported by FEMA's HAZUS risk modeling and local climate projections. Despite progress, more than 750,000 residents remain at risk from major flood events, reinforcing the need for continued investment in comprehensive, flood risk reduction across the county.

6.6.10 National Flood Insurance Program (NFIP) Repetitive Loss (RL)

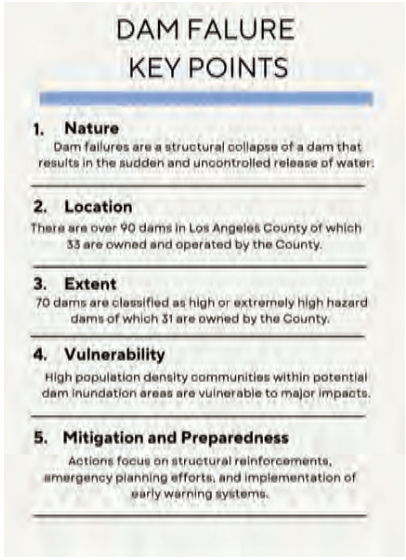
According to the Los Angeles County Public Works, there are 55 Repetitive Loss (RL) properties in 28 RL areas of Unincorporated Los Angeles County as of 2025, and 8 Severe Repetitive Loss Properties (SRLP). A Repetitive Loss (RL) property is any insurable building for which two or more claims of more than $1,000 were paid by the National Flood Insurance Program (NFIP) in any rolling 10-year period since 1978. Updated location information about RL properties in Unincorporated Los Angeles County were not available during the drafting of this plan, but is being finalized and will be included in subsequent hazard mitigation efforts. Data from 2011 showed that 24 RL properties were located in the SFHA. At the time, the Los Angeles County Public Works stated, "the majority of the repetitive losses are associated with localized urban drainage flood problems, even for properties within a FEMA-designated flood zone." The Los Angeles County Public Works oversees RL mitigation projects.



6.7 Dam Failure

6.7.1 Nature

Dam failure refers to the structural collapse of a dam that results in the sudden and uncontrolled release of stored water. Such failures can occur due to age-related deterioration, inadequate spillway capacity, structural damage from seismic activity or flooding, and poor maintenance. The catastrophic release of water from a dam failure has the potential to cause human casualties, significant economic loss, and environmental destruction. This type of disaster is particularly dangerous because it can occur suddenly, leaving little time for evacuation or emergency response efforts.



The magnitude of flooding from dam failure often exceeds the capacity of downstream channels, causing rapid inundation of surrounding areas. This flooding can lead to extensive property damage, erosion, infrastructure destruction, and contamination of water supplies. Additionally, secondary hazards such as landslides and debris flows can be triggered, compounding the disaster's impact. The structural stress on dams may rise as dams age, and climate variability increases the frequency of extreme precipitation events. Planning efforts include both dams and debris basins. To simplify language of the plan both reservoir dams and storm water debris basins will be referred to as dams.

6.7.2 Location

Los Angeles County has over 90 dams regulated by the California Department of Water Resources' Division of Safety of Dams (DSOD). Fifteen (15) of these dams and eighteen (18) debris basins are owned and operated by the Los Angeles County Public Works (PW). In 2017, the California Legislature mandated that all state-jurisdictional dams (excluding those classified as Low Hazard) develop dam breach inundation maps and Emergency Action Plans (EAPs) approved by DSOD and Cal OES.

Many of these dams are located near highly populated areas, increasing the potential for human and economic impacts during a failure event. Seventy (70) dams are classified as High or Extremely High hazard potential dams, meaning their failure could result in significant loss of life and widespread property damage.

The Whittier Narrows Dam, reclassified as the U.S. Army Corps of Engineers' (USACE) highest-priority dam safety concern, poses one of the greatest risks due to its potential to flood highly populated areas from Pico Rivera to Long Beach. USACE has determined that an extreme storm event has a 1 in 900 (0.1%) chance of causing catastrophic failure annually. Mitigation actions related to County-owned dams are prioritized based on their hazard level and potential to impact populated areas.

For a better visual representation of this Dam Failure Hazard within the LA County planning area, please reference Appendix A for all the County owned dams and debris basins maps.

6.7.3 Extent

The Federal Guidelines for Inundation Mapping of Flood Risks Associated with Dam Incidents and Failures (FEMA P-946, 2013) categorizes dam hazards into four classifications:

- **Low Hazard**: Minimal damage expected, no loss of life.
- **Significant Hazard**: Potential for property damage and economic disruption.
- **High Hazard**: Likely to result in loss of life and significant damage to critical infrastructure.
- **Extremely High Hazard (DSOD Classification)**: Could cause large-scale fatalities and inundate areas with over 1,000 residents.

Given the population density of Los Angeles County, a dam failure classified as High or Extremely High Hazard would likely cause substantial human casualties, displace entire communities, and inflict severe economic and environmental damage. Table 6-3 and 6-4 below shows a list of dams and debris basins owned by PW along with their hazard classifications. Potential mitigation actions described in this AHMP are only applicable to the dams and debris basins owned by PW and implementation of these actions are the responsibility of the PW Stormwater Engineering Division – Dams Section.

Table 6-3: Los Angeles County PW Dam Hazard Status

Dam Name	Hazard Status	Location
Big Dalton	Extremely High	Glendora, CA
Big Santa Anita	Extremely High	Monrovia, CA
Big Tujunga No. 1	Extremely High	Tujunga, CA
Cogswell	Extremely High	Azusa, CA
Devils Gate	Extremely High	LA Canada Flintridge, CA
Live Oak	Extremely High	La Verne, CA
Morris	Extremely High	Azusa, CA
Pacoima	Extremely High	Pacoima, CA
Puddingstone	Extremely High	San Dimas, CA
Puddingstone Diversion	High	La Verne, CA
San Dimas	Extremely High	La Verne, CA
San Gabriel No. 1	Extremely High	Azusa, CA
Sawpit	Extremely High	Monrovia, CA
Sierra Madre	High	Sierra Madre, CA
Thompson Creek	Extremely High	Claremont, CA

Table 6-4: Los Angeles County PW Debris Basin Hazard Status

Debris Basin Name	Hazard Status	Location
Bailey Debris Basin	High	Sierra Madre, CA
Big Dalton Debris Basin	High	Glendora, CA
Blanchard Debris Basin	High	Tujunga, CA
Brand Debris Basin	High	Glendale, CA
Eaton Wash Debris Basin	Extremely High	Pasadena, CA
La Tuna Debris Basin	Extremely High	Sun Valley, CA
Laguna Regulating Basin	Significant	Alhambra, CA
Little Dalton Debris Basin	Extremely High	Glendora, CA
Lower Sunset Debris Basin	High	Burbank, CA
Morgan Debris Basin	High	Glendora, CA
Rubio Debris Basin	High	Altadena, CA
Santa Anita Debris Basin	Low	Arcadia, CA
Sawpit Debris Basin	Extremely High	Monrovia, CA

Debris Basin Name	Hazard Status	Location
Schoolhouse Debris Basin	High	Los Angeles, CA
Sierra Madre Villa	Extremely High	Sierra Madre, CA
Stevenson Ranch	High	Stevenson Ranch, CA
Stough Debris Basin	Extremely High	Burbank, CA
Wilson Debris Basin	High	Los Angeles, CA

6.7.4 History

Los Angeles County has experienced one of the deadliest dam failures in U.S. history:

- St. Francis Dam Failure (March 12-13, 1928):
  - Released 12.4 billion gallons of water
  - At least 411 fatalities
  - Devastated towns from San Francisquito Canyon to Ventura County
  - Resulted in sweeping changes to California dam safety regulations and the creation of state oversight for civil engineers

While no major dam failures have occurred in recent decades, concerns over aging dam infrastructure, seismic risks, and increasing climate variability have raised alarms about future risks. Studies indicate that many California dams, including those in Los Angeles County, require structural updates to withstand modern hydrological conditions and potential seismic activity. There have been no federal declarations or state proclamations for dam failure in the last five years.

6.7.5 Dam Coordination

Los Angeles County Public Works coordinates with local, state, and federal agencies to mitigate flood risk hazards to downstream communities from its dams. At the local level, PW works with cities and public agencies during development of Emergency Action Plans (EAP). This provides local stakeholders with the opportunity to review the EAP, provide feedback, and confirm responsibilities and roles during an EAP activation. At request from local jurisdictions, PW may provide tours of its dam facilities, where information on dam safety and the potential hazards associated with dam failures are shared.

At the state level, PW works with the DSOD to meet compliance with state dam safety standards and flood management at all of PW's dams. This includes annual dam

inspections, review, approval, and oversight of dam construction projects, review of dam safety monitoring, and oversight of other dam safety regulatory activities. PW also coordinates with various state agencies, including DSOD, Cal OES, and Caltrans during development of EAPs.

At the federal level, PW works with the Federal Energy Regulatory Commission (FERC) to meet compliance with state dam federal standards and flood management at PW's San Gabriel Dam, which is under FERC jurisdiction. This includes annual dam inspections, review, approval, and oversight of dam construction projects, review of dam safety monitoring, EAP coordination, and oversight of other dam safety regulatory activities. PW also coordinates with the United States Army Corps of Engineers (USACE) on operations of interconnected dam facilities and emergency response planning for USACE facilities that may be in the pathway of dam failure impacts.

Information Sharing

PW provides critical information to relevant local, state, and federal stakeholders to address hazard mitigation related to dam safety. This includes:

- **Emergency Action Plans (EAPs):** EAPs outline the roles, responsibilities, and procedures to follow in the event of a dam emergency. The EAPs include inundation maps, which show areas that would be affected by a dam failure, helping to identify populations at risk. These plans are shared with stakeholders to ensure a coordinated response. Due to the sensitive nature of information contained within the EAPs, they are confidential and not released to the general public.
- **Inundation Maps:** Inundation maps are critical tools for identifying areas and populations at risk in the event of a dam failure. They also indicate potential impacts on critical infrastructure facilities such as hospitals, schools, and transportation networks. These maps are shared with relevant stakeholders recognized in the EAP and are available to the general public through the DSOD Dam Breach Inundation Map Web Publisher.

6.7.6 Probability

Los Angeles County contains over 90 state-jurisdictional dams, with approximately 70 classified as High or Extremely High Hazard by the California Division of Safety of Dams (DSOD), meaning their failure could result in loss of life and significant property damage.

Although comprehensive failure probabilities are not published for each dam, FEMA and DSOD guidance suggest that the general annual probability of failure for High Hazard dams nationwide ranges from 0.01% to 0.1% (or 1 in 10,000 to 1 in 1,000) depending on maintenance, age, seismic vulnerability, and other site-specific factors.

Applying this range to Los Angeles County:

- The aggregate annual probability of a significant dam failure event in the county—across one or more of the 70 high-risk dams—is estimated at between 0.1% and 0.5% annually, factoring cumulative exposure and different hazard classifications. (Such as earthquake or flood related)
- Climate change, aging infrastructure, and seismic activity in Los Angeles County increase systemic risk across multiple structures simultaneously.

In summary, while the individual likelihood of failure for any one dam is very low, the overall countywide probability of at least one major dam failure event is low but still warrants continued vigilance, maintenance, and emergency planning.

6.7.7 Vulnerability

A catastrophic dam failure in Los Angeles County could have severe consequences for hundreds of thousands of residents. The densely populated nature of the county, combined with the location of several large dams near residential and commercial areas, increases the potential for widespread displacement, loss of life, and economic damage. The 2024 THIRA identifies multiple high-risk zones where dam failure could result in extensive flooding and mass evacuations.

- High-risk dams, among others, pose a significant threat to densely populated communities. A breach in any of these dams could inundate entire neighborhoods, affecting more than 500,000 residents in low-lying areas and floodplains.
- Socially vulnerable populations, including elderly individuals, the AFN community, people experiencing homelessness, low-income communities, and non-English-speaking residents face heightened risks during evacuations and recovery due to limited mobility, financial constraints, and access to resources.
- Educational and healthcare institutions are at risk, with several schools, hospitals, and long-term care facilities located in flood-prone areas. A major dam failure could result in school closures, displacement of students, and disruption of healthcare services.

- Evacuation and emergency sheltering demands would be substantial, requiring the rapid mobilization of resources to support displaced residents. Temporary shelters, emergency medical services, and logistical support would need to be activated to accommodate evacuees.

Los Angeles County relies heavily on dams and reservoirs for water storage, flood control, and supply regulation. Catastrophic dam failure poses an acute threat to life and property, especially in low-lying, highly populated downstream areas.

Extent of Exposure

- **Total Area Exposed**: 490.64 sq mi
- **Supervisorial Districts (SD) Impacted**:
  - **SD5**: 223.88 sq mi (7.97%)
  - **SD1**: 162.25 sq mi (45.98%)
  - **SD2**: 66.57 sq mi (18.32%)
  - **SD3**: 25.76 sq mi (5.97%)
  - **SD4**: 12.17 sq mi (5.72%)
- **Critical Facilities Affected**:
  - Fire Department: 112 (33.22%)
  - Public Works: 92 (40.00%)
  - Health Services: 29 (44.62%)
  - Public Health: 17 (42.50%)
  - Libraries: 30 (34.48%)
  - Parks: 65 (35.50%)
  - Education: 34 (41.46%)

Problem Statement

Dam failure, while rare, can have catastrophic consequences in densely populated downstream areas. With significant portions of critical infrastructure exposed—particularly in SD1 and SD5—planning for emergency evacuations, early warning systems, infrastructure hardening, and downstream development regulation is critical to saving lives and reducing loss.

A failure or breach of a High Hazard Potential Dam (HHPD) in Los Angeles County would result in catastrophic consequences for downstream communities, with the greatest vulnerabilities concentrated in densely populated urban areas. Rapid and massive flooding would likely inundate residential neighborhoods, commercial districts, and industrial zones within minutes to hours, depending on proximity and topography. Critical infrastructure—including hospitals, fire and police stations, schools, and major transportation corridors—would be severely impacted, disrupting emergency services and evacuation routes. Thousands of people, including vulnerable populations such as those with Access and Functional Needs (AFN), elderly residents, and low-income households, would face immediate life-threatening conditions, displacement, and limited access to medical care or shelter. Economic losses would be compounded by damage to utilities, including power substations and water systems, potentially leaving large swaths of the region without essential services. The sheer scale of devastation from a dam failure, especially at facilities such as Whittier Narrows or Castaic Dam, underscores the critical importance of continued risk reduction, early warning systems, and dam rehabilitation efforts.

6.7.8 Data Limitations

A limitation of this AHMP is that planning efforts only covered PW-owned dams in Los Angeles County. Future mitigation planning should include other dam owners and operators in Los Angeles County such as the US Army Corps of Engineers. The data on high-hazard dams reviewed during the 2025 AHMP planning process was generally suitable for the analysis required. Future opportunities for obtaining additional data to be considered in the next update to the plan should:

- Incorporate more current information as it becomes available.
- Assess any new or updated EAPs for dams owned by Los Angeles County.
- Identify and review more current structural or condition assessment data to inform future risk assessments.
- Involve other dam owners within Los Angeles County in future planning efforts.

6.7.9 Impacts

A dam failure in Los Angeles County would have catastrophic and immediate consequences for life, property, and critical infrastructure, particularly in the densely populated downstream areas. The sudden release of impounded water from a High or Extremely High Hazard dam could inundate neighborhoods within minutes, allowing little to no time for evacuation. More than 500,000 residents live within identified dam inundation zones, many of whom are in socially vulnerable populations—including

individuals with limited mobility, low-income households, and people experiencing homelessness—making rapid evacuation and sheltering especially challenging. County-owned high hazard potential dams and their locations are listed in Table 6-3. Inundation maps for County-owned high hazard potential dams are listed in Appendix A-7.

Critical infrastructure is also at significant risk. Hospitals, fire stations, law enforcement facilities, emergency operations centers, schools, and wastewater treatment plants located in downstream zones may be damaged or rendered inoperable, severely disrupting emergency response and life-sustaining services. Major transportation routes such as interstates, rail lines, and arterial roads could be submerged or washed out, impeding rescue and recovery efforts. Additionally, power substations, water distribution networks, and telecommunications infrastructure could suffer cascading failures, contributing to widespread outages and prolonged recovery periods.

The economic consequences of dam failure would be immense. Beyond property damage, business operations in inundated areas would halt, leading to loss of employment, tax revenue, and economic activity. Industrial zones (especially those near major flood control reservoirs or channels) could potentially release hazardous materials if overwhelmed, posing secondary environmental and public health hazards. Debris accumulation, sedimentation, and contamination could severely impact ecosystems, water quality, and flood control infrastructure downstream, complicating both emergency cleanup and long-term environmental recovery.

Given the scale of potential impacts, dam failure is considered a stable low-probability but high-consequence hazard in Los Angeles County, requiring continued investment in structural mitigation, emergency preparedness, and public awareness to reduce the severity of its effects.

6.7.10 High Hazard Potential Dams Goals

Goal 1: Enhance resilience across dam/debris basin infrastructure, including high-hazard potential dams, and other critical facilities within dam inundation zones.

Goal 2: Encourage structural reinforcement or retrofits for aging and vulnerable dams.

Goal 3: Ensure all dams/ debris basins have updated Emergency Action Plans (where applicable) and updated dam inundation mapping consistent with state standards.

6.7.11 Mitigation and Preparedness

Los Angeles County and state agencies have implemented various mitigation efforts to reduce the risks associated with dam failures:

- **Structural Reinforcements:** Upgrading spillways, strengthening earthen dams, and implementing seismic retrofitting measures.
- **Emergency Action Plans (EAPs):** Mandated by DSOD for all High and Extremely High hazard dams to guide evacuation and response efforts.
- **Early Warning Systems:** Improved flood monitoring and automated alert systems to notify at-risk communities in real-time.

6.7.12 High Hazard Potential Dam Prioritization

The risk assessment within the 2025 AHMP considers the county planning area's vulnerability and potential impacts related to HHPDs. Mitigation actions and planning efforts that are related to mitigating long-term vulnerabilities to County-owned HHPDs will automatically be given a HIGH priority as described in the overall mitigation action prioritization criteria in Section 7.6. The County Departments responsible for implementing the associated mitigation actions, along with the priority, potential funding source, and expected time frame are listed in Section 7.8.

6.7.13 Summary

Los Angeles County has 90 state-jurisdictional dams, with 70 classified as High or Extremely High hazard, meaning their failure could result in widespread loss of life and economic devastation. While regulatory oversight has improved dam safety, aging infrastructure, seismic threats, and increased storm intensity remain challenges. Continued investment in retrofits, early warning systems, and emergency planning is essential to mitigating the risk of catastrophic dam failures.



6.8 Land Movement

6.8.1 Nature

Land movement refers to the downward movement of rock, soil, or debris along a slope due to gravity. This process can occur suddenly or gradually over time, depending on contributing factors such as soil composition, slope stability, and external triggers. Land movement encompass a variety of movement types including mudflows, rockfalls, debris flows, land slumps, land subsidence, and soil movement. In Los Angeles County, the diverse topography and geological formations make certain areas more prone to land movement, particularly during periods of intense precipitation, seismic activity, or human land-use modifications.



Climate change exacerbates land movement by increasing the frequency and intensity of extreme weather events, such as heavy rainfall and flooding, which can lead to accelerated erosion and heightened landslide risks.

Land movement often occur in conjunction with other natural hazards, exacerbating their impact. Some of the primary contributing factors include:

- **Seismic Activity**: Earthquakes can destabilize slopes, leading to land movement and rockfalls. The force of seismic shaking can cause sudden failures, particularly in areas with pre-existing instability.
- **Heavy Rainfall and Flooding**: The likelihood of land movement increases after successive storms. Prolonged or intense rainfall saturates soil, reducing its cohesion and triggering slope failures.
- **Coastal Erosion**: Waves and storm surge erode coastal cliffs, leading to instability and eventual collapse, particularly in areas such as County beaches and coastal communities, many of which have previously experienced significant erosion.
- **Wildfires**: Loss of vegetation due to fires reduces the soil's ability to retain moisture, making slopes more susceptible to erosion and land movement during subsequent rain events.
- **Burn Scars**: Wildfire burn scars significantly elevate the risk of land movement by stripping the land of stabilizing vegetation. Areas affected by major fires such as the Woolsey Fire (2018), Bobcat Fire (2020), Bridge Fire (2024), Eaton Fire (2025), and Palisades Fire (2025) have shown increased susceptibility to land movement due to reduced soil stability and rapid runoff during rainstorms.

6.8.2 Location

Los Angeles County is home to multiple regions susceptible to land movement due to steep slopes, unstable geology, and weather patterns. The California Geological Survey (CGS) Landslide Susceptibility Map highlights high-risk areas. For a better visual representation of the Land Movement Hazard within the LA County planning area, please reference Appendix A for maps that show areas that are susceptible to land movement and recent burn scars.

Potential land movement areas include (but are not limited to):

- Santa Monica Mountains
- San Gabriel Mountains
- Sierra Pelona Mountains
- Baldwin Hills
- Puente Hills
- Palos Verdes Hills

These areas are particularly vulnerable due to their steep terrains, weak rock formations, and history of slope movement. Additionally, human activities such as grading, excavation, and construction in these regions can further destabilize the ground, increasing the likelihood of land movement. Areas impacted by past wildfires, known as burn scars, are also highly susceptible to land movement, as the loss of vegetation reduces soil stability and increases erosion risks during heavy rains. This is particularly concerning in wildfire-prone areas such as the Santa Monica Mountains and the foothills of the San Gabriel Mountains, where post-fire land movement have historically caused significant damage.

6.8.3 Extent

The extent of land movement in Los Angeles is significant and varied, influenced by its unique geological setting. According to the 2011 CGS Landslide Susceptibility Map, approximately 750 square miles (15.75%) of Los Angeles County fall within high-risk landslide zones. The highest concentrations of deep-seated landslide susceptibility are distributed as follows:

Table 6-5 Landslide Susceptibility Map

Area	High-Risk Landslide Zones (sq. miles)	Percentage of Total Land Area
Los Angeles County	750.02	15.75%
Unincorporated Areas	577.63	18.99%
Supervisorial District 1	17.29	7.02%
Supervisorial District 2	2.73	1.68%
Supervisorial District 3	114.61	26.58%
Supervisorial District 4	105.12	23.89%
Supervisorial District 5	509.31	18.14%

6.8.4 History

Land movement have historically caused significant damage in Los Angeles County, often resulting in property destruction, infrastructure damage, and road closures. There have been no federal declarations or state proclamations for dam failure in the last five years. Some of the most notable events include:

- **1956 – Portuguese Bend Landslide**: A massive landslide on the Palos Verdes Peninsula began in 1956 and remains active today. The movement of land has displaced homes and infrastructure, highlighting the region's ongoing geologic instability.
- **1994 – Northridge Earthquake-Induced Land movement**: The earthquake triggered more than 11,000 moving events, primarily in the Santa Susana Mountains and San Gabriel Mountains, causing extensive road and structural damage.
- **March 1995 – Pacific Palisades Landslide**: Heavy rains weakened the coastal bluffs, leading to a 300-foot-wide collapse that buried part of the Pacific Coast Highway under 30 feet of debris.
- **March 2005 – Sunset Mesa Landslide**: A slope failure near Malibu caused over 20,000 cubic yards of debris to block roadways and damage property.
- **July 2023 – Peartree Lane Land Movement (Rolling Hills Estates)**: A sudden slope failure resulted in the displacement of 12 homes, which were red-tagged due to structural instability.
- **September 2024 – Accelerated Land Movement in Rancho Palos Verdes**: A significant increase in land movement, with certain areas shifting up to four inches per week toward the ocean, threatening roads and over 250 residential properties.

6.8.5 Types of Land Movement

Debris Flow/ Mudflow/ Soil Movement

Debris flow involves the rapid movement of a dense mixture of water, soil, rock, and organic material down a slope. This process can have significant impacts on landscapes, ecosystems, and human infrastructure.

Debris flows are characterized by their fluid-like behavior and ability to transport large objects, such as boulders and trees. They can travel at high speeds making them highly destructive. The composition of a debris flow can vary, but it typically includes:

- **Water**: A crucial component that facilitates movement.
- **Soil and Rock**: These provide the bulk of the material in a debris flow.
- **Organic Material**: Includes vegetation and other natural debris that get caught in the flow.

Mudflows are rapid movements of water-saturated earth materials that can cause significant damage to both natural environments and human settlements. Mudflows are characterized by their fluid-like motion, which occurs when soil, rocks, and debris become saturated with water. This saturation reduces the friction between particles, allowing the mass to move downhill under the influence of gravity. Key characteristics include:

- **Speed and Volume:** Mud flows can travel at speeds up to 35 miles per hour and can carry large volumes of material, including rocks, trees, and even vehicles.
- **Consistency:** The consistency of a mud flow can vary from a thick, viscous slurry to a watery flow. This depends on the proportion of water to solid materials.
- **Path:** Mud flows typically follow existing drainage patterns, such as river channels and valleys, but can also carve new paths, leading to unpredictable and widespread damage.

Soil movement is a natural process that significantly impacts the environment and human activities. It involves the displacement of soil particles due to various natural and human caused factors. Key characteristics include:

- **Landslides:** Often occurring in hilly areas, landslides involve the downward movement of rock and soil. They can be sudden and fast-moving, making them particularly dangerous.
- **Soil Creep:** This is a slow and gradual movement of soil down a slope, often unnoticed until significant damage occurs.
- **Soil Liquefaction:** During an earthquake, saturated soil can temporarily lose its strength and behave like a liquid, causing structures to sink or tilt.

Causes

In Los Angeles County, several factors contribute to the occurrence of debris flows/mudflows/ soil movement:

- **Heavy Rainfall and Storm Events:** Intense and prolonged rainfall, often associated with storms, can saturate the soil, reducing its stability and triggering debris flows.

The region's Mediterranean climate, with wet winters and dry summers, creates conditions conducive to such events.

- **Wildfires:** Los Angeles County frequently experiences wildfires, which can burn and destabilize vegetation that normally helps hold soil in place. The loss of vegetation increases the risk of soil erosion and, consequently, debris flows during subsequent rainfalls.
- **Steep Terrain:** The county's mountainous terrain, including areas like County mountainous areas, is particularly prone to debris flow. The steep slopes facilitate the rapid movement of debris downhill.
- **Soil Composition:** Certain soil types, such as clay-rich soils, can become highly unstable when saturated with water, making them more susceptible to debris flow.
- **Human Activity:** Urban development, road construction, and deforestation can alter natural landscapes and exacerbate conditions that lead to debris flow.
- **Seismic Activity:** Los Angeles County is situated in a highly active seismic zone, making it prone to earthquakes. Seismic activity can lead to soil liquefaction, landslides, and ground shaking, all contributing to soil displacement.

Land Subsidence

Land subsidence is a gradual settling or sudden sinking of the Earth's surface due to various natural and human-induced factors. This hazard can have significant impacts on the environment, infrastructure, and communities.

A reduction in land elevation is one of the most noticeable features of land subsidence, leading to significant changes in the landscape. This phenomenon can occur due to natural processes, such as the dissolution of limestone, as well as human activities like the excessive extraction of groundwater, oil, or natural gas. Furthermore, land subsidence increases the risk of flooding because the lower elevation can lead to poor drainage and water accumulation. As the ground sinks, it often results in the formation of depressions, fissures, and sinkholes, which can dramatically alter the geography and infrastructure of the area.

- **Depressions:** Are sunken or low-lying areas on the Earth’s surface, often formed by natural or man-made processes.
- **Fissures:** Are a long, narrow crack or linear opening in the Earth’s crust.
- **Sinkholes:** Are holes in the ground causes by the collapse or sinking of surface material into an underlying void.

Causes

- **Groundwater Extraction:** One of the primary causes of land subsidence in Los Angeles County is the excessive extraction of groundwater. As water is pumped out of underground aquifers, the ground above can sink or settle, leading to subsidence.
- **Oil and Gas Extraction:** The removal of oil and natural gas from beneath the earth's surface also contributes to land subsidence. This extraction can create voids and reduce pressure in subterranean layers, causing the ground to sink.
- **Natural Soil Compaction:** Over time, natural processes such as soil compaction can lead to gradual subsidence. In areas with loose or unconsolidated soils, the weight of overlying materials compacts the ground, resulting in a lowering of the land surface.

Rock Falls

Rock falls are a natural geological phenomenon where rock fragments break free from a steep slope or cliff and tumble downward. These events can range from small pebbles dislodging to massive boulders crashing down with significant force and impact.

Rock falls are characterized by:

- **Speed and Suddenness:** Rock falls occur quickly and without much warning, making them particularly dangerous.
- **Varied Sizes:** The size of the falling material can range from small pebbles to large boulders, impacting the severity of the event.
- **Path Predictability:** While the initial trigger point is often identifiable, the path of descent can be unpredictable due to varying terrain and obstacles.

Causes

The primary causes of rock falls include:

- **Weathering and Erosion:** Over time, weathering processes such as freeze-thaw cycles, chemical weathering, and the action of water can weaken rock structures. Erosion can undermine the base of slopes, making rocks more susceptible to falling.
- **Seismic Activity:** Los Angeles County is located in a seismically active region. Earthquakes can dislodge rocks from cliffs and steep slopes, triggering rock falls.

- **Heavy Rainfall:** Intense or prolonged rainfall can saturate the ground, increasing the weight and pressure on rock faces. This saturation can lead to the loosening and collapse of rocks.
- **Human Activity:** Construction, mining, and other human activities can destabilize rock formations. The vibrations from heavy machinery and blasting can initiate rock falls.

6.8.6 Probability

Landslides and other land movement events happen in Los Angeles County fairly often, especially after heavy rain or in areas that recently had wildfires or are prone to sliding.

- Small landslides (like debris flows) are most likely during years with heavy rain, especially El Niño years. These happen every 2 to 7 years; there is 14% to 50% chance each year during those cycles.
- In high-risk zones (like steep mountain slopes with a history of movement), probability is 1–2% chance per year, especially following multi-year wet periods or major wildfires.
- Some areas of the County have been experiencing continuous sliding.

6.8.7 Vulnerability

Land movement pose risks to life, property, and essential infrastructure. The 2024 THIRA projects that approximately 1.2 million residents in Los Angeles County could be directly or indirectly affected by land movement. The most at-risk populations include:

- Residents of hillside and canyon communities such as Malibu, Topanga, and the Palos Verdes Peninsula.
- Homeowners in coastal bluff areas that are facing erosion-driven slope failures.
- Communities in wildfire burn scar areas, where the loss of vegetation increases landslide probability during heavy rains.
- The Access and Functional Needs (AFN) community who may face challenges in evacuating or leaving landslide-prone areas.

Contextual Overview

Los Angeles County's diverse topography includes many hillside communities susceptible to deep-seated landslides, especially after wildfire or heavy rain. These hazards can isolate communities, damage property, and disrupt lifelines.

Extent of Exposure

- **Total Area Exposed**: 284.57 sq mi
- **Supervisorial Districts (SD) Impacted**:
  - **SD5**: 151.96 sq mi (5.41%)
  - **SD3**: 90.23 sq mi (20.93%)
  - **SD4**: 25.94 sq mi (12.20%)
  - **SD1**: 13.77 sq mi (3.90%)
  - **SD2**: 2.68 sq mi (0.74%)
- **Critical Facilities Affected**:
  - Fire Department: 41 (12.17%)
  - Public Works: 32 (13.91%)
  - Health Services: 12 (18.46%)
  - Public Health: 4 (10.00%)
  - Libraries: 9 (10.34%)
  - Parks: 27 (14.92%)
  - Education: 8 (9.76%)

Problem Statement

Landslides pose a serious risk to hillside communities and access routes, especially in areas recovering from wildfire. Current development and road infrastructure may not be resilient against slope failure. Mitigation actions should include slope stabilization, targeted buyouts or relocations, and early warning systems.

6.8.8 Impacts

Los Angeles County's diverse landscape and dense population make it highly susceptible to the effects of land movement, affecting critical infrastructure and raising significant economic, social, and safety concerns.

Transportation Networks

Los Angeles County's extensive transportation network is vital for daily commutes, goods transport, and emergency services. Land movement can severely impact these systems:

- **Road Damage**: Causes closures, hazardous driving conditions and costly repairs, as seen annually on Pacific Coast Highway (PCH), and many other local roads.
- **Bridge Compromise**: Affects structural integrity, necessitating closures and expensive reconstructions.
- **Public Transit Disruptions**: Impacts train tracks and bus routes, leading to delays and service interruptions.
- **Rail Systems:** Track misalignment can cause delays and potential derailments, affecting both passenger and freight lines.

Water Supply Systems

The county's water delivery system is complex and vulnerable to land movement:

- **Compromised Pipelines**: Leads to ruptures or leaks, disrupting supply and requiring major repairs.
- **Reservoir Impact**: Landslides can affect water quality and storage capacity.

Energy Infrastructure

Land movement poses risks to Los Angeles County's energy infrastructure, including:

- **Electrical Grid Vulnerabilities:** Land movement can damage power lines and substations, causing outages.
- **Gas Pipeline Risks:** Soil shifts can result in gas leaks or explosions, endangering safety.

Communication Systems

Reliable communication is critical, and land movement can disrupt:

- **Telecommunication Towers:** Structural damage can impair cellular and internet services.
- **Underground Cables:** Earth shifts can damage cables, affecting connectivity.

Emergency Services Facilities

- **Hospitals and Fire Stations:** Essential for emergency response, but structural damage could impede operations, underscoring the need for resilient construction and strategic planning.

Economic Impacts

- **Infrastructure Damage:** Leads to costly repairs and maintenance of roads, bridges, and buildings.
- **Property Loss:** Homeowners face financial losses due to property damage or devaluation.

Environmental Impacts

- **Ecosystem Disruption:** Soil movement can lead to habitat loss and affect local flora and fauna.
- **Increased Pollution:** Erosion can result in sediment runoff, degrading water quality in rivers and oceans.

For a better visual representation of the Land Movement Hazard within the LA County planning area, please reference Appendix A for maps that show areas that are susceptible to land movement and recent burn scars.

6.8.9 Mitigation Strategies

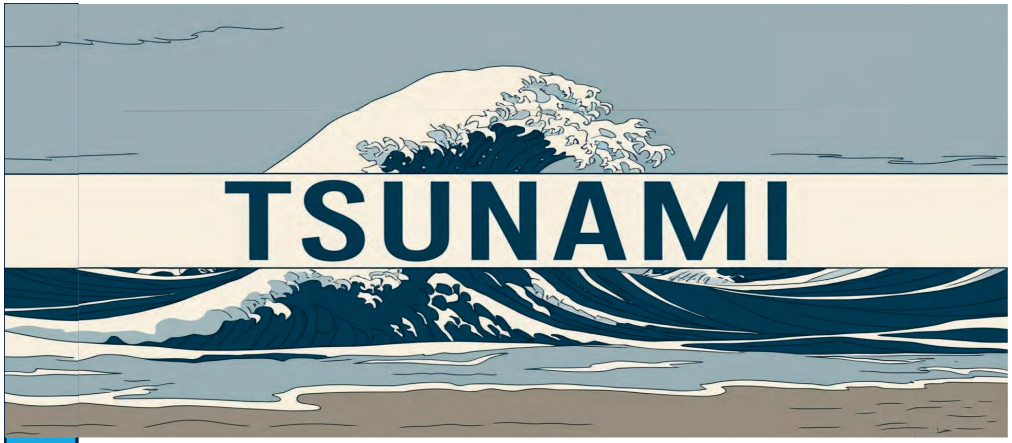
To reduce the impact of land movement, Los Angeles County has implemented several mitigation and preparedness strategies, including:

- **Land Use and Development Regulations:** Restricting development in high-risk landslide zones to prevent new structures from being built on unstable terrain.
- **Infrastructure Resilience:** Reinforcing existing infrastructure through slope stabilization projects, retaining walls, and improved drainage systems.

- **Stabilization Regulations:** Implementing stricter grading and excavation regulations to minimize the destabilization of slopes.
- **Public Awareness Campaigns:** Enhancing landslide early notifications by monitoring potential movement areas and precipitation thresholds.
- **Evacuation Planning:** Developing evacuation plans for at-risk communities, ensuring residents receive timely alerts and clear guidance.
- **Public Education:** Conducting public education campaigns to inform residents about recognizing landslide warning signs and preparedness measures.
- **Operational Area Coordination**: Increasing coordination across state, federal, and Office of Emergency Management officials with local jurisdictions to improve forecasting and response efforts.

6.8.10 Summary

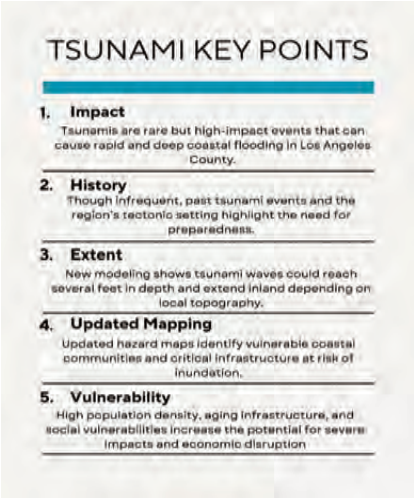
Land movement remains a significant hazard in Los Angeles County, particularly in steep and coastal regions. The Palos Verdes Peninsula, Santa Monica Mountains, and San Gabriel Mountains are among the most vulnerable areas, with climate change and human activities exacerbating risks. By implementing land-use regulations, infrastructure reinforcements, and emergency response improvements, the County can enhance resilience and reduce losses in the future. Local governments and communities must actively monitor and manage contributing factors to effectively mitigate the impacts of land subsidence.



6.9 Tsunami

6.9.1 Nature

This section characterizes tsunamis as high-energy, long-wavelength ocean waves generated primarily by significant offshore seismic events (such as subduction zone earthquakes), submarine landslides, or volcanic eruptions. In the context of Los Angeles County, tsunamis represent a relatively infrequent but potentially high-impact hazard that could produce rapid coastal inundation and surge impacts.



Characteristics:

- Triggered mainly by distant, large-magnitude seismic events.
- Features long wavelengths and prolonged arrival times.
- Capable of producing rapid, deep inundation along low-lying coastal areas.
- In summary, tsunamis are dynamic natural phenomena with the potential to cause sudden coastal flooding and damage if a triggering event occurs.

6.9.2 Location

The updated tsunami hazard profile focuses on the coastal areas of Los Angeles County. The new zone map–developed using enhanced modeling techniques and updated coastal geomorphology data–highlights areas along the Pacific shoreline that are at risk. These include regions adjacent to the Los Angeles Basin, parts of Long Beach, Santa Monica Bay, and other low-elevation coastal zones.

For a better visual representation of Tsunami Inundation zones within the LA County planning area, please reference Appendix A for a "Tsunami Inundation Area" map.

Important Details:

- Coastal segments from the western margins of the Los Angeles Basin extending to the border with Orange County.

Overall, the coastal areas of Los Angeles County, containing our communities and infrastructure, face heightened exposure.

6.9.3 Extent

Using the latest hydrodynamic and inundation modeling, the updated tsunami inundation (zone) map provides a refined view of the extent of potential flooding. The map illustrates how tsunami waves could propagate inland, showing revised boundaries that account for current sea-level conditions and future sea-level rise projections.

Highlights:

- Inundation depths and reach have been recalculated, with some areas potentially experiencing water levels up to several feet in depth.
- The inland reach of flooding varies by local topography, with flat, low-lying areas showing the greatest potential for impacts. Impacted areas include, but are not limited to, Long Beach, The ports of Long Beach and Los Angeles, Marina del Rey, Venice and Santa Monica.
- Critical infrastructure within the updated zones has been identified to prioritize mitigation and evacuation routes for planning.

In essence, the extent of tsunami impacts is now mapped more precisely, offering local decision-makers a clearer view of potential flooding depths and distances inland.

6.9.4 History

Historically, significant tsunami events in the Los Angeles region are rare, though distant seismic events (for example: the 1960 Chilean tsunami, or the most recent 2022 Tonga tsunami) have been known to produce measurable impacts. Historical records combined with geological studies indicate that while tsunamis have occurred in the past, their frequency is low compared to other hazards. However, the region's proximity to major tectonic boundaries necessitates ongoing vigilance.

Historical Context:

- Past events have been sporadic but can serve as valuable lessons for preparedness.
- Historical inundation records and sediment studies confirm that tsunamis have reached the Los Angeles coast in prehistory.
- Lessons learned from past minor events underscore the importance of maintaining updated hazard maps.

Thus, while historical tsunami events are infrequent, they provide a critical context for understanding future risks and guiding preparedness measures. There have been no federal declarations or state proclamations for tsunami in the last five years.

6.9.5 Probability

The probability of a tsunami affecting Los Angeles County is generally low when compared to more frequent hazards like earthquakes or floods. Nevertheless, the potential for a distance source tsunami generated by a distant, large seismic event remains a realistic risk. Updated probabilistic assessments—incorporating recent seismic data and tsunami modeling indicate that while the overall likelihood is low, the consequences in the event of a tsunami can be severe.

Probability Considerations:

- Low annual probability but high consequence if an event occurs; Los Angeles County has about a 2% annual chance.
- Distance source events from subduction zones across the ocean contribute most to the risk.
- Continuous monitoring and updated modeling are essential to reassess the risk over time.
- In summary, the probability of a tsunami remains low, but due to the potential for high-impact outcomes, it warrants continuous study and preparedness.

6.9.6 Vulnerability

Coastal vulnerability in Los Angeles County is significantly influenced by factors such as urban density, low-elevation terrain, aging infrastructure, and socio-economic conditions. The updated tsunami zone map now better delineates areas where these vulnerabilities are most pronounced, highlighting communities that may have limited evacuation routes and fewer resources to recover from rapid inundation. About 75,000 people live in parts of Los Angeles County that could be flooded by a tsunami. Many people also work in these coastal areas, and around 660 unhoused individuals live there, making them especially at risk because they may not have easy access to shelter or transportation.

Tourism adds even more people to these areas, especially during busy weekends or holidays. Places like Santa Monica can see up to 300,000 visitors a day during peak times. This makes evacuating harder if a tsunami warning is issued. Roads near the coast can quickly become crowded, and visitors may not know the best way to leave. Traffic could slow down emergency plans, so it's important to have clear signs, early warnings, and good traffic control to help people get to safety quickly.

Factors:

- High population density in low-lying coastal areas.
- Critical infrastructure (e.g., hospitals, utilities, ports and shipping, transportation networks) located within the inundation zones.
- Socio-economic and language barriers that may hinder effective emergency response.
- Limited natural barriers in some coastal segments.
- Vulnerable communities include those with high population densities and critical infrastructure near the coast.

Ultimately, the vulnerability of the region is compounded by both physical exposures and social factors, underscoring the need for targeted mitigation efforts.

Contextual Overview

Coastal communities in Los Angeles County, including ports and tourist zones, are at risk from tsunamis. These rare but highly destructive events can inundate coastal infrastructure with little warning.

Extent of Exposure

- **Total Area Exposed**: 32.89 sq mi
- **Supervisorial Districts (SD) Impacted**:
  - **SD4**: 15.83 sq mi (7.43%)
  - **SD3**: 12.59 sq mi (2.92%)
  - **SD2**: 2.03 sq mi (0.56%)
- **Critical Facilities Affected**:
  - Fire Department: 16 (4.75%)
  - Public Works: 9 (3.91%)
  - Health Services: 3 (4.62%)
  - Public Health: 1 (2.50%)
  - Libraries: 5 (5.75%)
  - Parks: 13 (7.26%)
  - Education: 3 (3.66%)

Problem Statement

Tsunamis can cause rapid and catastrophic coastal flooding. With critical coastal infrastructure and residential areas exposed, especially in SD4 and SD3, there is a need for robust evacuation planning, vertical evacuation shelters, and community outreach to enhance preparedness and reduce vulnerability.

6.9.7 Impacts

Should a tsunami occur, the potential impacts on Los Angeles County could be extensive. Parts of Los Angeles County that could be impacted by a Tsunami are Marina Del Rey, Port of Los Angeles, Port of Long Beach, and other beach communities in low lying areas. The updated impact assessments reflect possible scenarios ranging from significant property damage to loss of life and long-term economic disruption. The new zone map aids in quantifying these impacts by providing detailed inundation depths and spatial extents, thereby allowing for better risk communication and planning.

Potential Impacts:

- Severe flooding of coastal infrastructure and residential areas.
- Disruption of transportation, utility services, and emergency response operations.
- Economic losses in key sectors such as tourism, shipping, and local commerce.
- Social impacts including displacement, loss of livelihoods, and challenges in emergency sheltering.

In short, the potential impacts of a tsunami are far-reaching, necessitating robust mitigation, evacuation, and recovery planning to minimize harm.

For a better visual representation of Tsunami Inundation zones within the LA County planning area, please reference Appendix A for a "Tsunami Inundation Area" map.

6.9.8 Summary

The updated tsunami section for the 2025 AHMP incorporates the latest scientific findings and mapping techniques to provide a more precise understanding of tsunami risks in Los Angeles County. By integrating an updated inundation zone map, the revision clarifies the spatial extent of potential flooding and highlights the vulnerabilities in coastal communities. This comprehensive update is designed to guide decision-makers in enhancing preparedness, targeting mitigation strategies, and strengthening community resilience.

Key Takeaways:

- **Nature:** Tsunamis are infrequent but high-energy events capable of rapid coastal inundation.
- **Location & Extent:** The updated zone map identifies vulnerable coastal areas with revised inland flood extents.
- **History & Probability:** Historical events are rare; however, distance events remain a realistic risk.
- **Vulnerability & Impacts:** High population density and critical infrastructure in coastal zones amplify risk, with potential for severe economic and social disruption.

This updated section is intended to serve as a critical tool for policymakers, emergency managers, and community stakeholders as they work together to reduce the long-term risks associated with tsunamis and enhance overall regional resilience.



6.10 Severe Wind and Tornado

6.10.1 Nature

Severe wind and tornadoes pose significant threats to life, property, and infrastructure, though they differ in frequency and intensity within Los Angeles County. Severe wind events, particularly Santa Ana winds, are a recurring natural hazard that can cause widespread damage, including downed power lines, tree falls, and structural damage. These winds originate from high-pressure systems over the Great Basin, funneling dry and warm air through mountain passes into the coastal and valley regions at high speeds. Additionally, storm-driven winds, microbursts, straight-line winds and gust fronts associated with severe weather can create hazardous conditions, often leading to transportation disruptions, fire hazards, and prolonged power outages.



Tornadoes, while relatively rare in the region, have been recorded and can cause localized but intense damage. These violent windstorms form when unstable atmospheric conditions produce rotating updrafts, resulting in a funnel cloud that contacts the ground.

6.10.2 Location

Severe wind events affect the entire Los Angeles County planning area, with the strongest occurrences in canyon passes, valleys, and coastal regions. The Santa Ana winds are most intense in the fall and winter months, particularly impacting areas in the Valley, and foothill communities of the County. Storm-driven winds, on the other hand, can impact any part of the county and vary in intensity based on weather patterns. These winds can reach speeds of 60 to 80 mph, sometimes exceeding those thresholds, leading to significant damage.

Tornadoes are more sporadic in occurrence and can develop in various parts of the county, particularly in lowland areas where severe thunderstorms have the potential to form rotating systems.

6.10.3 Extent

Winds and breezes are common occurrences in LA County. As wind speeds increase so does the potential for a catastrophic event. Hot dry winds can reach high speeds as they descend from the inland desert regions, creating not only critical wind events but also extremely dangerous fire conditions and contributing to the spread of wildfires. The winds are classified in the Beaufort Wind Scale, see Figure 6.10.1 below. Beaufort wind scale is an empirical scale that relates wind speed to observed conditions at sea or land. It uses numerical scale from 1-12 to describe wind force based on visual observations of the effects of the wind and gives quantitative measures of the wind. For example, o is described as 'calm' a sea like a mirror while 12 described as hurricane force with devastating conditions.

Tornadoes are classified using the Enhanced Fujita (EF) Scale Figure 6.10.2. The Enhanced Fujita (EF) Scale is specifically used to rate the intensity of tornados based on the damage they cause (damage indicators) such as building types, and trees. It ranges from EF-0 to EF-5, with increasing numbers indicate stronger tornados and more severe damage. While tornadoes in the region typically do not exceed EF-1

intensity, they can still produce damaging winds above 100 mph, capable of tearing roofs off buildings, uprooting trees, and overturning vehicles.

Beaufort Wind Scale:

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects	
			On the Water	On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger waves 8-13 ft, whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Sea heaps up, waves 13-19 ft, white foam streaks off breakers	Whole trees moving, resistance felt walking against wind

8	34-40	Gale	Moderately high (18-25 ft) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Twigs breaking off trees, generally impedes progress
9	41-47	Strong Gale	High waves (23-32 ft), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Very high waves (29-41 ft) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	Exceptionally high (37-52 ft) waves, foam patches cover sea, visibility more reduced	
12	64+	Hurricane	Air filled with foam, waves over 45 ft, sea completely white with driving spray, visibility greatly reduced	

Figure 6.10.1 Beaufort Wind Scale

Enhanced Fujita Scale:

THE ENHANCED FUJITA SCALE (EF SCALE)		
EF RATING	**3 Second Gust (MPH)**	**DAMAGE**
EF 0	65-85 MPH	Light: Branches broken, minor roof damage
EF 1	86-110 MPH	Moderate: Roofs damaged; trees uprooted
EF 2	111-135 MPH	Considerable: Roofs torn off, large trees down
EF 3	136-165 MPH	Severe: Homes destroyed; cars lifted
EF 4	166-200 MPH	Devastating: Houses leveled; debris airborne
EF 5	Over 200 MPH	Incredible: Homes swept away; total destruction

Figure 6.10.2 Enhanced Fujita Scale

6.10.4 History

Los Angeles County has experienced multiple severe wind events and occasional tornadoes in recent history which caused destructions, and wildfires. There have been no federal declarations or state proclamations for Severe Wind & Tornadoes in the last five years. Some notable incidents include:

- **November-December 2011:** A wind event caused more than $35 million in damages and severely impacted several foothill communities and unincorporated areas.
- **December 2019:** An EF-0 tornado touched down in South Los Angeles, causing minor roof damage and downing power lines.
- **January 2021:** A severe windstorm impacted the region, leading to damage across multiple communities and emergency response efforts to clear roadways.
- **September 2021:** An EF-0 tornado developed near the community Lake of Los Angeles; %no damage was reported.

- **April 2023:** An EF-0 tornado recorded in Cerritos causing tree damage.
- **March 2023 (DR# 4699):** An EF-1 tornado struck Montebello, one of the strongest tornadoes recorded in the area, causing significant damage to commercial structures and vehicles.
- **May 2023:** An EF-0 tornado occurred near the communities of Carson and Compton damaging buildings and vehicles.
- **August 2023 (DR# 4750):** Tropical Storm Hillary impacting Los Angeles County.
- **February 2024**: Strong winds impacting across Eastern Santa Monica Mountain and Santa Clarita Valley.
- **March 2024**: Strong winds impacting areas around San Gabriel Valley.
- **January 2025 (DR# 4856):** A severe windstorm impacted the region, leading to a Potentially Dangerous Situation (PDS), red flag conditions. Several fires broke out in the area, which exhibited extreme fire behavior, causing widespread destruction.
- **March 2025 (DR# 4856):** As part of a storm event, an EF-0 tornado struck Pico Rivera, California, at 3:15am, with wind speeds reaching up to 85 mph.

6.10.5 Probability

Severe wind events are a regular occurrence in Los Angeles County, with a high probability, 99% chance recurring annually. Santa Ana winds are particularly common during the cooler months, and climate patterns suggest that extreme wind events may become more frequent due to changing weather dynamics. Because wind events and tornados are localized in nature, probability vary from one area to another and is difficult to determine percentage of happening in one area. Tornadoes remain a low-probability hazard, 10% chance, in the planning area; however, given past occurrences, they cannot be ruled out entirely. Atmospheric conditions capable of producing tornadoes may arise during severe thunderstorms, particularly in winter storm systems that generate strong wind shear. While the likelihood of an EF-2 or stronger tornado is minimal, the potential for localized damage remains. The Santa Ana winds occur ten to twenty-five times annually and can last for several days, posing a recurring threat of damage and disruption in Los Angeles County.

6.10.6 Vulnerability

Severe wind and tornadoes can be extensive, affecting both infrastructure and public safety. High-wind events pose a risk to critical infrastructure, particularly power lines, communication systems, and transportation networks. Buildings, especially older structures and mobile homes, are vulnerable to wind-related damage, including roof failures, window breakage, and structural collapse.

In addition to physical damage, severe wind events can cause significant economic disruptions. Prolonged power outages impact businesses, healthcare facilities, and emergency response services. Road closures and debris blockages hinder mobility and commerce, while wind-driven wildfires, a secondary hazard of Santa Ana winds, can lead to devastating losses.

Public safety is also a major concern, with risks of flying debris, vehicle accidents, overturned vehicles, and respiratory issues caused by airborne dust and pollutants stirred up by high winds.

Severe wind and tornado events disproportionately impact certain populations and infrastructure in Los Angeles County due to both geographic exposure and socioeconomic vulnerabilities. These hazards can disrupt critical services, exacerbate existing inequalities, and significantly damage structures not built to withstand extreme wind conditions.

Vulnerable Populations

Out of the county's estimated 10.2 million residents, the following populations are considered especially vulnerable:

- Older Adults (65+): Approx. 1.6 million residents (15.5%)—more likely to suffer injury or health complications during wind-related power outages and evacuation events.
- Access and Functional Needs (AFN) Populations: Estimated 1.7 million individuals (17%) including those with disabilities, limited mobility, or communication barriers.
- Low-Income Households: Over 13% of households fall below the poverty line and may lack the resources for structural mitigation or relocation during prolonged outages.

- People Experiencing Homelessness (PEH): Over 75,000 individuals (2024 LAHSA count), at direct risk from falling debris and lack of shelter during windstorms.
- Mobile Home Residents: Approximately 98,000 units countywide, concentrated in inland valleys and foothill communities that are highly exposed to Santa Ana winds.
- Children Under Age 5: Around 600,000 countywide, vulnerable to respiratory complications from airborne particulates and debris stirred by strong winds.
- Economic Impact: Business disruptions, increased insurance claims, and the costs of emergency response and recovery add financial burdens to local communities.

Critical Infrastructure at Risk

Severe wind and tornado events can cause widespread cascading failures in vital systems, including:

- Power Infrastructure: Los Angeles County contains over 20,000 miles of overhead power lines vulnerable to high-wind damage and fire ignition.
- Medical Facilities: Over 350 licensed hospitals and health clinics, many reliant on uninterrupted power and access for vulnerable patient populations.
- Transportation Corridors: Major highways (I-5, I-10, US-101) and over 3,100 bridges, particularly in canyon and foothill areas, are susceptible to obstruction by fallen trees and debris.
- Communication Towers: Over 800 critical telecom sites serve the county's emergency communications and can be disrupted by high wind gusts.
- Schools: Approximately 2,300 public K–12 schools and 100+ college campuses face operational disruptions from power outages or infrastructure damage during events.

6.10.7 Impacts

Severe wind and tornado events pose significant threats to critical infrastructure, public safety, and community operations in Los Angeles County. High winds, such as those during Santa Ana events, regularly damage power lines, uproot trees, and disable

transportation corridors. A notable example occurred in January 2025, when widespread windstorms caused power outages for more than 200,000 customers, including approximately 127,000 Los Angeles Department of Water and Power (LADWP) customers and over 52,000 Southern California Edison (SCE) customers. During this same period, wildfires exacerbated by the strong winds impacted several medical facilities, disrupting critical health services and requiring the emergency relocation of patients.

Tornadoes, while rare, have also demonstrated destructive capacity in localized areas. In March 2025, an EF-0 tornado touched down in Pico Rivera, downing power lines and trees and obstructing roadways, highlighting the potential for tornadic activity to impact urban communities. These hazards not only endanger life and property but also threaten economic continuity and the functioning of emergency services, particularly in vulnerable neighborhoods and areas with aging infrastructure.

6.10.8 Mitigation and Preparedness

Efforts to mitigate the effects of severe wind and tornadoes should focus on improving structural resilience, enhancing early warnings and alerts, and increasing public awareness of such events.

Severe Wind and Tornado Mitigation

- Strengthening building codes to require wind-resistant design features. Promoting the use of wind-resistant materials and construction techniques in new developments.
- Conducting regular tree-trimming and vegetation management to reduce infrastructure damage risks.
- Retrofitting and reinforcing critical infrastructure, such as power lines and utility systems, to withstand high-wind conditions.
- Implementing public education campaigns on windstorm preparedness and safety measures.
- Leveraging early warning alerting and preparedness messaging, as well as integrating emergency messaging with local broadcast and mobile networks.

6.10.9 Summary

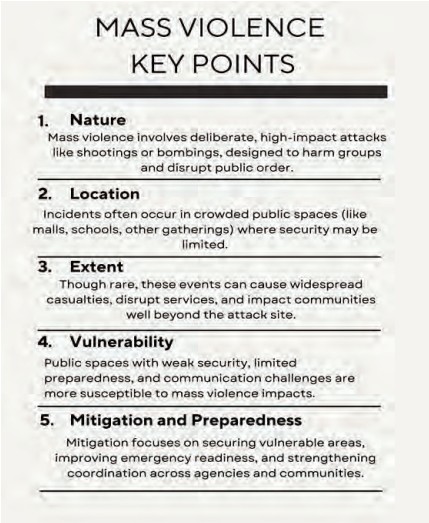
Severe wind and tornadoes, though differing in frequency, remain potential hazards for Los Angeles County. Santa Ana winds and storm-driven gusts regularly impact the region, causing damage to infrastructure and increasing wildfire risks. While tornadoes are rare, their occasional occurrence necessitates preparedness and mitigation efforts. By implementing stronger building codes, reinforcing critical infrastructure, and enhancing preparedness and public awareness, the county can reduce its vulnerability to these hazards, helps to better protect its residents from potential hazards of severe winds and tornado and improve community resilience.



6.11 Mass Violence

6.11.1 Nature

This section outlines the defining characteristics of mass violence, which includes intentional, high-impact incidents such as terrorism, active shooter events, vehicle-rammings, and other coordinated attacks. Understanding the nature of these events is critical for developing effective mitigation strategies.



- Mass violence includes both targeted attacks (e.g., ideologically motivated terrorism) and opportunistic acts (e.g., active shooters or violent assaults in public spaces).
- These incidents are characterized by their low warning time, high lethality, and potential to incite widespread fear and panic.

- Acts of mass violence may be perpetrated by individuals, small groups, or well-organized networks, and can involve firearms, explosives, vehicles, or biological agents.
- These attacks often aim to disrupt societal functions, damage infrastructure, or exploit vulnerabilities in soft targets such as schools, places of worship, or entertainment venues.

In summary, the nature of mass violence lies in its deliberate intent to inflict harm on groups and disrupt public order, making strong mitigation measures essential for protecting life and property of Los Angeles County.

6.11.2 Extent

The potential extent of mass violence is characterized by its ability to cause widespread disruption and significant loss of life and property.



- Events can result in many casualties and severe physical and psychological impacts.
- Mass violence can disrupt essential services, strain emergency response systems, and create cascading socioeconomic effects.
- The overall disruption may extend far beyond the immediate scene, affecting broader community resilience.

In essence, while these events may be rare, their extensive impacts necessitate comprehensive planning and resilient infrastructure.

6.11.3 History

Historical data illustrates that mass violence has evolved over time, with earlier events shaping current mitigation strategies and more recent incidents underscoring emerging vulnerabilities. Previous mitigation and other plans referenced events such as large-scale terrorist attacks and active shooter incidents.

- Recent events in the last five years include high-profile active shooter incidents at schools, public transportation hubs, and commercial centers, as well as vehicle-ramming attacks in urban areas.

Overall, the historical trend shows that while frequency remains low, the severity of mass violence incidents has escalated, necessitating continual updates to mitigation strategies.

6.11.4 Location

Mass violence incidents tend to occur in areas where people naturally congregate, including urban centers, transportation hubs, educational and religious institutions, shopping centers, and public events and venues.

- Public spaces such as transit stations, stadiums, malls and other locations where large number of people assemble, are considered higher-risk areas.
- Critical infrastructure location, like government buildings and commercial center, are often targeted.
- Certain events may also occur in areas lacking adequate physical security or surveillance.

Thus, identifying and securing high-density locations is a key focus for mitigating the effects of mass violence.

6.11.5 Probability

The probability of mass violence incidents is difficult to predict precisely; however, the potential for occurrence is recognized as a persistent low-frequency, high-impact risk that requires constant vigilance.

- Such incidents are statistically rare yet present a disproportionate risk due to their catastrophic consequences.
- Threat assessments and intelligence reports indicate that evolving tactics may increase probability over time.
- Continuous monitoring and updated threat analyses (e.g., via THIRA processes) are essential in quantifying risk levels.

In summary, while mass violence events are not common, their inherent unpredictability and high severity demand that communities prepare as if an incident could occur at any time.

6.11.6 Vulnerability

Mass violence depends on a variety of factors, including physical infrastructure design, public awareness, security preparedness, and interagency coordination.

- Critical vulnerabilities include open public spaces with minimal physical barriers or limited or ineffective safety / security protocols in place.
- Gaps in training and preparedness among first responders can exacerbate the situation during an active incident.
- Social vulnerabilities—such as communication gaps or lack of multilingual emergency information—may hinder rapid response and community resilience.

Thus, reducing vulnerability involves investing in infrastructure hardening, robust security measures, regular training exercises, and effective public communication strategies.

6.11.7 Impacts

The impacts of mass violence events are multifaceted, life safety, community stability, and the local economy.

- Immediate impacts include fatalities, injuries, and trauma among affected populations.
- Secondary impacts may encompass prolonged disruption of local services, economic downturns, and lasting psychological effects on communities.
- Long-term consequences can involve extensive resource allocation for recovery and mitigation, further straining public systems.

Mass violence inflicts immediate harm and often triggers a chain of secondary impacts that complicate community recovery and strain long-term resilience efforts.

6.11.8 Summary

In conclusion, mitigating the hazards of mass violence requires an integrated, multi-layered approach that spans prevention, preparedness, response and recovery. Communities must implement measures to secure high-risk locations, upgrade physical and digital security, enhance interagency coordination, and continuously update training and threat assessments.

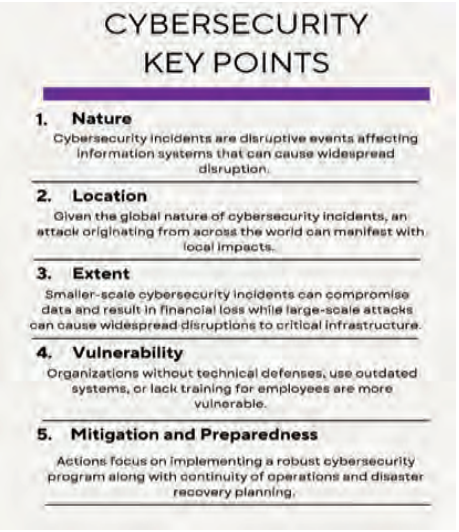
- Mitigation strategies include physical security enhancements (e.g., barriers and surveillance), regular active shooter drills, improved emergency communication systems, and coordinated law enforcement and public health responses.
- Investment in resilience-building measures and community outreach helps to ensure that, in the event of an incident, communities can recover quickly and effectively.

This section underscores that while mass violence events are rare, their potential for high impact demands rigorous preparedness and adaptive mitigation strategies to safeguard lives and maintain community functionality.



6.12 Cybersecurity Incidents

6.12.1 Nature



Cybersecurity incidents refer to disruptive events affecting digital networks and systems. These events involve the unauthorized electronic or physical access of information systems that jeopardizes or disrupts the integrity, confidentiality, or availability of information. Cyber incidents can range from minor targeted data breaches to large-scale ransomware attacks and distributed denial-of-service (DDoS) events that compromise critical infrastructure. Common types of cybersecurity incidents include, but are not limited to:

- **Data Breaches:** The compromise, unauthorized disclosure, or unauthorized acquisition of information.

- **Malware:** Malicious hardware, firmware, or software that is intentionally included or inserted in a system for a harmful purpose.
- **Ransomware:** A type of malicious software designed to lock access to a system until a ransom payment is received. Note that ransom payment is not a guarantee that system access will be restored by the threat actor.
- **Denial of Service (DoS):** An attack meant to shut down a machine or network, rendering it inaccessible to its intended users.
- **Distributed Denial of Service (DDos):** A DoS attack that uses numerous hosts to perform the attack.
- **Insider Threats:** When an insider (e.g., an employee or vendor) uses their authorized access, wittingly or unwittingly, to do harm to an organization.
- **Phishing Attacks:** The fraudulent practice of sending emails purporting to be from reputable senders in order to induce individuals to reveal information or download malware by clicking on a link.

Key characteristics of a cybersecurity incident include:

Rapid Onset: Impacts to operations can occur suddenly and evolve quickly.

- **Sophistication:** Can be highly sophisticated with state or non-state actors involved.
- **Hybrid Attacks:** May involve both cyber and physical components due to interdependencies.
- **Non-Malicious Incidents:** Technological failures that cause similar impacts to cybersecurity incidents may also occur due to non-malicious reasons such as a software or hardware issue.

Understanding the inherent digital nature and complex characteristics of these incidents is critical to developing effective prevention and mitigation strategies.

6.12.2 Location

Unlike traditional hazards that have a physical geographic footprint, cybersecurity incidents are inherently transboundary. However, their effects manifest locally through the disruption of critical services and systems and necessitate regionally coordinated preparedness and response efforts.

Jurisdictional Relevance:

- Impact local government networks and county infrastructure.
- Affect public and private sector systems within Los Angeles County.
- Disrupt critical infrastructure such as utilities and cause cascading impacts.
- Involve cyber nodes that, while globally distributed, converge on regional networks.

Critical Sectors Impacted:

- Hospitals and healthcare facilities.
- Financial, banking, or payroll systems.
- Transportation providers and systems.
- Utilities such as electricity, gas, and water.
- Emergency response and public safety agencies.

6.12.3 Extent

The extent of cybersecurity incidents is measured not only by the volume of compromised data or financial loss but also by the potential disruption to essential services and critical infrastructure.

Scope of Impacts:

- Rapid spread across interconnected digital systems.
- Potential for cascading failures that disrupt multiple sectors.
- Economic losses that may run into millions of dollars.

Measurable Factors:

- Number of systems compromised.
- Downtime of critical infrastructure and services.
- Financial costs from remediation and lost productivity.

The extensive reach of cybersecurity incidents–both in terms of economic impact and service disruption–highlights the need for robust digital defenses, continuity of operations planning, backup systems and redundancies, disaster recovery strategies, and regional cyber response coordination.

6.12.4 History

Historically, cybersecurity incidents have evolved from isolated breaches to coordinated attacks that leverage global networks. Early cybersecurity incidents focused on data theft and vandalism. More recent attacks have grown increasingly sophisticated and targeted critical infrastructure or use complex ransomware. Cyber threat actors include state-sponsored groups along with non-state groups such as criminal enterprises and terrorist organizations. Recent years have seen cybersecurity incidents affecting large corporations, public entities including local governments, and critical infrastructure sectors. Previous major cybersecurity incidents have included:

- **2024 Los Angeles County Superior Court Ransomware Attack:** Resulted in the shutdown of nearly every court system, a multi-day closure of the court, and cascading impacts to operations.
- **2024 Hospital Group Attack:** A major hospital company experienced an attack that caused IT and phone system outages and disrupted patient care at several Los Angeles County hospitals.
- **2024 Telecommunication Industry Attacks**: A series of attacks against telecommunications providers in the United States resulted in compromised customer data.
- **2023 City Attack:** A cybersecurity incident at a city within Los Angeles County caused city IT systems to be taken offline.
- **2022 Aviation Industry Attacks:** A series of cybersecurity incidents targeting the airports and airlines caused transportation system disruptions.

The historical progression from rudimentary attacks to highly coordinated cybersecurity incidents underscores the growing importance of proactive risk management in the digital realm.

6.12.5 Probability

The probability of cybersecurity incidents occurring is increasing as digital interconnectivity expands and as attackers continue to innovate their methods.

Risk Trends:

- Rapid expansion of the Internet of Things (IoT), the network of internet-connected devices ranging from smart refrigerators to autonomous vehicles, has added new attack vectors to the threat landscape.
- Increasing sophistication of cybercriminal methods including zero-day exploits, a previously unknown cybersecurity vulnerability.
- Growing frequency of reported incidents nationally and globally.

Contributing Factors:

- Inadequate cybersecurity measures in legacy systems still being used by organizations.
- Underinvestment in cyber defense infrastructure or cybersecurity expertise.
- Greater digital reliance in everyday operations without proper continuity of operations planning.

Given current trends and technological developments, the likelihood of cybersecurity incidents remains high, necessitating ongoing vigilance and enhanced preparedness measures. As cybersecurity incidents continue to increase in frequency, the potential for an incident to cause cascading and widespread impacts to critical infrastructure increases as well.

6.12.6 Vulnerability

Vulnerability in the context of cybersecurity refers to the susceptibility of digital systems to attack. This is influenced by both technological and organizational factors including, but not limited to: outdated software or use of legacy systems, insufficient patch management, inadequate segmentation and defense-in-depth strategies, and lack of cybersecurity training among personnel. Organizational challenges also contribute to cybersecurity vulnerability including, but not limited to: budget constraints, gaps in coordination, and rapid technology adoption without corresponding security protocols.

According to the 2024 Threat and Hazard Identification and Risk Assessment (THIRA), over 616,000 people may be affected by a large-scale cybersecurity incident with cascading impacts to utilities. Over 123,000 of those impacted in the THIRA scenario are estimated to have access and functional needs and over 77,000 people are

estimated to have limited English proficiency. Depending on the utilities affected by the incident, a widespread amount of the population could be without utility service for an extended period. Addressing these vulnerabilities is essential to reduce the risk and potential disruption of cybersecurity incidents, calling for both technical upgrades and improved interagency coordination.

6.12.7 Impacts

The impacts of cybersecurity incidents are multifaceted, affecting economic stability, public safety, and critical infrastructure operations.

Direct Impacts:

- Disruption of critical services (e.g., healthcare, emergency response, transportation, etc.).
- Extended duration Continuity of Government or Continuity of Operations event.
- Financial losses due to ransom payments, remediation costs, and potential legal fees.
- Loss, compromise, or unauthorized release of sensitive data.

Indirect impacts:

- Erosion of public trust in digital services and affected institutions.
- Cascading effects on physical infrastructure (e.g., power grid, water systems, wastewater, etc.).
- Long-term economic repercussions from reduced competitiveness.
- The significant impacts—both direct and cascading—of cybersecurity incidents necessitate comprehensive mitigation and recovery strategies that address both technical and socioeconomic dimensions.

6.12.8 Summary

In summary, cybersecurity incidents represent an evolving and critical threat that intersects with multiple aspects of community resilience and safety.

Key Takeaways:

- Cyber incidents are dynamic, sophisticated, and far-reaching in impact
- They affect local systems despite their global nature

- Historical trends and increasing digital dependency heighten both probability and vulnerability
- Impacts extend beyond financial loss to include service disruption and cascading infrastructure failures

Cybersecurity incidents demand a proactive, coordinated response that integrates robust technical defenses with cross-sector planning and recovery efforts. By understanding the nature, scope, and potential consequences of these incidents, communities can build more resilient digital and physical infrastructures to safeguard against this growing threat.



6.13 Transportation Incidents

6.13.1 Nature

This section describes the inherent characteristics of transportation incidents that can disrupt the continuous flow of people, goods, and emergency services across Los Angeles County. Transportation incidents can be triggered by a variety of factors including natural events, human error, and deliberate acts. Other characteristics include:

- **Affected Modes of Transportation:** Incidents can involve any mode of transportation such as multi-vehicle collisions, hazardous material spills, rail derailments, aviation incidents, and maritime disruptions.
- **Cascading Impacts:** Disruptions to the transportation system often have the potential to trigger cascading failures due to the interconnected design of highways, rail networks, airports, and seaports.
- **Contributing Factors:** Incidents may be influenced by both predictable factors (e.g., rush-hour congestion) and unpredictable occurrences (e.g., extreme weather or infrastructure failure).

6.13.2 Location

The county's network encompasses highways, rail, airports, ports, and local roads that are critical to regional mobility and commerce.

- **Freeways:** Los Angeles County boasts an extensive freeway system with over 1,200 miles of high-capacity roads including corridors such as I-5, I-405, I-10, I-710, and I-210.
- **Major Transportation Hubs:** The County is home to three commercial airports including Los Angeles International Airport (LAX), Long Beach Municipal Airport (LGB), and the Hollywood Burbank Airport (BUR) along with several general aviation airports. The County owns and operates Brackett Field Airport, Compton/Woodley Airport, San Gabriel Valley Airport, General William J. Fox Airfield, and Whiteman Airport. The Ports of Los Angeles and Long Beach, which are two of the busiest ports in the United States and vital for national and international trade, are also in Los Angeles County. Additionally, Los Angeles Union Station serves as the largest passenger rail station on the west coast.
- **Other Transportation Networks:** The county includes robust passenger rail, bus, and paratransit systems, along with freight rail systems, emerging mobility options such as taxis and rideshare services, and enhanced bicycle networks. This comprehensive network is the backbone for daily commuting, freight movement, and emergency response across the region.

6.13.3 Extent

The scope of transportation incidents spans multiple modes of travel and can have widespread consequences across the county's integrated infrastructure. Road incidents may include multi-vehicle collisions, hazardous material spills, and roadway fires impacting multiple vehicles with potential delays in emergency responses.

- Rail disruptions can impede commuter and freight services, impacting both local transit and regional connectivity.
- Air and maritime incidents—such as delays at major airports or disruptions at port facilities—can significantly affect commerce, supply chains, and public safety.
- Cascading effects across interconnected transportation modes may exacerbate congestion and strain additional infrastructure systems such as power, water, and emergency communications.

The extensive and interdependent nature of these networks means that an incident in one area can quickly influence multiple transportation systems.

6.13.4 History

Los Angeles County has a long record of transportation-related incidents that have disrupted mobility and commerce.

- **2024 Vincent Thomas Bridge Fire:** A semi-truck carrying lithium-ion batteries overturned and caught fire, causing the bridge to be closed for several days.
- **2023 I-10 Freeway Fire:** A fire in a pallet yard below the I-10 freeway in Downtown Los Angeles caused an eight-day closure for repairs and major cascading disruptions.
- **2020 Delta Air Lines Flight 89 Fuel Drop:** Shortly after takeoff from LAX, a Boeing 777 encountered engine problems and conducted a fuel dump over populated areas, injuring over 50 people on the ground.
- **2008 Chatsworth Metrolink Derailment:** A Metrolink passenger train collided with a Union Pacific freight train injuring over 130 people and causing 25 deaths.
- **2007 Newhall Pass Tunnel Fire:** A multi-vehicle collision involving over 30 vehicles caused a fire within the tunnel injuring 10 people and causing 3 deaths.

The historical record reinforces the need to learn from previous events to enhance future preparedness and resilience.

6.13.5 Probability

The likelihood of transportation incidents in Los Angeles County remains elevated due to several converging factors including, but not limited to:

- High daily traffic volumes on freeways and arterials increase the risk of multi-vehicle accidents and congestion-related incidents.
- Aging infrastructure—including bridges, road surfaces, and rail systems—creates a persistent risk of failure, particularly under extreme weather conditions and during peak usage periods.
- The county's role as a major hub for freight and commuter traffic means that even minor incidents can escalate rapidly into larger disruptions.
- The frequent movement of hazardous materials and the increasing reliance on just-in-time delivery systems further elevate the risk of incidents with potentially severe consequences.

Together, these factors contribute to a consistently high probability of transportation incidents impacting the region.

6.13.6 Vulnerability

The vulnerability of Los Angeles County's transportation system is compounded by its interdependent design and its critical role in the regional economy.

- Limited redundancy in key corridors means that a disruption on one freeway or rail line can quickly overload alternate routes.
- Aging and overburdened infrastructure is less resilient to extreme events, leading to longer recovery times after incidents.
- The county's economic dependence on uninterrupted transportation for daily commuting and commercial freight increases exposure to significant losses during disruptions.
- Complex interdependencies between transportation systems, emergency services, and other critical sectors make the network highly sensitive to cascading failures.

This systemic vulnerability calls for coordinated, multi-agency efforts to bolster resilience and implement proactive mitigation measures.

6.13.7 Impacts

Transportation incidents can produce both immediate and long-lasting effects on public safety, commerce, and overall quality of life.

1. **Traffic and Mobility:** Disruptions can lead to severe congestion affecting hundreds of thousands of commuters and freight vehicles, delaying emergency services and disrupting daily operations.
2. **Economic Loss:** Interruptions in the movement of goods and people can result in substantial financial losses, impacting local businesses and the broader regional economy.
3. **Public Safety:** Extended delays in emergency response and Emergency Medical Services (EMS) transport times.
4. **Cascading Disruptions:** An incident in one mode (e.g., a major highway closure) can ripple through the transportation network, affecting rail, air, and maritime operations simultaneously and complicating recovery efforts.

These impacts highlight the critical need for robust mitigation strategies to manage both direct and indirect consequences of transportation incidents.

6.13.8 Summary

Los Angeles County's transportation network is among the most extensive and complex in the nation, serving millions of residents and underpinning a vital economic ecosystem. The diverse transportation modes, while facilitating mobility and commerce, also create vulnerabilities due to overlapping infrastructure and high traffic volumes.

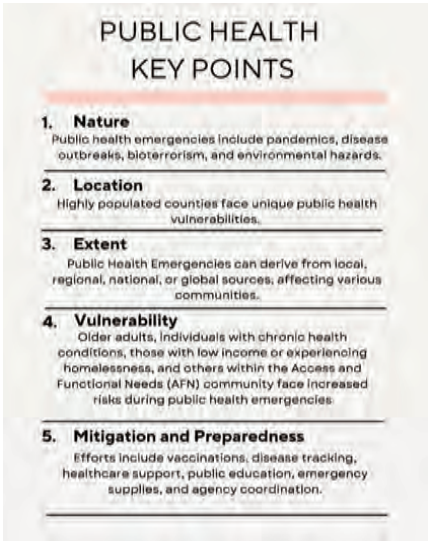
- Aging infrastructure, coupled with the continuous movement of hazardous materials and the increasing pressures of daily usage, contributes to a high probability of incidents.
- Historical data demonstrate that even localized incidents can have far-reaching impacts, including prolonged traffic congestion, economic disruptions, and public safety challenges.

In conclusion, mitigating transportation incident risks in Los Angeles County requires an integrated, countywide approach that combines infrastructure upgrades, enhanced emergency response, and proactive maintenance strategies. Addressing these challenges is essential to safeguard public safety, ensure economic stability, and maintain the region's critical mobility infrastructure.



6.14 Public Health Emergencies

6.14.1 Nature



Public health emergencies in Los Angeles County encompass a broad spectrum of potential hazards, including infectious disease outbreaks, environmental health hazards, and Chemical, Biological, Radiological, Nuclear, Explosives (CBRNE) hazards. Given the county's diverse population, urban density, and economic significance, public health hazards require a coordinated response among government agencies, healthcare institutions, and community partners.

Public health emergencies refer to incidents that pose a significant threat to the health of a population. These include, but are not limited to:

- Pandemics (e.g., COVID-19, Influenza)
- Bioterrorism (e.g., Anthrax, Smallpox, botulism)

- Vector-borne diseases (e.g., West Nile Virus, Zika)
- Foodborne and waterborne illnesses
- Chemical and radiological exposure
- Climate-related health threats (e.g., extreme heat, poor air quality, wildfires)

The County of Los Angeles Department of Public Health (DPH) and the Emergency Medical Services Agency (EMS) collaborate to monitor threats, prevent outbreaks, and mitigate impacts when emergencies arise.

6.14.2 Location and Extent

Los Angeles County, home to over 9.7 million residents, is the most populous county in the United States. Its diverse geography (i.e., urban, coastal, mountainous, and rural) and demography lead to a range of public health vulnerabilities.

Public health emergencies can originate from local, regional, national, or global sources, impacting specific neighborhoods or the entire county. The extent of public health threats varies based on:

- The nature of the threat, such as transmission dynamics or availability of medical countermeasures.
- Population density (higher risks in urban centers for communicable diseases)
- Access to healthcare infrastructure
- Environmental conditions (air pollution, extreme heat events)

6.14.3 History

Public health emergencies in Los Angeles County have included:

- 2022 Monkeypox Outbreak
  - Approximately 2,500 cases were reported in Los Angeles County.
- COVID-19 Pandemic (2020–Present)
  - Over 3 million cases, 450,000 hospitalizations, and 45,000 deaths reported in the county alone.
- 2018 Hepatitis A Outbreak
  - Primarily affecting unhoused populations, requiring mass vaccination efforts.
- 2016-2017 West Nile Virus Outbreaks
  - Multiple cases of mosquito-borne infections leading to severe illness and fatalities.

- 2015-2016 Zika Virus Outbreak
  - No cases of local mosquito-borne transmission, but there were 122 cases reported in the County, with 121 being travel-related.
- 2015 Meningococcal Disease Cluster
  - An outbreak among men who have sex with men (MSM) led to a targeted vaccination campaign.
- 2009 H1N1 Influenza Pandemic
  - Thousands of hospitalizations; schools and businesses affected.

6.14.4 Probability and Emerging Risks

The 2024 Threat and Hazard Identification and Risk Assessment (THIRA) identifies that pandemics and bioterrorism remain high-probability threats. Future public health risks also include:

- Emergence of infectious diseases driven by global travel and climate change.
- Increased incidence of heat-related illnesses amid rising temperatures.
- Increased prevalence of respiratory diseases due to declining air quality.
- Rise of antimicrobial-resistant infections due to overuse of antibiotics.

The County of Los Angeles DPH continually assesses health threats and updates preparedness plans to address evolving concerns.

6.14.5 Vulnerability and Systemic Impacts

Certain populations in Los Angeles County may be disproportionately affected by public health emergencies:

- At-risk populations may be different for different hazards before, during, and after an emergency. It is important to assess each hazard in turn to identify those who may be disproportionately affected to improve preparedness and response efforts.

Public health emergencies strain the healthcare system, disrupt economic activity, and create mental health burdens. The 2024 THIRA report noted that:

- Healthcare infrastructure overload is a major concern during pandemics.
- Potential economic loss from business closures during a prolonged public health crisis could exceed billions of dollars.

6.14.6 Mitigation Strategies and Preparedness Efforts

Los Angeles County employs several mitigation and preparedness strategies:

- Mass Vaccination Campaigns
  - Annual flu shots, COVID-19 vaccinations, and outbreak-specific immunization efforts.
- Points-of-Dispensing (POD) sites
  - Disease Surveillance & Early Warning Systems
- Syndromic surveillance for emerging threats.
  - Targeted sampling surveillance.
- Healthcare Infrastructure Strengthening
  - Expanding hospital capacity for medical surge, and emergency medical resources.
- Community Outreach & Public Health Education
  - Disseminating critical information in multiple languages.
- Emergency Stockpiles (Strategic National Stockpile(SNS))
  - Deployment of antibiotics, antivirals, and personal protective equipment (PPE) in crisis situations.
- Coordination with Federal & State Agencies
  - Collaboration with FEMA, CDC, and the California Department of Public Health to enhance response capabilities.
- Anthrax Threat Simulations
  - The County of Los Angeles Metro system assessed as a high-risk area for bioterrorism response.

6.14.7 Summary

Public health emergencies pose significant challenges to Los Angeles County, impacting healthcare systems, vulnerable populations, and economic stability. While the COVID-19 pandemic provided a major stress test for response efforts, ongoing preparedness, surveillance, and mitigation strategies aim to protect residents from future threats.

Key Takeaways:

- Los Angeles County faces diverse health threats, including pandemics, bioterrorism, and climate-related illnesses.

- Vulnerable populations may suffer disproportionate impacts during public health crises.
- Preparedness efforts focus on surveillance, vaccination, emergency response, and coordination with federal and state partners.
- Future threats include emerging infectious diseases, heat-related illnesses, and antimicrobial resistance.

By continuing investments in public health preparedness, Los Angeles County aims to reduce risks and strengthen resilience against future health emergencies.

7 Mitigation Strategy

7.1 Mitigation Strategy Overview

The Mitigation Strategy section of the All-Hazard Mitigation Plan (AHMP) presents Los Angeles County's strategic blueprint for reducing risks and vulnerabilities posed over the long term associated with the hazards identified in the Hazard Identification and Risk Assessment section. The strategies identified in this section drive mitigation activities based on existing capabilities while also identifying areas of potential future investment to build resilience across communities, critical facilities, and other infrastructure within Los Angeles County.

7.2 Mitigation Goals and Objectives

Mitigation goals are the long-term vision that the County hopes to achieve by implementing the various mitigation strategies described in this AHMP, as well as the broad guidelines that have shaped mitigation strategy development.

- **Goal 1: Protect life, property, infrastructure, the environment, and the economy through equitable mitigation strategies aimed at reducing risks of natural and human-caused hazards.**
    - Objective 1-1: Integrate vulnerable populations, including people with Access and Functional Needs (AFN), into the implementation of any potential mitigation actions.
    - Objective 1-2: Implement mitigation strategies that enhance resilience to disaster impacts across residential areas, commercial areas, infrastructure, high-hazard potential dams, and other critical facilities.
    - Objective 1-3: Inform strategic investments in climate adaptation, development, and redevelopment that are centered in equity and resilience.
- **Goal 2: Enhance community-wide partnerships in hazard mitigation across all levels of government, the private sector, and the public.**
    - Objective 2-1: Build a culture of disaster resilience and awareness of local hazards through public engagement, education, and outreach.
    - Objective 2-2: Strengthen direct coordination among Los Angeles County Operational Area partners to unify efforts for mitigation activities.
    - Objective 2-3: Utilize a whole community approach to address disparities in outcomes posed by the hazards identified in this AHMP.
- **Goal 3: Enhance planning, response, and recovery through hazard identification, assessment, mitigation, and resilience activities.**

  - Objective 3-1: Establish and maintain coordination between hazard mitigation activities and other emergency management functions.
  - Objective 3-2: Integrate hazard mitigation activities into preparedness for future large-scale planned events within Los Angeles County.
- **Goal 4: Ensure eligibility for FEMA grant funding to maximize equitable investment in hazard mitigation actions.**
  - Objective 4-1: Continue to meet all requirements for existing hazard mitigation grant programs used by the County.
  - Objective 4-2: Expand the County's ability to participate in grant programs not currently utilized by the County.

7.2.1 Changes in Mitigation Goals

The AHMP Advisory Committee reviewed the 2020 AHMP goals and updated them to reflect the most current County concerns and priorities. Therefore, the 2025 AHMP has introduced new goals and objectives to build a more resilient community. Table 7-1 (below) compares the 2025 AHMP goals with previous 2020 AHMP goals; all other goals above are new goals and objectives developed by the AHMP Advisory Committee.

Mitigation priorities change through time depending on the type of disaster impacting Los Angeles County, vulnerability, the strategies implemented, as well as other needs of the community. Priorities are also made based on current countywide Threat and Hazard Identification and Risk Assessment (THIRA) studies, National Risk Index Assessment, State Hazard Mitigation Plan (SHMP) and other local plans and guides. The previous 2020 AHMP integrated hazard data into several operational plans including but not limited to the General Plan, Operational Area Emergency Operations Plan (OAEOP), amongst others. Addressing these changes will help to address Los Angeles County hazard priorities and to have mitigation strategies focused on the hazards that impact the region at most. The plan also added additional hazards and addressed a larger vulnerable population.

Table 7-1 Mitigation Goal Updates

Goals Addressed in 2020 AHMP	Goals for 2025-2030 Planning Period	Changes
Build a culture and practice disaster resilience	Goal 2 (see above).	Goal expanded; previous goal integrated as an objective under Goal 2 in the current AHMP.
Better plan for, respond to, and recover from, hazards and disasters including climate change, drought, earthquake, dam failure, flood, landslide, tsunami, and wildfire that affect Los Angeles County.	Goal 3 (see above).	Previous goal replaced with new goal.
More successfully adapt to hazards and disasters including climate change, drought, earthquake, dam failure, flood, landslide, tsunami, and wildfire that affect Los Angeles County.	Goal 1 (see above).	Previous goal replaced with new goal.

7.3 Existing Mitigation Capabilities

The mitigation strategies developed as part of this AHMP seek to maximize existing mitigation capabilities identified as currently available within the Los Angeles County Operational Area. These existing capabilities have been updated to reflect changes in human, technical, financial, legal, regulatory, education, and outreach resources since the 2020 AHMP.

7.3.1 Authorities, Policies, and Legal/Regulatory Resources

There are several existing authorities, policies, and other legal or regulatory resources applicable to hazard mitigation efforts in Los Angeles County. From the County Code of Ordinances to completed plans, these form the cornerstone of hazard mitigation activities by providing a foundation rooted in data, research, planning, Technical Ecological Knowledge (TEK) provided by our state and locally recognized indigenous communities, and elected officials' authority. The County aims to expand and improve upon these identified capabilities by adopting this AHMP, once approved, into the Safety Element of the Los Angeles County General Plan. This action will contribute to the County's ability to be considered for an additional cost-share on Public Assistance projects through the California Disaster Assistance Act. Table 7-2 provides an overview of existing capabilities related to authorities, policies, and legal/regulatory resources.

Table 7-2 Authorities, Policies, and Legal/Regulatory Resources

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
Los Angeles County Operational Area Emergency Operations Plan (2023)	Establishes the coordinated emergency management system within the Los Angeles County Operational Area to prepare for, respond to, and recover from the effects of large-scale emergencies regardless of cause, location, or complexity.	All-Hazard	No
Los Angeles County General Plan (2024)	Provides the policy framework for how and where the unincorporated County will grow through the year 2035.	All-Hazard	Yes
Los Angeles County Comprehensive Floodplain	Reviews existing floodplain management programs in the County and recommends enhancements to them through 35	Flood Land Movement	Yes

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
Management Plan (2021)	mitigation actions. This plan is currently being reviewed and updated with completion targeted for early 2026.		
Los Angeles County Comprehensive Floodplain Management Plan Repetitive Loss Area Analysis (2021)	Analyzes Repetitive Los Areas within Los Angeles County and fulfills Community Rating System requirements.	Flood Land Movement	Yes
County of Los Angeles Floodplain Management Plan Progress Report (2024)	Provides an annual update on the implementation of the action plan identified in the Comprehensive Floodplain Management Plan and on the implementation and evaluation of outreach projects.	Flood Land Movement	Yes
County of Los Angeles Repetitive Loss Area Analysis Progress Report (2023)	Provide an annual update on the implementation of the action plan identified in the Repetitive Loss Area Analysis to ensure there is a continuing and responsive planning process.	Flood	Yes
Los Angeles County Fire Plan (2023)	Describes the wildfire environment, history, and pre-fire management strategies to enhance the protection of lives, property, and natural resources from wildland fire.	Wildfire	Yes

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
Los Angeles County 2045 Climate Action Plan (2024)	Delineates the County's path toward meeting the goals of the Paris Agreement and achieving carbon neutrality for unincorporated Los Angeles County.	Wildfire Extreme Heat Drought Flooding	Yes
Our County: Los Angeles Countywide Sustainability Plan (2019)	Outlines how local governments and stakeholders can enhance the well-being of all County communities while adapting to climate change and reducing damage to the natural environment, particularly focusing on communities disproportionately burdened by pollution.	Wildfire Extreme Heat Drought Flooding	Yes
Los Angeles County Floodplain Management Ordinance	Aims to minimize public and private losses resulting from flood conditions via uniformly applied regulations in flood prone, mudflow, or flood related erosion areas.	Flood Land Movement	Yes
Los Angeles County Code – Title 32: Fire Code	To build a new structure (or an addition equal to or greater than 50% of existing square footage), the Los Angeles County Fire Code requires review of its location, type of construction, topography, slope, amount and arrangement of vegetation, and overall site	Wildfire	Yes

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
	settings—in order to create defensible space necessary for effective fire protection of homes in High Fire Severity Zones.		
Los Angeles County Code – Title 22: Planning and Zoning	Establishes the regulations governing land use and development and defines zoning for unincorporated Los Angeles County. Includes the Hillside Management Area Ordinance (Chapter 22.104), the Residential Design Standards Ordinance, and the Hillside Design Guidelines. These include requirements for development in Hillside Management Areas, which are defined as areas with 25% or greater natural slopes. The guidelines include specific and measurable design techniques that can be applied to residential, commercial, industrial, and other types of projects.	Wildfire Earthquake Land Movement	Yes
Los Angeles County Code – Title 31: Green Building Standards Code	Enhances the design and construction of buildings via building concepts with positive (or reduced negative) environmental impacts, and encourages sustainable construction practices	Extreme Heat Drought	Yes

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
	across planning and design, energy efficiency, water conservation, material and resource efficiency, and environmental air quality.		
Los Angeles County Brush Clearance Program	Legally declares both improved and unimproved properties a public nuisance, and where necessary, requires the clearance of hazardous vegetation thereby creating defensible space for effective fire protection of property, life, and the environment. The Brush Clearance Program is a joint effort between the County of Los Angeles Fire Department and the County of Los Angeles Department of Agricultural Commissioner/Weights and Measures, Weed Hazard, and Pest Abatement Bureau (Weed Abatement Division).	Wildfire	Yes
Los Angeles County Code – Title 26: Building Code	Provides minimum standards to regulate the design, construction, installation, quality of materials, use, occupancy, location, and maintenance of all buildings, structures, grading, and certain equipment. Regulates construction	Earthquake Wildfire	Yes

Authority, Policy, or Resource	Description	Hazards Addressed	Potential to Affect Development
	near a known active earthquake fault (Chapter 1, Section 113), the materials and construction methods for construction in a Wildland-Urban Interface (WUI) Fire Area (Chapter 7A), structural design as it relates to earthquake hazards (Chapter 16, Section 1613), repair of certain buildings in High Earthquake Damage Areas (Chapter 94), earthquake hazard reduction for concrete tilt-up buildings (Chapter 95) and unreinforced masonry buildings (Chapter 96), among others. The Building Code also includes provisions for emergency housing during a proclaimed emergency.		

7.3.2 Human and Technical Resources

Existing human and technical resources across County Departments enable the County to plan, manage, conduct, and execute its wide range of hazard mitigation activities. The resources below represent a high degree of expertise in all facets of hazard mitigation available to support mitigation activities. The County aims to expand and improve upon these identified capabilities by expanding potential hazard training opportunities available to the Los Angeles County Operational Area. Additionally, as various special events are scheduled in Los Angeles County over the next five years, the County should seek to expand coordination and technical resources related to mass violence, cyber, and other special event-related hazards.

Table 7-3 provides an overview of existing capabilities related to human and technical resources.

Table 7-3 Human and Technical Resources

Resource	Department/Agency	Principal Activities Related to Hazard Mitigation
Emergency Management Coordinator(s)	Los Angeles County Office of Emergency Management	• Maintains and updates the Los Angeles County Operational Area Emergency Operations Plan and Los Angeles County All-Hazard Mitigation Plan. • Coordinates local response and recovery activities in the Emergency Operation Center and in the field. • Works closely with local, state, and federal partners to support planning, training, exercise, public information, and resource coordination.
Engineer(s), Building Inspector(s), Code Enforcement Officer(s), Fire Marshalls, and Other Technical Staff	Los Angeles County Public Works and Fire Department	• Oversees the effective, efficient, fair, and safe enforcement of County of Los Angeles Building and Fire Codes.
Engineer(s), Construction Project Managers, and Other Technical Staff	Los Angeles County Public Works	• Provides direct (or contract) civil, structural, and mechanical engineering services, including contract, project, and construction management.
Engineer(s), Project	Los Angeles County Public Works	• Maintains and operates a wide range of local equipment and facilities and assists members of the public by

Resource	Department/Agency	Principal Activities Related to Hazard Mitigation
Manager(s), Equipment Operators, Maintenance and Construction Staff, and Other Technical Staff		providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, streetlights, and traffic signals.
Floodplain Administrator	Los Angeles County Public Works	• Enforces the floodplain management ordinance ensuring that development proposals do not increase flood risk and that new developments are not located below the 100-year flood level. In addition, the floodplain administrator is responsible for planning and managing flood risk reduction projects throughout Los Angeles County.
Planner(s), Engineer(s), and Technical Staff	Los Angeles County Department of Regional Planning	• Develops and maintains the Los Angeles County General Plan, including the Safety Element. • Develops area plans based on the Los Angeles County General Plan to provide more specific guidance for the development of more specific areas. • Reviews proposed development, capital improvements, and other physical projects involving property for consistency and conformity with the Los Angeles County General Plan. • Anticipates and acts on the need for applicable new plans, policies, and code changes.

Resource	Department/Agency	Principal Activities Related to Hazard Mitigation
		• Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.
Procurement Services Manager	Los Angeles County Internal Services Department	• Provides a full range of municipal financial services and administers several licensing measures.
Comptroller Personnel	Los Angeles County Auditor – Controller	• Provides financial and grant services.
County Counsel Personnel	Los Angeles County Counsel	• Provides legal services for the County.
Fire Department Personnel	Los Angeles County Fire Department	• Provides fire protection services including response, fire prevention, and mitigation activities for the County.
Sheriff's Department Personnel	Los Angeles County Sheriff's Department	• Provides law enforcement services in the County.

7.3.3 Financial Resources and Programs

There are many existing financial resources, grant programs, and other funding mechanisms that enable current and future hazard mitigation activities. Sources for these resources and programs vary widely from local funding out of the County's General Fund to state and federal programs that aim to help local jurisdictions accomplish their hazard mitigation goals. The amount of funding available is variable and project-specific for many of these programs. Similarly, grant awards are based on the specific projects that are identified as the basis for the grant application. Table 7-4 provides an overview of existing capabilities related to financial resources and programs.

Table 7-4 Financial Resources and Programs

Resource or Program	Administrator	Purpose
General Fund	Chief Executive Office	Program operations and specific projects.
General Obligation Bonds	Auditor - Controller	General obligation bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include but are not limited to: libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.
Special Tax and Revenue Bonds	Controller	Revenue bonds are used to finance capital projects that: 1. Have an identified budgetary stream for repayment (e.g., specified fees, tax receipts); 2. Generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs; or 3. Finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.
Vegetation Management Program	Cal FIRE	Cost-sharing program between Cal FIRE and private landowners, which focuses on the use of prescribed fire and/or mechanical means, for addressing wildland fire fuel hazards and other resource management issues on State Responsibility Area (SRA) lands.
Wildfire Emergency and Mitigation Funds	Cal FIRE	Administers funding from FEMA, Bureau of Land Management, and U.S. Forest Service for

Resource or Program	Administrator	Purpose
		certain types of wildfire emergency and mitigation funding.
California Residential Mitigation Program	California Earthquake Authority	Created by the California Earthquake Authority and the Governor's Office of Emergency Services, "Earthquake Brace + Bolt: Funds to Strengthen Your Foundation" is the first incentive program offered by the California Residential Mitigation Program.
Public Health Emergency Preparedness Cooperative Agreement	Center for Disease Control and Prevention	Funds are intended to upgrade state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.
Hazard Mitigation Grant Program (HMGP)	FEMA	Administered by the California Governor's Office of Emergency Services (Cal OES), HMGP supports pre- and post-disaster mitigation plans and projects available to California communities after a presidentially declared disaster has occurred in California.
Pre-Disaster Mitigation (PDM) Grant Program	FEMA	Available annually as a nationally competitive Cal OES grant, the PDM Grant Program supports pre-disaster mitigation plans and projects.
Flood Mitigation Assistance (FMA) Grant Program	FEMA	Available annually as a nationally competitive Cal OES grant, the PDM Grant Program supports pre-disaster mitigation plans and projects.
Homeland Security	FEMA	Builds and sustains preparedness technical assistance activities in support of the four

Resource or Program	Administrator	Purpose
Preparedness Technical Assistance Program		homeland security mission areas (i.e., prevention, protection, response, recovery) and homeland security program management.
Assistance to Firefighters Grant Program	FEMA/U.S. Fire Administration	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards. Available to fire departments and nonaffiliated emergency medical services providers.
Land and Water Conservation Funds	U.S. Department of the Interior	Supports the protection of federal public lands and waters and voluntary conservation on private land.
Community Action for a Renewed Environment	U.S. Environmental Protection Agency (EPA)	Offers means by which communities may organize/take action to reduce toxic pollution (e.g., in stormwater, etc.) through financial and technical assistance. Communities create partnerships that implement solutions to reduce releases of toxic pollutants and that minimize toxic exposures.
Clean Water State Revolving Fund	EPA	A loan program that provides low-cost financing to eligible entities on state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.

Resource or Program	Administrator	Purpose
Community Block Grant Program Entitlement Communities Grants	U.S. Department of Housing and Urban Development	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements (e.g., water/sewer facilities, streets, neighborhood centers, etc.), and the conversion of school buildings for eligible purposes.
High Hazard Potential Dams (HHPD) Grant Program	FEMA	Provides technical, planning, design, and construction assistance in the form of grants for the rehabilitation of eligible high hazard potential dams.
State and Local Cybersecurity Grant Program	FEMA	Provides funding to eligible entities to address cybersecurity risks and threats to information systems owned or operated by, or on behalf of, state, local, or tribal governments.

7.3.4 Education and Outreach Resources

Engagement with the communities of Los Angeles County is an important component of mitigation efforts. The County of Los Angeles has multiple methods, formats, and venues to conduct outreach with community members and provide education on the hazard landscape in Los Angeles County. These activities ensure mitigation efforts align with community goals and include community input. Table 7-5 shows a list of existing resources for education and outreach.

Table 7-5 Education and Outreach Resources

Resource or Program	Agencies Potentially Involved	Purpose
Preparedness Fairs	Office of Emergency Management, Fire Department, Sheriff's Department, Public Works, Board of Supervisors	Engage with community members to provide education on hazards found in Los Angeles County and emergency preparedness for homes and businesses.
Personal Disaster Impact Surveys	Office of Emergency Management	Receive input and feedback on the hazard landscape from community members in Los Angeles County to inform the 2025 AHMP.
AHMP Draft Review Surveys	Office of Emergency Management	Receive input and feedback on sections of the AHMP from community members in Los Angeles County.
Homeless Outreach Services Team (HOST)	Sheriff's Department, Homelessness Services Organizations	Conduct outreach to People Experiencing Homelessness in areas prone to wildfires or flooding based on weather conditions.
Community Emergency Response Teams (CERT)	Fire Department	Educate community members about disaster preparedness and response in their communities.
Explorer Programs	Fire Department, Sheriff's Department	Educate youth about disaster preparedness and response in their communities.
Youth Climate Commission	Chief Sustainability Office	Educate and obtain input from youth on climate change impacts and mitigation efforts.

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7.3.5 National Flood Insurance Program Participation

The National Flood Insurance Program (NFIP) is administered by FEMA and provides affordable flood insurance to participating communities through a network of insurance providers. NFIP regulations must be enforced in Special Flood Hazard Areas (SFHAs). Flood insurance is required for structures in SFHAs with federally backed loans (e.g., most mortgages, Small Business Administration (SBA) loans) and FEMA grants along with any structures with SBA loans, regardless of flood zone. Flood insurance is required to be maintained for the life of the federally backed loan and in perpetuity, regardless of change in ownership, in the case of FEMA grants.

The Los Angeles County Board of Supervisors adopted the County Floodway Ordinance (Los Angeles County Code Title 11, Chapter 11.60) in March 1980. This ordinance included the first County Floodway Maps and paved the way for the County to begin participation in NFIP on behalf of unincorporated residents. The County's participation means that residents (owners and renters) in the unincorporated communities within Los Angeles County are eligible for NFIP flood insurance and Federal flood disaster assistance. The first FEMA Flood Insurance Rate Maps (FIRMs) became effective on December 2, 1980. Since 1980, the County has continued robust participation in NFIP. The FEMA FIRMs were digitized in September 2008 and have been revised over the years by numerous Letters of Map Change and by large-scale Physical Map Revisions for the Ballona Creek watershed and several watersheds in the Santa Monica Mountains (Triunfo Creek, Topanga Canyon and others) in December 2018, the Los Angeles County coastline in April 2021, and the Santa Clara River watershed in June 2021. These maps are available to the public on the Los Angeles County Public Works (PW) website at dpw.lacounty.gov/floodzone.

Los Angeles County also participates in the NFIP's Community Rating System (CRS) program. The CRS program is a voluntary program for communities that engage in community floodplain management activities, which exceed the minimum NFIP standards. CRS communities benefit from a discount on flood insurance rates and improved floodplain management programs. CRS uses a class rating system between 1 and 9 to determine flood insurance premium reductions for residents. As of April 1, 2022, Los Angeles County is a Class 6 CRS community; therefore homeowners and

renters who live in a SFHA can receive up to a 20% discount on their flood insurance policies.

The County's implementation and enforcement of local floodplain management regulations for development in SFHAs are covered in Los Angeles County Building Codes with the most recent update completed in 2023. Title 26, Chapter 1, includes requirements for development within flood hazard areas. Other relevant ordinances include other chapters in Title 26 (Building Code) along with Titles 27 (Electrical Code), Title 28 (Plumbing Code), Title 29 (Mechanical Code), Title 30 (Residential Code), and Title 33 (Existing Building Code). Implementation and enforcement are also covered in the Los Angeles County Subdivision Code (Title 21) and Planning and Zoning Code (Title 22). The NFIP for unincorporated communities is administered by the Department of Public Works (LACPW) Stormwater Engineering Division, which serves as the County's floodplain manager, coordinates with LACPW's Building and Safety and Land Development Divisions and with the Los Angeles County Department of Regional Planning in their enforcement of the County's floodplain management regulations, and participates in FEMA's Community Assisted Visits, which typically occur on a 5-year cycle.

LACPW continues to enforce NFIP regulations for building permit applications determined by Building and Safety officials to be substantial improvement or repair of substantial damage. Los Angeles County also requires all residential buildings undertaking substantial improvement to have their lowest floor elevated 1 foot above the 100-year flood elevation. Additionally, Los Angeles County conducted a Repetitive Loss Area Analysis in 2020, which serves as a specific plan for reducing damage from flooding in repetitive loss areas.

After an event, Public Works staff assess the unincorporated area buildings within the extent of the event. The assessment will identify the buildings that appear to have damages affecting 50 percent or greater of the building. If such a building is in flood-prone areas identified by FEMA's Flood Insurance Rate Maps, County maps (Floodway Maps or Assessor's Maps), or identified by Public Works to be in a Repetitive Loss Area, will undergo further evaluation by Public Works staff on whether the building meets FEMA's definition of substantial improvement/substantial damage (SI/SD). A building that meets FEMA's SI/SD definition will be required to have the entire building upgraded to meet National Flood Insurance Program (NFIP) standards (Title 44, Code

of Federal Regulations, Section 60.3). Los Angeles County Code Title 26, Section 110.1 requires the County to enforce as a minimum the current Federal Flood Plain Management Regulations defined in Title 44, Code of Federal Regulations, Section 60.3, for buildings, structures, and grading located in whole or in part in flood hazard areas. (Ord. 2013-0048 § 2, 2013; Ord. 2010-0053 § 2, 2010; Ord. 95-0065 § 3 (part), 1995.)

7.4 Identification and Analysis of Mitigation Strategies

Potential mitigation actions were identified for each hazard identified in Section 6 in an effort to ensure as comprehensive a mitigation strategy as possible. Multiple mitigation options were then analyzed against the goals and objectives delineated in this section with a focus on new and existing buildings. A combination of new and ongoing mitigation actions aimed at reducing the effects of the identified hazards were compiled into the list of mitigation actions in the following subsection. This list includes a wide range of potential types of mitigation actions, including:

- Local Plans and Regulations.
- Structure and Infrastructure Projects.
- Natural Systems Protection.
- Education and Awareness Programs.

A notable update to the 2025 AHMP was the integration of human-caused threats and corresponding potential mitigation actions. The AHMP Planning Team also reviewed FEMA's Mitigation Ideas document to incorporate national best practices in the list of potential mitigation actions.

7.4.1 Mitigation Strategies

01	*Title:* **Support and Expand Countywide Vegetation Management and Fire Prevention Efforts**
Source: Los Angeles County Fire Department	
Type: Natural Systems Protection	
Description: Conduct passive protection measures such as creating defensible space buffers around residential and non-residential structures through the removal of flammable vegetation, managing and/or reducing hazardous fuels, creating firebreaks, fire-resistive landscaping and construction, and clearing dead vegetation, among others. Engage indigenous communities to inform vegetation management and fire prevention practices aligned with Traditional Ecological Knowledge (TEK).	*Hazard:* **Wildfire** *Hazard:* ***Severe Wind/Tornado***

02	*Title:* **Enhance Community Engagement in Wildfire Protection and Prevention**
Source: Los Angeles County Department of Regional Planning	
Type: Education and Awareness Programs	
Description: Engage residents and businesses in high fire risk communities to educate them on community-focused mitigation and risk reduction strategies, emergency preparedness and evacuation readiness, and opportunities to get involved in fire safety-related community initiatives. Engage indigenous communities to inform protection and prevention practices aligned with Traditional Ecological Knowledge (TEK).	*Hazard:* **Wildfire** *Hazard:* ***Severe Wind/Tornado***

03	*Title:* **Perform Post-Fire Flooding, Debris Flow, and Mud Flow Risk Assessments and Mitigation Activities**
Source: Los Angeles County Department of Public Works	
Type: Structure and Infrastructure Projects	
Description: Following a wildfire, assess burn scar for significant mud and debris flow risks to produce mud and debris flow phase maps for first responding agencies to prepare for potential evacuations. Recommend mitigation strategies to prevent mud and debris flow impacts.	*Hazard:* **Wildfire** *Hazard:* ***Flooding***

04	*Title:* **Strengthen Operational Continuity Capabilities for Critical Facilities**
Source: Los Angeles County Department Public Health, among others.	
Type: Structure and Infrastructure Projects	
Description: Conduct robust continuity planning to ensure the continued performance of essential functions in the event critical facilities are impacted by various hazards. Build capabilities that support operational continuity such as alternate or uninterrupted power supply, workforce development and cross-training, emergency communications, and data backup or failover hardware.	*Hazard:* **Wildfire** *Hazard:* ***Extreme Heat*** *Hazard:* ***Severe Wind/Tornado*** *Hazard:* **Cyber Incidents**

05	*Title:* **Incorporate Hazards in Local Planning, Land Use, and Development Codes**
Source: Los Angeles County Department of Public Works and Regional Planning	
Type: Local Planning and Regulations	
Description: Develop, maintain, and leverage opportunities to strengthen relevant ordinances that govern land use, building codes, and development in high-risk hazard areas. Incorporate mitigation actions in community planning such as Community Wildfire Plans, Flood Management Plans, and the County General Plan, among many others.	*Hazard:* **Wildfire** *Hazard:* **Earthquake** *Hazard:* ***Land Movement*** *Hazard:* ***Severe Wind/Tornado*** *Hazard:* ***Flooding***

06	*Title:* **Increase Public Awareness of Climate Change Effects on Local Hazards**
Source: Los Angeles County Chief Sustainability Office	
Type: Education and Awareness Programs	
Description: Engage with communities on ways climate change impacts various natural hazards along with mitigation actions and available resources for climate adaptation and resilience. Efforts should focus on how communities can take action or support existing County programs including funding available to the public. Public engagement efforts should be accessible, ensure people with Access and Functional Needs are included in outreach, and use materials with multiple language options.	*Hazard:* **Wildfire** *Hazard:* **Extreme Heat** *Hazard:* **Drought** *Hazard:* ***Land Movement*** *Hazard:* ***Severe Wind/Tornado*** *Hazard:* **Flooding**

07	*Title:* **Expand Stormwater Management, Drainage, and Outlet Planning**	
Source: Los Angeles County Department of Public Works		
Type: Local Planning and Regulations		
Description: Continue robust stormwater management programs. Conduct studies to inform measures to improve outlet and drainage planning and prevent flood damage to communities in high-risk areas. These efforts should also prevent flood damage to County-maintained roadways, including evacuation egress and emergency services ingress, while supporting potential groundwater recharge.		*Hazard:* **Flooding** *Hazard:* **Drought** *Hazard:* **Transportation Incident**

08	*Title:* **Construct and Maintain Localized Flood Control Improvements**	
Source: Los Angeles County Department of Public Works		
Type: Structural and Infrastructure Projects		
Description: Maintain existing flood control mechanisms by drainage system maintenance, sediment and debris clearance, and other actions. Leverage opportunities to construct flood control improvements.		*Hazard:* **Flooding**

09	*Title:* **Preserve Floodplains as Public Use Open Spaces**	
Source: Los Angeles County Department of Public Works, among others.		
Type: Natural Systems Protections		
Description: Preserve and expand public use open spaces that capture stormwater with the aim of reducing localized flooding while also providing green space and recreational opportunities to communities. Prioritize floodplains and watersheds in County-owned public use open spaces near flood risk areas. Use stormwater best management practices in projects involving open spaces to support natural water collection and conservation. Incorporate floodplain preservation into future park improvements.		*Hazard:* **Flooding**

10	*Title:* **Harden Critical Facilities and Infrastructure from Seismic Damage**	
Source: Los Angeles County Department of Public Works		
Type: Structure and Infrastructure Projects		
Description: Conduct seismic assessments to prioritize retrofitting and other seismic mitigation actions such as bracing or seismic shutoff valves. Efforts should focus on critical facilities for community lifelines such as hospitals, public safety facilities, utility sites, high-hazard potential dams, and transportation assets (i.e., bridges, roadways, airports, and others).		*Hazard:* **Earthquake** *Hazard:* ***Land Movement*** *Hazard:* **Dam Failure**

11	*Title:* **Prevent Impacts to the Transportation System**
Source: Los Angeles County Department of Public Works	
Type: Structure and Infrastructure Projects	
Description: Hazard impacts to the transportation system in Los Angeles County have far-reaching potential for cascading effects across multiple lifelines. Mitigation activities for multiple hazards should focus on preventing or lessening impacts to transportation. Activities may include stabilization efforts along County-maintained roads, reinforcing transportation assets, or other seismic mitigation actions.	*Hazard:* **Earthquake** *Hazard:* ***Land Movement*** *Hazard:* **Transportation Incident**

12	*Title:* **Continue Efforts to Enhance Dam Safety and Reduce Long-Term Vulnerabilities with High Hazard Potential Dams**
Source: Los Angeles County Department of Public Works	
Type: Structure and Infrastructure Projects	
Description: Upgrade infrastructure to ensure the long-term integrity and safe operation of County-owned dam facilities. Potential actions could include strengthening of dams, sediment management activities, regular inspections, continuous maintenance, integrating advanced technologies, and emergency preparedness efforts.	*Hazard:* **Earthquake** *Hazard:* **Dam Failure**

13	*Title:* **Assess Water Resilience in Los Angeles County**
Source: Los Angeles County Department of Public Works	
Type: Local Planning and Regulations	
Description: Conduct assessments and studies to monitor the water supply and develop recommendations for other water systems. Identify potential secondary water sources or other contingency measures for ensuring water system resilience during drought conditions.	*Hazard:* **Drought**

14	*Title:* **Expand Drought-Tolerant Landscaping and Design**
Source: Los Angeles County Chief Sustainability Office and Department of Regional Planning	
Type: Natural Systems Protection	
Description: Integrate drought mitigation into landscaping and design measures undertaken by the County. Prioritize native and drought-tolerant plants when selecting landscaping designs. Use permeable materials for pavers, driveways, walkways, and roadways to reduce runoff and promote groundwater recharge that incorporate indigenous- informed practices aligned with Traditional Ecological Knowledge (TEK).	*Hazard:* **Drought**

15	*Title:* **Address Urban Heat Islands by Investing in Green Infrastructure and Cooling Strategies**
Source: Los Angeles County Chief Sustainability Office, Department of Regional Planning, Department of Economic Opportunity, Department of Public Health, and Department of Public Works, among others.	
Type: Local Planning and Regulations	
Description: Increase shade cover provided by vegetation such as planting native and drought-tolerant trees along with smaller plants such as shrubs, grasses, and groundcover. Increase the tree canopy in County parks and open concrete or asphalt spaces in the public right of way or County-owned parking lots. Conduct assessments to identify communities considered urban heat islands that are at highest need for an increase in tree canopy or other heat mitigation activities. Advance cooling strategies such as constructing shade structures, installing splash pads, operating cooling centers, modernizing air conditioning systems, and expanding the availability of cool roofing infrastructure that reflects heat away from buildings. Ensure mitigation actions address heat impacts faced by people with Access and Functional Needs. Many of these actions have a secondary benefit mitigating the effects of climate change by promoting carbon sequestration, the capture and storage of CO2 from the atmosphere. Additionally, increasing green space and shade cover in urban areas can advance environmental justice.	*Hazard:* ***Extreme* Heat**

16	*Title:* **Increase Coastal Resilience, Prevent Erosion, and Protect Shorelines**
Source: Los Angeles County Chief Sustainability Office and Department of Beaches and Harbors	
Type: Natural Systems Protection	
Description: Conduct activities to replace sediment lost due to erosion or coastal storms. Assess the need for other sediment protection measures such as planting certain types of vegetation. Consider activities that prevent wind from blowing sand off beaches and impacts from storm surge in high-risk areas. These actions help protect coastal roadways and other infrastructure along with ensuring recreation opportunities remain for residents and visitors.	*Hazard:* **Flooding** *Hazard:* **Tsunami**

17	*Title:* **Conduct Multi-Discipline Training and Exercise Programs**
Source: Los Angeles County Sheriff's Department and Office of Emergency Management	
Type: Education and Awareness Programs	
Description: Identify opportunities for joint training and exercises for mass violence and cyber incident response across disciplines of law enforcement, fire and emergency medical services, medical examiner, private sector, and others. Each training and exercise should include mass violence rescue and evacuation techniques for AFN populations.	*Hazard:* **Mass Violence** *Hazard:* **Cyber Incidents**

18	*Title:* **Strengthen Partnerships and Coordination Among Local Agencies**	
Source: Los Angeles County Sheriff's Department and Office of Emergency Management		
Type: Education and Awareness Programs		
Description: Expand collaborative agreements with other agencies to share resources during large-scale emergencies. Strengthen partnerships with local agencies for resource sharing. Enhance response capabilities during major incidents.		*Hazard:* **Mass Violence** *Hazard:* **Cyber Incidents**

19	*Title:* **Incorporate Mass Violence Prevention and Mitigation Efforts into Special Event Planning**	
Source: Los Angeles County Sheriff's Department and Office of Emergency Management		
Type: Education and Awareness Programs		
Description: Use physical security measures such as bollards, water-filled barricades, vehicle barriers, and others. Identify mitigation measures for upcoming special events such as the World Cup, Super Bowl, and Olympics. Conduct special event training on topics such as crowd management, sporting event safety, and stadium evacuation. Incorporate Family Assistance Center readiness into special event planning.		*Hazard:* **Mass Violence**

20	*Title:* **Extreme Heat Risk Education and Safety Outreach for Residents and Vulnerable Workers**	
Source: Los Angeles County Chief Sustainability Office, Department of Economic Opportunity, Department of Public Health, and Department of Public Works		
Type: Education and Awareness Programs		
Description: Implement outreach and education to workers in low-wage and high hazard industries in LA County that are disproportionately impacted by extreme heat. Partner with organizations providing services to people with Access and Functional Needs on heat response strategies. Expand awareness of cooling centers and other heat respite options for unhoused populations. Increase workforce development opportunities to expand the availability of green infrastructure.		*Hazard:* ***Extreme* Heat**

21	*Title:* **Increase Field Response and Coordination Capabilities**	
Source: Los Angeles County Sheriff's Department and Office of Emergency Management		
Type: Education and Awareness Programs		
Description: Enhance field coordination capabilities at large-scale planned events and no-notice incidents such as wildfires, mass violence, and others. Potential actions could include investments in new redundant communications systems, response vehicles, alert and warning capabilities, and other field operations equipment.		*Hazard:* **Wildfire** *Hazard:* **Mass Violence**

22	*Title:* **Strengthen Public Health Prevention and Preparedness Measures**
Source: Los Angeles County Office of Emergency Management, Department of Public Health, Department of Health Services, and Fire Department	
Type: Education and Awareness Programs	
Description: Continue and expand mass vaccination and immunization efforts. Coordinate healthcare surge preparedness and response efforts. Conduct disease surveillance, monitor early warning systems, and coordinate outbreak response. Educate communities and businesses about health implications related to wildfire recovery and hazardous materials. Liaise with health system partners to understand hospital surge capacity within the County. Maintain and deploy emergency stockpiles. Incorporate potential climate change-related infectious disease implications into public health preparedness planning.	*Hazard:* **Public Health Emergencies**

7.5 Status of Previous Mitigation Efforts

Table 7-6 below shows the status of mitigation strategies described in the 2020 AHMP. Departments have made significant progress on some of these mitigation strategies, partially but not fully completing some of these efforts. As such, each strategy from the 2020 AHMP have been rolled into the mitigation strategies described in this section.

Table 7-6 Status of Mitigation Efforts

2020 AHMP Strategy	Status	2025 AHMP Strategy
Red Flag Warning Public Outreach	Not Completed/ Ongoing	Enhance Community Engagement in Wildfire Protection and Prevention

2020 AHMP Strategy	Status	2025 AHMP Strategy
Vegetation Management Program	Not Completed/ Ongoing	Support and Expand Countywide Vegetation Management and Fire Prevention Efforts
Fireproof Coating of Critical Facilities	Not Completed/ Ongoing	Enhance Community Engagement in Wildfire Protection and Prevention
Auxiliary Power for Critical Facilities	Not Completed/ Ongoing	Strengthen Operational Continuity Capabilities for Critical Facilities
Earthquake-Resistant Ductile Iron Pipes Replacement	Not Completed/ Ongoing	Harden Critical Facilities and Infrastructure from Seismic Damage
Watershed Ecosystem Restoration	Not Completed/ Ongoing	Preserve Floodplains as Public Use Open Spaces
Green Streets / Living Streets	Not Completed/ Ongoing	Expand Drought-Tolerant Landscaping and Design
Coordinated Data Collection and Database Systems	Not Completed/ Ongoing	Strengthen Partnerships and Resource Coordination Among Local Agencies
Brush Clearance Program	Not Completed/ Ongoing	Support and Expand Countywide Vegetation Management and Fire Prevention Efforts
Wildland Urban-Interface Ordinance	Not Completed/ Ongoing	Incorporate Hazards in Local Planning, Land Use, and Development Codes
Urban Forest Management Plan	Not Completed/ Ongoing	Address Urban Heat Islands by Investing in Green Infrastructure and Cooling Strategies

2020 AHMP Strategy	Status	2025 AHMP Strategy
Community Wildfire Protection Plans	Not Completed/ Ongoing	Incorporate Hazards in Local Planning, Land Use, and Development Codes
Pre-Disaster Professional Support	Not Completed/ Ongoing	Strengthen Operational Continuity Capabilities for Critical Facilities
Fuel Trailer Project	Not Completed/ Ongoing	Strengthen Operational Continuity Capabilities for Critical Facilities

7.6 Prioritization and Implementation of Mitigation Actions

Potential mitigation actions were prioritized using the FEMA National Risk Index (NRI) score and information from the 2024 Los Angeles Threat and Hazard Identification and Risk Assessment (THIRA), which both address hazards by frequency, severity, and impact. Both the NRI and THIRA follow established processes and use a standardized risk assessment methodology. The NRI incorporates multiple variables including physical impacts posed by hazards in addition to social vulnerability data that communicates risks specific to a certain community. Table 7-7 provides an overview of the NRI results for Los Angeles County across 18 hazards. Hazards rated as Relatively Low, Not Applicable, or No Rating were not included in this AHMP as they are uncommon in frequency in Los Angeles County; all other hazards are covered in this plan.

Table 7-7 FEMA National Risk Index Hazards

Hazard	NRI Score (out of 100.0)	Score Description	Covered in Plan?
Earthquake	100.0	Very High	Yes | Section 6.3
Wildfire	99.9	Very High	Yes | Section 6.2
Extreme Heat	98.4	Relatively High	Yes | Section 6.4
Tornado	97.6	Relatively High	Yes | Section 6.10

Hazard	NRI Score (out of 100.0)	Score Description	Covered in Plan?
Landslide	96.3	Relatively High	Yes | Section 6.8
Lightning	95.0	Relatively High	Yes | Section 6.2/ 6.6
Riverine Flooding	90.8	Relatively Moderate	Yes | Section 6.6
Drought	73.8	Relatively Moderate	Yes | Section 6.5
Strong Wind	73.5	Relatively Moderate	Yes | Section 6.10
Tsunami	63.5	Relatively Moderate	Yes | Section 6.10
Winter Weather	48.6	Relatively Low	Not Prioritized
Hail	48.1	Relatively Low	Not Prioritized
Coastal Flooding	43.3	Very Low	Not Prioritized
Avalanche	33.7	Very Low	Not Prioritized
Cold Wave	0.0	No Rating	Not Prioritized
Hurricane	N/A	Not Applicable	Not Prioritized
Ice Storm	N/A	Not Applicable	Not Prioritized
Volcanic Activity	N/A	Not Applicable	Not Prioritized

The THIRA is a process that communities undertake to assess risk and set capability targets to focus their preparedness efforts and strengthen response and recovery capabilities. There are three primary focuses of the THIRA: threat and hazard identification, impacts analyses that include the specific demographics of the community, and a description of existing response and recovery capabilities. The 2024 Los Angeles/Long Beach THIRA was reviewed as part of this hazard mitigation planning effort and all threats and hazards identified were included as part of this AHMP. Additionally, the THIRA's identification of several human-caused threats with potential to impact Los Angeles County influenced the decision to include such threats in this AHMP. Table 7-8 shows a crosswalk of the hazards and threats identified in the THIRA and their corresponding sections in this AHMP.

Table 7-8 2024 THIRA and 2025 AHMP Crosswalk

2024 THIRA Hazard/Threat Name	2025 AHMP Hazard/Threat Name	Covered in Plan?
Biological Attack	Public Health Emergencies	Yes | Section 6.14
Complex Coordinated Terrorist Attack	Mass Violence	Yes | Section 6.11
Cyber Attack	Cyber Incident	Yes | Section 6.12
Earthquake	Earthquake	Yes | Section 6.3
Flood	Flooding	Yes | Section 6.6
Pandemic – Human	Public Health Emergencies	Yes | Section 6.14
Radiological Attack	Public Health Emergencies	Yes | Section 6.14
Transportation Accident	Transportation Incident	Yes | Section 6.13
Wildfire	Wildfire	Yes | Section 6.2

Additional criteria used to prioritize potential mitigation actions also included the following components:

- Actions that prioritize equity and integrate vulnerable populations, including people with AFN.
- Potential benefits of the action to prevent a major hazard.
- Actions that have social support to build a culture and practice of resilience.
- Cost of the action versus the potential benefit to prevent a major hazard.
- Availability of funding and actions that support grant requirements.
- Political support to remedy or prevent a major health or safety hazard.
- Actions that are technically, legally, environmentally, and economically feasible.
- Actions that the County has the administrative capabilities to implement.
- Actions that are related to mitigating long-term vulnerabilities to County-owned High Hazard Potential Dams will automatically be given a HIGH priority.

7.6.1 Priority Levels

- **High-Priority Mitigation Actions:** are essential and require immediate attention to address critical risks and safeguard life, property, or essential systems.

- **Medium-Priority Mitigation Actions:** are important but less urgent, supporting overall risk reduction and resilience goals while allowing for planned implementation.
- **Low-Priority Mitigation Actions:** address lower-risk concerns or long-term objectives and can be deferred without immediate impact to safety or core functions.

7.6.2 Changes in Criteria

The 2014 Los Angeles County AHMP's Mitigation Action Matrix was prioritized using the Social, Technical, Administrative, Political, Legal, Environmental, and Economic (STAPLEE) method, which FEMA had recommended as a prioritization procedure in the early to mid-2000s. The 2020 AHMP replaced the use of STAPLEE with a more streamlined prioritization process that included the following:

- To remedy or prevent a major health/safety hazard, a mitigation project must have political support.
- To build a culture and practice of disaster resilience, a mitigation project must have social support.
- To meet FEMA HMA grant criteria, a mitigation project must be technically, legally, environmentally, and economically feasible and the jurisdiction must have the administrative capabilities to implement it.

This prioritization method used in the 2020 AHMP has been adapted and incorporated into the prioritization criteria described previously in Section 7.6.

7.7 Integration with Other Plans

The County of Los Angeles ensures that mitigation is a countywide effort with multiple departments contributing to critical activities that reduce hazard risks. These actions are captured in other discipline-specific plans in addition to the AHMP, including those listed in Table 7-9.

Table 7-9 AHMP Integration with Other Plans

Plan	Authored By	Hazard(s)	Covered in Plan?
Comprehensive Floodplain Management Plan	Los Angeles County Department of Public Works	Flood	Yes
Repetitive Loss Area Analysis Report	Los Angeles County Department of Public Works	Flood	Yes
Climate Action Plan	Los Angeles County Department of Regional Planning	Wildfire Extreme Heat Flooding Drought	Yes
Sustainability Plan	Los Angeles County Chief Sustainability Office	Wildfire Extreme Heat Flooding Drought	Yes
County Fire Plan	Los Angeles County Fire Department	Wildfire	Yes

7.8 Mitigation Action Plan

Table 7-10 represents a Mitigation Action Plan to reduce risks of the hazards identified in this AHMP. Notably, many County departments include discipline-specific mitigation actions within other related plans mentioned in the above section. Some actions that mitigate risk of natural hazards that are covered elsewhere may not be explicitly listed or may be referred to in general terms while specific details are available in other related plans.

Table 7-10 Mitigation Action Plan

Action No.	Priority	Hazard	Action Name	Potential Funding Source	Expected Time Frame	Lead Agencies
01	HIGH	**Wildfire** ***Severe Wind/Tornado***	Support and Expand Countywide Vegetation Management and Fire Prevention Efforts	HMGP	Annual	LACoFD, PW
02	HIGH	**Wildfire** ***Severe Wind/Tornado***	Enhance Community Engagement in Wildfire Protection and Prevention	HMGP	Quarterly	LACoFD, DRP, OEM, LASD
03	HIGH	**Wildfire** ***Flooding***	Perform Post-Fire Flooding, Debris Flow, and Mud Flow Risk Assessments and Mitigation Activities	HMGP, FMA	Annual	PW, LACoFD, OEM
04	HIGH	**Wildfire** ***Extreme Heat***		UASI, SHSP	Annual	OEM, PW, DPH,

Action No.	Priority	Hazard	Action Name	Potential Funding Source	Expected Time Frame	Lead Agencies
		Severe Wind/Tornado	Strengthen Operational Continuity Capabilities for Critical Facilities			LACoFD, LASD, ISD
		Cyber Incidents				
05	HIGH	**Wildfire**	Incorporate Hazards in Local Planning, Land Use, and Development Codes	HMGP, FMA	1-3 Years	DRP, PW
		Earthquake				
		Land Movement				
		Severe Wind/Tornado				
		Flooding				
06	MEDIUM	**Wildfire**	Increase Public Awareness of Climate Change Effects on Local Hazards	FMA, Prop 4	Annual	DRP, CSO, CEO
		Extreme Heat				
		Drought				
		Land Movement				
		Severe Wind/Tornado				
		Flooding				

Action No.	Priority	Hazard	Action Name	Potential Funding Source	Expected Time Frame	Lead Agencies
07	HIGH	**Flooding**	Expand Stormwater Management, Drainage, and Outlet Planning	FMA	1-5 Years	PW
		Drought				
		Transportation Incident				
08	HIGH	***Flooding***	Construct and Maintain Localized Flood Control Improvements	FMA	1-5 Years	PW
09	MEDIUM	***Flooding***	Preserve Floodplains as Public Use Open Spaces	FMA, Prop 4	1-5 Years	PW, DRP, DPR
10	HIGH	**Earthquake**	Harden Critical Facilities and Infrastructure from Seismic Damage	HMGP	1-5 Years	PW, ISD
		Land Movement				
		Dam Failure				
11	MEDIUM	**Earthquake**	Prevent Impacts to the Transportation System	HMGP	1-5 Years	PW, LASD
		Land Movement				
		Transportation Incident				

Action No.	Priority	Hazard	Action Name	Potential Funding Source	Expected Time Frame	Lead Agencies
12	HIGH	Earthquake Dam Failure	Conduct Seismic Strengthening at County-Owned Dams	FMA, HHPD	1-5 Years	PW
13	MEDIUM	Drought	Assess Water Resilience in Los Angeles County	Prop 4	1-5 Years	PW, DRP
14	MEDIUM	Drought	Expand Drought-Tolerant Landscaping and Design	Prop 4	1-5 Years	DPR, DRP, PW, CSO
15	HIGH	Extreme Heat	Address Urban Heat Islands by Investing in Green Infrastructure and Cooling Strategies	Prop 4	1-5 Years	CSO, DRP, DEO, DPH, PW, DPR
16	HIGH	Flooding Tsunami	Increase Coastal Resilience, Prevent Erosion, and Protect Shorelines	FMA, Prop 4	1-5 Years	CSO, DBH, PW
17	HIGH	Mass Violence Cyber Incidents	Conduct Multi-Discipline Training and Exercise Programs	UASI, SHSP	1-5 Years	LASD, OEM, LACoFD
18	MEDIUM	Mass Violence Cyber Incidents	Strengthen Partnerships and Resource Coordination Among Local Agencies	UASI, SHSP	1-5 Years	LASD, OEM, LACoFD

Action No.	Priority	Hazard	Action Name	Potential Funding Source	Expected Time Frame	Lead Agencies
19	MEDIUM	Mass Violence	Incorporate Mass Violence Prevention and Mitigation Efforts into Special Event Planning	UASI, SHSP	1-5 Years	LASD, OEM, LACoFD
20	HIGH	Extreme Heat	Extreme Heat Risk Education and Safety Outreach for Residents and Vulnerable Workers	Prop 4	1-5 Years	CSO, DEO, DPH, PW, DAD
21	HIGH	Public Health Emergencies	Strengthen Robust Public Health Prevention and Preparedness Measures	UASI, SHSP, PHEP, HPP	1-5 Years	DPH, OEM, DHS, LACoFD
22	MEDIUM	Wildfire Mass Violence	Increase Field Response and Coordination Capabilities	UASI, SHSP	1-5 Years	LASD, OEM, LACoFD

Agency Key:
CEO = Los Angeles County Chief Executive Office
CSO = Los Angeles County Chief Sustainability Office
DAD=Los Angeles Department of Aging and Disabilities
DBH = Los Angeles County Department of Beaches and Harbors
DEO = Los Angeles County Department of Economic Opportunity
DHS = Los Angeles County Department of Health Services
DPH = Los Angeles County Department of Public Health
DPR = Los Angeles County Department of Parks and Recreation
PW = Los Angeles County Public Works
DRP = Los Angeles County Department of Regional Planning
ISD = Los Angeles County Internal Services Department
LACoFD = Los Angeles County Fire Department.
LASD = Los Angeles County Sheriff's Department
OEM = Los Angeles County Chief Executive Office - Office of Emergency Management

Grant Program Key:
FMA = Flood Mitigation Assistance
HMGP = Hazard Mitigation Grant Program
HPP = Hospital Preparedness Program
PHEP = Public Health Emergency Preparedness
SHSP = State Homeland Security Program
UASI = Urban Area Security Initiative

8 Plan Maintenance

8.1 Community Participation in Plan Maintenance

The Hazard Mitigation Plan will be reviewed regularly, acknowledging the dynamic nature of hazard landscapes and the evolving understanding of risks. Stakeholders' engagement will be prioritized throughout the development and monitoring process, fostering transparency and accountability.

To maintain transparency and community involvement, the County has outlined several measures for continued public participation:

- **Public Access to Hazard Mitigation Documents:** A copy of the 2025 AHMP will be maintained on the Los Angeles County Hazard Mitigation Program website along with contact information. Los Angeles County OEM will notify the public of any changes or updates, including mitigation projects identified in the plan as they are implemented, via social media, and traditional local media channels.
- **Annual Public Engagement Opportunities:** Los Angeles County OEM will endeavor to hold multiple in-person public engagement opportunities for hazard mitigation to keep the public informed of progress on hazard mitigation projects, obtain ongoing public feedback, and educate the public about the County's hazard mitigation efforts.
- **Online Portal:** A Los Angeles County Hazard Mitigation Program website will be established to provide the public with more information on hazard mitigation and project updates. This portal will serve as a mechanism to obtain continuous public feedback as projects are implemented and offers access to mitigation resources.
- **Standing Advisory Committee:** The Hazard Mitigation Advisory Committee will be expanded to a standing status and will meet at least once per year or more often as determined necessary to support hazard mitigation projects. The standing Hazard Mitigation Advisory Committee will be comprised of representatives from diverse community groups to provide ongoing input and oversight of hazard mitigation efforts. The standing Hazard Mitigation Advisory Committee will also serve as an important forum for future updates of the AHMP.

These activities ensure that the community remains informed and actively engaged in the plan's implementation and maintenance.

8.2 Monitoring, Evaluation, and Maintenance

To ensure the continued effectiveness of this All-Hazard Mitigation Plan (AHMP), effective monitoring and evaluation will be conducted throughout the plan implementation period. Regular assessments will monitor progress and evaluate the achievements of the intended outcomes. Performance metrics will be developed to quantify the impact of each mitigation action, allowing for data driven adjustments and refinements.

The plan will be reviewed annually to assess progress on mitigation actions. Annual review will include the following elements:

- **Annual Review Worksheets:** Every year, LA County OEM will email each member of the Hazard Mitigation Advisory Committee an Annual Review Worksheet to complete. As shown in Appendix E, the Annual Review Worksheet reflects the FEMA Local Hazard Mitigation Plan Review Tool and includes the following sections: planning process, hazard profile, risk assessment, and mitigation strategy. Each member of the Hazard Mitigation Advisory Committee will email completed worksheets back to LA County OEM to review. LA County OEM will summarize these findings and email them out to the committee. Additionally, the findings from the review worksheets will be presented to the full Hazard Mitigation Advisory Committee at its next regular meeting.
- **Mitigation Progress Project Reports:** Mitigation actions will be monitored and updated using the Mitigation Project Progress Report. During each annual review, each department or agency currently administering a mitigation project will submit a progress report to LA County OEM. For projects that are being funded by a FEMA mitigation grant, FEMA quarterly reports may be used as the preferred reporting tool. As shown in Appendix E, the progress report will discuss the current status of the mitigation project, including any changes made to the project, identify implementation problems, and describe appropriate strategies to overcome them.
- **Post-Incident Mitigation Review:** Following a major disaster event impacting Los Angeles County, a post-disaster review will be initiated by LA County OEM to evaluate the need to update the AHMP based on the circumstances of the disaster and incorporate any specific mitigation actions required due to the incident. If LA County OEM finds that an update to the AHMP is needed, the Hazard Mitigation Advisory Committee will be convened to begin drafting the update.

8.3 Criteria for Updating the Hazard Mitigation Plan

The All-Hazards Mitigation Plan (AHMP) is required to be updated every five years in compliance with the Disaster Mitigation Act of 2000 (DMA 2000) and FEMA guidance (44 CFR § 201.6). The update process is not merely an administrative requirement but a critical mechanism to evaluate the plan's effectiveness in reducing risk and guiding mitigation strategies.

1. Review of Past Actions and Effectiveness

The update process begins with a thorough review of the mitigation actions outlined in the previous plan. This includes:

- Evaluating the implementation status of each action (completed, in progress, not started).
- Assessing the impact and effectiveness of completed actions in reducing hazard risk.
- Determining if the objectives are still relevant or require modification based on new data or circumstances.

2. Integration of New Data and Changing Conditions

- Hazard profiles and risk assessments are updated with new hazard event data, climate science, and changes in development or land use.
- Demographic shifts and infrastructure changes are reviewed to reassess vulnerability.
- Technological advancements or improved modeling tools (e.g., Hazus, National Risk Index) are incorporated to refine risk analysis.

3. Community and Stakeholder Input

The update process must actively include community participation to maintain transparency and ensure the plan reflects local priorities. This includes:

- Public workshops and surveys.
- Targeted outreach to vulnerable populations including those with Access and Functional Needs (AFN).
- Feedback from County departments, cities, NGOs, and regional partners.

4. Performance Evaluation and Metrics

To ensure effectiveness, the plan maintenance strategy includes:

- Annual progress reports that monitor implementation progress and identify barriers.
- Metrics to evaluate the reduction of risk or exposure over time.
- Documentation of lessons learned from real events and exercises to inform changes.

5. Revision of Goals, Objectives, and Actions

Based on the evaluation findings, the plan's goals and mitigation actions are revised to improve alignment with current capabilities, risk levels, and funding opportunities. Each updated action includes:

- Clear responsibilities.
- Realistic timelines.
- Evaluation metrics to measure future success.

8.4 Plan Update

The 2025 LHMP includes an updated methodology for future revisions, ensuring compliance with federal and state guidelines. A full plan update will occur every five years.

- **2030 AHMP Update Kickoff:** LA County OEM will convene the Hazard Mitigation Advisory Committee for a meeting to review the worksheet findings and endeavor to begin the process of updating the AHMP in approximately November 2028. The planning process should begin a minimum of 18 months prior to the plan's expiration. LA County OEM, in consultation with the Hazard Mitigation Advisory Committee, will develop a work plan for the update, conduct

research and review relevant documentation, determine hazards to be included in the 2030 AHMP, and begin the process to draft an updated AHMP.

- **Plan Submission and Adoption:** Once updated, the plan is submitted to Cal OES and FEMA for review. Upon conditional approval, it must be adopted by the Los Angeles County Board of Supervisors and participating jurisdictions to maintain eligibility for FEMA Hazard Mitigation Assistance (HMA) grants.

8.5 Integration with Other Plans

Los Angeles County is committed to ensuring that hazard mitigation planning is not a standalone effort, but a fully integrated component of broader County planning initiatives. By strategically weaving the goals, objectives, and actions of the All-Hazards Mitigation Plan (AHMP) into a variety of local and regional plans such as the General Plan, Capital Improvement Plans, Climate Action and Adaptation Plans, and departmental strategic plans; the County promotes a more cohesive and effective approach to building long-term resilience. This integration is achieved through ongoing collaboration with County departments, cities, and regional agencies to align land use, infrastructure development, and emergency preparedness efforts with identified hazard risks. Embedding hazard mitigation principles into existing policies and planning mechanisms ensures that they become an inherent part of decision-making processes, project funding prioritization, and long-term investment strategies ultimately reducing vulnerabilities and enhancing the resilience of communities across Los Angeles County.

The Los Angeles County AHMP will be shared across all jurisdictions within the operational area. Those jurisdictions will have the opportunity to incorporate the 2025 AHMP into their established planning process. The Hazard Mitigation Advisory Committee will assess the plan at a yearly basis, acknowledging the dynamic nature of hazard landscapes and the evolving understanding of risks. The OEM Hazard Mitigation Program will make the AHMP available for all county departments to incorporate into departmental planning efforts, and other relevant documents produced by Los Angeles County departments.

9 Plan Adoption

9.1 Plan Adoption Overview

Plan Adoption addressed Element F of the Local Mitigation Plan Regulation Checklist under single jurisdiction plan requirement.

The Los Angeles County Board of Supervisors officially adopted the 2025 All Hazard Mitigation Plan (AHMP) through a formal resolution on September 9, 2025. A scanned copy of the resolution is included in Appendix F. The Los Angeles County Office of Emergency Management (OEM) will retain the resolution for its records, while copies will be submitted to both Cal OES and FEMA.

This Plan adoption completes the mitigation planning process and department agencies, stakeholders, and community's commitment to the goals and actions. It also recognizes the current planning process and acknowledges changes from the past five years and validates the priorities for hazard mitigation actions. It makes the community eligible for certain FEMA assistance that can fund some mitigation actions.

After being adopted by the Los Angeles County Board of Supervisors, the 2025 AHMP transitions into the implementation phase. The success of the plan hinges on the integrating its mitigation strategies and actions into the local plans and policies. The mitigation action items collectively establish a robust framework to guide the County's hazard mitigation strategies over the next five years. To ensure these strategies are effective, actionable and well aligned with the county's long term resilience goals, the Planning Advisory Committee has set clear objectives. Their prioritized approach focuses on seamlessly blending mitigation actions with current policies, plans, and emphasizing collaboration and coherence throughout.

Appendices

CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX K

WATER RATES STRUCTURE

WATER AND SEWER RATE SCHEDULE

(Effective February 1, 2026)

POTABLE WATER RATE

The potable water rate structure consists of a fixed meter charge and a volumetric usage charge, with no base minimum. This structure aligns charges with meter capacity, removes base minimum units, and improves equity and Proposition 218 compliance.

1. **Fixed Meter Charge:** Bimonthly fee based on meter size, applied to all customers to support system operations and maintenance.

2. **Water Usage/Volumetric Rate:** Uniform volumetric charge per 100 cubic feet (CCF) of metered water use, billed by actual consumption.

3. **Fixed Private Fire Line Charge (primarily commercial customers):** Bimonthly fee based on diameter; covering billing, maintenance, and fire protection demand.

Table 1: Five-Year Water Rate Schedule

Description	Current	Feb. 2026	Jan. 2027	Jan. 2028	Jan. 2029	Jan. 2030
Bimonthly Fixed Meter Charge						
5/8 x 3/4-inch meter	$37.61	$39.84	$51.80	$64.75	$77.70	$81.59
1-inch meter	$127.52	$91.09	$118.42	$148.03	$177.64	$186.53
1 1/2-inch meter	$255.07	$176.52	$229.48	$286.85	$344.22	$361.44
2-inch meter	$510.14	$279.04	$362.76	$453.45	$544.14	$571.35
3-inch meter	$765.18	$552.41	$718.14	$897.68	$1,077.22	$1,131.09
4-inch meter	$892.73	$859.96	$1,117.95	$1,397.44	$1,676.93	$1,760.78
6-inch meter	$1,020.25	$1,714.25	$2,228.53	$2,785.67	$3,342.81	$3,509.96
8-inch meter	$1,069.38	$2,739.41	$3,561.24	$4,451.55	$5,341.86	$5,608.96
10-inch meter	$1,188.80	$4,106.28	$5,338.17	$6,672.72	$8,007.27	$8,407.64
Volumetric Rate per CCF						
All Customers	$2.75	$3.74	$4.87	$6.09	$7.31	$7.68
Bimonthly Fixed Private Fire Line Charges						
4-inch connection	$163.24	$80.61	$104.80	$131.00	$157.20	$165.06
6-inch connection	$244.86	$217.15	$282.30	$352.88	$423.46	$444.64
8-inch connection	$327.27	$452.66	$588.46	$735.58	$882.70	$926.84
10-inch connection	$408.10	$806.91	$1,048.99	$1,311.24	$1,573.49	$1,652.17
12-inch connection	$489.73	$1,297.88	$1,687.25	$2,109.07	$2,530.89	$2,657.44

SEWER RATE

The City of Cerritos charges customers for the collection and conveyance of wastewater to the Los Angeles County Sanitation Districts for treatment.

Sewer rates are based on metered water use and vary by meter size. Volumetric sewer rates are shown in Table 2.

Charges for wastewater treatment by the Los Angeles County Sanitation Districts are billed separately to residents on their property tax bills.

Table 2: Five-Year Sewer Rate Schedule

Description	Current	Feb. 2026	Jan. 2027	Jan .2028	Jan. 2029	Jan. 2030
Sewer Rates (per CCF)						
All Customers	$0.0322	$0.4911	$0.6139	$0.7674	$0.9593	$1.1992

CITY OF CERRITOS

2025 URBAN WATER MANAGEMENT PLAN

APPENDIX L

RESOLUTION ADOPTING 2025 PLAN AND WSCP

CITY OF CERRITOS

RESOLUTION NO. 2026-17

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CERRITOS ADOPTING THE 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN PURSUANT TO CALIFORNIA WATER CODE SECTIONS 10610 THROUGH 10657

WHEREAS, the City of Cerritos is an urban water supplier as defined by California Water Code Section 10617; and

WHEREAS, California Water Code Sections 10610 through 10657 require urban water suppliers to prepare and adopt an Urban Water Management Plan every five years; and

WHEREAS, the City of Cerritos has prepared the 2025 Urban Water Management Plan in compliance with the requirements of the Urban Water Management Planning Act; and

WHEREAS, the 2025 UWMP includes a Water Shortage Contingency Plan in accordance with California Water Code Section 10632; and

WHEREAS, the City of Cerritos has conducted a duly noticed public hearing in accordance with California Water Code Section 10642; and

WHEREAS, the City Council has reviewed and considered the 2025 UWMP and finds it to be consistent with applicable State laws and in the best interest of the City.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF CERRITOS DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. The City Council hereby adopts the 2025 Urban Water Management Plan and Water Shortage Contingency Plan (Attachment 1).

SECTION 2. The City Council authorizes the City Manager, or designee, to file the adopted UWMP with the California Department of Water Resources, the California State Library, and any applicable local agencies within 30 days of adoption.

SECTION 3. This resolution shall take effect immediately upon its adoption.

PASSED, APPROVED, and ADOPTED this 28th day of May, 2026.

Lynda P. Johnson
Mayor

ATTEST:

Cynthia Nava
City Clerk