CHINO BASIN DESALTER AUTHORITY

CDA | CHINO BASIN DESALTER AUTHORITY

JUNE 2021

FINAL

2020 URBAN WATER MANAGEMENT PLAN

STETSON ENGINEERS INC.

Northern California • Southern California • Arizona • Colorado • Oregon

Chino Basin Desalter Authority (CDA)
2020 Urban Water Management Plan

JUNE 2021

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LIST OF ACRONYMS

AB	Assembly Bill
AF	Acre-Feet
AFY	Acre-Feet per Year
AWWA	American Water Works Association
CY	Calendar Year
CIMIS	California Irrigation Management Information System
CWC	California Water Code
CDA	Chino Basin Desalter Authority
CEQA	California Environmental Quality Act
COCs	Constituents of Concern
Delta	Sacramento- San Joaquin Delta
DOF	California Department of Finance
DMM	Demand Management Measures
DRA	Drought Risk Assessment
DWR	California Department of Water Resources
DYYP	MWD's Dry-Year Yield Program
EOP	San Bernardino County Emergency Operations Plan
ERP	Emergency Response Plan
ETo	Evapotranspiration
FEMA	Federal Emergency Management Agency
FY	Fiscal Year
GAC	Granular Activated Carbon
GPCD	Gallons per Capita per Day
GPM	Gallons per Minute
GIS	Geographical Information Systems
GSP	Groundwater Sustainability Plan
IEUA	Inland Empire Utilities Agency
InSAR	Remote Sensing Techniques
JCSD	Jurupa Community Services District
JPA	Joint Exercise of Powers Agreement
kWh	Kilowatt Hours
MGD	Million gallons per day
MWD	Metropolitan Water District of Southern California
M&I	Municipal and Industrial
MZ	Management Zone
OBMP	Chino Basin Optimum Basin Management Program
PCE	Perchloroethylene
Plan	Urban Water Management Plan
PWS	Public Water System

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RRA	Risk and Resilience Assessment
SARWC	Santa Ana River Water Company
SB	Senate Bill
SBCFCD	San Bernardino County Flood Control District
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
1,2,3- TCP	Trichloropropane
TDS	Total Dissolved Solids
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
VOCs	Volatile Organic Chemicals
WEWAC	Water Education Water Awareness Committee
WMWD	Western Municipal Water District
WRCC	Western Regional Climate Center
WSCP	Water Shortage Contingency Plan
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 Code1) 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 Chino Basin Desalter Authority (CDA) 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 member agency 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 CDA) 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.

CDA's most recent update was its 2015 UWMP (or 2015 Plan) which was submitted to, and approved by, the California Department of Water Resources (DWR). Urban water suppliers (including CDA) are required to complete and submit their 2020 UWMPs to DWR by July 1st, 2021.

The current requirements for preparing the UWMP are included in California Water Code (CWC) Sections 10608 through 10657. CDA's 2020 UWMP (or 2020 Plan) was prepared consistent with the CWC and the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2020" (Final 2020 UWMP Guidebook), dated March 2021.

The UWMP provides urban water suppliers (including CDA) 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 2020 UMWP incorporates water supply reliability determinations resulting from potential prolonged drought, regulatory revisions, and/or changing climatic conditions.

1 References to CWC Sections in this 2020 UWMP were obtained from https://leginfo.legislature.ca.gov/

CDA's 2020 Plan consists of the following Chapters:

Chapter 1 Urban Water Management Plan Introduction and Overview
Chapter 2 Plan Preparation
Chapter 3 System Description
Chapter 4 Water Use Characterization
Chapter 5 SB_X7-7 Baselines, Targets, and 2020 Compliance
Chapter 6 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 CDA's 2020 Plan discusses and provides the following:

- An overall lay description of the 2020 Plan, including California Water Code and Urban Water Management Plan Act requirements, is provided. CDA is required to prepare an Urban Water Management Plan.
- CDA's 2020 Plan was prepared consistent with the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2020", dated March 2021. A description regarding the organization of the 2020 Plan, including a summary of each Chapter, is provided. CDA's Water Shortage Contingency Plan (discussed in Chapter 8) is also included in the 2020 Plan.
- The 2020 Plan incorporates DWR's water use and supply tables (standardized tables) for the reporting and submittal of UWMP data. These tables are included within the respective sections of the 2020 Plan and in Appendix A.
- CDA's coordination efforts with other planning agencies are discussed, including coordination efforts with the Inland Empire Utilities Agency and the Southern California Association of Governments.
- CDA's eligibility to receive grants and loans administered by the State of California and/or DWR, as a result of preparing the 2020 Plan, is discussed.
- The checklist developed by DWR and used by CDA to incorporate the specific UWMP requirements is discussed. The completed checklist is provided in Appendix B.

1.1 RECOMMENDED UWMP ORGANIZATION

CDA's 2020 Urban Water Management Plan (2020 Plan) was prepared consistent with the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2020" (Final 2020 UWMP Guidebook), dated March 2021. CDA's 2020 Plan consists of the following Chapters:

Chapter 1	Urban Water Management Plan Introduction and Overview
Chapter 2	Plan Preparation
Chapter 3	System Description
Chapter 4	Water Use Characterization
Chapter 5	SB X7-7 Baselines, Targets, and 2020 Compliance
Chapter 6	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, CDA's 2020 Plan incorporates DWR's water use and supply tables (standardized tables) for the reporting and submittal of UWMP data. DWR's standardized tables are provided within the body of the 2020 Plan text as well as in Appendix A. CDA also submitted the UWMP data (standardized tables) electronically through DWR's Online Submittal Tool.

CDA's 2020 Plan also provides supporting documents (appendices) including notification letters of the Plan update, public notice of the Plan hearing, and adoption resolution from CDA's governing body. Further discussions regarding these supporting documents are provided within the individual Chapters of CDA's 2020 Plan.

1.2 UWMPS IN RELATION TO OTHER EFFORTS

CDA's 2020 Plan was prepared in coordination with planning agencies including the Inland Empire Utilities Agency (IEUA) Planning Division, the San Bernardino County Planning Division, and the Southern California Association of Governments (SCAG). In addition, CDA's 2020 Plan was prepared using management documents including IEUA's "Regional Water Use Efficiency Business Plan 2015 – 2020" and San Bernardino County's 2017 "San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan" and "San Bernardino County Emergency Operations Plan (EOP)".

CDA is a wholesale water agency formed under a Joint Exercise of Powers Agreement by a group of local agencies including the Jurupa Community Services District (JCSD), Santa Ana River

Water Company (SARWC), IEUA, Western Municipal Water District (WMWD), and the Cities of Chino, Chino Hills, Norco, and Ontario. CDA provided its 2020 Plan to its member agencies which includes projections of its water deliveries to CDA's member agencies in five-year increments for a normal year, a single dry year, and a five consecutive year drought conditions over the next 25 years.

1.3 UWMPS AND GRANT OR LOAN ELIGIBILITY

Pursuant to DWR's Final 2020 UWMP Guidebook:

"*In order 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 in order 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 following sections of the Water Code are pertinent to Suppliers considering pursuit of grants or loans*."

CDA's 2020 Plan has been prepared to meet eligibility requirements for grants and loans administered by the State and/or DWR.

1.4 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 water from, or using water in the Sacramento-San Joaquin Delta (Delta) should provide information in their 2015 and 2020 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).

CDA was formed to treat contaminated groundwater from the southwesterly portion of Chino Basin and provide that treated water to its member agencies. The quantity of groundwater being treated is fixed, regardless of climate change conditions, in order to control contaminant migration. In this context, each member agency's UWMP will describe the agency's reduced regional reliance on imported water supplies from the Delta. However, CDA does not have a demand on the imported water supplies and this section is not applicable.

1.5 TIPS FOR UWMP PREPARERS

CDA's 2020 Plan (which includes CDA's 2020 Water Shortage Contingency Plan (WSCP)) is considered an update to CDA's 2015 Plan. However, the 2020 Plan and the WSCP are considered stand-alone documents. As discussed in Section 1.1, CDA's 2020 Plan was prepared consistent with the recommended organization provided in DWR's Final 2020 UWMP Guidebook.

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

PLAN PREPARATION

LAY DESCRIPTION – CHAPTER 2

PLAN PREPARATION

Chapter 2 (Plan Preparation) of CDA's 2020 Plan discusses and provides the following:

- The basis for preparing an Urban Water Management Plan is provided. CDA is required to prepare the 2020 Plan because it is an "urban water supplier" (CDA serves more than 3,000 customers and it supplies more than 3,000 acre-feet of water annually to its customers for municipal purposes).
- CDA's Plan has been prepared as an "individual" plan rather than a "regional" plan in an effort to provide information specific to CDA to best inform its employees, management, and customers.
- Information presented in CDA's 2020 Plan is provided on "Fiscal Year" basis which is from July 1 through June 30 of the following year.
- Water quantities presented in CDA's 2020 Plan are provided on an "acre-foot" basis.
- CDA's coordination and outreach efforts with wholesale water agencies, other retail water agencies, and the community are described. CDA coordinated the preparation of its 2020 Plan with the following:
    - City of Chino
    - City of Chino Hills
    - City of Eastvale
    - City of Jurupa Valley
    - City of Norco
    - City of Ontario
    - County of San Bernardino
    - County of Riverside
    - Jurupa Community Services District
    - Santa Ana Watershed Project Authority
    - Inland Empire Utilities Agency
    - Metropolitan Water District of Southern California
    - Chino Basin Watermaster
- CDA's notification process to the cities and county within which CDA provides water supplies to is discussed.

2.1 PLAN PREPARATION

As discussed in Section 1.1, CDA's 2020 Plan was prepared consistent with the recommended organization provided in DWR's Final 2020 UWMP Guidebook. Pursuant to DWR's Final 2020 UWMP Guidebook:

"*The California Water Code (Water Code) specifies several requirements for preparing a UWMP, including who is required to prepare a UWMP; how to prepare a UWMP, depending on whether the Supplier choses to participate in a regional or individual planning effort; selection of reporting year-type; and coordination, notification, and outreach.*"

Pursuant to CWC requirements, CDA's 2020 Plan incorporates DWR's water use and supply tables (standardized tables) for the reporting and submittal of UWMP data.

2.2 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 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.

CDA's 2020 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 2020 Plans be submitted by July 1, 2021.

CDA is an "urban water supplier" pursuant to Section 10617 of the CWC and indirectly 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. CDA's 2020 Plan is an update to CDA's 2015 Plan.

2.2.1 PUBLIC WATER SYSTEMS

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.

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, CDA's 2020 Plan incorporates DWR's standardized tables for the reporting and submittal of UWMP data. The standardized tables are provided within the body of the 2020 Plan text as well as in Appendix A. CDA also submitted the UWMP data (from the standardized tables) electronically through DWR's Online Submittal Tool.

CDA consists of two Public Water Systems (PWS) which are regulated by the State Water Resources Control Board - Division of Drinking Water (SWRCB-DDW). The PWS number for CDA – Desalter 1 is CA3610075 and the PWS number for CDA – Desalter 2 is CA3310083. However, as a wholesale water agency, CDA is not required by DWR to provide PWS information in this Plan, therefore Table 2-1 is not applicable.

Table 2-1 Public Water Systems (Not Applicable)
Table 2-1 is not applicable for wholesalers.

2.2.2 SUPPLIERS SERVING MULTIPLE SERVICE AREAS / PUBLIC WATER SYSTEMS

CDA has developed its 2020 Plan, based solely on its water sales to its member agencies, to address all requirements of the CWC. However, based upon their 2020 water production and imported water deliveries, the following urban water suppliers (or Public Water Systems) receiving CDA water supplies may be required to prepare a Plan:

- Jurupa Community Services District
- Santa Ana River Water Company
- Western Municipal Water District
- City of Chino
- City of Chino Hills
- City of Norco
- City of Ontario

2.3 REGIONAL PLANNING

CDA has developed its 2020 Plan based on water sales to its member agencies to address all requirements of the CWC. CDA's 2020 Plan was not developed as a Regional Plan. However, CDA's Plan is available for use and reference to its member agencies.

CDA coordinated with its member agencies regarding the development of the 2020 Plan. Likewise, IEUA and WMWD's 2020 Plans are available for use and reference by its member agencies and urban water suppliers within those member agencies.

2.4 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

As shown in Table 2-2, CDA's 2020 Plan is an "Individual UWMP". CDA has developed its 2020 Plan reporting solely on its water sales to its member agencies to address all requirements of the CWC. CDA notified and coordinated with appropriate regional agencies and constituents (See Section 2.6).

Table 2-2 Plan Identification Type

Submittal Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* (select from drop down list)
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

2.4.1 REGIONAL UWMP

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, CDA's 2020 Plan was developed as an "Individual UWMP" and not part of a Regional Plan.

2.4.2 REGIONAL ALLIANCE

CWC 10608.20.

(a)(1) …Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28…

CWC 10608.28.

(a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

As indicated in Table 2-2, CDA's 2020 Plan was developed as an "Individual UWMP" and not part of a Regional Alliance.

2.5 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.

2.5.1 FISCAL OR CALENDAR YEAR

The data provided in CDA's 2020 Plan is reported on a fiscal year (FY) basis, unless noted otherwise, as shown in Table 2-3. A FY begins on July 1st of every year.

Table 2-3 Supplier Identification

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☑	Supplier is a wholesaler
☐	Supplier is a retailer
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)	
07/01	
Units of measure used in UWMP * (select from drop down)	
Unit	AF
**** Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES:	

2.5.2 REPORTING COMPLETE 2020 DATA

The data provided in CDA's 2020 Plan is provided on a FY basis through June 30, 2020.

2.5.3 UNITS OF MEASURE

As shown in Table 2-3, the data provided in CDA's 2020 Plan is reported in units of AF, unless noted otherwise.

2.6 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).

2.6.1 WHOLESALE AND RETAIL COORDINATION

CDA is a wholesale agency comprised of eight (8) member agencies. The following list is a list of CDA's member agencies:

- Jurupa Community Services District
- Santa Ana River Water Company
- Inland Empire Utilities Agency
- Western Municipal Water District
- City of Chino
- City of Chino Hills
- City of Norco
- City of Ontario

CDA provides water supplies to its member agencies, with the exception of Inland Empire Utilities Agency. As indicated in Table 2-4, CDA has provided its 2020 Plan to its member agencies which includes water use projections of its water sales to its member agencies in five-year increments for a normal year, a single dry year, and a five consecutive year drought conditions over the next 25 years.

Table 2-4 Water Supplier Information Exchange

Submittal Table 2-4 Wholesale: Water Supplier Information Exchange (select one)	
☑	Supplier has informed more than 10 other water suppliers of water supplies available in accordance with Water Code Section 10631. Completion of the table below is optional. If not completed, include a list of the water suppliers that were informed.
Section 2.6	**Provide page number for location of the list.**
☐	Supplier has informed 10 or fewer other water suppliers of water supplies available in accordance with Water Code Section 10631. **Complete the table below.**
Water Supplier Name	
Add additional rows as needed	
NOTES:	

2.6.2 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…

CDA is a wholesale water supplier that provides treated groundwater from the Chino Basin to its member agencies. CDA notified its member agencies (including cities and counties within the area receiving its water supplies) and public agencies that share a common source of supply from the Chino Basin about the preparation of CDA's 2020 Plan. CDA provided copies of the draft plan to the following:

- City of Chino
- City of Chino Hills
- City of Eastvale
- City of Jurupa Valley
- City of Norco
- City of Ontario
- County of San Bernardino
- County of Riverside
- Jurupa Community Services District
- Santa Ana Watershed Project Authority
- Inland Empire Utilities Agency
- Metropolitan Water District of Southern California
- Chino Basin Watermaster

As discussed in Section 10.2, CDA notified these agencies, as well as the cities and counties within which CDA provides water supplies, at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited them to participate in the development of the 2020 Plan. A copy of the notification letters sent to these agencies is provided in Appendix C.

2.6.3 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 counties within which CDA provides water supplies that CDA was reviewing and considering amendments (updates) to the previous 2015 Plan and as a result, prepare the 2020 Plan. Notification was provided at least 60 days prior to the public hearing (see Appendix C).

Chapter 3

SYSTEM DESCRIPTION

LAY DESCRIPTION – CHAPTER 3

SYSTEM DESCRIPTION

Chapter 3 (System Description) of CDA's 2020 Plan discusses and provides the following:

- A description of the area receiving water supplies from CDA is provided. The area receiving water supplies from CDA is located within the Western Municipal Water District in Riverside County and/or within the Inland Empire Utilities Agency in San Bernardino County. CDA was formed under a Joint Exercise of Powers Agreement to remove salts from brackish groundwater extracted from the lower Chino Basin and distribute it to its member agencies.
- The area receiving water supplies from CDA encompasses an area of approximately 304 square miles. The location of the area receiving water supplies form CDA is provided in Figure 1.
- A description regarding the climate of the area receiving water supplies from CDA is provided. The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly evapotranspiration in the vicinity of the area receiving water supplies from CDA area is summarized. The sources of the climate information are also discussed.
- The population within the area receiving water supplies from CDA is discussed and projected. The sources of the population information are also discussed. CDA provides water service to an area with a current population of 664,270. The area receiving water supplies from CDA is projected to have a population of 963,819 by Fiscal Year 2044-45.
- A discussion of land use information used by CDA to develop the 2020 Plan is provided. CDA reviewed the current and projected land uses within its service area. CDA also reviewed data provided by the Southern California Association 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.

In June 2000, the Optimum Basin Management Program was adopted by Chino Basin Watermaster and approved by the Superior Court to address water quality problems with the Chino Basin and to increase and improve the water supply. On September 25, 2001, CDA was formed under a Joint Exercise of Powers Agreement to remove salts from brackish groundwater extracted from the lower Chino Basin and distribute it to its member agencies. The CDA member agencies are located within the Western Municipal Water District in Riverside County and/or within the Inland Empire Utilities Agency in San Bernardino County. The area which receives water supplies from CDA is 304 square miles. A map showing the area which receives water supplies from CDA is provided in Figure 1.

CDA removes salts from brackish groundwater extracted from the lower Chino Basin with the Chino I and II Desalter facilities. The Chino I Desalter commenced operation in 2001 and was expanded in 2005. The Chino II Desalter is located in Jurupa Valley began operation in 2006 utilizing ion exchange (IX) and reverse osmosis (RO) treatment to treat brackish groundwater wells that also have elevated nitrate concentration. The original combined IX and RO treatment capacity was 10 million gallons per day (MGD). A 10.5 MGD expansion (6.5-mgd RO, 4.0-mgd IX) was subsequently constructed in 2011, for a total capacity of 20.5 (10 + 10.5) MGD. The expansion was constructed as part of the Phase 3 Expansion Project, to reach the groundwater extraction goal of 40,000 acre-feet per year (AFY) through upgrades to both desalters (Chino I and Chino II), new wells, pipelines, and pumping stations. Product water from the Chino II Desalter meets all state and federal drinking water regulations and provides 21,000 AFY (20.5 MGD) to the Cites of Ontario and Norco, Jurupa Community Services District, Santa Ana River Water Company, and Western Municipal Water District.

The overall RO process at the Chino II Desalter consists of five RO trains that normally operate at a recovery of 83.5 percent. The capacities of these trains are not identical. The permeate and concentrate production capacities of the three original RO trains are 2.0 and 0.04 MGD, respectively. The permeate and concentrate production capacities of the two RO trains added as

part of the Chino II expansion are 3.25 MGD and 0.64 MGD, respectively. There are a total of eight IX vessels. The facility also has the capability to bypass a portion of the raw groundwater flow around the treatment processes to blend with the treated water, while meeting the final product water quality goals of 350 mg/L total dissolved solids (TDS) and 25 mg/L nitrate.

Subsequent to the plant expansion, CDA constructed the Concentrate Reduction Facility in 2017, which utilizes chemical softening to remove the limiting foulants (specifically, calcium and silica) from the RO concentrate. Softened water is then passed through granular media filters to provide particulate removal upstream of a secondary RO (SRO) process. Treated water (SRO permeate) is blended with the primary RO permeate, and SRO concentrate is disposed of into the Inland Empire Brine Line (IEBL), that conveys the concentrate to Orange County Sanitation District. Using this approach, total water recovery from the RO system at the Chino II Desalter is increased from 83.5 percent to as high as 95 percent, substantially reducing the volume of brine disposed into the IEBL while increasing permeate production.

The Chino II Desalter's original wellfield consisted of eight wells that supplied groundwater to the Chino II Desalter through a PVC pressure raw water pipeline. An additional three wells have been constructed for a total of eleven groundwater wells supplying the Desalter system. The wells are primarily located within the Cities of Ontario, Eastvale, and Jurupa Valley.

Additional components of the Chino II Desalter System were constructed as part of the South Archibald Plume Project to be operational in 2021, with the goal of removing and treated trichloroethylene (TCE) from groundwater wells impacted by the South Archibald Plume. The project entails integrating additional improvements into the Chino II system, including construction of dedicated transmission pipeline to convey impacted groundwater to the Desalter, and treating the high TCE ground water using CDA's existing reverse osmosis (RO) system, and a new air stripper system.

These Desalter systems collectively include 30 groundwater extraction wells, pumps, and pipelines that produce and convey untreated groundwater to treatment facilities. Waste process water is discharged to the Inland Empire Brine Line and conveyed to the Orange County Sanitation District for treatment and discharge to the Pacific Ocean.

3.2 SERVICE AREA BOUNDARY MAPS

As discussed in Section 3.1, the area which receives water supplies from CDA covers approximately 304 square miles, encompassing portions of the Counties of San Bernardino and Riverside. The area which receives water supplies from CDA relative to the municipal boundaries within the Counties of San Bernardino and Riverside is provided in Figure 2. The location of the service areas for CDA's member agencies is provided in Figure 3.

The map of the area receiving water supplies from CDA was submitted online through DWR's Population Tool in a "KML" file format (i.e. Google Earth format). The KML file 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 area receiving water supplies from CDA is summarized in the tabulation below. Historical climate information was obtained from the Western Regional Climate Center (WRCC), the National Oceanic and Atmospheric Administration, and from DWR's California Irrigation Management Information System (CIMIS).

Service Area Climate Information

Month	Average Temperature (F)	Average Minimum Temperature (F)	Average Maximum Temperature (F)	Average Total Precipitation (Inches)	ETo (Inches)
January	55.5	44.1	67.6	2.2	1.95
February	55.1	44.9	67.4	2.7	2.41
March	58.8	48.2	58.8	1.3	3.75
April	60.9	51.0	74.8	0.9	4.55
May	67.9	55.6	79.6	0.3	5.19
June	71.2	59.8	86.2	0.0	5.97
July	77.8	64.7	93.1	0.1	6.60
August	78.9	65.2	94.2	0.0	6.41
September	75.4	62.9	90.7	0.1	4.88
October	67.8	56.6	82.0	0.5	3.46
November	58.9	48.6	73.9	0.8	2.31
December	54.7	43.2	66.2	1.9	1.72
Annual	65.2	53.7	77.9	10.7	49.20

Source:

Historical average monthly precipitation and temperature information was obtained from the National Oceanic and Atmospheric Administration (https://search.usa.gov/search?utf8=%E2%9C%93&affiliate=noaa.gov&query=ontario+ca) from 1998 through 2020 (for Ontario International Airport). Historical monthly average ETo information was obtained from the California Irrigation Management Information Systems (http://wwwcimis.water.ca.gov) and is based on data collected from Station 255 (Chino).

The historical average rainfall in the vicinity of the area receiving CDA's water supplies is 10.7 inches. This area has a dry climate and summers can reach average maximum daily temperatures of over 90 degrees Fahrenheit. Although changes in climatic conditions may have an impact (as discussed in Section 4.5) on the total demands of CDA's member agencies, the projected water supply sales to CDA's member agencies will be constant to control groundwater contamination regardless of an average year, a single dry year, and five consecutive year drought conditions. Precipitation within the vicinity of the area receiving water supplies from CDA is discussed further in Section 7.2.

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 area receiving water supplies from CDA has a current population of 664, 270. Table 3-1 presents the current and projected population of the area receiving water supplies from CDA from FY 2019-20 to FY 2044-45. The area receiving water supplies from CDA is projected to have a population of 963, 819 by FY 2044-45.

The projected population in the areas receiving water supplies from CDA was based on growth rate projections obtained from data provided by the Southern California Association of Governments. The data provided by SCAG was based on their "The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy of the SCAG", dated September 2020, and incorporates demographic trends, existing land use, general plan land use policies, and input and projections through the year 2045 from the Department of Finance (DOF) and the U.S. Census Bureau for counties, cities, and unincorporated areas within Southern California.

Table 3-1 Population – Current and Projected

Submittal Table 3-1 Wholesale: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	664,270	715,607	770,912	830,491	894,675	963,819
NOTES: The 2020 population and the populations projected through 2045 were based on ACS population data (2019 Census) and an average between CDA's historical annual population growth rate and IEUA's current projected growth rate (See Section 3.4.1 and Section 5.4.1).						

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 CDA's water management planning. However, increased population will have an impact on water demand.

3.5 LAND USES WITHIN SERVICE AREA

CDA is a wholesale water agency which provides treated groundwater water to its retail member agencies. Therefore, CDA does not provide water directly to retail customers. As discussed in Section 3.4, CDA obtained data from the SCAG document entitled "The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy of the SCAG", dated September 2020. Projected populations in the area receiving water supplies from CDA 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 2045 from the Department of Finance and the U.S. Census Bureau for counties, cities, and unincorporated areas within Southern California. The projected population was used to project future demand from its member agencies through the year 2045. As discussed in Section 2.6, CDA coordinated the preparation of the 2020 Plan with the Cities of Chino, Chino Hills, Eastvale, Jurupa Valley, Norco, Ontario, the Counties of San Bernardino and Riverside, and other agencies.

Chapter 4

WATER USE CHARACTERIZATION

LAY DESCRIPTION – CHAPTER 4

WATER USE CHARACTERIZATION

Chapter 4 (Water Use Characterization) of CDA's 2020 Plan discusses and provides the following:

- CDA provides water service to an individual water use category. This water use category is sales to other agencies. A description for this water use category is provided in Section 4.2.1.
- CDA's total water demands from its member agencies over the past 10 years have ranged from 27,098 AFY to 35,003 AFY, with an average of 29,673 AFY. CDA currently measures its water use through meter data and billing records.
- CDA's current and projected water demands from its member agencies are provided in five-year increments over the next 25 years are provided (through Fiscal Year 2044-45) as shown on Table 4-3.

4.1 NON-POTABLE VERSUS POTABLE WATER USE

Chapter 4 addresses CDA's potable water demands. Recycled water is not served by CDA, as shown in Table 4-3. Raw water is also not served by CDA and is not applicable.

4.2 PAST, CURRENT, AND PROJECTED WATER USES 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.

(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.

CDA's current and projected water demands are provided in five-year increments over the next 25 years (through FY 2044-45) in Tables 4-1, 4-2, and 4-3. CDA's total water demands for sale to its member agencies were projected based on the current capacity of the desalters.

CDA provides water service to one individual water use category. The water use category supplied by CDA is discussed in Section 4.2.1. The water use for this category during FY 2019-20 is provided in Table 4-1. The projected water use for this water use category is provided in Table 4-2 and is based on the water use from the water use sector in FY 2019-20.

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, CDA includes the following water use category listed in the CWC:

- 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.)

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

CDA does not include other water demand categories which are not listed in the CWC (including exchanges, surface water augmentation, transfers, and wetlands or wildlife habitat).

4.2.3 PAST WATER USE

Chapter 6 provides a discussion of the source of water supply CDA uses to meet its water demands from its member agencies. Section 6.1 provides a tabulation of CDA's historical annual water demands for the source of water supply. Over the past ten years, CDA's water demands have ranged from 27,098 AFY to 35,003 AFY, with an average of 29,673 AFY.

4.2.4 DISTRIBUTION SYSTEM WATER LOSS

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…

(J) Distribution system water loss.

CWC 10631.

(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.

As a wholesale supplier, CDA is not required by DWR to perform water loss audits and report distribution system water loss.

4.2.5 CURRENT WATER USE

CDA currently measures its water use through meter data and billing records. The water use for CDA's individual water use category during FY 2019-20 is provided in Table 4-1. CDA does not produce recycled water as shown in, Table 4-3.

DWR has created an optional "Planning Tool Worksheet" for water suppliers to review and assess monthly water use trends. However, DWR has deemed the tool as optional and CDA is not required by DWR to use the tool. However, Section 6.1 provides a tabulation of CDA's historical annual water use. During the past 10 years, CDA's member agencies experienced a five consecutive year drought from FY 2011-12 to FY 2015-16.

4.2.6 PROJECTED WATER USE

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. 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).

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.

CDA's projected water demands are provided in five-year increments over the next 25 years (through FY 2044-45) in Table 4-3. CDA's projected water demands during a normal year, a single dry year, and a five consecutive year drought are provided in Chapter 7. The projected water demands for CDA's water use category is provided in Table 4-2.

As a wholesale supplier, CDA's water demand projections are not required by DWR to incorporate water savings, or "passive savings", which are the result of implementation of new plumbing codes along with consumer awareness of the need to conserve water.

4.2.7 CHARACTERISTIC FIVE-YEAR WATER USE

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:

(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.

CDA's projected water demands are provided in five-year increments over the next 25 years (and through FY 2044-45) in Table 4-3. CDA's projected water demands and water supplies during a normal year, a single dry year, and a five consecutive year drought over the next 25 years (and through FY 2044-45) are provided in Chapter 7.

CDA's "Drought Risk Assessment" (DRA) for the next five years (from FY 2020-21 through FY 2024-25) is discussed in Section 7.3. The DRA includes CDA's projected annual water demands and supplies for each of the next five years and was prepared based on the five driest consecutive years on record. The DRA provides an assessment of CDA's water service reliability during a drought lasting five years.

4.3 WORKSHEETS AND REPORTING TABLES

CDA's current and projected water demands from its member agencies, including the water demands from its member agencies for CDA's water use category, are provided in five-year increments over the next 25 years (and through FY 2044-45) in Tables 4-1, 4-2, and 4-3.

4.3.1 OPTIONAL PLANNING TOOL USE ANALYSIS WORKSHEET

As discussed in Section 4.2.5, DWR has deemed the "Planning Tool Worksheet" as optional and CDA is not required by DWR to use the tool. A further discussion regarding the reliability of CDA's water supply source is provided in Chapter 7.

4.3.2 DWR 2020 UWMP SUBMITTAL TABLES

CDA's current water demands for its water use category during FY 2019-20 are provided in Table 4-1. CDA's projected total water demands for the water use sector, in five-year increments over the next 25 years (and through FY 2044-45), are provided in Table 4-2. CDA's total projected water demands for potable water, in five-year increments over the next 25 years (and through FY 2044-45), are summarized in Table 4-3. As a wholesale supplier, CDA is not required by DWR to perform water loss audits and report distribution system water loss.

Table 4-1 Demands for Potable and Non-Potable Water – Actual

Submittal Table 4-1 Wholesale: Demands for Potable and Non-Potable[1] Water - Actual			
Use Type	2020 Actual		
Drop down list May select each use multiple times These are the only use types that will be recognized by the WUE data online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume[2]
Add additional rows as needed			
Sales to other agencies		Drinking Water	30,247
Other Non-Potable	Waste Process Water	Raw Water	4,756
		TOTAL	35,003
[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.* [2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

Table 4-2 Use for Potable and Non-Potable Water – Projected

Submittal Table 4-2 Wholesale: Use for Potable and Raw Water [1] - Projected						
Use Type		Projected Water Use [2] 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.	Additional Description (as needed)	2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Sales to other agencies		35,200	35,200	35,200	35,200	35,200
Other Non-Potable		4,800	4,800	4,800	4,800	4,800
TOTAL		40,000	40,000	40,000	40,000	40,000

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.* [2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.

Table 4-3 Total Gross Water Use (Potable and Non-Potable)

Submittal Table 4-3 Wholesale: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable and Raw Water From Tables 4-1W and 4-2W	35,003	40,000	40,000	40,000	40,000	40,000
Recycled Water Demand* From Table 6-4W	0	0	0	0	0	0
TOTAL WATER DEMAND	35,003	40,000	40,000	40,000	40,000	40,000

**Recycled water demand fields will be blank until Table 6-4 is complete.*

NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.

Table 4-4 12 Month Water Loss Audit Report (Not Applicable)

Table 4-4 is not applicable for wholesalers.

4.4 WATER USE FOR 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.

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.

As a wholesale supplier, CDA is not required by DWR to report projected water demands for lower income single-family and multi-family households.

Table 4-5 Inclusion in Water Use Projections (Not Applicable)
Table 4-5 is not applicable for wholesalers.

4.5 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 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…

(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.

CDA removes salts from brackish groundwater extracted from the lower Chino Basin with the Chino I and II Desalter facilities. The Chino I Desalter commenced operation in 2001 and was expanded in 2005. The Chino II Desalter became operational in 2006. These systems include 30 groundwater extraction wells, pumps, and pipelines that produce and convey untreated groundwater to treatment facilities. CDA produces approximately 35,200 AF from the Chino Basin every year for the purpose of groundwater cleanup and control of contaminant migration. This production is fixed to achieve the desired groundwater cleanup goal and is not impacted by climate change. Impacts of climate change to CDA's member agencies and their sources of supply are included in their respective UWMPs.

Chapter 5

SB X7-7 BASELINES, TARGETS, AND 2020 COMPLIANCE

LAY DESCRIPTION – CHAPTER 5

SB X7-7 BASELINES, TARGETS, AND 2020 COMPLIANCE

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

- 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 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.
- As a wholesale water agency, CDA is not required to calculate a 2020 Water Use Target or show compliance with the 2020 Water Use Target. However, an assessment regarding CDA's present and proposed future measures, programs, and policies to assist the retail water suppliers in CDA's service area achieve their individual 2020 Water Use Targets is provided (in Chapter 9).

5.1 GUIDANCE FOR WHOLESALE AGENCIES

CWC 10608.12.

(I) "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.

CDA is a wholesale agency and is not required by DWR to complete Section 5.2 through 5.8.

5.2 SB X7-7 FORMS AND SUMMARY TABLE

CWC 10608.20.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

CDA is a wholesale agency and is not required by DWR to complete Section 5.2.

5.2.1 SB X7-7 VERIFICATION FORM (BASELINES AND TARGETS)

5.2.2 SB X7-7 COMPLIANCE FORM

5.2.3 SUBMITTAL TABLES 5-1 AND 5-2

5.2.4 REGIONAL UWMP/ REGIONAL ALLIANCE

Table 5-1 Baselines and Targets Summary from SB X7-7 Verification Form (Not Applicable)
Table 5-1 is not applicable for wholesalers.

Table 5-2 2020 Compliance from SB X7-7 2020 Compliance Form (Not Applicable)
Table 5-2 is not applicable for wholesalers.

5.3 BASELINE AND TARGET CALCULATIONS FOR 2020 UWMPS

CDA is a wholesale agency and is not required by DWR to complete Section 5.3.

5.3.1 SUPPLIER SUBMITTED 2015 UWMP, NO CHANGE TO SERVICE AREA

5.4 METHODS FOR CALCULATING POPULATION AND GROSS WATER USE

CWC 10608.20.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

CWC 10644.

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

CDA is a wholesale agency and is not required by DWR to complete Section 5.4.

5.4.1 SERVICE AREA POPULATION

5.4.2 GROSS WATER USE

5.5 2020 COMPLIANCE DAILY PER CAPITA WATER USE (GPCD)

CWC 10608.12.

(h) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.
(2) The net volume of water that the urban retail water supplier places into long-term storage.
(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.
(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

California Code of Regulations Title 23 Division 2 Chapter 5.1 Article 1, Section 596.

(a) An urban retail water supplier that has a substantial percentage of industrial water use in its service area is eligible to exclude the process water use of existing industrial water customers from the calculation of its gross water use to avoid a disproportionate burden on another customer sector.

CDA is a wholesale agency and is not required by DWR to complete Section 5.5.

5.5.1 2020 ADJUSTMENTS FOR FACTORS OUTSIDE OF SUPPLIER'S CONTROL

5.5.2 SPECIAL SITUATIONS

5.5.3 IF SUPPLIER DOES NOT MEET 2020 TARGET

5.6 REGIONAL ALLIANCE

CDA is a wholesale agency and is not required by DWR to complete Section 5.6.

Chapter 6

WATER SUPPLY CHARACTERIZATION

LAY DESCRIPTION – CHAPTER 6

WATER SUPPLY CHARACTERIZATION

Chapter 6 (Water Supply Characterization) of CDA's 2020 Plan discusses and provides the following:

- CDA's water supply source consists of groundwater from the southwesterly portion of the Chino Basin which is treated at its treatment facilities. A tabulation of CDA's historical water supplies is provided in Section 6.1.
- A discussion regarding CDA's groundwater supplies from the Chino Basin is provided. Information regarding basin location, adjudication, management, water levels, water quality, water rights, and historical production is provided.
- CDA's proposed future projects to maximize its water supply resources are discussed.
- CDA'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 CDA's water management processes was estimated during FY 2019-20.

In this Chapter, CDA will identify and describe its source of water supply. In addition, CDA will describe the following:

- Management of the water supply source;
- Current provisions of a basin adjudication or Groundwater Sustainability Plan (GSP), as applicable, pertaining to management of groundwater supplies;
- Measures CDA 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 CDA'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 FY 2044-45.

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

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).

CDA's water supply source consists of groundwater from the southwesterly portion of the Chino Basin which is treated at its treatment facilities. A tabulation of CDA's historical water supply is provided below.

Fiscal Year	System Water Supply Sources (AF)	Total
	Groundwater	
	Chino Basin	
2010-11	29,349	29,349
2011-12	28,381	28,381
2012-13	27,098	27,098
2013-14	29,282	29,282
2014-15	30,022	30,022
2015-16	28,191	28,191
2016-17	28,284	28,284
2017-18	29,918	29,918
2018-19	31,199	31,199
2019-20	35,003	35,003

Source: Data provided by the Chino Basin Desalter Authority

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:

- CDA's existing and planned sources of water supply are identified;
- The source of supply is quantified in five-year increments through FY 2044-45;
- 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 water supply in correlation with other identified supplies is described; and,
- Information pertinent to the reliability analysis is considered.

CDA has historically relied on groundwater supplies from the Chino Basin to serve its member agencies. The following descriptions summarize CDA's source of supply (detailed descriptions are provided in Section 6.2).

Existing and Planned Sources of Supply

Purchased Imported Water

CDA does not purchase imported water supplies to meet its water demands.

Groundwater

CDA has historically pumped groundwater directly from the Chino 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 FY 2019-20. In addition, Table 6-9 summarizes the projected water supply, in five-year increments, through FY 2044-45 under varying water supply conditions.

Surface Water

CDA does not use surface water supplies to meet its water demands.

Storm Water

CDA has historically treated groundwater from the Chino Basin. Management and use of the stormwater runoff from the groundwater basin watershed, which is crucial to groundwater management, is described in Section 6.2.4. However, CDA currently does not have its own program to beneficially use stormwater runoff as a direct source of supply.

Wastewater and Recycled Water

CDA does not use wastewater and recycled water supplies to meet its water demands.

6.1.2 OTHER CHARACTERIZATION CONSIDERATIONS

A description of CDA's water system along with a map of the area which receives water supplies from CDA is included in Chapter 3. In addition, the agencies which manage the water supplies treated by CDA are identified in Section 6.2.1 (imported water), 6.2.2 (groundwater), 6.2.3 (surface water), 6.2.4 (stormwater), and 6.2.5 (recycled water).

6.1.3 OPTIONAL PLANNING TOOL

As discussed in Section 4.2.5, DWR has created an optional "Planning Tool Worksheet" for water suppliers to review and assess monthly water use trends. However, DWR has deemed the tool as optional and CDA is not required by DWR to use the tool. However, Section 6.1 provides a

tabulation of CDA's historical annual water use. During the past 10 years, CDA's member agencies experienced a five consecutive year drought from FY 2011-12 to FY 2015-16.

6.2 NARRATIVE SECTIONS FOR SUPPLIER'S UWMP WATER SUPPLY CHARACTERIZATION

6.2.1 PURCHASED OR IMPORTED WATER

CDA does not use purchased or imported water supplies to meet its water demands.

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.

CHINO BASIN

Chino Basin - Sustainable Groundwater Management Act

The Chino Basin is a sub-basin of the Upper Santa Ana Valley Groundwater Basin pursuant to DWR Bulletin 118, Basin Number 8-2.01. Pursuant to the Sustainable Groundwater Management Act of 2014 (SGMA), the Chino Basin was named as an adjudicated groundwater basin and is exempt from the requirements of developing a GSP and subsequently was designated a very-low-priority basin in DWR's 2019 SGMA Basin Prioritization report. In compliance with SGMA, the Chino Basin Watermaster submits its Annual Report to DWR.

Chino Basin - Adjudication

The Chino Basin was adjudicated under the Chino Basin Judgment, entered on January 27, 1978 by the Superior Court for the County of San Bernardino. A copy of the Chino Basin Judgment is provided in Appendix D. The provisions of the Judgment are administered and managed by the court-ordered Chino Basin Watermaster.

The Chino Basin Judgment originally established a Safe Yield for the Chino Basin of 140,000 AFY. Pursuant to the most recent Safe Yield reset effective in 2020, the Safe Yield in the Chino Basin is currently 131,000 AFY (July 1 to June 30). The Safe Yield is recalculated every 10 years and is defined in the Chino Basin Judgment as "the long-term average annual quantity of ground water (excluding replenishment of stored water but including return flow to the Basin from use of replenishment or stored water) which can be produced from the Chino Basin under conditions of a particular year without causing an undesirable result". The Chino Basin Judgment's allocation of the Safe Yield includes three separate Pools: (1) the "Overlying Agricultural Pool"; (2) the "Overlying Non-Agricultural Pool"; and (3) the "Appropriative Pool".

Appropriators who are Parties to the Chino Basin Judgment, are authorized to produce groundwater in excess of their rights. Appropriators pay assessments for such production to the Chino Basin Watermaster. The assessments are used to replenish the Chino Basin through replenishment of imported surface water. The Chino Basin Watermaster purchases water from Metropolitan Water District of Southern California through Inland Empire Utilities Agency and Three Valleys Municipal Water District, on behalf of the Parties, to replenish the Chino Basin. Occasionally, Watermaster has purchased water from storage accounts from Parties within the Chino Basin.

The Chino Basin Watermaster can reallocate the unused portion of the Chino Basin Safe Yield from the Overlying Agricultural Pool to the Appropriative Pool members as a supplement to the Appropriative Pool share of Operating Safe Yield rights in any year. These transfers are permanent if agricultural land has been converted to non-agricultural use, or temporary if agricultural pool

extractions are less than their share of the Safe Yield. From FY 2000-01 to FY 2019-20, the annual quantity of the Agricultural Pool share available for reallocation to Appropriative Pool members[2] ranged from 40,822 AF to 61,014 AF, with an annual average of approximately 50,457 AF. As Agricultural Pool production declines within the Chino Basin, the reallocation of water to the Appropriative Pool will increase.

Chino Basin - Description

The Chino Basin is located within the Upper Santa Ana Valley, which is located in San Bernardino County and is bounded on the east by the Rialto-Colton fault; on the southeast by the contact with impermeable rocks forming the Jurupa Mountains; on the south by impermeable rocks of the Puente Hills and by the Chino fault; on the northwest by the San Jose fault; and on the north by the impermeable rocks of the San Gabriel Mountains and by the Cucamonga fault. The location of the Chino Basin is provided in Figure 4. The surface area of the Chino Basin is approximately 154,000 acres (or 240 square miles). The San Antonio Creek and Cucamonga Creek drain the Chino Basin area southward and flow into the Santa Ana River. Pursuant to DWR Bulletin 118 (for Basin Number 8-2.01), the total storage capacity of the Chino Basin is approximately 18,300,000 AF.

The water-bearing units in the Chino Basin includes Holocene and Upper Pleistocene alluvium. This Holocene alluvium consists mainly of alluvial-fan deposits, with maximum thickness of 150 feet that are coarsest in and near the mouths of the canyons and are finer away from canyon mouths in the southern part of the Chino Basin. The Pleistocene alluvium is exposed mainly in the northern part of the subbasin and supplies most of the water to wells located within the Chino Basin. The Pleistocene alluvium is about 600 to 700 feet thick throughout most of the Chino Basin. The alluvium contains interfingering finer, alluvial-fan deposits and coarser, fluvial deposits.

The Chino Basin is bounded by three major fault systems. Many of the faults within the Chino Basin form groundwater barriers marked by discontinuities in groundwater elevations. The Rialto-Colton fault forms the eastern boundary of the Chino Basin. Although it has no surface expression, it forms a major barrier to groundwater movement. The San Jose fault forms the northwest boundary of the Chino Basin. The Cucamonga
fault zone forms part of the northern boundary of the Chino Basin. Displacement on the Cucamonga fault amounts to about 1,000 feet on its west end to 4,000 feet at its east end.

2 Pursuant to the Chino Basin Watermaster "*Fiscal Year 2019-20, 43rd Annual Report*", Appendix G

Chino Basin - Management

Basin Production

Over the past 20 years, total groundwater production from the Chino Basin has ranged from approximately 133,275 AFY to 188,910 AFY[3]. A majority of production currently is pumped for municipal and agricultural purposes and the remaining production is pumped by non-agricultural Parties.

Groundwater Level Monitoring

Groundwater elevation contours in the Chino Basin Watermaster's 2018 State of the Basin Report show a regional depression of groundwater surrounding the Chino-II Desalter well field and the eastern half of the Chino-I Desalter well field. Hydraulic Control of the Chino Basin is achieved east of Chino Desalter Well I-20. The contours also indicate groundwater flowing past the desalter wells west of Chino Desalter Well I-20, indicating only partial Hydraulic Control.

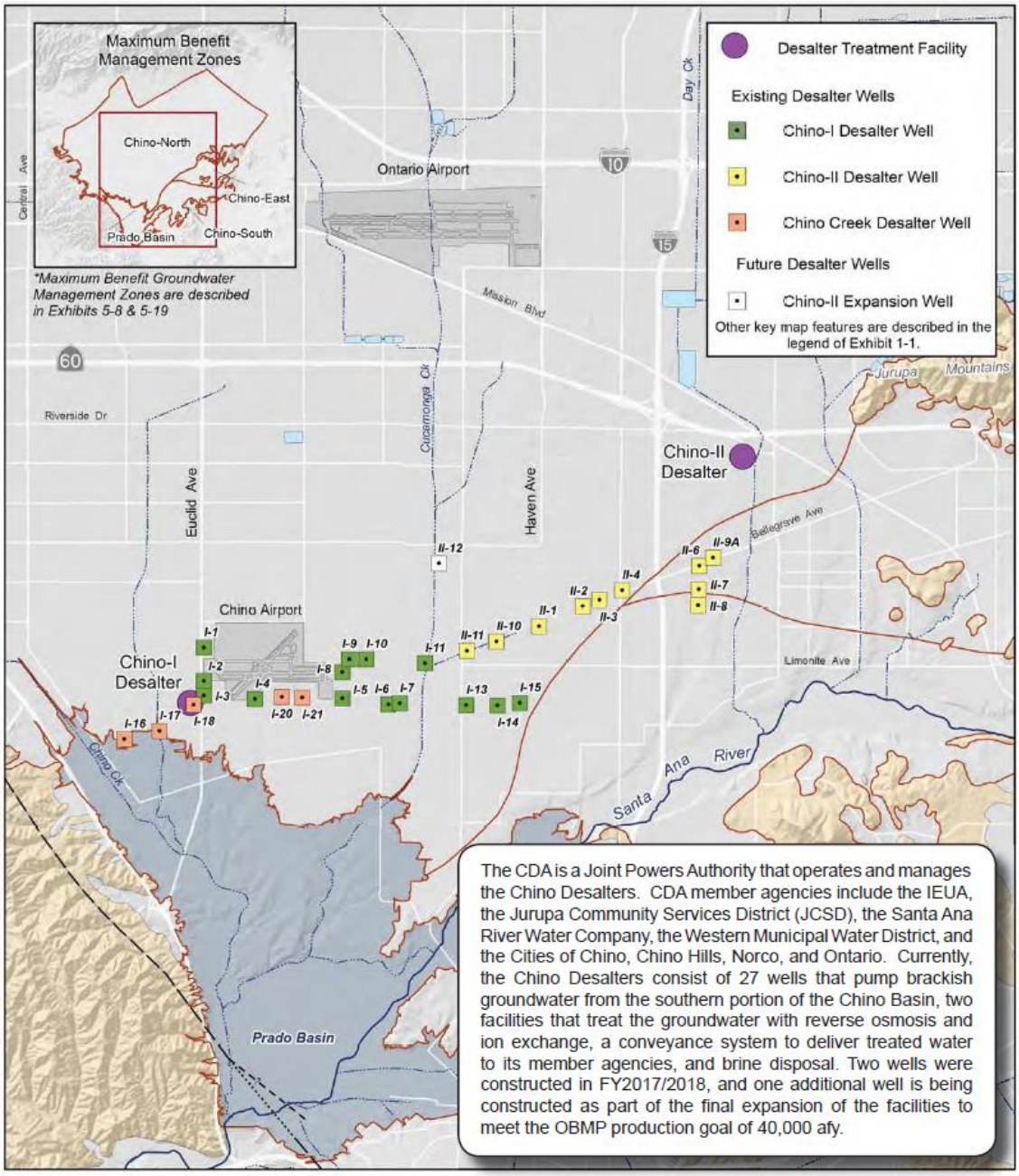
Chino Basin Desalter Authority

On September 25, 2001, CDA was formed under a Joint Exercise of Powers Agreement to remove salts from brackish groundwater extracted from the lower Chino Basin. The area which receives water supplies from CDA is 304 square miles. A map showing CDA Desalter facilities and associated wells is provided below.

CDA removes salts from brackish groundwater extracted from the lower Chino Basin through the Chino I and II Desalter facilities. The Chino I Desalter is located in the City of Chino and commenced operation in 2001 and was expanded in 2005 to have a total capacity of 14.2 MGD. The Chino I Desalter includes reverse osmosis, ion exchange, and air stripper treatment for treating brackish water and removing nitrate and volatile organic chemicals (VOCs). The Chino II Desalter is located in Jurupa Valley and began operation in 2006 and was expanded in 2011 and again in 2017 to have a total capacity of 33 MGD. The Chino II Desalter includes reverse osmosis and ion exchange treatment for treating brackish water and removing nitrate. Following the expansion, CDA constructed the Concentrate Reduction Facility in 2017, which utilizes chemical softening to remove the limiting foulants (specifically, calcium and silica) from the reverse osmosis concentrate. Additional components of the Chino II Desalter were constructed as part of the South Archibald Plume Project which will be operational in 2021, with the goal of removing and treated trichloroethylene (TCE) from groundwater wells impacted by the South Archibald Plume.

3 Pursuant to the Chino Basin Watermaster "*Fiscal Year 2019-20, 43rd Annual Report*", Appendix H http://www.cbwm.org/rep_annual.htm

Location of CDA Facilities



(source: Chino Basin Optimum Basin Management Program 2018 State of the Basin Report)

Treated water is distributed to CDA's member agencies which include the City of Chino, City of Chino Hills, City of Norco, City of Ontario, Inland Empire Utilities Agency, Jurupa Community

Services District, Santa Ana River Water Company, and Western Municipal Water District. The CDA's member agencies provide water service within Riverside County and San Bernardino County. The member agencies have contract entitlements to receive a total of 35,200 AFY of treated water from CDA.

A portion of the production is in-lieu of those CDA member agencies producing an equal amount of groundwater from their own groundwater wells using their individual water rights. An additional portion of the production is temporarily assigned as "controlled overdraft". Pursuant to the Chino Basin Judgment, a total of 200,000 AF was authorized for controlled overdraft between the period of 1978 through 2017. In 2007, the Peace II Agreement was adopted to establish measures for achieving hydraulic control of the Chino Basin. One of the measures put forth included increasing the authorized controlled overdraft to 600,000 AF. This increase in controlled overdraft is separate from, and in addition to, the 200,000 AF authorized in the Chino Basin Judgment and is available for utilization until December 31, 2030. For the balance of the production, the Chino Basin Watermaster levies an annual Replenishment Assessment to purchase replenishment water to replace that overproduced water. The untreated imported water demands are shared proportionally amongst CDA's member agencies.

Chino Basin Optimum Basin Management Program

In 2000, the Chino Basin Watermaster developed the Chino Basin Optimum Basin Management Program (OBMP). The OBMP was developed in a collaborative process that identified the needs of the stakeholders, described the physical state of the basin, defined a set of management goals, identified impediments to these goals, and established a series of actions that would remove these impediments and achieve the management goals. The goals identified in the 2000 OBMP included: (1) Enhance Basin Water Supplied; (2) Protect and Enhance Water Quality; (3) Enhance Management of the Basin; and (4) Equitably Finance the OBMP.

In September 2018, the Chino Basin Watermaster initiated the process to update the OBMP and its Implementation Plan. Throughout 2019, the Chino Basin Watermaster held a series of public listening sessions to support the development process of the 2020 OBMP Update. The purpose of the listening sessions was to confirm the need to update the OBMP, to identify the issues, needs, and wants of the stakeholders, to define the goals for the 2020 OBMP Update, and to identify new and revised actions that could be included in to 2020 OBMP Update to remove the impediments to achieving the 2020 OBMP Update goals. After an assessment of the basin, the stakeholders concluded that the four (4) goals defined in the 2000 OBMP are unchanged and still relevant for the 2020 OBMP Update.

In 2019, the stakeholders identified and described 12 management activities that, if implemented, would address their issues, needs, and wants. The 12 management activities addressed 55 of the 57 needs identified by the stakeholders. Nine of the activities (A, B, C, D, E, F, G, K, and L) were combined into seven basin management activities and the remaining three activities (H, I, and J)

were identified as actions that can be accomplished by incorporating them into the scope of work of every activity or were more appropriate for inclusion within an implementation agreement. The seven basin management activities selected to help achieve the goals of the 2020 OBMP Update are:

- *Activity A – Increase the capacity to store and recharge storm and supplemental water*
- *Activity B – Develop, implement, and optimize Storage and Recovery Programs*
- *Activity C and G – Identify and implement regional conveyance and treatment projects/ programs and optimize the use of all water supply sources*
- *Activity D – Maximize the reuse of recycled water produced by the IEUA and others*
- *Activity E and F – Develop and implement a groundwater-quality management plan to address contaminants of emerging concern*
- *Activity K – Develop a management strategy within the maximum-benefit salt and nutrient management plan to ensure compliance with recycled water recharge dilution requirements*
- *Activity L – Perform the appropriate amount of monitoring and reporting required to fulfill basin management and regulatory requirements*

Each activity is a management process to optimize some aspect of basin management. The actions defined by the stakeholders to remove the impediments to the four OBMP goals were grouped into Program Elements, each of which included a list of implementation actions and an implementation schedule. The nine Program Elements defined in the 2000 OBMP were retained for the 2020 OBMP Update. Each of the seven activities, and the associated implementation actions, were incorporated into Program Elements, which were updated based on feedback from the stakeholders. The Program Elements defined in the 2020 OBMP Update include:

- Program Element 1 - Develop and Implement Comprehensive Monitoring Program
- Program Element 2 - Develop and Implement Comprehensive Recharge Program
- Program Element 3 - Develop and Implement a Water Supply Plan for Impaired Areas
- Program Element 4 - Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1
- Program Element 5 - Develop and Implement Regional Supplemental Water Program
- Program Element 6 - Develop and Implement Cooperative Programs with the Regional Board and Other Agencies to Improve Basin
- Program Element 7 - Develop and Implement Salt Management Plan
- Program Element 8 - Develop and Implement Groundwater Storage Management Program
- Program Element 9 - Develop and Implement Storage and Recovery Programs

Chino Basin Storage Management Plan

The Chino Basin Storage Management Plan was created to mitigate adverse impacts to the Chino Basin from factors including reductions in net recharge and Safe Yield, and increased groundwater discharge to the Santa Ana River contributing to the loss of Hydraulic Control. The Chino Basin Storage Management Plan identifies technical storage management issues within the Chino Basin, establishes storage management activities for producers, and outlines key measures for the Storage and Recovery Programs.

Since the Chino Basin Judgment came into effect in 1978, the Chino Basin Watermaster developed rules and regulations, standard storage agreements, and related forms. Since 2000, Chino Basin Watermaster administered groundwater storage in the Chino Basin pursuant to the storage management plan described in Program 8 of the 2000 OBMP and evaluated in the Programmatic Environmental Impact Report. Since then, Parties have indicated that they will likely exceed the storage space initially estimated in the OBMP Implementation Plan. Thus, Chino Basin Watermaster found it necessary to develop a new storage management plan.

The three types of storage agreements that result in five types of storage accounts: Excess Carryover, Local Supplemental-Recycled, Local Supplemental-Imported, Pre-2000 Quantified Supplemental, and Storage and Recovery. An Excess Carryover account includes a Party's unproduced rights in the Safe Yield and Basin Water purchased or transferred from other Parties. A Local Supplemental Water account includes any imported and/or recycled water that is recharged by a producer and similar water acquired from other Parties. A Storage and Recovery Account includes Supplemental Water and is intended to produce a broad and mutual benefit to the Parties of the Judgement." The Chino Basin Watermaster tracks the puts, takes, losses, and end-of-year storage totals for all storage accounts and reports on this accounting on an annual basis. The Chino Basin Watermaster assesses losses by considering water in managed storage (excluding Carryover) and offsets the increases in groundwater discharge to the Santa Ana River and from the Chino Basin attributable to managed storage (excluding Carryover). Chino Basin Watermaster also considers losses due to evaporation on the puts when water is recharged in spreading basins.

The individual Parties are involved in water transfers of annual unproduced rights in the Safe Yield and water in their storage accounts. Chino Basin Watermaster has an application and review process for these transfers. The Parties engage in conjunctive-use activities individually by storing Chino Basin and Supplemental Water that are in excess of their demands and recover that water as necessary. These activities collectively cause a temporary increase in the managed storage. The Parties' aggregate amount of water in managed storage was 541,845 AF as of June 30, 2020.

The Metropolitan Water District's Dry-Year Yield Program (DYYP) is an active storage and Recovery Program in Chino Basin. The DYYP can store up to 100,000 AF with maximum replenishment of 25,000 AFY and maximum extraction of 33,000 AFY. As of June 30, 2020, there was 45,961 AF within the DYYP account, resulting in a total managed storage volume of 587,806 AF (541,845 AF + 45,961 AF). The agreement that authorized the DYYP will expire in

2028. The combined volume of managed storage by Metropolitan's DYYP and the Parties is projected to have a maximum of 790,000 AF in 2028, assuming DYYP has 100,000 AF in storage and that MWD removes the contract rate of 33,000 AFY starting in 2029.

Of the first 1,000,000 AF of managed storage, 800,000 AF is reserved for the Parties' conjunctive-use activities (including Carryover, Excess Carryover, and Supplemental Accounts) and MWD's DYYP. This 800,000 AF is referred to as the "First Managed Storage Band". The managed storage between 800,000 AF and 1,000,000 AF is reserved for Storage and Recovery Programs. Allocation of storage space reservations may be revised in subsequent updates of the Storage Management Plan. Use of managed storage greater than 1,000,000 AF is allowed if the storing entity submits a Storage and Recovery Program application, demonstrates that the program will have broad mutual benefits, ensure there will be no adverse impacts, meets mitigation requirements of the Chino Basin Watermaster, complies with the California Environmental Quality Act (CEQA), and obtains approval from the Chino Basin Watermaster.

The Parties and IEUA, through the OBMP, have substantially increased the amount of storm and supplemental water recharge capacity in the Chino Basin. The increase in supplemental water recharge capacity was done to ensure that the Chino Basin Watermaster is able to meet replenishment requirements pursuant to Regional Board and Court orders. The Chino Basin Watermaster indicates that it will prioritize the use spreading basins to satisfy replenishment obligations over the use of spreading basins for other uses.

Storage and Recovery programs are applied in Management Zone 2 and Management Zone 3 to avoid new land subsidence and interfering with land subsidence management in Management Zone 1, to minimize the impact of storage and recovery operations on solvent plumes, to retain hydraulic control, and to utilize the larger groundwater storage capacity of Management Zone 2 and Management Zone 3. The Chino Basin Watermaster reviews each Storage and Recovery Program application, estimates the surface and groundwater level response, prepares a report that describes potential adverse impacts, and develops mitigation requirements.

Chino Basin Watermaster will periodically and review the Storage Management Plan on no less than a five-year frequency, when the Safe Yield is recalculated, or when the Chino Basin Watermaster determines an update is warranted based on new information or needs of the Parties or the Chino Basin.

The Storage Management Plan was prepared in parallel with the 2020 OBMP Update. Chino Basin Watermaster published the final Storage Management Plan report and it was incorporated into Program Elements 8 and 9 (Storage and Recovery Programs) of the OBMP update process and was approved in June 2020.

Chino Basin Subsidence Management Plan

The Chino Basin Subsidence Management Plan was developed in 2015 and its purpose was to: minimize subsidence and fissuring; collect information necessary to understand the extent, rate, and mechanisms of subsidence and fissuring; and establish a management plan to reduce tolerable levels or abate future subsidence and fissuring.
From 2001 to 2005, Chino Basin Watermaster developed, coordinated, and conducted the MZ-1 Interim Monitoring Program and the main conclusions derived were:

1. Groundwater production from the deep, confined aquifer system in the southwestern region of MZ-1 causes the greatest stress to the aquifer system.
2. Groundwater-level decline due to pumping of the deep aquifer can cause irreversible compaction of the aquifer-system sediments, resulting in land subsidence.
3. The state of aquifer-system deformation in southern MZ-1 (in the vicinity of Ayala Park) was essentially elastic. Very little non-recoverable compaction was occurring in MZ-1, which contrasted historical measurements when about 2.2 feet of land subsidence occurred from about 1987 to 1995 and was accompanied by ground fissuring.
4. During this study, a previously undetected barrier to groundwater flow, the "Riley Barrier," was identified. The Riley Barrier is located within the deep aquifer system and aligned with the historical zone of ground fissuring. Pumping from the deep aquifer system was limited to the area west of the barrier, and the resulting groundwater-level decline did not propagate eastward across the barrier.
5. InSAR and ground-level survey data indicated that subsidence had occurred in the central region of MZ-1 in the past and was continuing to occur. The InSAR data also suggested that the groundwater barrier extends northward into central MZ-1.

The Chino Basin Watermaster currently conducts the monitoring program as described below:

- Production - Production data will be collected from the owners of wells.
- Recharge - The volumes of imported, storm, and recycled waters that are artificially recharged at basins in the Area, and of recycled water that is used for direct use will be collected from IEUA for each fiscal year.
- Piezometric Levels - Piezometric levels will be measured and recorded once every 15 minutes using pressure transducers at select wells. The wells used in the monitoring program will be periodically assessed, and transducers in wells will be removed or added as deemed necessary by the Ground-Level Monitoring Committee.
- Vertical Aquifer-System Deformation - Watermaster will measure and record the vertical component of aquifer-system deformation at the Ayala Park Extensometer (MZ-1 Managed Area) and the Chino Creek Extensometer (Southeast Area) once every 15 minutes.

- Vertical Ground-Surface Deformation - Watermaster will measure vertical ground motion via traditional leveling surveys and remote sensing techniques (InSAR). The Ground-Level Monitoring Committee will annually recommend the scope and frequency of leveling surveys and InSAR measurements within the Area.
- Horizontal Ground-Surface Deformation - Watermaster will measure horizontal ground motion across areas that are susceptible to ground fissuring in the MZ-1 Managed Area and Northwest MZ-1 Area via EDMs.

At the beginning of each calendar year, Chino Basin Watermaster staff and engineers will analyze the data generated during the prior calendar year. Results and interpretations generated from the analysis will be documented in an annual report and is used to prepare recommendations for future planning.

Groundwater Clean-up

Groundwater in areas of the Chino Basin is currently contaminated with Perchlorate and VOCs, including 1,2,3-Tricholropropane (1,2,3-TCP), trichloroethylene (TCE), and perchloroethylene (PCE). In addition, nitrates and TDS concentrations in areas of the Chino Basin exceed drinking water quality standards. Wellhead treatment is necessary in these areas to allow delivery of the groundwater for potable purposes.

Chino Basin - Historical and Projected Basin Production

CDA can produce approximately 40,000 AF from the Chino Basin every year for the purpose of groundwater cleanup and control of contaminant migration. This production is fixed to achieve the desired groundwater cleanup goal. CDA's member agencies have contract entitlements to receive a total 35,200 AFY of treated water from CDA. CDA's treatment process also results in waste process water (i.e. brine) which is discharged to the Inland Empire Brine Line and conveyed to the Orange County Sanitation District for treatment and disposal to the Pacific Ocean. Over the past five years, CDA has produced 28,191 AFY to 35,003 AFY, with an average of 30,519 AFY from the Chino Basin.

Table 6-1 Groundwater Volume Pumped

Submittal Table 6-1 Wholesale: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
☑	All or part of the groundwater described below is desalinated.					
Groundwater Type	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Add additional rows as needed						
Alluvial Basin	Chino Basin	28,191	28,284	29,918	31,199	35,003
	TOTAL	28,191	28,284	29,918	31,199	35,003
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

6.2.3 SURFACE WATER

CDA does not use surface water supplies to meet its water demands.

6.2.4 STORMWATER

CDA does not use stormwater to meet its water demands.

6.2.5 WASTEWATER AND RECYCLED WATER

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:

(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.

As a wholesale water supplier, CDA provides treated groundwater to its member agencies which in turn provides water to their retail customers. Wholesale suppliers are not required to summarize wastewater generation or treatment within their service area. CDA does not provide supplemental treatment to recycled water prior to distribution.

CDA does not have a service area, but rather provides potable water supplies within the service areas of its member agencies. Recycled water is not used by CDA and there are no plans for use within the planning horizon of this UWMP.

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…

CDA does not have a service area, but rather provides potable water supplies within the service areas of its member agencies. Recycled water is not used by CDA and there are no plans for use within the planning horizon of this UWMP. This section is not applicable to CDA.

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.

CDA does not have a service area, but rather provides potable water supplies within the service areas of its member agencies. Recycled water is not used by CDA and there are no plans for use within the planning horizon of this UWMP. This section is not applicable to CDA.

Table 6-2 Wastewater Collected Within Area in 2020 (Not Applicable)

Table 6-2 is not applicable for wholesalers.

Table 6-3 Wastewater Treatment and Discharge within Service Area in 2020

Submittal Table 6-3 Wholesale: Wastewater Treatment and Discharge Within Service Area in 2020											
☑	Wholesale Supplier neither distributes nor provides supplemental treatment to recycled water. The Supplier will not complete the table below.										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)* [2]	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area? *Drop down list*	Treatment Level *Drop down list*	2020 volumes [1] Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
Add additional rows as needed											
						Total	0	0	0	0	0

[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.
[2] If the **Wastewater Discharge ID Number** is not available to the UWMP preparer, access the SWRCB CIWQS regulated facility website at https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility

NOTES:

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.

CDA does not have a service area, but rather provides potable water supplies within the service areas of its member agencies. Recycled water is not used by CDA and there are no plans for use within the planning horizon of this UWMP. This section is not applicable to CDA.

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.

CDA does not have a service area, but rather provides potable water supplies within the service areas of its member agencies. Recycled water is not used by CDA and there are no plans for use within the planning horizon of this UWMP. This section is not applicable to CDA.

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

Submittal Table 6-4 Wholesale: Current and Projected Retailers Provided Recycled Water Within Service Area							
☑	Recycled water is not directly treated or distributed by the Supplier. The Supplier will not complete the table below.						
Name of Receiving Supplier or Direct Use by Wholesaler	Level of Treatment *Drop down list*	2020*	2025*	2030*	2035*	2040*	2045* *(opt)*
Add additional rows as needed							
	Total	0	0	0	0	0	0
*** Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.							
NOTES:							

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

Submittal Table 6-5 Wholesale: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
☑	Recycled water was not used or distributed by the supplier in 2015, nor projected for use or distribution in 2020. The wholesale supplier will not complete the table below.	
Name of Receiving Supplier or Direct Use by Wholesaler	2015 Projection for 2020*	2020 Actual Use*
Add additional rows as needed		
Total	0	0
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*		
NOTES:		

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.

CDA does not have a service area, but rather provides potable water supplies within the service areas of its member agencies. Recycled water is not used by CDA and there are no plans for use within the planning horizon of this UWMP. This section is not applicable to CDA.

Table 6-6 Methods to Expand Future Recycled Water Use (Not Applicable)
Table 6-6 is not applicable for wholesalers.

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.

Chino Basin

As discussed in Section 6.2.2, CDA removes salts from brackish groundwater extracted from the lower Chino Basin through the Chino I and II Desalter facilities. The Chino I Desalter is located in the City of Chino and commenced operation in 2001 and was expanded in 2005 to have a total capacity of 14.2 MGD. The Chino I Desalter includes reverse osmosis, ion exchange, and air stripper treatment for treating brackish water and removing nitrate and VOCs. The Chino II Desalter is located in Jurupa Valley and began operation in 2006 and was expanded in 2011, and again in 2017 to have a total capacity of 33 MGD. The Chino II Desalter includes reverse osmosis and ion exchange treatment for treating brackish water and removing nitrate. Following the expansion, CDA constructed the Concentrate Reduction Facility in 2017, which utilizes chemical softening to remove the limiting foulants (specifically, calcium and silica) from the reverse osmosis concentrate. Additional components of the Chino II Desalter were constructed as part of

the South Archibald Plume Project which will be operational in 2021, with the goal of removing and treated TCE from groundwater wells impacted by the South Archibald Plume. Information regarding the Chino I and II Desalter facilities is provided in Table 6-8ds.

OPTIONAL Table 6-8ds: Source Water Desalination

☐	Neither groundwater nor surface water are reduced in salinity prior to distribution.									
Plant Name or Well ID	Plant Capacity	Intake Type *Drop down list*	Source Water Type *Drop down list*	Influent TDS	Brine Discharge *Drop down list*	Volume of Water Desalinated				
						2016	2017	2018	2019	2020
Chino I Desalter	14.2 MGD	vertical well	groundwater	1,330 mg/L	Brine Line	28191	28284	29918	31199	35003
Chino II Desalter	33 MGD	vertical well	groundwater	640 mg/L	Brine Line	0	0	0	0	0
					Total	28191	28284	29918	31199	35003

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

Notes: "Brine Discharge" is to the Santa Ana River Interceptor. "Volume of Water Desalinated" for Chino 1 Desalter is based on the combined volume for both the Chino I and Chino II Desalters

Treated water is distributed to CDA's member agencies which include the City of Chino, City of Chino Hills, City of Norco, City of Ontario, Inland Empire Utilities Agency, Jurupa Community Services District, Santa Ana River Water Company, and Western Municipal Water District. The member agencies have contract entitlements to receive a total of 35,200 AFY of treated water from CDA. A portion of the production is in-lieu of those CDA member agencies producing an equal amount of groundwater from their own groundwater wells from the Chino Basin using their individual water rights.

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 2020 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.*"

CDA does not have any current or planned water exchange opportunities. CDA's purpose is to produce treated groundwater for its member agencies. However, CDA's member agencies participate in MWD's Dry-Year Yield Program. The DYYP is a groundwater storage and recovery program where supplemental water is stored in the Chino Basin during surplus years and could be recovered in-lieu of imported water from MWD through IEUA. The DYYP allows maximum use of imported water supplies available during wet years and stored groundwater in the Chino Basin during dry years. The DYYP can store up to 100,000 AF with maximum replenishment of 25,000 AFY and maximum extraction of 33,000 AFY. During FY 2019-20, there was 45,961 AF within the DYYP account. The agreement that authorized the DYYP will expire in 2028.

6.2.7.2 TRANSFERS

Pursuant to DWR's 2020 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.*"

Transfers are not generally available to CDA from a supplier because CDA's purpose is to produce treated groundwater for its member agencies. However, CDA's member agencies are able to make transfers between each other pursuant to the Optimum Basin Management Plan and the Peace Agreement which provide for interagency transfer of water rights.

6.2.7.3 EMERGENCY INTERTIES

Emergency 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.

Emergency interconnections are not available to CDA because CDA is a wholesale water agency that provides treated groundwater supplies to its member agencies. However, CDA has multiple connections with several of its member agencies to provide these agencies with water supplies during emergency situations.

6.2.8 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 water supply potential of the Chino Basin has been limited over the years due to multiple contamination threats from historical agricultural and industrial operations, leading to basin-wide concerns with total dissolved solids and nitrate, as well as localized plumes of multiple constituents of concern (COCs). CDA is now facing challenges from new COCs stemming from the nearby Chino Airport Plume. In July 2020, CDA proposed Granular Activated Carbon (GAC) treatment to provide groundwater treatment for existing and proposed CDA and County-owned wells. The North GAC Treatment expansion of the Chino I Desalter facility would be designed to accommodate a total flow of 1,255 gallons per minute (GPM). The South GAC Treatment would be designed to treat a total flow of 3,125 GPM. An additional 800 GPM of GAC absorption capacity can be acquired should more wells be added.

Table 6-7 quantifies the increase in CDA's water supply reliability per completion of these projects.

Table 6-7 Expected Future Water Supply Projects or Programs

Submittal Table 6-7 Wholesale: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	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 6.2.8	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description *(if needed)*	Planned Implementation Year	Planned for Use in Year Type *Drop Down list*	Expected Increase in Water Supply to Supplier*
	Drop Down Menu	*If Yes, Supplier Name*				
Add additional rows as needed						
Chino I Desalter VOC Treatment Facilities Project	*Yes*	San Bernardino County	Install Granular Activated Carbi treatment to to treat existing CDA and proposed County-owned wells	2023	All Year Types	3,000
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: Information obtained from CDA's "Chino I Desalter VOC Treatment Facilities Project Final Draft Basis of Design Report (BODR)", dated July 2020						

6.2.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

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…

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

(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).

6.2.9.1 DESCRIPTION OF SUPPLIES

As discussed in Section 6.2, CDA's water supply source consists of groundwater from the Chino Basin (see Section 6.2.2). CDA's member agencies have contract entitlements to receive a total of 35,200 AFY of treated water from CDA. However, additional groundwater must be produced by CDA to account for waste process water which is discharged. The actual quantity of the water supply source produced by CDA during FY 2019-20 is summarized in Table 6-8. The reliable quantity of projected water supply source available to CDA in five-year increments through FY 2044-45 during normal or average years are summarized in Table 6-9. The reliability of this source of supply are addressed in Section 7.2.3, including during normal years, single dry years, and five consecutive year droughts.

6.2.9.2 QUANTIFICATION OF SUPPLIES

The actual quantity of the water supply source produced by CDA during FY 2019-20 are summarized in Table 6-8. The reliable quantity of projected water supply source produced by CDA in five-year increments through FY 2044-45 during average years are summarized in Table 6-9. The reliability of this source of supply are addressed in Section 7.2.3, including during normal years, single dry years, and five consecutive year droughts.

CDA's projected quantities of groundwater supplies from the Chino Basin are based on the requirement to pump and treat contaminated groundwater to control contaminant migration.

Table 6-8 Water Supplies – Actual

Submittal Table 6-8 Wholesale: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
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		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Desalinated Water - Groundwater		35,003	Drinking Water	
	Total	35,003		0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES:				

Table 6-9 Water Supplies – Projected

Submittal Table 6-9 Wholesale: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply* Report To the Extent Practicable									
		2025		2030		2035		2040		2045 (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		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Desalinated Water - Groundwater		40,000		40,000		40,000		40,000		40,000	
Total		40,000	0	40,000	0	40,000	0	40,000	0	40,000	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*											
NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.											

6.2.10 SPECIAL CONDITIONS

6.2.10.1 CLIMATE CHANGE EFFECTS

CDA removes salts from brackish groundwater extracted from the lower Chino Basin with the Chino I and II Desalter facilities. The Chino I Desalter commenced operation in 2001 and was

expanded in 2005. The Chino II Desalter became operational in 2006 and was expanded in 2011 and again in 2017. These systems include 30 groundwater extraction wells, pumps, and pipelines that produce and convey untreated groundwater to treatment facilities. CDA produces approximately 40,000 AF from the Chino Basin every year for the purpose of groundwater cleanup and control of contaminant migration. This production is fixed to achieve the desired groundwater cleanup goal and is not impacted by climate change. Impacts of climate change to CDA's member agencies and their sources of supply are included in their respective UWMPs.

6.2.10.2 REGULATORY CONDITIONS AND PROJECT DEVELOPMENT

CDA has considered the implications of changing regulatory conditions and project development on the availability of planned water supplies.

6.2.10.3 OTHER LOCALLY APPLICABLE CRITERIA

There are no locally applicable criteria which applies to CDA.

6.3 SUBMITTAL TABLES COMPLETION USING THE OPTIONAL PLANNING TOOL

As discussed in Section 4.2.5, DWR has created an optional "Planning Tool Worksheet" for water suppliers to review and assess monthly water use trends. However, DWR has deemed the tool as optional and CDA is not required by DWR to use the tool. However, Section 6.1 provides a tabulation of CDA's historical annual water use. During the past 10 years, CDA's member agencies experienced a five consecutive year drought from FY 2011-12 to FY 2015-16.

6.4 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 CDA'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.

CDA 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. CDA has reported the energy intensity associated with the water management processes which occur within its operational control. Because CDA does not track individual energy usage for each water management process identified above, CDA has estimated the energy intensity using the a "total utility approach" (i.e. sum of all water management processes). The total energy consumed was approximately 48,998,850 kWh during FY 2019-20. The total energy consumption reported does not include electricity usage for general administration (e.g. at CDA's headquarters) which is not associated with any water management processes.
The total volume of water entering the potable water system was approximately 35,003 AF during FY 2019-20 and is consistent with the total volume of water provided in Table 4-1.

The total energy intensity associated with CDA's water management processes is estimated at 1,400 kWh/AF. The energy intensity data and calculations based on the "total utility approach" are provided in Table O-1B below.

CDA'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). CDA'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). In addition, CDA's water management processes do not include any substantial "self-generated energy sources" including solar, wind, geothermal, biomass, co-generation, and diesel generator sources.

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

Urban Water Supplier: *Chino Basin Desalter Authority*

Water Delivery Product (If delivering more than one type of product use Table O-1C)

Wholesale Potable Deliveries

Table O-1B: Recommended Energy Reporting - Total Utility Approach				
Enter Start Date for Reporting Period	7/1/2019	**Urban Water Supplier Operational Control**		
End Date	6/30/2020			
☐ Is upstream embedded in the values reported?		**Sum of All Water Management Processes**	**Non-Consequential Hydropower**	
Water Volume Units Used	*AF*	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (volume unit)		*35003*	*0*	*35003*
Energy Consumed (kWh)		*48998850*	*0*	*48998850*
Energy Intensity (kWh/volume)		*1399.8*	*0.0*	*1399.8*

Quantity of Self-Generated Renewable Energy

0 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. The total energy consumption reported does not include electricity usage for general administration (e.g. at CDA's headquarters) which is not associated with any water management processes.

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 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.

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 CDA's 2020 Plan discusses and provides the following:

- FY 2019-20 represents an "average" or "normal" water year for CDA in which the total amount of rainfall was similar to the historical average rainfall.
- A "single dry" year for CDA was represented in FY 2017-18, in which the total amount of rainfall was below the historical average rainfall.
- A "five consecutive year drought" period for CDA is represented from FY 2011-12 to FY 2015-16, where the total amount of rainfall during each of these years was less than the historical average rainfall.
- CDA's current and projected water supplies available during normal years in five-year increments over the next 25 years are provided (through Fiscal Year 2044-45) as shown on Table 7-2.
- CDA's current and projected water supplies available during single dry years in five-year increments over the next 25 years are provided (through Fiscal Year 2044-45) as shown on Table 7-3.
- CDA'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 Fiscal Year 2044-45) as shown on Table 7-4.
- The reliability of CDA's water supply source, including a review of water supply constraints, is provided. A single dry year or a five consecutive year drought period will not compromise CDA's ability to provide a reliable supply of water to its member agencies.
- A Drought Risk Assessment is provided which includes an assessment of CDA's water supply reliability over a five consecutive year drought period. CDA's DRA assumes a five consecutive year drought from FY 2020-21 through FY 2024-25 and includes a review of water supplies, water uses, and water supply reliability during this period. CDA's water system has experienced a prior five consecutive year drought with no limitation to its water supplies CDA 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 INTRODUCTION

CDA serves a dual purpose of providing reliable water supply and improving groundwater quality in the Chino Basin. Member agencies are required to purchase a minimum amount of treated water production to support this function. This section of CDA's UWMP describes CDA's ability to meet member agency water demands, including minimum purchase allocations, from its member agencies. This section assesses CDA's water service reliability during average years, single dry years, and during a five consecutive year drought period to meet the water needs of its member agencies' customers. This section also includes the discussion of a DRA which provides a mechanism for CDA to evaluate the risk to its water supply under a drought lasting for the next five consecutive years.

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 CDA's water supplies is based on the historical precipitation data in the Chino Basin area. Historical annual precipitation in the Chino Basin area is discussed in Section 3.3 and is based on historical data collected from Station 255 (Chino, California). Furthermore, Section 4.5 of this Plan notes that potential future climate change impacts may result in an increase in the average annual precipitation within the area receiving water supplies from CDA, thus indicating use of historical data is a reasonable and conservative approach. As indicated in Section 3.3, the historical average rainfall in the area receiving water supplies from CDA is 10.7 inches. FY 2019-20 represents an average or normal water year for CDA in which the total amount of rainfall was similar to the historical average rainfall. A single dry year for CDA was represented in FY 2017-18, in which the total amount of rainfall was below the historical average rainfall. A five consecutive year drought period for CDA is represented from FY 2011-12 to FY 2015-16, 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 CDA during those base years. The following discussion assesses the water service reliability of CDA's water supply sources.

Water Service Reliability - Groundwater

Chino Basin

The Chino Basin groundwater supplies are managed by the Chino Basin Watermaster, as discussed in Section 6.2.2. During a normal year (FY 2019-20), CDA pumped 35,003 AF of groundwater supplies to meet the demands from its member agencies with its supplies from the Chino Basin. During a single dry year (FY 2017-18), CDA pumped 29,918 AF of groundwater supplies to meet the demands from its member agencies with its supplies from the Chino Basin. During a five consecutive year drought multiple dry year period (FY 2011-12 to FY 2015-16), CDA pumped between 27,098 AF and 30,022 AF of groundwater supplies to meet the demands from its member agencies with its supplies from the Chino 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 CDA's water supply , water supplies are expected to be sufficient during a five consecutive year drought to meet CDA's water demands from its member agencies.

7.2.1 SERVICE RELIABILITY - CONSTRAINTS ON WATER SOURCES

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.

CDA's source of supply consists of contaminated groundwater pumped from the Chino Basin which is then treated and provided to its member agencies, as described in Section 6.2. Although this supply is managed, the following constraints may occur which CDA has considered in this reliability analysis.

Chino Basin

CDA produces contaminated groundwater from the Chino Basin which is then treated and provided to its member agencies. The groundwater historically had been impacted by contamination. However, CDA has developed and implemented appropriate treatment (blending and/or treatment facilities) which have been approved by SWRCB-DDW. These groundwater supplies are considered reliable both from a water quality and quantity standpoint.

7.2.2 SERVICE RELIABILITY - YEAR TYPE CHARACTERIZATION

7.2.2.1 TYPES OF YEARS

CDA'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, CDA's water supplies sources have been sufficient in meeting CDA's historical water demands from its member agencies 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 10 years with a total precipitation similar to the historical average precipitation in the area receiving water supplies from CDA. Because a single dry year or a five consecutive year drought period will not compromise CDA's ability to provide a reliable supply of water to its member agencies, a single dry year in this Plan was selected based on one of the driest years during the past 10 years. The five consecutive year drought period was based on a period of five consecutive dry years during the past 10 years.

As indicated in Section 3.3, the historical average rainfall in the area receiving water supplies from CDA is 10.7 inches. FY 2019-20 represents an average or normal water year for CDA in which the total amount of rainfall was similar to the historical average rainfall. A single dry year for CDA was represented in FY 2017-18, in which the total amount of rainfall was less than the historical average rainfall. A five consecutive year drought period for CDA is represented from FY 2011-12 to FY 2015-16, 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 CDA during those base years.

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

Submittal Table 7-1 Wholesale: Basis of Water Year Data (Reliability Assessment)			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000	**Available Supplies if Year Type Repeats**	
		☐ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____	
		☑ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available *	**% of Average Supply**
Average Year	2020	40,000	100%
Single-Dry Year	2018	40,000	100.0%
Consecutive Dry Years 1st Year	2012	40,000	100.0%
Consecutive Dry Years 2nd Year	2013	40,000	100.0%
Consecutive Dry Years 3rd Year	2014	40,000	100.0%
Consecutive Dry Years 4th Year	2015	40,000	100.0%
Consecutive Dry Years 5th Year	2016	40,000	100.0%

Supplier may use multiple versions of Table 7-1 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 Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table. Suppliers may create an additional worksheet for the additional tables.

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

NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.

7.2.2.2 SOURCES FOR WATER DATA

The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly ETo in the vicinity of the area receiving water supplies from CDA are discussed in Section 3.3 Historical climate information was obtained from the WRCC, the National Oceanic and Atmospheric Administration, and from DWR's CIMIS.

7.2.3 WATER SERVICE RELIABILITY – 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.

CDA obtains its water supplies from groundwater wells located in the Chino Basin. As previously discussed in Section 7.2.1, a single dry year or a five consecutive year drought period will not compromise CDA's ability to provide a reliable supply of water to its member agencies' customers.

As previously discussed in Section 4.2.6, CDA's projected normal year water demands from its member agencies over the next 25 years, in five-year increments is provided in Table 4-3. Table 7-2, Table 7-3, and Table 7-4 summarize CDA's projected groundwater 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 period. These tables indicate CDA can meet water demands from its member agencies during normal years, single dry years, and a five consecutive year drought period over the next 25 years.

7.2.3.1 WATER SERVICE RELIABILITY – NORMAL YEAR

Table 7-2 summarizes CDA's projected groundwater demands to meet the demands from its member agencies and supplies over the next 25 years in five-year increments during normal years. Table 7-2 indicates CDA can meet water demands from its member agencies during normal years over the next 25 years.

Table 7-2 Normal Year Supply and Demand Comparison

Submittal Table 7-2 Wholesale: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals *(autofill from Table 6-9)*	40,000	40,000	40,000	40,000	40,000
Demand totals *(autofill fm Table 4-3)*	40,000	40,000	40,000	40,000	40,000
Difference	0	0	0	0	0
NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.					

7.2.3.2 WATER SERVICE RELIABILITY – SINGLE DRY YEAR

Table 7-3 summarizes CDA's projected groundwater demands to meet the demands from its member agencies and supplies over the next 25 years in five-year increments during single dry years. Table 7-3 indicates CDA can meet water demands from its member agencies during single dry years over the next 25 years.

Table 7-3 Single Dry Year Supply and Demand Comparison

Submittal Table 7-3 Wholesale: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	40,000	40,000	40,000	40,000	40,000
Demand totals*	40,000	40,000	40,000	40,000	40,000
Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.					

7.2.3.3 WATER SERVICE RELIABILITY – FIVE CONSECUTIVE DRY YEARS

Table 7-4 summarizes CDA's projected groundwater demands to meet the demands from its member agencies and supplies over the next 25 years in five-year increments during five consecutive year drought periods. Table 7-4 indicates CDA can meet water demands from its member agencies during five consecutive year drought periods over the next 25 years.

Table 7-4 Multiple Dry Years Supply and Demand Comparison

Submittal Table 7-4 Wholesale: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	40,000	40,000	40,000	40,000	40,000
	Demand totals	40,000	40,000	40,000	40,000	40,000
	Difference	0	0	0	0	0
Second year	Supply totals	40,000	40,000	40,000	40,000	40,000
	Demand totals	40,000	40,000	40,000	40,000	40,000
	Difference	0	0	0	0	0
Third year	Supply totals	40,000	40,000	40,000	40,000	40,000
	Demand totals	40,000	40,000	40,000	40,000	40,000
	Difference	0	0	0	0	0
Fourth year	Supply totals	40,000	40,000	40,000	40,000	40,000
	Demand totals	40,000	40,000	40,000	40,000	40,000
	Difference	0	0	0	0	0
Fifth year	Supply totals	40,000	40,000	40,000	40,000	40,000
	Demand totals	40,000	40,000	40,000	40,000	40,000
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG) m** ust remain consistent throughout the UWMP as reported in Table 2-3.*						

NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.

7.2.4 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.

Chino Basin

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

Section 6.2.2 provides a description of the management of groundwater resources in the Chino Basin, as well as information on basin management. Chapter 6 also demonstrates the management structure of the Chino Basin which provides a reliable source of groundwater supply for CDA during a normal year, a single-dry year and a five consecutive year drought. Historical data indicates the Chino 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 6.5) and the continued use of recycled water for groundwater replenishment in the Chino Basin to reduce the need to import water from other regions. Therefore, the groundwater supplies in the Chino Basin are deemed reliable.

7.3 DROUGHT RISK ASSESSMENT

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.

CDA's source of supply consists of contaminated groundwater pumped from the Chino Basin which is then treated and provided to its member agencies. The following discussion provides a DRA which assesses CDA's water supply reliability over a five consecutive year drought period. CDA's DRA incorporates a five consecutive year drought from FY 2020-21 through FY 2024-25 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

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

- The five consecutive year drought period associated with the 2020 UWMP is based on five consecutive dry years from FY 2020-21 through FY 2024-25.
- The projected water supplies available during each year of this five consecutive year drought are assumed to be equal to the amount of groundwater pumped by CDA for water quality management purposes and for maintaining hydraulic control within Chino Basin.
- The projected demands during this five consecutive year drought is assumed to be equal to the projected water supplies.

- 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 CDA's DRA during for each year of the five consecutive year drought:

- Drought Year 1: The region receiving water supplies from CDA had experienced an average to above average year of precipitation in the prior year. Member agencies' retail 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 receiving water supplies from CDA experienced a second year of below average precipitation and runoff. Member agencies' retail customers increased water use for outdoor irrigation to compensate for lack of precipitation. Groundwater and imported water supplies have not been impacted. Local surface water supplies have not been impacted.
- Drought Year 3: The region receiving water supplies from CDA experienced a third year of below average precipitation and runoff. Member agencies' 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 because local surface water supplies have been significantly impacted.
- Drought Year 4: The region receiving water supplies from CDA experienced a fourth year of below average precipitation and runoff. Groundwater supplies have not been impacted. However, there is an increased demand on groundwater because member agencies' local surface water supplies continue to be significantly impacted.
- 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 because member agencies' local surface water supplies continue to be significantly impacted.

7.3.2 DRA INDIVIDUAL WATER SOURCE RELIABILITY

CDA pumps up to 40,000 AFY of contaminated groundwater from the Chino Basin and provides up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2 of the 2020 UWMP. The groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption. However, for the purposes of the DRA, CDA has incorporated a five consecutive year drought based on five consecutive dry years commencing in FY 2021-22. The quantity of water supplies available for each year during this five consecutive year drought period included in CDA's DRA is assumed to be the same as the projected quantity of water supplies produced by CDA (to meet its member agency demands). Production data for those years have

been tabulated in Section 6.1. The following describes the anticipated reliability of the water source for each year of the five consecutive year drought based on recent experience.

Groundwater – Chino Basin

CDA receives water supplies from the Chino Basin, which is actively managed by the Chino Basin Watermaster, as described in Section 6.2.2. Each year, the Chino Basin Watermaster reviews water supply conditions including local rainfall, groundwater levels, local stormwater runoff available for replenishment, imported water availability, and the amount of imported water stored in the groundwater basin for future demands. The Watermaster identifies the annual amount of groundwater which may be pumped (such as an Operating Safe Yield) before more expensive imported water would need to be purchased from MWD through IEUA to replenish the Basin for all production in excess of the water rights. Regardless of the annual safe yield adopted, there is never a restriction on the amount of water which may be pumped from the Chino Basin, only the cost of producing the groundwater is impacted. The Chino Basin Watermaster is not restricted as to when or how much untreated imported water be delivered to the Chino Basin, only that it ultimately be delivered. 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. During this period, CDA was able to maintain its production of its groundwater supplies from an adjudicated and managed groundwater basin. As a result of these collective actions (and experience during and prior to five consecutive year droughts), CDA does not anticipate a water supply shortage from the Chino Basin.

Summary

CDA's water system has previously experienced a five consecutive year drought with no limitation to its water supplies. CDA's member agencies have the ability to enact varying water shortage levels (see Chapter 8) to help educate its customers and provide an economic incentive for the member agency 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 the source of supply CDA will rely on during a five consecutive year drought. CDA pumps up to 40,000 AFY of contaminated groundwater from the Chino Basin and provides up to 35,200 AFY of treated water to its member agencies. The groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption. However, when necessary, CDA's member agencies can implement various water shortage levels of their respective Water Shortage Contingency Plans (discussed in Chapter 8) in order to reduce water demands. For the purposes of the DRA, the total water supplies available to CDA are based on the quantity of supplies pumped by CDA during the most recent historical five consecutive drought period (from FY 2011-12 through FY 2015-16). As shown in Table 7-5, assuming no additional water supply benefits will be available from groundwater supplies, CDA's member agencies will implement various stages of its Water Shortage Contingency Plan to balance water demands with available supplies during years 1, 2, 3, 4, and 5 of the projected five consecutive year drought.

Table 7-5 Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b)

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2021	**Total**
Total Water Use	40,000
Total Supplies	40,000
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%
2022	**Total**
Total Water Use	40,000
Total Supplies	40,000
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%
2023	**Total**
Total Water Use	40,000
Total Supplies	40,000
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%
2024	**Total**
Total Water Use	40,000
Total Supplies	40,000
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%
2025	**Total**
Total Water Use	40,000
Total Supplies	40,000
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

7.3.4 OPTIONAL PLANNING TOOL WORKBOOK

DWR has deemed the "Planning Tool Worksheet" as optional and CDA is not required by DWR to use the tool. CDA has provided sufficient water supplies to its member agencies, including during long-term droughts and years with historically high water demands from its member agencies. CDA has also been able to provide water service to meet maximum day water demands from its member agencies for these years, including during the summer months. CDA obtains 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.

Chapter 8

WATER SHORTAGE CONTINGENCY PLAN

LAY DESCRIPTION – CHAPTER 8

WATER SHORTAGE CONTINGENCY PLAN

Chapter 8 (Water Shortage Contingency Plan) of CDA's 2020 Plan discusses and provides the following:

- CDA pumps up to 40,000 AFY of contaminated groundwater from the Chino Basin and provides up to 35,200 AFY of treated water to its member agencies. The groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption. Consequently, development of a Water Shortage Contingency Plan by CDA is not required; however, CDA coordinates its activities with its member agencies, and CDA's member agencies are required to develop a Water Shortage Contingency Plan. Preparation of CDA's "Annual Water Supply and Demand Assessment" (or Annual Assessment) is discussed. Commencing July 1, 2022, CDA is required to submit the Annual Assessment. The Annual Assessment will include a review of CDA's "unconstrained" water demands from its member agencies for the current year and for a potential upcoming single dry year.
- For each declared water supply shortage level, CDA's member agencies' customers will be required to reduce their consumption by the percentage specified in the corresponding water supply shortage level. These demand reduction actions include irrigation and other outdoor use restrictions, rate structure changes, and other water use prohibitions.
- The operational changes CDA will consider in addressing water shortages on a short-term basis are discussed to enforce demand reduction measures.
- CDA's Emergency Response Plan is summarized. The Emergency Response Plan provides the management, procedures, and designated actions CDA 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 CDA's seismic risk assessment and mitigation plan is discussed. The locations of earthquake faults in the vicinity of the area receiving water supplies from CDA are provided.

The following Water Shortage Contingency Plan includes references to Chapters and Sections from the Chino Basin Desalter Authority's 2020 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.

CDA pumps up to 40,000 AFY of contaminated groundwater from the Chino Basin and provides up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2 of the 2020 UWMP. The groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption. Consequently, development of a WSCP by CDA is not required; however, CDA coordinates it activities with its member agencies, and CDA's member agencies are required to develop a WSCP. The Chino Basin is adjudicated and groundwater supplies are managed. The reliability of this source of supply is discussed in Chapter 7 of this UWMP.

8.2 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

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.

Commencing July 1, 2022, CDA is required to submit an "Annual Water Supply and Demand Assessment" (Annual Assessment) in accordance with DWR's guidance and requirements. The Annual Assessment will include a review of CDA's unconstrained water demands from its member agencies (i.e. water demands from its member agencies prior to any projected response actions CDA may trigger under this WSCP) for the current year and the upcoming (potential single dry) year. . CDA pumps up to 40,000 AFY of contaminated groundwater from the Chino Basin and provides up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2 of the 2020 UWMP. The groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption.
For each Annual Assessment, CDA plans to prepare a preliminary assessment of its water supplies for the current and upcoming years by April of each year. The groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption. The preliminary assessment will include a review of water supplies for at least a single dry year.

The components of an Annual Assessment consist of the following:

- A written decision-making process
- Key data inputs and assessment methodology

8.2.1 DECISION MAKING PROCESS

CDA produces contaminated groundwater from the Chino Basin which is then treated and provided to its member agencies. The groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption. The Chino basin is managed on a fiscal year basis. Consequently, during the third quarter of each fiscal year CDA will review its water demands from its member agencies from the initial six months along with the current groundwater basin conditions and local hydrology. Member agencies also have minimum purchase commitments from CDA. This information will be used to help develop the Annual Assessment. A draft of the Annual Assessment will be circulated internally within CDA for peer review and comment. Based on comments received, a redraft will be prepared and provided to CDA managers

during the Spring of each year. The draft will subsequently be provided to the General Manager for final review. Subsequently, a final draft of the Annual Assessment will be provided to CDA's Board of Directors for review and included in the agenda as part of a Board 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.

8.2.2 DATA AND METHODOLOGIES

The key data inputs and methodologies which will be evaluated by CDA during the preparation of the preliminary assessment will include the following. However, the groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption.:

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) within the area receiving water supplies from CDA, current water demands from its member agencies, and water quality regulations which may impact groundwater availability.

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

3) Unconstrained Water Demand: The potential unconstrained water demands from its member agencies 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 the water use factor, and monthly Urban Water Supplier Monthly Reports.

4) Planned Water Use for Current Year Considering Dry Subsequent Year: The water supplies available to meet the demands, including the minimum demand pursuant to the purchase agreements of its member agencies 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 weather, water quality, existing available pumping capacities, contractual obligations, and regulatory issues.

5) Infrastructure Considerations: The capabilities of the water distribution system infrastructure to meet the water demands from its member agencies 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 4.2.4) will be reviewed. In addition, capital improvement and replacement projects will be considered.

6) Other Factors: Additional local considerations, if any, which can affect the availability of water supplies will be described.

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.

CDA serves a dual purpose of providing reliable water supply and improving groundwater quality in the Chino Basin. Member agencies are required to purchase a minimum amount of treated water production to support this function. These minimum purchase agreements form a fixed portion of the water supply portfolios of each of the CDA retail member agencies. The groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption.

However, depending on their individual water supply constraints, member agencies may employ plans for water usage appropriate to their water shortage levels. The standard shortage levels for each member agency can be found in their individual 2020 UWMPs. These standard shortage levels and corresponding response actions are executed by the individual member agency, independent of CDA. CDA's member agencies plans 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.

CDA member agencies are located within the Western Municipal Water District in Riverside County and/or within the Inland Empire Utilities Agency in San Bernardino County. IEUA member agencies are subject to IEUA's "Regional Drought Contingency Plan", adopted in April 2020, which previously established five (5) water shortage levels. WMWD member agencies are subject to WMWD's Ordinance 386 "Updated Retail Customer Water Supply Shortage Contingency Program," which previously established five (5) water shortage levels. In accordance with the CWC in which urban water suppliers are required to define six standard water shortage

levels, CDA has provided the crosswalks illustrated below that translates IEUA's and WMWD's previously established shortage levels to the mandated standard shortage levels for their respective member agencies.

Corresponding Relationships Between IEUA's 2015 Shortage Levels and the 2020 WSCP Mandated Shortage Levels

Established Level	Supply Condition/ Shortage
0	0%
1	1 to 5%
2	6 to 15%
3	16 to 25%
4	26 to 50%
5	> 50%

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

Corresponding Relationships Between WMWD's 2015 Shortage Levels and the 2020 WSCP Mandated Shortage Levels

Established Level	Supply Condition/ Shortage
1	0%
2	Up to 4%
3	5 to 15%
4	16 to 50%
5	> 50%

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

Table 8-1 provides a description of the six stages of action, or water shortage levels, which may be triggered by a shortage in CDA's member agencies' water supply, depending on the severity of the shortage and its anticipated duration.

Table 8-1 Water Shortage Contingency Planning Levels

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** (*Narrative description*)
1	Up to 10%	IEUA member agencies may be subject to implement direct installation programs, hold more landscape workshops, consider escalation of local water waste prohibitions, etc. WMWD member agencies' customers may be subject to a 5 to 15% water use reduction.
2	Up to 20%	In addition to Shortage Level 1; IEUA member agencies may expand micro-targeting customers and increase marketing efforts. WMWD member agencies may be subject to prohibition of new water service and reductions in water budgets.
3	Up to 30%	In addition to Shortage Level 2; IEUA member agencies may increase penalties, implement emergency alerts, etc. WMWD member agencies may be subject to additional requirements deemed necessary by individual member agencies.
4	Up to 40%	In addition to Shortage Level 3; IEUA member agencies may be subject to additional requirements deemed necessary by individual member agencies. WMWD member agencies may be subject to additional requirements deemed necessary by individual member agencies.
5	Up to 50%	In addition to Shortage Level 4; IEUA member agencies may be subject to additional requirements deemed necessary by individual member agencies. WMWD member agencies may be subject to additional requirements deemed necessary by individual member agencies.
6	>50%	In addition to Shortage Level 5; IEUA member agencies may be subject to additional requirements deemed necessary by individual member agencies. WMWD member agencies may be subject to additional requirements deemed necessary by individual member agencies.
NOTES:		

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.

The wholesale members of IEUA and WMWD have approved WSCP's with shortage response actions, which are outlined in each of their 2020 UWMPs. A summary of these shortage response actions imposed on CDA's member agencies is provided in this section.

8.4.1 DEMAND REDUCTION

CDA recognizes IEUA and WMWD water shortage response actions for its member agencies to reduce demand on water supplies. Member agencies may employ their own demand reduction actions and/or IEUA or WMWD demand reduction actions at their own discretion. Demand reduction actions include irrigation and other outdoor use restrictions, rate structure changes, public outreach strategies, other water use prohibitions. Many demand reduction actions are applicable to all levels of water shortages while others are exclusive to certain levels of shortage. The structure of demand reduction actions under a specific water shortage level are designed to encourage those customers with high gallon per capita usage to achieve proportionally greater reduction than those with low use. Violations of these demand reduction actions will be considered waste and an unreasonable use of water. Table 8-2 describes each demand reduction action and its effect on reducing the shortage gap.

STANDARD DEMAND REDUCTION ACTIONS

The following demand reduction actions are in effect at all times, regardless of a declared standard water shortage level:

IEUA Member Agencies

- Implement the following programs:
  - SoCal WaterSmart Residential and Commercial Rebates
  - Turf Replacement Program
  - Residential Irrigation Tune-up
  - Home Surveys
  - Landscape Workshops
  - Design Services
- Promote water efficient properties.

WMWD Member Agencies

The following permanent prohibitions shall be continually in effect at all levels of standard water shortage level declarations in addition to the requirements specific to each level:

- All irrigators shall ensure automatic irrigation times are adjusted according to changing weather patterns and landscape requirements.
- All open hoses shall be equipped with automatic, positive shut-off nozzles.
- Watering of lawns and/or groundcovers and irrigating landscaping is permitted only between the hours of 8:00 PM and 8:00 AM.
- All swimming pools, spas, ponds, and fountains shall be equipped with re-circulating pumps.
- All plumbing leaks, improperly adjusted sprinklers, or other water conduits/ fixtures that require repair or adjustment shall be corrected to the satisfaction of WMWD within 96 hours of notification by MWMD.
- No person shall use water to wash down sidewalks, driveways, parking areas, except to alleviate immediate fire or sanitation hazards, and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with an automatic, positive self-closing shut-off device, or a low volume, high-pressure cleaning machine.
- No person shall allow water to leave his or her property by drainage onto adjacent properties or public or private roadways or streets due to excessive irrigation and/ or uncorrected leaks.
- The washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment is permitted at any time with a hand-held bucket or a hand-held hose equipped with an automatic, positive shut-off nozzle. Provided, however, such washing may be done at any time on the immediate premises of a commercial service station or a car dealership with commercial car washing equipment, or by a licensed mobile detailing/ car wash professional using low volume, high pressure washing equipment. Further, such washings are exempted from these regulations where the health, safety, and welfare of the public is

contingent upon frequent vehicle cleanings, such as garbage trucks and vehicles used to transport food and perishables.

- Construction operations receiving water from a construction meter, hydrant meter, or water truck shall not use water for any purpose other than those required by regulatory agencies. Construction projects requiring watering for new landscaping materials shall adhere to the designated irrigation requirements set forth in this WSCP.

STANDARD WATER SHORTAGE LEVEL 1

The following are implemented during a Standard Water Shortage Level 1:

IEUA Member Agencies

- Implement direct installation programs including the Residential Smart Irrigation Direct Installation and the School Smart Irrigation Direct Installation.
- Hire additional landscape designers to expand landscape design services.
- Hold more frequent landscape workshops.
- Increase the volume of home surveys performed.
- Utilize general customer messaging to communicate need to increase water efficiency levels.
- Profile customers and micro-target high potential customers, utilizing messaging that will best resonate with those customers.
- Consider escalation of local water waste prohibitions.
- Introduce influencer marketing (role models and respected community members)
- Prepare IEUA WEFlex funding proposal and plans for expanded customer communication and enforcement administration.
- Additional requirements deemed necessary by individual member agencies.

WMWD Member Agencies

- Potable water customers in areas directly served by WMWD that do not have water budgets shall reduce water use by 5 to 15% from the Base Period during declarations of any Sub-level under Standard Water Shortage Level 1.
- Sub-levels under Standard Water Shortage Level
    - Sub-level 1A: WMWD shall eliminate all adjustments to existing residential customer's outdoor Water Budgets including, but not limited to, increases for landscape size, and/or swimming pool, spa, or pond maintenance adjustments. New water using features or expanded landscapes shall not quality for a Water Budget adjustment.
    - Sub- level 1B: Tier 4 water rates shall be eliminated. Customers with Water Budgets, and whose water use exceeds one hundred and twenty-five percent (125%) of their total water Budget during a Billing Period will be charged the applicable Tier 5 water rates.
    - Sub-level 1C: Tier 3 water rates shall be eliminated. Customers who have Water Budgets, and whose water use exceeds 100% of their total Water Budgets during a Billing Period, shall be charged the applicable Tier 5 water rates.

STANDARD WATER SHORTAGE LEVEL 2

In addition to tasks implemented in Standard Water Shortage Level 1, the following applies to Standard Water Shortage Level 2:

IEUA Member Agencies

- Continue base programs and incentive amounts for turf replacement, high efficiency nozzles, smart controllers, laminar flow restrictor, and plumbing control valves.
- Continue smart irrigation direct installation programs.
- Expand profiling and micro-targeting to include mid-range water users as well as high-water use customers.
- Increase influencer marketing.
- Hire additional local staff and set up operations for expanded customer communication and enforcement administration.
- Additional requirements deemed necessary by individual member agencies.

WMWD Member Agencies

- No new potable water service connections shall be provided, no new temporary meters or permanent meters shall be provided, and no statements of immediate ability to serve or provide potable water service (such as will serve letters, certificates, or letters of availability) shall be issued, except under the following circumstances:
    - A valid, unexpired building permit has been issued for the project; or
    - The project is necessary to protect the public's health, safety, and welfare; or
    - The applicant provides a Conservation Offset or pays a Conservation Offset Fee established by WMWD in an amount necessary to cover the cost of implementing such conservation techniques or acquiring alternative water sources, to offset the new demand. The fee will be based on the Conservation Offset required to meet the projected demand of the proposed project. Such fee shall apply to residential as well as commercial and industrial building and may be adjusted from time to time as determined by WMWD. The existence and application of a Conservation Offset, and the amount of Conservation Offset Fee and other terms and conditions for any Conservation Offset, shall be determined at WMWD's sole discretion. The existence and application of any water meter moratorium or other similar restrictions shall be determined by separate and subsequent action of the Board of Directors, or;
    - Where an existing service connection exists and an existing water meter is inoperable and cannot be repaired. In such an instance, the size of the new water meter shall be the same or smaller than the water meter being replaced.
- Sub-levels under Standard Water Shortage Level 2
    - Sub-level 2A
        - All landscape water budgets shall be reduced by 10%. Residential customers who have Water Budgets, and whose water use exceeds 100% of their Tier 1 and 90% of their Tier 2 Water Budgets during a Billing Period, shall be charged at the applicable Tier 5 water rates. Landscape customers who have Water Budgets, and whose water use exceeds 90% of their Water

Budget during a Billing Period shall be charged the applicable Tier 5 water rates.
    - Commercial or industrial customers who are served through mixed-use meter, and who have Water Budgets, shall reduce landscape and non-essential outdoor water use by 25%.
    - Potable water customers in areas directly served by WMWD and who do not have Water Budgets shall reduce their outdoor water use by 10% from the Base Period.
- Sub-level 2B
    - All outdoor Water Budgets shall be reduced be 40%. Residential customers who have Water Budgets, and whose water use exceeds 100% of their Tier 1 and 40% of their Tier 2 Water Budgets during a Billing Period, shall be charged at the applicable Tier 5 water rates. Landscape customers who have Water Budgets, and whose water use exceeds 40% of their Water Budget during a Billing Period shall be charged the applicable Tier 5 water rates.
    - Commercial or industrial customers who are served through dedicated or mixed-use meter, and who have Water Budgets, shall reduce landscape and non-essential outdoor water use by 10%.
    - Potable water customers in areas directly served by WMWD and who do not have Water Budgets shall reduce their outdoor water use by 40% from the Base Period.
- Sub-level 2C
    - All outdoor Water Budgets shall be reduced be 65%. Residential customers who have Water Budgets, and whose water use exceeds 100% of their Tier 1 and 35% of their Tier 2 Water Budgets during a Billing Period, shall be charged at the applicable Tier 5 water rates. Landscape customers who have Water Budgets, and whose water use exceeds 35% of their Water Budget during a Billing Period shall be charged the applicable Tier 5 water rates.
    - Installation of new landscapes shall be prohibited unless irrigated with recycled water. Exceptions may be provided for projects with prior approval by the appropriate jurisdiction.
    - Commercial or industrial customers who are served through dedicated or mixed-use meters, and who have Water Budgets, shall water use by 20%.
    - Potable water customers in areas directly served by WMWD and who do not have Water Budgets shall reduce their outdoor water use by 65% from the Base Period.
    - No new construction or hydrant meters will be issued. Potable water shall not be used for earth work, road construction purposes, dust control, compaction, or trenching jetting. Construction projects necessary to maintain the health, safety, and welfare of the public are exempt from these regulations.

- WMWD shall develop a public information campaign to provide customers with options for achieving demand reduction goals and complying with their applicable allocation. WMWD may explore increased customer incentives for conservation measures.

STANDARD WATER SHORTAGE LEVEL 3

In addition to tasks implemented in Standard Water Shortage Level 2, the following applies to Standard Water Shortage Level 3:

IEUA Member Agencies

- Increase penalties.
- Implement emergency alerts.
- Implement news media coverage.
- Additional requirements deemed necessary by individual member agencies.

WMWD Member Agencies

- Additional requirements deemed necessary by individual member agencies.

STANDARD WATER SHORTAGE LEVEL 4

In addition to tasks implemented in Standard Water Shortage Level 3, the following applies to Standard Water Shortage Level 4:

IEUA Member Agencies

- Additional requirements deemed necessary by individual member agencies.

WMWD Member Agencies

- Additional requirements deemed necessary by individual member agencies.

STANDARD WATER SHORTAGE LEVEL 5

In addition to tasks implemented in Standard Water Shortage Level 4, the following applies to Standard Water Shortage Level 5:

IEUA Member Agencies

- Additional requirements deemed necessary by individual member agencies.

WMWD Member Agencies

- Additional requirements deemed necessary by individual member agencies.

STANDARD WATER SHORTAGE LEVEL 6

In addition to tasks implemented in Standard Water Shortage Level 5, the following applies to Standard Water Shortage Level 6:

IEUA Member Agencies

- Only offer indoor plumbing and property leak detection programs.
- Suspend all landscape and irrigation programs.
- Conduct stringent enforcement of restrictions.
- Additional requirements deemed necessary by individual member agencies.

WMWD Member Agencies

- All landscape and non-essential outdoor water use for all customers in all areas of WMWD's retail water service area shall be prohibited.
- Except as to property for which a building permit has been heretofore issued, no new water meter(s) shall be provided, except in the following circumstances:
    - For projects necessary to protect the public's health, safety, and welfare; or
    - When using recycled water
- Sub-levels under Standard Water Shortage Level 6
    - Sub-level 6A
        - All indoor residential Water Budgets shall be reduced by 10% to 54 GPCD. Residential customers who have Water Budgets and whose water use exceeds 90% of their modified Tier 1 Water Budget and 0% of Tier 2 Water Budget during a Billing Period, or 50 GPCD, shall be charged at the applicable Tier 5 water rates.
        - Commercial and industrial customers who are served through dedicated or mixed-use meters, and who have Water Budgets, shall reduce their water consumption by 30%.
        - Potable water customers in areas directly served by WMWD that do not have Water Budgets shall reduce their indoor water use by 10%
    - Sub-level 6B
        - All indoor residential Water Budgets shall be reduced by 15% to 51 GPCD. Residential customers who have Water Budgets and whose water use exceeds 85% of their modified Tier 1 Water Budget and 0% of Tier 2 Water Budget during a Billing Period, or 51 GPCD, shall be charged at the applicable Tier 5 water rates.
        - Commercial and industrial customers who are served through dedicated or mixed-use meters, and who have Water Budgets, shall reduce their water consumption by 40%.
        - Potable water customers in areas directly served by WMWD that do not have Water Budgets shall reduce their indoor water use by 15% from the Base Period. All non-essential outdoor and landscape water use shall be prohibited.
    - Sub-level 6C

  - All residential customers who have Water Budgets shall have their indoor Water Budgets reduced by 20% to 48 GPCD. Residential customers who have Water Budgets and whose water use exceeds 80% of their modified Tier 1 Water Budget and 0% of Tier 2 Water Budget during a Billing Period, or 48 GPCD, shall be charged at the applicable Tier 5 water rates.
  - Commercial and industrial customers who are served through dedicated or mixed-use meters, and who have Water Budgets, shall reduce their water consumption by 50%.
  - Potable water customers in areas directly served by WMWD that do not have Water Budgets shall reduce their indoor water use by 20% from the Base Period.
- The use of water for commercial, manufacturing, or processing purposes may be further reduced in volume than is indicated in the sub-stages of this section if it is determined to be in the best interest of the health, sanitation, and fire flow protection in the communities served by WMWD. This determination may be made by the WMWD Board of Directors, the General Manager, or his or her authorized designee.
- All dedicated irrigation meters will be locked off by WMWD personnel.
- Customers with a WMWD authorized Medical Adjustment to their Tier 1 allocation will be permitted 100% of their Tier 1 Water Budget.
- WMWD shall develop a public information campaign to provide customers with options for achieving Level 6 demand reduction goals and complying with their allocation. WMWD may explore increased customer incentives for conservation measures.

Table 8-2 Demand Reduction Actions

Submittal Table 8-2: Demand Reduction Actions				
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? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down List*
Add additional rows as needed				
1	Expand Public Information Campaign	Collective reduction from all Shortage Level 1 actions is up to 596 AFY	Applicable to IEUA member agencies	No
1	Increase Frequency of Meter Reading	Collective reduction from all Shortage Level 1 actions is up to 596 AFY	Applicable to IEUA member agencies	No
1	Increase Water Waste Patrols	Collective reduction from all Shortage Level 1 actions is up to 596 AFY	Applicable to IEUA member agencies	Yes
1	Implement or Modify Drought Rate Structure or Surcharge	Collective reduction from all Shortage Level 1 actions is up to 596 AFY	Applicable to WMWD member agencies	Yes
2	Other	Collective reduction from Shortage Level 1 plus all Shortage Level 2 actions is up to 1,193 AFY	All actions under Shortage Level 1	Yes
2	Moratorium or Net Zero Demand Increase on New Connections	Collective reduction from all Shortage Level 2 actions is up to 1,193 AFY	Applicable to IEUA member agencies	Yes
2	Implement or Modify Drought Rate Structure or Surcharge	Collective reduction from all Shortage Level 2 actions is up to 1,193 AFY	Applicable to WMWD member agencies	Yes
3	Other	Collective reduction from Shortage Level 2 plus all Shortage Level 3 actions is up to 1,789 AFY	All actions under Shortage Level 2	Yes
4	Other	Collective reduction from Shortage Level 3 plus all Shortage Level 4 actions is up to 2,386 AFY	All actions under Shortage Level 3	Yes
5	Other	Collective reduction from Shortage Level 4 plus all Shortage Level 5 actions is up to 2,982 AFY	All actions under Shortage Level 4	Yes
6	Other	Collective reduction from Shortage Level 5 plus all Shortage Level 6 actions is greater than 2,982 AFY	All actions under Shortage Level 5	Yes
NOTES: CDA promotes IEUA and WMWD water shortage response actions for its member agencies to reduce demand on their individual water supplies. Member agencies may employ their own demand reduction actions and/or IEUA or WMWD demand reduction actions at their own discretion.				

8.4.2 SUPPLY AUGMENTATION

CDA's purpose is to produce treated groundwater for its member agencies. The groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption.CDA does not anticipate augmenting water supplies. However, CDA's member agencies may consider increased supplies from existing sources. Table 8-3 reflects this approach and does not identify any new supplies. Instead, CDA's member agencies will focus on demand reduction measures in the event existing sources of supply are not sufficient to meet customer demands. As discussed in Chapter 6, CDA's source of water supply is groundwater produced from the Chino Basin. As noted in Section 8.2, beginning July 1, 2022, CDA will prepare and submit an Annual Assessment which will include a review of the water supply available to help meet water demands for the current and upcoming years.

As noted in Section 6.2.2, the Chino Basin is managed by the Chino Basin Watermaster. During the period of management under the Chino Basin Judgment, significant drought events have occurred. In each drought cycle, the Chino Basin has been managed to maintain water levels. Groundwater quality is carefully monitored and managed by the Chino Basin Watermaster. Treatment facilities, including CDA, and/or blend plans have been developed by water agencies to meet potable water standards and to prevent the spread of any groundwater contamination. Groundwater quality in the Chino Basin is not expected to impact potable supplies or constrain supply reliability. Based on historical and on-going management practices, CDA continue to provide potable water to its member agencies from the Chino Basin.

Table 8-3 Supply Augmentation and Other Actions

Submittal Table 8-3: Supply Augmentation and Other Actions			
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? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*
Add additional rows as needed			
1	Transfers	Not applicable (see Notes)	
2	Transfers	Not applicable (see Notes)	
3	Transfers	Not applicable (see Notes)	
4	Transfers	Not applicable (see Notes)	
5	Transfers	Not applicable (see Notes)	
6	Transfers	Not applicable (see Notes)	
NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2. CDA does not anticipate augmenting water supplies. However, CDA's member agencies will consider increased production from the Chino Basin (through potential transfer of water rights) using existing facilities to address increased demands. As noted on Table 8-2, CDA's member agencies plan to implement demand reduction measures in the event water supplies from existing sources are not sufficient to meet anticipated demands.			

8.4.3 OPERATIONAL CHANGES

During a water supply shortage situation, CDA will manage its water supply resource to provide water supplies capable of meeting a portion of the demands of its member agencies. Section 8.4.1 describes CDA's member agencies' demand reduction actions such as rate structure changes, public outreach strategies, other operational changes. Section 8.4.2 describes CDA's water supply source.

As noted in Section 8.2, beginning July 1, 2022, CDA will prepare and submit an Annual Assessment which will include a review of the water supplies available to meet a portion of the water demands from its member agencies for the current and upcoming years. Preparation of the Annual Assessment will assist CDA in determining any potential operational changes. The operational changes CDA will consider in addressing non-catastrophic water shortages on a short-term basis include the following:

- Improved monitoring, maintenance, and repairs to reduce water distribution system losses.

8.4.4 ADDITIONAL MANDATORY RESTRICTIONS

The mandatory restrictions which are promoted by CDA to reduce member agencies' customer demands are discussed in Section 8.4.1. There are no additional mandatory restrictions planned at this time.

8.4.5 EMERGENCY RESPONSE PLAN

Catastrophic water shortages are incorporated in CDA's member agencies' standard water shortage levels (identified in Section 8.3) and the associated demand reduction measures (described in 8.4.1). In addition to potential operational changes (Section 8.4.3) which CDA may consider in order to continue providing water supplies, CDA 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 CDA, 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), from March 31, 2020 and December 30, 2021, confirming the current RRA and ERP have been reviewed and updated.

CDA's RRA, which is currently being prepared, evaluates the vulnerabilities, threats, and consequences from potential hazards to CDA's water system. CDA is preparing its RRA (which is incorporated by reference) 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.

CDA's RRA evaluated 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 CDA's water facility assets. The cost-effectiveness of implementing potential countermeasures to reduce risks was also reviewed.

CDA's ERP, which is currently being prepared, provides the management, procedures, and designated actions CDA and its employees will implement during emergency situations (including catastrophic water shortages) resulting from natural disasters, system failures and other unforeseen circumstances. CDA's ERP (which is incorporated by reference) 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 CDA's 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

CDA 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. CDA 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.

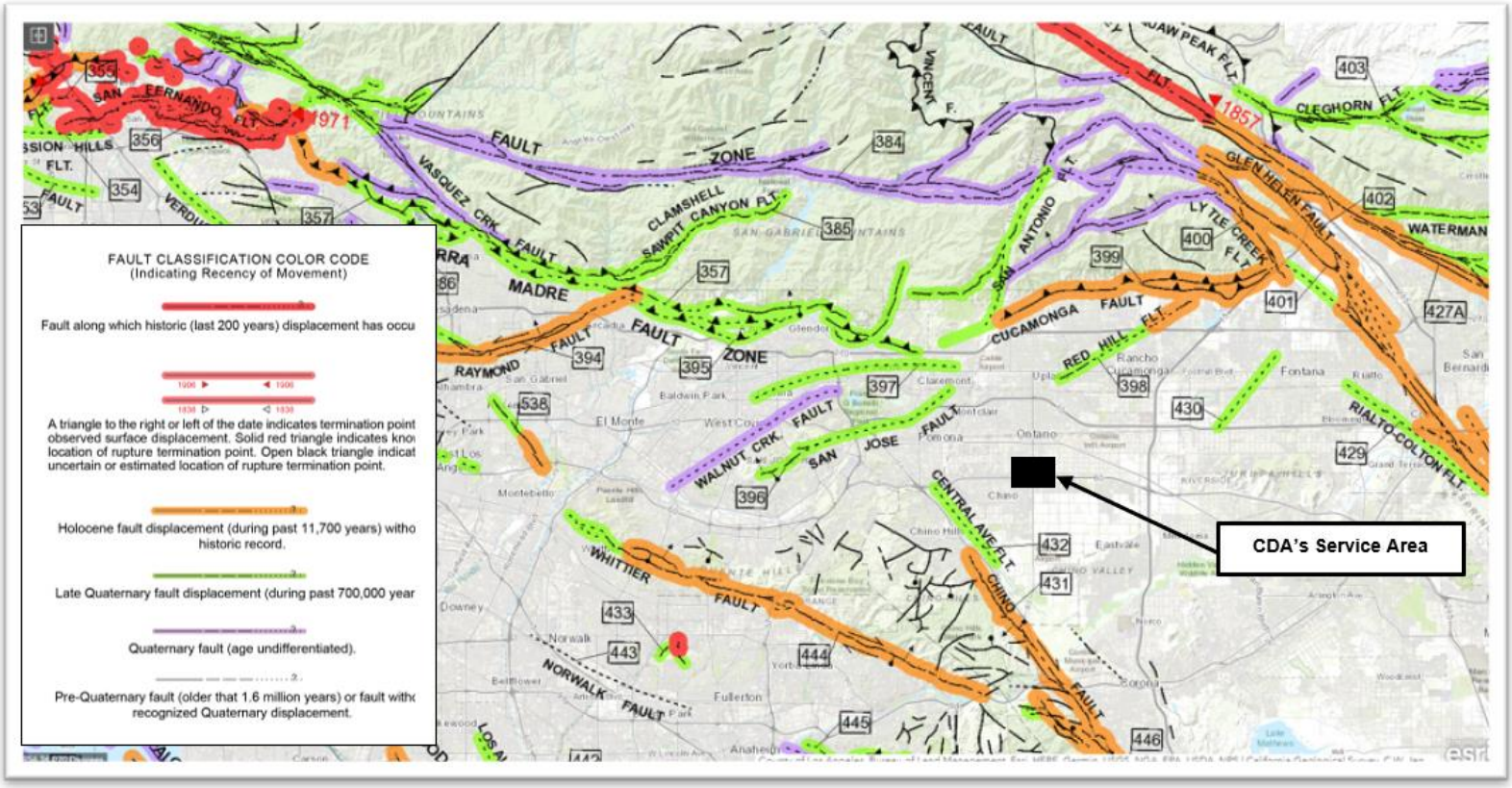
(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or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

The County of San Bernardino prepared a "Multi-Jurisdictional Hazard Mitigation Plan" which was approved by the Federal Emergency Management Agency (FEMA) in June 2017. The County's Multi-Jurisdictional Hazard Mitigation Plan identified methods to assess significant natural hazards (including earthquakes) affecting areas throughout San Bernardino County, and the mitigation strategies necessary to reduce risks, including seismic risk. The County's Multi-Jurisdictional Hazard Mitigation Plan is provided in Appendix E.

The County of Riverside prepared a "Multi-Jurisdictional Local Hazard Mitigation Plan" which was approved by FEMA in June 2018. The County's Multi-Jurisdictional Local Hazard Mitigation Plan identified methods to assess significant natural hazards (including earthquakes) affecting areas throughout Riverside County, and the mitigation strategies necessary to reduce risks, including seismic risk. The County's Multi-Jurisdictional Local Hazard Mitigation Plan is provided in Appendix F.

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 area receiving water supplies form CDA are provided in the figure below. The faults that are located in close proximity to and could potentially cause significant shaking in the area receiving water supplies from CDA include the San Andreas fault, the San Jose fault, the Red Hill fault, the Cucamonga fault, the Chino fault, the Central Avenue fault, and the Sierra Madre fault.

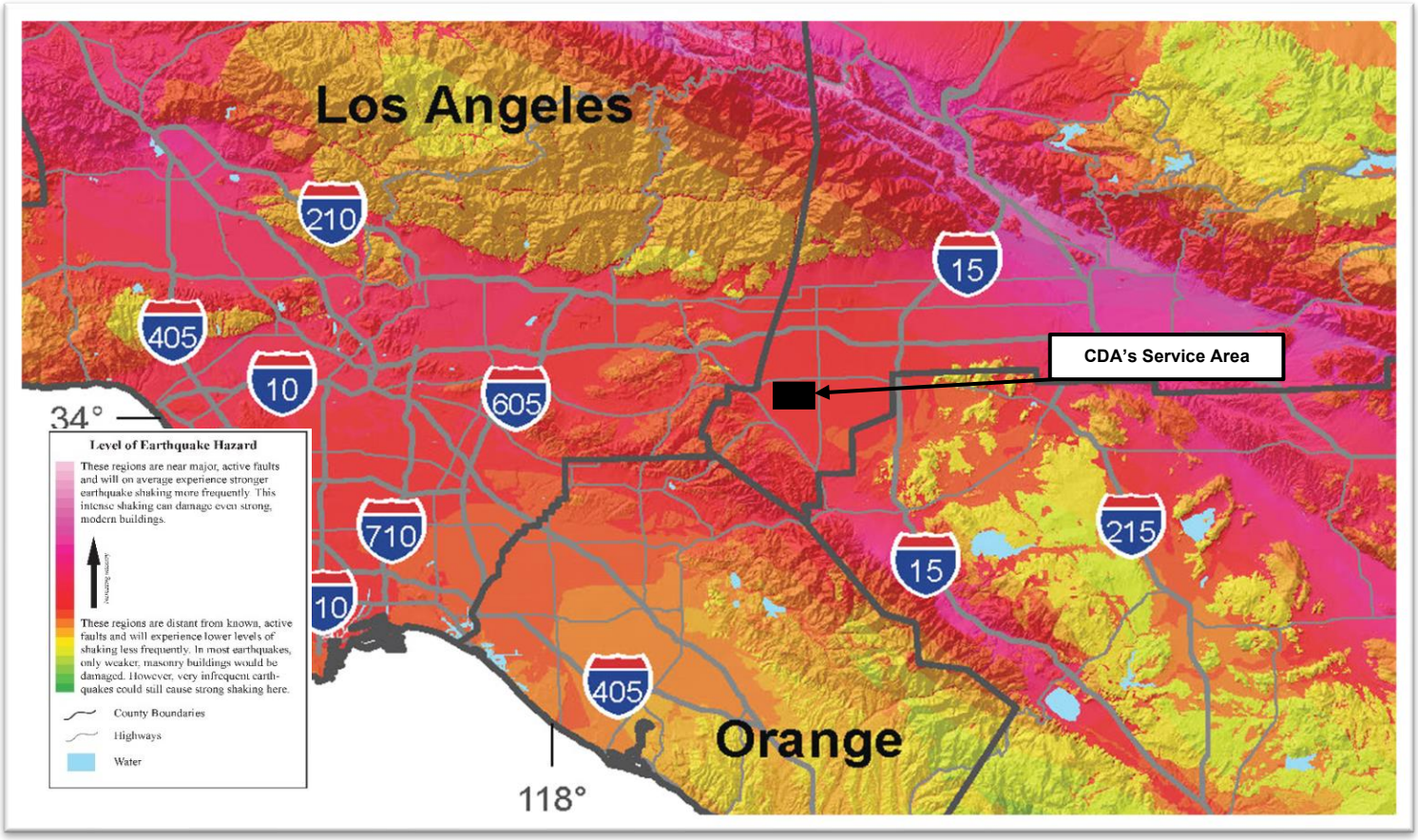
Location of Earthquake Faults



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

The following figure provides the relative intensity of ground shaking in the vicinity of the area receiving water supplies from CDA from anticipated future earthquakes. The locations of relatively long-period (1.0 second) earthquake shaking, including the are receiving water supplies from CDA, are provided. Long-period shaking affects tall, relatively flexible buildings, but also correlates with earthquake damage. The shaking potential is calculated based on the level of ground motion that has a 2 percent chance of being exceeded in 50 years (or the level of ground-shaking with an approximate 2,500-year average repeat time). As discussed in Section 8.4.5, CDA has prepared an Emergency Response Plan which provides the management, procedures, and designated actions CDA and its employees will implement during emergency situations resulting from natural disasters, including during earthquakes, to ensure that member agencies receive a reliable and adequate supply of potable water. CDA's ERP is incorporated by reference.

Earthquake Shaking Potential



Source: "Earthquake Shaking Potential for California", 2016, California Geological Survey and United States Geological Survey

8.4.7 SHORTAGE RESPONSE ACTION EFFECTIVENESS

CDA serves a dual purpose of providing reliable water supply and improving groundwater quality in the Chino Basin. CDA's member agencies are required to purchase a minimum amount of treated water production to support this function. The groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption. Nonetheless, CDA supports local agencies in efforts to enforce regulations and prohibitions on water use. The effectiveness of each of CDA's member agencies' shortage response actions, designed in support of IEUA's and WMWD's shortage response actions for its member agencies to reduce any potential gaps between their individual portfolios of supply and demand, has been quantified in Table 8-2 and Table 8-3. These tables are representative of CDA's member agencies' expected demand reduction pursuant to IEUA's and/or WMWD's shortage response actions described in Section 8.4.1.

Section 6.1 provides a tabulation of CDA's historical annual water demands from its member agencies for its water supply source. During the past 10 years, CDA experienced a five consecutive year drought within the area receiving its water supplies from FY 2011-12 to FY 2015-16. Throughout this extended dry year period, CDA's annual water production ranged from 27,098 AF to 30,022 AF, with an average of approximately 28,595 AF. In addition, historical records indicate CDA previously produced a maximum of up to 35,003 AF during FY 2019-20.

CDA's water demands from its member agencies during the most recent five years (from FY 2015-16 to FY 2019-20) averaged approximately 30,519 AFY. As discussed in Section 8.4.2, based on historical and on-going management practices, CDA will be able to continue providing potable water to its member agencies from the Chino Basin in response to each of the standard water shortage levels identified in Section 8.3.

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.

Pursuant to CWC 10632.1, CDA's Annual Assessment will be submitted to DWR by July 1 of each year or within 14 days of receiving its final allocation, whichever is later. The Annual Assessment will include a review of CDA's unconstrained water demands from its member agencies (i.e. water demands from its member agencies prior to any projected response actions CDA may trigger under this WSCP) for the current year and the upcoming (potential single dry) year. However, the groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption. See Section 8.2 for more information regarding the Annual Assessment.

IEUA Member Agencies

IEUA's communication protocols and procedures to inform its customers, the public, interested parties, and local, regional, and state governments, of current or predicted shortages and any triggered shortage response actions can be found in IEUA's 2020 UWMP, including:

- The IEUA Drought Response Taskforce to gain consensus on appropriate regional response actions. The taskforce is comprised of representatives from each of the eight IEUA member agencies and regional personnel from IEUA. These recommendations will be brought to each agency's respective management for approval. CDA will utilize broad messaging through IEUA (news stories, radio/tv ads, billboards, etc.) to communicate water scarcity, urgency to act, and commitment to continue to provide safe, reliable supply. Additionally, CDA will utilize targeted action messaging through IEUA aimed towards specific customers via phone, letter, email, etc.

WMWD Member Agencies

WMWD's communication protocols and procedures to inform its customers, the public, interested parties, and local, regional, and state governments, of current or predicted shortages and any triggered shortage response actions can be found in WMWD's 2020 UWMP, including:

- WMWD shall provide written notice by mail of:
    - Proposed increases to such rates and charges to the record owner of each parcel upon which the rates and charges are proposed for imposition and any tenant directly liable for payment of the rates.
    - The amount of the rates and charges proposed to be implemented on each parcel.
    - The basis upon which the rates and charges were calculated.
    - The reason for the rates and charges.
    - And the date, time, and location of a public hearing on the proposed rates and charges.

  Such notice is required to be provided to the affected property owners and any tenant directly liable for the payment of the rates and charges no less than 45 days prior to the public hearing on the proposed rates and charges.
- The declaration of any water shortage level or sub-level shall be made by resolution of the Board of Directors. Within 10 calendar days of the adoption of the resolution declaring the applicable level or sub-level, WMWD shall make a public announcement and provide notice of the applicable standard water shortage level. Such declaration and notice shall provide the extent, terms, and conditions as well as the associated water budget allocations and fines and/or penalties respecting the use and consumption of water in accordance with the applicable water shortage level. Upon such declaration and publication of such notice, due and proper notice shall be deemed to have been given to each and every person supplied water with WMWD. The water shortage level designated shall become effective immediately upon announcement.

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.

As a wholesale supplier, CDA is not required by DWR to complete Section 8.6.

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.

(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.

CDA's groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption.

CDA's member agencies may declare a water shortage emergency and may immediately enact the response actions of any of the levels designated in this WSCP and their own individual WSCP's. The required measures of the designated water shortage level determined by the member agency will be communicated to the public within their service area.

CDA shall coordinate with any city, county, or agency within which it provides water supply services for the possible proclamation of a local emergency.

8.8 FINANCIAL CONSEQUENCES OF 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.

CDA serves a dual purpose of providing reliable water supply and managing groundwater quantity and quality in the Chino Basin. CDA member agencies are required to purchase a minimum amount of production to support this function. These minimum purchase agreements form a fixed portion of the water supply portfolios of each of the CDA retail member agencies. Implementation of the provisions of this WSCP does not pose any impending financial consequences to CDA, due to member agencies' minimum purchase agreements. Revenues are constant, as are the expenditures.

Expenditures may be impacted only in the event of a catastrophic interruption of water supplies. Damages would increase expenditures in case of necessary emergency repairs. Expenditures on power, water treatment chemicals, and operational costs would decrease during emergency repairs, where CDA would pump less water.

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.

As a wholesale supplier, CDA is not required by DWR to complete Section 8.9.

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.

CDA's groundwater production is required to maintain groundwater cleanup priorities and is not subject to interruption. Nonetheless, CDA's Water Shortage Contingency Plan has been prepared as an adaptive management plan in support of CDA's member agencies' requirement to reduce demand on water supplies during designated water shortage levels. CDA's member agencies will review the implementation results for any current or potential shortage gaps between water supplies and demands. CDA will evaluate the need for revising the Water Shortage Contingency Plan, as necessary, based on IEUA and/or WMWD's implementation results of their WSCPs. CDA will consider the following potential revisions made by IEUA and/or WMWD 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).
- Incorporation of additional actions recommended by CDA, IEUA, and/or WMWD staff or other interested parties.

This Water Shortage Contingency Plan is adopted as part of CDA's 2020 Urban Water Management Plan adoption process discussed in Section 10.3. It is anticipated CDA will review, revise, and adopt an updated Water Shortage Contingency Plan as part of preparing its 2025 Urban Water Management Plan as necessary. However, CDA may update the Water Shortage Contingency Plan, as necessary. Any updates to CDA's Water Shortage Contingency Plan will include a public hearing and adoption process by CDA's Board (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.

As a wholesale supplier, CDA is not required by DWR to complete Section 8.11.

8.12 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

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.

CDA's Water Shortage Contingency Plan is adopted as part of CDA's 2020 Urban Water Management Plan adoption process discussed in Chapter 10. The process for adopting CDA's Water Shortage Contingency Plan includes the following:

- CDA will conduct a public hearing and make the Water Shortage Contingency Plan available for public inspection.
- CDA will provide notification of the time and place of the public hearing to any city or county in which water is provided.
- CDA will publish notice of public hearing in a newspaper once a week, for two successive weeks (with at least five days between publication dates).
- CDA's Board will adopt the 2020 Urban Water Management Plan and the Water Shortage Contingency Plan.
- As part of submitting the 2020 Urban Water Management Plan to DWR, CDA will also submit the Water Shortage Contingency Plan (electronically through DWR's online submittal tool) within 30 days of adoption and by July 1, 2021. CDA will submit a copy of the Water Shortage Contingency Plan to the California State Library and to any city or county in which water is provided within 30 days of adoption. In addition, CDA will make the Water Shortage Contingency Plan available for public review within 30 days of adoption.

If there are any subsequent amendments required, the process for adopting an amended Water Shortage Contingency Plan includes the following:

- CDA will conduct a public hearing and make the amended Water Shortage Contingency Plan available for public inspection.
- CDA's Board will adopt the amended Water Shortage Contingency Plan.
- CDA will submit the amended Water Shortage Contingency Plan to DWR (electronically through DWR's online submittal tool) within 30 days of adoption.

Additional information regarding the adoption, submittal, and availability of CDA's Water Shortage Contingency Plan (and 2020 Urban Water Management Plan) is provided in Chapter 10.

Chapter 9

DEMAND MANAGEMENT MEASURES

LAY DESCRIPTION – CHAPTER 9

DEMAND MANAGEMENT MEASURES

Chapter 9 (Demand Management Measures) of CDA's 2020 Plan discusses and provides the following:

- CDA has implemented "Demand Management Measures" to reduce its water demands and achieve its water use targets (discussed in Chapter 5).
- CDA's Demand Management Measures include metering of all its water supply connections with its retail member agencies.
- CDA's Demand Management Measures include public education and outreach programs regarding water conservation.
- CDA'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 CDA has implemented over the past five (5) years is provided.

9.1 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:

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

(ii) Metering.

(iv) Public education and outreach.
(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.

(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.

CDA delivers desalinated Chino Basin groundwater to its member agencies which in turn, participate in conservation efforts made by IEUA or WMWD.

9.1.1 METERING

CDA fully meters its connections to its member agencies. All agency connections are administered by purchasing agreements with CDA and its member agencies.

9.1.2 PUBLIC EDUCATION AND OUTREACH

CDA's member agencies' customers have access to IEUA and WMWD public information programs which promote water conservation. IEUA and WMWD provide marketing and outreach materials by using social media platforms, websites, community events, education training, monthly newsletters, and direct communication to retail consumers regarding water use. Retail consumers learn about rebates and additional programs through the IEUA and WMWD websites.

WMWD provides customer support programs such as free efficiency evaluations for irrigation systems and tips for efficient landscaping. WMWD also promotes regional programs such as Riverside County gardening workshops, national green plumbing training programs, and water efficient landscape training programs.

IEUA provides water use efficiency programs, water saving tips, and rebates to retail consumers. Water use efficiency programs include free landscape design training, consultations, and design renderings; irrigation auditing; and pressure regulation valve installation, repair, and maintenance. IEUA also offers a residential automatic water softener rebate. IEUA also hosts and sponsors a wide range of community events including Earth Day Celebration, compost giveaways, Days at the LA Fair, and a Landscape Water Conservation Fair.

IEUA and WMWD conduct water conservation school education programs to the regional elementary schools. Programs include school assemblies and lesson materials to educate students on water conservation. IEUA and WMWD are members of the Water Education Water Awareness Committee (WEWAC) which provides water education to local schools, including schools within CDA's member agencies' service areas. WEWAC hosts art and essay contests and provides financial support for lesson plan materials about water issues.

9.1.3 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT

CDA's member agencies maintain staff who are responsible for setting policies and priorities of their respective agencies. Monthly board and city council meetings are conducted to adopt programs contributing to water reliability which the CDA member agency staff then implement through conservation programs. Key objectives include promoting education and water use efficiency to enhance water supplies. CDA's member agency staff are responsible for marketing, outreach, and possible augmentation programs within their individual service areas.

9.1.4 OTHER DEMAND MANAGEMENT MEASURES

In addition to the Demand Management Measures (DMMs) discussed above, IEUA and WMWD participate in MWD's SoCal Water$mart Program, a regional rebate program available to residential and commercial customers. There are rebates available for indoor plumbing including high efficiency clothes washers and toilets. Rebates are also available for outdoor plumbing, including those for weather-based irrigation controllers, rotating sprinkler nozzles, and replacement of irrigated lawn with drought tolerant plants or other approved landscape options. IEUA and WMWD plan to continue implementation of these programs to promote water conservation for CDA's member agencies.

9.1.5 ASSET MANAGEMENT

CDA manages long-term assets through its Capital Improvement Program. Renewal and replacement activities are anticipated and budgeted through annual budget planning and financial reports. Short-term asset management is addressed through preventative and corrective maintenance programs for the desalter facilities.

9.1.6 WHOLESALE SUPPLIER ASSISTANCE PROGRAMS

Wholesale supplier assistance programs are administered by IEUA and WMWD for CDA's member agencies. As discussed in the introduction to Chapter 9, CDA promotes conservation through IEUA and WMWD, who provide marketing and outreach materials to its retail consumers using social media platforms, their websites, community events, education training, monthly newsletters, and direct communication to consumers regarding their water use.

9.2 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.

As a wholesale agency, CDA is not required by DWR to complete Section 9.2.

9.3 REPORTING IMPLEMENTATION

9.3.1 IMPLEMENTATION OVER THE PAST FIVE YEARS

CWC 10631.

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

(1) (A) ...a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years.

CDA is committed to implementing water conservation programs through IEUA and WMWD to provide water conservation programs for their member agencies' customers. The highlights of DMM implementation over the past five years are described below.

As discussed in Section 9.1.1, CDA fully meters its connections to its member agencies. All agency connections are administered by purchasing agreements between the member agencies and CDA.

As discussed in Section 9.1.2, CDA customers have access to IEUA and WMWD public information programs to promote water conservation. IEUA and WMWD provide marketing and outreach materials by using social media platforms, their websites, community events, education training, monthly newsletters, and direct communication to retail consumers regarding their water use. Customers learn about rebates and additional programs through the IEUA and WMWD websites. IEUA and WMWD are also members of the WEWAC that promotes the education of water issues to local schools, including schools within CDA's member agency service areas.

As discussed in Section 9.1.3, CDA's member agency staff are responsible for setting policies and priorities of the agencies. Monthly board and city council meetings are conducted to adopt programs contributing to water reliability which CDA member agency staff then implement through conservation programs. Key objectives include promoting education and water use efficiency to enhance water supplies and reduce demand on imported water supply.

As discussed in Section 9.1.4, in addition to the DMMs discussed above, IEUA and WMWD participate in MWD's regional rebate program, the SoCal Water$mart Program, which is available to residential and commercial customers.

As described in Section 9.1.5, CDA manages long-term assets through the Capital Improvement Program. Renewal and replacement activities are anticipated and budgeted through annual budget planning and financial reports. Short-term asset management is handled through preventative and corrective maintenance programs for the desalter facilities.

As described in Section 9.1.6, wholesale supplier assistance programs are administered by IEUA and WMWD for CDA's member agencies.

9.3.2 IMPLEMENTATION TO ACHIEVE WATER USE TARGETS

CWC 10631.

(F)(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 CDA are discussed in Section 9.2. Descriptions regarding the nature and extent of these Demand Management Measures implemented by CDA over the past five years are discussed in Section 9.3. CDA will continue to implement these Demand Management Measures and other water conservation programs and work collaboratively with IEUA and WMWD to provide water conservation programs for CDA's member agencies' residents.

9.4 WATER USE OBJECTIVES (FUTURE REQUIREMENTS)

Retail water agencies are currently working with DWR to develop Water Use Objectives pursuant to Assembly Bill (AB) 1668 and Senate Bill (SB) 606. Beginning in 2024, retail water agencies are required to begin reporting compliance of their Water Use Objectives consisting of indoor residential water use, outdoor residential water use, commercial, industrial and institutional, irrigation with dedicated meters, water loss, and other unique local uses.

CDA is not a retail water agency and is not required to comply with the Water Use Objectives. However, CDA will continue to implement the Demand Management Measures discussed in 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 CDA's 2020 Plan discusses and provides the following:

- The steps CDA has performed to adopt and submit its 2020 Plan are detailed.
- The steps CDA has performed to adopt and submit its Water Shortage Contingency Plan are detailed.
- CDA coordinated the preparation of its 2020 Plan with Cities of Chino, Chino Hills, Eastvale, Jurupa Valley, Norco, Ontario, the Counties of San Bernardino and Riverside, and other agencies. CDA notified these agencies at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited these agencies to participate in the development of the 2020 Plan.
- CDA provided a notice of the public hearing to the same agencies regarding the time, date, and place of the public hearing.
- CDA published a newspaper notification of the public hearing, once a week for two successive weeks
- CDA conducted a public hearing to discuss and adopt CDA's 2020 Plan and CDA's Water Shortage Contingency Plan.
- Within 30 days of adoption, CDA submitted the 2020 Plan and Water Shortage Contingency Plan to the California Department of Water Resources.
- Within 30 days of adoption, CDA submitted all data tables associated with the 2020 Plan to the California Department of Water Resources.
- Within 30 days of adoption, CDA submitted a copy of the 2020 Plan to the State of California Library.
- Within 30 days of adoption, CDA submitted a copy of the 2020 Plan (and Water Shortage Contingency Plan) to the County of San Bernardino Assessor- Recorder/ Clerk's office and the County of Riverside Assessor- County Clerk-Recorder's office.
- Within 30 days after submittal of the 2020 Plan to the California Department of Water Resources, CDA made the 2020 Plan (including the Water Shortage Contingency Plan) available at CDA's headquarters and on CDA's website.
- The steps CDA will perform to amend the 2020 Plan and/or the Water Shortage Contingency Plan, if necessary, are provided.

10.1 WSCP INCLUSION OF ALL 2020 DATA

The data provided in CDA's 2020 Plan and the WSCP is provided on a FY basis through June 30, 2020 (as discussed in Section 2.5).

10.2 NOTICE OF PUBLIC HEARING

CDA's public hearing notification process for its 2020 Plan and the WSCP is discussed below.

10.2.1 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.

CWC 10642.

…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. Notices by a local public agency pursuant to this section shall be provided pursuant to Chapter 17.5 (commencing with Section 7290) of Division 7 of Title 1 of the Government Code. A privately owned water supplier shall provide an equivalent notice within its service area…

10.2.1.1 60 DAY NOTIFICATION

As discussed in Section 2.6.2., CDA coordinated the preparation of the 2020 Plan with the Cities of Chino, Chino Hills, Eastvale, Jurupa Valley, Norco, Ontario, the Counties of San Bernardino and Riverside, and other agencies. CDA notified these agencies, as well as to the cities and county within which CDA provides water supplies, at least sixty (60) days prior to the public hearing of the preparation of the 2020 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 C.

10.2.1.2 NOTICE OF PUBLIC HEARING

CDA provided a notice of the public hearing to the Cities of Chino, Chino Hills, Eastvale, Jurupa Valley, Norco, Ontario, the Counties of San Bernardino and Riverside, and other agencies. The notice includes the time and place of the public hearing. To ensure that the Plan and the WSCP were available for review, CDA placed a copy of the draft 2020 Plan and the draft WSCP at the

CDA headquarters and made a copy available for review on its website. Copies of the notice of the public hearing are provided in Appendix C.

10.2.1.3 SUBMITTAL TABLES

Table 10-1 summarizes the agencies which were provided notifications by CDA.

Table 10-1 Notification to Cities and Counties

Submittal Table 10-1 Wholesale: Notification to Cities and Counties (select one)		
☐	Supplier has notified more than 10 cities or counties in accordance with Water Code Sections 10621 (b) and 10642. **Completion of the table below is not required. Provide a separate list of the cities and counties that were notified.**	
	Provide the page or location of this list in the UWMP.	
☑	Supplier has notified 10 or fewer cities or counties. **Complete the table below.**	
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Chino	Yes	Yes
Chino Hills	Yes	Yes
Eastvale	Yes	Yes
Jurupa Valley	Yes	Yes
Norco	Yes	Yes
Ontario	Yes	Yes
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Riverside County	Yes	Yes
San Bernardino County	Yes	Yes
NOTES:		

10.2.2 NOTICE TO THE PUBLIC

CDA encouraged the active involvement of the population within the area which receives water supplies from CDA prior to and during the preparation of the Plan. Pursuant to Section 6066 of the Government Code, CDA published a notice of public hearing in the newspaper during the weeks of May 12, 2021 and May 19, 2021. A notice of public hearing was CDA's website. A copy of the published notice is provided in Appendix C. To ensure that the draft 2020 Plan and the draft WSCP were available for review, CDA placed a copy at the CDA's headquarters and made a copy available for review on its website.

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.

10.3 PUBLIC HEARING AND ADOPTION

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.

CWC 10608.26.

(a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

10.3.1 PUBLIC HEARING

Prior to adopting the draft 2020 Plan and the WSCP, CDA held a public hearing on July 3, 2021 which included input from the community regarding CDA's draft 2020 Plan and the draft WSCP. In addition, CDA considered the economic impacts of meeting these water use targets; including measures described in Section 8.8.

10.3.2 ADOPTION

CWC 10642.

... 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.

Following the public hearing, CDA adopted both the draft 2020 Plan and the draft WSCP (included in Chapter 8). A copy of the resolution adopting the 2020 Plan and the WSCP is provided in Appendix G.

10.4 PLAN SUBMITTAL

CWC 10621.

(e) Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.

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.

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.

CDA's submittal process for its 2020 Plan and the WSCP is discussed below.

10.4.1 SUBMITTING A UWMP AND WATER SHORTAGE CONTINGENCY PLAN TO DWR

CDA's Board of Directors adopted the 2020 Plan on June 3, 2021 and within 30 days of adoption, CDA submitted the adopted 2020 Plan (including the WSCP) to DWR. The 2020 Plan and WSCP were submitted through DWR's "Water Use Efficiency (WUE) Data Portal" website.

DWR developed a checklist which was used by CDA to assist DWR with its determination that CDA's 2020 Plan has addressed the requirements of the CWC. CDA has completed the DWR checklist by indicating where the required CWC elements can be found within CDA's 2020 Plan (See Appendix B).

10.4.2 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 2020 Plan, CDA submitted all data tables associated with the 2020 Plan through DWR's "Water Use Efficiency Data Portal" website.

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

Within 30 days of adoption of the 2020 Plan by the Board of Directors, a copy (CD or hardcopy) of the 2020 Plan was submitted to the State of California Library. A copy of the letter to the State Library will be maintained in CDA's file. The 2020 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 2020 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

10.4.4 SUBMITTING A UWMP TO CITIES AND COUNTIES

Within 30 days of adoption of the 2020 Plan (including the WSCP) by the Board of Directors, a copy of the 2020 Plan was submitted to the County of San Bernardino Assessor- Recorder/ Clerk's office and the County of Riverside Assessor- County Clerk-Recorder's office. A copy of the letters to the County of Riverside and San Bernardino will be maintained in CDA's file.

10.5 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 2020 Plan to DWR, CDA made the 2020 Plan (including the WSCP) available at the CDA headquarters during normal business hours and on CDA's website.

10.6 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.

CDA is not regulated by the California Public Utilities Commission.

10.7 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) 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. 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.

CDA's amendment process for its 2020 Plan is discussed below.

10.7.1 AMENDING A UWMP

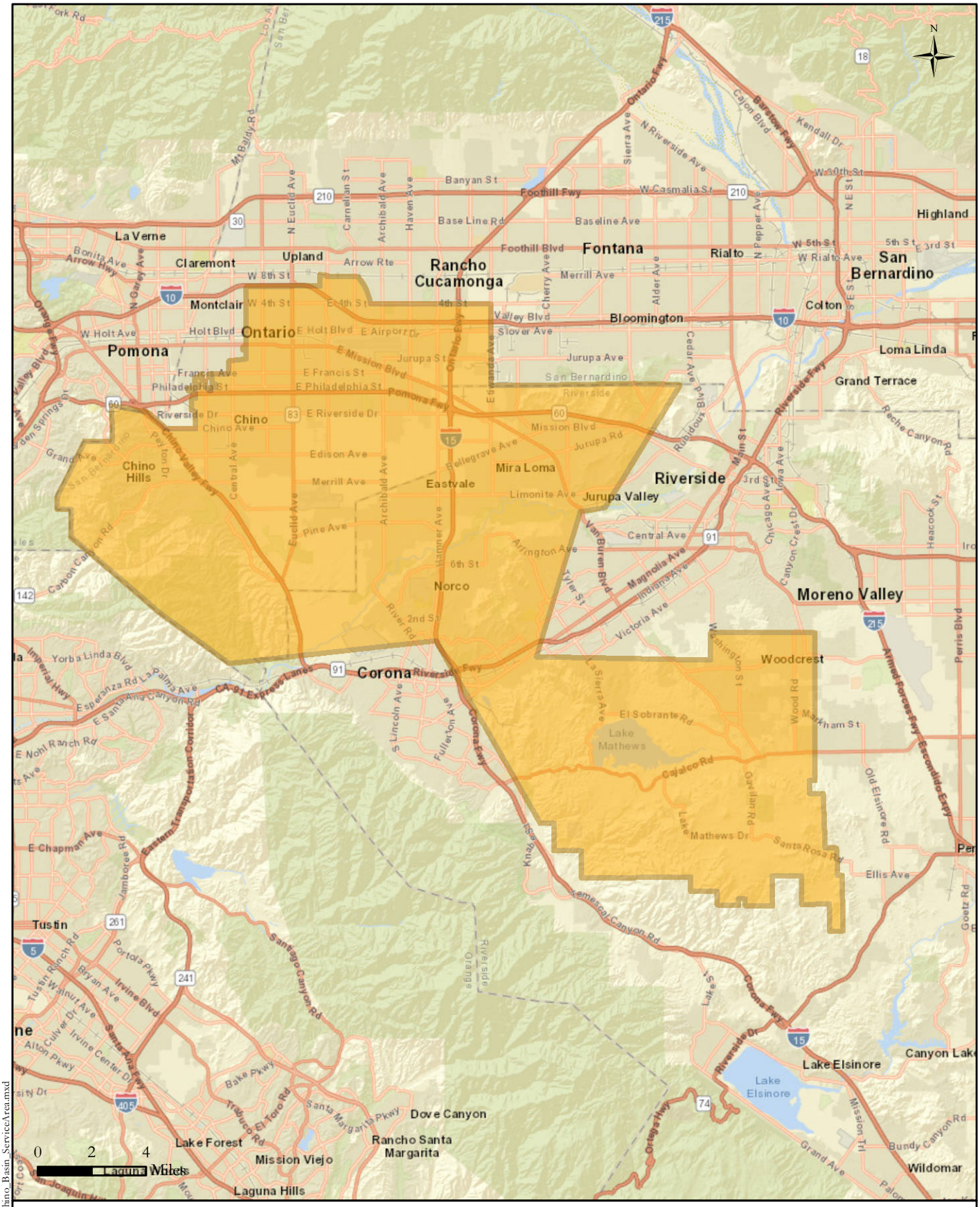
If CDA amends the adopted 2020 Plan, the amended Plan will undergo adoption by CDA's governing board. Within 30 days of adoption, the amended Plan will then be submitted to DWR, the State of California Library, the County of San Bernardino Assessor- Recorder/ Clerk's office and the County of Riverside Assessor- County Clerk-Recorder's office.

10.7.2 AMENDING A WATER SHORTAGE CONTINGENCY PLAN

CWC 10644.

(b) 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 pursuant to subdivision (a) of Section 10632 no later than 30 days after adoption, in accordance with protocols for submission and using electronic reporting tools developed by the department.

If CDA amends the adopted 2020 Plan (including the WSCP), the amended Plan (and WSCP) will undergo adoption by CDA's governing board. Within 30 days of adoption, the amended Plan (and WSCP) will then be submitted to DWR, the State of California Library, the County of San Bernardino Assessor- Recorder/ Clerk's office and the County of Riverside Assessor- County Clerk-Recorder's office.

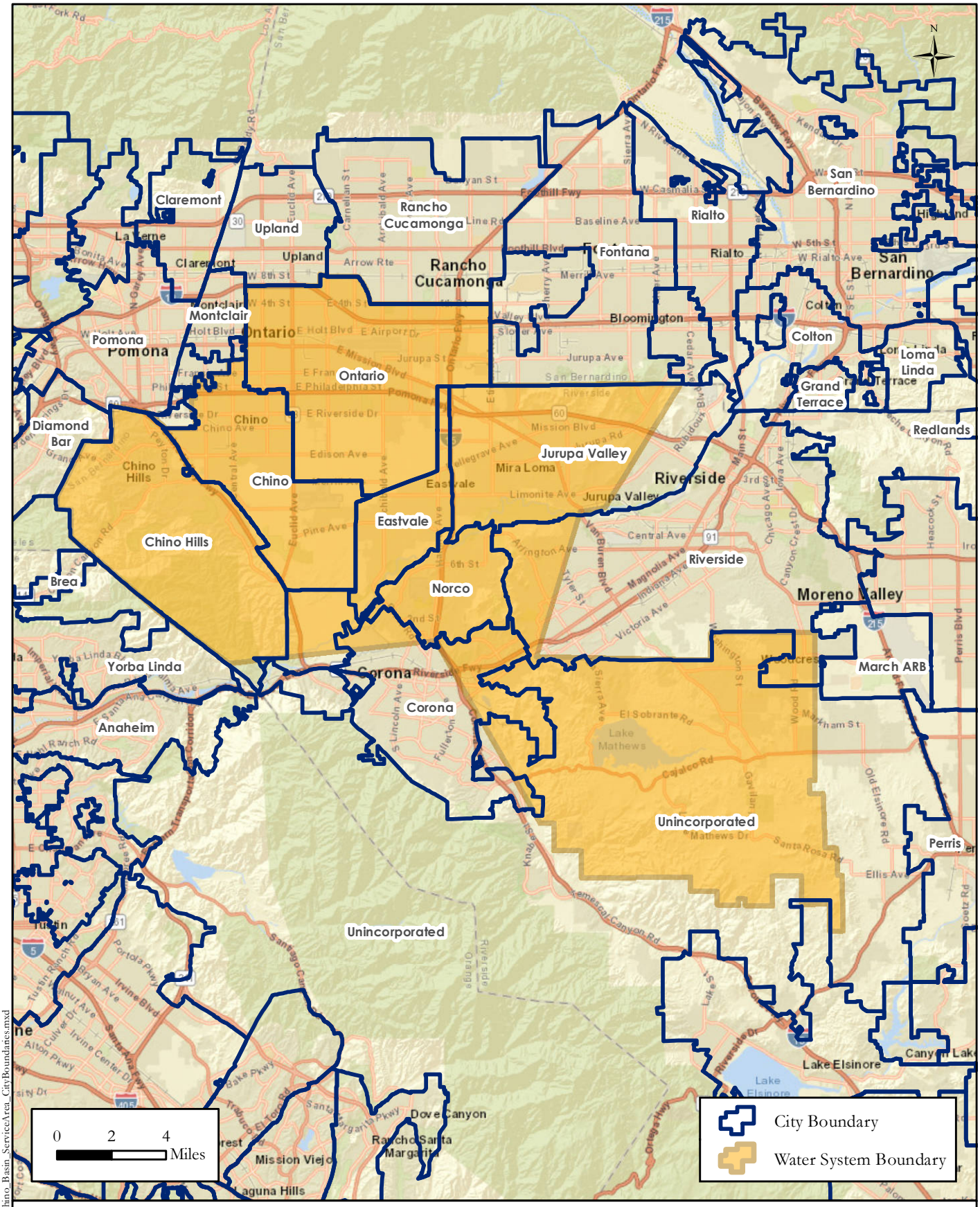


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STETSON ENGINEERS INC.

CHINO BASIN DESALTER AUTHORITY
WATER SERVICE AREA

FIGURE 2

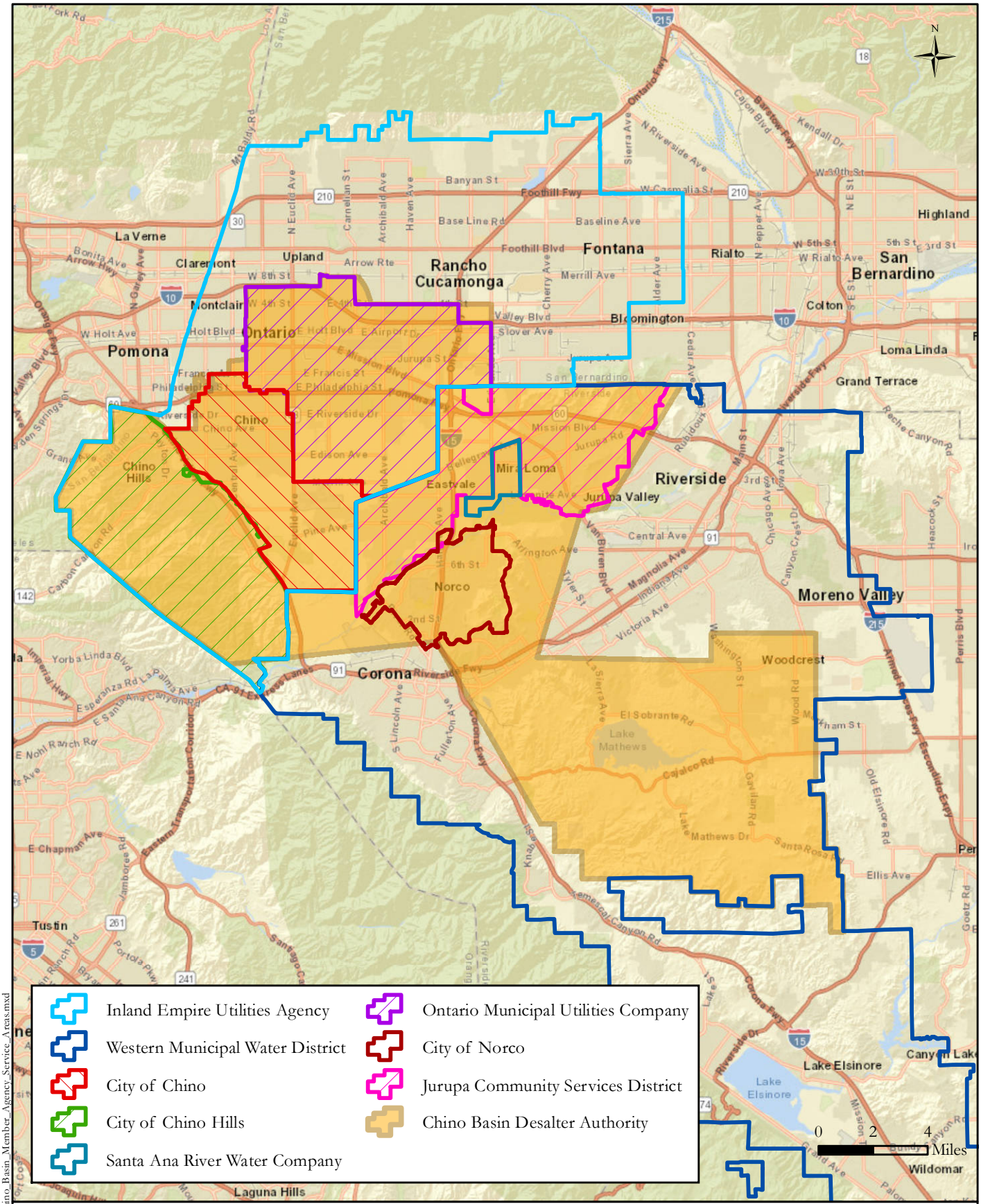


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STETSON ENGINEERS INC.

CHINO BASIN DESALTER AUTHORITY
SERVICE AREA
AND CITY BOUNDARIES

City Boundaries Source:
Census 2010 (TIGER 2011)

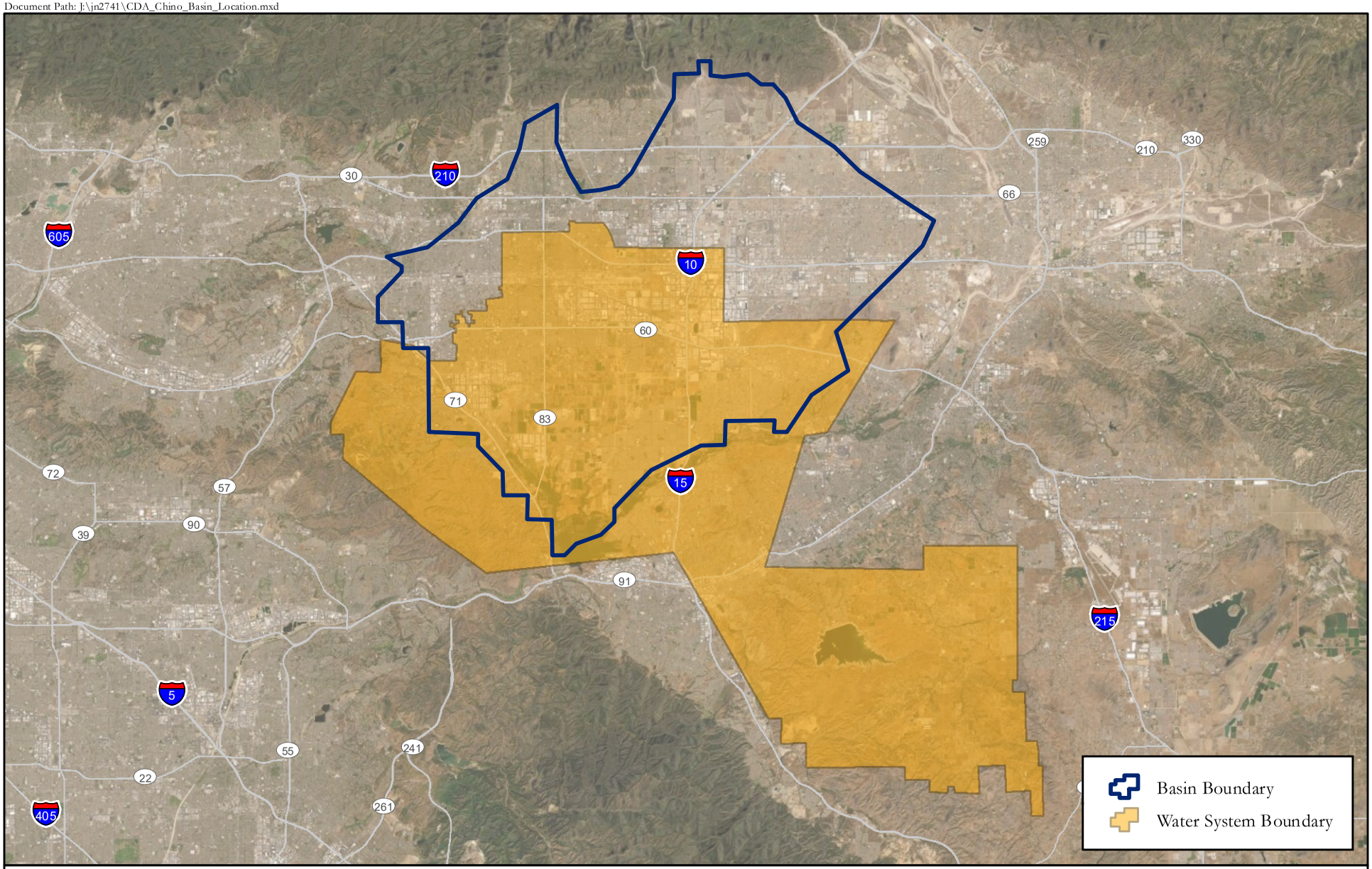


CHINO BASIN DESALTER AUTHORITY
MEMBER AGENCY SERVICE AREAS

STETSON ENGINEERS INC.

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STETSON ENGINEERS INC.

CHINO BASIN DESALTER AUTHORITY
CHINO BASIN LOCATION

0 2.5 5 Miles

N

FIGURE 4

2020 URBAN WATER MANAGEMENT PLAN

APPENDIX A

DWR STANDARDIZED TABLES

Submittal Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* (select from drop down list)
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☑	Supplier is a wholesaler
☐	Supplier is a retailer
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)	
07/01	
Units of measure used in UWMP * (select from drop down)	
Unit	AF
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES:	

Submittal Table 2-4 Wholesale: Water Supplier Information Exchange (select one)	
☑	Supplier has informed more than 10 other water suppliers of water supplies available in accordance with Water Code Section 10631. Completion of the table below is optional. If not completed, include a list of the water suppliers that were informed.
Section 2.6	**Provide page number for location of the list.**
☐	Supplier has informed 10 or fewer other water suppliers of water supplies available in accordance with Water Code Section 10631. **Complete the table below.**
Water Supplier Name	
Add additional rows as needed	
NOTES:	

Submittal Table 3-1 Wholesale: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	664,270	715,607	770,912	830,491	894,675	963,819
NOTES: The 2020 population and the populations projected through 2045 were based on ACS population data (2019 Census) and an average between CDA's historical annual population growth rate and IEUA's current projected growth rate (See Section 3.4.1 and Section 5.4.1).						

Submittal Table 4-1 Wholesale: Demands for Potable and Non-Potable[1] Water - Actual			
Use Type	2020 Actual		
Drop down list May select each use multiple times These are the only use types that will be recognized by the WUE data online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume[2]
Add additional rows as needed			
Sales to other agencies		Drinking Water	30,247
Other Non-Potable	Waste Process Water	Raw Water	4,756
		TOTAL	35,003

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.*

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

NOTES:

Submittal Table 4-2 Wholesale: Use for Potable and Raw Water [1] - Projected						
Use Type		Projected Water Use [2] 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.	Additional Description (as needed)	2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Sales to other agencies		35,200	35,200	35,200	35,200	35,200
Other Non-Potable		4,800	4,800	4,800	4,800	4,800
TOTAL		40,000	40,000	40,000	40,000	40,000

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.*
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3. [2]

NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.

Submittal Table 4-3 Wholesale: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable and Raw Water From Tables 4-1W and 4-2W	35,003	40,000	40,000	40,000	40,000	40,000
Recycled Water Demand* From Table 6-4W	0	0	0	0	0	0
TOTAL WATER DEMAND	35,003	40,000	40,000	40,000	40,000	40,000
**Recycled water demand fields will be blank until Table 6-4 is complete.*						
NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.						

Submittal Table 6-1 Wholesale: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
☑	All or part of the groundwater described below is desalinated.					
Groundwater Type Drop Down List	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Add additional rows as needed						
Alluvial Basin	Chino Basin	28,191	28,284	29,918	31,199	35,003
	TOTAL	28,191	28,284	29,918	31,199	35,003
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

Submittal Table 6-3 Wholesale: Wastewater Treatment and Discharge Within Service Area in 2020

☑ Wholesale Supplier neither distributes nor provides supplemental treatment to recycled water.
The Supplier will not complete the table below.

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)* [2]	Method of Disposal ***Drop down list***	Does This Plant Treat Wastewater Generated Outside the Service Area? ***Drop down list***	Treatment Level ***Drop down list***	2020 volumes [1] Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
Add additional rows as needed											
						Total	0	0	0	0	0

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

[2] If the **Wastewater Discharge ID Number** is not available to the UWMP preparer, access the SWRCB CIWQS regulated facility website at https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility

NOTES:

Submittal Table 6-4 Wholesale: Current and Projected Retailers Provided Recycled Water Within Service Area							
☑	Recycled water is not directly treated or distributed by the Supplier. The Supplier will not complete the table below.						
Name of Receiving Supplier or Direct Use by Wholesaler	Level of Treatment *Drop down list*	2020*	2025*	2030*	2035*	2040*	2045* *(opt)*
Add additional rows as needed							
	Total	0	0	0	0	0	0
*** Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.							
NOTES:							

Submittal Table 6-5 Wholesale: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
☑	Recycled water was not used or distributed by the supplier in 2015, nor projected for use or distribution in 2020. The wholesale supplier will not complete the table below.	
Name of Receiving Supplier or Direct Use by Wholesaler	2015 Projection for 2020*	2020 Actual Use*
Add additional rows as needed		
Total	0	0
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*		
NOTES:		

Submittal Table 6-7 Wholesale: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	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 6.2.8	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description *(if needed)*	Planned Implementation Year	Planned for Use in Year Type *Drop Down list*	Expected Increase in Water Supply to Supplier*
	Drop Down Menu	*If Yes, Supplier Name*				
Add additional rows as needed						
Chino I Desalter VOC Treatment Facilities Project	*Yes*	San Bernardino County	Install Granular Activated Carbi treatment to to treat existing CDA and proposed County-owned wells	2023	All Year Types	3,000
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: Information obtained from CDA's "Chino I Desalter VOC Treatment Facilities Project Final Draft Basis of Design Report (BODR)", dated July 2020						

Submittal Table 6-8 Wholesale: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
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		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Desalinated Water - Groundwater		35,003	Drinking Water	
	Total	35,003		0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES:				

Submittal Table 6-9 Wholesale: Water Supplies — Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply* Report To the Extent Practicable									
		2025		2030		2035		2040		2045 (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		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Desalinated Water - Groundwater		40,000		40,000		40,000		40,000		40,000	
Total		40,000	0	40,000	0	40,000	0	40,000	0	40,000	0

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

NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.

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

Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000	Available Supplies if Year Type Repeats	
		☐ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____	
		☑ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available *	% of Average Supply
Average Year	2020	40,000	100%
Single-Dry Year	2018	40,000	100.0%
Consecutive Dry Years 1st Year	2012	40,000	100.0%
Consecutive Dry Years 2nd Year	2013	40,000	100.0%
Consecutive Dry Years 3rd Year	2014	40,000	100.0%
Consecutive Dry Years 4th Year	2015	40,000	100.0%
Consecutive Dry Years 5th Year	2016	40,000	100.0%

Supplier may use multiple versions of Table 7-1 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 Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table. Suppliers may create an additional worksheet for the additional tables.

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

NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.

Submittal Table 7-2 Wholesale: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals *(autofill from Table 6-9)*	40,000	40,000	40,000	40,000	40,000
Demand totals *(autofill fm Table 4-3)*	40,000	40,000	40,000	40,000	40,000
Difference	0	0	0	0	0
NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.					

Submittal Table 7-3 Wholesale: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	40,000	40,000	40,000	40,000	40,000
Demand totals*	40,000	40,000	40,000	40,000	40,000
Difference	0	0	0	0	0
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.					

Submittal Table 7-4 Wholesale: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	40,000	40,000	40,000	40,000	40,000
	Demand totals	40,000	40,000	40,000	40,000	40,000
	Difference	0	0	0	0	0
Second year	Supply totals	40,000	40,000	40,000	40,000	40,000
	Demand totals	40,000	40,000	40,000	40,000	40,000
	Difference	0	0	0	0	0
Third year	Supply totals	40,000	40,000	40,000	40,000	40,000
	Demand totals	40,000	40,000	40,000	40,000	40,000
	Difference	0	0	0	0	0
Fourth year	Supply totals	40,000	40,000	40,000	40,000	40,000
	Demand totals	40,000	40,000	40,000	40,000	40,000
	Difference	0	0	0	0	0
Fifth year	Supply totals	40,000	40,000	40,000	40,000	40,000
	Demand totals	40,000	40,000	40,000	40,000	40,000
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG) m** ust remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2.						

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)

2021	Total
Total Water Use	40,000
Total Supplies	40,000
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2022	Total
Total Water Use	40,000
Total Supplies	40,000
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2023	Total
Total Water Use	40,000
Total Supplies	40,000
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2024	Total
Total Water Use	40,000
Total Supplies	40,000
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2025	Total
Total Water Use	40,000
Total Supplies	40,000
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** (*Narrative description*)
1	Up to 10%	IEUA member agencies may be subject to implement direct installation programs, hold more landscape workshops, consider escalation of local water waste prohibitions, etc. WMWD member agencies' customers may be subject to a 5 to 15% water use reduction.
2	Up to 20%	In addition to Shortage Level 1; IEUA member agencies may expand micro-targeting customers and increase marketing efforts. WMWD member agencies may be subject to prohibition of new water service and reductions in water budgets.
3	Up to 30%	In addition to Shortage Level 2; IEUA member agencies may increase penalties, implement emergency alerts, etc. WMWD member agencies may be subject to additional requirements deemed necessary by individual member agencies.
4	Up to 40%	In addition to Shortage Level 3; IEUA member agencies may be subject to additional requirements deemed necessary by individual member agencies. WMWD member agencies may be subject to additional requirements deemed necessary by individual member agencies.
5	Up to 50%	In addition to Shortage Level 4; IEUA member agencies may be subject to additional requirements deemed necessary by individual member agencies. WMWD member agencies may be subject to additional requirements deemed necessary by individual member agencies.
6	>50%	In addition to Shortage Level 5; IEUA member agencies may be subject to additional requirements deemed necessary by individual member agencies. WMWD member agencies may be subject to additional requirements deemed necessary by individual member agencies.
NOTES:		

Submittal Table 8-2: Demand Reduction Actions

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? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down List*
Add additional rows as needed				
1	Expand Public Information Campaign	Collective reduction from all Shortage Level 1 actions is up to 596 AFY	Applicable to IEUA member agencies	No
1	Increase Frequency of Meter Reading	Collective reduction from all Shortage Level 1 actions is up to 596 AFY	Applicable to IEUA member agencies	No
1	Increase Water Waste Patrols	Collective reduction from all Shortage Level 1 actions is up to 596 AFY	Applicable to IEUA member agencies	Yes
1	Implement or Modify Drought Rate Structure or Surcharge	Collective reduction from all Shortage Level 1 actions is up to 596 AFY	Applicable to WMWD member agencies	Yes
2	Other	Collective reduction from Shortage Level 1 plus all Shortage Level 2 actions is up to 1,193 AFY	All actions under Shortage Level 1	Yes
2	Moratorium or Net Zero Demand Increase on New Connections	Collective reduction from all Shortage Level 2 actions is up to 1,193 AFY	Applicable to IEUA member agencies	Yes
2	Implement or Modify Drought Rate Structure or Surcharge	Collective reduction from all Shortage Level 2 actions is up to 1,193 AFY	Applicable to WMWD member agencies	Yes
3	Other	Collective reduction from Shortage Level 2 plus all Shortage Level 3 actions is up to 1,789 AFY	All actions under Shortage Level 2	Yes
4	Other	Collective reduction from Shortage Level 3 plus all Shortage Level 4 actions is up to 2,386 AFY	All actions under Shortage Level 3	Yes
5	Other	Collective reduction from Shortage Level 4 plus all Shortage Level 5 actions is up to 2,982 AFY	All actions under Shortage Level 4	Yes
6	Other	Collective reduction from Shortage Level 5 plus all Shortage Level 6 actions is greater than 2,982 AFY	All actions under Shortage Level 5	Yes

NOTES: CDA promotes IEUA and WMWD water shortage response actions for its member agencies to reduce demand on their individual water supplies. Member agencies may employ their own demand reduction actions and/or IEUA or WMWD demand reduction actions at their own discretion.

Submittal Table 8-3: Supply Augmentation and Other Actions			
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? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*
Add additional rows as needed			
1	Transfers	Not applicable (see Notes)	
2	Transfers	Not applicable (see Notes)	
3	Transfers	Not applicable (see Notes)	
4	Transfers	Not applicable (see Notes)	
5	Transfers	Not applicable (see Notes)	
6	Transfers	Not applicable (see Notes)	

NOTES: CDA will pump up to 40,000 AFY of contaminated groundwater from the Chino Basin for water quality management purposes, groundwater cleanup, and hydraulic control required by the Regional Water Quality Control Board. CDA will provide up to 35,200 AFY of treated water to its member agencies, as discussed in Section 6.2. CDA does not anticipate augmenting water supplies. However, CDA's member agencies will consider increased production from the Chino Basin (through potential transfer of water rights) using existing facilities to address increased demands. As noted on Table 8-2, CDA's member agencies plan to implement demand reduction measures in the event water supplies from existing sources are not sufficient to meet anticipated demands.

Submittal Table 10-1 Wholesale: Notification to Cities and Counties (select one)		
☐	Supplier has notified more than 10 cities or counties in accordance with Water Code Sections 10621 (b) and 10642. **Completion of the table below is not required. Provide a separate list of the cities and counties that were notified.**	
	Provide the page or location of this list in the UWMP.	
☑	Supplier has notified 10 or fewer cities or counties. **Complete the table below.**	
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Chino	Yes	Yes
Chino Hills	Yes	Yes
Eastvale	Yes	Yes
Jurupa Valley	Yes	Yes
Norco	Yes	Yes
Ontario	Yes	Yes
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Riverside County	Yes	Yes
San Bernardino County	Yes	Yes
NOTES:		

APPENDIX B

COMPLETED PLAN CHECKLIST

Retail	Wholesale	2020 Guidebook Location	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Chapter 1	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Chapter 1 Lay Description
x	x	Chapter 1	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.	Summary	Beginning of each Chapter
x	x	Section 2.2	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.	Plan Preparation	Section 2.2
x	x	Section 2.6	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.	Plan Preparation	Section 2.6
x	x	Section 2.6.2	Provide supporting documentation that the water 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	Section 2.6.2
x		Section 2.6, Section 6.1	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	Not applicable
	x	Section 2.6	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.6
x	x	Section 3.1	Describe the water supplier service area.	System Description	Section 3.1
x	x	Section 3.3	Describe the climate of the service area of the supplier.	System Description	Section 3.3
x	x	Section 3.4	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Section 3.4
x	x	Section 3.4.2	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 3.4.2
x	x	Sections 3.4 and 5.4	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4
x	x	Section 3.5	Describe the land uses within the service area.	System Description	Section 3.5
x	x	Section 4.2	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2
x	x	Section 4.2.4	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	Not applicable
x	x	Section 4.2.6	In projected water use, include estimates of water savings from adopted codes, plans and other policies or laws.	System Water Use	Section 4.2.6
x	x	Section 4.2.6	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	Section 4.2.6
x	optional	Section 4.3.2.4	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Not applicable
x	optional	Section 4.4	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Not applicable
x	x	Section 4.5	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Section 4.5
x		Chapter 5	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Not applicable
x		Chapter 5	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Not applicable
	x	Section 5.1	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1

Retail	Wholesale	2020 Guidebook Location	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x		Section 5.2	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Not applicable
x		Section 5.5	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Not applicable
x		Section 5.5 and Appendix E	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	Not applicable
x	x	Sections 6.1 and 6.2	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.	System Supplies	Sections 6.1, 6.2, 7.1, and 7.2
x	x	Sections 6.1	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	Section 6.1
x	x	Section 6.1	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Section 6.1
x	x	Section 6.1.1	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Section 6.1.1
x	x	Section 6.2.8	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Section 6.2.8
x	x	Section 6.2	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2
x	x	Section 6.2.2	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2
x	x	Section 6.2.2	Describe the groundwater basin.	System Supplies	Section 6.2.2
x	x	Section 6.2.2	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	Section 6.2.2
x	x	Section 6.2.2.1	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	Not applicable
x	x	Section 6.2.2.4	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.2
x	x	Section 6.2.2	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Section 6.2.2
x	x	Section 6.2.7	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	Section 6.2.7
x	x	Section 6.2.5	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)	Section 6.2.5
x	x	Section 6.2.5	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.2.5
x	x	Section 6.2.5	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)	Section 6.2.5
x	x	Section 6.2.5	Describe 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.	System Supplies (Recycled Water)	Section 6.2.5
x	x	Section 6.2.5	Describe the actions 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.	System Supplies (Recycled Water)	Section 6.2.5
x	x	Section 6.2.5	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.2.5
x	x	Section 6.2.6	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.2.6
x	x	Section 6.2.5	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)	Section 6.2.5
x	x	Section 6.2.8, Section 6.3.7	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 5 consecutive water years.	System Supplies	Sections 6.2.8 and 6.2.9

Retail	Wholesale	2020 Guidebook Location	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Section 6.4 and Appendix O	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	Section 6.4
x	x	Section 7.2	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	Section 7.2
x	x	Section 7.2.4	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.2.4
x	x	Section 7.3	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 water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3
x	x	Section 7.3	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Section 7.3
x	x	Section 7.3	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 5 consecutive years.	Water Supply Reliability Assessment	Section 7.3
x	x	Section 7.3	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	Section 7.3
x	x	Section 7.3	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Section 7.3
x	x	Section 7.3	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	Section 7.3
x	x	Chapter 8	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Chapter 8
x	x	Chapter 8	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Chapter 8
x	x	Section 8.10	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Section 8.10
x	x	Section 8.2	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	Section 8.2
x	x	Section 8.2	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	Section 8.2
x	x	Section 8.3	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent 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	Section 8.3
x	x	Section 8.3	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	Section 8.3
x	x	Section 8.4	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Section 8.4.2
x	x	Section 8.4	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Section 8.4.1
x	x	Section 8.4	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Section 8.4.3
x	x	Section 8.4	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	Section 8.4.4
x	x	Section 8.4	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	Section 8.4.7
x	x	Section 8.4.6	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Section 8.4.6
x	x	Section 8.5	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Section 8.5

Retail	Wholesale	2020 Guidebook Location	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Section 8.5 and 8.6	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	Section 8.5
x		Section 8.6	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	Not applicable
x		Section 8.7	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Not applicable
x	x	Section 8.7	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Section 8.7
x	x	Section 8.7	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	Section 8.7
x	x	Section 8.8	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Section 8.8
x	x	Section 8.8	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Section 8.8
x		Section 8.8	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	Section 8.8
x		Section 8.9	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	Section 8.9
x		Section 8.11	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	Not applicable
x	x	Sections 8.12 and 10.4	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Sections 8.12 and 10.4
x	x	Section 8.12	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Section 8.12
	x	Sections 9.1 and 9.3	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3
x		Sections 9.2 and 9.3	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	Not applicable
x		Chapter 10	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	Not applicable
x	x	Section 10.2.1	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	Section 10.2.1
x	x	Section 10.4	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Section 10.4
x	x	Sections 10.2.2, 10.3, and 10.5	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2, 10.3, and 10.5
x	x	Section 10.2.2	The water 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	Section 10.2.2
x	x	Section 10.3.2	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.2
x	x	Section 10.4	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3
x	x	Section 10.4	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4
x	x	Sections 10.4.1 and 10.4.2	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2
x	x	Section 10.5	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5

Retail	Wholesale	2020 Guidebook Location	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Section 10.5	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5
x	x	Section 10.6	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	Section 10.6
x	x	Section 10.7.2	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	Section 10.7.2

APPENDIX C

60 – DAY NOTIFICATION LETTERS AND PUBLIC HEARING NOTIFICATIONS

CHINO BASIN DESALTER AUTHORITY

Tom Haughey, Chairperson
Betty Anderson, Vice Chairperson
Jim Bowman, Secretary
Kati Parker, Director
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 Thomas M. O'Neill, General Manager/CEO

November 10, 2020

Mr. Leonard Hernandez
Chief Executive Officer
County of San Bernardino
385 N. Arrowhead Avenue
San Bernardino, CA 92415

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Hernandez:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

As an urban water supplier, the Chino Basin Desalter Authority 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 Chino Basin Desalter Authority will be reviewing the UWMP and will make amendments or changes, as appropriate. The Chino Basin Desalter Authority invites you to submit comments in anticipation of the development of our 2020 UWMP Update. Please provide written comments within the next 30 days to the Chino Basin Desalter Authority.

Sincerely,

Thomas O'Neill
General Manager/CEO

CHINO BASIN DESALTER AUTHORITY

Tom Haughey, Chairperson
Betty Anderson, Vice Chairperson
Jim Bowman, Secretary
Kati Parker, Director
Greg Newton, Director
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Gracie Torres, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 Thomas M. O'Neill, General Manager/CEO

November 10, 2020

Mr. George Johnson
County Executive Officer
County of Riverside
4080 Lemon Street – 4th Floor
Riverside, CA 92501

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Johnson:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

Thomas O'Neill
General Manager/CEO

CHINO BASIN DESALTER AUTHORITY

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Betty Anderson, Vice Chairperson
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Vicki Rupe, Director
Gracie Torres, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

November 10, 2020

Mr. Andy Okoro
City Manager
City of Norco
2870 Clark Avenue
Norco, CA 92860

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Okoro:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

Thomas O'Neill
General Manager/CEO

CHINO BASIN DESALTER AUTHORITY

Tom Haughey, Chairperson
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Vicki Rupe, Director
Gracie Torres, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

November 10, 2020

Mr. Scott Ochoa
City Manager
City of Ontario
303 E. "B" Street
Ontario, CA 91764

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Ochoa:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

Thomas O'Neill
General Manager/CEO

CHINO BASIN DESALTER AUTHORITY

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Vicki Rupe, Director
Gracie Torres, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

November 10, 2020

Mr. Matthew Ballantyne
City Manager
City of Chino
13220 Central Avenue
Chino, CA 91710

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Ballantyne:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

Thomas O'Neill
General Manager/CEO

CDA | CHINO BASIN DESALTER AUTHORITY

Tom Haughey, Chairperson
Betty Anderson, Vice Chairperson
Jim Bowman, Secretary
Kati Parker, Director
Greg Newton, Director
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Vicki Rupe, Director
Gracie Torres, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

November 10, 2020

Mr. Benjamin Montgomery
City Manager
City of Chino Hills
14000 City Center Drive
Chino Hills, CA 91709

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Montgomery:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

Thomas O'Neill
General Manager/CEO

CHINO BASIN DESALTER AUTHORITY

Tom Haughey, Chairperson
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Vicki Rupe, Director
Gracie Torres, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 Thomas M. O'Neill, General Manager/CEO

November 10, 2020

Mr. Bryan Jones
City Manager
City of Eastvale
12363 Limonite Avenue, Suite 910
Eastvale, CA 91752

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Jones:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

Thomas O'Neill
General Manager/CEO

CDA | CHINO BASIN DESALTER AUTHORITY

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Vicki Rupe, Director
Gracie Torres, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

November 10, 2020

Mr. Rod Butler
City Manager
City of Jurupa Valley
8930 Limonite Avenue
Jurupa Valley, CA 92509

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Butler:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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General Manager/CEO

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3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

November 10, 2020

Mr. Jeffrey Kightlinger
General Manager
Metropolitan Water District
PO Box 54153
Los Angeles, CA 90054

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Kightlinger:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

Thomas O'Neill
General Manager/CEO

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3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 Thomas M. O'Neill, General Manager/CEO

November 10, 2020

Mr. Peter Kavounas
General Manager
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Kavounas:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 Thomas M. O'Neill, General Manager/CEO

November 10, 2020

Mr. Scott Burton
Utilities Manager
City of Ontario
1425 South Bon View Avenue
Ontario, CA 91761

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Burton:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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General Manager/CEO

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3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

November 10, 2020

Mr. Shivaji Deshmukh, P.E.
General Manager
Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, CA 91708

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Deshmukh:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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General Manager/CEO

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3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

November 10, 2020

Mr. Chris Berch
General Manager
Jurupa Community Services District
11201 Harrel Street
Jurupa Valley, CA 91752

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Berch:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

As an urban water supplier, the Chino Basin Desalter Authority 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 Chino Basin Desalter Authority will be reviewing the UWMP and will make amendments or changes, as appropriate. The Chino Basin Desalter Authority invites you to submit comments in anticipation of the development of our 2020 UWMP Update. Please provide written comments within the next 30 days to the Chino Basin Desalter Authority.

Sincerely,

Thomas O'Neill
General Manager/CEO

CDA | CHINO BASIN DESALTER AUTHORITY

Tom Haughey, Chairperson
Betty Anderson, Vice Chairperson
Jim Bowman, Secretary
Kati Parker, Director
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

November 10, 2020

Mr. Rich Haller
General Manager
Santa Ana Watershed Project Authority
11615 Sterling Avenue
Riverside, CA 92503

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Haller:

The Chino Basin Desalter Authority is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The Chino Desalter Authority is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

Thomas O'Neill
General Manager/CEO

THE PRESS-ENTERPRISE

1825 Chicago Ave, Suite 100
Riverside, CA 92507
951-684-1200
951-368-9018 FAX

PROOF OF PUBLICATION
(2010, 2015.5 C.C.P)

Publication(s): The Press-Enterprise

PROOF OF PUBLICATION OF

Ad Desc.: 2020 UWMP Hearing Notice /

I am a citizen of the United States. I am over the age of eighteen years and not a party to or interested in the above entitled matter. I am an authorized representative of THE PRESS-ENTERPRISE, a newspaper in general circulation, printed and published daily in the County of Riverside, and which newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of Riverside, State of California, under date of April 25, 1952, Case Number 54446, under date of March 29, 1957, Case Number 65673, under date of August 25, 1995, Case Number 267864, and under date of September 16, 2013, Case Number RIC 1309013; that the notice, of which the annexed is a printed copy, has been published in said newspaper in accordance with the instructions of the person(s) requesting publication, and not in any supplement thereof on the following dates, to wit:

05/12, 05/19/2021

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Date: May 19, 2021
At: Riverside, California

Legal Advertising Representative, The Press-Enterprise

CHINO BASIN DESALTER AUTHORITY
3550 E. PHILADELPHIA STREET, SUITE 170
ONTARIO, CA 91761

Ad Number: 0011461427-01

P.O. Number:

Ad Copy:

NOTICE OF PUBLIC HEARING
BY THE BOARD OF DIRECTORS OF
CHINO BASIN DESALTER AUTHORITY
REGARDING THE DRAFT CHINO BASIN DESALTER AUTHORITY
2020 URBAN WATER MANAGEMENT PLAN,
SAN BERNARDINO COUNTY/RIVERSIDE COUNTY, STATE OF CALIFORNIA

NOTICE IS HEREBY GIVEN that the Board of Directors of the Chino Basin Desalter Authority (CDA) has scheduled a public hearing to receive comments and testimony regarding the Draft Chino Basin Desalter Authority 2020 Urban Water Management Plan (CDA 2020 UWMP), San Bernardino County/Riverside County, State of California.

NOTICE IS FURTHER GIVEN that said public hearing will be held at the following date, time and place for the purpose of hearing any and all public testimony and comments, for, against, or neutral, regarding the draft CDA 2020 UWMP.

According to the directives from the California Department of Public Health and Executive Order issued by Governor Gavin Newsom, members of the public are invited to participate via video or teleconference:

DATE: Thursday, June 3, 2021

TIME: 2:00 p.m.

VIDEO CONFERENCE: https://zoom.us Meeting ID: 813 5205 9101 Passcode: 380557

TELECONFERENCE: (669) 900 6833 Meeting ID: 813 5205 9101 Passcode: 380557

NOTICE IS FURTHER GIVEN that all interested persons are invited and encouraged to attend the public hearing and provide testimony and written comments regarding the draft CDA 2020 UWMP. Oral statements will be heard; however, to ensure the accuracy of the record, all important testimony and comments relating to the draft CDA 2020 UWMP should be submitted in writing to Casey Costa, CDA Executive Assistant, at the address below, prior to the time set for the public hearing or directly to the CDA Board of Directors during the public hearing. If you challenge the Final CDA 2020 Urban Water Management Plan in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this Notice, or in written correspondence delivered to CDA prior to or at the public hearing.

NOTICE IS FURTHER GIVEN that a copy of the draft CDA 2020 UWMP can be found online at http://chinodesalter.org. A hard copy of the draft CDA 2020 UWMP is also available for inspection at the Chino Basin Desalter Authority office located at 3550 E. Philadelphia Street, Suite 170, Ontario, CA 91761. Please direct comments and questions to Casey Costa, CDA Executive Assistant, at (909) 218-3730; ccosta@chinodesalter.org.

Press-Enterprise: 5/12, 5/19

Advertising Order Confirmation

Ad Number	Ad Size	Color	Production Color	Ad Attributes	Production Method	Production Notes
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External Ad Number	Pick Up	Ad Type	Released for Publication
		Legal Liner	

NOTICE OF PUBLIC HEARING
BY THE BOARD OF DIRECTORS OF
CHINO BASIN DESALTER AUTHORITY
REGARDING THE DRAFT CHINO BASIN DESALTER AUTHORITY
2020 URBAN WATER MANAGEMENT PLAN,
SAN BERNARDINO COUNTY/RIVERSIDE COUNTY, STATE OF CALIFORNIA

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NOTICE IS FURTHER GIVEN that said public hearing will be held at the following date, time and place for the purpose of hearing any and all public testimony and comments, for, against, or neutral, regarding the draft CDA 2020 UWMP.

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Published: May 11, 18 2021 Inland Valley Daily Bulletin Ad#11462800

Product	Requested Placement	Requested Position	Run Dates	# Inserts
Daily Bulletin	Legals CLS LA-SB-PE	General IE - 1076~	05/18/21	1
SB Sun	Legals CLS NP	General NP - 1076~	05/18/21	1
PE Riverside:Full Run	Legals CLS LA-SB-PE	General IE - 1076~	05/18/21	1

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Please note: To meet our printer's deadline, we must have your proof returned by the published deadline, and as indicated by your sales rep.

Advertising Order Confirmation

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Ken McLaughlin, Chairperson
Jim Bowman, Vice Chairperson
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director
Marco Tule, Director
Eunice Ulloa, Director

CHINO BASIN DESALTER AUTHORITY

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Leonard Hernandez
Chief Executive Officer
County of San Bernardino
385 N. Arrowhead Avenue
San Bernardino, CA 92415

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Hernandez,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

The 2020 Urban Water Management Plan and Water Shortage Contingency Plan were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an Urban Water Management Plan, including the Water Shortage Contingency Plan, and periodically update the Urban Water Management Plan at least once every five years, in years ending in six and one.

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CDA invites all interested entities to attend and present their comments. A copy of the draft 2020 Urban Water Management Plan and Water Shortage Contingency Plan will be available at the CDA's website. Please provide written comments by 5 p.m. on June 14, 2021 to the Chino Basin Desalter Authority.

Ken McLaughlin, Chairperson
Jim Bowman, Vice Chairperson
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director
Marco Tule, Director
Eunice Ulloa, Director

CHINO BASIN DESALTER AUTHORITY

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. George Johnson
County Executive Officer
County of Riverside
4080 Lemon Street – 4th Floor
Riverside, CA 92501

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Johnson,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

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Jim Bowman, Vice Chairperson
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director
Marco Tule, Director
Eunice Ulloa, Director

CHINO BASIN DESALTER AUTHORITY

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Andy Okoro
City Manager
City of Norco
2870 Clark Avenue
Norco, CA 92860

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Okoro,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

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Ken McLaughlin, Chairperson
Jim Bowman, Vice Chairperson
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director
Marco Tule, Director
Eunice Ulloa, Director

CHINO BASIN DESALTER AUTHORITY

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Scott Ochoa
City Manager
City of Ontario
303 E. "B" Street
Ontario, CA 91764

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Ochoa,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

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Ken McLaughlin, Chairperson
Jim Bowman, Vice Chairperson
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director
Marco Tule, Director
Eunice Ulloa, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Matthew Ballantyne
City Manager
City of Chino
13220 Central Avenue
Chino, CA 91710

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Ballantyne,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

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Ken McLaughlin, Chairperson
Jim Bowman, Vice Chairperson
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director
Marco Tule, Director
Eunice Ulloa, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Benjamin Montgomery
City Manager
City of Chino Hills
14000 City Center Drive
Chino Hills, CA 91709

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Montgomery,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

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Jim Bowman, Vice Chairperson
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director
Marco Tule, Director
Eunice Ulloa, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Bryan Jones
City Manager
City of Eastvale
12363 Limonite Avenue, Suite 910
Eastvale, CA 91752

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Jones,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

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Jim Bowman, Vice Chairperson
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director
Marco Tule, Director
Eunice Ulloa, Director

CHINO BASIN DESALTER AUTHORITY

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Rod Butler
City Manager
City of Jurupa Valley
8930 Limonite Avenue
Jurupa Valley, CA 92509

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Butler,

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Jim Bowman, Vice Chairperson
Greg Newton, Director
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Vicki Rupe, Director
Gracie Torres, Director
Marco Tule, Director
Eunice Ulloa, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Jeffrey Kightlinger
General Manager
Metropolitan Water District
PO Box 54153
Los Angeles, CA 90054

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Kightlinger,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

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Ken McLaughlin, Chairperson
Jim Bowman, Vice Chairperson
Greg Newton, Director
Peter J. Rogers, Director
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Marco Tule, Director
Eunice Ulloa, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Peter Kavounas
General Manager
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Kavounas,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

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Ken McLaughlin, Chairperson
Jim Bowman, Vice Chairperson
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director
Marco Tule, Director
Eunice Ulloa, Director

CHINO BASIN DESALTER AUTHORITY

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Scott Burton
Utilities Manager
City of Ontario
1425 South Bon View Avenue
Ontario, CA 91761

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Burton,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

The 2020 Urban Water Management Plan and Water Shortage Contingency Plan were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an Urban Water Management Plan, including the Water Shortage Contingency Plan, and periodically update the Urban Water Management Plan at least once every five years, in years ending in six and one.

Information regarding CDA's PUBLIC HEARING follows:

Date:	Thursday, June 3, 2021	
Time:	2:00 p.m.	
Place:	VIDEO CONFERENCE:	https://zoom.us Meeting ID: 813 5205 9101 Passcode: 380557
	TELECONFERENCE:	(669) 900 6833 Meeting ID: 813 5205 9101 Passcode: 380557

The meeting link will be posted on the CDA's website at the following address: https://www.chinodesalter.org/

CDA invites all interested entities to attend and present their comments. A copy of the draft 2020 Urban Water Management Plan and Water Shortage Contingency Plan will be available at the CDA's website. Please provide written comments by 5 p.m. on June 14, 2021 to the Chino Basin Desalter Authority.

Ken McLaughlin, Chairperson
Jim Bowman, Vice Chairperson
Greg Newton, Director
Peter J. Rogers, Director
Vicki Rupe, Director
Gracie Torres, Director
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Eunice Ulloa, Director

CHINO BASIN DESALTER AUTHORITY

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Shivaji Deshmukh
General Manager
Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, CA 91708

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Deshmukh,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

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Marco Tule, Director
Eunice Ulloa, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Chris Berch
General Manager
Jurupa Community Services District
11201 Harrel Street
Jurupa Valley, CA 91752

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Berch,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

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Eunice Ulloa, Director

3550 E. Philadelphia Street, Suite 170 • Ontario, CA 91761 • (909) 218-3230 *Thomas M. O'Neill, General Manager/CEO*

May 6, 2021

Mr. Jeffrey Mosher
General Manager
Santa Ana Watershed Project Authority
11615 Sterling Avenue
Riverside, CA 92503

SUBJECT: Notice of Public Hearing for 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Mr. Haller,

The Chino Basin Desalter Authority (CDA) will hold a PUBLIC HEARING on July 3, 2021 for the purposes of adopting its 2020 Urban Water Management Plan and its Water Shortage Contingency Plan. The CDA's 2020 Urban Water Management Plan incorporates the CDA's Water Shortage Contingency Plan.

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CDA invites all interested entities to attend and present their comments. A copy of the draft 2020 Urban Water Management Plan and Water Shortage Contingency Plan will be available at the CDA's website. Please provide written comments by 5 p.m. on June 14, 2021 to the Chino Basin Desalter Authority.

CHINO BASIN DESALTER AUTHORITY

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Thomas M. O'Neill, General Manager/CEO

City of Chino • City of Chino Hills • City of Norco • City of Ontario • Inland Empire Utilities Agency
Jurupa Community Services District • Santa Ana River Water Company • Western Municipal Water District

APPENDIX D

CHINO BASIN JUDGMENT

Rec'd Jan 27, 1978 TD

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Attorneys for Plaintiff

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FILED - West District
San Bernardino County Clerk
OCT 25 1989

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

MICROFILMED

CHINO BASIN MUNICIPAL WATER DISTRICT,

Plaintiff,

v.

CITY OF CHINO, et al.

Defendants.

No. 164327

RCN 51019

JUDGMENT

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Routing ..... Appeal Briefs
Date ..... Exhibits
Judge ..... Supervisor
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Index ..... Other

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JUDGMENT
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Attorneys for Plaintiff

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

CHINO BASIN MUNICIPAL WATER DISTRICT, Plaintiff, v. CITY OF CHINO, et al. Defendants.	No. 164327 JUDGMENT

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I. INTRODUCTION

1. Pleadings, Parties and Jurisdiction. The complaint herein was filed on January 2, 1975, seeking an adjudication of water rights, injunctive relief and the imposition of a physical solution. A first amended complaint was filed on July 16, 1976. The defaults of certain defendants have been entered, and certain other defendants dismissed. Other than defendants who have been dismissed or whose defaults have been entered, all defendants have appeared herein. By answers and order of this Court, the issues have been made those of a full inter se adjudication between the

parties. This Court has jurisdiction of the subject matter of this action and of the parties herein.

2. Stipulation For Judgment. Stipulation for entry of judgment has been filed by and on behalf of a majority of the parties, representing a majority of the quantitative rights herein adjudicated.

3. Trial; Findings and Conclusions. Trial was commenced on December 16, 1977, as to the non-stipulating parties, and findings of fact and conclusions of law have been entered disposing of the issues in the case.

4. Definitions. As used in this Judgment, the following terms shall have the meanings herein set forth:

(a) Active Parties. All parties other than those who have filed with Watermaster a written waiver of service of notices, pursuant to Paragraph 58.

(b) Annual or Year -- A fiscal year, July 1 through June 30, following, unless the context shall clearly indicate a contrary meaning.

(c) Appropriative Right -- The annual production right of a producer from the Chino Basin other than pursuant to an overlying right.

(d) Basin Water -- Ground water within Chino Basin which is part of the Safe Yield, Operating Safe Yield, or replenishment water in the Basin as a result of operations under the Physical Solution decreed herein. Said term does not include Stored Water.

(e) CBMWD -- Plaintiff Chino Basin Municipal Water District.

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(f) Chino Basin or Basin -- The ground water basin underlying the area shown as such on Exhibit "B" and within the boundaries described in Exhibit "K".

(g) Chino Basin Watershed -- The surface drainage area tributary to and overlying Chino Basin.

(h) Ground Water -- Water beneath the surface of the ground and within the zone of saturation, i.e., below the existing water table.

(i) Ground Water Basin -- An area underlain by one or more permeable formations capable of furnishing substantial water storage.

(j) Minimal Producer -- Any producer whose production does not exceed five acre-feet per year.

(k) MWD -- The Metropolitan Water District of Southern California.

(l) Operating Safe Yield -- The annual amount of ground water which Watermaster shall determine, pursuant to criteria specified in Exhibit "I", can be produced from Chino Basin by the Appropriative Pool parties free of replenishment obligation under the Physical Solution herein.

(m) Overdraft -- A condition wherein the total annual production from the Basin exceeds the Safe Yield thereof.

(n) Overlying Right -- The appurtenant right of an owner of lands overlying Chino Basin to produce water from the Basin for overlying beneficial use on such lands.

(o) Person. Any individual, partnership, association, corporation, governmental entity or agency, or other organization.

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(p) PVMWD -- Defendant Pomona Valley Municipal Water District.

(q) Produce or Produced -- To pump or extract ground water from Chino Basin.

(r) Producer -- Any person who produces water from Chino Basin.

(s) Production -- Annual quantity, stated in acre feet, of water produced.

(t) Public Hearing -- A hearing after notice to all parties and to any other person legally entitled to notice.

(u) Reclaimed Water -- Water which, as a result of processing of waste water, is suitable for a controlled use.

(v) Replenishment Water -- Supplemental water used to recharge the Basin pursuant to the Physical Solution, either directly by percolating the water into the Basin or indirectly by delivering the water for use in lieu of production and use of safe yield or Operating Safe Yield.

(w) Responsible Party -- The owner, co-owner, lessee or other person designated by multiple parties interested in a well as the person responsible for purposes of filing reports hereunder.

(x) Safe Yield -- The long-term average annual quantity of ground water (excluding replenishment or stored water but including return flow to the Basin from use of replenishment or stored water) which can be produced from the Basin under cultural conditions of a particular year without causing an undesirable result.

(y) SBVMWD -- San Bernardino Valley Municipal Water

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District.

(z) State Water -- Supplemental Water imported through the State Water Resources Development System, pursuant to Chapter 8, Division 6, Part 6 of the Water Code.

(aa) Stored Water -- Supplemental water held in storage, as a result of direct spreading, in lieu delivery, or otherwise, for subsequent withdrawal and use pursuant to agreement with Watermaster.

(bb) Supplemental Water -- Includes both water imported to Chino Basin from outside Chino Basin Watershed, and reclaimed water.

(cc) WMWD -- Defendant Western Municipal Water District of Riverside County.

5. List of Exhibits. The following exhibits are attached to this Judgment and made a part hereof:

"A" -- "Location Map of Chino Basin" showing boundaries of Chino Basin Municipal Water District, and other geographic and political features.

"B" -- "Hydrologic Map of Chino Basin" showing hydrologic features of Chino Basin.

"C" -- Table Showing Parties in Overlying (Agricultural) Pool.

"D" -- Table Showing Parties in Overlying (Non-agricultural Pool and Their Rights.

"E" -- Table Showing Appropriators and Their Rights.

"F" -- Overlying (Agricultural) Pool Pooling Plan.

"G" -- Overlying (Non-agricultural) Pool Pooling Plan.

"H" -- Appropriative Pool Pooling Plan.

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"I" -- Engineering Appendix.

"J" -- Map of In Lieu Area No. 1.

"K" -- Legal Description of Chino Basin.

II. DECLARATION OF RIGHTS

A. HYDROLOGY

6. Safe Yield. The Safe Yield of Chino Basin is 140,000 acre feet per year.

7. Overdraft and Prescriptive Circumstances. In each year for a period in excess of five years prior to filing of the First Amended Complaint herein, the Safe Yield of the Basin has been exceeded by the annual production therefrom, and Chino Basin is and has been for more than five years in a continuous state of overdraft. The production constituting said overdraft has been open, notorious, continuous, adverse, hostile and under claim of right. The circumstances of said overdraft have given notice to all parties of the adverse nature of such aggregate over-production.

B. WATER RIGHTS IN SAFE YIELD

8. Overlying Rights. The parties listed in Exhibits "C" and "D" are the owners or in possession of lands which overlie Chino Basin. As such, said parties have exercised overlying water rights in Chino Basin. All overlying rights owned or exercised by parties listed in Exhibits "C" and "D" have, in the aggregate, been limited by prescription except to the extent such rights have been preserved by self-help by said parties. Aggregate preserved overlying rights in the Safe Yield for agricultural pool use, including the rights of the State of California, total 82,800 acre feet per year. Overlying rights for non-agricultural pool use

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total 7,366 acre feet per year and are individually decreed for each affected party in Exhibit "D". No portion of the Safe Yield of Chino Basin exists to satisfy unexercised overlying rights, and such rights have all been lost by prescription. However, uses may be made of Basin Water on overlying lands which have no preserved overlying rights pursuant to the Physical Solution herein. All overlying rights are appurtenant to the land and cannot be assigned or conveyed separate or apart therefrom.

9. Appropriative Rights. The parties listed in Exhibit "E" are the owners of appropriative rights, including rights by prescription, in the unadjusted amounts therein set forth, and by reason thereof are entitled under the Physical Solution to share in the remaining Safe Yield, after satisfaction of overlying rights and rights of the State of California, and in the Operating Safe Yield in Chino Basin, in the annual shares set forth in Exhibit "E".

(a) Loss of Priorities. By reason of the long continued overdraft in Chino Basin, and in light of the complexity of determining appropriative priorities and the need for conserving and making maximum beneficial use of the water resources of the State, each and all of the parties listed in Exhibit "E" are estopped and barred from asserting special priorities or preferences, inter se. All of said appropriative rights are accordingly deemed and considered of equal priority.

(b) Nature and Quantity. All rights listed in Exhibit "E" are appropriative and prescriptive in nature. By reason of the status of the parties, and the provisions of Section

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1007 of the Civil Code, said rights are immune from reduction or limitation by prescription.

10. Rights of the State of California. The State of California, by and through its Department of Corrections, Youth Authority and Department of Fish and Game, is a significant producer of ground water from and the State is the largest owner of land overlying Chino Basin. The precise nature and scope of the claims and rights of the State need not be, and are not, defined herein. The State, through said departments, has accepted the Physical Solution herein decreed, in the interests of implementing the mandate of Section 2 of Article X of the California Constitution. For all purposes of this Judgment, all future production by the State or its departments or agencies for overlying use on State-owned lands shall be considered as agricultural pool use.

C. RIGHTS TO AVAILABLE GROUND WATER STORAGE CAPACITY

11. Available Ground Water Storage Capacity. There exists in Chino Basin a substantial amount of available ground water storage capacity which is not utilized for storage or regulation of Basin Waters. Said reservoir capacity can appropriately be utilized for storage and conjunctive use of supplemental water with Basin Waters. It is essential that said reservoir capacity utilization for storage and conjunctive use of supplemental water be undertaken only under Watermaster control and regulation, in order to protect the integrity of both such Stored Water and Basin Water in storage and the Safe Yield of Chino Basin.

12. Utilization of Available Ground Water Capacity. Any person or public entity, whether a party to this action or not, may make reasonable beneficial use of the available ground water

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storage capacity of Chino Basin for storage of supplemental water; provided that no such use shall be made except pursuant to written agreement with Watermaster, as authorized by Paragraph 28. In the allocation of such storage capacity, the needs and requirements of lands overlying Chino Basin and the owners of rights in the Safe Yield or Operating Safe Yield of the Basin shall have priority and preference over storage for export.

III. INJUNCTION

13. Injunction Against Unauthorized Production of Basin Water. Each party in each of the respective pools is enjoined, as follows:

(a) Overlying (Agricultural) Pool. Each party in the Overlying (Agricultural) Pool, its officers, agents, employees, successors and assigns, is and they each are ENJOINED AND RESTRAINED from producing ground water from Chino Basin in any year hereafter in excess of such party's correlative share of the aggregate of 82,800 acre feet allocated to said Pool, except pursuant to the Physical Solution or a storage water agreement.

(b) Overlying (Non-Agricultural) Pool. Each party in the Overlying (Non-agricultural) Pool, its officers, agents, employees, successors and assigns, is and they each are ENJOINED AND RESTRAINED from producing ground water of Chino Basin in any year hereafter in excess of such party's decreed rights in the Safe Yield, except pursuant to the provisions of the Physical Solution or a storage water agreement.

(c) Appropriative Pool. Each party in the

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Appropriative Pool, its officers, agents, employees, successors and assigns, is and they are each ENJOINED AND RESTRAINED from producing ground water of Chino Basin in any year hereafter in excess of such party's decreed share of Operating Safe Yield, except pursuant to the provisions of the Physical Solution or a storage water agreement.

14. Injunction Against Unauthorized Storage or Withdrawal of Stored Water. Each party, its officers, agents, employees, successors and assigns is and they each are ENJOINED AND RESTRAINED from storing supplemental water in Chino Basin for withdrawal, or causing withdrawal of, water stored by that party, except pursuant to the terms of a written agreement with Watermaster and in accordance with Watermaster regulations. Any supplemental water stored or recharged in the Basin, except pursuant to such a Water-master agreement, shall be deemed abandoned and not classified as Stored Water. This paragraph has no application, as such, to supplemental water spread or provided in lieu by Watermaster pursuant to the Physical Solution.

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IV. CONTINUING JURISDICTION

15. Continuing Jurisdiction. Full jurisdiction, power and authority are retained and reserved to the Court as to all matters contained in this judgment, except:

(a) The redetermination of Safe Yield, as set forth in Paragraph 6, during the first ten (10) years of operation of the Physical Solution;

(b) The allocation of Safe Yield as between the several pools as set forth in Paragraph 44 of the Physical Solution;

(c) The determination of specific quantitative rights and shares in the declared Safe Yield or Operating Safe Yield herein declared in Exhibits "D" and "E"; and

(d) The amendment or modification of Paragraphs 7(a) and (b) of Exhibit "H", during the first ten (10) years of operation of the Physical Solution, and thereafter only upon affirmative recommendation of at least 67% of the voting power (determined pursuant to the formula described in Paragraph 3 of Exhibit "H"), but not less than one-third of the members of the Appropriative Pool Committee representatives of parties who produce water within CBMWD or WMWD; after said tenth year the formula set forth in said Paragraph 7(a) and 7(b) of Exhibit "H" for payment of the costs of replenishment water may be changed to 100% gross or net, or any percentage split thereof, but only in response to recommendation to the Court by affirmative vote of at least 67% of said voting power of the Appropriative Pool representatives of parties who produce ground water within CBMWD or WMWD, but not less than one-third of their number. In such event, the Court shall act in conformance with such recommendation unless there are compelling reasons to the contrary; and provided, further, that the fact that the allocation of Safe Yield or Operating Safe Yield shares may be rendered moot by a recommended change in the formula for replenishment assessments shall not be deemed to be such a "compelling reason."

Said continuing jurisdiction is provided for the purpose of enabling the Court, upon application of any party, the Watermaster, the Advisory Committee or any Pool Committee, by motion and, upon

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at least 30 days' notice thereof, and after hearing thereon, to make such further or supplemental orders or directions as may be necessary or appropriate for interpretation, enforcement or carrying out of this Judgment, and to modify, amend or amplify any of the provisions of this Judgment.

V. WATERMASTER

A. APPOINTMENT

16. Watermaster Appointment. CBMWD, acting by and through a majority of its board of directors, is hereby appointed Watermaster, to administer and enforce the provisions of this Judgment and any subsequent instructions or orders of the Court hereunder. The term of appointment of Watermaster shall be for five (5) years. The Court will by subsequent orders provide for successive terms or for a successor Watermaster. Watermaster may be changed at any time by subsequent order of the Court, on its own motion, or on the motion of any party after notice and hearing. Unless there are compelling reasons to the contrary, the Court shall act in conformance with a motion requesting the Watermaster be changed if such motion is supported by a majority of the voting power of the Advisory Committee.

B. POWERS AND DUTIES

17. Powers and Duties. Subject to the continuing supervision and control of the Court, Watermaster shall have and may exercise the express powers, and shall perform the duties, as provided in this Judgment or hereafter ordered or authorized by the Court in the exercise of the Court's continuing jurisdiction.

18. Rules and Regulations. Upon recommendation by the

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Advisory Committee, Watermaster shall make and adopt, after public hearing, appropriate rules and regulations for conduct of Watermaster affairs, including meeting schedules and procedures, and compensation of members of Watermaster at not to exceed $25 per member per meeting, or $300 per member per year, whichever is less, plus reasonable expenses related to activities within the Basin. Thereafter, Watermaster may amend said rules from time to time upon recommendation, or with approval of the Advisory Committee after hearing noticed to all active parties. A copy of said rules and regulations, and of any amendments thereof, shall be mailed to each active party.

19. Acquisition of Facilities. Watermaster may purchase, lease, acquire and hold all necessary facilities and equipment; provided, that it is not the intent of the Court that Watermaster acquire any interest in real property or substantial capital assets.

20. Employment of Experts and Agents. Watermaster may employ or retain such administrative, engineering, geologic, accounting, legal or other specialized personnel and consultants as may be deemed appropriate in the carrying out of its powers and shall require appropriate bonds from all officers and employees handling Watermaster funds. Watermaster shall maintain records for purposes of allocation of costs of such services as well as of all other expenses of Watermaster administration as between the several pools established by the Physical Solution.

21. Measuring Devices. Watermaster shall cause parties, pursuant to uniform rules, to install and maintain in good operating condition, at the cost of each party, such necessary measuring

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devices or meters as Watermaster may deem appropriate. Such measuring devices shall be inspected and tested as deemed necessary by Watermaster, and the cost thereof shall constitute an expense of Watermaster.

22. Assessments. Watermaster is empowered to levy and collect all assessments provided for in the pooling plans and Physical Solution.

23. Investment of Funds. Watermaster may hold and invest any and all Watermaster funds in investments authorized from time to time for public agencies of the State of California.

24. Borrowing. Watermaster may borrow from time to time amounts not exceeding the annual anticipated receipts of Watermaster during such year.

25. Contracts. Watermaster may enter into contracts for the performance of any powers herein granted; provided, however, that Watermaster may not contract with or purchase materials, supplies or services from CBMWD, except upon the prior recommendation and approval of the Advisory Committee and pursuant to written order of the Court.

26. Cooperation With Other Agencies. Subject to prior recommendation or approval of the Advisory Committee, Watermaster may act jointly or cooperate with agencies of the United States and the State of California or any political subdivisions, municipalities or districts or any person to the end that the purpose of the Physical Solution may be fully and economically carried out.

27. Studies. Watermaster may, with concurrence of the Advisory Committee or affected Pool Committee and in accordance with Paragraph 54(b), undertake relevant studies of hydrologic

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conditions, both quantitative and qualitative, and operating aspects of implementation of the management program for Chino Basin.

28. Ground Water Storage Agreements. Watermaster shall adopt, with the approval of the Advisory Committee, uniformly applicable rules and a standard form of agreement for storage of supplemental water, pursuant to criteria therefor set forth in Exhibit "I". Upon appropriate application by any person, Watermaster shall enter into such a storage agreement; provided that all such storage agreements shall first be approved by written order of the Court, and shall by their terms preclude operations which will have a substantial adverse impact on other producers.

29. Accounting for Stored Water. Watermaster shall calculate additions, extractions and losses and maintain an annual account of all Stored Water in Chino Basin, and any losses of water supplies or Safe Yield of Chino Basin resulting from such Stored Water.

30. Annual Administrative Budget. Watermaster shall submit to Advisory Committee an administrative budget and recommendation for each fiscal year on or before March 1. The Advisory Committee shall review and submit said budget and their recommendations to Watermaster on or before April 1, following. Watermaster shall hold a public hearing on said budget at its April quarterly meeting and adopt the annual administrative budget which shall include the administrative items for each pool committee. The administrative budget shall set forth budgeted items in sufficient detail as necessary to make a proper allocation of the expense among the several pools, together with Watermaster's proposed allocation. The budget shall contain such additional comparative information

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or explanation as the Advisory Committee may recommend from time to time. Expenditures within budgeted items may thereafter be made by Watermaster in the exercise of powers herein granted, as a matter of course. Any budget transfer in excess of 20% of a budget category during any budget year or modification of such administrative budget during any year shall be first submitted to the Advisory Committee for review and recommendation.

31. Review Procedures. All actions, decisions or rules of Watermaster shall be subject to review by the Court on its own motion or on timely motion by any party, the Watermaster (in the case of a mandated action), the Advisory Committee, or any Pool Committee, as follows:

(a) Effective Date of Watermaster Action. Any action, decision or rule of Watermaster shall be deemed to have occurred or been enacted on the date on which written notice thereof is mailed. Mailing of copies of approved Watermaster minutes to the active parties shall constitute such notice to all parties.

(b) Noticed Motion. Any party, the Watermaster (as to any mandated action), the Advisory Committee, or any Pool Committee may, by a regularly noticed motion, apply to the Court for review of any Watermaster's action, decision or rule. Notice of such motion shall be served personally or mailed to Watermaster and to all active parties. Unless otherwise ordered by the Court, such motion shall not operate to stay the effect of such Watermaster action, decision or rule.

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(c) Time for Motion. Notice of motion to review any Watermaster action, decision or rule shall be served and filed within ninety (90) days after such Watermaster action, decision or rule, except for budget actions, in which event said notice period shall be sixty (60) days.

(d) De Novo Nature of Proceedings. Upon the filing of any such motion, the Court shall require the moving party to notify the active parties, the Watermaster, the Advisory Committee and each Pool Committee, of a date for taking evidence and argument, and on the date so designated shall review de novo the question at issue. Watermaster's findings or decision, if any, may be received in evidence at said hearing, but shall not constitute presumptive or prima facie proof of any fact in issue.

(e) Decision. The decision of the Court in such proceeding shall be an appealable supplemental order in this case. When the same is final, it shall be binding upon the Watermaster and all parties.

C. ADVISORY AND POOL COMMITTEES

32. Authorization. Watermaster is authorized and directed to cause committees of producer representatives to be organized to act as Pool Committees for each of the several pools created under the Physical Solution. Said Pool Committees shall, in turn, jointly form an Advisory Committee to assist Watermaster in performance of its functions under this judgment. Pool Committees shall be composed as specified in the respective pooling plans, and the Advisory Committee shall be composed of not to exceed ten (10) voting representatives from each pool, as designated by the

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respective Pool Committee. WMWD, PVMWD and SBVMWD shall each be entitled to one non-voting representative on said Advisory Committee.

33. Term and Vacancies. Members of any Pool Committee, shall serve for the term, and vacancies shall be filled, as specified in the respective pooling plan. Members of the Advisory Committee shall serve at the will of their respective Pool Committee.

34. Voting Power. The voting power on each Pool Committee shall be allocated as provided in the respective pooling plan. The voting power on the Advisory Committee shall be one hundred (100) votes allocated among the three pools in proportion to the total assessments paid to Watermaster during the preceding year; provided, that the minimum voting power of each pool shall be

(a) Overlying (Agricultural) Pool 20,

(b) Overlying (Non-agricultural) Pool 5, and

(c) Appropriative Pool 20.

In the event any pool is reduced to its said minimum vote, the remaining votes shall be allocated between the remaining pools on said basis of assessments paid to Watermaster by each such remaining pool during the preceding year. The method of exercise of each pool's voting power on the Advisory Committee shall be as determined by the respective pool committees.

35. Quorum. A majority of the voting power of the Advisory Committee or any Pool Committee shall constitute a quorum for the transaction of affairs of such Advisory or Pool Committee; provided, that at least one representative of each Pool Committee shall be required to constitute a quorum of the Advisory Committee. No Pool Committee representative may purposely absent himself or

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herself, without good cause, from an Advisory Committee meeting to deprive it of a quorum. Action by affirmative vote of a majority of the entire voting power of any Pool Committee or the Advisory Committee shall constitute action by such committee. Any action or recommendation of a Pool Committee or the Advisory Committee shall be transmitted to Watermaster in writing, together with a report of any dissenting vote or opinion.

36. Compensation. Pool or Advisory Committee members may receive compensation, to be established by the respective pooling plan, but not to exceed twenty-five dollars ($25.00) for each meeting of such Pool or Advisory Committee attended, and provided that no member of a Pool or Advisory Committee shall receive compensation of more than three hundred ($300.00) dollars for service on any such committee during any one year. All such compensation shall be a part of Watermaster administrative expense. No member of any Pool or Advisory Committee shall be employed by Watermaster or compensated by Watermaster for professional or other services rendered to such Pool or Advisory Committee or to Watermaster, other than the fee for attendance at meetings herein provided, plus reimbursement of reasonable expenses related to activities within the Basin.

37. Organization.

(a) Organizational Meeting. At its first meeting in each year, each Pool Committee and the Advisory Committee shall elect a chairperson and a vice chairperson from its membership. It shall also select a secretary, a treasurer and such assistant secretaries and treasurers as may be appropriate, any of whom may, but need not, be members of

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such Pool or Advisory Committee.

(b) Regular Meetings. All Pool Committees and the Advisory Committee shall hold regular meetings at a place and time to be specified in the rules to be adopted by each Pool and Advisory Committee. Notice of regular meetings of any Pool or Advisory Committee, and of any change in time or place thereof, shall be mailed to all active parties in said pool or pools.

(c) Special Meetings. Special meetings of any Pool or Advisory Committee may be called at any time by the Chairperson or by any three (3) members of such Pool or Advisory Committee by delivering notice personally or by mail to each member of such Pool or Advisory Committee and to each active party at least 24 hours before the time of each such meeting in the case of personal delivery, and 96 hours in the case of mail. The calling notice shall specify the time and place of the special meeting and the business to be transacted. No other business shall be considered at such meeting.

(d) Minutes. Minutes of all Pool Committee, Advisory Committee and Watermaster meetings shall be kept at Watermaster's offices. Copies thereof shall be mailed or otherwise furnished to all active parties in the pool or pools concerned. Said copies of minutes shall constitute notice of any Pool or Advisory Committee action therein reported, and shall be available for inspection by any party.

(e) Adjournments. Any meeting of any Pool or Advisory Committee may be adjourned to a time and place specified in the order of adjournment. Less than a quorum may so adjourn

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from time to time. A copy of the order or notice of adjournment shall be conspicuously posted forthwith on or near the door of the place where the meeting was held.

38. Powers and Functions. The powers and functions of the respective Pool Committees and the Advisory Committee shall be as follows:

(a) Pool Committees. Each Pool Committee shall have the power and responsibility for developing policy recommendations for administration of its particular pool, as created under the Physical Solution. All actions and recommendations of any Pool Committee which require Watermaster implementation shall first be noticed to the other two pools. If no objection is received in writing within thirty (30) days, such action or recommendation shall be transmitted directly to Watermaster for action. If any such objection is received, such action or recommendation shall be reported to the Advisory Committee before being transmitted to Watermaster.

(b) Advisory Committee. The Advisory Committee shall have the duty to study, and the power to recommend, review and act upon all discretionary determinations made or to be made hereunder by Watermaster.

[1] Committee Initiative. When any recommendation or advice of the Advisory Committee is received by Watermaster, action consistent therewith may be taken by Watermaster; provided, that any recommendation approved by 80 votes or more in the Advisory Committee shall constitute a mandate for action by Watermaster consistent therewith. If Watermaster is unwilling or unable to act

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pursuant to recommendation or advice from the Advisory Committee (other than such mandatory recommendations), Watermaster shall hold a public hearing, which shall be followed by written findings and decision. Thereafter, Watermaster may act in accordance with said decision, whether consistent with or contrary to said Advisory Committee recommendation. Such action shall be subject to review by the Court, as in the case of all other Watermaster determinations.

[2] Committee Review. In the event Watermaster proposes to take any discretionary action, other than approval or disapproval of a Pool Committee action or recommendation properly transmitted, or execute any agreement not theretofore within the scope of an Advisory Committee recommendation, notice of such intended action shall be served on the Advisory Committee and its members at least thirty (30) days before the Watermaster meeting at which such action is finally authorized.

(c) Review of Watermaster Actions. Watermaster (as to mandated action), the Advisory Committee or any Pool Committee shall be entitled to employ counsel and expert assistance in the event Watermaster or such Pool or Advisory Committee seeks Court review of any Watermaster action or failure to act. The cost of such counsel and expert assistance shall be Watermaster expense to be allocated to the affected pool or pools.

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VI. PHYSICAL SOLUTION

A. GENERAL

39. Purpose and Objective. Pursuant to the mandate of Section 2 of Article X of the California Constitution, the Court hereby adopts and orders the parties to comply with a Physical Solution. The purpose of these provisions is to establish a legal and practical means for making the maximum reasonable beneficial use of the waters of Chino Basin by providing the optimum economic, long-term, conjunctive utilization of surface waters, ground waters and supplemental water, to meet the requirements of water users having rights in or dependent upon Chino Basin.

40. Need for Flexibility. It is essential that this Physical Solution provide maximum flexibility and adaptability in order that Watermaster and the Court may be free to use existing and future technological, social, institutional and economic options, in order to maximize beneficial use of the waters of Chino Basin. To that end, the Court's retained jurisdiction will be utilized, where appropriate, to supplement the discretion herein granted to the Wastermaster.

41. Watermaster Control. Watermaster, with the advice of the Advisory and Pool Committees, is granted discretionary powers in order to develop an optimum basin management program for Chino Basin, including both water quantity and quality considerations. Withdrawals and supplemental water replenishment of Basin Water, and the full utilization of the water resources of Chino Basin, must be subject to procedures established by and administered through Watermaster with the advice and assistance of the Advisory and Pool Committees composed of the affected producers. Both the

quantity and quality of said water resources may thereby be preserved and the beneficial utilization of the Basin maximized.

42. General Pattern of Operations. It is contemplated that the rights herein decreed will be divided into three (3) operating pools for purposes of Watermaster administration. A fundamental premise of the Physical Solution is that all water users dependent upon Chino Basin will be allowed to pump sufficient waters from the Basin to meet their requirements. To the extent that pumping exceeds the share of the Safe Yield assigned to the Overlying Pools, or the Operating Safe Yield in the case of the Appropriative Pool, each pool will provide funds to enable Watermaster to replace such overproduction. The method of assessment in each pool shall be as set forth in the applicable pooling plan.

B. POOLING

43. Multiple Pools Established. There are hereby established three (3) pools for Watermaster administration of, and for the allocation of responsibility for, and payment of, costs of replenishment water and other aspects of this Physical Solution.

(a) Overlying (Agricultural) Pool. The first pool shall consist of the State of California and all overlying producers who produce water for other than industrial or commercial purposes. The initial members of the pool are listed in Exhibit "C".

(b) Overlying (Non-agricultural) Pool. The second pool shall consist of overlying producers who produce water for industrial or commercial purposes. The initial members of this pool are listed in Exhibit "D".

(c) Appropriative Pool. A third and separate pool shall

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consist of owners of appropriative rights. The initial members of the pool are listed in Exhibit "E".

Any party who changes the character of his use may, by subsequent order of the Court, be reassigned to the proper pool; but the allocation of Safe Yield under Paragraph 44 hereof shall not be changed. Any non-party producer or any person who may hereafter commence production of water from Chino Basin, and who may become a party to this physical solution by intervention, shall be assigned to the proper pool by the order of the Court authorizing such intervention.

44. Determination and Allocation of Rights to Safe Yield of Chino Basin. The declared Safe Yield of Chino Basin is hereby allocated as follows:

Pool	Allocation
Overlying (Agricultural) Pool	414,000 acre feet in any five (5) consecutive years.
Overlying (Non-agricultural) Pool.	7,366 acre feet per year.
Appropriative Pool	49,834 acre feet per year.

The foregoing acre foot allocations to the overlying pools are fixed. Any subsequent change in the Safe Yield shall be debited or credited to the Appropriative Pool. Basin Water available to the Appropriative Pool without replenishment obligation may vary from year to year as the Operating Safe Yield is determined by Watermaster pursuant to the criteria set forth in Exhibit "I".

45. Annual Replenishment. Watermaster shall levy and collect assessments in each year, pursuant to the respective pooling plans, in amounts sufficient to purchase replenishment water to replace production by any pool during the preceding year which exceeds that

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pool's allocated share of Safe Yield in the case of the overlying pools, or Operating Safe Yield in the case of the Appropriative Pool. It is anticipated that supplemental water for replenishment of Chino Basin may be available at different rates to the various pools to meet their replenishment obligations. If such is the case, each pool will be assessed only that amount necessary for the cost of replenishment water to that pool, at the rate available to the pool, to meet its replenishment obligation.

46. Initial Pooling Plans. The initial pooling plans, which are hereby adopted, are set forth in Exhibits "F", "G" and "H", respectively. Unless and until modified by amendment of the judgment pursuant to the Court's continuing jurisdiction, each such plan shall control operation of the subject pool.

C. REPORTS AND ACCOUNTING

47. Production Reports. Each party or responsible party shall file periodically with Watermaster, pursuant to Watermaster rules, a report on a form to be prescribed by Watermaster showing the total production of such party during the preceding reportage period, and such additional information as Watermaster may require, including any information specified by the affected Pool Committee.

48. Watermaster Reports and Accounting. Watermaster's annual report, which shall be filed on or before November 15 of each year and shall apply to the preceding year's operation, shall contain details as to operation of each of the pools and a certified audit of all assessments and expenditures pursuant to this Physical Solution and a review of Watermaster activities.

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D. REPLENISHMENT

49. Sources of Supplemental Water. Supplemental water may be obtained by Watermaster from any available source. Watermaster shall seek to obtain the best available quality of supplemental water at the most reasonable cost for recharge in the Basin. To the extent that costs of replenishment water may vary between pools, each pool shall be liable only for the costs attributable to its required replenishment. Available sources may include, but are not limited to:

(a) Reclaimed Water. There exist a series of agreements generally denominated the Regional Waste Water Agreements between CBMWD and owners of the major municipal sewer systems within the basin. Under those agreements, which are recognized hereby but shall be unaffected and unimpaired by this judgment, substantial quantities of reclaimed water may be made available for replenishment purposes. There are additional sources of reclaimed water which are, or may become, available to Watermaster for said purposes. Maximum beneficial use of reclaimed water shall be given high priority by Watermaster.

(b) State Water. State water constitutes a major available supply of supplemental water. In the case of State Water, Watermaster purchases shall comply with the water service provisions of the State's water service contracts. More specifically, Watermaster shall purchase State Water from MWD for replenishment of excess production within CBMWD, WMWD and PVMWD, and from SBVMWD to replenish excess production within SBVMWD's boundaries in Chino Basin, except to the

extent that MWD and SBVMWD give their consent as required by such State water service contracts.

(c) Local Import. There exist facilities and methods for importation of surface and ground water supplies from adjacent basins and watersheds.

(d) Colorado River Supplies. MWD has water supplies available from its Colorado River Aqueduct.

50. Methods of Replenishment. Watermaster may accomplish replenishment of overproduction from the Basin by any reasonable method, including:

(a) Spreading and percolation or Injection of water in existing or new facilities, subject to the provisions of Paragraphs 19, 25 and 26 hereof.

(b) In Lieu Procedures. Watermaster may make, or cause to be made, deliveries of water for direct surface use, in lieu of ground water production.

E. REVENUES

51. Production Assessment. Production assessments, on whatever basis, may be levied by Watermaster pursuant to the pooling plan adopted for the applicable pool.

52. Minimal Producers. Minimal Producers shall be exempted from payment of production assessments, upon filing of production reports as provided in Paragraph 47 of this Judgment, and payment of an annual five dollar ($5.00) administrative fee as specified by Watermaster rules.

53. Assessment Proceeds -- Purposes. Watermaster shall have the power to levy assessments against the parties (other than minimal pumpers) based upon production during the preceding period

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of assessable production, whether quarterly, semi-annually or annually, as may be determined most practical by Watermaster or the affected Pool Committee.

54. Administrative Expenses. The expenses of administration of this Physical Solution shall be categorized as either (a) general Watermaster administrative expense, or (b) special project expense.

(a) General Watermaster Administrative Expense shall include office rental, general personnel expense, supplies and office equipment, and related incidental expense and general overhead.

(b) Special Project Expense shall consist of special engineering, economic or other studies, litigation expense, meter testing or other major operating expenses. Each such project shall be assigned a Task Order number and shall be separately budgeted and accounted for.

General Watermaster administrative expense shall be allocated and assessed against the respective pools based upon allocations made by the Watermaster, who shall make such allocations based upon generally accepted cost accounting methods. Special Project Expense shall be allocated to a specific pool, or any portion thereof, only upon the basis of prior express assent and finding of benefit by the Pool Committee, or pursuant to written order of the Court.

55. Assessments -- Procedure. Assessments herein provided for shall be levied and collected as follows:

(a) Notice of Assessment. Watermaster shall give written notice of all applicable assessments to each party on

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or before ninety (90) days after the end of the production period to which such assessment is applicable.

(b) Payment. Each assessment shall be payable on or before thirty (30) days after notice, and shall be the obligation of the party or successor owning the water production facility at the time written notice of assessment is given, unless prior arrangement for payment by others has been made in writing and filed with Watermaster.

(c) Delinquency. Any delinquent assessment shall bear interest at 10% per annum (or such greater rate as shall equal the average current cost of borrowed funds to the Watermaster) from the due date thereof. Such delinquent assessment and interest may be collected in a show-cause proceeding herein instituted by the Watermaster, in which case the Court may allow Watermaster its reasonable costs of collection, including attorney's fees.

56. Accumulation of Replenishment Water Assessment Proceeds. In order to minimize fluctuation in assessment and to give Watermaster flexibility in purchase and spreading of replenishment water, Watermaster may make reasonable accumulations of replenishment water assessment proceeds. Interest earned on such retained funds shall be added to the account of the pool from which the funds were collected and shall be applied only to the purchase of replenishment water.

57. Effective Date. The effective date for accounting and operation under this Physical Solution shall be July 1, 1977, and the first production assessments hereunder shall be due after July 1, 1978. Watermaster shall, however, require installation of

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meters or measuring devices and establish operating procedures immediately, and the costs of such Watermaster activity (not including the cost of such meters and measuring devices) may be recovered in the first administrative assessment in 1978.

VII. MISCELLANEOUS PROVISIONS

58. Designation of Address for Notice and Service. Each party shall designate the name and address to be used for purposes of all subsequent notices and service herein, either by its endorsement on the Stipulation for Judgment or by a separate designation to be filed within thirty (30) days after Judgment has been served. Said designation may be changed from time to time by filing a written notice of such change with the Watermaster. Any party desiring to be relieved of receiving notices of Watermaster or committee activity may file a waiver of notice on a form to be provided by Watermaster. Thereafter such party shall be removed from the Active Party list. Watermaster shall maintain at all times a current list of active parties and their addresses for purposes of service. Watermaster shall also maintain a full current list of names and addresses of all parties or their successors, as filed herein. Copies of such lists shall be available, without cost, to any party, the Advisory Committee or any Pool Committee upon written request therefor.

59. Service of Documents. Delivery to or service upon any party or active party by the Watermaster, by any other party, or by the Court, of any item required to be served upon or delivered to such party or active party under or pursuant to the Judgment shall be made personally or by deposit in the United States mail, first

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class, postage prepaid, addressed to the designee and at the address in the latest designation filed by such party or active party.

60. Intervention After Judgment. Any non-party assignee of the adjudicated appropriative rights of any appropriator, or any other person newly proposing to produce water from Chino Basin, may become a party to this judgment upon filing a petition in intervention. Said intervention must be confirmed by order of this Court. Such intervenor shall thereafter be a party bound by this judgment and entitled to the rights and privileges accorded under the Physical Solution herein, through the pool to which the Court shall assign such intervenor.

61. Loss of Rights. Loss, whether by abandonment, forfeiture or otherwise, of any right herein adjudicated shall be accomplished only (1) by a written election by the owner of the right filed with Watermaster, or (2) by order of the Court upon noticed motion and after hearing.

62. Scope of Judgment. Nothing in this Judgment shall be deemed to preclude or limit any party in the assertion against a neighboring party of any cause of action now existing or hereafter arising based upon injury, damage or depletion of water supply available to such party, proximately caused by nearby pumping which constitutes an unreasonable interference with such complaining party's ability to extract ground water.

63. Judgment Binding on Successors. This Judgment and all provisions thereof are applicable to and binding upon not only the parties to this action, but also upon their respective heirs, executors, administrators, successors, assigns, lessees and

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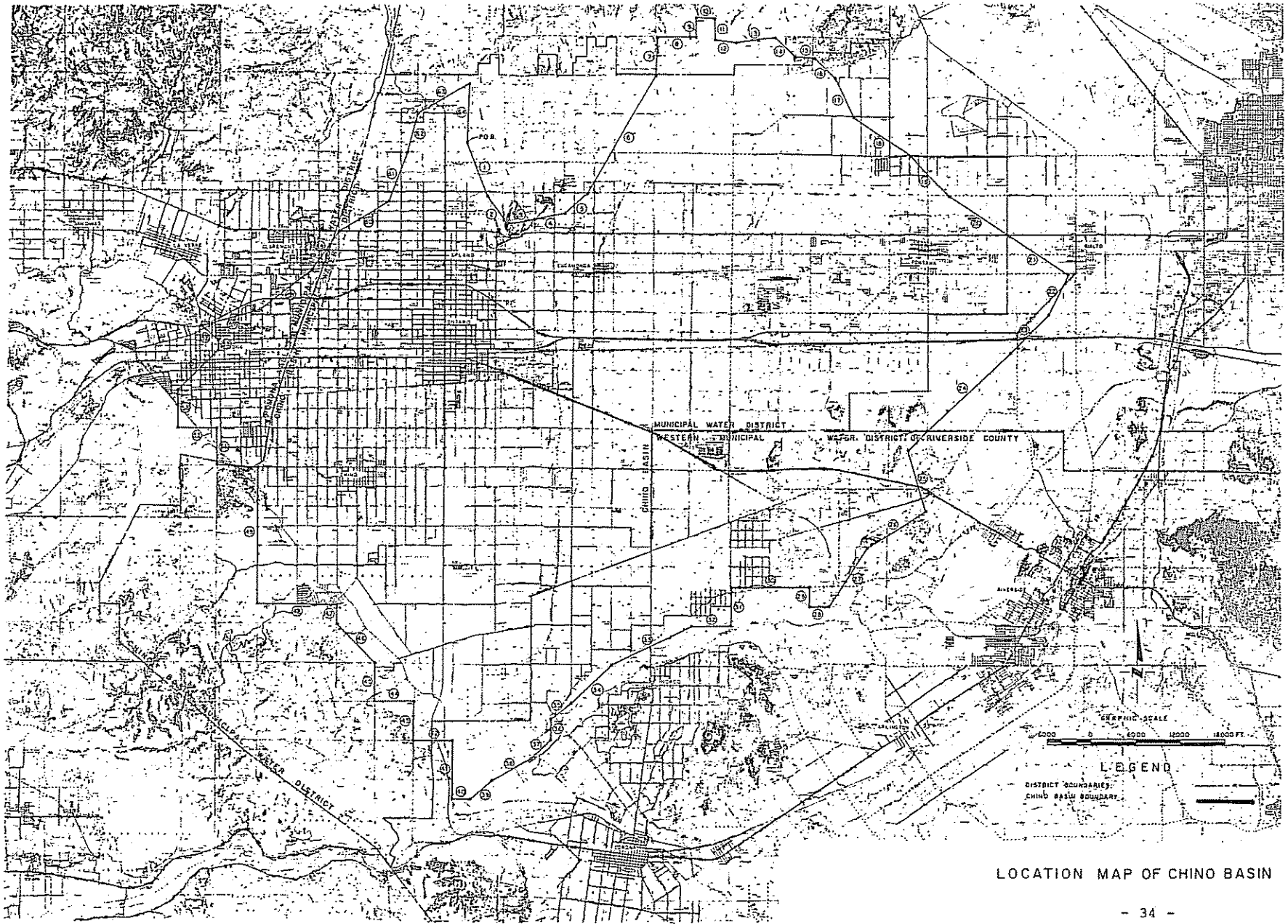
licensees and upon the agents, employees and attorneys in fact of all such persons.

64. Costs. No party shall recover any costs in this proceeding from any other party.

Dated: JAN 27 1978.

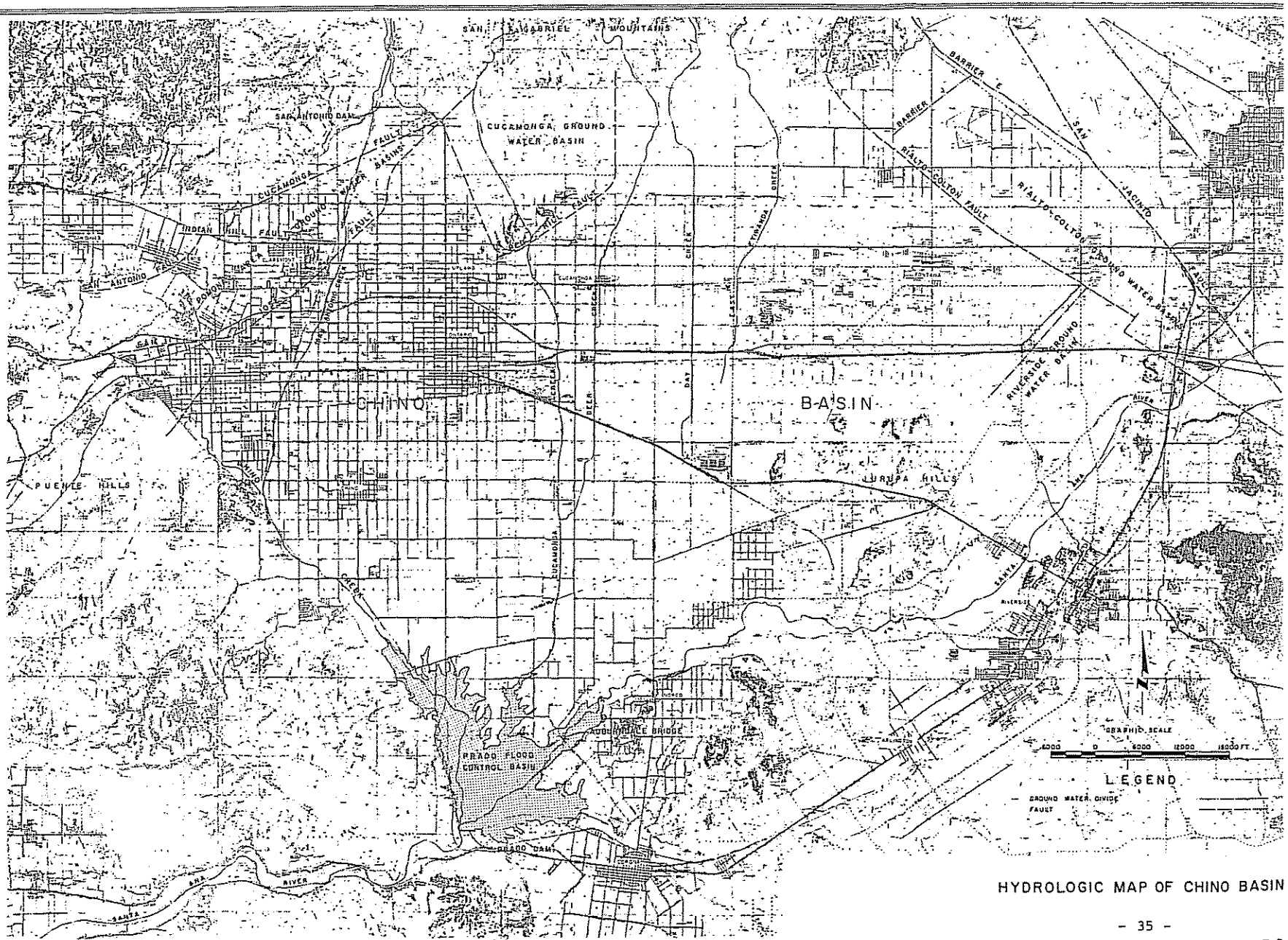
Judge

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LOCATION MAP OF CHINO BASIN

EXHIBIT A



HYDROLOGIC MAP OF CHINO BASIN

EXHIBIT B

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STIPULATING OVERLYING AGRICULTURAL PRODUCERS

STATE OF CALIFORNIA
COUNTY OF SAN BERNARDINO

Abacherli Dairy, Inc.
Abacherli, Frank
Abacherli, Shirley
Abbona, Anna
Abbona, James
Abbona, Jim
Abbona, Mary
Agliani, Amelia H.
Agman, Inc.
Aguerre, Louis B.
Ahmanson Trust Co.
Akiyama, Shizuye
Akiyama, Tomoo
Akkerman, Dave
Albers, J. N.
Albers, Nellie
Alewyn, Jake J.
Alewyn, Normalee
Alger, Mary D.
Alger, Raymond
Allen, Ben F.
Allen, Jane F.
Alta-Dena Dairy
Anderson Farms
Anguiano, Sarah L. S.
Anker, Gus
Aphessetche, Xavier
Arena Mutual Water Assn.
Armstrong Nurseries, Inc.
Arretche, Frank
Arretche, Jean Pierre
Arvidson, Clarence F.
Arvidson, Florence
Ashley, George W.
Ashley, Pearl E.
Atlas Farms
Atlas Ornamental Iron Works, Inc.
Aukeman, Carol
Aukeman, Lewis
Ayers, Kenneth C., aka
Kelley Ayers
Bachoc, Raymond
Baldwin, Edgar A.
Baldwin, Lester
Banbury, Carolyn
Bangma Dairy
Bangma, Arthur
Bangma, Ida
Bangma, Martin
Bangma, Sam
Barba, Anthony B.
Barba, Frank
Barcellos, Joseph
Barnhill, Maurine W.

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Barnhill, Paul	Boersma, Angie
Bartel, Dale	Boersma, Berdina
Bartel, Ursula	Boersma, Frank
Bartel, Willard	Boersma, Harry
Barthelemy, Henry	Boersma, Paul
Barthelemy, Roland	Boersma, Sam
Bassler, Donald V., M.D.	Boersma, William L.
Bates, Lowell R.	Bohlander & Holmes, Inc.
Bates, Mildred L.	Bokma, Peter
Beahm, James W.	Bollema, Jacob
Beahm, Joan M.	Boonstoo, Edward
Bekendam, Hank	Bootsma, Jim
Bekendam, Pete	Borba, Dolene
Bello, Eugene	Borba, Dolores
Bello, Olga	Borba, Emily
Beltman, Evelyn	Borba, George
Beltman, Tony	Borba, John
Bergquist Properties, Inc.	Borba, John & Sons
Bevacqua, Joel A.	Borba, John Jr.
Bevacqua, Marie B.	Borba, Joseph A.
Bidart, Bernard	Borba, Karen E.
Bidart, Michael J.	Borba, Karen M.
Binnell, Wesley	Borba, Pete, Estate of
Black, Patricia E.	Borba, Ricci
Black, Victor	Borba, Steve
Bodger, John & Sons Co.	Borba, Tom
Boer, Adrian	Bordisso, Alleck
Boersma and Wind Dairy	Borges, Angelica M.

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Borges, Bernadette
Borges, John O.
Borges, Linda L.
Borges, Manual Jr.
Borges, Tony
Bos, Aleid
Bos, Gerrit
Bos, John
Bos, John
Bos, Margaret
Bos, Mary
Bos, Mary Beth
Bos, Tony
Bosch, Henrietta
Bosch, Peter T.
Boschma, Betty
Boschma, Frank
Boschma, Greta
Boschma, Henry
Bosma, Dick
Bosma, Florence G.
Bosma, Gerrit
Bosma, Jacob J.
Bosma, Jeanette Thea
Bosman, Frank
Bosman, Nellie
Bosnyak, Goldie M.
Bosnyak, Martin
Bothof, Roger W.
Bouma, Cornie
Bouma, Emma
Bouma, Henry P.
Bouma, Martin
Bouma, Peter G. & Sons Dairy
Bouma, Ted
Bouman, Helen
Bouman, Sam
Bower, Mabel E.
Boys Republic
Breedyk, Arie
Breedyk, Jessie
Briano Brothers
Briano, Albert
Briano, Albert Trustee for
Briano, Albert Frank
Briano, Lena
Brink, Russell N.
Brinkerhoff, Margaret
Brinkerhoff, Robert L.
Britschgi, Florence
Britschgi, Magdalena Garetto
Britschgi, Walter P.
Brommer, Marvin
Brookside Enterprizes, dba
Brookside Vineyard Co.
Brothers Three Dairy

Brown, Eugene
Brun, Martha M.
Brun, Peter Robert
Buma, Duke
Buma, Martha
Bunse, Nancy
Bunse, Ronnie L.
Caballero, Bonnie L.
Caballero, Richard F.
Cable Airport Inc.
Cadlini, Donald
Cadlini, Jesse R.
Cadlini, Marie Edna
Cambio, Anna
Cambio, Charles, Estate of
Cambio, William V.
Cardoza, Florence
Cardoza, Olivi
Cardoza, Tony
Carnesi, Tom
Carver, Robt M., Trustee
Cauffman, John R.
Chacon Bros.
Chacon, Elvera P.
Chacon, Joe M.
Chacon, Robert M.
Chacon, Virginia L.
Chez, Joseph C.
Chino Corona Investment
Chino Water Co.
Christensen, Leslie
Christensen, Richard G.
Christian, Ada R.
Christian, Harold F.
Christy, Ella J.
Christy, Ronald S.
Cihigoyenetche, Jean
Cihigoyenetche, Leona
Cihigoyenetche, Martin
Clarke, Arthur B.
Clarke, Nancy L.
Clarke, Phyllis J.
Coelho, Isabel
Coelho, Joe A. Jr.
Collins, Howard E.
Collins, Judith F.
Collinsworth, Ester L.
Collinsworth, John E.
Collinsworth, Shelby
Cone Estate (05-2-00648/649)
Consolidated Freightways Corp.
of Delaware
Corona Farms Co.
Corra, Rose
Costa, Dimas S.
Costa, Laura

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Costa, Myrtle	De Boer, L. H.
Costamagna, Antonio	De Boer, Sidney
Costamagna, Joseph	De Bos, Andrew
Cousyn, Claus B.	De Graaf, Anna Mae
Cramer, Carole F.	De Graaf, Gerrit
Cramer, William R.	De Groot, Dick
Crossroads Auto Dismantlers, Inc.	De Groot, Dorothy
Crouse, Beatrice I.	De Groot, Ernest
Crouse, Roger	De Groot, Henrietta
Crowley, Juanita C.	De Groot, Jake
Crowley, Ralph	De Groot, Pete Jr.
Cucamonga Vintners	De Haan, Bernadena
D'Astici, Teresa	De Haan, Henry
Da Costa, Cecilia B.	De Hoog, Adriana
Da Costa, Joaquim F.	De Hoog, Joe
Daloisio, Norman	De Hoog, Martin
De Berard Bros.	De Hoog, Martin L.
De Berard, Arthur, Trustee	De Hoog, Mitch
De Berard, Charles	De Hoog, Tryntje
De Berard, Chas., Trustee	De Jager, Cobi
De Berard, Helan J.	De Jager, Edward D.
De Berard, Robert	De Jong Brothers Dairy
De Berard, Robert, Trustee	De Jong, Cornelis
De Bie, Adrian	De Jong, Cornelius
De Bie, Henry	De Jong, Grace
De Bie, Margaret M.	De Jong, Jake
De Bie, Marvin	De Jong, Lena
De Boer, Fred	De Leeuw, Alice

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De Leeuw, Sam	Dirkse, Catherine
De Soete, Agnes	Dirkse, Charles C.
De Soete, Andre	Dixon, Charles E.
De Vries, Abraham	Dixon, Geraldine A.
De Vries, Case	Doesberg, Hendrica
De Vries, Dick	Doesburg, Theodorus P.
De Vries, Evelyn	Dolan, Marion
De Vries, Henry, Estate of	Dolan, Michael H.
De Vries, Hermina	Dominguez, Helen
De Vries, Jack H.	Dominguez, Manual
De Vries, Jane	Donkers, Henry A.
De Vries, Janice	Donkers, Nellie G.
De Vries, John	Dotta Bros.
De Vries, John J.	Douma Brothers Dairy
De Vries, Neil	Douma, Betty A.
De Vries, Ruth	Douma, Fred A.
De Vries, Theresa	Douma, Hendrika
De Wit, Gladys	Douma, Herman G.
De Wit, Peter S.	Douma, Narleen J.
De Wyn, Evert	Douma, Phillip M.
De Zoete, Hattie V.	Dow Chemical Co.
De Zoete, Leo A.	Dragt, Rheta
Decker, Hallie	Dragt, William
Decker, Henry A.	Driftwood Dairy Farm
Demmer, Ernest	Droogh, Case
Di Carlo, Marie	Duhalde, Marian
Di Carlo, Victor	Duhalde, Lauren
Di Tommaso, Frank	Duits, Henrietta

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Duits, John	Excelsior Farms
	F.D.I.C.
Dunlap, Edna Kraemer,	Fagundes, Frank M.
Estate of	Fagundes, Mary
Durrington, Glen	Fernandes, Joseph Jr.
Durrington, William F.	Fernandes, Velma C.
Dusi, John, Sr.	Ferraro, Ann
Dykstra, Dick	Ferreira, Frank J.
Dykstra, John	Ferreira, Joe C. Jr.
Dykstra, John & Sons	Ferreira, Narcie
Dykstra, Wilma	Filippi, J. Vintage Co.
Dyt, Cor	Filippi, Joseph
Dyt, Johanna	Filippi, Joseph A.
E and S Grape Growers	Filippi, Mary E.
Eaton, Thomas, Estate of	Fitzgerald, John R.
Echeverria, Juan	Flameling Dairy Inc.
Echeverria, Carlos	Flamingo Dairy
Echeverria, Pablo	Foss, Douglas E.
Eilers, E. Myrle	Foss, Gerald R.
Eilers, Henry W.	Foss, Russel
El Prado Golf Course	Fred & John Troost No. 1 Inc.
Ellsworth, Rex C.	Fred & Maynard Troost No. 2 Inc.
Engelsma, Jake	Freitas, Beatriz
Engelsma, Susan	Freitas, Tony T.
Escojeda, Henry	Gakle, Louis L.
Etiwanda Grape Products Co.	Galleano Winery, Inc.
Euclid Ave. Investment One	Galleano, Bernard D.
Euclid Ave. Investment Four	Galleano, D.
Euclid Ave. Three Investment	Galleano, Mary M.

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Garcia, Pete
Gardner, Leland V.
Gardner, Lola M.
Garrett, Leonard E.
Garrett, Patricia T.
Gastelluberry, Catherine
Gastelluberry, Jean
Gilstrap, Glen E.
Gilstrap, Marjorie J.
Godinho, John
Godinho, June
Gonsalves, Evelyn
Gonsalves, John
Gorzeman, Geraldine
Gorzeman, Henry A.
Gorzeman, Joe
Govea, Julia
Goyenetche, Albert
Grace, Caroline E.
Grace, David J.
Gravatt, Glenn W.
Gravatt, Sally Mae
Greydanus Dairy, Inc.
Greydanus, Rena
Griffin Development Co.
Haagsma, Dave
Haagsma, John
Hansen, Mary D.
Hansen, Raymond F.
Hanson, Ardeth W.
Harada, James T.
Harada, Violet A.
Haringa, Earl and Sons
Haringa, Herman
Haringa, Rudy
Haringa, William
Harper, Cecilia de Mille
Harrington, Winona
Harrison, Jacqueline A.
Hatanaka, Kenichi
Heida, Annie
Heida, Don
Heida, Jim
Heida, Sam
Helms, Addison D.
Helms, Irma A.
Hermans, Alma I.
Hermans, Harry
Hettinga, Arthur
Hettinga, Ida
Hettinga, Judy
Hettinga, Mary
Hettinga, Wilbur
Heublein, Inc., Grocery Products Group
Hibma, Catherine M.

Hibma, Sidney
Hicks, Kenneth I.
Hicks, Minnie M.
Higgins Brick Co.
Highstreet, Alfred V.
Highstreet, Evada V.
Hilarides, Bertha as Trustee
Hilarides, Frank
Hilarides, John as Trustee
Hindelang, Tillie
Hindelang, William
Hobbs, Bonnie C.
Hobbs, Charles W.
Hobbs, Hazel I.
Hobbs, Orlo M.
Hoekstra, Edward
Hoekstra, George
Hoekstra, Grace
Hoekstra, Louie
Hofer, Paul B.
Hofer, Phillip F.
Hofstra, Marie
Hogeboom, Jo Ann M.
Hogeboom, Maurice D.
Hogg, David V.
Hogg, Gene P.
Hogg, Warren G.
Hohberg, Edith J.
Hohberg, Harold C.
Hohberg, Harold W.
Holder, Arthur B.
Holder, Dorothy F.
Holmes, A. Lee
Holmes, Frances P.
Hoogeboom, Gertrude
Hoogeboom, Pete
Hoogendam, John
Hoogendam, Tena
Houssels, J. K. Thoroughbred Farm
Hunt Industries
Idsinga, Ann
Idsinga, William W.
Imbach Ranch, Inc.
Imbach, Kenneth E.
Imbach, Leonard K.
Imbach, Oscar K.
Imbach, Ruth M.
Indaburu, Jean
Indaburu, Marceline
Iseli, Kurt H.
Ito, Kow
J & B Dairy Inc.
Jaques, Johnny C. Jr.
Jaques, Mary
Jaques, Mary Lou

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Jay Em Bee Farms	Knevelbaard, John
Johnson Bro's Egg Ranches, Inc.	Knudsen, Ejnar
Johnston, Ellwood W.	Knudsen, Karen M.
Johnston, George F. Co.	Knudsen, Kenneth
Johnston, Judith H.	Knudson, Robert
Jones, Leonard P.	Knudson, Darlene
Jongsma & Sons Dairy	Koel, Helen S.
Jongsma, Diana A.	Koetsier, Gerard
Jongsma, Dorothy	Koetsier, Gerrit J.
Jongsma, George	Koetsier, Jake
Jongsma, Harold	Koning, Fred W.
Jongsma, Henry	Koning, Gloria
Jongsma, John	Koning, J. W. Estate
Jongsma, Nadine	Koning, James A.
Jongsma, Tillie	Koning, Jane
Jordan, Marjorie G.	Koning, Jane C.
Jordan, Troy O.	Koning, Jennie
Jorritsma, Dorothy	Koning, John
Juliano, Albert	Koning, Victor A.
Kamper, Cornelis	Kooi Holstein Corporation
Kamstra, Wilbert	Koolhaas, Kenneth E.
Kaplan, Lawrence J.	Koolhaas, Simon
Kasbergen, Martha	Koolhaas, Sophie Grace
Kasbergen, Neil	Koopal, Grace
Kazian, Angelen Estate of	Koopal, Silas
Kingsway Const. Corp.	Koopman, Eka
Klapps Market	Koopman, Gene T.
Kline, James K.	Koopman, Henry G.

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Koopman, Ted
Koopman, Tena
Koot, Nick
Koster, Aart
Koster, Frances
Koster, Henry B.
Koster, Nellie
Kroes, Jake R.
Kroeze, Bros
Kroeze, Calvin E.
Kroeze, John
Kroeze, Wesley
Kruckenberg, Naomi
Kruckenberg, Perry
L. D. S. Welfare Ranch
Labrucherie, Mary Jane
Labrucherie, Raymond F.
Lako, Samuel
Landman Corp.
Lanting, Broer
Lanting, Myer
Lass, Jack
Lass, Sandra L.
Lawrence, Cecelia, Estate of
Lawrence, Joe H., Estate of
Leal, Bradley W.
Leal, John C.
Leal, John Craig
Leck, Arthur A.
Leck, Evelyn M.
Lee, Harold E.
Lee, Helen J.
Lee, Henrietta C.
Lee, R. T. Construction Co.
Lekkerkerk, Adriana
Lekkerkerk, L. M.
Lekkerkerker, Nellie
Lekkerkerker, Walt
Lewis Homes of California
Livingston, Dorothy M.
Livingston, Rex E.
Lokey, Rosemary Kraemer
Lopes, Candida A.
Lopes, Antonio S.
Lopez, Joe D.
Lourenco, Carlos, Jr.
Lourenco, Carmelina P.
Lourenco, Jack C.
Lourenco, Manual H.
Lourenco, Mary
Lourenco, Mary
Luiten, Jack
Luiz, John M.
Luna, Christine I.
Luna, Ruben T.
Lusk, John D. and Son
a California corporation

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Lyon, Gregory E.
Lyon, Paula E.
M & W Co. #2
Madole, Betty M.
Madole, Larry B.
Marquez, Arthur
Marquine, Jean
Martin, Lelon O.
Martin, Leon O.
Martin, Maria D.
Martin, Tony J.
Martins, Frank
Mathias, Antonio
Mc Cune, Robert M.
Mc Masters, Gertrude
Mc Neill, J. A.
Mc Neill, May F.
Mees, Leon
Mello and Silva Dairy
Mello and Sousa Dairy
Mello, Emilia
Mello, Enos C.
Mello, Mercedes
Mendiondo, Catherine
Mendiondo, Dominique
Meth. Hosp. - Sacramento
Metzger, R. S.
Metzger, Winifred
Mickel, Louise
Miersma, Dorothy
Meirsma, Harry C.
Minaberry, Arnaud
Minaberry, Marie
Mistretta, Frank J.
Mocho and Plaa Inc.
Mocho, Jean
Mocho, Noeline
Modica, Josephine
Montes, Elizabeth
Montes, Joe
Moons, Beatrice
Moons, Jack
Moramarco, John A. Enterprises
Moreno, Louis W.
Moss, John R.
Motion Pictures Associates, Inc.
Moynier, Joe
Murphy, Frances V.
Murphy, Myrl L.
Murphy, Naomi
Nanne, Martin Estate of
Nederend, Betty
Nederend, Hans
Norfolk, James
Norfolk, Martha
Notrica, Louis

Nyberg, Lillian N.
Nyenhuis, Annie
Nyenhuis, Jim
Occidental Land Research
Okumura, Marion
Okumura, Yuiche
Oldengarm, Effie
Oldengarm, Egbert
Oldengarm, Henry
Oliviera, Manuel L.
Oliviera, Mary M.
Olson, Albert
Oltmans Construction Co.
Omlin, Anton
Omlin, Elsie L.
Ontario Christian School Assn.
Oord, John
Oostdam, Jacoba
Oostdam, Pete
Oosten, Agnes
Oosten, Anthonia
Oosten, Caroline
Oosten, John
Oosten, Marinus
Oosten, Ralph
Orange County Water District
Ormonde, Manuel
Ormonde, Pete, Jr.
Ormonde, Viva
Ortega, Adeline B.
Ortega, Bernard Dino
Osterkamp, Joseph S.
Osterkamp, Margaret A.
P I E Water Co.
Palmer, Eva E.
Palmer, Walter E.
Parente, Luis S.
Parente, Mary Borba
Parks, Jack B.
Parks, Laura M.
Patterson, Lawrence E. Estate of
Payne, Clyde H.
Payne, Margo
Pearson, Athelia K.
Pearson, William C.
Pearson, William G.
Pene, Robert
Perian, Miller
Perian, Ona E.
Petrissans, Deanna
Petrissans, George
Petrissans, Jean P.
Petrissans, Marie T.
Pickering, Dora M.
(Mrs. A. L. Pickering)
Pierce, John

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Pierce, Sadie
Pietszak, Sally
Pine, Joe
Pine, Virginia
Pires, Frank
Pires, Marie
Plaa, Jeanne
Plaa, Michel
Plantenga, Agnes
Plantenga, George
Poe, Arlo D.
Pomona Cemetery Assn.
Porte, Cecelia, Estate of
Porte, Garritt, Estate of
Portsmouth, Vera McCarty
Ramella, Mary M.
Ramirez, Concha
Rearick, Hildegard H.
Rearick, Richard R.
Reinalda, Clarence
Reitsma, Greta
Reitsma, Louis
Rice, Bernice
Rice, Charlie E.
Richards, Karin
(Mrs. Ronnie Richards)
Richards, Ronald L.
Ridder, Jennie Wassenaar
Righetti, A. T.
Riley, George A.
Riley, Helen C.
Robbins, Jack K.
Rocha, John M.
Rocha, Jose C.
Rodrigues, John
Rodrigues, Manuel
Rodrigues, Manuel, Jr.
Rodrigues, Mary L.
Rodriquez, Daniel
Rogers, Jack D.
Rohrer, John A.
Rohrer, Theresa D.
Rohrs, Elizabeth H.
Rossetti, M. S.
Roukema, Angeline
Roukema, Ed.
Roukema, Nancy
Roukema, Siebren
Ruderian, Max J.
Russell, Fred J.
Rusticus, Ann
Rusticus, Charles
Rynsburger, Arie
Rynsburger, Berdena, Trust
Rynsburger, Joan Adele
Rynsburger, Thomas

S. P. Annex, Inc.

Salisbury, Elinor J.

Sanchez, Edmundo

Sanchez, Margarita O.

Santana, Joe Sr.

Santana, Palmira

Satragni, John B. Jr.

Scaramella, George P.

Schaafsma Bros.

Schaafsma, Jennie

Schaafsma, Peter

Schaafsma, Tom

Schaap, Andy

Schaap, Ids

Schaap, Maria

Schacht, Sharon C.

Schakel, Audrey

Schakel, Fred

Schmid, Olga

Schmidt, Madeleine

Schoneveld, Evert

Schoneveld, Henrietta

Schoneveld, John

Schoneveld, John Allen

Schug, Donald E.

Schug, Shirley A.

Schuh, Bernatta M.

Schuh, Harold H.

Scott, Frances M.

Scott, Linda F.

Scott, Stanley A.

Scritsmier, Lester J.

Serl, Charles A.

Serl, Rosalie P.

Shady Grove Dairy, Inc.

Shamel, Burt A.

Shelby, Harold E.

Shelby, John A.

Shelby, Velma M.

Shelton, Alice A.

Sherwood, Robert W.

Sherwood, Sheila J.

Shue, Eva

Shue, Gilbert

Sieperda, Anne

Sieperda, James

Sigrist, Hans

Sigrist, Rita

Silveira, Arline L.

Silveira, Frank

Silveira, Jack

Silveira, Jack P. Jr.

Simas, Dolores

Simas, Joe

Singleton, Dean

Singleton, Elsie R.

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Sinnott, Jim	Staal, John
Sinnott, Mildred B.	Stahl, Zippora P.
Slegers, Dorothy	Stampfl, Berta
Slegers, Hubert J.	Stampfl, William
Slegers, Jake	Stanley, Robert E.
Slegers, Jim	Stark, Everett
Slegers, Lenwood M.	Stellingwerf, Andrew
Slegers, Martha	Stellingwerf, Henry
Slegers, Tesse J.	Stellingwerf, Jenette
Smith, Edward S.	Stellingwerf, Shana
Smith, Helen D.	Stellingwerf, Stan
Smith, James E.	Stelzer, Mike C.
Smith, Keith J.	Sterk, Henry
Smith, Lester W.	Stiefel, Winifred
Smith, Lois Maxine	Stiefel, Jack D.
Smith, Marjorie W.	Stigall, Richard L.
Soares, Eva	Stigall, Vita
Sogioka, Mitsuyoshi	Stockman's Inn
Sogioka, Yoshimato	Stouder, Charlotte A.
Sousa, Sam	Stouder, William C.
Southern Pacific Land Co.	Struikmans, Barbara
Southfield, Eddie	Struikmans, Gertie
Souza, Frank M.	Struikmans, Henry Jr.
Souza, Mary T.	Struikmans, Henry Sr.
Spickerman, Alberta	Struikmans, Nellie
Spickerman, Florence	Swager, Edward
Spickerman, Rudolph	Swager, Gerben
Spyksma, John	Swager, Johanna

Swager, Marion
Swierstra, Donald
Swierstra, Fanny
Sybrandy, Ida
Sybrandy, Simon
Sytsma, Albert
Sytsma, Edith
Sytsma, Jennie
Sytsma, Louie
Te Velde, Agnes
Te Velde, Bay
Te Velde, Bernard A.
Te Velde, Bonnie
Te Velde, Bonnie G.
Te Velde, George
Te Velde, George, Jr.
Te Velde, Harm
Te Velde, Harriet
Te Velde, Henry J.
Te Velde, Jay
Te Velde, Johanna
Te Velde, John H.
Te Velde, Ralph A.
Te Velde, Zwaantina, Trustee
Ter Maaten, Case
Ter Maaten, Cleone
Ter Maaten, Steve
Terpstra, Carol
Terpstra, Theodore G.
Teune, Tony
Teunissen, Bernard
Teunissen, Jane
Thomas, Ethel M.
Thommen, Alice
Thommen, Fritz
Tillema, Allie
Tillema, Harold
Tillema, Klaas D.
Timmons, William R.
Tollerup, Barbara
Tollerup, Harold
Trapani, Louis A.
Trimlett, Arlene R.
Trimlett, George E.
Tristant, Pierre
Tuinhout, Ale
Tuinhout, Harry
Tuinhout, Hilda
Tuls, Elizabeth
Tuls, Jack S.
Tuls, Jake
Union Oil Company of California
United Dairyman's Co-op.
Urquhart, James G.
Usle, Cathryn
Usle, Faustino

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V & Y Properties
Vaile, Beryl M.
Valley Hay Co.
Van Beek Dairy Inc.
Van Canneyt Dairy
Van Canneyt, Maurice
Van Canneyt, Wilmer
Van Dam, Bas
Van Dam, Isabelle
Van Dam, Nellie
Van Den Berg, Gertrude
Van Den Berg, Joyce
Van Den Berg, Marinus
Van Den Berg, Marvin
Van Der Linden, Ardith
Van Der Linden, John
Van Der Linden, Stanley
Van Der Veen, Kenneth
Van Diest, Anna T.
Van Diest, Cornelius
Van Diest, Ernest
Van Diest, Rena
Van Dyk, Bart
Van Dyk, Jeanette
Van Foeken, Martha
Van Foeken, William
Van Hofwegan, Steve
Van Hofwegen, Adrian A.
Van Hofwegen, Clara
Van Hofwegen, Jessie
Van Klaveren, A.
Van Klaveren, Arie
Van Klaveren, Wilhelmina
Van Klaveren, William
Van Leeuwen, Arie C.
Van Leeuwen, Arie C.
Van Leeuwen, Arlan
Van Leeuwen, Clara G.
Van Leeuwen, Cornelia L.
Van Leeuwen, Harriet
Van Leeuwen, Jack
Van Leeuwen, John
Van Leeuwen, Letie
Van Leeuwen, Margie
Van Leeuwen, Paul
Van Leeuwen, William A.
Van Ravenswaay, Donald
Van Ryn Dairy
Van Ryn, Dick
Van Surksum, Anthonetta
Van Surksum, John
Van Veen, John
Van Vliet, Effie
Van Vliet, Hendrika
Van Vliet, Hugo
Van Vliet, Klaas

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Vande Witte, George	Vander Laan, Katie
Vanden Berge, Gertie	Vander Laan, Martin Jr.
Vanden Berge, Gertie	Vander Laan, Tillie
Vanden Berge, Jack	Vander Leest, Anna
Vanden Berge, Jake	Vander Leest, Ann
Vanden Brink, Stanley	Vander Meer, Alice
Vander Dussen, Agnes	Vander Meer, Dick
Vander Dussen, Cor	Vander Poel, Hank
Vander Dussen, Cornelius	Vander Poel, Pete
Vander Dussen, Edward	Vander Pol, Irene
Vander Dussen, Geraldine Marie	Vander Pol, Margie
Vander Dussen, James	Vander Pol, Marines
Vander Dussen, John	Vander Pol, William P.
Vander Dussen, Nelvina	Vander Schaaf, Earl
Vander Dussen, Rene	Vander Schaaf, Elizabeth
Vander Dussen, Sybrand Jr.	Vander Schaaf, Henrietta
Vander Dussen, Sybrand Sr.	Vander Schaaf, John
Vander Dussen Trustees	Vander Schaaf, Ted
Vander Eyk, Case Jr.	Vander Stelt, Catherine
Vander Eyk, Case Sr.	Vander Stelt, Clarence
Vander Feer, Peter	Vander Tuig, Arlene
Vander Feer, Rieka	Vander Tuig, Sylvester
Vander Laan, Ann	Vander Veen, Joe A.
Vander Laan, Ben	Vandervlag, Robert
Vander Laan, Bill	Vander Zwan, Peter
Vander Laan, Corrie	Vanderford, Betty W.
Vander Laan, Henry	Vanderford, Claud R.
Vander Laan, James	Vanderham, Adrian

Vanderham, Cornelius	Vestal, J. Howard
Vanderham, Cornelius P.	Visser, Gerrit
Vanderham, Cory	Visser, Grace
Vanderham, E. Jane	Visser, Henry
Vanderham, Marian	Visser, Jess
Vanderham, Martin	Visser, Louie
Vanderham, Pete C.	Visser, Neil
Vanderham, Wilma	Visser, Sam
Vasquez, Eleanor	Visser, Stanley
Veenendaal, Evert	Visser, Tony D.
Veenendaal, John H.	Visser, Walter G.
Veiga, Dominick Sr.	Von Der Ahe, Fredric T.
Verbree, Jack	Von Euw, George
Verbree, Tillie	Von Euw, Marjorie
Verger, Bert	Von Lusk, a limited partnership
Verger, Betty	Voortman, Anna Marie
Verhoeven, Leona	Voortman, Edward
Verhoeven, Martin	Voortman, Edwin J.
Verhoeven, Wesley	Voortman, Gertrude Dena
Vermeer, Dick	Wagner, Richard H.
Vermeer, Jantina	Walker, Carole R.
Vernola Ranch	Walker, Donald E.
Vernola, Anthonietta	Walker, Wallace W.
Vernola, Anthony	Wardle, Donald M.
Vernola, Frank	Warner, Dillon B.
Vernola, Mary Ann	Warner, Minnie
Vernola, Pat F.	Wassenaar, Peter W.
Vestal, Frances Lorraine	Waters, Michael

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Weeda, Adriana
Weeda, Daniel
Weeks, O. L.
Weeks, Verona E.
Weidman, Maurice
Weidman, Virginia
Weiland, Adaline I.
Weiland, Peter J.
Wesselink, Jules
West, Katharine R.
West, Russel
West, Sharon Ann
Western Horse Property
Westra, Alice
Westra, Henry
Westra, Hilda
Westra, Jake J.
Weststeyn, Freida
Weststeyn, Pete
Whitehurst, Louis G.
Whitehurst, Pearl L.
Whitmore, David L.
Whitmore, Mary A.
Whitney, Adolph M.
Wiersema, Harm
Wiersema, Harry
Wiersma, Ellen H.
Wiersma, Gladys J.
Wiersma, Jake
Wiersma, Otto
Wiersma, Pete
Winchell, Verne H., Trustee
Wind, Frank
Wind, Fred
Wind, Hilda
Wind, Johanna
Woo, Frank
Woo, Sem Gee
Wybenga, Clarence
Wybenga, Gus
Wybenga, Gus K.
Wybenga, Sylvia
Wynja, Andy
Wynja, Iona F.
Yellis, Mildred
Yellis, Thomas E.
Ykema-Harmsen Dairy
Ykema, Floris
Ykema, Harriet
Yokley, Betty Jo
Yokley, Darrell A.
Zak, Zan
Zivelonghi, George
Zivelonghi, Margaret
Zwaagstra, Jake
Zwaagstra, Jessie M.
Zwart, Case

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NON-PRODUCER WATER DISTRICTS

Chino Basin Municipal Water District

Chino Basin Water Conservation District

Pomona Valley Municipal Water District

Western Municipal Water District of Riverside County

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DEFAULTING OVERLYING AGRICULTURAL PRODUCERS

Cheryl L. Bain	Roy W. Lantis
Warren Bain	Sharon I. Lantis
John M. Barcelona	Frank Lorenz
Letty Bassler	Dagney H. MacDonald
John Brazil	Frank E. Martin
John S. Briano	Ruth C. Martin
Lupe Briano	Connie S. Mello
Paul A. Briano	Naldiro J. Mello
Tillie Briano	Felice Miller
Arnie B. Carlson	Ted Miller
John Henry Fikse	Masao Nerio
Phyllis S. Fikse	Tom K. Nerio
Lewellyn Flory	Toyo Nerio
Mary I. Flory	Yuriko Nerio
L. H. Glazer	Harold L. Rees
Dorothy Goodman	Alden G. Rose
Sidney D. Goodman	Claude Rouleau, Jr.
Frank Grossi	Patricia M. Rouleau
Harada Brothers	Schultz Enterprises
Ellen Hettinga	Albert Shaw
Hein Hettinga	Lila Shaw
Dick Hofstra, Jr.	Cathy M. Stewart
Benjamin M. Hughey	Marvin C. Stewart
Frieda L. Hughey	Betty Ann Stone
Guillaume Indart	John B. Stone
Ellwood B. Johnston, Trustee	Vantoll Cattle Co., Inc.
Perry Kruckenberg, Jr.	Catherene Verburg

Martin Verburg

Donna Vincent

Larry Vincent

Cliff Wolfe & Associates

Ada M. Woll

Zarubica Co.

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EXHIBIT "D"

OVERLYING NON-AGRICULTURAL RIGHTS

Party	Total Overlying Non-Agricultural Rights (Acre Feet)	Share of Safe Yield (Acre Feet)
Ameron Steel Producers, Inc.	125	97.858
County of San Bernardino	171	133.870
Conrock Company	406	317.844
Kaiser Steel Corporation	3,743	2,930.274
Red Star Fertilizer	20	15.657
Southern California Edison Co.	1,255	982.499
Space Center, Mira Loma	133	104.121
Southern Service Co., dba Blue Seal Linen	24	18.789
Sunkist, Orange Products Division	2,393	1,873.402
Carlsberg Mobile Home Properties, Ltd. '73	593	464.240
Union Carbide Corporation	546	427.446
Quaker Chemical Co.	0	0
Totals	9,409	7,366.000

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EXHIBIT "E"
APPROPRIATIVE RIGHTS

Party	Appropriative Right (Acre Feet)	Share of Initial Operating Safe Yield (Acre Feet)	Share of Operating Safe Yield (Percent)
City of Chino	5,271.7	3,670.067	6.693
City of Norco	289.5	201.545	0.368
City of Ontario	16,337.4	11,373.816	20.742
City of Pomona	16,110.5	11,215.852	20.454
City of Upland	4,097.2	2,852.401	5.202
Cucamonga County Water District	4,431.0	3,084.786	5.626
Jurupa Community Services District	1,104.1	768.655	1.402
Monte Vista County Water District	5,958.7	4,148.344	7.565
West San Bernardino County Water District	925.5	644.317	1.175
Etiwanda Water Company	768.0	534.668	0.975
Felspar Gardens Mutual Water Company	68.3	47.549	0.087
Fontana Union Water Co.	9,188.3	6,396.736	11.666
Marygold Mutual Water Co.	941.3	655.317	1.195
Mira Loma Water Co.	1,116.0	776.940	1.417
Monta Vista Irr. Co.	972.1	676.759	1.234
Mutual Water Company of Glen Avon Heights	672.2	467.974	0.853
Park Water Company	236.1	164.369	0.300
Pomona Valley Water Co.	3,106.3	2,162.553	3.944
San Antonio Water Co.	2,164.5	1,506.888	2.748
Santa Ana River Water Company	1,869.3	1,301.374	2.373
Southern California Water Company	1,774.5	1,235.376	2.253
West End Consolidated Water Company	1,361.3	947.714	1.728
TOTAL	78,763.8	54,834.000	100.000

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EXHIBIT "F"
OVERLYING (AGRICULTURAL) POOL
POOLING PLAN

1. Membership in Pool. The State of California and all producers listed in Exhibit "C" shall be the initial members of this pool, which shall include all producers of water for overlying uses other than industrial or commercial purposes.

2. Pool Meetings. The members of the pool shall meet annually, in person or by proxy, at a place and time to be designated by Watermaster for purposes of electing members of the Pool Committee and conducting any other business of the pool. Special meetings of the membership of the pool may be called and held as provided in the rules of the pool.

3. Voting. All voting at meetings of pool members shall be on the basis of one vote for each 100 acre feet or any portion thereof of production from Chino Basin during the preceding year, as shown by the records of Watermaster.

4. Pool Committee. The Pool Committee for this pool shall consist of not less than nine (9) representatives selected at large by members of the pool. The exact number of members of the Pool Committee in any year shall be as determined by majority vote of the voting power of members of the pool in attendance at the annual pool meeting. Each member of the Pool Committee shall have one vote and shall serve for a two-year term. The members first elected shall classify themselves by lot so that approximately one-half serve an initial one-year term. Vacancies during any term shall be filled by a majority of the remaining members of the Pool Committee.

5. Advisory Committee Representatives. The number of

representatives of the Pool Committee on the Advisory Committee shall be as provided in the rules of the pool from time to time but not exceeding ten (10). The voting power of the pool on the Advisory Committee shall be apportioned and exercised as determined from time to time by the Pool Committee.

6. Replenishment Obligation. The pool shall provide funds for replenishment of any production by persons other than members of the Overlying (Non-agricultural) Pool or Appropriator Pool, in excess of the pool's share of Safe Yield. During the first five (5) years of operations of the Physical Solution, reasonable efforts shall be made by the Pool Committee to equalize annual assessments.

7. Assessments. All assessments in this pool (whether for replenishment water cost or for pool administration or the allocated share of Watermaster administration) shall be in an amount uniformly applicable to all production in the pool during the preceding year or calendar quarter. Provided, however, that the Agricultural Pool Committee, may recommend to the Court modification of the method of assessing pool members, inter se, if the same is necessary to attain legitimate basin management objectives, including water conservation and avoidance of undesirable socio-economic consequences. Any such modification shall be initiated and ratified by one of the following methods:

(a) Excess Production. In the event total pool production exceeds 100,000 acre feet in any year, the Pool Committee shall call and hold a meeting, after notice to all pool members, to consider remedial modification of the assessment formula.

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(b) Producer Petition. At any time after the fifth full year of operation under the Physical Solution, a petition by ten percent (10%) of the voting power or membership of the Pool shall compel the holding of a noticed meeting to consider revision of said formula of assessment for replenishment water.

In either event, a majority action of the voting power in attendance at such pool members' meeting shall be binding on the Pool Committee.

8. Rules. The Pool Committee shall adopt rules for conducting meetings and affairs of the committee and for administering its program and in amplification of the provisions, but not inconsistent with, this pooling plan.

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EXHIBIT "G"
OVERLYING (NON-AGRICULTURAL) POOL
POOLING PLAN

1. Membership in Pool. The initial members of the pool, together with the decreed share of the Safe Yield of each, are listed in Exhibit "D". Said pool includes producers of water for overlying industrial or commercial (non-agricultural) purposes, or such producers within the Pool who may hereafter take water pursuant to Paragraph 8 hereof.

2. Pool Committee. The Pool Committee for this pool shall consist of one representative designated by each member of the pool. Voting on the committee shall be on the basis of one vote for each member, unless a volume vote is demanded, in which case votes shall be allocated as follows:

The volume voting power on the Pool Committee shall be 1,484 votes. Of these, 742 votes shall be allocated on the basis of one vote for each ten (10) acre feet or fraction thereof of decreed shares in Safe Yield. (See Exhibit "D".) The remaining 742 votes shall be allocated proportionally on the basis of assessments paid to Watermaster during the preceding year.*

3. Advisory Committee Representatives. At least three (3) members of the Pool Committee shall be designated by said committee to serve on the Advisory Committee. The exact number of such representatives at any time shall be as determined by the Pool Committee. The voting power of the pool shall be exercised in the

*Or production assessments paid under Water Code Section 72140 et seq., as to years prior to the second year of operation under the Physical Solution hereunder.

Advisory Committee as a unit, based upon the vote of a majority of said representatives.

4. Replenishment Obligation. The pool shall provide funds for replenishment of any production in excess of the pool's share of Safe Yield in the preceding year.

5. Assessment. Each member of this pool shall pay an assessment equal to the cost of replenishment water times the number of acre feet of production by such producer during the preceding year in excess of (a) his decreed share of the Safe Yield, plus (b) any carry-over credit under Paragraph 7 hereof. In addition, the cost of the allocated share of Watermaster administration expense shall be recovered on an equal assessment against each acre foot of production in the pool during such preceding fiscal year or calendar quarter; and in the case of Pool members who take substitute ground water as set forth in Paragraph 8 hereof, such producer shall be liable for its share of administration assessment, as if the water so taken were produced, up to the limit of its decreed share of Safe Yield.

6. Assignment. Rights herein decreed are appurtenant to the land and are only assignable with the land for overlying use thereon; provided, however, that any appropriator who may, directly or indirectly, undertake to provide water service to such overlying lands may, by an appropriate agency agreement on a form approved by Watermaster, exercise said overlying right to the extent, but only to the extent necessary to provide water service to said overlying lands.

7. Carry-over. Any member of the pool who produces less than its assigned water share of Safe Yield may carry such unexercised

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right forward for exercise in subsequent years. The first water produced during any such subsequent year shall be deemed to be an exercise of such carry-over right. In the event the aggregate carry-over by any pool member exceeds its share of Safe Yield, such member shall, as a condition of preserving such surplus carry-over, execute a storage agreement with Watermaster.

8. Substitute Supplies. To the extent that any Pool member, at the request of Watermaster and with the consent of the Advisory Committee, takes substitute surface water in lieu of producing ground water otherwise subject to production as an allocated share of Safe Yield, said party shall nonetheless remain a member of this Pool.

9. Rules. The Pool Committee shall adopt rules for administering its program and in amplification of the provisions, but not inconsistent with, this pooling plan.

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EXHIBIT "H"
APPROPRIATIVE POOL
POOLING PLAN

1. Qualification for Pool. Any city, district or other public entity and public utility -- either regulated under Public Utilities Commission jurisdiction, or exempt therefrom as a non-profit mutual water company (other than those assigned to the Overlying [Agricultural] Pool) -- shall be a member of this pool. All initial members of the pool are listed in Exhibit "E", together with their respective appropriative rights and acre foot allocation and percentage shares of the initial and subsequent Operating Safe Yield.

2. Pool Committee. The Pool Committee shall consist of one (1) representative appointed by each member of the Pool.

3. Voting. The total voting power on the Pool Committee shall be 1,000 votes. Of these, 500 votes shall be allocated in proportion to decreed percentage shares in Operating Safe Yield. The remaining 500 votes shall be allocated proportionally on the basis of assessments paid to Watermaster during the preceding year.* Routine business of the Pool Committee may be conducted on the basis of one vote per member, but upon demand of any member a weighted vote shall be taken. Affirmative action of the Committee shall require a majority of the voting power of members in attendance, provided that it includes concurrence by at least one-third of its total members.

4. Advisory Committee Representatives. Ten (10) members of

*Or production assessments paid under Water Code Section 72140 et seq., as to years prior to the second year of operation under the Physical Solution hereunder.

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the Pool Committee shall be designated to represent this pool on the Advisory Committee. Each major appropriator, i.e., the owner of an adjudicated appropriative right in excess of 3,000 acre feet, shall be entitled to one representative. The remaining members representing the Appropriative Pool on the Advisory Committee shall be elected at large by the remaining members of the pool. The voting power of the Appropriative Pool on the Advisory Committee shall be apportioned between the major appropriator representatives in proportion to their respective voting power in the Pool Committee. The remaining two representatives shall exercise equally the voting power proportional to the Pool Committee voting power of all remaining appropriators; provided, however, that if any representative fails to attend an Advisory Committee meeting, the voting power of that representative shall be allocated among the representatives of the Appropriator Pool in attendance in the same proportion as their own respective voting powers.

5. Replenishment Obligation. The pool shall provide funds for purchase of replenishment water to replace any production by the pool in excess of Operating Safe Yield during the preceding year.

6. Administrative Assessment. Costs of administration of this pool and its share of general Watermaster expense shall be recovered by a uniform assessment applicable to all production during the preceding year.

7. Replenishment Assessment. The cost of replenishment water required to replace production from Chino Basin in excess of Operating Safe Yield in the preceding year shall be allocated and recovered as follows:

(a) For production, other than for increased export, within CBMWD or WMWD:

(1) Gross Assessment. 15% of such replenishment water costs shall be recovered by a uniform assessment against all production of each appropriator producing in said area during the preceding year.

(2) Net Assessment. The remaining 85% of said costs shall be recovered by a uniform assessment on each acre foot of production from said area by each such appropriator in excess of his allocated share of Operating Safe Yield during said preceding year.

(b) For production which is exported for use outside Chino Basin in excess of maximum export in any year through 1976, such increased export production shall be assessed against the exporting appropriator in an amount sufficient to purchase replenishment water from CBMWD or WMWD in the amount of such excess.

(c) For production within SBVMWD or PVMWD:

By an assessment on all production in excess of an appropriator's share of Operating Safe Yield in an amount sufficient to purchase replenishment water through SBVMWD or MWD in the amount of such excess.

8. Socio-Economic Impact Review. The parties have conducted certain preliminary socio-economic impact studies. Further and more detailed socio-economic impact studies of the assessment formula and its possible modification shall be undertaken for the Appropriator Pool by Watermaster no later than ten (10) years from the effective date of this Physical Solution, or whenever total

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production by this pool has increased by 30% or more over the decreed appropriative rights, whichever is first.

9. Facilities Equity Assessment. Watermaster may, upon recommendation of the Pool Committee, institute proceedings for levy and collection of a Facilities Equity Assessment for the purposes and in accordance with the procedures which follow:

(a) Implementing Circumstances. There exist several sources of supplemental water available to Chino Basin, each of which has a differential cost and quantity available. The optimum management of the entire Chino Basin water resource favors the maximum use of the lowest cost supplemental water to balance the supplies of the Basin, in accordance with the Physical Solution. The varying sources of supplemental water include importations from MWD and SBVMWD, importation of surface and ground water supplies from other basins in the immediate vicinity of Chino Basin, and utilization of reclaimed water. In order to fully utilize any of such alternate sources of supply, it will be essential for particular appropriators having access to one or more of such supplies to have invested, or in the future to invest, directly or indirectly, substantial funds in facilities to obtain and deliver such water to an appropriate point of use. To the extent that the use of less expensive alternate sources of supplemental water can be maximized by the inducement of a Facilities Equity Assessment, as herein provided, it is to the long-term benefit of the entire basin that such assessment be authorized and levied by Watermaster.

(b) Study and Report. At the request of the Pool

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Committee, Watermaster shall undertake a survey study of the utilization of alternate supplemental supplies by members of the Appropriative Pool which would not otherwise be utilized and shall prepare a report setting forth the amount of such alternative supplies being currently utilized, the amount of such supplies which could be generated by activity within the pool, and the level of cost required to increase such uses and to optimize the total supplies available to the basin. Said report shall contain an analysis and recommendation for the levy of a necessary Facilities Equity Assessment to accomplish said purpose.

(c) Hearing. If the said report by Watermaster contains a recommendation for imposition of a Facilities Equity Assessment, and the Pool Committee so requests, Watermaster shall notice and hold a hearing not less than 60 days after distribution of a copy of said report to each member of the pool, together with a notice of the hearing date. At such hearing, evidence shall be taken with regard to the necessity and propriety of the levy of a Facilities Equity Assessment and full findings and decision shall be issued by Watermaster.

(d) Operation of Assessment. If Watermaster determines that it is appropriate that a Facilities Equity Assessment be levied in a particular year, the amount of additional supplemental supplies which should be generated by such assessment shall be estimated. The cost of obtaining such supplies, taking into consideration the investment in necessary facilities shall then be determined and spread equitably among the producers within the pool in a manner so that those

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producers not providing such additional lower cost supplemental water, and to whom a financial benefit will result, may bear a proportionate share of said costs, not exceeding said benefit; provided that any producer furnishing such supplemental water shall not thereby have its average cost of water in such year reduced below such producer's average cost of pumping from the Basin. In so doing, Watermaster shall establish a percentage of the total production by each party which may be produced without imposition of a Facilities Equity Assessment. Any member of the pool producing more water than said percentage shall pay such Facilities Equity Assessment on any such excess production. Watermaster is authorized to transmit and pay the proceeds of such Facilities Equity Assessment to those producers who take less than their share of Basin water by reason of furnishing a higher percentage of their requirements through use of supplemental water.

10. Unallocated Safe Yield Water. To the extent that, in any five years, any portion of the share of Safe Yield allocated to the Overlying (Agricultural) Pool is not produced, such water shall be available for reallocation to members of the Appropriative Pool, as follows:

(a) Priorities. Such allocation shall be made in the following sequence:

(1) to supplement, in the particular year, water available from Operating Safe Yield to compensate for any reduction in the Safe Yield by reason of recalculation thereof after the tenth year of operation hereunder.

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(2) pursuant to conversion claims as defined in Subparagraph (b) hereof.

(3) as a supplement to Operating Safe Yield, without regard to reductions in Safe Yield.

(b) Conversion Claims. The following procedures may be utilized by any appropriator:

(1) Record of Land Use Conversion. Any appropriator who undertakes, directly or indirectly, during any year, to permanently provide water service to lands which during the immediate preceding five (5) consecutive years was devoted to irrigated agriculture may report such change in land use or water service to Watermaster. Watermaster shall thereupon verify such change in water service and shall maintain a record and account for each appropriator of the total acreage involved and the average annual water use during said five-year period.

(2) Establishment of Allocation Percentage. In any year in which unallocated Safe Yield water from the Overlying (Agricultural) Pool is available for such conversion claims, Watermaster shall establish allocable percentages for each appropriator based upon the total of such converted acreage recorded to each such appropriator's account.

(3) Allocation and Notice. Watermaster shall thereafter apply the allocated percentage to the total unallocated Safe Yield water available for special allocation to derive the amount thereof allocable to

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each appropriator; provided that in no event shall the allocation to any appropriator as a result of such conversion claim exceed 50% of the average annual amount of water actually applied to the areas converted by such appropriator prior to such conversion. Any excess water by reason of such limitation on any appropriator's right shall be added to Operating Safe Yield. Notice of such special allocation shall be given to each appropriator and shall be treated for purposes of this Physical Solution as an addition to such appropriator's share of the Operating Safe Yield for the particular year only.

(4) Administrative Costs. Any costs of Watermaster attributable to administration of such special allocations and conversion claims shall be assessed against appropriators participating in such reporting.

11. In Lieu Procedures. There are, or may develop, certain areas within Chino Basin where good management practices dictate that recharge of the basin be accomplished, to the extent practical, by taking surface supplies of supplemental water in lieu of ground water otherwise subject to production as an allocated share of Operating Safe Yield.

(a) Method of Operation. Any appropriator producing water within such designated in lieu area who is willing to abstain for any reason from producing any portion of such producer's share of Operating Safe Yield in any year may offer such unpumped water to Watermaster. In such event, Watermaster shall purchase said water in place, in lieu of spreading replenishment water, which is otherwise required to

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make up for over production. The purchase price for in lieu water shall be the lesser of:

(1) Watermaster's current cost of replenishment water, whether or not replenishment water is currently then obtainable, plus the cost of spreading; or

(2) The cost of supplemental surface supplies to the appropriator, less

a. said appropriator's average cost of ground water production, and

b. the applicable production assessment were the water produced.

Where supplemental surface supplies consist of MWD or SBVMWD supplies, the cost of treated, filtered State water from such source shall be deemed the cost of supplemental surface supplies to the appropriator for purposes of such calculation.

In any given year in which payments may be made pursuant to a Facilities Equity Assessment, as to any given quantity of water the party will be entitled to payment under this section or pursuant to the Facilities Equity Assessment, as the party elects, but not under both.

(b) Designation of In Lieu Areas. The first in lieu area is designated as the "In Lieu Area No. 1" and consists of an area wherein nitrate levels in the ground water generally exceed 45 mg/l, and is shown on Exhibit "J" hereto. Other in lieu areas may be designated by subsequent order of Watermaster upon recommendation or approval by Advisory Committee. Said in lieu areas may be enlarged, reduced or

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eliminated by subsequent orders; provided, however, that designation of In Lieu Areas shall be for a minimum fixed term sufficient to justify necessary capital investment. In Lieu Area No. 1 may be enlarged, reduced or eliminated in the same manner, except that any reduction of its original size or elimination thereof shall require the prior order of Court.

12. Carry-over. Any appropriator who produces less than his assigned share of Operating Safe Yield may carry such unexercised right forward for exercise in subsequent years. The first water produced during any such subsequent year shall be deemed to be an exercise of such carry-over right. In the event the aggregate carry-over by any appropriator exceeds its share of Operating Safe Yield, such appropriator shall, as a condition of preserving such surplus carry-over, execute a storage agreement with Watermaster. Such appropriator shall have the option to pay the gross assessment applicable to such carry-over in the year in which it accrued.

13. Assignment, Transfer and Lease. Appropriative rights, and corresponding shares of Operating Safe Yield, may be assigned or may be leased or licensed to another appropriator for exercise in a given year. Any transfer, lease or license shall be ineffective until written notice thereof is furnished to and approved as to form by Watermaster, in compliance with applicable Watermaster rules. Watermaster shall not approve transfer, lease or license of a right for exercise in an area or under conditions where such production would be contrary to sound basin management or detrimental to the rights or operations of other producers.

14. Rules. The Pool Committee shall adopt rules for

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administering its program and in amplification of the provisions, but not inconsistent with, this pooling plan.

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EXHIBIT "I"

ENGINEERING APPENDIX

1. Basin Management Parameters. In the process of implementing the physical solution for Chino Basin, Watermaster shall consider the following parameters:

(a) Pumping Patterns. Chino Basin is a common supply for all persons and agencies utilizing its waters. It is an objective in management of the Basin's waters that no producer be deprived of access to said waters by reason of unreasonable pumping patterns, nor by regional or localized recharge of replenishment water, insofar as such result may be practically avoided.

(b) Water Quality. Maintenance and improvement of water quality is a prime consideration and function of management decisions by Watermaster.

(c) Economic Considerations. Financial feasibility, ecnomic impact and the cost and optimum utilization of the Basin's resources and the physical facilities of the parties are objectives and concerns equal in importance to water quantity and quality parameters.

2. Operating Safe Yield. Operating Safe Yield in any year shall consist of the Appropriative Pool's share of Safe Yield of the Basin, plus any controlled overdraft of the Basin which Watermaster may authorize. In adopting the Operating Safe Yield for any year, Watermaster shall be limited as follows:

(a) Accumulated Overdraft. During the operation of this Judgment and Physical Solution, the overdraft accumulated from and after the effective date of the Physical

Solution and resulting from an excess of Operating Safe Yield over Safe Yield shall not exceed 200,000 acre feet.

(b) Quantitative Limits. In no event shall Operating Safe Yield in any year be less than the Appropriative Pool's share of Safe Yield, nor shall it exceed such share of Safe Yield by more than 10,000 acre feet. The initial Operating Safe Yield is hereby set at 54,834 acre feet per year. Operating Safe Yield shall not be changed upon less than five (5) years' notice by Watermaster.

Nothing contained in this paragraph shall be deemed to authorize, directly or indirectly, any modification of the allocation of shares in Safe Yield to the overlying pools, as set forth in Paragraph 44 of the Judgment.

3. Ground Water Storage Agreements. Any agreements authorized by Watermaster for storage of supplemental water in the available ground water storage capacity of Chino Basin shall include, but not be limited to:

(a) The quantities and term of the storage right.

(b) A statement of the priority or relation of said right, as against overlying or Safe Yield uses, and other storage rights.

(c) The procedure for establishing delivery rates, schedules and procedures which may include

[1] spreading or injection, or

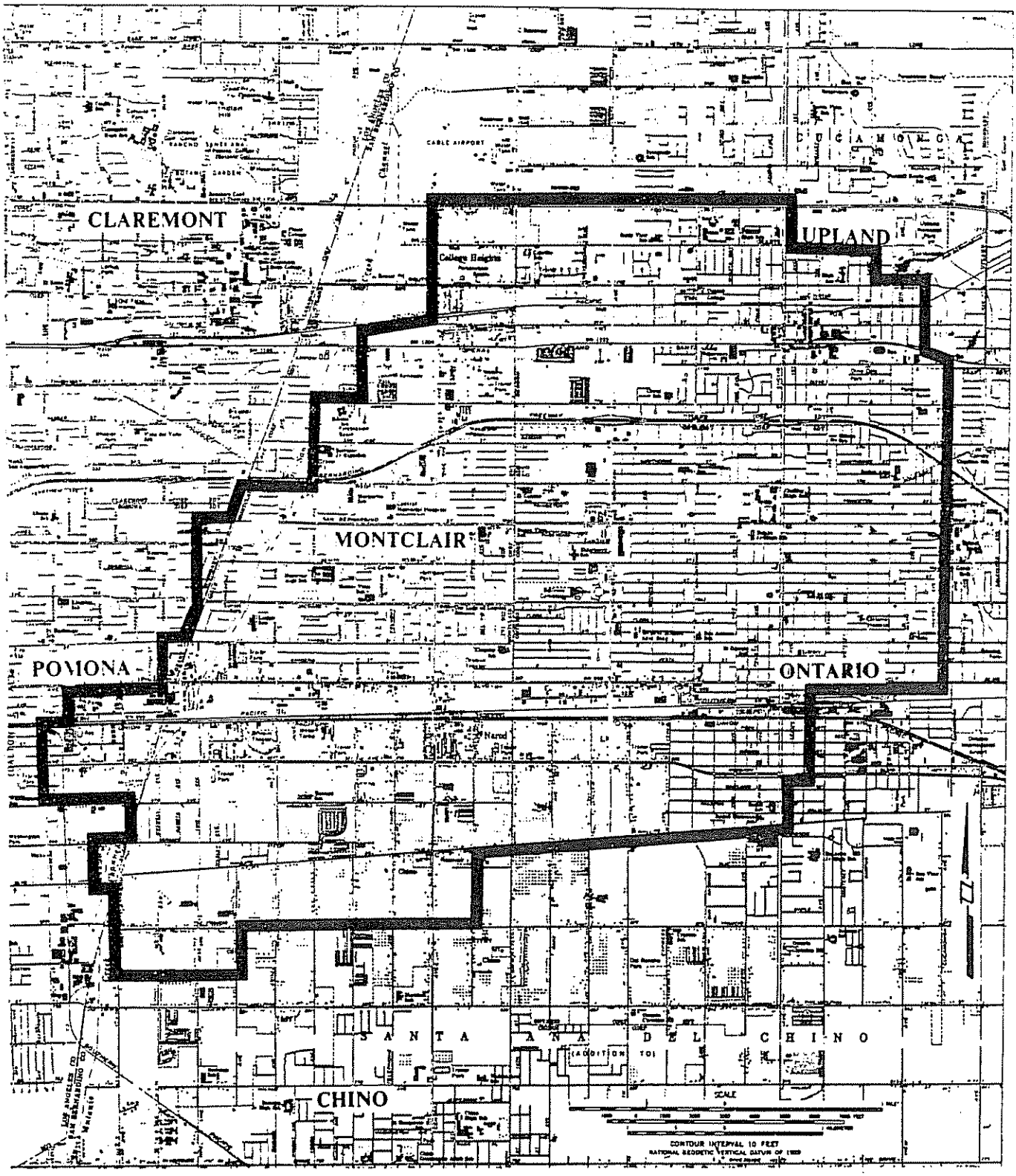
[2] in lieu deliveries of supplemental water for direct use.

(d) The procedures for calculation of losses and annual accounting for water in storage by Watermaster.

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(e) The procedures for establishment and administration of withdrawal schedules, locations and methods.

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CHINO BASIN

IN LIEU AREA NO. 1

EXHIBIT "J"

LEGAL DESCRIPTION

OF CHINO BASIN

Preamble

All of the townships and ranges referred to in the following legal description are the San Bernardino Base and Meridian. Certain designated sections are implied as the System of Government Surveys may be extended where not established. Said sections are identified as follows:

Section 20, T1N, R8W is extended across Rancho Cucamonga;

Section 36, T1N, R8W is extended across the City of Upland;

Sections 2, 3, and 4, T1S, R7W are extended across Rancho Cucamonga;

Section 10, T1S, R8W is extended across the City of Claremont;

Sections 19, 20, 21, 30, 31 and 32, T1S, R8W are extended across the City of Pomona;

Sections 4, 5, and 28, T2S, R8W are extended across Rancho Santa Ana Del Chino;

Sections 15 and 16, T3S, R7W are extended across Rancho La Sierra; and

Sections 17 and 20, T3S, R7W are extended across Rancho El Rincon.

Description

Chino Basin is included within portions of the Counties of San Bernardino, Riverside and Los Angeles, State of California, bounded by a continuous line described as follows:

BEGINNING at the Southwest corner of Lot 241 as shown on Map of Ontario Colony Lands, recorded in Map Book 11, page 6, Office of the County Recorder of San Bernardino County, said corner being the Point of Beginning;

1. Thence Southeasterly to the Southeast corner

of Lot 419 of said Ontario Colony Lands;

2. Thence Southeasterly to a point 1300 feet North of the South line and 1300 feet East of the West line of Section 4, T1S, R7W;

3. Thence Easterly to a point on the East line of Section 4, 1800 feet North of the Southeast corner of said Section 4;

4. Thence Easterly to the Southeast corner of the Southwest quarter of the Northeast quarter of Section 3, T1S, R7W;

5. Thence Northeasterly to a point on the North line of Section 2, T1S, R7W, 1400 feet East of the West line of said Section 2;

6. Thence Northeasterly to the Southwest corner of Section 18, T1N, R6W;

7. Thence Northerly to the Northwest corner of said Section 18;

8. Thence Easterly to the Northeast corner of said Section 18;

9. Thence Northerly to the Northwest corner of the Southwest quarter of Section 8, T1N, R6W;

10. Thence Easterly to the Northeast corner of said Southwest quarter of said Section 8;

11. Thence Southerly to the Southeast corner of said Southwest quarter of said Section 8;

12. Thence Easterly to the Northeast corner of Section 17, T1N, R6W;

13. Thence Easterly to the Northeast corner of Section 16, T1N, R6W;

14. Thence Southeasterly to the Northwest corner of the Southeast quarter of Section 15, T1N, R6W;

15. Thence Easterly to the Northeast corner of said Southeast quarter of said Section 15;

16. Thence Southeasterly to the Northwest corner of the Northeast quarter of Section 23, T1N, R6W;

17. Thence Southeasterly to the Northwest corner

of Section 25, T1N, R6W;

18. Thence Southeasterly to the Northwest corner of the Northeast quarter of Section 31, T1N, R5W;

19. Thence Southeasterly to the Northeast corner of the Northwest quarter of Section 5, T1S, R5W;

20. Thence Southeasterly to the Southeast corner of Section 4, T1S, R5W;

21. Thence Southeasterly to the Southeast corner of the Southwest quarter of Section 11, T1S, R5W;

22. Thence Southwesterly to the Southwest corner of Section 14, T1S, R5W;

23. Thence Southwest to the Southwest corner of Section 22, T1S, R5W;

24. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 6, T2S, R5W;

25. Thence Southeasterly to the Northeast corner of Section 18 T2S, R5W;

26. Thence Southwesterly to the Southwest corner of the Southeast quarter of Section 13, T2S, R6W;

27. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 26, T2S, R6W;

28. Thence Westerly to the Southwest corner of the Northwest quarter of said Section 26;

29. Thence Northerly to the Northwest corner of said Section 26;

30. Thence Westerly to the Southwest corner of Section 21, T2S, R6w:

31. Thence Southerly to the Southeast corner of Section 29, T2S, R6W;

32. Thence Westerly to the Southeast corner of Section 30, T2S, R6W;

33. Thence Southwesterly to the Southwest corner of Section 36, T 2 S, R 7 W;

34. Thence Southwesterly to the Southeast corner

of Section 3, T3S, R7W;

35. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 10, T3S, R7W;

36. Thence Southerly to the Northeast corner of the Northwest quarter of Section 15, T3S, R7W;

37. Thence Southwesterly to the Southeast corner of the Northeast quarter of Section 16, T3S, R7W;

38. Thence Southwesterly to the Southwest corner of said Section 16;

39. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 20, T3S, R7W;

40. Thence Westerly to the Southwest corner of the Northwest quarter of said Section 20;

41. Thence Northerly to the Northwest corner of Section 17, T3S, R7W;

42. Thence Westerly to the Southwest corner of Section 7, T3S, R7W;

43. Thence Northerly to the Southwest corner of Section 6, T3S, R7W;

44. Thence Westerly to the Southwest corner of Section 1, T3S, R8W;

45. Thence Northerly to the Southeast corner of Section 35, T2S, R8W;

46. Thence Northwesterly to the Northwest corner of said Section 35;

47. Thence Northerly to the Southeast corner of Lot 33, as shown on Map of Tract 3193, recorded in Map Book 43, pages 46 and 47, Office of the County Recorder of San Bernardino County;

48. Thence Westerly to the Northwest corner of the Southwest quarter of Section 28, T2S, R8W;

49. Thence Northerly to the Southwest corner of Section 4, T2S, R8W;

50. Thence Westerly to the Southwest corner of Section 5, T2S, R8W;

51. Thence Northerly to the Southwest corner of Section 32, T1S, R8W;

52. Thence Westerly to the Southwest corner of Section 31, T1S, R8W;

53. Thence Northerly to the Southwest corner of Section 30, T1S, R8W;

54. Thence Northeasterly to the Southwest corner of Section 20, T1S, R8W;

55. Thence Northerly to the Northwest corner of the Southwest quarter of the Southwest quarter of said Section 20;

56. Thence Northwesterly to the Northeast corner of the Southeast quarter of the Southeast quarter of the Northwest quarter of Section 19, T1S, R8W;

57. Thence Easterly to the Northwest corner of Section 21, T1S, R8W;

58. Thence Northeasterly to the Southeast corner of the Southwest quarter of the Southwest quarter of Section 10, T1S, R8W;

59. Thence Northeasterly to the Southwest corner of Section 2, T1S, R8W;

60. Thence Northeasterly to the Southeast corner of the Northwest quarter of the Northwest quarter of Section 1, T1S, R8W;

61. Thence Northerly to the Northeast corner of the Northwest quarter of the Northeast quarter of Section 36, T1N, R8W;

62. Thence Northerly to the Southeast corner of Section 24, T1N, R8W;

63. Thence Northeasterly to the Southeast corner of the Northwest quarter of the Northwest quarter of Section 20, T1N, R7W; and

64. Thence Southerly to the Point of Beginning.

Sections Included

Said perimeter description includes all or portions of the following Townships, Ranges and Sections of San Bernardino Base and Meridian:

T1N, R5W - Sections: 30, 31 and 32

T1N, R6W - Sections: 8, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36

T1N, R7W - Sections: 19, 20, 24, 25, 26, 29, 30, 31, 32, 35 and 36

T1N, R8W - Sections: 25 and 36

T1S, R5W - Sections: 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 28, 29, 30, 31 and 32.

T1S, R6W - Sections: 1 through 36, inclusive

T1S, R7W - Sections: 1 through 36, inclusive

T1S, R8W - Sections: 1, 2, 10, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36

T2S, R5W - Sections: 6, 7 and 18

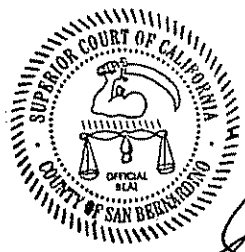
T2S, R6W - Sections: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 29, 30 and 31

T2S, R7W - Sections: 1 through 36, inclusive

T2S, R8W - Sections: 1, 2, 3, 4, 5, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 27, 28, 35 and 36

T3S, R7W - Sections: 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17 and 20

T3S, R8W - Section: 1.



THE DOCUMENT TO WHICH THIS CERTIFICATION IS ATTACHED IS A FULL, TRUE AND CORRECT COPY OF THE ORIGINAL ON FILE AND OF RECORD IN MY OFFICE.

ATTEST OCT 2 9 2002

Clerk of the Superior Court of the State of California, in and for the County of San Bernardino

By _____ Deputy

Terry Wittenborn

92 pages

APPENDIX E

SAN BERNARDINO COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

SAN BERNARDINO COUNTY

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

FEMA Approved: July 13, 2017

San Bernardino County Unincorporated Area
San Bernardino County Fire Protection District
San Bernardino County Flood Control District
San Bernardino County Special Districts Department



This document was supported by HSGP Grant No. 2015-0078 awarded by the U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA). Points of view, opinions, findings, and conclusions expressed in this document are those of the authors and do not necessarily represent the official position of policies of FEMA or DHS. DHS/FEMA reserves a royalty-free, non-exclusive, and irrevocable license to reproduce, publish, and use these materials and to authorize others to do so.

2017

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RESOLUTION NO. 2017-_____

A RESOLUTION OF THE BOARD OF SUPERVISORS OF THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ADOPTING THE SAN BERNARDINO COUNTY UNINCORPORATED AREA MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN DATED MARCH 2017, AND AUTHORIZING FUTURE NON-SUBSTANTIVE AMENDMENTS TO THE PLAN

On Tuesday, _____, 2017, on motion of Supervisor _____, duly seconded by Supervisor _____ and carried, the following resolution is adopted by the Board of Supervisors of San Bernardino County, State of California.

WHEREAS, the preservation of life and property is an inherent responsibility of local, state and federal government, including the County of San Bernardino, and the San Bernardino County Office of Emergency Services, to prepare a local Multi-Jurisdictional Hazard Mitigation Plan (HMP) for the unincorporated area of San Bernardino County to define hazard mitigation measures to reduce or eliminate loss of life and/or property; and

WHEREAS, this HMP represents a comprehensive description of the County's commitment to reducing, preventing or eliminating potential impacts of disasters caused by natural hazards; and

WHEREAS, the HMP is a Federal requirement under the Disaster Mitigation Act of 2000 for the County to be eligible to apply for federal funds for disaster recovery and mitigation assistance; and

WHEREAS, the HMP established a coordinated effort to support mitigation activities, identifies measures to combat natural hazards within our County; and

WHEREAS, the HMP is an extension of the State of California Multi-Hazard Mitigation Plan, and will be reviewed periodically and revised as necessary to meet changing conditions; and

WHEREAS, the Board of Supervisors agrees to adopt this HMP and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the preparation of hazard mitigation within the County of San Bernardino;

NOW, THEREFORE, BE IT RESOLVED THAT:

The Board of Supervisors of the County of San Bernardino, a public entity established under the laws of the State of California, hereby authorizes this HMP to be adopted, that the San Bernardino County Fire Protection District Office of Emergency Services Division Manager is hereby authorized to implement future non-substantive amendments, recommended by the Federal Emergency Management Agency upon their review, to the HMP, that a copy of the Board of Supervisors' approved San Bernardino County Unincorporated Area Hazard Mitigation Plan be forwarded to the Federal Emergency Management Agency and CalOES, that once approved the HMP will be considered to be incorporated into the County's General Plan, and this plan become effective immediately.

PASSED AND ADOPTED by the Board of Supervisors of the County of San Bernardino, State of California, by the following vote:

AYES: SUPERVISORS:

NOES: SUPERVISORS:

ABSENT: SUPERVISORS:

* * * * *

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, **LAURA H. WELCH,** Clerk of the Board of Supervisors of the County of San Bernardino, State of California, hereby certify the foregoing to be a full, true and correct copy of the record of the action taken by the Board of Supervisors, by vote of the members present, as the same appears in the Official Minutes of said Board at its meeting of _____, 2017.

LAURA H. WELCH
Clerk of the Board of Supervisors

By _____
Deputy

RESOLUTION NO. 2017-_____

A RESOLUTION OF THE BOARD OF SUPERVISORS OF THE SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT, STATE OF CALIFORNIA, ADOPTING THE SAN BERNARDINO COUNTY UNINCORPORATED AREA MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN DATED MARCH 2017, AND AUTHORIZING FUTURE NON-SUBSTANTIVE AMENDMENTS TO THE PLAN

On Tuesday, _____, 2017, on motion of Supervisor _____, duly seconded by Supervisor _____ and carried, the following resolution is adopted by the Board of Supervisors of the San Bernardino County Flood Control District, State of California.

WHEREAS, the preservation of life and property is an inherent responsibility of local, state and federal government, including the County of San Bernardino, and the San Bernardino County Office of Emergency Services, to prepare a local Multi-Jurisdictional Hazard Mitigation Plan (HMP) for the unincorporated area of San Bernardino County to define hazard mitigation measures to reduce or eliminate loss of life and/or property; and

WHEREAS, this HMP represents a comprehensive description of the County's commitment to reducing, preventing or eliminating potential impacts of disasters caused by natural hazards; and

WHEREAS, the HMP is a Federal requirement under the Disaster Mitigation Act of 2000 for the County to be eligible to apply for federal funds for disaster recovery and mitigation assistance; and

WHEREAS, the HMP established a coordinated effort to support mitigation activities, identifies measures to combat natural hazards within our County; and

WHEREAS, the HMP is an extension of the State of California Multi-Hazard Mitigation Plan, and will be reviewed periodically and revised as necessary to meet changing conditions; and

WHEREAS, the Board of Supervisors agrees to adopt this HMP and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the preparation of hazard mitigation within the County of San Bernardino

NOW, THEREFORE, BE IT RESOLVED THAT:

The Board of Supervisors of the San Bernardino County Flood Control District, a public entity established under the laws of the State of California, hereby authorizes this HMP to be adopted, that the San Bernardino County Fire Protection District Office of Emergency Services Division Manager is hereby authorized to implement future non-substantive amendments, recommended by the Federal Emergency Management Agency upon their review, to the HMP, that a copy of the Board of Supervisors' approved San Bernardino County Unincorporated Area Hazard Mitigation Plan be forwarded to the Federal Emergency Management Agency and the CalOES, that once

approved the HMP will be considered to be incorporated into the County's General Plan, and this plan become effective immediately.

PASSED AND ADOPTED by the Board of Supervisors of the San Bernardino County Flood Control District, State of California, by the following vote:

AYES: SUPERVISORS:

NOES: SUPERVISORS:

ABSENT: SUPERVISORS:

* * * * *

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, **LAURA H. WELCH,** Clerk of the Board of Supervisors of the San Bernardino County Flood Control District, State of California, hereby certify the foregoing to be a full, true and correct copy of the record of the action taken by the Board of Supervisors, by vote of the members present, as the same appears in the Official Minutes of said Board at its meeting of _____, 2017.

LAURA H. WELCH
Clerk

By _____
Deputy

RESOLUTION NO. 2017-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE BOARD GOVERNED COUNTY SERVICE AREAS ADOPTING THE SAN BERNARDINO COUNTY UNINCORPORATED AREA MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN DATED MARCH 2017, AND AUTHORIZING FUTURE NON-SUBSTANTIVE AMENDMENTS TO THE PLAN

On Tuesday, , 2017, on motion of Director , duly seconded by Director and carried, the following resolution is adopted by the Board of Directors of the Board Governed County Service Areas and their Zones.

WHEREAS, the preservation of life and property is an inherent responsibility of local, state and federal government, including the County of San Bernardino, and the San Bernardino County Office of Emergency Services, to prepare a local Multi-Jurisdictional Hazard Mitigation Plan (HMP) for the unincorporated area of San Bernardino County to define hazard mitigation measures to reduce or eliminate loss of life and/or property; and

WHEREAS, this HMP represents a comprehensive description of the County's commitment to reducing, preventing or eliminating potential impacts of disasters caused by natural hazards; and

WHEREAS, the HMP is a Federal requirement under the Disaster Mitigation Act of 2000 for the County to be eligible to apply for federal funds for disaster recovery and mitigation assistance; and

WHEREAS, the HMP established a coordinated effort to support mitigation activities, identifies measures to combat natural hazards within our County; and

WHEREAS, the HMP is an extension of the State of California Multi-Hazard Mitigation Plan, and will be reviewed periodically and revised as necessary to meet changing conditions; and

WHEREAS, the Board of Directors agrees to adopt this HMP and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the preparation of hazard mitigation within the County of San Bernardino;

NOW, THEREFORE, BE IT RESOLVED THAT:

The Board of Directors of the Board Governed County Service Areas and their Zones, a public entity established under the laws of the State of California, hereby authorizes this HMP to be adopted, that the San Bernardino County Fire Protection District Office of Emergency Services Division Manager is hereby authorized to implement future non-substantive amendments, recommended by the Federal Emergency Management Agency upon their review, to the HMP, that a copy of the Board of Directors' approved San Bernardino County Unincorporated Area Hazard Mitigation Plan be forwarded to the Federal Emergency Management Agency and CalOES, that

once approved the HMP will be considered to be incorporated into the County's General Plan, and this plan become effective immediately.

PASSED AND ADOPTED by the Board of Directors of the Board Governed County Service Areas and their Zones by the following vote:

AYES: DIRECTORS:

NOES: DIRECTORS:

ABSENT: DIRECTORS:

* * * * *

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, **LAURA H. WELCH,** Secretary of Board of Directors of the Board Governed County Service Areas and their Zones, hereby certify the foregoing to be a full, true and correct copy of the record of the action taken by the Board of Directors, by vote of the members present, as the same appears in the Official Minutes of said Board at its meeting of Tuesday, , 2017.

LAURA H. WELCH
Secretary

By _____
Deputy

RESOLUTION NO. 2017-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE SAN BERNARDINO COUNTY FIRE PROTECTION DISTRICT ADOPTING THE SAN BERNARDINO COUNTY UNINCORPORATED AREA MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN DATED MARCH 2017, AND AUTHORIZING FUTURE NON-SUBSTANTIVE AMENDMENTS TO THE PLAN

On Tuesday, , 2017, on motion of Director , duly seconded by Director and carried, the following resolution is adopted by the Board of Directors of San Bernardino County Fire Protection District.

WHEREAS, the preservation of life and property is an inherent responsibility of local, state and federal government, including the County of San Bernardino, and the San Bernardino County Office of Emergency Services, to prepare a local Multi-Jurisdictional Hazard Mitigation Plan (HMP) for the unincorporated area of San Bernardino County to define hazard mitigation measures to reduce or eliminate loss of life and/or property; and

WHEREAS, this HMP represents a comprehensive description of the County's commitment to reducing, preventing or eliminating potential impacts of disasters caused by natural hazards; and

WHEREAS, the HMP is a Federal requirement under the Disaster Mitigation Act of 2000 for the County to be eligible to apply for federal funds for disaster recovery and mitigation assistance; and

WHEREAS, the HMP established a coordinated effort to support mitigation activities, identifies measures to combat natural hazards within our County; and

WHEREAS, the HMP is an extension of the State of California Multi-Hazard Mitigation Plan, and will be reviewed periodically and revised as necessary to meet changing conditions; and

WHEREAS, the Board of Directors agrees to adopt this HMP and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the preparation of hazard mitigation within the County of San Bernardino;

NOW, THEREFORE, BE IT RESOLVED THAT:

The Board of Directors of the San Bernardino County Fire Protection District, a public entity established under the laws of the State of California, hereby authorizes this HMP to be adopted, that the San Bernardino County Fire Protection District Office of Emergency Services Division Manager is hereby authorized to implement future non-substantive amendments, recommended by the Federal Emergency Management Agency upon their review, to the HMP, that a copy of the Board of Directors' approved San Bernardino County Unincorporated Area Hazard Mitigation Plan be forwarded to the Federal Emergency Management Agency and CalOES, that once approved

the HMP will be considered to be incorporated into the County's General Plan, and this plan become effective immediately.

PASSED AND ADOPTED by the Board of Directors of the San Bernardino County Fire Protection District by the following vote:

AYES: DIRECTORS:

NOES: DIRECTORS:

ABSENT: DIRECTORS:

* * * * *

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, **LAURA H. WELCH,** Secretary of Board of Directors of the San Bernardino County Fire Protection District, hereby certify the foregoing to be a full, true and correct copy of the record of the action taken by the Board of Directors, by vote of the members present, as the same appears in the Official Minutes of said Board at its meeting of Tuesday, , 2017.

LAURA H. WELCH
Secretary

By _____
Deputy

Section 1. Introduction

The Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) update is a "living document" that should be reviewed, monitored, and updated to reflect changing conditions and new information. As required, the MJHMP must be updated every five (5) years to remain in compliance with regulations and Federal mitigation grant conditions. In that spirit, this MJHMP is an update of the San Bernardino County Unincorporated Area MJHMP approved by FEMA on October 11, 2011. This MJHMP presents updated information regarding hazards being faced by the County, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and those Board-governed Special Districts administered by the San Bernardino County Special Districts Department.

These Board-Governed Special Districts were formed by the Board of Supervisors to provide a specific service for a specific area of San Bernardino County. Additionally, these Special Districts are treated as an all-inclusive County Organization, not as separate or independent entities. Each Special District is governed cooperatively by the San Bernardino County Board of Supervisors acting as the Board of Supervisors for each of the individual districts.

The County of San Bernardino is governed by five (5) Supervisors; one for each supervisorial district who collectively make up the County Board of Supervisors. The Board of Supervisors is responsible for the County department and agencies, including Board Governed Special Districts, providing services to the unincorporated area.

The Board of Supervisors acts as the Board of Directors for the County Fire Protection District, the County Flood Control District, and the Special Districts Department as part of their responsibilities as an elected member of the County of San Bernardino Board of Supervisors.

The San Bernardino County Organizational Chart clearly shows the relationships between these Board-governed Special Districts and other County departments as one of equal relationship Departments/Districts. See Figure 1-1.

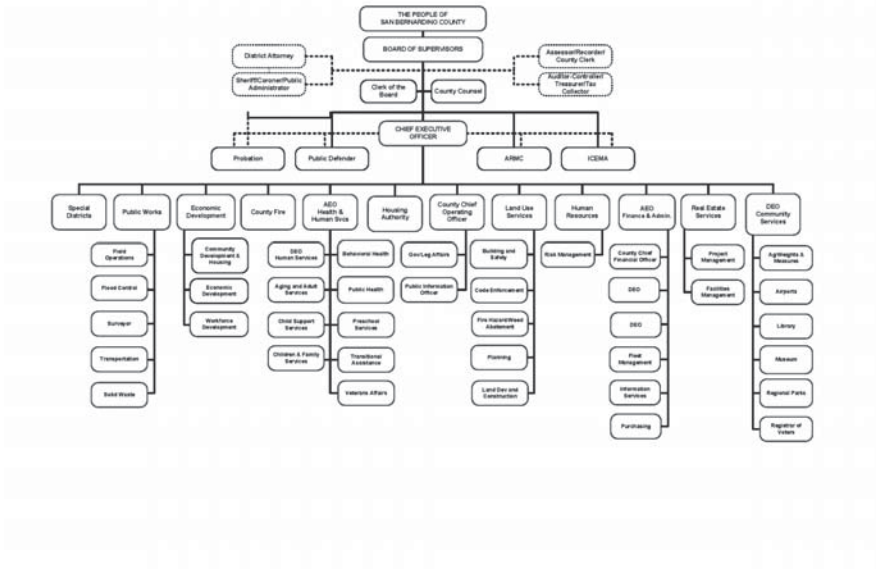


Figure 1-1: Organizational Chart for San Bernardino County

1.1 San Bernardino County Unincorporated Area

The Unincorporated Area of San Bernardino County has a population of 309,759 persons (14.48%) of the entire County Population) and covers 19,233 square miles (95.67% of the entire County land area). There are approximately 61 unincorporated communities within the unincorporated County. San Bernardino County is the largest County in the continental United States. San Bernardino County provides basic services to the residents and citizens of the unincorporated areas. These services include Law Enforcement, Fire Protection, Building and Safety Services, Public Health Services, Library, and Human Services (social services). Five Interstate Highways and four inter-continental railroad lines cross the County, providing vital transportation links from southern California to the remainder of the United States.

1.1.1 San Bernardino County Fire Protection District

San Bernardino County Fire Protection District is a community based all-risk emergency services organization dedicated to the health and well-being of the citizens of San Bernardino County through a balance of regionalized services delivery and accountability to the local community. On July 1, 2008, twenty-seven separate fire districts were merged into one single board governed fire protection district with four regional service zones. The reorganization was not only an administrative advancement but also a significant advancement in operations and delivery of emergency response services.

It has resulted in simplified budgeting and fiscal operations, greater flexibility in the use in the use of department resources and assets and more effective use of day-to-day operations. The reorganization will continue to improve the delivery of fire services and overall operating efficiency.

The San Bernardino County Fire Protection District (County Fire) covers 19,278 square miles, operates 85 fire stations and facilities within 6 Regional Service Zones (Mountain, North Desert, South Desert, High Desert, West Valley and East Valley), and serves 64 unincorporated communities, the City of Grand Terrace, and the Town of Yucca Valley. There are also 6 ambulance enterprise operations that provide service within these Regional Service Zones. In addition, 7 cities are Independent Fire Protection Districts that contract with County Fire: Adelanto, Fontana, Hesperia, Needles, Twentynine Palms, San Bernardino and Victorville. County Fire's executive management is provided by the Fire Chief/County Fire Warden, Deputy Chief, Assistant Chief of Operations as well as Division Managers and Division Chiefs.

County Fire is an all-risk department providing emergency mitigation and management for fire suppression, emergency medical services (paramedic and non-paramedic), ambulance services, HAZMAT response, arson investigation, technical rescue including water borne, flooding and mudslide, winter rescue operations, terrorism and weapons of mass destruction. As part of disaster preparation, response, and mitigation, the department's Office of Emergency Services specifically provides support and assistance to the 24 cities and towns, as well as, all the unincorporated portions of the county. The field functions are supported by a countywide management system that includes organizational business practices, human resources, financial and accounting services, vehicles services and support, and equipment warehousing and distribution. County Fire also provides for the management of community safety services such as: fire prevention, building construction plans and permits, household hazardous waste, Local Oversight Program for hazardous materials, HAZMAT facility inspections, planning and engineering, and public education and outreach.

San Bernardino County Fire Protection District
San Bernardino County, California



Figure 1-2: San Bernardino County Fire Protection District

1.1.2 San Bernardino County Flood Control District

1.1.2.1 Description of Major Services

The San Bernardino County Flood Control District (District) was created in 1939 under special state legislation. Since its inception, the District has developed a very extensive system of flood control and water conservation facilities, including dams, conservation basins, debris basins, channels and storm drains. The purpose of these facilities is to intercept and convey flood flows through and away from developed areas of the county, as well as to promote water conservation and improved water quality.

The District covers the entire county, including all of the incorporated cities. The District is divided into six geographic flood zones (in recognition of the different characteristics and flood control needs in various areas).

- Zone 1 encompasses the county's West End, from the Los Angeles and Riverside County lines to West Fontana.
- Zone 2 encompasses the central area of the San Bernardino Valley easterly of Zone 1 to approximately the Santa Ana River and City Creek demarcations.
- Zone 3 covers the east end of San Bernardino valley, east of Zone 2.

- Zone 4 covers the Mojave River valley region, from the San Bernardino Mountains to Silver Lakes.
- Zone 5 primarily includes the San Bernardino Mountains.
- Zone 6 encompasses the remainder of the county not covered by other zones.

The District has also established a countywide administrative zone (Zone 7)

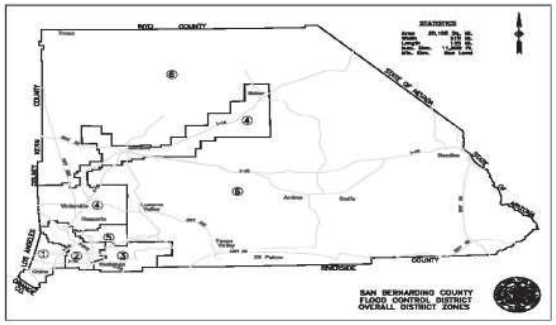


Figure 1-3: Map of San Bernardino County Flood Control District

The District's funding is primarily derived from property taxes, federal and state aid on specific projects, subdivision and permit fees, rents and royalties, and revenue from local water agencies for water spreading services. The District's principal functions are as follows:

- **Flood Protection on Major Streams:** In cooperation with the federal government, the District conducts programs for channel and levee construction, floodwater retention, and debris basin maintenance. Programs or projects are often done in cooperation with the incorporated cities, the U.S. Army Corps of Engineers, and the U.S. Bureau of Reclamation.

- **Water Conservation:** The District operates and maintains water conservation basins and spreading grounds. Water from the local mountains and northern California is spread and percolated into the groundwater basins underlying the county. The District has numerous joint use agreements with water districts allowing use of District facilities for groundwater recharge.

- **Storm Drain Construction:** The District is active in comprehensive storm drain master

planning/construction and cooperates with incorporated cities and other agencies in storm drain projects.

- **Facility Maintenance:** The District has a proactive maintenance program for its facilities. Regular inspections of the storm drains, channels, and basins are made as required by various state and federal agencies.

- **National Pollution Discharge Elimination System (NPDES):** The District is the lead permittee in the San Bernardino valley area-wide NPDES permit with 16 cities as co-permittees. The NPDES program, through the State Water Quality Management Board, regulates storm water quality through very detailed and complex permits, which affect everyone within the Santa Ana River Watershed and is expanding into the high desert area of the Victor Valley under Phase II of the permit.

- **State Water Quality Management Board:** regulates storm water quality through very detailed and complex permits, which affect everyone within the Santa Ana River Watershed and is expanding into the high desert area of the Victor Valley under Phase II of the permit.

- **Flood Operations:** During the flood season, the District maintains telemetry systems for monitoring rainfall and runoff and dispatches storm patrols as dictated by the projected severity of a storm. The District has access to a weather satellite data delivery system to provide state-of-the-art weather information. The system provides advance warning of major storm activity.

- **Flood Area Safety Task Force (FAST):** As a result of the October/November fires of 2003, the FAST organization was created. The District is a key component of this task force, which is meant to respond to the elevated flood risk associated with the aftermath of these devastating fires.

1.1.3 Special Districts Department

The Special Districts Department promotes safe, healthy, enjoyable and dynamic communities by providing essential programs and municipal services that meet the current and future needs of the communities served.

The San Bernardino County Board of Supervisors is the governing body for all Board governed Districts, County Service Areas (CSA), and Improvement Zones. The day-to-day management and administration is done through the Special Districts Department. The County Board of Supervisors and the Special Districts Department depend quite heavily on input from the community. The successful operation of a District, CSA and Improvement Zone is a team effort between County staff and property owners. Where needed, the Board of Supervisors will set up a

property owner Advisory Commission or Municipal Advisory Council (MAC) to work with and make recommendations to the Board and County staff.

The formation process begins with a request from property owners and then involves a feasibility study performed by the Special District Department with the assistance of many other County Departments. The final approval of the District, CSA and Improvement Zone is done by the County Board of Supervisors at a public hearing. Depending on the complexity of the issues, the process can take from three (3) months to one (1) year to complete.

There are various forms of financial mechanisms that can be used to fund services such as fees, special taxes, assessments, etc. Prior to a new funding source being implemented, it must receive approval from either the property owners or the registered voters in the area. It is important to understand that all funding is generated through the Districts, CSAs, and Improvement Zones. No County general funds are used or are available.

Special Districts Department is responsible for operating the Board-governed Special Districts within San Bernardino County. There are 102 special districts managed by the Special Districts Department:

Table 1-1: Special Districts Department District Listing

	District Type	Number
1	Special Revenue Districts	11
2	Enterprise Funds (Airport and Refuse)	3
3	Parks Districts	19
4	Road Districts	41
5	Enterprise Funds (Sewer)	9
6	Street Light Districts	11
7	Enterprise Funds (Water)	8
Total Special Districts		102

- **Special Revenue Districts** were created to provide a service to the property owners within the Special Revenue District.
- **Enterprise Funds Districts** derive their funds through fees collected for delivery of a service or good such as water, sewer, refuse or airport fees from the users within the individual District.
- **Parks Districts** derive their funds through property taxes levied on property owners

within the individual Park District.

- **Road Districts** derive their funds through property taxes levied on property owners within the Road District.
- **Street Light Districts** derive their funds through property taxes levied on property owners within the Street Light District.

The two Special Districts listed below were formed differently than the other special districts listed above managed by the Special Districts Department. These two districts were formed with a Board of Directors. (San Bernardino County Board of Supervisors) and are not independently elected. All governance actions are by the elected members of the Board of Supervisors acting as the Board of Directors for the Recreation and Park District.

Big Bear Valley Recreation and Parks District

Big Bear Valley Recreation and Park District currently maintains 6 developed parks, 2 undeveloped parks, several community buildings including the Big Bear Valley Senior Center, 3 ball fields, and a swim beach. Moonridge Animal Park is administered by the Big Bear Valley Recreation and Park District. The Zoo is open year round for visitors to see alpine species on exhibit. The Zoo receives approximately 99,600 visitors annually.

Bloomington Recreation and Parks District

Bloomington Recreation and Park District maintains two community parks, an equestrian arena, sports fields, and a community center.

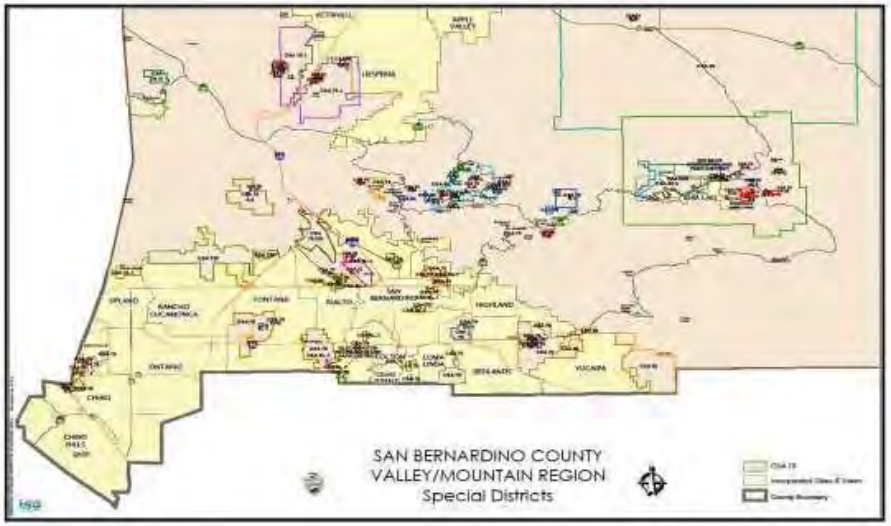


Figure 1-4: Map of Special District Department Districts



Figure 1-5: Special Districts Valley/Mountain Region

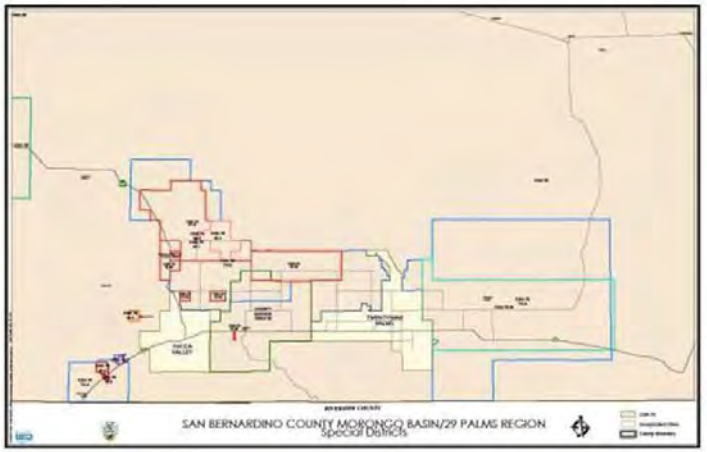


Figure 1-6: Morongo Basin/Twentynine Palms Region



Figure 1-7: Special Districts Victor Valley/Barstow Region

1.2 Purpose of the Plan

The intent of hazard mitigation is to reduce and/or eliminate loss of life and property. Hazard mitigation is defined by FEMA as "any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards." A "hazard" is defined by FEMA as "any event or condition with the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, environmental damage, business interruption, or other loss."

The purpose of the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) is to demonstrate the plan for reducing and/or eliminating risk in the unincorporated area of the County and within areas overseen or managed by the Flood Control District, Fire District and Special Districts Department. The MJHMP process encourages communities within the unincorporated county to develop goals and projects that will reduce risk and build a more disaster resilient community by analyzing potential hazards. By cooperatively and jointly together as a Multi-Jurisdictional Planning team, the partners were able to develop common goals and objectives for mitigation efforts. The individual stakeholders can then take the goals and objectives back to their individual Special Districts for discussion, ranking and project development, and then bring the resulting projects back to the Multi-Jurisdictional Planning Team. The Multi-Jurisdictional Planning Team can then

integrate all projects into the appropriate project listing to be acted upon by the most appropriate managing department or district for the listed projects.

After disasters, repairs and reconstruction are often completed in such a way as to simply restore to pre-disaster conditions. Such efforts expedite a return to normalcy; however, the restoring of things to pre-disaster conditions sometimes result in feeding the disaster cycle; damage, reconstruction, and repeated damage. Mitigation is one of the primary phases of emergency management specifically dedicated to breaking the cycle of damage. Hazard mitigation is distinguished from other disaster management functions by measures that make County development and the natural environment safer and more disaster resilient. Mitigation generally involves alteration of physical environments, significantly reducing risks and vulnerability to hazards by altering the built environment so that life and property losses can be avoided or reduced. Mitigation also makes it easier and less expensive to respond to and recover from disasters.

1.3 Authority

In 2000, FEMA adopted revisions to the Code of Federal Regulations. This revision is known as "Disaster Mitigation Act (DMA)." DMA 2000, Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) that describes the process for assessing hazards, risks and vulnerabilities, identifying and prioritizing mitigation actions, and engaging/soliciting input from the community (public), key stakeholders, and adjacent jurisdictions/agencies.

With an approved (and adopted) MJHMP, the County and participating jurisdictions are eligible for federal disaster mitigation funds/grants (Hazard Mitigation Grant Program, Pre-Disaster Mitigation, and Flood Management Assistance) aimed to reduce and/or eliminate risk.

1.4 What's New

The 2011 San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) contained a detailed description of the planning process, a risk assessment of identified hazards for the San Bernardino County Planning Area and an overall mitigation strategy for reducing the risk and vulnerability from these hazards. Since approval of the plan by FEMA, much progress has been made by San Bernardino County and the participating County Districts on implementation of the mitigation strategy. As part of this 2016 MJHMP Update, a thorough review and update of the 2011 plan was conducted to ensure that this update reflects current community conditions and priorities in order to realign the overall mitigation strategy for the next five-year planning period. This section of the plan includes the following:

- **What's New in the Plan Update** This section provides an overview of the approach to updating the plan and identifies new analyses, data and information included in this Plan Update to reflect current community conditions. This includes a summary of new hazard and risk assessment data as it relates to the San Bernardino Planning Area as well as information on current and future development trends affecting community vulnerability

and related issues. The actual updated data, discussions, and associated analyses are contained in their respected sections within this 2016 MJHMP Update.

- **Summary of Significant Changes to Current Conditions and Hazard Mitigation Program Priorities.** This section provides a summary of significant changes in current conditions, changes in vulnerability, and any resulting modifications to the community's mitigation program priorities.

- **2011 Mitigation Strategy Status and Successes.** This section provides a description of the status of mitigation actions from the 2011 plan and also indicates whether a project is no longer relevant or is recommended for inclusion in the updated 2016 mitigation strategy. This section also highlights key mitigation success stories of the County and participating jurisdictions since the 2011 MJHMP.

This What's New section provides documentation of San Bernardino County Planning Area's progress or changes in their risk and vulnerability to hazards and their overall hazard mitigation program. Completion of this 2016 MJHMP Update further provides documentation of the San Bernardino County community's continued commitment and engagement in the mitigation planning process.

1.4.1 Updates to the Current Plan

This MJHMP update involved a comprehensive review and update of each section of the 2011 plan and includes an assessment of the success of the participating County Districts in evaluating, monitoring and implementing the mitigation strategy outlined in the initial plan. Only the information and data still valid from the 2011 plan was carried forward as applicable into this MJHMP update. In fact, based in part on the issuance of new 2011 and 2013 planning guidance, this 2016 plan has been significantly updated and rewritten.

The San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan (2011) focused on integrating the MJHMP with the County General Plan goals and policies as well as incorporating specific flood mitigation projects that were programmed for completion over the five (5) year period. The Plan did not clearly identify mitigation projects the County would focus on for all priority hazards identified in the plan. However, the County has been very active and engaged in implementing and supporting projects and programs designed to reduce and/or eliminate risk in the County. The list of successful projects in this section represents the activities that the County has undertaken and/or supported to reduce the risks from Wildfire, Earthquake, Flood, Drought, Terrorism, and Climate Change.

1.4.2 New Jurisdictional Annexes

Newly refined and reconfigured Jurisdictional Annexes detail the hazard mitigation planning elements specific to the participating jurisdiction to the San Bernardino County MJHMP Update.

The Annexes are not intended to be a standalone document, but appends to and supplements the information contained in the 2016 base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the participating jurisdictions. The newly refined Jurisdictional Annexes provide additional information specific to county participating special district or departments, with a focus on providing additional details on the mitigation strategies for the Fire Protection District, Flood Control District and Special Districts Department. The three annexes provide more detail on mitigation strategies, mitigation projects and existing implementation mechanism for each participating jurisdiction.

The 2011 MJHMP included the Big Bear Valley Recreation and Parks District and Bloomington Recreation and Parks District as standalone jurisdictions. For purposes of this 2016 plan update, Big Bear Valley Recreation and Parks District, and Bloomington Recreation and Parks District hazard mitigation planning efforts are included under the supervision of the Special Districts hazard mitigation planning efforts.

1.4.3 New Risk Assessment

As part of its comprehensive review and update of each section of the plan, San Bernardino County and participating jurisdictions recognized that updated data, if available, would enhance the analysis presented in the risk assessment and utilized in the development of the updated mitigation strategy. Highlights of new data used for this Plan Update is identified below in this Section and is also sourced in context within Chapter 4, Risk Assessment. Specific data used is sourced throughout this plan document. This new data and associated analysis provided valuable input for the development of the mitigation strategy presented in Chapter 5 of this plan. A highlight of new information and analyses contained in this plan update includes the following:

- A new assessment of updated hazards affecting the San Bernardino Planning Area was completed resulting in additional hazards added to planning documents the new hazards include climate change, drought and terrorism.

- The drought hazard was expanded to include water shortage impacts to the County, to better align with the State of California Hazard Mitigation Plan and to reflect the significant issues related to drought conditions resulting from the current and ongoing drought within the County and State of California.

- The climate change hazard was added to include to comply and align with the State of California Hazard Mitigation Plan and to reflect recent SB 379 initiatives. Climate change is affecting and will continue to affect the frequency and severity of natural hazard events, a trend that is of concern across the United States.

- An entire rework of the risk assessment for each identified hazard. This included reworking the hazard profile and adding new hazard event occurrences; redoing the entire vulnerability analysis to add items identified below and updating the vulnerability assessment based on more recent hazard data as well as using the most current parcel and assessor data for the existing built environment.

- An update of the flood hazard analysis to include an updated analysis of the 100-year flood, an analysis of the 500-year flood, including the use the new and updated DFIRMs.
- Utilizing updated critical facility GIS mapping for the Planning Area to provide an updated inventory of critical facilities by jurisdiction (including all municipalities) and a GIS analysis of critical facilities vulnerable to hazards with spatial footprints which include: flood, wildfire, and earthquake.
- An enhanced vulnerability assessment which added a GIS analysis of updated future development areas in the Planning Area and specific to each of the mapped hazards.
- Incorporation and analysis of the new 2010 Census data was utilized for this LHMP update. Census data was used in an intersect analysis to determine how much of the population is exposed to flood, wildfire and earthquake hazards.
- Also, as required by current FEMA planning guidance, an analysis of the County's ongoing and continued compliance with the NFIP is included in the Flood Hazard profile.
- Terrorism is now a reoccurring possibility within the United States, due to the terror attack in San Bernardino County in December of 2015, a hazard profile on this matter has been added to this plan.

1.4.4 Successful Wildfire Mitigation Implementation

1.4.4.1 Fire Safe Councils (FSC) Fuel Reduction Program Success

Fire Safe Councils have received and implemented millions of dollars in grant money for fuels reduction and for public education. Of note recently the Arrowhead Communities FSC developed a grant that did fuels reduction but used the existing staff at the County Tree Removal Program rather than pay additional consultants to do the same work. The benefit of this is that the FSC was able to maximize their expenditure and give the contractor a check upon completion of the project. This way 100% of their grant money went directly to the contractor and none went to administrative overhead.

1.4.4.2 Red Cross Grant Fuel Reduction Success

Although this grant was just recently started, the ARC has successfully removed and reduced fuels on several properties. They have also met with County Roads Sign Division and created the correct number of evacuation directional signs. Fifty signs will be posted in the Moon Ridge area of Big Bear Lake in 2010 and 2011. During an emergency, these directional signs will direct people out of a very confusing network of streets.

1.4.4.3 USFS Grants ARRA and Otherwise and Chipping Program Success

San Bernardino County and its Special Districts were successful in obtaining $3 million in American Recovery and Reinvestment Act funding to support ongoing fuel reduction programs and to create new jobs for the recovering economy. The USFS also funded an additional $13 million to carry on after the NRCS projects were closed out.

Project design, contracting and operations are managed by the County's Public Works Department but the priorities are set by local fire chiefs in monthly MAST Operations Meetings. It is the oldest and most significant program for reducing wildfire threat on a mountain wide basis. Table 1-2 shows current and planned fuels reduction Projects for the San Bernardino County Mountain areas.

Table 1-2: Hazardous Tree Removal Project and Fuel Modification Projects

Project Name	Contract No	Funding	Cost	Project Stage
Mojave view	FM179USFS	USFS	$23,840.00	Complete 2013
Strawberry Lodge	n/a	USFS	n/a	Complete 2013
Harich	n/a	USFS	n/a	Complete 2013
Camp Oaks	n/a	USFS	n/a	Complete 2013
Swinson/Arrowbear	n/a	USFS	n/a	Complete 2013
Osito Rancho/Cedar	n/a	USFS*	n/a	Complete 2013
BBV286SP	n/a	USFS	n/a	Complete 2013
BBV287SP	n/a	USFS	n/a	Complete 2013
BBV280SP	n/a	USFS	n/a	Complete 2013
FF288SP	n/a	USFS	n/a	Complete 2013
LA291SP	n/a	USFS	n/a	Complete 2013
RS292SP	n/a	USFS	n/a	Complete 2013
GVL293SP	n/a	USFS	n/a	Complete 2013
AB294SP	n/a	USFS	n/a	Complete 2013
BBV295SP	n/a	USFS	n/a	Complete 2013
Green Briar	FM100ARRA	ARRA**	$88,000.00	Complete 2013
West Hook Creek	n/a	ARRA	$14,700.00	Complete 2013
Silverwood Lake	n/a	ARRA	$21,000.00	Complete 2013
Weesha	n/a	ARRA	n/a	Complete 2013
Erwin Lake	n/a	ARRA	n/a	Complete 2013
Wrightwood	n/a	ARRA	n/a	Complete 2013
Camp Tahquitz	n/a	ARRA	n/a	Complete 2013

Project Name	Contract No	Funding	Cost	Project Stage
West Cajon	n/a	ARRA	n/a	Complete 2013
LA285SP	n/a	ARRA	n/a	Complete 2013
WW290SP	n/a	ARRA	n/a	Complete 2013
CL289SP	n/a	ARRA	n/a	Complete 2013
Rob Roy	n/a	ARRA	n/a	Complete 2013
Santa's Village	n/a	ARRA	n/a	Complete 2013
Saw Pitt II	n/a	ARRA	n/a	Complete 2013
Oak Hills	n/a	ARRA	n/a	Complete 2013
Fawnskin	n/a	ARRA	n/a	Complete 2013
Heaps Peak	n/a	ARRA	n/a	Complete 2013
Houston	n/a	ARRA	n/a	Complete 2013
Calvary	n/a	ARRA	n/a	Complete 2013
WW298SP	n/a	ARRA	n/a	Complete 2013
LG299SP	n/a	ARRA	n/a	Complete 2013
Project Name	**Contract No**	**Funding**	**Cost**	Complete 2013
Waterman Canyon	n/a	ARRA	n/a	Complete 2013
Willow Creek	FM6501AFSC	ACFSC***	$11,900.00	Complete 2013
LA191EVA	EVA191AFSC	ACFSC	n/a	Complete 2013
NorthBay	FM192AFCS	ACFSC	n/a	Complete 2013
LA215EVA	**n/a**	**ACFSC**	**n/a**	**Complete 2013**

** Funded by United States Forest Service*
*** Funder by American Reinvestment and Recovery Act of 2009*
**** Funded by Arrowhead Communities Fire Safe Council*

1.4.4.4 NRCS Fuel Reduction Project Success

San Bernardino County was the recipient of 72 million dollars that were granted from the National Resource Conservation Service (NRCS) to San Bernardino County Fire Protection District to reduce the amount of fuel and the potential for ignitability. In February of 2010, the grant was successfully closed out one month in advance of the target date. The $72,000,000 provided for almost 1,000 projects substantially reducing heavy fuels on tens of thousands of properties at risk across all mountain communities. Within that grant, $6.7million was provided to the USFS to conduct fuel modifications on Federal land and $7.2 million was provided to Cal Trans to remove fuels along evacuation routes. An additional $2 million was forwarded to San Diego to assist them. The activities funded under this program represent the first of their kind to be accomplished by local/state governments with federal grant funding.

To date the Fuel Management Program has removed over 450,000 trees, improving the overall health of the forested areas in the San Bernardino Mountains and reduced the overall fire threat. On several occasions completed projects have resulted in assisting fire suppression efforts and allowing fire to be contained before it threatens a local community, including Deer Lodge Park in Lake Arrowhead and Nob Hill in Running Springs during the Grass Valley and Slide Fires of 2007.

1.4.5 Flood Hazard Mitigation Success

1.4.5.1 2011 General Plan Amendments

A General Plan Amendment to the Safety Element of the County of San Bernardino 2007 General Plan amended the Flood Plain Overlay District, which became effective on March 11, 2010. The Safety Element includes several layers of hazard overlays that are included in the General Plan mapping system to inform the public of potential hazards to development of property within certain areas of the County and to enable the County to mitigate the risks presented to property owners by these hazards. These overlays include potential flood hazards. Over the past twenty years, certain federal and state agencies have been in the process of digitizing much of this hazard data. The digitization of this data has allowed for greater accuracy as well as more timely updates. In recognition of the new data from various federal and state agencies, the County updated the Flood Hazard Overlay Maps contained within the Safety Element of the General Plan. The Flood Plain Safety Overlay District is amended to incorporate revised FEMA (Federal Emergency Management Agency) Flood Plain data, modifying 47 detail and seven regional General Plan Quad Maps. The FEMA Digital Flood Insurance Rate Map database was adopted in the General Plan Amendment as released by FEMA as it exists as of February 9, 2010 and will updated in the future for the County, by integrating automatic map updates as new data is published by FEMA.

Below is a list of the updated Flood Plain Safety Overlay District Maps effective March 11, 2010.

Map	Quad Name	Map #	Quad Name	Map	Quad Name
DI16B	Baker	FH12B	Telegraph Peak	FH21	Devore
EH07	Hinkley	FH13B	Cajon	FH22	San Bernardino N.
EH14	Wild Crossing	FH14B	Silverwood Lake	FH23	Harrison Mtn.
EH15	Hodge	/FJ B	S Portion of County	FH28	Guasti
EH16	Barstow SE	FH11B	Mt. San Antonio	FH29	Fontana
EH22	Helendale	CK/DK	NE Portion of County	FH30	San Bernardino S.
EH29	Adelanto	EH/FH	SW Portion of County	FH31	Redlands
EH30	Victorville	EI/FI B	S Portion of County	FH32	Yucaipa
EH31	Apple Valley N.	EK/FK B	SW Portion of County	FI09B	Fawnskin
EI01B	Nebo	FH06B	Hesperia	FI10B	Big Bear City
EI02B	Yermo	FH07B	Apple Valley S.	FI17B	Big Bear Lake

Map	Quad Name	Map #	Quad Name	Map	Quad Name
EI03B	Harvard Hill	CH/DH	NW Portion of County	FI18B	Moonridge
EI04B	Manix	CI/DI B	N Portion of County	FH15	Lake Arrowhead
EI09B	Daggett	FH03B	Mescal Creek	FH19	Mt. Baldy
EK03	Needles NW	FH04B	Phelan	FH20	Cucamonga Peak
EK11	Needles SW	FI30B	Joshua Tree S.	FI23B	Sunfair
EK12	Needles	FI32B	Queen Mountain	FI25B	Forest Falls
EK20	**Whale Mountain**	**FI28B**	**Morongo Valley**		

Completed Flood Control Projects with Mitigation Characteristics

Table 1-3: Completed Flood Control Projects

Project Number	Completion Date	Total Cost	Total Funding
F02527	2016	$392,885	$392,885
F00282	2016	$4,100,000	$4,100,000
1-	2010	$7,770,000	$7,700,000
F01761	2016	$4,000,000	$4,000,000
F02234	2016	$1,100,000	$1,100,000
F01767	2014	$3,700,000	$3,700,000
F01389-	2008	$1,300,000	$1,300,000
F01545	2009	$1,500,000	$1,500,000
F01566-	2010	$3,300,000	$3,300,000

1.4.5.2 F02527 29TH Street Basin Levee Certification Restoration Project - Completed

Ensure that the surrounding residential and commercial areas will not be re-mapped as floodplain areas.
Status: Completed
Completion Date: March 2016
Local Priority: High
Total Cost: $392,885
Funding Description: From Flood Control District Budget through Property Tax
Project Selected for: Public safety: history of flood damage at this location
Hazard Mitigated: Potential flooding
Resources to Implement: High

Cost to Implement: High
Time to Implement: High

1.4.5.3 F00282 Alabama at City Creek - Completed

Construct RCB and channel improvements to increase capacity and minimize the possibility of road closures and flood damage.
Status: Completed
Completion Date: January 2016
Local Priority: High
Total Cost: $4.1 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public safety & convenience
Hazard Mitigated: Flooding, flood damage, road closures and road damage
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Medium

1.4.5.1 F02234 Wilson Creek - Completed

Status: Completed June, 2016
Local Priority: Low
Total Cost: $1.1 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Yucaipa
Project Selected for: public safety and infrastructure protection
Hazard Mitigated: attenuation of high velocities (50 fps); slope protection
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

1.4.5.2 F01767 Lytle Cajon – Completed

Replacement of damaged concrete invert
Status: completed
Completion Date: 2014
Local Priority: High
Total Cost: $3.7million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety and to prevent additional channel damage
Hazard Mitigated: Additional damage to invert and walls; potential flooding and washouts of nearby area
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

1.4.5.3 F01761 Kitchen Wash – Completed

To intercept flows upstream of Rimrock Road to capture headwaters and re-route them to the Mojave River
Status: In preliminary design process
Completion Date: Estimated 2017/2018
Local Priority: Low
Total Cost: $4.0 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Public safety; protection of commercial center
Hazard Mitigated: local flooding, road damage
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

1.4.5.4 Successful "Finalization" of Drainage Feasibility Study Report

The final Drainage Feasibility Study has been completed to evaluate the continuing landslide hazard within Rimforest and the role of concentrated storm runoff in propagating slope failure. The village of Rimforest has eroding cliff-side property and bluff retreat in the Southern part of the village.

This problem is primarily caused by storm runoff from either rainstorms or snowmelt after winter storms. The runoff flows to the south side of Rimforest and is discharged over the cliff at two principal locations. This study report evaluated a number of options to re-direct the majority of the runoff to other discharge locations for the purpose of reducing and mostly eliminating the cliff-side erosion. Two options presented the study appear to be feasible if new conventional storm drain systems are installed. One of the options is now included as potential future mitigation action presented in Section 6 of this plan.

1.4.6 Geologic Hazard Mitigation Success

1.4.6.1 Successful Geologic Hazard Prevention General Plan Amendments

Twenty two overlay maps were completed as part of the 2007 General Plan Amendment which became effective on March 11th, 2010. For more information on the overlay maps, see Section 6.2.2.3.

1.4.6.2 Amendment to Title 6 County Code to Adopt by Reference the 2010 Editions of the California Building Standards Codes

An amendment to Title 6 of the County of San Bernardino Code to adopt by reference the 2010 Editions of the California Building Standards Codes went before the Board of Supervisors on November 2, 2010 and was continued for a second reading on November 16, 2010 and approved unanimously. The amendment became effective on January 1, 2011.

The County of San Bernardino amendment to Title 6 of the County Code to adopt by reference the 2010 Editions of the California Building Standards Codes repealed the current chapters of Division 3 of Title 6 that reflect the 1994/1995 editions of the California Building Standards Codes and adopt the 2010 editions of these codes by reference.

The California Building Standards Commission approved the California Building Standards Code (Code) for a statewide effective date of January 1, 2011 and requires this Code apply in all parts of the state. This Code consists of the California Building, Residential, Plumbing, Mechanical, Electrical, Energy, Historical Buildings, Existing Building (Unreinforced Masonry) and the Green Building Standards Codes. Since this 2010 Edition was adopted by local ordinance, the prior editions of this code will be repealed and the most recent editions of the codes with applicable amendments requiring express findings and certain appendices necessary for the health and safety of the citizens of this County will be in effect within the unincorporated areas of San Bernardino County. The benefit of adopting this Code is that it provides consistency and clarification for the building community as well as building inspectors and plans examiners. State law (Health & Safety Code 18941.5 and 17958.7) requires the local government make express findings in order to amend building standards and the amendments must be necessary due to local climatic, geological, or topographical conditions.

Those amendments and findings are included in the County's ordinance and were filed with the California Building Standards Commission.

The recommended modifications not requiring express findings are administrative or procedural in nature and concern the local implementation issues that are not covered by building standards.

An example of this type of modification is to the California Residential Code, Section R105.3.1.1 which requires the Board of Appeals to confirm substantial valuations in the flood plain. The traditional purpose of the Board of Appeals has been reserved for a contested decision of the Building Official, and it is felt that it should remain as such.

With respect to grading and excavation regulations found in Appendix J of the 2010 State published code, the 2001 California Building Code dealt with grading with more clarity in regards to what activities require a permit and set forth rules to ensure large grading projects are scrutinized in greater detail than smaller projects by requiring more reporting and inspection of such work. The grading chapter in the 2001 Code has been trusted and in use in its primary form for years. The 2010 Appendix J grading chapter needs substantial amendment and modification to address all grading issues and is not recommended for adoption in its present form. The Board adopted the 2001 Appendix Chapter 33 regulations as part of this proposed ordinance. Relocation permit requirements have been moved to a new section of the Code, and it retains specific standards for relocation procedures in details not found in the 2010 State-published code. Clarification of the types of buildings affected by the new regulations has also been made.

Administrative changes to the 2010 California Existing Building Code (Part 10 of Title 24) were approved to outline the procedures required to set allowable time limits for the retrofit and repair

of unreinforced masonry buildings. Staff is also recommending that authorization be given to the Building and Safety Division of the Land Use Services Department to issue Administrative Citations as an alternative means of enforcement of the County Code provisions.

Express findings are made for changes to the California Plumbing Code, Appendix K regarding the soil conditions that exist in this county. These changes are supported by the Environmental Health Division. These express findings are iterated in the ordinance and will be filed with the Building Standards Commission as required by law in order to become effective.

1.5 Community Profile

1.5.1 Physical Setting

The County is bounded by the states of Arizona and Nevada on the east, Inyo County on the north, Kern and Los Angeles Counties on the west, and Orange and Riverside Counties on the south.

San Bernardino County covers 20,102 square miles and is geographically the largest county in the continental United States. The States of Hawaii, Connecticut, Delaware, and Rhode Island and the District of Columbia could all fit inside the County boundary at the same time. The unincorporated area of San Bernardino County covers approximately 19,848 square miles; this is 98.7% of the entire County.

The remaining 1.3% of acreage (254 square miles) is under the jurisdiction of incorporated cities or towns. Figure 7 displays the unincorporated area and the cities/towns. The cities/towns on the map are concentrated in the south/west portion of the county and are color-coded.

San Bernardino County is characterized by three (3) distinct geographic areas: Valley, Mountains, and Desert: the Valley Region contains the majority of the county's incorporated areas and is the most populous region; the

Mountain Region is primarily comprised of public lands owned and managed by federal and state agencies; and, the Desert Region is the largest region (over 93% of the county's land area) and includes parts of the Mojave Desert.4 Aside from open or undeveloped land, the largest land use in the county is for military purposes.

The mountains stretch across the south end of the county. The mountain elevations range from 2,000 feet along the foothills to the 11,502-foot summit of Mount San Gorgonio, the highest peak in Southern California. Figure 8 displays the terrain/topographic features throughout San Bernardino County.

The San Bernardino Mountains feature four (4) large lakes (Big Bear Lake, Silverwood Lake, Lake Arrowhead, and Lake Gregory), and many smaller lakes. The majority of the lakes are the headwaters of the Santa Ana River and the Mojave River.

The Santa Ana River originates in the San Bernardino Mountains and flows southwest to the ocean. The Santa Ana Watershed includes streams flowing south from the San Gabriel Mountains and streams flowing north and west from the San Jacinto Mountains in Riverside County.

The desert area contains low mountains, valleys, and dry lakebeds. The elevations within the valley range of the County is from about 500 feet on the valley floor to 1,700 feet in Live Oak Canyon, and to about 5,400 feet in the hills in Yucaipa. The desert area is an assemblage of mountain ranges interspersed with long, broad valleys that often contain dry lakes. Many of these mountains rise from 1,000 to 4,000 feet above the valleys. Due to the persistent winds that blow throughout the year, large portions of the desert surface have been modified into a mosaic of pebbles and stones known as desert pavement.

A major physical resource of the desert area is the Mojave River, a critical water source for many of its residents. Among the few rivers that both flow north and do not empty into an ocean, the Mojave River travels north and east away from its watershed in the San Bernardino Mountains. The major part of it is over 100-mile length is marked by a dry riverbed that only on occasion reveals the water within it. Except in exceedingly wet years, the Mojave River ends its flow at Soda Dry Lake near Baker. The Colorado River, at the California and Arizona border, borders the County on the east. Streams in the eastern areas of the County area flow into the Colorado River which eventually ends at the Gulf of California.

The densely urban southern part of the County is at the headwaters of the Santa Ana River with its tributaries crossing the valley floor. With the construction of the Seven Oaks Dam the main river source has been controlled. However, Mill Creek, City Creek, Lytle Creek, and Cajon Creek still have the potential to flood areas of the valley if levees fail. A similar potential occurs with the high desert portion of the County with the Mojave River, which is controlled by the Mojave River Falls Dam that flows north from the San Bernardino Mountains to the city of Barstow. The San Antonio Dam on the southwest side of the county provides more than 100-year flood protection to the west end of the San Bernardino Valley. The Colorado River is on the eastern border of the County. The dams along the river have controlled the flow but bank erosion and damage to roads in the area have been experienced during periods of high water.

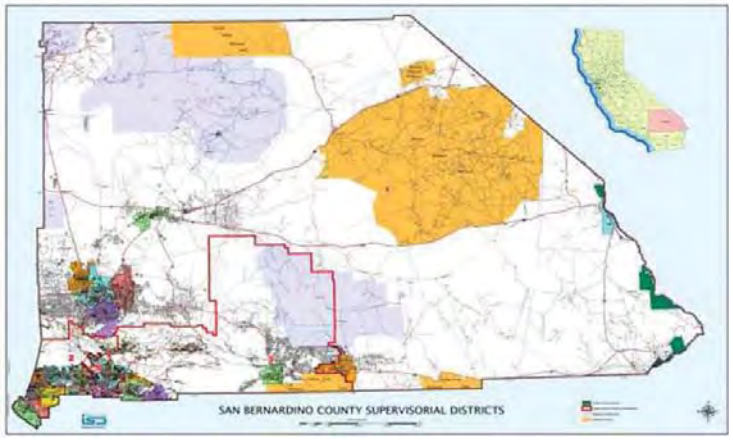


Figure 1-8: Unincorporated and Corporate Areas in San Bernardino County



Figure 1-9: Topographic Features in San Bernardino County

1.5.2 History

Paleo-Indian sites dating from c. 10,000 BC show that the San Bernardino County area has been inhabited for at least 12,000 years. Artifacts in the Calico area suggest much earlier human occupation, but this has not been confirmed. In the past three thousand years, various Indian tribes flourished in the area: the Gabrielenos occupied the West Valley; the Serranos lived in the foothills of the San Bernardino Mountains; the Vanyumes lived along the Mojave River; the Mohave lived along the Colorado River; and the Chemehuevi occupied the Mojave Desert.

The first European explorers to enter the area were Pedro Fages, Military Commander of California, in 1772 and Fr. Francisco Garces, a missionary priest, in 1774. On May 20, 1810, Franciscan missionary Francisco Dumatz, of the San Gabriel Mission, led his company into a valley. In observance of the feast day of St. Bernardine of Siena, Dumatz named the valley San Bernardino. This name was later given to the nearby mountain range, and later the city and county.

In 1842 the Lugo family was granted the Rancho San Bernardino, a holding of 37,700 acres encompassing the entire San Bernardino Valley. Captain Jefferson Hunt, of the Mormon Battalion, led a group of settlers into San Bernardino and founded a Mormon Colony. In 1851 the Mormon Colony purchased the Rancho from the Lugo family.

In 1850 California was admitted into the United States. On April 26, 1853, San Bernardino County was created from parts of Los Angeles, San Diego, and Mariposa Counties. In 1854 the City of San Bernardino was incorporated as the county seat.
In 1857, three orange trees were set out on a farm in Old San Bernardino. By 1882 a rail car load of oranges and lemons grown in the East Valley was shipped to Denver, Colorado. As early as the 1840s, vineyards were planted in the Cucamonga area and in the 1870 census; San Bernardino County was credited with producing 48,720 gallons of wine.

In 1860, gold was discovered in Holcomb and Bear Valleys in the San Bernardino Mountains, and placer mining began in Lytle Creek. Silver was being mined at Ivanpah in 1870, and the rich silver mines of the Calico district were developed in the 1880s. Borax was first discovered in 1761 at Searles Dry Lake near Trona, and transported out by twelve-, eighteen- or twenty-mule team wagons.

As a county, San Bernardino has been uniquely endowed with rich mineral deposits. Large deposits of gold have been mined at Stedman and Vanderbilt, with smaller but still important deposits at Alvord, Oro Grande, Old Dad Mountain, Dale and Nantan, Calico, Ivanpah, Waterman and Providence were the largest silver deposits, with lesser, but important deposits in the Mescal Mountains and at the Death Valley Mine. The most important copper mines are the Copper World and the Bagdad Chase (known usually for its gold production).

Except for a brief period after World War I when silver prices were high, low metal prices and inflation put a damper on mining in the 1920s. However, with the Great Depression of the 1930's

and an increase in the price of gold by nearly $15 an ounce, many small operators reactivated old mines. The region around Barstow, Vanderbilt, Stedman, and Dale were the principal centers of mining activity until World War II.

During World War II, iron was extracted from the Vulcan Mine in the Providence Mountains, and the Bagdad Chase Mine remained active. Since the war, there has been sporadic mining of gold, silver, and tungsten in the county. A major new mine opened during the 1950s, the Mountain Pass rare earth mine. Recently, exploration has outlined potential large tonnage molybdenum properties in the New York and Ord Mountains, copper in the Cooper Basin area of the Whipple Mountains and gold in the Clark Mountains.

After World War II, the citrus industry slowly declined. However, dairies relocating out of Los Angeles County settled in the Chino Valley area, creating a robust dairy industry in San Bernardino County.

Elsewhere in the Valley region, suburbs grew as moderate priced housing developments were built. By the late 1980's, the county had grown into bedroom communities and warehousing for southern California.

1.5.3 Climate

The valleys between mountain ranges experience very high temperatures, while the adjacent mountains often experience much cooler temperatures, particularly at their summits. Rainfall and humidity are low. The annual average precipitation for the area is approximately 30 inches. The differences in elevation and topography are in part responsible for variations in temperature and precipitation from the Valley and Desert areas.

Winter temperatures in some areas of the Desert range near zero, the cold often compounded by the wind-chill factor. In the summer, temperatures can reach as high as 134°F in the lower elevations and along the Colorado River area. Temperatures in the San Bernardino valley area range from an average high of 80ºF and an average low of 53ºF. The record high for the area is 117ºF and the record low is 17ºF. The annual average rainfall for the area is 15.6 inches. During the fall and winter months, strong "Santa Ana" winds blow across the area.

The mountains experience a four-season climate. Temperatures in the Mountain area range from an average high of 62ºF and an average low of 36ºF. The record high for the area is 106ºF and the record low is -25ºF. With the possible exception of some of the higher elevations in the mountains, precipitation throughout the Desert area is less than four inches per year, usually of short duration and high intensity. The resulting flash floods rapidly modify the terrain that is exposed to the erosive surface runoff. Unusually heavy or persistent rains often result in the temporary filling of a number of dry lakes until the surface water evaporates or infiltrates the soil. Persistent winds blow throughout the year

1.5.4 Demographics

The total population of San Bernardino County is approximately 2,139,570 people *(State of California, Department of Finance, E-4 Population Estimates for Cities, Counties, and the State, 2011-2016, with 2010 Census Benchmark. Sacramento, California, May 2016)*. Most of the County's population is in the valley areas located in the south west portion of the County. The County's population has grown by 4.13%, 84,835 people, since 2011 (population in 2011 was 2,054,735 people).

The population of the unincorporated area of the County in 2011 was 294,753 people. In 2016, the population is 309,759; an increase of 14,976 persons (or 1.05%) *(State of California, Department of Finance, E-4 Population Estimates for Cities, Counties, and the State, 2011-2016, with 2010 Census Benchmark. Sacramento, California, May 2016)*

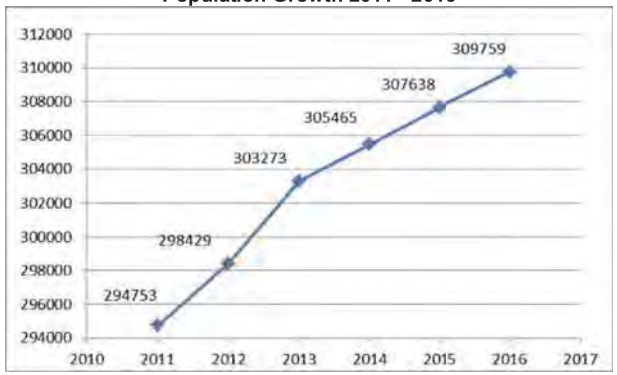


Figure 1-10: San Bernardino County Unincorporated Area Population Changes 2011 - 2016

Source: California Department of Finance E-4

Ethnic composition includes Hispanics (48%) who form the largest share of the County's population, followed by Whites (34%). Blacks (9%) and Asians (5%) form a relatively lower share of the total population. It should be noted that the Hispanic population is growing at the fastest rate among all ethnic groups. From 2000 to 2010, the Hispanic population increased by 44%. This trend is consistent with that of the neighboring counties of Riverside and Orange, where the

Latino population grew by 63% and 24%, respectively. During this period, the Asian population grew by 38%, whereas the Black population grew by 15%. The population of Whites declined in

all the six counties in Southern California; San Bernardino County experienced a decline of 7% in its White population. Changes in Ethnicity are from the California Department of Finance, Demographics Unit.

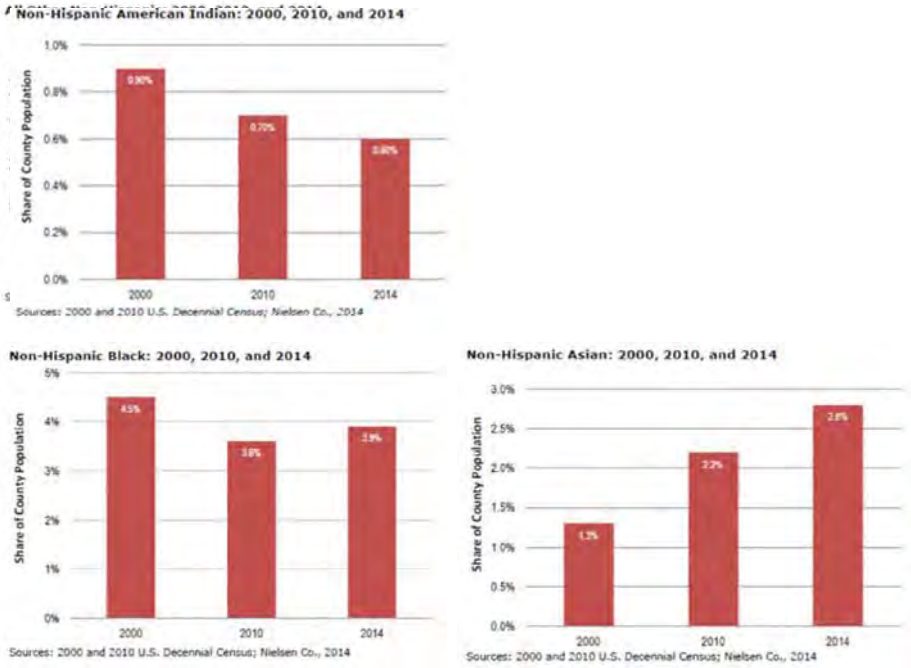


Figure 1-11: San Bernardino County Unincorporated Area 2014 Population by Ethnicity

1.5.5 Existing Land Use

The County has adopted a “one-map approach.” The “one-map approach” permits the use of a single map showing both General Plan land use designations and zoning classifications. The one-map approach assures that there will always be land use consistency between the County's General Plan and its Zoning Code.

There are 18 land use zoning districts that apply only to privately owned lands in the County and not to the lands controlled by other jurisdictions. Lands that are controlled by other jurisdictions, including lands controlled by federal and state agencies as well as incorporated cities, are mapped to identify the public agencies that control them. The 18 land use zoning districts are as follows:

- Resource Conservation (RC)
- Agriculture (AG)
- Rural Living (RL),
- Single Residential (RS),
- Multiple Residential (RM),
- Office Commercial (CO),
- Neighborhood Commercial (CN),
- Rural Commercial (CR),
- Highway Commercial (CH),
- General Commercial (CG),
- Service Commercial (CS),
- Community Industrial (IC),
- Regional Industrial (IR),
- Institutional (IN),
- Special Development (SD),
- Floodway (FW),
- Specific Plan (SP), and
- Open Space (OS).

Resource Conservation (RC) comprises the majority (55.98 percent) of the designated land uses in the County. This land use designation covers over 1 million acres, or about 1,500 square miles of land. Most of the land within this designation is publicly owned (federal and state) and includes national parks, military bases, conservation areas, and lands owned by other federal and state agencies. The County has designated approximately 681,500 acres or 1,065 square miles (37.92 percent) for residential uses. Out of this, about 587,535 acres (32.76 percent of total unincorporated area) are designated Rural Living, 67,691 acres are designated Single Residential, while 4,986 acres are designated Multiple Residential.

Commercial land use zoning districts (Office Commercial, Neighborhood Commercial, Rural Commercial, Highway Commercial, General Commercial, and Service Commercial) occupy a total of 12,177 acres or 0.68 percent of the total unincorporated area. Industrial land use zoning districts (including Community Industrial and Regional Industrial) occupy 21,834 acres or 1.21

percent of the total unincorporated area. Other land use designations include Agriculture occupying 41,793 acres (2.32 percent), Institutional occupying 8,567.51 acres (0.48 percent), Floodway occupying 20,281 acres (1.13 percent), and Specific Plan occupying 4,861.37 acres (0.27 percent).

Because of the size of the County, the San Bernardino County General Plan divides the county into 8 quadrants (Figure 1-12). The "one-map approach" allows the quadrant maps to be used for many different planning and development purposes. Figure 1-13 presents the Land Use Zoning for each quadrant. The Land Use Zoning identifies the type of construction and growth that exists or may occurs in area.

County designated Land Use Zoning Districts do not apply to Federal, State, or incorporated owned property.

The County's General Plan can be found at: http://countywideplan.com/home/about/

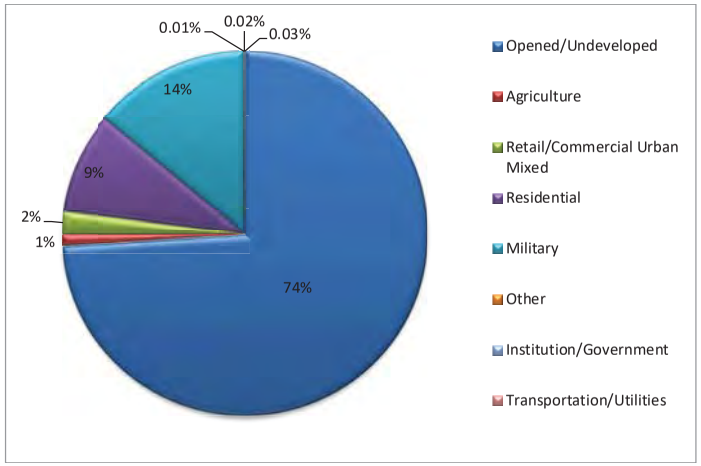


Figure 1-12: San Bernardino County Land Use

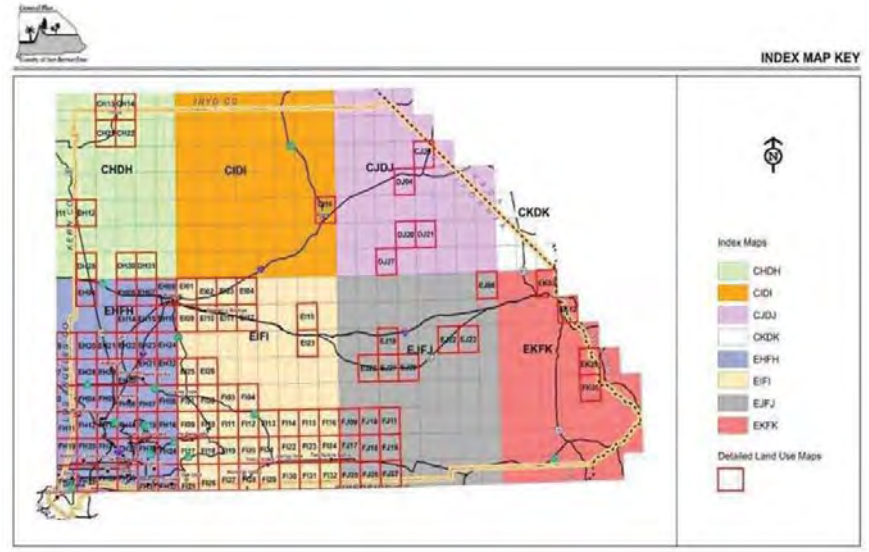


Figure 1-13: San Bernardino County Land Use Map

1.5.6 Development Trends

No major developments occurred in the unincorporated area of the county since the 2010 MJHMP was adopted. The limited development that did occur was scattered throughout the unincorporated area; with no one area being singled out. All development was in accordance with the pre-designated Land Use Zones development zones and complied with all Fire, Flood, and Seismic codes of the County and State at the time of development. This includes commercial, industrial, and residential developments.

The County is optimistic about the potential for future development. The High Desert area of San Bernardino County is one of the best places in the world for solar energy development because of its high altitude, the number of sunny days each year and existing power infrastructure.

- Many large solar energy projects are being proposed in California's desert area on federal Bureau of Land Management (BLM) land. BLM has received right-of-way requests encompassing more than 300,000 acres for the development of approximately 34 large solar thermal power plants totaling approximately 24,000 megawatts. This number of projects has not yet reached the stage of an Application for Certification (AFC) with the California Energy Commission.
- California's electric utility companies are required to use renewable energy to produce 20 percent of their power by 2010 and 33 percent by 2020. A main source of renewable power will be solar energy. Within the County of San Bernardino a Hybrid Power Project has been approved in the Victor Valley area. As of August 2010, three large Solar Projects to be placed in the County are in review by the California Energy Commission.

Once built, these projects will not impact the area to a great extent. Minimal staffing is required to operate these facilities and their very nature places them in remote locations of the County.

Additionally, with the completion of the Alameda Corridor and the emergence of the Ports of Los Angeles and Long Beach as the largest ports in the U.S., shipping trans-Pacific goods from the booming Asian economies, San Bernardino County has evolved as the logistics and distribution hub for the 20 million resident Southern California market and into the rest of the nation. As the international economy recovers amidst tightening land availability for warehousing and transit, San Bernardino County is better positioned than other areas in the region to harness the opportunity to become an even more important logistics hub.

The County has also started development of a bullet train. The bullet train will connect Victorville, CA and Las Vegas NV generally following the I-15 corridor (NOTE: There are discussions of additional bullet trains connecting San Bernardino with Los Angeles and San Diego and San Bernardino County and San Francisco/Sacramento).

While all of these development trends may not be recognized over the next 5 years, all future development that will take place is planned to occur in accordance with the General Plan Land Use Zones and will consider all potential hazards identified within this plan. Additionally, all development will be in compliance with all Fire, Flood, and Seismic codes of the County and State at the time of development.

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Section 2. Plan Adoption

2.1 Adoption by Local Governing Body

The San Bernardino County Board of Supervisors created "districts" to provide a specific service to an area / population of San Bernardino County. These Districts are Board Governed in that the Board of Supervisors has direct control and legislative oversight of the Districts. The Board of Supervisors acts on behalf of each District whenever governance items are necessary. The participating jurisdictions listed in this plan are separate legal entities from the County of San Bernardino. For tax/revenue purposes the Board of Supervisors, acting as the Board of Directors for each participating jurisdiction or "District", will be adopting the Multi-Jurisdictional Hazard Mitigation Plan on behalf of each District. The Districts are not independent from San Bernardino County but are controlled and administered as any other County Department is administered.

This plan represents mitigation efforts for the unincorporated portions of the County and the efforts of three jurisdictions participating in this Multi-Jurisdictional Hazard Mitigation planning effort. The participating jurisdictional special districts include:

San Bernardino County Fire District
San Bernardino County Flood Control District
San Bernardino County Special Districts Department

San Bernardino County Board of Supervisors is responsible for the review, approval, and adoption of the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) update for the unincorporated area of San Bernardino County, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and for the County's Board Governed Special Districts Department. It is also the intent of the San Bernardino County Board of Supervisors to take appropriate actions to incorporate the MJHMP update into the San Bernardino County General Plan.

2.2 Promulgation Authority

The Promulgator Authority for the adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the unincorporated area of San Bernardino County, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and for the County's Board Governed Special Districts Department and incorporation of the MJHMP into the San Bernardino County General Plan is:

- Chairman Robert A. Lovingood First District
- Janice Rutherford Second District Supervisor
- James Ramos Third District Supervisor
- Vice Chairman Curt Hagman Fourth District Supervisor
- Josie Gonzales Fifth District Supervisor

The Point of Contact for information regarding this MJHMP is:

Michael Antonucci, Emergency Services Manager
San Bernardino County Fire
Office of Emergency Services
1743 Miro Way
Rialto, CA 92376
(909) 356-3998

Section 3. Planning Process

3.1 Preparing the Plan

Multi-Jurisdictional Hazard Mitigation Planning is a process State, Tribal, and local governments use to identify risks and vulnerabilities associated with natural disasters, and to develop long-term strategies for protecting people and property from future hazard events.

Planning creates a way to solicit and consider input from diverse interests. Involving stakeholders is essential to building community-wide support for the plan. In addition to emergency managers, the planning process involves other government agencies (e.g., zoning, floodplain management, public works, community, and economic development), businesses, civic groups, environmental groups, and schools.

To assist with the updating of the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP), a Multi-Jurisdictional Planning Team (Planning Team) was established. The Planning Team was the lynchpin for all activities to update the MJHMP. The Planning Team was established to define and identify the strategies, goals, activities, and development of the MJHMP. The Planning Team represents a comprehensive team of subject matter experts from a range of areas that the team felt was affected by the plan or could provide great benefit to the team. Members of the Planning Team were drawn from San Bernardino County Departments, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and the San Bernardino County Special Districts Department.

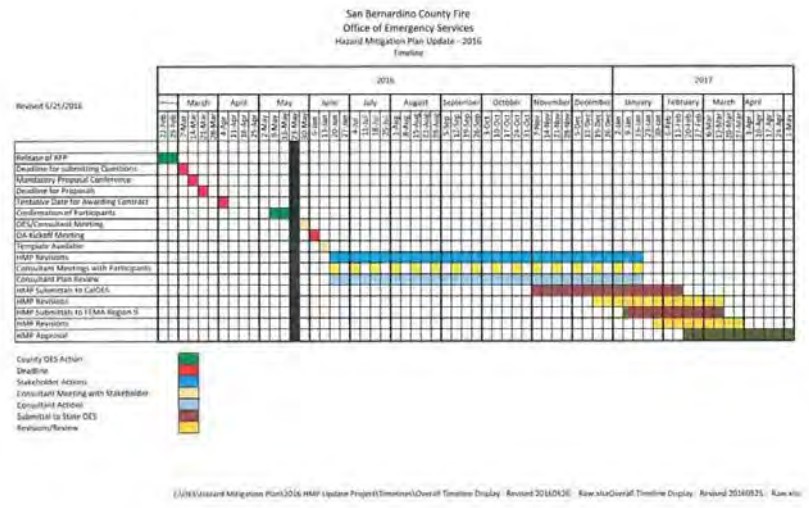
The Multi-Jurisdictional Planning Team members worked together to jointly determine and rank the risks facing the six participating agencies, develop goals and objectives to mitigate the risks, and identify which of the participating jurisdictions would be most appropriate for leading any particular project area identified by the Multi-Jurisdictional Planning Team. The individual Planning Team members then returned to their respective Special Districts where discussions were held, input sought, and potential projects developed and ranked for each of the Planning Team identified risks and projects relevant to the Special District. The Planning Team members then returned to the Multi-Jurisdictional Planning Team and provided the Planning Team with their vetted, prioritized list of potential projects and budgets to include in the Multi-Jurisdictional Hazard Mitigation Plan. These projects and budgets were integrated into the Multi-Jurisdictional Hazard Mitigation Plan. Upon approval, each participating jurisdiction would then be able to apply for grant funding for their prioritized projects without interference from another participating jurisdiction as funding became available.

The Planning Team was led by a representative from the San Bernardino County Fire Protection District-Office of Emergency Service. This representative took on the responsibilities of a Project Manager and facilitated and coordinated activates.

The Project Manager also represented the Unincorporated County at the San Bernardino County Operational Area (OA) Stakeholder meetings. San Bernardino County OES led the effort to coordinate Stakeholder in the Operational Area update their local MJHMP. This effort included: proving technical support, establishing a platform to encourage the exchange of ideas, and help coordination among neighboring stakeholders. The Project Manager was responsible for attending these meetings and incorporating the material into their planning process. One of the resource materials provided through the OA Stakeholder meetings was a suggested Table of Contents (TOC) the purpose of the TOC was to ensure all aspect of the MJHMP requirements were being met and could be found in similar sections in each of the Stakeholders updated MJHMPs.

This sample TOC was reviewed by the Planning Team and incorporated into the unincorporated county's MJHMP update efforts. Using the TOC, the Planning Team decided to conduct a section by section; page by page review of the 2016 MJHMP. To assist with this effort, a proposed project timeline was developed. The proposed Project Timeline illustrates the windows when each section of the 2016 MJHMP will be reviewed and the section revised.

Table 3-1: Proposed Project Timeline



Based on the TOC, the Planning Team divided the update process into seven (7) phases; one for each section of the TOC. This approach allowed for a much focused review of the material and

provided an organized method to introduce new or updated material. The Project Manager led the discussion, solicited comments, took notes, and incorporated results in the MJHMP. Additionally, the Project Manager collected and summarized material provide by Planning Team members. During the Planning Team meetings some members were assigned tasks or action items which were to be completed prior to the next meeting.

Staff assigned to the MJHMP Update reviewed the 2016 MJHMP and provided comments referencing updated information such as current population statistics, new HAZUS-MH MR3 analysis of floods and earthquakes, and provide suggestions for updating the MJHMP. The Planning Team then reviewed the update information and validated/identified Goals, Objectives, and Projects. This step included discussion of how the projects would be prioritized.

3.1.1 Project Prioritization Involved Comprehensive Consideration of Criteria/Factors

While there is not a standard process followed by each of San Bernardino County Departments, and Districts; they all considered social, technological, administrative, political, legal, economic, and environmental factors. The County and each district participated on the Planning Team, and then took the risks, goals, objectives and projects back to their respective jurisdiction for discussion and vetting. After vetting, the individual Planning Team members returned to the Multi-Jurisdictional Planning Team where the individual materials were combined into a single Multi-Jurisdictional Hazard Mitigation Plan. This Multi-Jurisdictional effort resulted in goals, objectives and projects for all participants being listed under the appropriate hazard sections and not by individual participants. This reflects the overall County philosophy of allowing the department/district with the most expertise to suggest and/or manage a project that may affect another participant who does not have expertise in the hazard.

3.1.2 Planning Team

Much of the Planning Team is composed of representatives who were part of the development of the 2010 Unincorporated Area County MJHMP. This provided added value to the team in that they were familiar with the process and provided continuity in the updating of the 2010 MJHMP.

The Planning Team is comprised of representatives from San Bernardino County Departments, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and the San Bernardino County Special Districts Department who specialize in mitigation type activities/planning.

The Planning Team members represented select aspects of the community and were thought of as liaisons to the greater community. Each Planning Team member was responsible for communicating the direction and status of the planning effort to their outside members and in return they are expected to bring to the team outside perspectives. Additionally, the individual Planning Team members acted as liaisons for their respective Special Districts and were responsible for ensuring that the Special Districts provide appropriate input from their respective internal planning processes. Potential projects/budget meetings were held where alternative mitigation actions were discussed and potential mitigation projects were developed and prioritized along with budget development for the individual participating Special Districts and Departments. Additional prioritization after budgets were developed to ensure proper Benefit Cost Analysis (BCA) techniques were applied.

Representation was present on the Multi-Jurisdictional Planning Team from various County Departments and the three participating jurisdictional departments. Planning Team included representatives from all the participating San Bernardino County Special Districts and Departments. See Table 3-2 and Table 3-3.

Table 3-2: Multi-Jurisdictional Planning Team

Multi-Jurisdictional Planning Team Members	Title / Role
Unincorporated County	
Suzanne Peterson	*Countywide Plan Coordinator / Land Use Services / Mitigation Review*
Jerry Blum	*Countywide Plan Coordinator /*
Brent Rolf	*County GIS / Hazus Data Coordinator / Information Services*
Frank Jordan	*Land Use Services / Mitigation Review*
Jim Sowers	*Building and Safety / Risk Assessment Review and Mitigation Action Plan Development*
Patricia Cole	*Economic Development Agency / Implementation and Funding Review*
Carl Alban	*Architecture and Engineering Department*
John Amrhein	*Sherriff's Corner Department Rep. / Mitigation Action Review*
Mazin Kasey	*Public Works Dept. /Transportation Division*
Art Rivera	*Solid Waste Management Division*
Norma Spencer	*Superintendent of Schools*
Fire Protection District	
Michael Antonucci	*OES Director / MJHMP Plan Representative*
Cindy Serrano,	*Project Manager for Planning Process*
Miles Wagner	*Emergency Services Officer, GIS Representative and Stakeholder Coordination.*
David Davis	*Emergency Services Officer / Fire District Representative and Technical Writer*
Mary Barnett	*Technical Writer / Plan Update and Edits*

Multi-Jurisdictional Planning Team Members	Title / Role
Cheryl Nagy	*Emergency Services Officer*
Carrie Cruz	*Emergency Services Officer*
Elli Maldonado	*Elli Maldonado – Office Assistant*
Michael Horton	*Michael Horton – Fire Marshal*
Flood Control District	
Kevin Blakeslee, Deputy Director – Flood Control	*Deputy Director – Flood Control*
Kenneth Eke, Chief, Flood Control Planning/ Water Resources Division	*Chief, Flood Control Planning/ Water Resources Division*
Michael Fam	*Flood Control Planning*
Mona Sadek	*Flood Control Planning*
Marjorie Schrage	*Flood Control Planning*
Special Districts Department	
Jeff Rigney	*Special Districts Dept. Director*
Steve Samaras	*Special Districts Dept. Acting Deputy Director*
Erin Opliger	*Big Bear Valley Recreation and Parks District Rep.*
Erin Opliger	*Bloomington Recreation and Parks District Rep.*

Table 3-3: Stakeholder List

Stakeholder Members	Name	Title / Role
Municipal Partners		
City of Barstow	*Jamie Williams*	*Fire Chief*
City of San Bernardino	*Eric Fyvie*	*Sergeant*
City of Chino	*Chris Wolff*	*Administrative Services Manager*
City of Chino Hills	*Bonnie Michaels*	*Emergency Services Analyst*
City of Colton	*Shannon Kendall*	*Emergency Services Coordinator*
City of Fontana	*Cheryl Nagy/ Mary*	*Emergency Services Officer*
City of Grand Terrace	*Haide Aguirre*	*Management Analyst*
City of Hesperia	*Rachel Molina*	*Public Information Officer*
City of Loma Linda	*Shannon Kendall*	*Emergency Services Coordinator*
City of Montclair	*Angelic Bird*	*Emergency Services Coordinator*
City of Ontario	*Raymond Cheung*	*New Emergency Manager*
City of Rancho Cucamonga	*Breanna Medina/ Denise School*	*Emergency Manager*
City of Redlands	*Fay Glass/ Wanda Viser*	*Emergency Operations Manager*

Stakeholder Members	Name	Title / Role
City of Rialto	*Art Podeska*	*Battalion Chief*
City of Upland	*Angelic Bird*	*Emergency Services Coordinator*
City of Victorville	*Dana Wellborn*	*Emergency Services Manager*
Town of Apple Valley	*Joseph Ramos*	*Emergency Services Officer*
Town of Yucca Valley	*Jessica Rice*	*Management Analyst*
School District Partners		
Apple Valley Unified School District	*Janet Gould*	*Director, Risk Management*
Chino Valley Unified School District	*Dr. Grace Park*	*Assistant Superintendent*
San Bernardino County Superintendent of Schools	*Norma Spencer*	*Risk Management Analyst*
Snowline Joint Unified School District	*Robert Chacon*	*Director of Risk Management*
Special District Partners		
Inland Empire Utilities Agency District Headquarters	*Claudia Neighbors/ Tony Arellano*	*Safety Officer*
Newberry Community Services District	*Stephen Miller*	*Fire Chief- Barstow Fire Protection District*
Omnitrans	*Mark Crosby*	*Security and Emergency Preparedness Coordinator*
Santa Ana Watershed Project Authority	*Richard Haller/ Carlos Quintero*	*Exec. Manager of Engineering and Operations*
Water District Partners		
Crestline Village Water District	*Larrie Ann Davis*	*Office Manager*
Cucamonga Valley Water District	*Rosanna Ammari / Maria Kennedy*	*Maria Kennedy Consultant Representative*
East Valley Water District	*Cecilia Contreras / Gary Sturdivan*	*Administrative Assistant*
Monte Vista Water District	*Jonathon Dizon*	*Engineering Technician*
San Bernardino Valley Municipal Water District	*Dan Borrell/ Brent Adair*	*Project manager- Construction*
Twenty-nine Palms Water District	*Gary Sturdivan*	*Consultant Rep.*
Yucaipa Valley Water District	*John Hull*	*Public Works Management*
CERT Teams		
Wrightwood		*CERT Citizens*
Phelan/Pinion Hills		*CERT Citizens*
Angelus Oaks		*CERT Citizens*
Big Bear Valley		*CERT Citizens*
Helendale		*CERT Citizens*
Lucerne Valley		*CERT Citizens*
Lytle Creek		*CERT Citizens*
Mill Creek Canyon		*CERT Citizens*

Stakeholder Members	Name	Title / Role
Morongo Basin		*CERT Citizens*
Mountain		*CERT Citizens*
Oak Hills		*CERT Citizens*
Rosena Ranch		*CERT Citizens*
San Antonio Heights		*CERT Citizens*
Silver Valley		*CERT Citizens*
Public Representatives		
-	*Destiny Davis*	*Interested Citizen*
-	*John Ferdon*	*Interested Citizen*
Other Partner Agencies		
San Manuel Band of Mission Indians	*Michael Russ*	*Disaster Services Manager*
Arrowhead Regional Medical Center	*Weston Scott Smith*	*Emergency Preparedness*
United States Forest Service	*Marc Stamer*	*San Bernardino National Forest and Angeles National Forest Rep.*
Wrightwood Fire Safe Council	*John Aziz*	*Fire Safe Council*
Rim of the World Mountain Mutual Aid Association	*Aaron Scullin*	*President*

There were a series of meetings held with the Planning Team. Each meeting had a primary focus and provided an opportunity to discuss updates and exchange ideas. Below is a list of the Planning Team meetings:

Table 3-4: Planning Team Meetings

Date	Activity
February 4, 2016	In person meeting to discuss revisions and additions to the Planning Process, Risk Assessment, Community Capability Assessment, Mitigation Strategies, Plan Maintenance, Fiscal Resources, and Public Outreach. Each section was reviewed and discussed by the Team. Additions and corrections will be forwarded to OES for inclusion into the plan.
June 23, 2016	Organizational Meeting for County Unincorporated Area Planning team. Planning Team members were introduced to the project and assigned to review 2016 MJHMP and update risks and mitigation projects as needed.
July 19,2016	Conference Call with participants to discuss revisions and additions to the Planning Process, risk Assessment, Community capability Assessment, Mitigation Strategies, Plan maintenance, fiscal Resources, and Public Outreach. Each section was reviewed and discussed by the Team. Additions and corrections will be forwarded to OES for inclusion into the plan.
August 4, 2010	In person meeting to discuss revisions and additions to the Planning Process, risk Assessment, Community capability Assessment, Mitigation Strategies, Plan maintenance, fiscal Resources, and Public Outreach. Each section was reviewed and discussed by the Team. Additions and corrections will be forwarded to OES for inclusion into the plan
August 30, 2016	In person meeting to discuss revisions and additions to the Planning Process, risk Assessment, Community Capability Assessment, Mitigation Strategies, Plan Maintenance, Fiscal Resources, and Public Outreach. Each section was reviewed and discussed by the Team. Additions and corrections will be forwarded to OES for inclusion in the plan.
September 14, 2016	In Person meeting of the Morongo Basin COAD Community Organizations Active in Disaster. Hazard Mitigations Plan Discussion and outreach for public input on the update of the Hazard Mitigation Plan, and contact information given to the public.
September 20, 2016	In person meeting to discuss changes suggestions with the Fire Safe Council for the following communities: Wrightwood, Phelan, Pinion hills, West Cajon Valley, and Baldy Mesa. The first item on the agenda was the discussion of the LHMP update and explained how to review the current HMP and instructions were given on who and how to contact OES and about 79 persons of the public were present
September 21, 2016	Rim of the World Mountains Mutual Aid Association in Person meeting to discuss Planning Team Goals and Objectives, and any public concerns and contact information was given and it was the first item on the agenda for the meeting. And continuing fire fuel thinning programs (MAST) and Bark Beetle tree removal.
September 24, 2016	In Person meeting of CERT Training on Terrorism, The hazard Mitigation Plan was brought up and discussed and contact information given to the public, a few topics and subjects were brought up.

3.2 Coordination with Other External Jurisdictions, Agencies and Organizations

3.2.1 Internal Coordination

Because of the size and geographical location of Unincorporated County area, there are many jurisdictions, agencies, and organizations that are affected by or have influence on the county and the mitigation planning process. As part of the planning process, the Planning Team, and particularly the Project Manager, took great efforts to engage and include as many members as possible. These members were drawn from San Bernardino County Departments, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and the San Bernardino County Special Districts Department.

One of the first efforts that were made was when the Planning Team was being established. The Planning Team members gave special considerations as to what they thought needed to be in the MJHMP and attempted to identify a person who could representative that area. This consideration went beyond the county departments.

As mentioned above, in addition to being required to participate in the Planning Team meetings, the Planning Team members were also required to liaison with other groups including their own

department/districts planning and project staff and with cooperating agencies to provide updates on the project and to bring to the team the different perspectives and comments. The Planning Team conducted a very extensive outreach effort.

This was done mostly through leveraging of existing meetings and efforts. In this liaison role, the Planning Team members coordinated with CalFire; the United States Forest Service, San Bernardino National Forest and Angeles National Forest; Natural Resource Conservation Service, Special Districts, and the 24 cities and towns within the County. This allowed for the Planning Team to capture a larger perspective; while keeping the Planning Team at a manageable level. The information was then brought back to the Multi-Jurisdictional Planning Team by the individual Planning Team members. At these meeting, potential cooperative projects were discussed, categorized, and prioritized for inclusion in the Multi-Jurisdictional Hazard Mitigation Plan.

As previously mentioned, the Unincorporated County and special districts were also active members of the San Bernardino OA Stakeholder Group meetings. These meetings provided an opportunity to coordinate with all cities/towns and special districts in the county. Through this venue, the Planning Team and the Project Manager reached out to adjacent jurisdictions and associated special districts to ensure that their efforts and findings were not in conflict. Stakeholder Meetings include the primary, alternate, and any consultants for all the participating jurisdictions.

As part of this effort, an OA Stakeholder Web Portal was developed to assist the jurisdictions update their MJHMPs, and encouraged sharing information, resources, and ideas necessary to complete the update process. Meetings, attended by the County Project Manager, were both in person and by conference call; many including a webinar. The Project Manager then brought the materials and discussions held at these meetings back to the Planning Team for review and action wherever applicable to the MJHMP effort. Participating Stakeholders are listed in Annex 5. A list of the OA Stakeholder Meetings is listed below:

- September 21, 2016
  Stakeholders Conference Call/Webinar at OES Headquarters
  1:30 p.m. to 2:30 p.m.

  8 participants in MJHMP Update Project Portal Rollout participated in the Conference Call and Webinar to introduce MJHMP Update Portal. Portal has public and stakeholder sections. During this conference call participants were shown the portal and walked through the log-in process to access the stakeholders' side of the website. Also discussed having weekly and some occasions office calls to update plan progress and needs for information.

- September 28, 2016
  Production team conference call OES Headquarters
  1:30 p.m. to 2:30 p.m.

  This meeting presented the website updates, progress chart and needs from other stakeholder departments to provide data such as proposed, in progress and completed hazard mitigating projects. The MJHMP Resource material was also reviewed. The tentative schedule of Production group meetings was reviewed.

- October 5, 2016
  Production Group Conference Call
  1:30 p.m. to 2:30 a.m.

  Stakeholders discussed MJHMP progress of the MJHMP updates. Revised timelines for updates were presented. New Reference Materials now available on the Web Portal were presented. Questions from the participants were discussed and answered.

- October 12, 2016
  Production team conference call
  OES Headquarters
  1:30 p.m. to 2:30 p.m.

  This meeting presented the website updates, progress chart and needs from other stakeholder departments to provide data such as proposed, in progress and completed hazard mitigating projects. The MJHMP Resource material was also reviewed. The tentative schedule of Production group meetings was reviewed.

- October 19, 2016
  OES Headquarters
  1:30 p.m. to 2:30 p.m.

  This meeting presented the website updates, progress chart and needs from other stakeholder departments to provide data such as proposed, in progress and completed hazard mitigating projects. The MJHMP Resource material was also reviewed. The tentative schedule of Production group meetings was reviewed.

- October 26, CISN
  Project Management Team Meeting
  San Bernardino County Government Center Community Room,
  10:00 a.m. to 12:00 a.m.

  This meeting was with 12 county members and any public to go over changes in the general plan and updates the County Hazard Mitigation plan with current and proposed and approved projects as well as code updates and ordinance changes and draft safety proposals.

- October 26, 2016
  Entire project Teams representatives via in person or video and voice call in
  Video Conference Call
  2 p.m. to 4 p.m.

  All project team stakeholder representatives discussed progress of the MJHMP updates. And timelines were discussed. Questions from the participants were discussed and answered. Also a live meeting in conjunction with Land Use representatives and Fire also consultant staff. 32 in attendance and 108 called in or video linked. Internal and External groups

3.2.2 External Coordination

The unincorporated county also had representation on the OA Working Group team. The Working Group is a small group of OA Stakeholders with experience in developing Multi-Jurisdictional Hazard Mitigation Plans. Members are drawn from the 24 cities/towns, 33 special districts, and the County. The goal of the Working Group is to vet the direction and material being provided to the larger Stakeholder Group such as crosswalk, Web Portal, use of maps, and a method to prioritize and rank the existing and any new hazards. The Working Group also discusses problems and solutions that arise during the MJHMP update process. Meetings were either in person or by conference call.

- June 23, 2016
  Stakeholders Meeting
  San Bernardino Unified School District Community Room, San Bernardino, CA
  2:00 p.m. to 4:00 p.m.

  54 Participants representing 24 cities/towns, 30 special districts, and the unincorporated area of participated. This Stakeholders Meeting introduced the Web Portal and the process to develop a current MJHMP from the 2010 MJHMP. Timelines were presented as well as templates for use in updating the project. Copies of the 2010 MJHMP for the jurisdictions were made available on the Web Portal to use as a starting point in the update process.

- August 30, 2016
  Stakeholders Meeting at OES Headquarters 1:30 p.m. to 2:30 p.m.

  In person meeting to discuss revisions and additions to the Planning Process, risk Assessment, Community capability Assessment, Mitigation Strategies, Plan maintenance, fiscal Resources, and Public Outreach. Each section was reviewed and discussed by the Team. Additions and corrections will be forwarded to OES for inclusion in the plan.

- October 26, 2016
  Entire project Teams representatives via in person, video or voice call in
  Video Conference Call
  2 p.m. to 4 p.m.

  All project team stakeholder representatives discussed progress of the MJHMP updates.
  Timelines were discussed.
  Questions from the participants were discussed and answered. Also a live meeting in conjunction with Land Use representatives and Fire also consultant staff. 32 in attendance and 108 called in or video linked.

3.3 Public Involvement/Outreach

Public involvement was solicited throughout the process. Since the 2016 MJHMP approval, the County and its special districts have taken several steps to educate the public on the hazards facing the county and had several public forums where mitigation projects were discussed and identified. At all events, public opinion and comments are solicited.

The Planning Team also considered the possibility of including public members on the Planning Team. However, because of the vast size of the county and the volume of possibilities, it was determined that having the Planning Team members liaison with the public would better serve and capture the public interest.

During this process, the County and Special Districts also used several platforms to reach out and inform the public of the MJHMP update. Wherever possible, a joint effort was made by the Planning Team members to include discussion for each participating jurisdictions hazards, goals, and objectives. These joint meetings of the Special Districts and County resulted in joint leverage of the planning effort and a resulting joint benefit of goals/objectives, and project development for the MJHMP development. Public Involvement consisted of meetings for County Departments or Special Districts which gave the public the direct opportunity to comment on the County Unincorporated Area MJHMP, meetings of County Department or Special District advisory committees where hazard specific information and possible projects were discussed, updates on the County website, press releases regarding the MJHMP, and public hearing regarding the MJHMP. All participants collectively supported the following public outreach meetings. Below is a summary list of the public outreach:

3.3.1 Public Meetings

- Wrightwood Fire Safe Council
  Wrightwood Museum, Wrightwood, CA
  July 19, 2016
  7:00 p.m. to 9:00 p.m.

17 community members and 7 Wrightwood Fire Safe Council members attended. A demonstration of Thermo-Gel and various application methods was demonstrated by a private vendor.

Reports of activities were given by the Angeles National Forest and the San Bernardino National Forest.
San Bernardino County Fire Protection District Office of Emergency Services presented a PowerPoint presentation on the effort to update the MJHMP for the unincorporated area of the County. A copy of this PowerPoint is in Annex 9 of the MJHMP.

- Rim of the World Mutual Aid Association
  100 W. Meadow Lane, Big Bear City, CA
  August 21, 2016
  6:00 p.m. to 7:30 a.m.

  24 representatives of local agencies, special districts, utilities, and the public in the Big Bear Valley attended the meeting. The City of Big Bear Lake and the Big Bear City CSD reported on the status of their MJHMP Update efforts. Both are proceeding with the goal of submitting the plan following the Group 1 timelines. Both agencies made presentations to their residents explaining the MJHMP Update Process, public involvement, and timelines.

  San Bernardino County Fire Protection District Office of Emergency Services presented a PowerPoint presentation on the effort to update the MJHMP for the unincorporated area of the County.

- Morongo Basin COAD Community Organizations Active in Disasters
  September 14, 2016
  10:00 a.m. to 12:00 p.m.

  This was a public meeting to discuss volunteers in disasters and the Local Hazard Mitigation Plan and the future of volunteer organizations in active disasters in the areas of Morongo and the entire county of San Bernardino County.

- Wrightwood Fire Safe Council
  Wrightwood Elementary School, Wrightwood, Ca
  September 20, 2016

  Community meeting of the fire safe council for the communities of Wrightwood, Pinion Hills, Phelan, West Cajon Valley, Baldy mesa the meeting covered topics of Emergency Alert System and notifications, repopulation and evacuation pans as well as the Local Hazard Mitigation Plan Update

- Rim of the World Mountain Mutual Aid Association
  September 21, 2016

  Rim of the World Mountains Mutual Aid Association in Person meeting to discuss Planning Team Goals and Objectives, and any public concerns and contact information was given and it was the first item on the agenda for the meeting; continuing on with fire fuel thinning programs (MAST) and Bark Beetle tree removal.

- CERT Terrorism Meeting/Training
  Victoria Gardens Community Center Rancho Cucamonga, CA
  September 24, 2016
  8:00 a.m. to 4:00 p.m.

  This was a CERT Symposium on Terrorism that covered the December 2nd Terror Attack and mass shooting incidents and how to react. An Active Shooter Awareness Course and discussion on the Local Hazard Mitigation Plan Update and Counter Terrorism Awareness courses were all presented to 100 CERT Members and public attendees.

3.3.2 Ready SB County Preparedness App Message/Web Postings

An App message was sent out to alert the public about the hazard mitigation process. The message was sent to over 15,000 people via the SB County Preparedness Mobile App and it is attached to the San Bernardino County Fire Website https://sbcfire.org as referenced in Annex 6. Ready SB County Preparedness Mobile App can be used on either an Android or iPhone. This app provides multiple resources for our residents that will assist them in preparing for a disaster and enhancing the recovery process. Protect yourself and your loved ones before, during and after a disaster.

In addition to hazard mitigation plan updates the public can get the Latest News from SBCounty.gov, CalTrans, National Weather Service, and San Bernardino County Fire Office of Emergency Services. This app provides the public with emergency supply kit lists, grocery lists and checklists tailored to an individual. The public can access and update preparedness plans as needed. Learn all you need to plan for and respond to natural disasters, terrorism and pandemic flu in San Bernardino County.

3.3.3 CERT Teams

The Press Release and Executive Summary were forwarded to the CERT Team leaders for those CERT Teams located in the unincorporated County area. The Team Leaders forwarded the MJHMP Press Release and Executive summary to their team members with the request for comments on the MJHMP. The fourteen (14) CERT Teams within the unincorporated County include:

Angelus Oaks CERT	Big Bear Valley CERT	Helendale CERT
Lucerne Valley CERT	Lytle Creek CERT	Mill Creek Canyon CERT
Morongo Basin CERT	Mountain CERT	Oak Hills CERT
Phelan/Pinon Hills CERT	Rosena Beach CERT	San Antonio Heights CERT
Silver Valley CERT	Wrightwood CERT	

3.3.4 Public Hearing Process (to be completed upon FEMA Approval)

Once FEMA "approval pending adoption" notification is received, the Board of Supervisors reviewed, approved, and adopted the Unincorporated Area Multi-Jurisdictional Hazard Mitigation Plan for the County and its Special Districts at the Public Hearing meeting **(date to be determined)**. The Board of Supervisors issued a Letter of Promulgation and Resolution denoting approval of the Multi-Jurisdictional Hazard Mitigation Plan for the County and its special Districts.

Prior to the Public Adoption Hearing Date (date to be determined), the Plan will be posted on the San Bernardino County website as part of the Agenda for the meeting. The Agenda with all attachments is posted the Wednesday prior to the hearing date as a public review requirement. Members of the public were invited to review and make comments at the meeting on (date to be determined). The Multi-Jurisdictional Hazard Mitigation Plan for the County and its Special Districts was on the Board of Supervisors agenda for review and adoption at their regularly scheduled meeting on (date to be determined).Residents of the County were requested to make comments or request information on the Multi-Jurisdictional Hazard Mitigation Plan during the regularly scheduled meeting. After the public had an opportunity to review and comment on the Plan the Board of Supervisors took action on the Board Agenda items.

3.4 Planning Process

As discussed, the planning process followed FEMA How to guides which includes; organizing resources, conducting the risk assessment, developing a capabilities assessment, developing a mitigation strategy and providing implementation measures for continued mitigation success, The Risk Assessment process includes four (4) basic step; 1) hazard identification and screening; 2) hazard profiling; 3) hazard exposure; and, 4) hazard vulnerability. The Project Manager, working with the Planning Team, facilitated discussions around these steps.
The first step in this process was to identify all natural hazards present in the community. The Planning Team started with the 2010 MJHMP and augmented as necessary. This augmentation

considered both adding and removing of hazards to develop a list of potential natural hazards in the community. The Planning Team utilized several sources to ensure they were considering all potential hazards. Material reviewed included the following: 2010 San Bernardino County Operational Area MJHMP, State of California MJHMP, FEMA "How-to Guides," and several surround community MJHMPs. After the list of potential hazards in the community is generated, the hazards were screened. For a full listing of documents see Section 5.1.1

3.4.1 Hazard Screening

The intent of screening hazards is to help prioritize which hazard creates the greatest concern in the community. In 2010, the MJHMP process used Critical Priority Risk Index (CPRI) software to evaluate hazards. In 2016 an alternative approach was implemented. The Planning Team agreed to utilize a non-numerical ranking system for the MJHMP update process. This process consists of generating a qualitative ranking (High, Medium, or Low) rating for: 1) probability; and, 2) impact from each hazard. To further assist with the process, the following definition of "High", "Medium", and "Low" probability and impacts are being provided (NOTE: these definitions we utilized in the 2010 MJHMP process):

Probability
High-Highly Likely/Likely
Medium-Possible
Low-Unlikely
Impact
High-Catastrophic/Critical
Medium-Limited
Low-Negligible

The hazards were then placed into a matrix with the appropriate/corresponding box/cell. The table below is an example of how the process will capture the results.

		Impact		
		High	Medium	Low
Probability	High			
	Medium			
	Low			

After all hazards had been analyzed, the Planning Team then determined which Probability and Impact category (i.e., High Impact; High Probability, Medium Impact) the community will focus on over the next five (5) years. An example of how the hazards may be prioritized is below (Red equaling high priority):

		Impact		
		High	Medium	Low
Probability	High			
	Medium			
	Low			

After identifying the "higher" priority hazards in the community, each of the "high" priority hazards were profiled. The hazard profiling include the incorporation of all new information, material, and reports to better help the Planning Team and the community understand the hazard.

Additionally, for each of the profiled hazards, the Planning Team then analyzed the community's exposure to each hazard (inventory of assets) and the potential impact under scenario events. The Planning Team used HAZUS and hazards intersect analyses recently completed within San Bernardino County to produce this information. See Section 4 for more information.

3.4.2 Set Goals

Goal setting was approached by the Planning Team as a two layered process. The first layer involved the stakeholders acting together as the Planning Team. The second layer involved the individual Special Districts working internally to coordinate those goals identified by the Planning Team with the goals identified internally by the Special Districts. The Planning Team validated and identified new Goals and Objectives for the MJHMP update in 2016. The Planning Team reviewed the hazard exposure and scenario impacts developed during the Risk Assessment portion of the process. With a firm understanding of the risk the community is potentially facing, the Planning Team then re-evaluated the 2010 Multi-Jurisdictional Hazard Mitigation Plan Goals and Objectives; assessed their status and effectiveness in meeting the 2010 Mitigation Measures and identified new Goals and Objectives.

As part of this process, the Planning Team also reviewed the County's General Plan, the State of California MJHMP, Floodplain Management Plans, Task Force After Action, and/or documents, and adjacent local jurisdiction MJHMPs to ensure the Goals and Objectives were comprehensive and compatible with those outlined in this plan.

3.4.3 Review and Propose Mitigation Measures

After the Goals and Objectives were established, the Planning Team then turned to identifying projects under each Goal and Objective that could be implemented to help reduce and/or eliminate the impacts from the priority hazards. As part of this process, the Planning Team reviewed the projects in the 2010 MJHMP to determine which are completed, which are ongoing, and which were deferred. For projects that were not completed the Planning Team validated whether or not the project was necessary.

With a firm understanding of past accomplishments and a good understanding of the potential exposure and scenario impacts from the Risk Assessment section, the Planning Team then started to identify projects that will help reduce and/or eliminate the risk for the high priority hazards. Again, a two-layer approach was used. The Planning Team as a whole identified common projects. These common projects were then coordinated internally by the Special Districts and the County to develop a common list of projects. After a list of all possible projects has been identified, the Planning Team then went through the process of prioritizing the projects.

To assist with this effort the Planning Team adopted the STAPLEE methodology. STAPLEE stands for:

- Social - The public must support the overall implementation strategy and specific mitigation actions. Therefore, the projects will have to be evaluated in terms of community acceptance.
- Technology - It is important to determine if the proposed action is technically feasible, will help to reduce losses in the long term, and has minimal secondary impacts. Determine whether the alternative action is a whole or partial solution, or not a solution at all.
- Administrative - Under this part of the evaluation criteria, examine the anticipated staffing, funding, and maintenance requirements for the mitigation action to determine if the jurisdiction/special district has the personnel and administrative capabilities necessary to implement the action or whether outside help will be needed
- Political - Understanding how your current community and State political leadership feel's about issues related to the environment, economic development, safety, and emergency management. This will provide valuable insight into the level of political support you may have for the mitigation activities and programs. Proposed mitigation objectives sometimes fail because of a lack of political acceptability.
- Legal - Without the appropriate legal authority, the action cannot lawfully be undertaken. When considering this criterion, determine whether your jurisdiction has the legal authority at the State, or local level to implement the action, or whether the jurisdiction must pass new laws or regulations. Each level of government operates under a specific source of delegated authority. As a general rule, most local governments operate under enabling legislation that gives them the power to engage in different activities. Identify the unit of government undertaking the mitigation action, and include an analysis of the interrelationships between local, regional, State, and Federal governments. Legal authority is likely to have a significant role later in the process when your State, or community will

have to determine how mitigation activities can best be carried out, and to what extent mitigation policies and programs can be enforced.

- Economic - Every local government experiences budget constraints at one time or another. Cost effective mitigation actions that can be funded in current or upcoming budget cycles are much more likely to be implemented than mitigation actions requiring general obligation bonds or other instruments that would incur long-term debt to a community. Local communities with tight budgets or budget shortfalls may be more willing to undertake a mitigation initiative if it can be funded, at least in part, by outside sources. "Big ticket" mitigation actions, such as large-scale acquisitions and relocation, are often considered for implementation in a post-disaster scenario when additional Federal and State funding for mitigation is available.
- Environmental - Impact on the environment is an important consideration because of public desire for sustainable and environmentally healthy communities and the many statutory considerations, such as NEPA, to keep in mind when using Federal funds. The Planning Team needed to evaluate whether, when implementing mitigation actions, there would be negative consequences to environmental assets such as threatened and endangered species, wetlands, and other protected natural resources.

In addition to the STAPLEE methodology, the Planning Team incorporated other criteria/factor questions into the process to help engage and solicit input from members. Examples of these criteria/factor questions are:

- Does the Action:
  - Solve the problem?
  - Address Vulnerability Assessment?
  - Reduce the exposure or vulnerability to the highest priority hazard?
  - Address multiple hazards?
  - Address more than one (1) Goal/Objective?
  - Benefits equal or exceed costs?

- Can the Action:
  - Be implemented with existing funds?
  - Be implemented by existing state or federal grant programs?
  - Be completed within the 5-year life cycle of the LMJHMP?
  - Be implemented with currently available technologies?

- Will the Action:
  - Be accepted by the community?
  - Be supported by community leaders?
  - Adversely impact segments of the population or neighborhoods?
  - Require a change in local ordinances or zoning laws?
  - Result in legal action such as a lawsuit?
  - Positively or negatively impact the environment?
  - Comply with all local, state, and federal environmental laws and regulations?

- Is there:
  - Sufficient staffing to undertake the project?
  - Existing authority to undertake the project?

After going through the above mentioned process for each project, the Planning Team identified higher priority projects.

3.4.4 Draft the Multi-Jurisdictional Hazard Mitigation Plan

The Multi-Jurisdictional Hazard Mitigation Plan Update was drafted by the Project Manager, based on input and comments provided by the Planning Team. As indicated previously, the Planning Team used the 2010 MJHMP as a starting point but revised it to reflect updated information). The 2016 MJHMP format and is similar to the 2010 plan with slight heading changes and differences in content. In addition to the heading changes and improved risk assessment information, the Planning Team also uses the FEMA Guidance and materials provided by the consultant hired to coordinate the Operational Area MJHMP and Stakeholder groups. This material aided in the Planning Team's understanding of the level of detail and type of information that is excepting in each section.

This process started with the Special Districts and County providing information to the Planning Team through their liaison on the planning team. After the Planning Team ranked and prioritized the materials, the liaisons returned to their respective Special Districts to vet the Planning Team's work. The Planning Team then worked together with the vetted materials to produce the draft MJHMP. As mentioned earlier, each section was reviewed and updated as necessary. While some Planning Team members are responsible for the updating select sections, all members are responsible for reviewing and commenting on the entire MJHMP. The Planning Team Project Manager was responsible for version control and distribution of the final MJHMP for review.

Once the MJHMP update was drafted, the Planning Team provided opportunities for the public to review and comment on the plan. After the public comment period was closed, the Planning Team finalized the plan and forwarded to Cal EMA and FEMA for approval.

3.4.5 Adopt the Plan

The San Bernardino County Board of Supervisors created each of the Special Districts to provide a specific service to a particular area/population of San Bernardino County. These Special Districts are Board Governed in that the Board of Supervisors has direct control and legislative oversight of the Special Districts. The Board of Supervisors takes action on behalf of each Special District whenever governance items are necessary. As the Five special districts are separate legal entities from the County of San Bernardino for tax/revenue purposes the Board of supervisors, acting as the Board of Directors for each Special District, will be adopting the Multi-

Jurisdictional Hazard Mitigation Plan on behalf of each Special District. The Special Districts are not independent from San Bernardino County but are controlled and administered as any other County Department is administered. In order to comply with legal requirement for each of the five Special Districts, separate resolutions are required. Copies of these resolutions are attached at the front of this MJHMP.

San Bernardino County Board of Supervisors is responsible for the review, approval, and adoption of the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) update for the unincorporated area of San Bernardino County, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, the Big Bear Valley Recreation and Park District, Bloomington Recreation and Park District and for the County's board governed Special Districts Department. It is also the intent of the San Bernardino County Board of Supervisors to take appropriate actions to incorporate the MJHMP update into the San Bernardino County General Plan.

After Cal EMA and FEMA have approved the HMP update, it will be adopted by the San Bernardino County Board of Supervisors. Currently, the adoption process is scheduled for **(date to be determined)**. The item will be part of the consent calendar subject to a public hearing if necessary. The HMP will be listed on the agenda with the plan being made available electronically to the general public for at least three (3) business days prior to the Board of Supervisor's meeting date. Any member of the public can make comments on the Plan during the meeting prior to any action by the Board of Supervisors.

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Section 4. Risk Assessment

The goal of mitigation is to reduce and/or eliminate the future impacts of a hazard including property damage, disruption to local and regional economies, and the amount of public and private funds spent to assist with recovery. However, mitigation should be based on an assessment of the risk.

This Risk Assessment Section evaluates the potential loss from a hazard event by assessing the vulnerability of buildings, infrastructure, and people. It identifies the characteristics and potential consequences of hazards, how much of the unincorporated areas of the County could be affected by a hazard, and the impact on unincorporated County area assets. The Risk Assessment approach consists of three (3) components:

- ***Hazard Identification*** *– Identification and screening of hazards (Section 4.1)*
- ***Hazard Profiles*** *– Review of historic occurrences and assessment of the potential for future events (Section 4.2)*
- ***Vulnerability Assessment*** *– Determination of potential losses or impacts to buildings, infrastructure and population (Section 4.3)*

4.1 Hazard Identification

4.1.1 Hazard Screening Criteria

Per FEMA Guidance, the first step in developing the Risk Assessment is identifying the hazards. The County's HMP Planning Team reviewed a number of previously prepared hazard mitigation plans and other relevant documents to determine the universe of natural hazards that have the potential to affect the County and the nearby region. Table 4-1 provides a crosswalk of hazards identified in the 2010 San Bernardino County Multijurisdictional Hazard Mitigation Plan Update, the County of San Bernardino 2007 General Plan Safety Element, Single Jurisdictional Plans and the 2013 CA State Hazard Mitigation Plan. Seventeen different hazards were identified based on a thorough document review. The crosswalk was used to develop a preliminary hazards list providing a framework for County HMP Planning Team members to evaluate which hazards were truly relevant to the County and which ones are not. For example, volcanic activity was considered to be of little relevance to the County, while earthquake, flooding, and wildfire were indicated in almost all hazard documentation.

Table 4-1: Document Review Crosswalk

Hazards	2010 San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan	County of San Bernardino 2007 General Plan Safety Element	Single Jurisdictional Plans	2013 CA State Hazard Mitigation Plan
Climate Change				■
Dam Inundation			■	■
Drought			■	■
Earthquake/ Geologic Hazards	■	■	■	■
Extreme Heat				■
Extreme Cold				■
Flood	■	■	■	■
Hazardous Waste		■	■	■
High Winds/ Straight Line Winds		■	■	
Hail				
Infestation				
Lightning				
Terrorism			■	■
Tornado				
Volcanic Activity		■		■
Wildfire	■	■	■	■
Winter Storm (Heavy Snowfall)				■

In addition to a document review, previous hazard occurrences were used to identify hazards for this hazard mitigation plan. Previous hazard occurrences provide a historical view of hazards that have affected the County in the past, and thus provide a window into the potential hazards that can affect the County in the future. Information about federal and state disaster declarations in San Bernardino County (declarations are declared by County) was compiled from FEMA and Cal EMA's databases, as shown in Table 4-2. Though not a complete snapshot of hazard incidences in the County (since not all hazard events are federally or state declared), Table 4-2 provided the County HMP Planning Team with solidified accounts of the types and extent of disasters that have affected the County dating back to 1965 when flooding affected entire regions of San Bernardino County. As indicated in Table 4-2 large regional incidents have affected San Bernardino County, including the California Wildfires of 1999. Most recently, disasters for terrorist attacks (2015), flood (2011) and severe storms (2010) were declared in San Bernardino County. The disaster declarations in Table 4-2 provide a baseline for consideration in the hazard prioritization process.

Table 4-2: Federal, State and County Declared Disasters

Disaster Number	Declaration Date	Disaster Type	Incident Type	Title
Federal Declarations				
Major Disaster Declarations				
1952	1/26/2011	DR	Flood	Severe Winter Storms, Flooding, and Debris and Mud Flows
1884	3/8/2010	DR	Severe Storm(s)	Severe Winter Storms, Flooding, and Debris and Mud Flows
1731	10/24/2007	DR	Fire	Wildfires, Flooding, Mud Flows, and Debris Flows
1689	3/13/2007	DR	Freezing	Severe Freeze
1585	4/14/2005	DR	Severe Storm(s)	Severe Storms, Flooding, Landslides, and Mud and Debris Flows
1577	2/4/2005	DR	Severe Storm(s)	Severe Storms, Flooding, Debris Flows, and Mudslides
1498	10/27/2003	DR	Fire	Wildfires, Flooding, Mudflow and Debris Flow Directly Related T
1203	2/9/1998	DR	Severe Storm(s)	Severe Winter Storms and Flooding
1046	3/12/1995	DR	Severe Storm(s)	Severe Winter Storms, Flooding Landslides, Mud Flow
1044	1/10/1995	DR	Severe Storm(s)	Severe Winter Storms, Flooding, Landslides, Mud Flows
1005	10/28/1993	DR	Fire	Fires, Mud/Landslides, Flooding, Soil Erosion
979	2/3/1993	DR	Flood	Severe Winter Storm, Mud & Land Slides, & Flooding
947	7/2/1992	DR	Earthquake	Earthquake & Aftershocks
935	2/25/1992	DR	Flood	Rain/Snow/Wind Storms, Flooding, Mudslides
894	2/11/1991	DR	Freezing	Severe Freeze
872	6/30/1990	DR	Fire	Fires
690	9/22/1983	DR	Flood	Flash Flooding
687	7/1/1983	DR	Flood	Flooding
677	2/9/1983	DR	Coastal Storm	Coastal Storms, Floods, Slides & Tornadoes
635	11/27/1980	DR	Fire	Brush & Timber Fires
615	2/21/1980	DR	Flood	Severe Storms, Mudslides & Flooding
547	2/15/1978	DR	Flood	Coastal Storms, Mudslides & Flooding
521	9/21/1976	DR	Flood	Flooding, Tropical Storm Kathleen
295	9/29/1970	DR	Fire	Forest & Brush Fires
253	1/26/1969	DR	Flood	Severe Storms & Flooding
223	1/2/1967	DR	Flood	Severe Storms & Flooding
211	12/7/1965	DR	Flood	Heavy Rains & Flooding
Fire Management Assistance Declarations				
2955	9/2/2011	FM	Fire	Hill Fire
2841	10/4/2009	FM	Fire	Sheep Fire
2836	9/1/2009	FM	Fire	Pendleton Fire
2833	8/31/2009	FM	Fire	Oak Glen Fire
2792	11/15/2008	FM	Fire	Freeway Fire Complex
3279	10/23/2007	EM	Fire	Wildfires
2738	10/22/2007	FM	Fire	Grass Valley Fire
2728	9/15/2007	FM	Fire	Butler 2 Fire
2653	7/12/2006	FM	Fire	Sawtooth Fire Complex

Disaster Number	Declaration Date	Disaster Type	Incident Type	Title
3248	9/13/2005	EM	Hurricane	Hurricane Katrina Evacuation
2503	10/25/2003	FM	Fire	Old Fire
2501	10/23/2003	FM	Fire	Ca-Grand Prix Fire-10-23-2003
2497	9/6/2003	FM	Fire	Ca-Bridge Fire-09-05-2003
2491	8/19/2003	FM	Fire	Ca-Locust Wildfire-08-19-2003
Emergency Declarations				
3140	9/1/1999	EM	Fire	Ca-Wildfires-08/25/1999
CALOES Emergency and Disaster Proclamations/ Executive Orders				
Other Disasters				
2464	9/24/2002	FS	Fire	Williams Fire
2433	6/27/2002	FS	Fire	Louisiana Fire
2425	6/17/2002	FS	Fire	Blue Cut Fire
###	12/18/2015	EM	Terrorist Attack	Mass Shooting
State Declarations				
145	2/14/1963		Severe Storms	California Severe Storms, Heavy Rains, & Flooding
47	12/22/1955		Flood	California Flood
15	2/5/1954		Flood	California Flood & Erosion
County Declarations				
	3/13/1990		Earthquake	Upland Earthquake
	10/31/1988		Fire	Texas Fire (Watershed Damage)
	9/3/1987		Fire	Wildland Fires
	7/13/1984		Weather	Unstable Weather Conditions (City of Big Bear Lake, CSD, Co. Flood Control, Victor Valley Waste Water Authority, Juniper Riviera County Water District)
	9/29/1979		Gasoline Shortage	Gasoline Shortage Emergency
	6/28/1979		Water Shortage	Water Shortage (Lake Gregory)
	7/22/1960		Fire	Major and Widespread Fires

4.1.2 Hazard Prioritization

The Planning Team determined that the County and its Special Districts should focus over the next five (5) years on hazards that fell within the HIGH and MEDIUM "Probability" and "Impact" categories. While all the hazards present a potential problem in the County, the Planning Team felt that if they were able to reduce or eliminate the risk from these hazards, it would provide a greater service to the people within the jurisdiction. Table 4-3 illustrates how the final prioritization of the hazard; the "Green" colored box represents the highest priority hazards; and the "White" colored boxes represent lower (second and third tier) priority hazards.

		Impact		
		High	Medium	Low
Probability	High	Wildfire Flood Earthquake/ Geologic Hazards	Drought	
	Medium	Terrorism	Climate Change (Extreme Heat and other)	Hail Infestation
	Low		Dam Inundation	Tornado High Winds Winter Storm Lightning Extreme Cold

Table 4-3: Prioritized Hazard Assessment Matrix

4.2 Hazard Profiles

Although the County faces the risk of experiencing many natural and manmade hazards, this section profiles only the County's highest priority natural hazards the unincorporated County areas and Special District areas are expected to experience; earthquake, wildfire, flood, drought, terrorism and climate change. The priority hazards are based on the Calculated Priority Risk Index (CPRI) explained in Section 4.1.2.

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4.3 Earthquake Geologic Hazards



An earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. For hundreds of millions of years, the forces of plate tectonics have shaped the earth as the huge plates that form the earth's surface move slowly over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free, causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middle of plates.

Ground shaking from earthquakes can collapse buildings and bridges; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, fires, and huge, destructive ocean waves (tsunamis). Buildings with foundations resting on unconsolidated landfill and other unstable soil, and trailers and homes not tied to their foundations are at risk because they can be shaken off their mountings during an earthquake. When an earthquake occurs in a populated area, it may cause deaths and injuries and extensive property damage.
Earthquakes can strike suddenly, without warning. Earthquakes can occur at any time of the year and at any time of the day or night. On a yearly basis, 70 to 75 damaging earthquakes occur throughout the world.

4.3.1 Regulatory Environment

The Alquist-Priolo Earthquake Fault Zoning (AP) Act was passed into law following the destructive February 9, 1971 San Fernando earthquake. The AP Act provides a mechanism for reducing losses from surface fault rupture on a statewide basis. The intent of the AP Act is to ensure public safety by prohibiting the siting of most structures for human occupancy across traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep.

The 2013 California Building Standards Code (also known as Title 24) became effective for the County on January 1st, 2014. Title 24 includes CBC Section 3417: Earthquake Evaluation and Design for Retrofit of Existing Buildings which can be viewed at http://www.bsc.ca.gov/codes.aspx

Changes or additions to the seismic provisions come from many different sources, including new research results and documentation of performance in past earthquakes. A primary resource is the National Earthquake Hazard Reduction Program (NEHRP) Recommended Seismic Provisions for New Buildings and Other Structures (FEMA P-750: http://www.fema.gov/media-library/assets/documents/18152). FEMA's companion document Earthquake Resistant Design

Concepts (FEMA P-749: http://www.fema.gov/media-library/assets/documents/21866) provides a nontechnical background explanation.

4.3.2 Past Occurrences

Table 4-4 shows earthquakes greater than Magnitude 4.0 that have been felt within the San Bernardino County area in the last five years.

Table 4-4: Earthquakes: 2010-2015 San Bernardino County

Date	Name
9/14/2011	Calimesa 4.1
1/15/2014	Fontana 4.4
7/5/2014	Running Springs 4.6
3/29/2014	Brea 5.1
7/25/2015	Fontana 4.2
9/16/15	Big Bear Lake 4.0
12/30/2015	Muscoy 4.4
1/6/2016	Banning 4.4

There are hundreds more small (M<4.0) earthquakes that have occurred within San Bernardino County during this same time frame. Those with a magnitude of below 4.0 are not listed.

4.3.3 Location/Geographic Extent

Figure 4-1 shows the locations of major faults in California, including the four (4) major faults in Southern California in relation to San Bernardino County. These faults are the Southern San Andreas, the San Jacinto, the Elsinore, and the Garlock Faults. There are also many smaller faults within San Bernardino County capable of producing significant earthquakes. However, these four faults are considered by the United States Geological Survey (USGS) and the California Geological Survey (CGS) to be the most dangerous in the County. (California Geological Survey Special Publication 42, Interim Revision 2007, "Fault-Rupture Hazard Zones in California" - Alquist-Priolo Earthquake Fault Zoning Act). Other geologic hazards include liquefaction and landslides. Both occur during and after earthquakes.

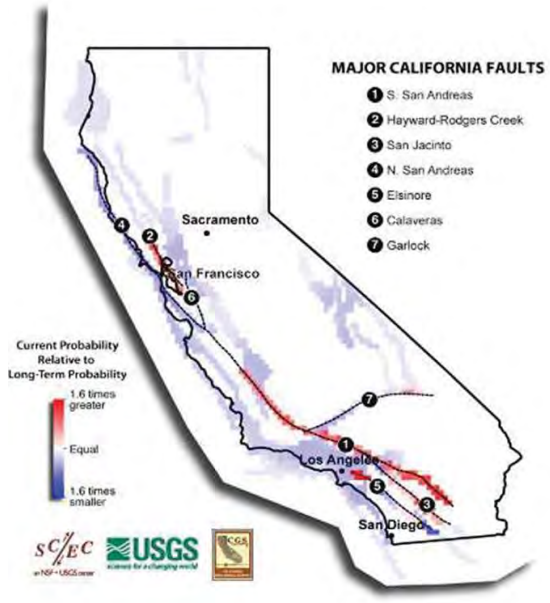


Figure 4-1: Major California Faults

Liquefaction of the ground occurs when the groundwater table is high and soil conditions are favorable. Liquefaction Susceptibility Zones as mapped by the USGS for the 2008 ShakeOut Scenario1 shows areas of the County susceptible to liquefaction during an earthquake. See Figure 4-2

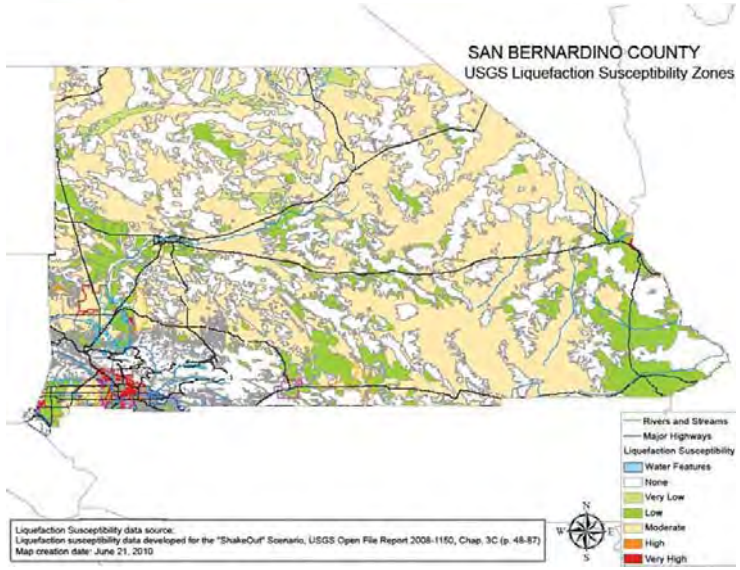


Figure 4-2: USGS Liquefaction Susceptibility Zone

4.3.4 Magnitude/Severity

The MMI Scale measures earthquake intensity as shown in Table 4-5. The MMI Scale has 12 intensity levels. Each level is defined by a group of observable earthquake effects, such as ground shaking and/or damage to infrastructure. Levels I through VI describe what people see and feel during a small to moderate earthquake. Levels VII through XII describe damage to infrastructure during a moderate to catastrophic earthquake.

See Section 4.3.5 to see how magnitude and severity are linked to the probability of earthquake occurrences.

Table 4-5: MMI Scale

Earthquake Magnitude and Intensity		
Magnitude (M_w)	**Intensity (Modified Mercalli Scale)**	**Description**
1.0 – 3.0	I	I. Not felt except by very few people under especially favorable conditions.
3.0 – 3.9	II – III	II. Felt by a few people, especially those on upper floors of buildings. Suspended objects may swing.
		III. Felt quite noticeably indoors. Many do not recognize it as an earthquake. Standing motorcars may rock slightly.
4.0 – 4.9	IV – V	IV. Felt by many who are indoors; felt by a few outdoors. At night, some awakened. Dishes, windows and doors rattle.
		V. Felt by nearly everyone; many awakened. Some dishes and windows broken; some cracked plaster; unstable objects overturned.
5.0 – 5.9	VI – VII	VI. Felt by everyone; many frightened and run outdoors. Some heavy furniture moved; some fallen plaster or damaged chimneys.
		VII. Most people alarmed and run outside. Damage negligible in well-constructed buildings; considerable damage in poorly constructed buildings.
6.0 – 6.9	VII – IX	VIII. Damage slight in special designed structures; considerable in ordinary buildings; great in poorly built structures. Heavy furniture overturned. Chimneys, monuments, etc. may topple.
		IX. Damage considerable in specially designed structures. Buildings shift from foundations and collapse. Ground cracked. Underground pipes broken.
7.0 and Higher	VIII and Higher	X. Some well-built wooden structures destroyed. Most masonry structures destroyed. Ground badly cracked. Landslides on steep slopes.
		XI. Few, if any, masonry structures remain standing. Railroad rails bent; bridges destroyed. Broad fissure in ground.
		XII. Virtually total destruction. Waves seen on ground. Objects thrown into the air.

4.3.5 Frequency and Probability of Occurrence

Several of the major Southern California faults have a high probability of experiencing a Magnitude 6.7 or greater earthquake within the next 30 years (Figure 4-2); 59% probability of a M6.7 or greater on the Southern San Andreas Fault, 31% probability on the San Jacinto Fault, and 11% probability on the Elsinore Fault. These probabilities were determined by the USGS and CGS in a 2008 study (2007 Working Group on California Earthquake Probabilities, 2008, The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2): U.S. Geological Survey Open-File Report 2007-1437 and California Geological Survey Special Report 203 http://pubs.usgs.gov/of/2007/1437/).

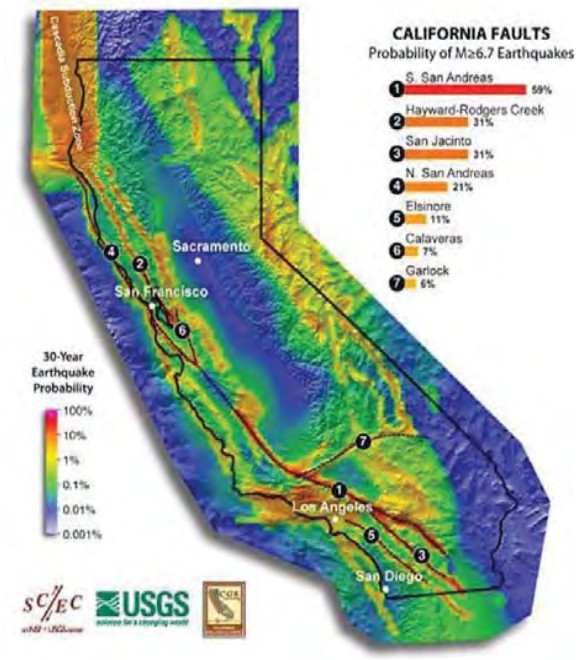


Figure 4-3: California Faults Probability of ≥ M 6.7 Earthquake

As shown in Figure 4-3 the probability of an earthquake with a Magnitude 6.7 or greater occurring somewhere in Southern California within the next 30 years is estimated to be 97% (2007 Working Group on California Earthquake Probabilities, 2008). As can be seen in the table, earthquake probabilities in Southern California are higher than those for Northern California.

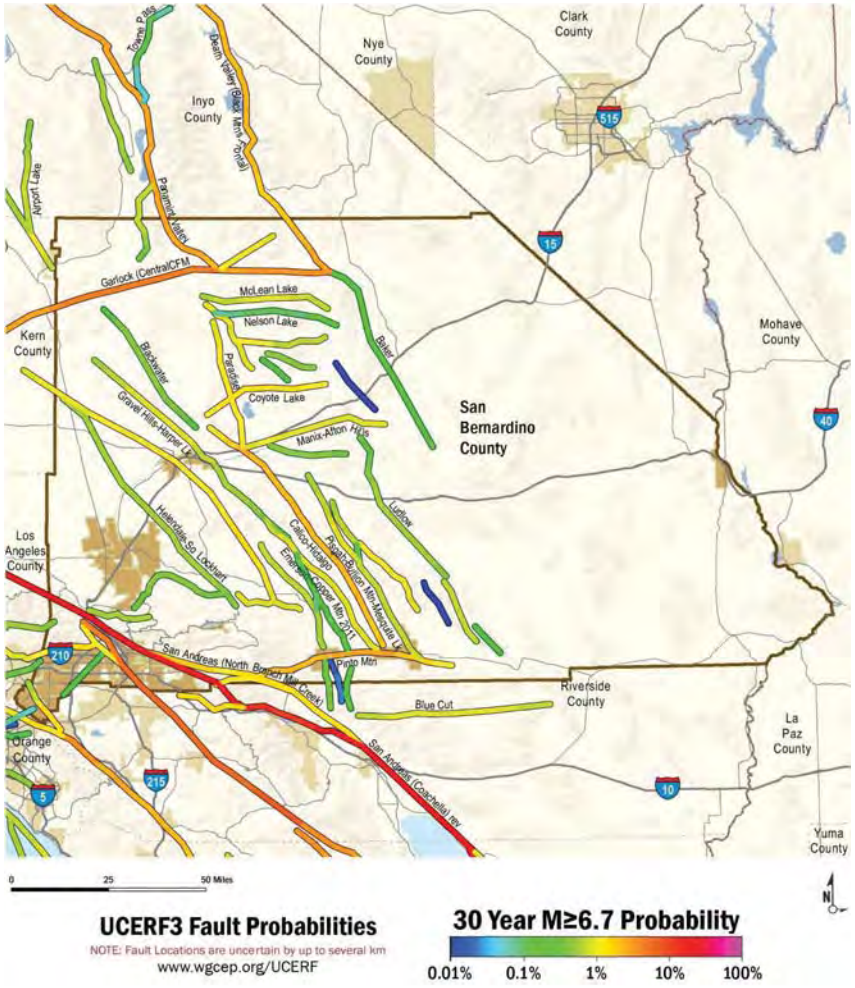


Figure 4-4: California Area Earthquake Probabilities by Magnitude

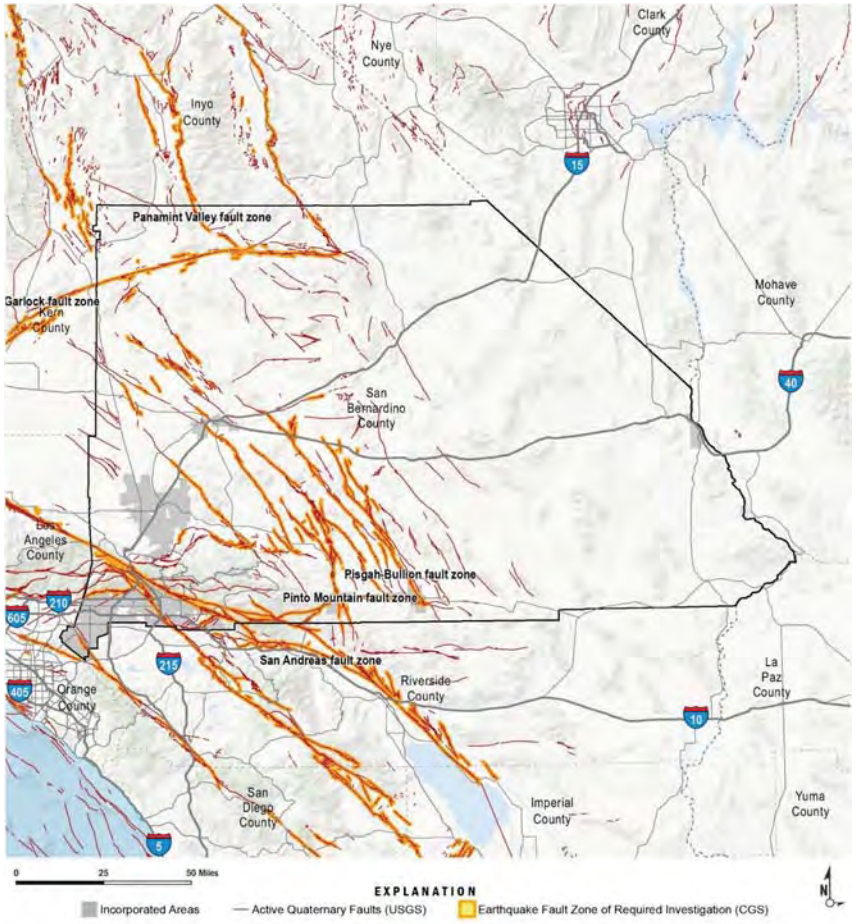


Figure 4-5: Earthquake Fault Zone

4.4 Wildfire



Wildfires present a significant potential for disaster in the County, a region of relatively high temperatures, low humidity, and low precipitation during the summer. This long summer season is followed by a fall season that is famous for high velocity, very dry winds that come out of the desert. The Santa Ana winds very consistently arrive from the middle of October to the end of November. In and of themselves, these weather patterns would be of little significance without the un-naturally dense forest and the dense undergrowth that has been allowed to grow unabated for the last several decades. Compounding the vegetative growth that has occurred is the unchecked development of substantial housing and businesses in mountain communities. This urbanized growth has required parallel growth and sophistication in the fire service that responds to wildfires in the wild land urban interface. With immediate responses to initial fire starts, the vast majority of fires are successfully extinguished in short order. In doing so, this eliminates nature's way of thinning the forest through smaller fires.

Another factor that is a potential for disaster is the number of dead trees in the mountain region. Due to the over densification of the forest combined with drought conditions during the past ten years, trees in the local mountains have become weakened, creating a perfect environment for Bark Beetles to proliferate from 2003 to 2008. Combine these severe burning conditions with people or lightning and the stage is set for the occurrence of large, destructive wildfires. In addition, the forested areas of the County are not only the most popular, with the most visitors in the Nation, but are also the most populated in residences and businesses in the Nation as well. The final element in this catastrophe waiting to happen is that because of the steep mountain terrain, there are only five routes in and out for almost 60,000 residents. On a holiday weekend though, this population can dramatically increase by 50,000 to 100,000 people as weekend vacationers.

4.4.1 Regulatory Environment

4.4.1.1 State

Wildfire State Responsibility Area (SRA) Fire Safe Regulations outline basic wildland fire protection standards for local jurisdictions. SRA Fire Safe Regulations (if policed) can decrease the risk of wildfire events in the wildland interface. SRA Fire Safe Regulations do not supersede local regulations, which equal or exceed minimum state regulations. The State statute for wildfire protection is Public Resources Code, Section 4290. Requirements in the code include information on the following (CA Fire Alliance):

- Road Standards for Fire Equipment Access
- Standards for Signs Identifying Streets, Roads and Buildings
- Minimum Private Water Supply Reserves for Emergency Fire Use
- Fuel Breaks and Greenbelts

4.4.1.2 Local

4.4.1.2.1 Fire Hazard Abatement Program

In an effort to reduce the threat of wild fires, the San Bernardino County Fire Hazard Abatement (FHA) Program enforces the fire hazard requirements outlined in San Bernardino County Code Section 23.0301–23.0319. The primary function of the Fire Hazard Abatement Program is to reduce the risk of fires within communities by pro-actively establishing defensible space and reduction/removal of flammable materials on properties.

The Fire Hazard Abatement Program conducts surveys to identify fire hazards throughout the year. Fire hazards are identified and notices to abate the hazard(s) are mailed to property owners. Property owners are given 30 days to abate the violations. Failure to abate may result in citations, penalties, and/or fees for abatement by the County. The Fire Hazard Abatement Program responds to complaints year round in the unincorporated areas and contracting Cities and Fire Districts.

4.4.2 Past Occurrences

Wildfire locations from 1900 – 2016 are shown in Figure 4-6. In the past five years (since the 2010 MJHMP was approved) there have been 13 significant wildland fires within San Bernardino County. These fires are listed in Table 4-7, and several of the more damaging fires are discussed below.

Table 4-6: Wildfire Occurrences 2010-2016

Number	Date	Name	**Acres**
1.	9/5/2011	Hill Fire	1,158
2.	11/5/2012	Devore Fire	335
3.	6/28/2013	Mill Fire	534
4.	8/8/2013	Sharp Fire	243
5.	9/24/2013	Sierra Fire	200
6.	4/30/2014	Etiwanda Fire	2,143
7.	5/13/2014	Rancho Incident	1,548
8.	3/31/2015	River Bottom Fire	185
9.	6/17/2015	Lake Fire	31,359
10.	7/17/2015	North Fire/ Pines Fire	4,250
11.	8/23/2015	Summit Fire	555
12.	8/7/2016	Pilot Fire	8,110
13.	8/16/2016	Blue Cut Fire	36,274
			86,894

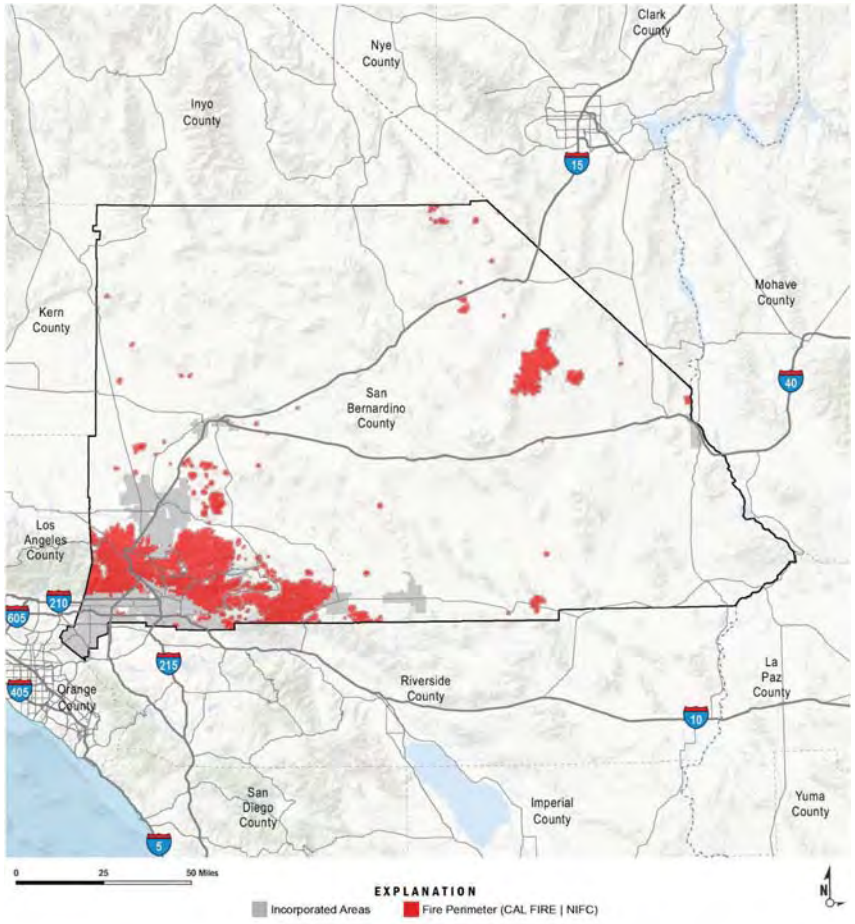


Figure 4-6: Wildfire History 1900 – 2016 (CalFire and USFS Data 2010)

The 2016 Blue Cut Fire was a reminder that wildfires are a significant threat to lives and property in the unincorporated San Bernardino County area. The Blue Cut Fire burned 36,274 acres, destroying an estimated 105 single family residences and 216 outbuildings. In addition, 3 single family residences and 5 other structures were damaged.

In 2015 The Lake Fire burned 31,359 acres and was the cause of 6 minor firefighter injuries and 1 residence and 3 outbuildings were destroyed.

North Fire/Pines Fire in 2015 burned a total of 4,250 acres, destroying 7 homes, 16 outbuildings and 44 vehicles in the community of Baldy Mesa. No injuries were reported.

The Blue Cut Fire, Lake Fire, and North Fire/ Pines Fire all occurred in the County's mapped Very High Fire Severity Zone. Mitigation efforts have reduced but not eliminated the threat from wildfire. The strong fall winds that are capable of creating firestorms cannot be controlled. Drought cannot be controlled. Fuels reduction programs reduce the potential spread of fire, upgraded Building Codes make structures more fire resistant, and public education prepares residents for wildfires. However, the threat of wildfire remains. The continuing goal is to reduce the threat from wildfire wherever possible.

4.4.3 Location/Geographic Extent

Using information from the California Department of Forestry (CAL FIRE) Figure 4-8, illustrates the areas at risk to a wildfire event. The areas with the highest risk of wildfire are the in the southwestern portions of County in the mountainous region.

Figure 4-7 illustrates vegetation mortality due to bark beetle infestation, drought, and other factors in San Bernardino County. These conditions create extreme fire hazards.

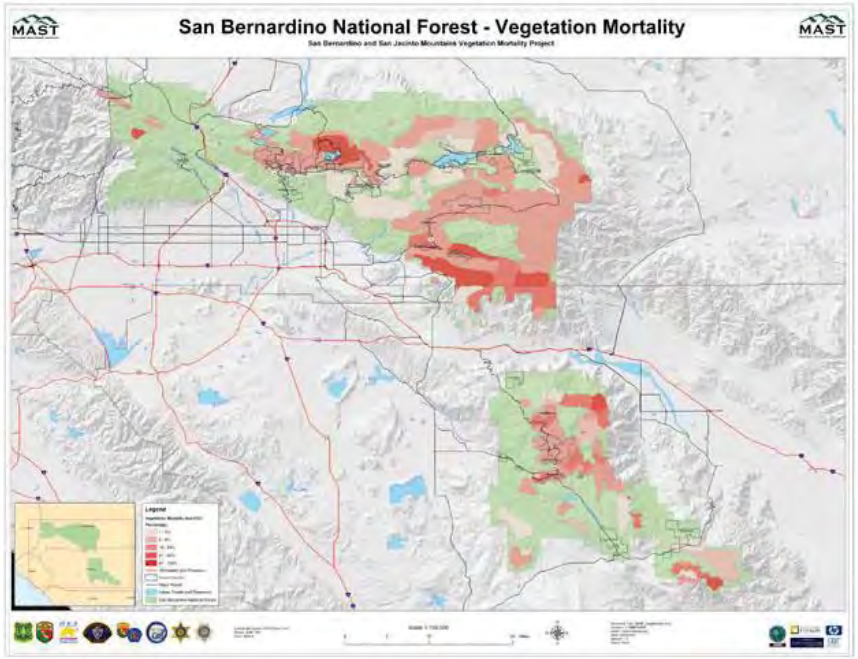


Figure 4-7: San Bernardino National Forest – Vegetation Mortality

4.4.4 Magnitude/Severity

Fire Severity Zones are used in determining additional protective measures required when building new structures or remodeling older structures within the particular zone. Additional measures must be taken on the property around a structure in the higher ranked fire Severity Zones.

CAL FIRE adopted Fire Hazard Severity Zone maps for LRA in June 2008. The Fire Severity Zones for County identifies areas of Very High, High, and Moderate fire hazard severity throughout the County and are mapped in Figure 4-8.

Fire Severity Zones are used in determining additional protective measures required when building new structures or remodeling older structures within the particular zone. Additional measures must be taken on the property around a structure in the higher ranked fire Severity Zones.

Fire hazard mapping is a way to measure the physical fire behavior to predict the damage a fire is likely to cause. Fire hazard measurement includes vegetative fuels, probability of speed at which a wildfire moves the amount of heat the fire produces, and most importantly, the burning fire brands that the fire sends ahead of the flaming front.

The model used to develop the information in accounts for topography, especially the steepness of the slopes (fires burn faster as they burn up-slope.). Weather (temperature, humidity, and wind) also has a significant influence on fire behavior. The areas depicted as moderate and high in are of particular concern and potential fire risk in these are constantly increasing as human development, and the wildland urban interface areas expand.

4.4.5 Frequency/Probability of Future Occurrences

In San Bernardino County, wildfire season commences in the summer when temperatures are high, humidity is low, and conditions remain dry. The season continues into the fall, when the County experiences high velocity, very dry winds coming out of the desert. A statewide drought beginning in 2011 has caused the state to be the driest it's been since record keeping began back in 1895 (California 2016). This has caused extremely dry conditions in unincorporated areas of the County creating plentiful fuel sources for wildfires.

USGS LANDFIRE (Landscape Fire and Resource Management Planning Tools), is a shared program between the wildland fire management programs of the U.S. Department of Agriculture Forest Service and U.S. Department of the Interior, providing landscape scale geo-spatial products to support cross-boundary planning, management, and operations. Historical fire regimes, intervals, and vegetation conditions are mapped using the Vegetation Dynamics Development Tool (VDDT). This USGS data supports fire and landscape management planning goals in the National Cohesive Wildland Fire Management Strategy, the Federal Wildland Fire Management Policy, and the Healthy Forests Restoration Act.

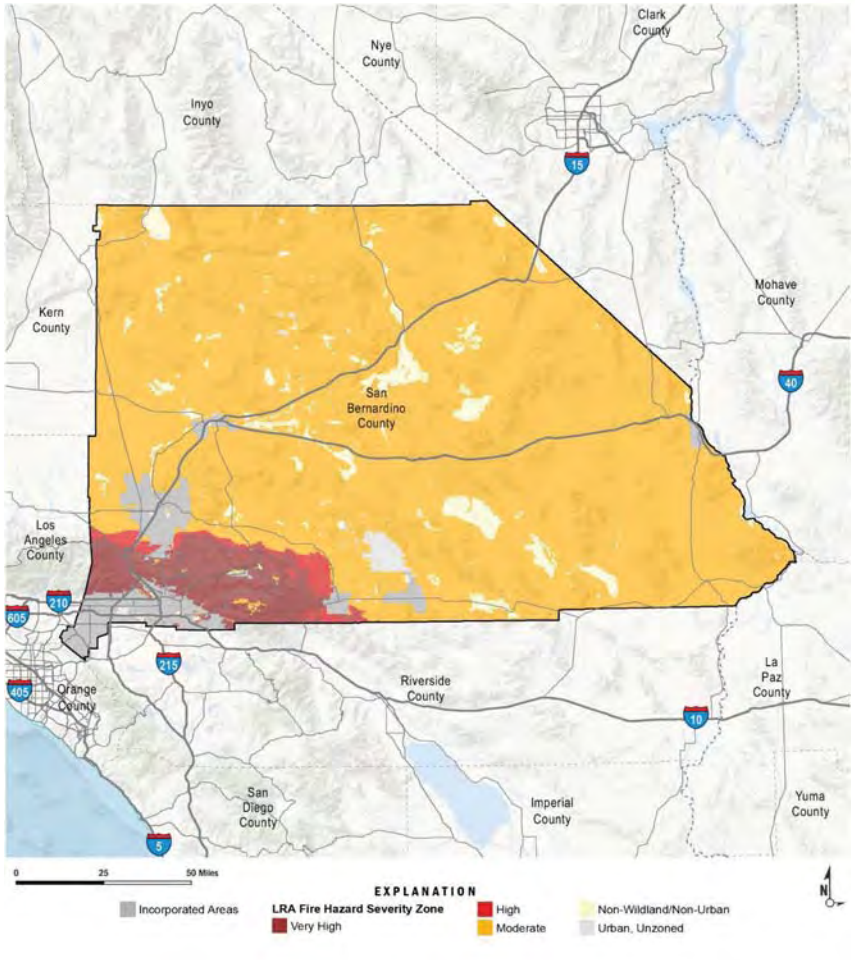


Figure 4-8: Fire Hazard Severity Zone

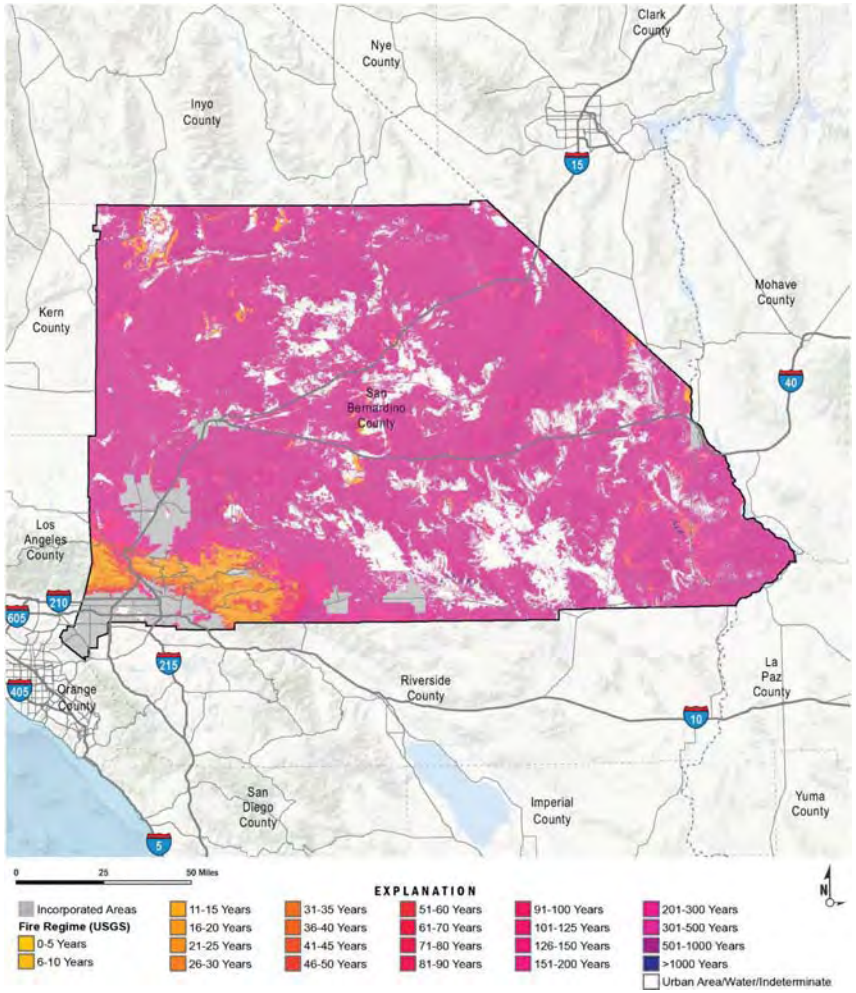


Figure 4-9: USGS Mean Fire Return Interval Map

As part of the USGS Landfire data sets, the Mean Fire Return Interval (MFRI) layer quantifies the average period between fires under the presumed historical fire regime. MFRI is intended to describe one component of historical fire regime characteristics in the context of the broader historical time period represented by the LANDFIRE Biophysical Settings (BPS) layer and BPS Model documentation.

MFRI is derived from the vegetation and disturbance dynamics model VDDT (Vegetation Dynamics Development Tool) (LF_1.0.0 CONUS only used the vegetation and disturbance dynamics model LANDSUM). This layer is created by linking the BpS Group attribute in the BpS layer with the Refresh Model Tracker (RMT) data and assigning the MFRI attribute. This geospatial product should display a reasonable approximation of MFRI, as documented in the RMT. See Figure 4-9 for predicted fire return interval for the jurisdictional area.

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4.5 Flood



Floods are the second most common and widespread of all natural disasters faced by the County and its Special Districts. Most communities in the United States have experienced some kind of flooding during or after spring rains, heavy thunderstorms, winter snow thaws, or summer thunderstorms.

A flood, as defined by the National Flood Insurance Program is: "A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is the policyholder's property) from:

- Overflow of inland or tidal waters, or
- Unusual and rapid accumulation or runoff of surface waters from any source, or
- Mudflow, or
- Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels."

Floods can be slow or fast rising but generally develop over a period of hours or days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation measures now, such as: engaging in floodplain management activities, constructing barriers such as levees, and purchasing flood insurance will help reduce the amount of structural damage to structures and financial loss from building and crop damage should a flood or flash flood occur.

The standard for flooding is the 1% annual chance flood, commonly called the 100-year flood, the benchmark used by the Federal Emergency Management Agency (FEMA) to establish a standard of flood control in communities throughout the country. The 1% annual chance flood is also referred to as the base flood.

The 1% annual chance flood is the flood that has a 1% chance of being equaled or exceeded in any given year and it could occur more than once in a relatively short period of time. By comparison, the 10% flood (10-year flood) means that there is a 10% chance for a flood of its size to occur in any given year.

4.5.1 Regulatory Environmental

4.5.1.1 County of San Bernardino 2007 Development Code and Zoning Ordinances

One of the purposes of this Development Code is to create a comprehensive and stable pattern of land uses upon which to plan drainage/flood control and other public facilities and utilities. The follow chapters of the development code address floodways, flood control and development near such:

Chapter 82.14 Flood Plain Safety (FP) Overlay
Chapter 85.07 Flood Hazard Development Review
Chapter 86.04 Flood Plain Management Administrator

The County has also adopted Zoning Ordinances that are not part of the County Code but are part of the General Plan. These ordinances regulate land use; map the official land use and hazard overlay districts to include safety hazard and environmental protection areas.

4.5.1.2 National Flood Insurance Program

The National Flood Insurance Program (NFIP) makes federally backed flood insurance available to homeowners, renters, and business owners in participating communities. As a participating member of the NFIP, San Bernardino County is dedicated to protecting homes with more than 1,000 policies currently in force. Like most communities participating in NFIP, FEMA has prepared a detailed Flood Insurance Study (FIS) for areas of San Bernardino County. The study presents water surface elevations for floods of various magnitudes, including the 1-percent annual chance of flood (the 100-year flood) and the 0.2-percent annual chance of flood (the 500-year flood). Base flood elevations and the boundaries of the 100 and 500 year floodplains are shown on the Flood Insurance Rate Maps (FIRM). More information on location and geographic extent of the FIRMs are provided in this section.
The County of San Bernardino entered the regular phase of the NFIP on September 09, 1978; in 2016 the County Floodplain Administrator is Marlene Mioyshi. As a participant in the NFIP, San Bernardino County is dedicated to regulating development in the FEMA regulated floodplain areas in accordance with NFIP criteria. Before a permit to build in a floodplain area is issued, San Bernardino County ensures that two basic criteria are met:

- All new buildings and developments undergoing substantial improvements must, at a minimum, be elevated to protect against damage by the 100-year flood.
- New floodplain developments must not aggravate existing flood problems or increase damage to other properties.

Structures permitted or built in the County/City before the NFIP regulatory requirements were incorporated into the San Bernardino County ordinances (before the effective date of the San Bernardino County FIRM) are called "pre-FIRM" structures. For the San Bernardino County, pre-FIRM structures are those permitted or built before September 09, 1978

Extensive FEMA NFIP databases are used to track claims for every participating community including San Bernardino County. NFIP insurance data provided by FEMA indicates that as of September 02, 2016, there were 1,772 policies in San Bernardino County, resulting in $403,874,500 of insurance in force; this amounts to $1,758,534 in total premiums. Of the 1,772 policies, only 1,070 are for structures located within the 1% annual chance flood zones, while the remaining 701 policies are for structures located outside of the FEMA identified floodplain.

Based on this analysis of insurance coverage, San Bernardino County has significant assets at risk to the 100-year flood. Of the 3,426 improved parcels within the 100-year floodplain, only 1,070 of those parcels maintain flood insurance[1]. That means approximately 2,356 improved parcels are without flood insurance in high risk areas according to FEMA. This condition could exist for a number of different reasons. Ground floor elevations are one foot above the 100-year floodplain and home owners and business that wish not to purchase floodplain insurance (non-federally backed loans, home with no mortgage, homes that are "grandfathered" into the NFIP). The 2,356 uninsured structures located in mapped floodplain areas are especially vulnerable.

Currently, San Bernardino County contains 12 Repetitive Loss (RL) properties under their jurisdictional umbrella. The total dollar amount of claims paid to date by the NFIP is $2,606,098. San Bernardino County also contains zero (0) Severe Repetitive Loss (SRL) structure.

Most of the RL properties that have experienced flooding are in the High Desert and Mountain areas of San Bernardino County are due to debris flow in localized areas. Every loss claim is seasonal in nature as all loss claims have been in December, January or February. Some mitigation on these properties has been conducted and San Bernardino County is currently tracking mitigation actions through standardized forms as required by FEMA.

NOTE: A property does not have to be currently carrying a flood insurance policy to be considered a RL or SRL property. Often homes in communities are not carrying flood insurance but are still on the community's repetitive loss list. The "repetitive loss" designation follows a property from owner to owner; from insurance policy to no insurance policy, and even after the property has been mitigated. Having an insurance policy and making claims that fall into the repetitive loss criteria will put a property on the RL list. Even after the policy on a property has lapsed or been terminated, the property will remain on San Bernardino County RL list.

NOTE: The Privacy Act of 1974 (5 U.S.C. 522a) restricts the release of certain types of data to the public. Flood insurance policy and claims data are included in the list of restricted information. FEMA can only release such data to state and local governments, and only if the data are used for floodplain management, mitigation, or research purposes. Therefore, this plan does not identify the repetitive loss properties or include claims data for any individual property.
For more information on California Regulation and the NFIP, please see California's Department of Water Resources Quick Guide here: http://www.water.ca.gov/floodmgmt/lrafmo/fmb/docs/CAQG-screen.pdf

4.5.2 Past Occurrences

Severe weather events leading to flooding are listed in Table 4-7; several major events are discussed below.

[1] An improved property owner may not carry flood insurance for a number of reasons; not everyone is required to carry flood insurance. Structures carrying federally-backed mortgages that are in a SFHA are required to carry flood insurance in the County of San Bernardino. Owners who have completed the terms of the mortgage or who purchased their property outright may not choose to carry flood insurance and instead bear the costs of recovery on their own.

Table 4-7: Severe Weather Events 2010-Present

Date	Type
1/18/2010	January 2010 Winter Storms
12/17/2010	Highland Flooding Incident
8/25/2013	Flooding- Remnants of Tropical Storm Ivo
11/21/2013	Winter Storms
2/28/2014	Winter Storm
8/3/2014	Thunderstorms, heavy rain, flash flooding, mudslides
7/6/2015	Flash flooding resulting from Lake Fire
7/30/2015	Severe Thunderstorms
1/6/2016	Strong rain, flooding and mudslides
8/22/16	Flash flooding from storm system

4.5.3 Location/Geographic Extent

Table 4-8 shows the number of acres and square miles that lie in flood hazard areas within the County. Figure 4-10 provides flood hazard data for San Bernardino County as mapped in FEMA's National Flood Hazard Layer for California (April, 2010). Mapped areas include areas subject to inundation by the 1% Annual Chance Flood (also referred to as the 100-year flood), and areas subject to inundation in the 0.2% Annual Chance Flood (500-year flood).

Table 4-8: San Bernardino County Flood Hazard Area

Flood Hazard Type	Sum of Acres	Sum of Square Miles
100-Year Flood	65,209	101.89
100-Year, Floodway	13,968	21.83
500-Year Flood	13,838	21.62
500-Year, Protected by Levee	4,336	7
Total	**97,351**	**152.11**

Table 4-9 shows a land use compatibility chart for 100 year flood plains.

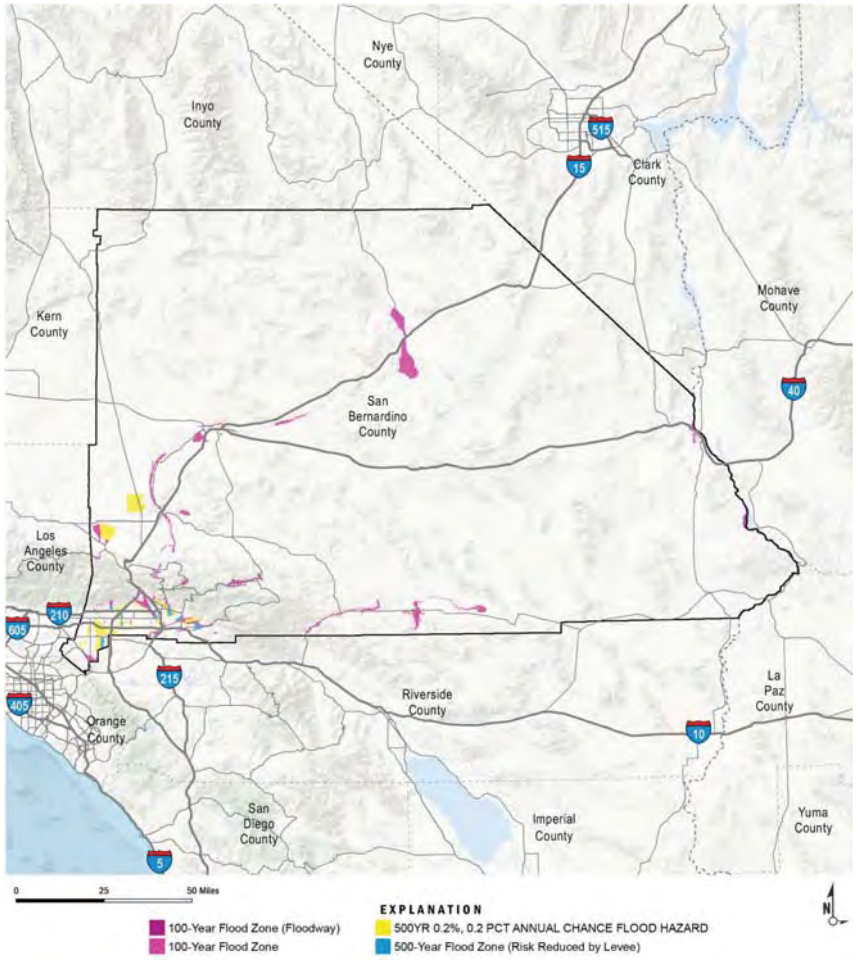


Figure 4-10: Flood Hazard Severity Zone Map

Table 4-9: Land Use Compatibility Chart for 100 Year Flood Plains (General Plan Table S-1)

Land Uses	Compatibility in 100-Year Floodplains
Critical Nuclear related systems; explosives or hazardous materials/ manufacturing, handling or storage; hospitals and other emergency medical facilities.	Restricted
Essential Police, fire and communications systems; Emergency Operations Centers (EOC's); electric power inter-tie systems; power plants; utility substations; sewage treatment plants; water-works; local gas and electric distribution lines; aqueducts; major pipelines; major highways, bridges and tunnels; ambulance services; public assembly sites with 300 or more capacity; schools.	Restricted
High Occupancy Multi-family residential of 20 or more units; major commercial including large shopping centers; office buildings; large hotels; health care clinics and convalescent homes; heavy industry; gas stations.	Generally Incompatible
Normal-Low Risk Single-family and two-family residential; multi-family of less than 20 units; small scale commercial; small hotels, motels; light industry; warehousing.	Generally Incompatible

Restricted unless alternative sites are not available or feasible and it is demonstrated that, although mitigation may be difficult, hazards will be adequately mitigated. Generally Incompatible Restricted unless site investigation demonstrates that site is suitable or that hazards will be adequately mitigated.

4.5.4 Magnitude/Severity

4.5.4.1 Flash Flooding

Flash flooding tends to occur in the summer and early fall because of the monsoon rains and is typified by increased humidity and high summer temperatures.

The desert area contains many mountain ranges that are steep and experience summer thunder storms causing flash floods in many dry washes on the desert floor. The water collects in dry lake beds throughout the desert area.

Environmental permit processing has delayed or prohibited work in the washes to provide flow lines to many bridges on county highways. Many highways do not have bridges but convey water across the road with dip crossings. Flash flooding cause's road and bridge wash outs and erosion of earthen channels and basins when they occur near these facilities.

Cities and towns often experience street closures for several days due to sediment transport and road damage. Because of the sheet flow character of the desert, many private properties experience erosion and sediment deposits. The urban valley also can experience flash flooding in its narrow canyons and within the many unimproved creeks and interim channels feeding the Santa Ana River. The valley floor in many areas is very flat so even minor rain events can produce flooding of roads and private property. In coordination with local jurisdictions, the County of San Bernardino Flood Control District has prepared Master Drainage plans for many cities and towns to provide a plan for reducing flooding due to minor storms. Maps can be found on the County's Department of Public Works website here: http://cms.sbcounty.gov/dpw/FloodControl/Planning/MPD.aspx

However, local resources are not sufficient to cover the cost of the construction of the drainage systems. The densely populated (75% of the county population) urban valley region contains the headwaters of the Santa Ana River. The San Gabriel and San Bernardino Mountains border the North side of the valley are steep reaching 5,000 feet with alluvial fans which are developed and densely populated.

4.5.5 Frequency/Probability of Future Occurrences

The Flood Insurance Rate Map (FIRM) not only identifies the flood hazard zones for insurance and floodplain management purposes, but also provides a statement of probability of future occurrence.

A 500-year flood has a 0.2-percent chance of occurring in any given year; a 100-year flood has a 1-percent chance, a 50-year flood has a 2-percent chance, and a 10-year flood has a 10-percent chance of occurrence. Although the recurrence interval represents the long-term average period between floods of specific magnitude, significant floods could occur at shorter intervals or even within the same year. The FIRM maps typically identify components of the 500-year and 100-year floodplains

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4.6 Drought



Drought is a normal, recurrent feature of climate. It occurs almost everywhere, although its features vary from region to region. Drought severity depends on numerous factors, including duration, intensity, and geographic extent, as well as regional water supply demands by humans and vegetation. The severity of drought can be aggravated by other climatic factors, such as prolonged high winds and low relative humidity.

Drought originates from a deficiency of precipitation over an extended period, usually one or more seasons. Drought can result in a water shortage for some activity, group, or environmental sector. Drought is a complex natural hazard, which is reflected in the following four definitions commonly used to describe it:

- Agricultural – drought is defined principally in terms of naturally occurring soil moisture deficiencies relative to water demands of plant life, usually arid crops.
- Hydrological – drought is related to the effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.
- Meteorological – drought is defined solely on the degree of dryness, expressed as a departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
- Socioeconomic – drought associates the supply and demand of economic goods or services with elements of meteorological, hydrologic, and agricultural drought. Socioeconomic drought occurs when the demand for water exceeds the supply as a result of weather-related supply shortfall. It may also be called a water management drought.

Although climate is a primary contributor to hydrological drought, other factors such as changes in land use (e.g., deforestation), land degradation, and the construction of dams all affect the hydrological characteristics of the basin. Since regions are interconnected by hydrologic systems, the impact of meteorological drought may extend well beyond the borders of the precipitation-deficient area. Similarly, changes in land use upstream may alter hydrologic characteristics such as infiltration and runoff rates, resulting in more variable streamflow and a higher incidence of hydrologic drought downstream. Land use change is one of the ways human actions alter the frequency of water shortage even when no change in the frequency of meteorological drought has been observed.

4.6.1 Regulatory Environment

The County and participating jurisdictions have a number of regulatory requirements and documents to address planning for drought in the County. This includes Watershed Water Quality Management Plans (WQMP) for San Bernardino County and the Mojave and Santa Ana Watersheds. On June 21st, 2013, the Executive Officer approved the revised Technical Guidance Document for Water Quality Management Plan (TGD-WQMP).

The 1972 Federal Water Pollution Control Act, also known as the Clean Water Act (CWA) provides the basis for the protection of all inland surface waters, estuaries, and coastal waters. California's Porter-Cologne Water Quality Control Act of 1970 established the Regional Water Quality Control Board as the agency responsible for implementing the CWA and Porter-Cologne requirements in the Santa Ana Watershed.

In 2006, California State lawmakers adopted AB 1881. This provided guidelines and timelines for the revision of the State's Model Water Efficient Landscape Ordinance (MWELO) and mandated that every city, county or other agency within the State adopt MWELO or be in compliance with it through their own ordinance by January 2010. On January 1, 2010 the San Bernardino County Water Efficient Landscape Ordinance was implemented. It can be obtained on the county website.

4.6.1.1 Watershed Water Quality Management Plan

San Bernardino County's WQMP draft was written in 2013 and final approval was given on June 21, 2013.

4.6.1.2 Technical Guidance Document for Water Quality Management Plan (TGD-WQMP)

Approved on June 21, 2013, this document provides direction to project proponents on the regulatory requirements applicable to a private or public development activity, including public works transportation projects, from project conception to completion.

4.6.2 Past Occurrences

- The 2013 California State MHMP states that from 1950 to 2012, there has been eight-drought State Emergency Proclamations in California. Specifically for San Bernardino County, there have been six drought events since 1896. Previous occurrences of drought are described as follows:

- **1975 to 1977:** California experienced the two driest years (1976 and 1977) in the State's history in 1976 and 1977. The drought was declared an Emergency (FEMA-EM-3023) on January 20, 1977. Total crop damages statewide totaled $2.67 billion dollars for both years ($888.5 million in 1976 and $1.8 billion in 1977).

- **2006 to 2009:** A California State-declared three-year drought of below-average rainfall, low snowmelt runoff, and the largest court-ordered water restricting in state's history. The dry conditions damaged crops, deteriorated water quality, and caused extreme wildfire danger. Approximately $300 million in agricultural revenue loss, and a potential $3 billion in economic losses over time.

- **2012 to 2016:** San Bernardino County first declared a local drought emergency in 2014. As of May 23rd, 2016, San Bernardino County and the City of Rancho Cucamonga had both submitted local Emergency Proclamations. This ongoing drought is the most severe drought in over 100 years. In order to abide by the State Water Resources Control Board's mandatory water reductions, the San Bernardino Municipal Water Department Board of Water Commissioners authorized implementation of Stage IIA of the department's Water Supply Contingency Plan on June 1, 2015. The State Water Board will adjust emergency water conservation regulations through the end of January 2017, in recognition of the differing water supply conditions across the state, and develop proposed emergency water restrictions for 2017 if the drought persists.

Additional information about previous occurrences of droughts in California (in general) can be obtained from the California DWR.

4.6.3 Location/Geographic Extent

Drought can affect the County, region, and the State of California as a whole. The County's primary source of water is imported by the San Bernardino Valley Municipal Water District (http://www.sbvmwd.com/about-us/what-we-do) through participation in the State Water Project (SWP). It is received at the Devil Canyon Power Plant Afterbay. This supply is supplemented by groundwater basins in the County. Drought has no defined geographical boundaries and cannot be depicted in map form. As such, the entire County is subject to drought.

4.6.4 Magnitude/Severity

The magnitude of drought is usually measured in time and the severity of the hydrologic deficit. There are several resources available to evaluate drought status and estimate future expected conditions. The National Integrated Drought Information System (NIDIS) Act of 2006 (Public Law 109-430) prescribes an interagency approach for drought monitoring, forecasting, and early warning. The NIDIS maintains the U.S. Drought Portal (www.drought.gov) which is a web-based

access point to several drought related resources. Resources include the U.S. Drought Monitor (USDM) and the U.S. Seasonal Drought Outlook (USSDO).

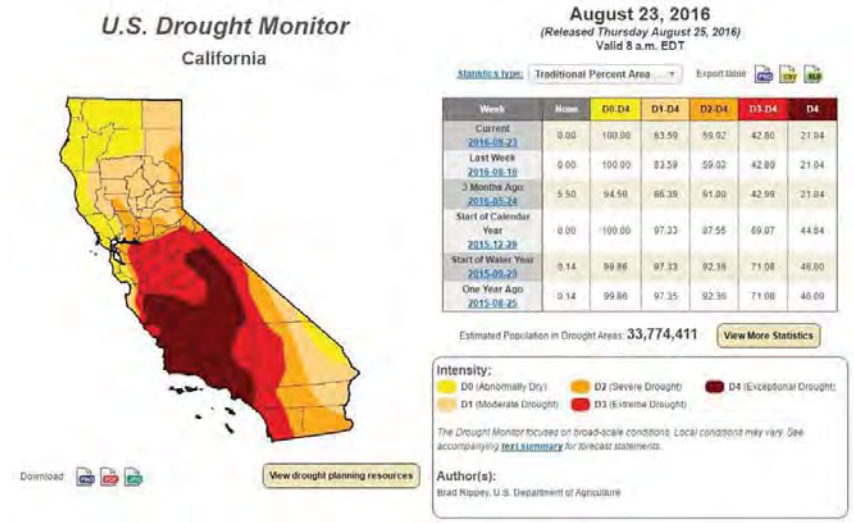


Figure 4-11: US Drought Monitor Map for the State of California on August 23, 2016

The USDM provides a summary of drought conditions across the United States and Puerto Rico and is developed and maintained by the National Drought Mitigation Center (www.drought.unl.edu). USDM includes the U.S. Drought Monitor Map. This map is updated weekly by combining a variety of drought database and indicators, and local expert input into a single composite drought indicator. The map denotes four levels of drought intensity (ranging from D1 - D4) and one level of "abnormal dryness" (D0). In addition, the map depicts areas experiencing agricultural (A) or hydrological (H) drought impacts. These impact indicators help communicate whether short or long-term precipitation deficits are occurring. An example Drought Monitor Map for the State of California for August 23, 2016 is illustrated in Figure 4-11.

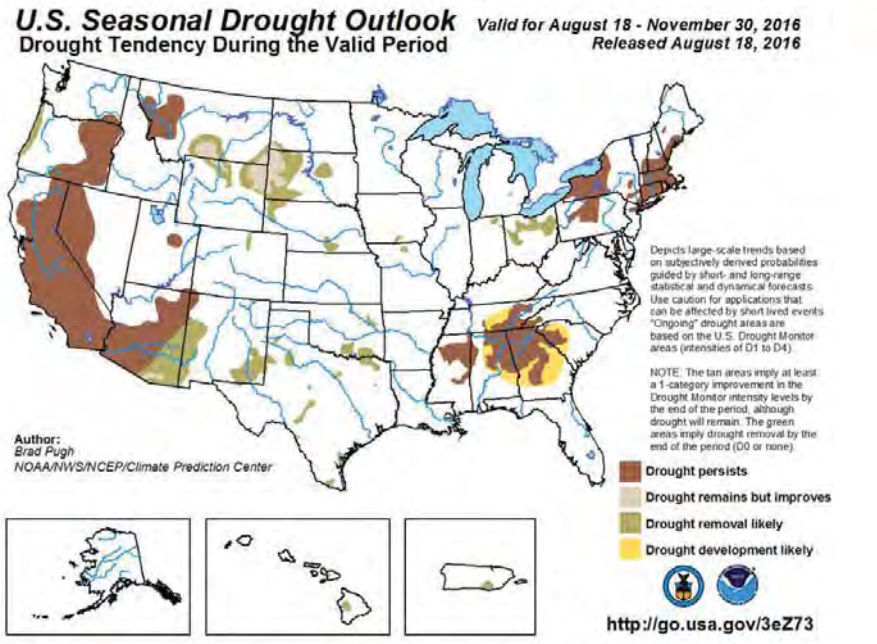


Figure 4-12: USSDO Drought Tendency Map (Valid August 18-November 30, 2016

For western States with mountainous terrain and complex regional microclimates, it is also useful to supplement the PDSI values with other indices such as Surface Water Supply Index and Standardized Precipitation Index (SPI). The Surface Water Supply Index takes snowpack and other unique conditions into account. The National Drought Mitigation Center (NDMC) uses the SPI to identify emerging drought months sooner than the PDSI. It is computed on various time scales to monitor moisture supply conditions. The SPI is the number of standard deviations that precipitation value would deviate from the long-term mean. As shown in Figure 4-13 the 72-month SPI through the end of August 2016 for San Bernardino County is low.

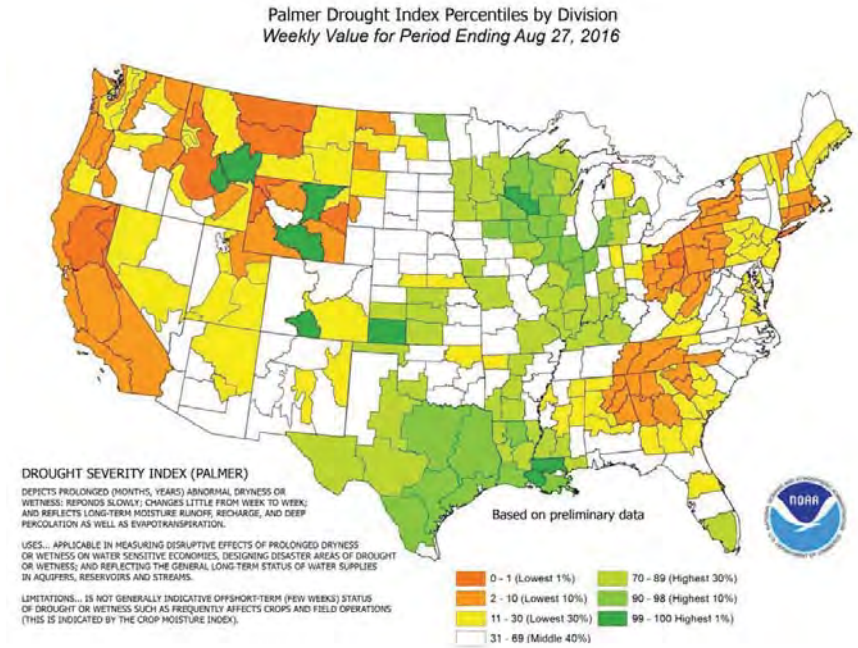


Figure 4-13: Month SPI through the end of August 2016 for San Bernardino County

A number of indices measure how much precipitation for a given period has deviated from historically established norms. The primary indicator for the USDM and USSDO for the western United States is the Palmer Drought Severity Index (PDSI). The PDSI is widely used by the USDA to determine when to grant emergency drought assistance to affected areas. PDSI is a commonly used index that measures the severity of drought for agriculture and water resource management. It is calculated from observed temperature and precipitation values and estimates soil moisture. However, the PDSI is not considered consistent enough to characterize the risk of drought on a nationwide basis (FEMA, 1997) and is not well suited to the dry, mountainous areas in the western U.S.

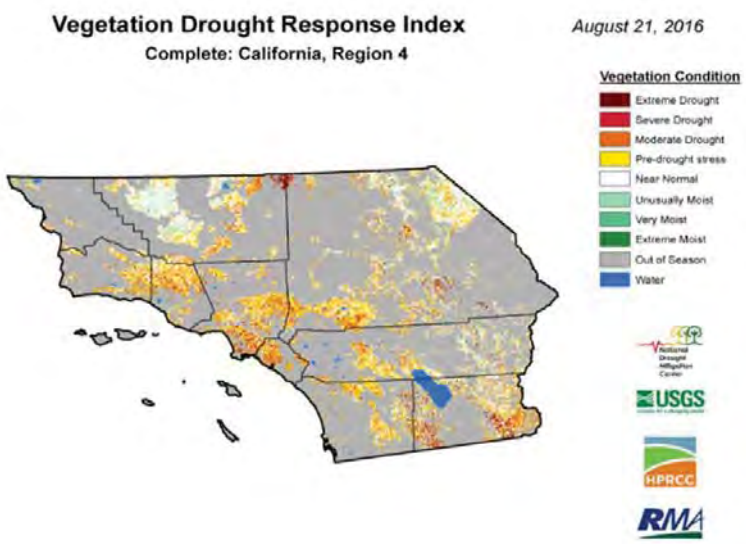


Figure 4-14: Vegetation Drought Response Index – California Region 4 for August 21, 2016

The Vegetation Drought Response Index, or VegDRI, is a bi-weekly depiction of vegetation stress across the contiguous United States. VegDRI is a fine resolution (1-km^2) index based on remote sensing data, and incorporates climate and biophysical data to determine the cause of vegetation stress. Development of the VegDRI map and associated products is a joint effort by the National Drought Mitigation Center (NDMC), the U.S. Geological Survey's (USGS) National Center for Earth Resources Observation and Science (EROS), and the High Plains Regional Climate Center (HPRCC). Figure 4-14 illustrates the VegDRI results for Southern California for August 21, 2016.

4.6.5 Frequency/Probability of Future Occurrences

Currently there is no data on the probability of drought that would be comparable to the USGS effort on earthquakes in the region, or how 100-year flood maps are created.

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4.7 Terrorism

This section was added due to the December 2, 2015 terror attack in San Bernardino County. There is no single, universally accepted definition of terrorism; however, FEMA defines "terrorism" as intentional, criminal, malicious acts. FEMA document 386-7 refers to terrorism specifically as the use of Weapons of Mass Destruction (WMD), including biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; and "cyberterrorism."



FEMA developed the Integrated Emergency Management System (IEMS) using an all-hazards approach. While the IEMS was established as an "all-hazard" approach, responding to the threat of terrorism (referred to as counterterrorism) came to be viewed as the responsibility of law enforcement, defense, and intelligence agencies. Furthermore, defensive efforts to protect people and facilities from terrorism (referred to as antiterrorism) were generally limited to the government sector, the military, and some industrial interests.

While the term "mitigation" refers generally to activities that reduce loss of life and property by eliminating or reducing the effects of disasters, in the terrorism context it is often interpreted to include a wide variety of preparedness and response actions. For the purposes of this document, the traditional meaning will be assumed; that mitigation refers to specific actions that can be taken to reduce loss of life and property from manmade hazards by "modifying the built environment" or antiterrorism to reduce the risk and potential consequences of these hazards.

4.7.1 Antiterrorism Regulatory Environment

Adopted on February 9, 2012 and updated on October 1, 2013, United Facilities Criteria (UFC) 4-010-01 defines the United States Department of Defense's (DoD) minimum antiterrorism standards for both new and existing buildings. The document applies to DoD buildings, National Guard buildings, visitor centers and museums, visitor control facilities and expeditionary structures. Historic preservation compliance for implementation of anti-terrorism standards, philosophy, design strategies and assumptions are all taken into account. Site planning, structural design, architectural design, and electrical and mechanical design are discussed in detail in Appendix B.
https://www.fema.gov/news-release/2004/01/13/dhs-announces-new-building-science-guidelines-enhance-terrorism-resistance

4.7.2 Counterterrorism Regulatory Environment

After the 12/2/15 mass shooting, two full time positions with a regional FBI-led terrorist task force (FBI's Joint Terrorism Task Force) were created. These task force officers have the clearance to conduct terrorism investigations in the County. The Task Force includes partners from Homeland Security Investigations (HSI), the San Bernardino Police Department, the San Bernardino County Sheriff's Department, the Riverside County Sheriff's Department, the Ontario Police Department, the Riverside Police Department, the Corona Police Department and the Chino Police Department. For more information regarding the positions, contact the San Bernardino Police Department at (909) 384-5742. Read more here: http://www.pe.com/articles/task-789539-force-san.html

The State of California Department of Justice's Anti-terrorism program works with federal, state and local law enforcement agencies to detect, investigate, prosecute, dismantle, prevent and respond to domestic and international terrorist activities. Read more here: https://oag.ca.gov/bi/atp

The State of California Bureau of Security and Investigative Services' Power to Arrest Course includes a Weapons of Mass Destruction (WMD) & Terrorism Awareness section. Read More Here: http://www.bsis.ca.gov/about_us/laws/bsis_regulations.pdf

4.7.3 Past Occurrences

There have been two terrorist attacks recorded in San Bernardino County. Table 4-10 describes both attacks.
Source: https://www.start.umd.edu/gtd/search/Results.aspx?search=san+bernardino&sa.x=0&sa.y=0&sa=Search

Table 4-10: Terrorist Attacks in San Bernardino County

Date	Perpetrator Group	Fatalities	Injured	Target Type
3/16/1970	White Extremists	0	1	Government (General)
12/2/2015	Unaffiliated Individuals	16	17	Government (General)

The state of California has experienced 574 terrorist attacks from 1970-2011 (Integrated United States Security Database (IUSSD): Data on the Terrorist Attacks in the United States Homeland, 1970-2011 2012). Figure 4-17 shows the types of terrorist attacks in the state of California from 1970 to the present.

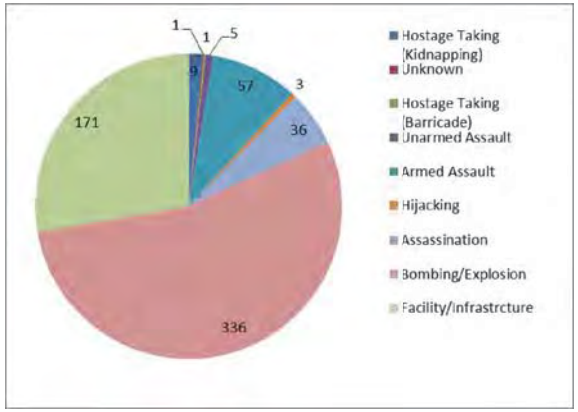
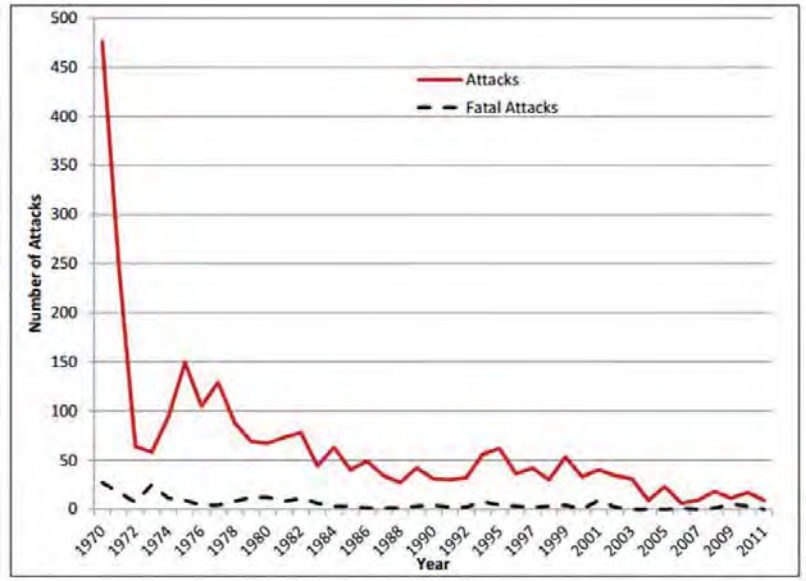


Figure 4-15: Types of Terrorist Attacks in California from 1970-Present

As seen in Figure 4-15 since 1970, the number of terrorist attacks in the United States has steadily decreased. According to http://www.heritage.org most terrorist attacks on America happen outside our nation's borders. The number of international terrorist attacks against the United States from 1970-2011 is shown in Figure 4-16 and Figure 4-17.



Note: There were 2,608 total attacks and 226 fatal attacks between 1970 and 2011.

Figure 4-16: Total and Fatal Terrorist Attacks in the United States by Year

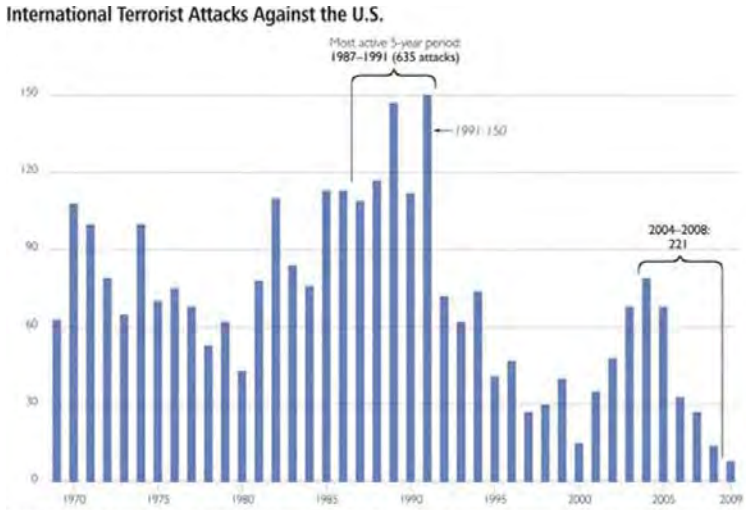


Figure 4-17: International Terrorist Attacks Against the United States

4.7.4 Location/Geographic Extent

Unlike natural hazards, which often follow patterns and can be forecasted, manmade hazards such as acts of terrorism are much more unpredictable. Terrorists have the ability to choose targets and tactics and can often adjust conditions to achieve their objective. Terrorist attacks are often in a more specific location rather than a widespread, more predictable area such as a flood plain. As demonstrated in the 12/2/15 mass shooting, "homegrown terrorists" (self-radicalizing and pulls off their attacks without any help or communication with people in other countries) are even harder to detect and predict.

Translating most manmade hazard profiles into meaningful geospatial information is difficult at best. Instead, the planning team will use an asset-specific approach, identifying potentially at-risk critical facilities and systems in the community. Once a comprehensive list of assets has been developed, it will be prioritized so that the community's efforts can be directed to protect the most

important assets first. Then, beginning with the highest priority assets, the vulnerabilities of each facility or system to each type of hazard will be assessed (FEMA 2003).

4.7.5 Magnitude/Severity

As previously discussed, predicting terrorist attacks cannot be done with the same level of accuracy as predicting a natural hazard and its potential impacts on the community. However, we can learn from past terrorist incidents. Table 4-11 profiles 10 different types of terrorist attacks and technological hazards.

Table 4-11: Event Profiles for Terrorism and Technological Hazards

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Conventional Bomb/ Improvised Explosive Device	Detonation of explosive device on or near target; delivery via person, vehicle, or projectile.	Instantaneous; additional "secondary devices" may be used, lengthening the time duration of the hazard until the attack site is determined to be clear	Extent of damage is determined by type and quantity of explosive. Effects generally static other than cascading consequences, incremental structural failure, etc.	Overpressure at a given standoff is inversely proportional to the cube of the distance from the blast; thus, each additional increment of standoff provides progressively more protection. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting energy and debris. Exacerbating conditions include ease of access to target; lack of barriers/shielding; poor construction; and ease of concealment of device
Chemical Agent *	Liquid/aerosol contaminants can be dispersed using sprayers or other aerosol generators; liquids vaporizing from puddles/ containers; or munitions.	Chemical agents may pose viable threats for hours to weeks depending on the agent and the conditions in which it exists.	Contamination can be carried out of the initial target area by persons, vehicles, water and wind. Chemicals may be corrosive or otherwise damaging over time if not remediated.	Air temperature can affect evaporation of aerosols. Ground temperature affects evaporation of liquids. Humidity can enlarge aerosol particles, reducing inhalation hazard. Precipitation can dilute and disperse agents but

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
				can spread contamination. Wind can disperse vapors but also cause target area to be dynamic. The micro-meteorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects.
Arson/ Incendiary Attack	Initiation of fire or explosion on or near target via direct contact or remotely via projectile.	Generally minutes to hours.	Extent of damage is determined by type and quantity of device/ accelerant and materials present at or near target. Effects generally static other than cascading consequences, incremental structural failure, etc.	Mitigation factors include built-in fire detection and protection systems and fire-resistive construction techniques. Inadequate security can allow easy access to target, easy concealment of an incendiary device and undetected initiation of a fire. Non-compliance with fire and building codes as well as failure to maintain existing fire protection systems can substantially increase the effectiveness of a fire weapon.
Armed Attack	Tactical assault or sniping from remote location.	Generally minutes to days.	Varies based upon the perpetrators' intent and capabilities	Inadequate security can allow easy access to target, easy concealment of weapons and undetected initiation of an attack.
Biological Agent *	Liquid or solid contaminants can be dispersed using sprayers/aerosol generators or by point or line	Biological agents may pose viable threats for hours to years depending on the agent and the	Depending on the agent used and the effectiveness with which it is deployed, contamination can	Altitude of release above ground can affect dispersion; sunlight is destructive to many bacteria and viruses; light to

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
	sources such as munitions, covert deposits and moving sprayers.	conditions in which it exists	be spread via wind and water. Infection can be spread via human or animal vectors.	moderate wind will disperse agents but higher winds can break up aerosol clouds; the micro-meteorological effects of building and terrain can influence aerosolization and travel of agents.
Cyberterrorism	Electronic attack using one computer system against another.	Minutes to days	Generally no direct effects on built environment.	Inadequate security can facilitate access to critical computer systems, allowing them to be used to conduct attacks.
Agriterrorism	Direct, generally covert contamination of food supplies or introduction of pests and/or disease agents to crops and livestock.	Days to months	Varies by type of incident. Food contamination events may be limited to discrete distribution sites, whereas pests and diseases may spread widely. Generally no effects on built environment.	Inadequate security can facilitate adulteration of food and introduction of pests and disease agents to crops and livestock.
Radiological Agent **	Radioactive contaminants can be dispersed using sprayers/aerosol generators, or by point or line sources such as munitions, covert deposits and moving sprayers.	Contaminants may remain hazardous for seconds to years depending on material used.	Initial effects will be localized to site of attack; depending on meteorological conditions, subsequent behavior of radioactive contaminants may be dynamic.	Duration of exposure, distance from source of radiation, and the amount of shielding between source and target determine exposure to radiation.
Nuclear Bomb **	Detonation of nuclear device underground, at the surface, in the air or at high altitude.	Light/heat flash and blast/shock wave last for seconds; nuclear radiation and fallout hazards can persist for years. Electromagnetic pulse from a high altitude detonation lasts for seconds and affects only	Initial light, heat and blast effects of a subsurface, ground or air burst are static and are determined by the device's characteristics and employment; fallout of radioactive contaminants may	Harmful effects of radiation can be reduced by minimizing the time of exposure. Light, heat and blast energy decrease logarithmically as a function of distance from seat of blast. Terrain, forestation, structures, etc. can provide shielding by

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
		unprotected electronic systems.	be dynamic, depending on meteorological conditions.	absorbing and/or deflecting radiation and radioactive contaminants.
Hazardous Material Release (fixed facility or transportation)	Solid, liquid and/or gaseous contaminants may be released from fixed or mobile containers.	Hours to days	Chemicals may be corrosive or otherwise damaging over time. Explosion and/or fire may be subsequent. Contamination may be carried out of the incident area by persons, vehicles, water and wind.	As with chemical weapons, weather conditions will directly affect how the hazard develops. The micro-meteorological effects of building and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects. Non-compliance with fire and building codes as well as failure to maintain existing fire protection and containment features can substantially increase the damage from a hazardous materials release.

* Source: Jane's Chem-Bio Handbook
** Source: FEMA, Radiological Emergency Management Independent Study Course

4.7.6 Frequency/Probability of Future Occurrences

We can usually forecast the type, frequency and location of a natural hazard thanks to the laws of physics and nature. However, when dealing with manmade hazards such as terrorism, we are often dealing with functions of the human mind-malevolence, incompetence, carelessness and other behaviors. These actions cannot be predicted with any accuracy; therefore, there is the potential for an act of terrorism to occur anywhere, at any time.

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4.8 Climate Change



Climate change refers to any distinct change in measures of climate lasting for a long period of time, more specifically major changes in temperature, rainfall, snow, or wind patterns. Climate change may be limited to a specific region, or may occur across the whole Earth. Climate change may result from:

- Natural factors (e.g., changes in the Sun's energy or slow changes in the Earth's orbit around the Sun);
- Natural processes within the climate system (e.g., changes in ocean circulation); and
- Human activities that change the atmosphere's make-up (e.g., burning fossil fuels) and the land surface (e.g., cutting down forests, planting trees, building developments in cities and suburbs, etc.).

The effects of climate change are varied: warmer and more varied weather patterns, melting ice caps, and poor air quality, for example. As a result, climate change impacts a number of natural hazards.

The 2013 State of California Multi-Hazard Mitigation Plan stated that climate change is already affecting California. Sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state's infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and both snowmelt and rainwater running off sooner in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing.

4.8.1 Regulatory Environment

California's response to climate change is directed by Legislation and Regulations and by other Mandates such as executive orders.

4.8.1.1 The Sustainable Communities and Climate Protection Act of 2008

The Sustainable Communities and Climate Protection Act of 2008 (Sustainable Communities Act, SB 375, Chapter 728, Statutes of 2008) looks to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities. Regional targets are established for GHG emissions reductions from passenger vehicle use by the sustainable communities strategy (SCS) established by each metropolitan planning organization (MPO). The SCS is an integral part of the regional transportation plan (RTP) and contains land use, housing, and transportation strategies to meet GHG reductions targets. In San Bernardino County, the South Coast Air Quality Management District facilitates compliance with the federal Clean Air Act and implements the state's air quality program.

The Office of Planning and Research's General Plan Guidelines and SB 375 builds upon Assembly Bill 162 (flood protection) and Senate Bill 1241 (fire protection) and supports Safeguarding California implementation.

SB 375 also supports Assembly Bill 2140 which requires that a City/County General Plan contains a safety element in addition to a Hazard Mitigation Plan. AB 2140 also requires a vulnerability assessment, adaptation goals, policies and objectives, and a set of feasible implementation measures.

4.8.1.2 California Adaptation Planning Guide (APG)

The State of California has been taking action to address climate change for over 20 years, focusing on both greenhouse gas emissions reduction and adaptation. The California Adaptation Planning Guide (APG) continues the state's effort by providing guidance and support for communities addressing the unavoidable consequences of climate change.

Based on upon specific factors, 11 Climate impact regions were identified. Some of the regions were based on specific factors particularly relevant to the region. As illustrated in Figure 4-18 San Bernardino County is located in the Desert Region.

The Desert is a heavily urbanized inland region (4.3+ million people) made up of sprawling suburban development in the west near the South Coast region and vast stretches of open, largely federally owned desert land to the east. Prominent cities within the desert portion include Palm Springs (44,500+) and El Centro (42,500+). The region's character is defined largely by the San Gabriel Mountains, San Gorgonio Mountains, San Jacinto Mountains, and smaller inland mountains reaching through the desert to the Colorado River, which borders the region on the east. Communities in the Desert region should consider evaluating the following climate change impacts:

- Reduced water supply
- Increased temperature
- Reduced precipitation
- Diminished snowpack
- Wildfire risk
- Public health and social vulnerability
- Stress on special-status species



Figure 4-18: Climate Impact Regions

4.8.2 Past Occurrences

Climate change has never been directly responsible for any declared disasters. Past flooding, wildfire, levee failure, and drought disasters may have been exacerbated by climate change, but it is impossible to make direct connections to individual disasters. In addition, unlike earthquake and floods that occur over a finite time period, climate change is an on-going hazard the effects of which some are already experiencing. Other effects may not be seriously experienced for decades, or may be avoided altogether by mitigation actions taken today.

4.8.3 Location/Geographic Extent

The effects of climate change are not limited by geographical borders. San Bernardino County, the State of California, the United States, and the rest of the world are all at risk to climate change. As such, the entire County is at risk to the effects of climate change.

Figure 4-19 and Figure 4-20 provide Cal Adapt[2] modeled decadal July high temperature averages for 2010 and 2090. These figures provide current decade-long July temperature averages and possible annual high heating trends for the remaining portion of the century. The data presented in the figures represent a "projection" of potential future climate scenarios, they are not predictions. These figures illustrate how the climate may change based on a variety of different potential social and economic factors. The visualizations are comprised of average values from Coupled Climate model 2.1 (GFDL), Community Climate System Model Version 3 (CCSM3), Coupled Global Climate Model Version 3 (CNRM) and Parallel Climate Model 1 (PCM1). During the next few decades, scenarios project average temperature to rise between 1° and 2.3°F; however, the projected temperature increases begin to diverge at mid-century so that, by the end of the century, the temperature increases projected in the higher emissions scenario (A2) are approximately twice as high as those projected in the lower emissions scenario (B1). Customizable maps can be viewed at http://cal-adapt.org/temperature/decadal/

[2] Cal-Adapt has been funded to provide access to data and information that has been produced by the State's scientific and research community. The data available in this site offer a view of how climate change might affect California at the local level.



Figure 4-19: July Decadal Average High Temperature Map; 2010

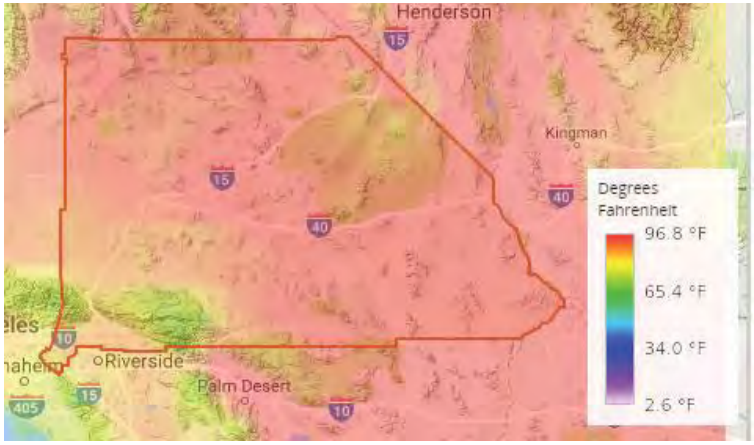


Figure 4-20: July Decadal Average High Temperature Map; 2090

4.8.4 Magnitude/Severity

The California Climate Adaptation Strategy (CAS), citing a California Energy Commission study, states that "over the past 15 years, heat waves have claimed more lives in California than all other declared disaster events combined." This study shows that California is getting warmer, leading to an increased frequency, magnitude, and duration of heat waves. These factors may lead to increased mortality from excessive heat, as shown in Figure 4-21: California Historical and Projected Temperature Increases 1961 to 2099

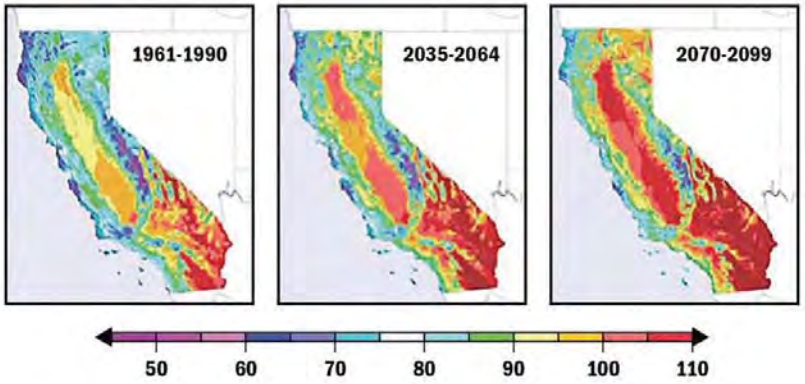


Figure 4-21: California Historical and Projected Temperature increases 1961-2099

Source: Dan Cayan; California Climate Adaptation Strategy

4.8.5 Frequency/Probability of Future Occurrences

According to the ABAG 2010 Local Hazard Mitigation Plan (LHMP), climate change is one of the few natural hazards where the probability of occurrence is influenced by human action. In addition, unlike earthquake and floods that occur over a finite time period, climate change is an on-going hazard.

The 2009 Climate Adaptation Strategy (CAS) delineated how climate change may impact and exacerbate natural hazards in the future, including wildfires, extreme heat, floods, drought, and levee failure:

Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in San Bernardino County and the rest of California, which

are likely to increase the risk of mortality and morbidity due to heat-related illness and exacerbation of existing chronic health conditions. Those most at risk and vulnerable to climate-related illness are the elderly, individuals with chronic conditions such as heart and lung disease, diabetes, and mental illnesses, infants, the socially or economically disadvantaged, and those who work outdoors.

- Higher temperatures will melt the Sierra snowpack earlier and drive the snowline higher, resulting in less snowpack to supply water to California users.
- Droughts are likely to become more frequent and persistent in the 21st century.
- Intense rainfall events, periodically ones with larger than historical runoff, will continue to affect California with more frequent and/or more extensive flooding.
- Storms and snowmelt may coincide and produce higher winter runoff from the landward side, while accelerating sea-level rise will produce higher storm surges during coastal storms. Together, these changes will increase the probability of levee and dam failures in the Sacramento-San Joaquin Delta.
- Warmer weather, reduced snowpack, and earlier snowmelt can be expected to increase wildfire through fuel hazards and ignition risks. These changes can also increase plant moisture stress and insect populations, both of which affect forest health and reduce forest resilience to wildfires. An increase in wildfire intensity and extent will increase public safety risks, property damage, fire suppression and emergency response costs to government, watershed and water quality impacts, vegetation conversions and habitat fragmentation.

4.8.6 El Niño Effect

El Niño is defined as an abnormal weather pattern that is caused by the warming of the Pacific Ocean near the equator, off the coast of South America. This occurs when the normal trade winds weaken (or even reverse), which lets the warm water that is usually found in the western Pacific flow instead towards the east. This warm water displaces the cooler water that is normally found near the surface of the eastern Pacific, setting off atmospheric changes that affect weather patterns in many parts of the world.

As a result of the predicted El Niño in 2015 the following meetings were held during the months of January – December 2015:

El Niño Awareness Program

- **January - December 2015**

- **October 28, 2015** (Two meetings) two separate meetings one with the Public with 200 High Desert residents attending, the other meeting was at the same location of the Victor Ville City Council Chambers of 80 operators
- **November 9, 2015** South Desert Meeting at the Town of Yucca Valley Community Center, with 50 Operators and 235 general public ,residents
- **November 12, 2015** 2:30pm-4:30pm Valley Cooperators Meeting, City of Rancho Cucamonga, Victoria Gardens, 90 Operators and 2nd Meeting at the same location held at 530pm-730pm meeting with 205 public and residents
- **November 16, 2015** Public Meeting at Upland city Hal l for San Antonio heights, Mt. Baldy and local residents 110 Public and Residents in attendance .
- **November 23, 2015** Wrightwood Community Center, 80 Operators and 330 Public and Residents
- **November 24, 2015** City of Yucaipa 40 operators at Yucaipa City Hall
- **December, 2015** 5000 English pamphlets and 5000 Spanish pamphlets distributed Winter Weather Workshop meetings (discuss long term weather models and predictions as far as estimated rain fall anticipated. and Extreme Heat Program meetings (stakeholder and Red Cross and SCE and other responders/operators meetings on anticipated overly hot days and local assistance plans. program in place by OES.

4.8.7 Extreme Weather

The Extreme Weather – Excessive Heat Standard Operating Guidelines (SOG) were developed in response to the potential for Excessive Heat and heat related Power Outage events in San Bernardino County. The following objectives and activities have been established to prevent the harmful effects of excessive heat on at-risk populations and the potential for life-threatening repercussions of power outages during excessive heat events.

The Extreme Weather – Excessive Heat SOG describe the County operations during heat related emergencies and provide guidance for local jurisdictions in their preparation for heat emergencies and other related activities.

The information included in this document is “situation” and/or “incident” driven and subject to revision by the Extreme Weather Committee as conditions warrant. Notifications are information dependent and modification of the activities in these guidelines may be required in response to changing conditions, situations and/or inaccurate weather predictions.
The Extreme Weather – Excessive Heat Standard Operating Guidelines (SOG) were developed through the collaborative efforts of the “Extreme Weather Committee”. The committee consists of

representatives from key County Departments and private sector partners who have a shared interest, responsibility and/or expertise in the County's preparation for an Excessive Heat event. It is designed to protect all of the County's population especially the most vulnerable populations.

For the last ten years the annual Winter Weather Workshop and Meeting brings together San Bernardino County Fire Office of Emergency Services with The San Bernardino County Special Districts key stakeholders and first responders as well as weather experts. The annual meeting is an accumulation of meetings with NOAA and other Meteorological experts on the possible winter weather outlook and forecast including possible precipitation levels and wide ranging forecasts.

The meeting includes discussions on possible plans of actions and response to flooding emergencies and or snow or white out events and the other possibility of continuing long duration droughts.

4.9 Other Hazards

As mentioned earlier, lower priority hazards are addressed at a lesser level of detail due to their relatively fewer impacts, as identified in the preceding hazard assessment section. The lower priority hazards for the unincorporated area are:

- Severe Thunderstorm
- Infestation
- Drought
- High Winds/Straight Line Winds
- Lightning
- Extreme Heat
- Hail
- Tornado

Although not part of the MJHMP, the remaining hazards are a part of the San Bernardino County 2007 General Plan and are addressed in the County Building Codes and Ordinance.

The information in this section provides an explicit representation of what a community stands to lose in a disaster. This is useful for county officials and other decision makers who will need to balance the costs of mitigation against the potential harm to citizens and damage to property. It provides comparable measurements of community natural hazard exposure and assists in determining which hazards and/or what parts of San Bernardino County to focus on making resilient to disaster first. Based upon possible assets at risk, hazard mitigation resources can be directed where need be, in-part, by a vulnerability assessment and information found in hazard profiles presented in Section 4.8.

4.10 Vulnerability Assessment

The information in this section provides an explicit representation of what a community stands to lose in a disaster. This is useful for county officials and other decision makers who will need to balance the costs of mitigation against the potential harm to citizens and damage to property. It provides comparable measurements of community natural hazard exposure[3] and assists in determining which hazards and/or what parts of San Bernardino County to focus on making resilient to disaster first. Based upon possible assets at risk, hazard mitigation resources can be directed where need be, in-part, by a vulnerability assessment and information found in hazard profiles presented in Section 4.2.

The vulnerability assessment is developed by providing the hazard mitigation analysts with quantitative and qualitative information for each hazard identified by the HMP Planning Team Through an exposure analysis, quantitative data is developed for each hazard. An exposure analysis provides quantities of people and assets at risk to particular hazards. Qualitative data has been developed and presented in this section for hazards without measurable data. Qualitative data provides information beyond quantities of people and assets at risk, but rather a description of how the hazard could affect a region like San Bernardino County.

Note: The hazard exposure analysis has been developed with best available data and follows methodology described in the FEMA publication Understanding Your Risks—Identifying Hazards and Estimating Losses.

Note: There are other intangible losses that could result from a natural hazard event, such as losses of historic or cultural integrity or damage to the environment that are difficult to quantify. Other costs, including response and recovery costs, are often unrecoverable and are not addressed in this document.

4.10.1 Methodology

A vulnerability assessment was conducted for each of the identified priority hazards. Geospatial data is essential in determining population and assets exposed to particular hazards. Geospatial analysis can be conducted if a natural hazard has a particular spatial footprint that can be overlaid against the locations of people and assets. In San Bernardino County, wildfire, flood, earthquake, and landslides have known geographic extents and corresponding spatial information about each hazard.

Several sources of data are necessary to conduct a vulnerability analysis. Figure 4-22provides an exhibit of the data inputs and outputs used to create the vulnerability analysis results presented in this section. U.S. Census data is the primary source in determining natural hazard exposure to residents. Census data has been used to determine the population at risk, which is generally referred to as population exposure. Population exposure is provided for wildfire, flooding, earthquakes and landslides as potential hazards later in this section.

[3] Elements at risk; Risk inventory; Exposure encompasses all elements, processes, and subjects that might be affected by a hazardous event. Consequently, exposure is the presence of social, economic, environmental or cultural assets in areas that may be impacted by a hazard.

Together with the U.S. Census data, asset data was used to provide a snapshot of how City assets are affected by natural hazards. For purposes of this vulnerability analysis, asset data includes parcels and critical infrastructure within the San Bernardino County boundaries. Critical infrastructure is described as assets that are essential for people and a community to function. Critical infrastructure includes such as utilities, San Bernardino County owned facilities, bridges, schools, and other community facilities that provide essential services to residents.

Critical facilities data was developed from a variety of sources including San Bernardino County owned and maintained data, state and federal government datasets, and private industry datasets. A critical infrastructure spatial database was developed to translate critical facilities information into georeferenced[4] points. Critical facility points are intersected with the spatial hazard layers to develop a list of "at risk" critical facilities. The San Bernardino County critical facilities that intersect with natural hazards are referred to as facilities with hazard "exposure". Exposure results are presented later in this section.

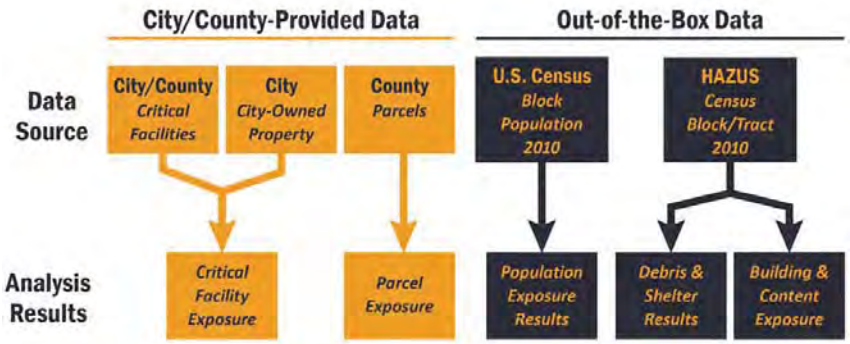


Figure 4-22: Data Source and Methodology

Lastly, FEMA's Hazus-MH MR5 (Hazus) software was implemented to conduct detailed loss estimation for flood and earthquake. Hazus is a nationally applicable standardized methodology that contains models for estimating potential losses from earthquakes, floods, and hurricanes. HAZUS uses Geographic Information Systems (GIS) technology to estimate physical, economic, and social impacts of disasters. For purposes of this planning effort, Hazus was used to graphically illustrate the limits of identified high-risk locations due to possible earthquakes and floods.

[4] To georeference something means to define its existence in physical space. That is, establishing its location in terms of map projections or coordinate systems. The term is used both when establishing the relation between raster or vector images and coordinates, and when determining the spatial location of other geographical features.

The vulnerability and potential impacts from priority hazards that do not have specific mapped areas nor the data to support additional vulnerability analyses are discussed in more general terms in alphabetical order following the discussion on wildfire, flooding and earthquake hazards.

4.10.2 Hazus MH Inputs

FEMA's loss estimation software, Hazus MH, was used to analyze the San Bernardino County building risk to flood and earthquake hazards. Hazus contains a database of economic, demographic, building stock, transportation facilities, local geology, and other information that can be used for several steps in the risk assessment process. Hazus software operates on structure square footage, structure replacement, and content replacement costs aggregated to the census block and tract levels depending on type of hazard analysis. The following table provides value data for building categories at the census block and census tract levels. Census block and census tracts are used to provide input information for the Hazus analysis presented in this report.

The project team used the San Bernardino County Essential Facilities Risk Assessment (SBEFRA) project and incorporated the newly updated DFIRM data into HAZUS to assess potential losses in the mapped 100-year (with and without levee protection) and 500-year flood zones.

Note: The Hazus software utilizes different census level information inputs to develop loss estimates depending on the hazard module. The flood module uses census block information while the earthquake module uses census track information. It is important to understand the total values of each as estimated damage to the community is presented on a percent of total value basis.

Table 4-12: Hazus Flood Census Block Input Values

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (%)	Content Replacement Cost ($000)	Content Replacement Cost (%)	Total Value ($000)	Total Value (%)
Agricultural	$ 70,841	0.3%	$ 70,841	0.3%	$ 141,682	1%
Commercial	$ 1,208,163	4.4%	$ 1,231,690	4.5%	$ 2,439,853	9%
Education	$ 120,017	0.4%	$ 127,161	0.5%	$ 247,178	1%
Governmental	$ 34,216	0.1%	$ 43,192	0.2%	$ 77,408	0%
Industrial	$ 452,710	1.6%	$ 610,063	2.2%	$ 1,062,773	4%
Religion	$ 176,012	0.6%	$ 176,012	0.6%	$ 352,024	1%
Residential	$ 15,483,634	56.2%	$ 7,744,650	28.1%	$ 23,228,284	84%
Total	**$ 17,545,593**	**64%**	**$ 10,003,609**	**36%**	**$ 27,549,202**	**100 %**

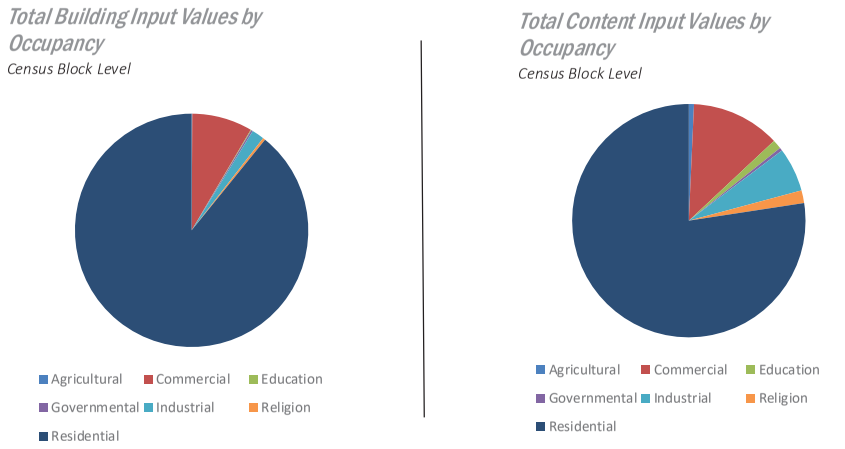


Figure 4-23: Census Block Building and Content Exposure Values

Table 4-13: Hazus Earthquake Census Tract Input Values

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (%)	Content Replacement Cost ($000)	Content Replacement Cost (%)	Total Value ($000)	Total Value (%)
Agricultural	$ 264,949	50.0%	$ 264,949	50.0%	$ 529,898	1%
Commercial	$ 11,056,871	48.5%	$ 11,756,479	51.5%	$ 22,813,350	9%
Education	$ 819,946	48.4%	$ 874,703	51.6%	$ 1,694,649	1%
Governmental	$ 265,933	45.6%	$ 316,930	54.4%	$ 582,863	0%
Industrial	$ 3,733,265	41.4%	$ 5,276,431	58.6%	$ 9,009,696	4%
Religion	$ 958,122	50.0%	$ 958,122	50.0%	$ 1,916,244	1%
Residential	$ 84,302,884	66.7%	$ 42,159,954	33.3%	$ 126,462,838	84%
Total	**$ 101,401,970**	**62%**	**$ 61,607,568**	**38%**	**$ 163,009,538**	**100 %**

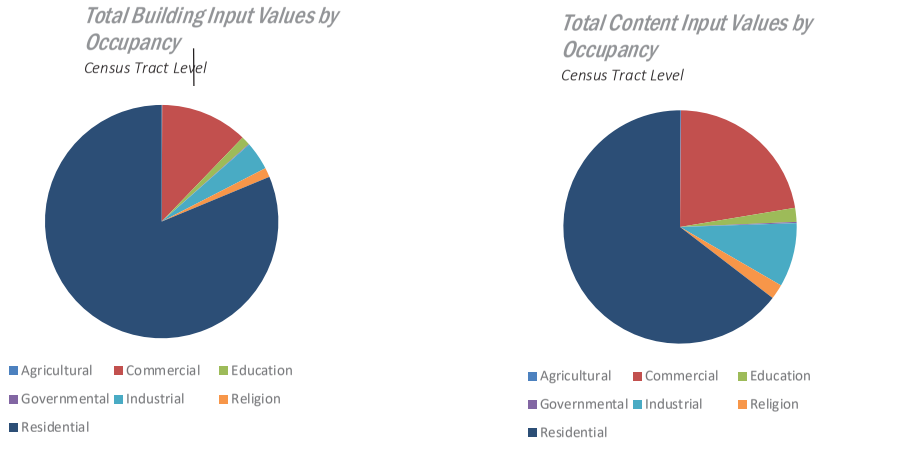


Figure 4-24: Census Tract Building and Content Exposure Values

4.11 Population and Assets

To describe vulnerability for each hazard, it is important to understand the "total" population and "total" assets at risk. The exposure for each hazard described in this section will refer to the percent of total population or percent of total assets. This provides the possible significance or vulnerability to people and assets for the natural hazard event and the estimated damage and losses expected during a "worst case scenario" event for each hazard. Sections below provide a description of the total population, critical facilities, and parcel exposure inputs.

Table 4-12 and Table 4-13 provide an estimate of the number and size of buildings in the County's unincorporated areas and its Special Districts, as well as the replacement value of the buildings and their contents. The table provides information by occupancy class (e.g., residential, commercial, etc.), as well as by construction type (e.g., concrete, wood frame, etc.).

4.11.1 Population

To develop hazard-specific vulnerability assessments, population near natural hazard risks should be determined to understand the total "at risk" population. We can understand how geographically defined hazards may affect San Bernardino County by analyzing the extent of the hazard in relation to the location of population. For purposes of the vulnerability assessment approximately 292,152 (100 %) of the San Bernardino County's population is exposed to one or more hazards within or near the County of San Bernardino boundaries. Each natural hazard scenario affects the San Bernardino County residents differently depending on the location of the hazard and the population density of where the hazard could occur. Vulnerability assessment sections presented later in this section summarize the population exposure for each natural hazard.

4.11.1.1 Vulnerable Populations

The severity of a disaster depends on both the physical nature of the extreme event and the socioeconomic nature of the populations affected by the event. Important socioeconomic factors tend to influence disaster severity. A core concept in a vulnerability analysis is that different people, even within the same region, have a different vulnerability to natural hazards.

4.11.1.2 Income and Housing Condition

Income or wealth is one of the most important factors in natural hazard vulnerability. This economic factor affects vulnerability of low income populations in several ways. Lower income populations are less able to afford housing and other infrastructure that can withstand extreme events. Low income populations are less able to purchase resources needed for disaster response and are less likely to have insurance policies that can contribute to recovery efforts. Lower income elderly populations are less likely to have access to medical care due to financial hardship. Because of these and other factors, when disaster strikes, low income residences are far more likely to be injured or left without food and shelter during and after natural disasters.

Figure 4-25 shows the median household income distribution for the County of San Bernardino in 2012. The "median" is the value that divides the distribution of household income into two equal parts (e.g., the middle). The average median household income in the County of San Bernardino between 2010 and 2014 was $54,100, in the United States during the same period the median house household income was $51,759.

4.11.1.3 Age

Children and the elderly tend to be more vulnerable during an extreme natural disaster. They have less physical strength to survive disasters and are often more susceptible to certain diseases. The elderly often also have declining vision and hearing and often miss reports of upcoming natural hazard events. Children, especially young children, have the inability to provide for themselves. In many cases, both children and the elderly depend on others to care for them during day to day life.

Finally, both children and the elderly have fewer financial resources and are frequently dependent on others for survival. In order for these populations to remain resilient before and after a natural hazard event, it may be necessary to augment city residents with resources provided by the City, state and federal emergency management agencies and organizations. See Figure 4-26 and Figure 4-27 for location of vulnerable population by age within the County of San Bernardino.



Figure 4-25: Median Household Income Distribution Maps

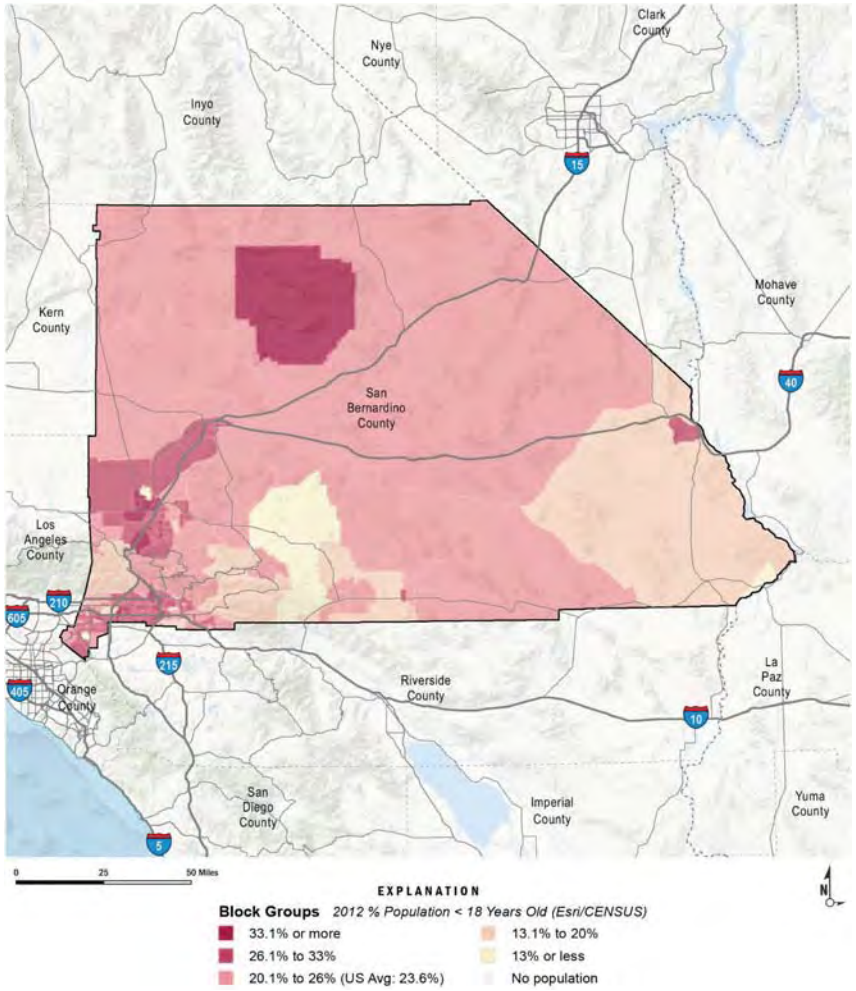


Figure 4-26: Population Under Age 18

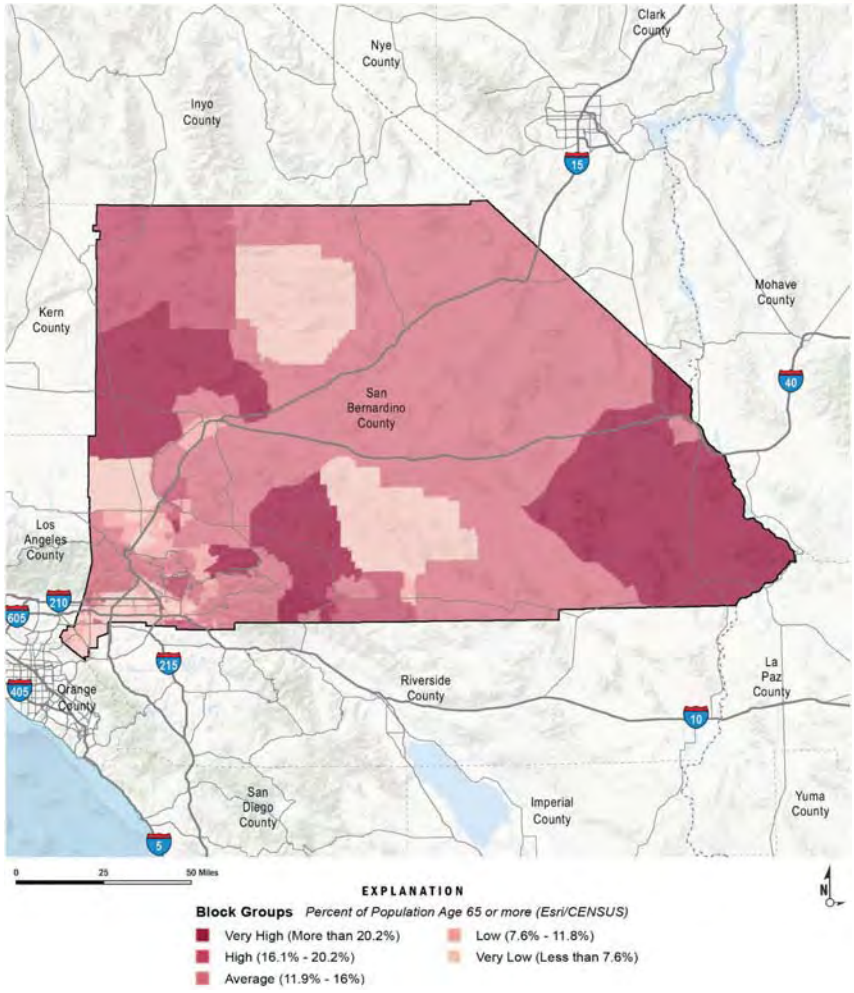


Figure 4-27: Population Over Age 65

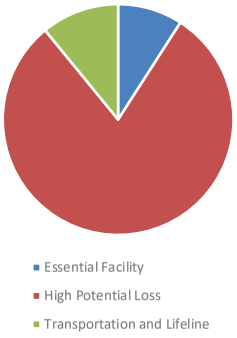
4.11.1.4 Critical Facility List

As stated in the San Bernardino County Emergency Operations Plan (EOP), the San Bernardino County Sheriff's Department (Sheriff) is the lead County agency in identifying critical infrastructure in the County and its Special Districts. A Sheriff's Department Working Group was established to identify Critical Facilities throughout San Bernardino County. Due to Homeland Security and issues related to terrorism, this list is not included in the MJHMP, but is available through the Sheriff's Department.

The Sheriff's Department maintains a Critical Infrastructure Database listing the site name, location, critical level, threat level, site type, and contact information. This database was created for the 2010 MJHMP and has been updated regularly by the Intelligence Division. The Sheriff's Intelligence Division has created Emergency Response Folders (Folders) on each of the locations. The Folders contain site-specific information needed by emergency personnel to respond to any type of emergency. The Folders contain floor plans, photographs, entry/exit points, utility locations, ingress and egress locations, known hazardous materials on site, and emergency contact information for the responsible persons of the site. The Sheriff's Department maintains control and transport of this information to an Incident Command Post/Department Operations Center/Emergency Operations Center when needed.

Table 4-14: Critical Facility Points

Infrastructure Type	Feature Count
Essential Facility	**268**
EOC	2
Fire Station	99
Hospital	9
Police Station	28
School	130
High Potential Loss	**1,155**
Child Care Center	91
Child Residential Care - 24 hour	2
Foster Family Agency	2
Adult Residential Care	52
Home Care Organization	2
Elder Residential Care	35
Communication Facility	40
Dam	24
Waste Water Facility	2



Infrastructure Type	Feature Count
HAZMAT	51
EPA FRS Facility	731
FCC ASR	107
Electric Power Facility	6
Natural Gas Facility	7
Potable Water Facility	3
Transportation and Lifeline	**636**
Airport	34
Runway	36
Bus Facility	2
Highway Bridge	553
Railway Bridge	11
Grand Total	**2,059**

Table 4-15: Linear Utilities

Infrastructure Type	Total Linear Mileage
Transportation and Lifeline	**16,992**
Railway	**719**
Roads	**16,273**
Interstate Highway	587
State / County Highway	1,259
Primary Highway	308
Local Road, Major	2,928
Local Road	6,530
Other Minor Road	4,031
Vehicular Trail	543
Cul-de-Sac / Traffic Circle	11
Ramp	68
Service Road	8
Grand Total	**16,992**

4.11.1.5 Utility Agencies

The utilities and transportation infrastructure is another significant concern for the County and its Special Districts. Various laws, ordinances, regulations, standards, and guidelines have been established to ensure proper and thorough mitigation measures to decrease the effects of hazards.

The following are two of the major utility agencies:

Southern California Edison (SCE) has undertaken an all-hazards approach to planning for an emergency event. SCE has developed an Emergency Response and Recovery Plan to provide a safe and reliable electric service. SCE also has a long-standing relationship with the County and is an active member of several local, state, and federal organizations. According to SCE they have acted to mitigate the impacts of hazards on their electrical system.

Southwest Gas Corporation (SWG) has also coordinated with the County, maintains a natural gas high-pressure system within the County, and consists of approximately 100 miles of underground pipelines. The system also includes some above ground facilities. The total replacement cost for the entire system is approximately $40,000,000. Southwest Gas conducts annual training for the first responders within their service territories to teach the proper methods of responding to and working with natural gas leaks. Staff from SWG serves on local emergency management committees within their service territory.

4.12 Hazard Specific Vulnerabilities

This section summarizes the possible impacts and quantifies, where data permits, the County's vulnerability to each of the priority hazards identified in the hazard profiles earlier in this section.

An estimate of the vulnerability of the County to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, geographic extent, and damage and casualty potential. It is categorized into the following classifications:

Low: Minimal potential impact the occurrence and potential cost of damage to life and property is minimal.

Medium: Moderate potential impact this ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.

High: Widespread potential impact this ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.

Extremely High: Very widespread with catastrophic impact.

Vulnerability can be quantified in those instances where there is a known, identified hazard area, such as a mapped floodplain. In these instances, the numbers and types of buildings subject to the identified hazard can be inventoried and their values tabulated. Other information can be collected in regard to the hazard area, such as the location of critical community facilities, historic structures, and valued natural resources. Together, this information conveys the vulnerability of that area to a hazard.

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4.13 Earthquake



Major Impacts from earthquakes are primarily the probable number of casualties and damage to infrastructure occurring from ground movement along a particular fault (USGS, 2016). The degree of infrastructure damage depends on the magnitude, focal depth, distance from fault, duration of shaking, type of surface deposits, presence of high groundwater, topography, and the design, type, and quality of infrastructure construction.

To analyze the risk to San Bernardino County residents, the Great Shakeout scenario was chosen modeled by the California Integrated Seismic Network (CISN). The 2016 Great Southern California ShakeOut was based on a potential magnitude 7.8 Earthquake on the southern San Andreas Fault approximately 5,000 times larger than the magnitude 5.4 earthquake that shook southern California on July 29, 2008. Such an earthquake will cause unprecedented damage to Southern California greatly dwarfing the massive damage that occurred in Northridge's 6.7-magnitude earthquake in 1994. The hazard foot print for this scenario was used to develop exposure results for population, critical facilities, and single family residential parcel values. FEMA Hazus analyses was used to conducted loss estimation for both scenarios and include building and content loss estimation results based on peak ground acceleration, peak ground velocity, and peak spectral acceleration modeled for the 7.8 earthquake on the San Andreas Fault.

4.13.1 Population at Risk

According to the 2010 US Census, the population of jurisdiction is 297,425. Though rural residential construction is not particularly vulnerable to earthquakes, the chosen earthquake scenarios will directly or indirectly expose the entire population of San Bernardino County to ground shaking. Depending on the time of day (the population differs based on employment opportunities) and exact location of the modeled epicenter, the earthquake scenarios could be experienced differently. Figure 4-28 exhibit the population totals in each modeled earthquake severity zone. Population location is based upon information taken during the 2010 U.S. Census.

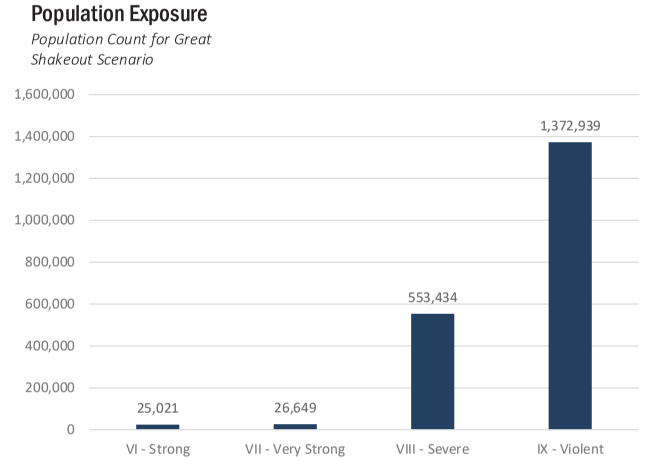


Figure 4-28: Population Exposure to the Great Shakeout EQ Shake Severity Zone

4.13.2 Improved Parcel Value at Risk

The County's parcel layer was used as the basis for the inventory of improved residential parcels. GIS was used to create centroids, or points, to represent the center of each parcel polygon this is assumed to be the location of the structure for analysis purposes. The centroids were then overlaid with the shake severity zones to determine the at-risk structures. Only improved parcels greater than $20,000 were analyzed. The analysis indicates residential parcels the chosen scenario will experience similar, but different shaking patterns. The type and year of construction will greatly influence damage for structures subject to similar shaking. Table 4-16 shows the count of at-risk structures and their associated improvement and land exposure values.

Table 4-16: Improved Parcel Value Exposure from Southern California Great ShakeOut

Shake Severity Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
IV - Light	1,099	$ 181,952	$ 64,548	$ 246,499
V - Moderate	4,382	$ 485,082	$ 215,875	$ 700,956

Shake Severity Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
VI - Strong	1,340	$ 142,763	$ 63,941	$ 206,704
VII - Very Strong	7,669	$ 824,794	$ 206,725	$ 1,031,519
VIII - Severe	46,889	$ 8,741,904	$ 3,039,484	$ 11,781,388
IX - Violent	46,974	$ 9,068,446	$ 3,591,379	$ 12,659,825
Grand Total	**108,353**	**$ 19,444,940**	**$ 7,181,951**	**$ 26,626,891**

4.13.3 Critical Facilities with Damage Potential

Earthquakes pose numerous risks to critical facilities and infrastructure. Seismic risks, or losses, that are likely to result from exposure to seismic hazards include:

- Casualties (fatalities and injuries).
- Utility outages.
- Economic losses for repair and replacement of critical facilities, roads, buildings, etc.
- Indirect economic losses such as income lost during downtime resulting from damage to private property or public infrastructure.

Roads or railroads that are blocked or damaged can prevent access throughout the area and can isolate residents and emergency service providers needing to reach vulnerable populations or to make repairs.

Linear utilities and transportation routes are vulnerable to rupture and damage during and after a significant earthquake event. The cascading impact of a single failure can have affects across multiple systems and utility sectors. Degrading infrastructure systems and future large earthquakes with epicenters near critical regional infrastructure could result in system outages that last weeks for the most reliable systems, and multiple months for others.
Table 4-17provides an inventory of critical facility locations (points only) with earthquake exposure to the Great Shakeout Scenario. The building codes have been amended to include provisions for seismic safety at various bench marks years. Depending on “year built”, each critical facility presented in the tables may have varying damage potential.

Table 4-17: Critical Facilities with Earthquake Risk Southern California Great ShakeOut

Infrastructure Type	Violent Shake Zone (IX)	Severe Shake Zone (VIII)	Very Strong (VII)	Strong Shake Zone (VI)	Feature Count
Essential Facility	3	12	80	122	217
EOC	-	-	2	-	2
Fire Station	3	7	31	34	75
Hospital	-	-	9	-	9
Police Station	-	-	3	24	27
School	-	5	35	64	104

Infrastructure Type	Violent Shake Zone (IX)	Severe Shake Zone (VIII)	Very Strong (VII)	Strong Shake Zone (VI)	Feature Count
High Potential Loss	31	56	213	484	784
Child Care Center	1	3	25	56	85
Child Residential Care – 24 hour	-	-	-	2	2
Foster Family Agency	-	-	-	2	2
Adult Residential Care	2	5	10	34	51
Home Care Organization	-	-	1	1	2
Elder Residential Care	-	1	9	25	35
Communication Facility	1	9	9	8	27
Dam	1	-	11	4	16
Electric Power Facility	1	-	-	-	1
Natural Gas Facility	2	-	-	-	2
Waste Water Facility	-	2	-	-	2
HAZMAT	-	-	6	16	22
EPA FRS Facility	21	27	115	307	470
FCC ASR	2	9	27	29	67
Transportation and Lifeline	16	20	41	131	208
Airport	5	5	8	-	18
Runway	5	6	7	1	19
Bus Facility	-	-	1	-	1
Highway Bridge	6	8	24	124	162
Railway Bridge	-	1	1	6	8
Grand Total	**50**	**88**	**334**	**737**	**1,209**

HazMat Fixed Facilities

Although earthquakes are low probability events, they produce hazardous materials (HazMat) threats at very high levels when they do occur. Depending on the year built and construction of each facility containing HazMat, earthquake initiated hazardous material releases (EIHR) potential will vary. HazMat contained within masonry or concrete structures built before certain benchmark years reflecting code improvements may be of particular vulnerability.

Transportation

Earthquake events can significantly impact bridges which often provide the only access to some neighborhoods. Since soft soil regions generally follow floodplain boundaries, bridges that cross water courses are considered vulnerable. Since most of the San Bernardino County bridges provide access across water courses, most are at least somewhat vulnerable to earthquakes. Key factors in the degree of vulnerability are the bridge’s age and type of construction which indicate the standards to which the bridge was built. Special attention will be paid to the multiple bridges that cross interstates. Interstates would serve as major emergency response and evacuation routes.

Utilities

Linear utilities and transportation infrastructure would likely suffer considerable damage in the event of an earthquake. Due to the amount of infrastructure and sensitivity of utility data, linear utilities are difficult to analyze without further investigation of individual system components. Table 4-18 provides the best available linear data and it should be assumed that these systems are exposed to breakage and failure.

Table 4-18: Lifeline with Earthquake Risk Southern California Great ShakeOut

Facility Type	Strong	Very Strong	Severe	Violent	Total Mileage
Transportation and Lifeline	1,324	1,951	2,796	2,624	8,697
Railway	47	22	22	99	191
Roads	1,277	1,929	2,774	2,525	8,506
Interstate Highway	22	7	-	48	77
State / County Highway	57	90	263	233	644
Primary Highway	34	15	19	27	95
Local Road, Major	102	207	625	792	1,726
Local Road	540	1,153	1,728	1,128	4,550
Other Minor Road	494	423	109	96	1,122
Vehicular Trail	25	32	26	178	261
Cul-de-Sac / Traffic Circle	-	1	2	2	5
Ramp	2	1	2	20	25
Service Road	-	-	-	1	1
Grand Total	**1,324**	**1,951**	**2,796**	**2,624**	**8,695**

4.13.4 Loss Estimation Results

The Hazus Level 2 analysis was used to assess the risk from and vulnerability to earthquake shaking within San Bernardino County. Hazus buildings data is aggregated to the census tract level for earthquake models, known as the general building stock (GBS), which has a level of accuracy acceptable for planning purposes. Where possible the GBS was enhanced using GIS data from the county as described previously. The following sections describe risk to and vulnerability of the GBS within the San Bernardino County Hazus calculates losses to structures from earthquake shaking by considering the amount of ground displacement and type of structure. The software estimates the percentage of damage to structures and their contents by applying established building fragility curves. Damage estimates are then translated to estimated dollar losses.

For each Great ShakeOut Scenario ground shaking data (shakemaps) were acquired from CISN and imported into Hazus. The shakemap data consist of peak ground velocity, peak

ground acceleration, peak spectral acceleration at 0.3 seconds, and peak spectral acceleration at 1.0 seconds. The earthquake module operates on census tracts that often include population and structures in the incorporated cities and the unincorporated area within a single tract. Due to this fact the results include census tracts that have a substantial portion of land within the incorporated area (loss estimates for some tracts will include structures in incorporated cities).

The results are summarized in Table 4-17 for the Great ShakeOut Scenario. It is important to understand that the Hazus earthquake module uses the census tract as its enumeration unit rather than the more detailed census block. The loss estimation values for earthquakes are much higher than those of the flooding and dam failure due to this fact. The portions of incorporated areas included within boundary census tracts elevate the values due to the inclusion of additional GBS. Though the difference between census tracts and census blocks are extremely disparate, the most important summary information is the percent of loss estimation against the total value.

Residential building and content loss estimation from the Great ShakeOut Scenario is *$9.3* billion dollars and 57 percent of the total value of the residential buildings. In Great ShakeOut Scenario, residential damage will be the greatest. While there are several limitations to the FEMA Hazus model, it does allow for potential loss estimation. It is important to remember that the replacement costs are well below actual market values, thus, the actual value of assets at risk may be significantly higher than those included herein.

Table 4-19: Estimated Building and Content Loss Great ShakeOut Scenario Earthquake

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (% of Total Value)	Content Replacement Cost ($000)	Content Replacement Cost (% of Total Value)	Total Estimated Loss ($000)	Total Loss Estimation (% of Total Value)
Agricultural	$ 51,431	9.7%	$ 17,215.68	3.2%	$ 68,646.80	13.0%
Commercial	$ 3,286,331	14.4%	$ 1,110,422.84	4.9%	$ 4,396,754.29	19.3%
Educational	$ 175,987	10.4%	$ 56,822.89	3.4%	$ 232,810.20	13.7%
Government	$ 53,348	9.2%	$ 20,298.84	3.5	$ 73,647.28	12.6%
Industrial	$ 1,179,339	13.1%	$ 590,913.81	6.6%	$ 1,770,253.41	19.6%
Religious	$ 243,891	12.7%	$ 80,862.72	4.2%	$ 324,754.33	16.9%
Residential	$ 7,841,645	6.2%	$ 1,525,181.65	1.2%	$ 9,366,826.84	7.4%
Grand Total	**$ 12,831,972**	**7.9%**	**$ 3,401,718.42**	**2.1%**	**$ 16,233,693.14**	**10.0%**

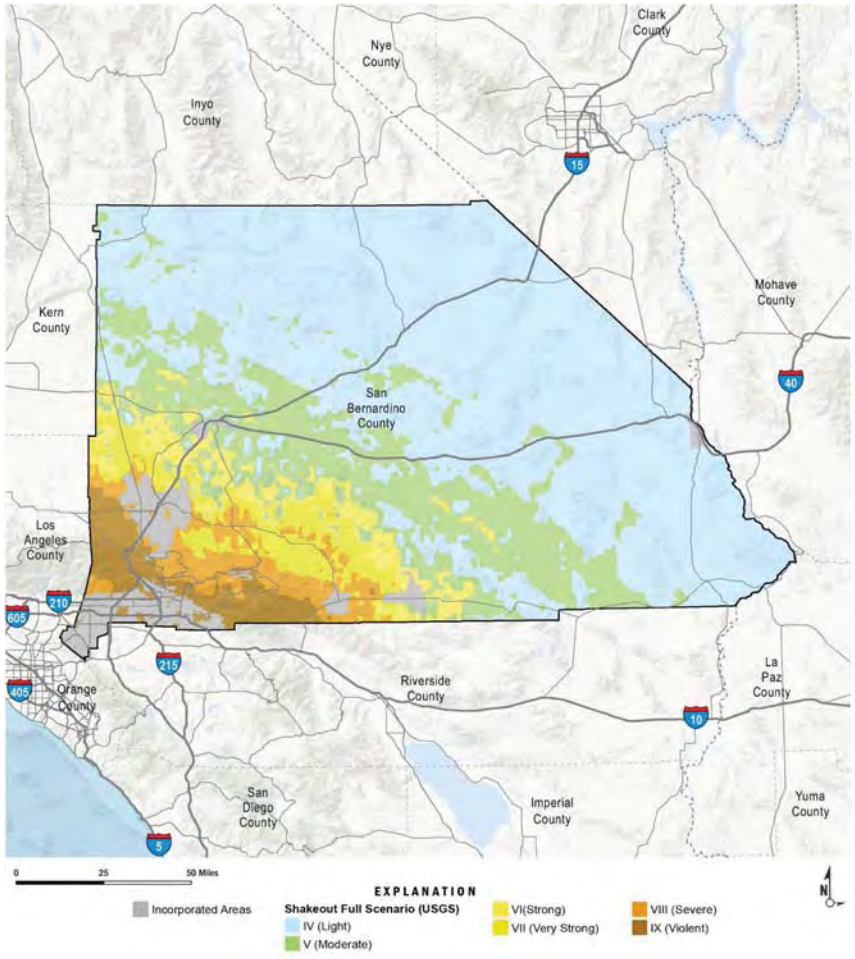


Figure 4-29: Great Shakeout Scenario MMI Classes

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4.14 Wildfire

Risk to the County of San Bernardino from wildfire is of significant concern. High fuel loads in the hills, along with geographical and topographical features, create the potential for both natural and human-caused fires that can result in loss of life and property. These factors, combined with natural weather conditions common to the area, including periods of drought, high temperatures, low relative humidity, and periodic winds, can result in frequent and sometimes catastrophic fires. During the May to October fire season the dry vegetation and hot and sometimes windy weather, combined with continued growth in the WUI areas, results in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become large and out-of-control.

Potential losses from wildfire include human life, structures and other improvements, natural and cultural resources, quality and quantity of water supplies, cropland, timber, and recreational opportunities. Short and long-term economic losses could also result due to loss of business and other economic drivers associated with San Bernardino County summer season activities. Smoke and air pollution from wildfires can be a severe health hazard. In addition, catastrophic wildfire can create favorable conditions for other hazards such as flooding, landslides, and erosion during the rainy season.

Generally, there are three major factors that sustain wildfires and predict a given area's potential vulnerability to burn. These factors are fuel, topography, and weather.

- Fuel – Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel is generally classified by type and volume. Fuel sources are diverse and include everything from dead tree leaves, twigs, and branches, to dead standing trees, live trees, brush, and cured grasses. Manmade structures are also considered a fuel source, such as homes and other associated combustibles. The type of prevalent fuel directly influences the behavior of wildfire. Fuel is the only factor that is under human control. Development in the mountain region currently possesses the highest vulnerability to wildfire.

- The residents of this region are also considered to be the most vulnerable due to their age and income levels. This area is comprised of lower income (that is, lower than the US median income) homes as well as a higher than average amount of residents under age 18 and an average amount of residents 65 or older.
- Topography – An area's terrain and slope affect its susceptibility to wildfire spread. Both fire intensity and rate of spread increase as slope increases due to the tendency of heat from a fire to rise via convection. The arrangement of vegetation throughout a hillside can also contribute to increased fire activity on slopes.

- Weather – Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out fuels that feed wildfires, creating a situation where fuel will ignite more readily and burn more intensely. Thus, during periods of drought the threat of wildfire increases. Wind is the most treacherous weather factor. The greater the wind, the faster a fire can spread and the more intense it can be. Wind shifts, in addition to wind speed, can occur suddenly due to temperature changes or the interaction of wind with topographical features such as slopes or steep hillsides. As part of a weather system, lightning also ignites wildfires, often in difficult to reach terrain for firefighters.

Factors contributing to the high, widespread wildfire risk in San Bernardino County include:

- Narrow and often one-lane and/or dead-end roads complicating evacuation and emergency response.
- Nature and frequency of ignitions; and increasing population density leading to more ignitions.
- Slope of the foothills;
- Residential development along the foothills;

4.14.1 Population at Risk

Wildfire risk is of greatest concern to populations residing in the moderate, high, and very high wildfire hazard zones. The San Bernardino County census block data was used to estimate populations within the hazard zones. There are a significant number of people living within the WUI described in the wildfire profiles. More than 34,000 residents in the unincorporated county live within areas considered very high fire hazard and more than 63,000 residents live within a very high hazard

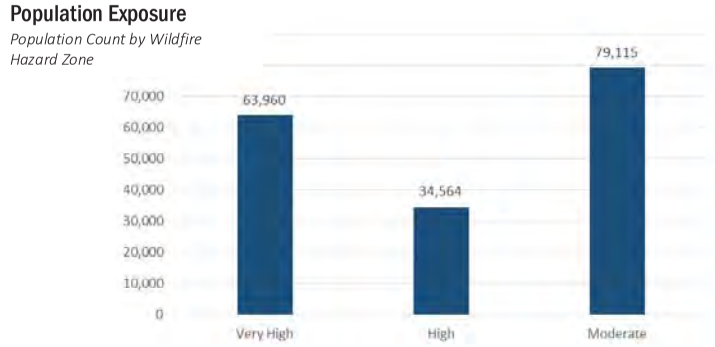


Figure 4-30: Population at Risk from Wildfire Hazards

4.14.2 Improved Parcel Value at Risk

The County's parcel layer was used as the basis for the inventory of improved residential parcels. In some cases, a parcel will be within in multiple fire threat zones. GIS was used to create centroids, or points, to represent the center of each parcel polygon – this is assumed to be the location of the structure for analysis purposes. The centroids were then overlaid with the fire threat layer to determine the risk for each structure. The fire threat zone in which the centroid was located was assigned to the entire parcel. This methodology assumed that every parcel with a square footage value greater than zero was developed in some way. Only improved parcels were analyzed. Table 4-20 exhibits portions of San Bernardino County that have significant assets at risk to wildfire in the Moderate, High and Very High fire severity zones.

Table 4-20: Residential Buildings and Content at Risk from Wildfire

Fire Hazard Severity Hazard Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
Very High	43,794	$ 8,602,590	$ 3,075,148	$ 11,677,739
High	11,512	$ 1,822,731	$ 551,160	$ 2,373,892
Moderate	25,477	$ 3,221,982	$ 950,044	$ 4,172,026
Non-Wildland/Non-Urban	621	$ 573,866	$ 294,283	$ 868,148
Urban Un-zoned	26,974	$ 5,223,286	$ 2,310,932	$ 7,534,219
Grand Total	**108,378**	**$ 19,444,456**	**$ 7,181,567**	**$ 26,626,023**

Note:
1-The table above does not display loss estimation results; the table exhibits total value at risk based upon the hazard overlay and San Bernardino County Assessor data.
2- Parcel information is for all county parcels with greater than $20,000 in assessed parcel improvement value only. The San Bernardino County Assessor's roles only provide spatial information on assessed improvement and land values.

4.14.3 Critical Facilities at Risk

Critical facilities data were overlain with fire hazard severity zone data to determine the type and number of facilities within each risk classification. Tables 4-21 and 4-22 list the critical facilities in the High and Very High wildfire hazard zones for San Bernardino County.

Table 4-21: Critical Facilities at Risk from Wildfire

Infrastructure Type	High	Very High	Feature Count
Essential Facility	11	105	116
EOC	2	0	2
Fire Station	4	45	49
Hospital	0	5	5
Police Station	0	24	24
School	5	31	36
High Potential Loss	72	177	249
Child Care Center	3	29	32
Child Residential Care - 24 hour	1	0	1
Foster Family Agency	0	0	0
Adult Residential Care	11	4	15
Home Care Organization	0	0	0
Elder Residential Care	8	5	13
Communication Facility	2	13	15
Dam	0	14	14
Electric Power Facility	0	0	0
Natural Gas Facility	0	0	0
Potable Water Facility	0	0	0
Waste Water Facility	0	0	0
HAZMAT	0	2	2
EPA FRS Facility	37	83	120
FCC ASR	10	27	37
Transportation and Lifeline	10	103	113
Airport	1	0	1
Runway	1	0	1
Bus Facility	1	0	1
Highway Bridge	7	101	108
Railway Bridge	0	2	2
Grand Total	**93**	**385**	**478**

Table 4-22: Lifelines with Wildfire Risk

Facility Type	High	Very High	Total Mileage
Transportation and Lifeline	819	1,906	2,725
Railway	19	47	66
Roads	800	1,859	2,659
Interstate Highway	4	37	41
State / County Highway	33	226	259
Primary Highway	17	13	30
Local Road, Major	311	521	832
Local Road	389	806	1,195
Other Minor Road	34	56	91
Vehicular Trail	10	184	195
Cul-de-Sac / Traffic Circle	1	2	3
Ramp	2	12	13
Service Road	0	1	1
Grand Total	**819**	**1,906**	**2,725**

4.14.4 Loss Estimation Results

Wildland fire cost impacts of damage done to land and structures and also to critical infrastructure

It is impossible to estimate the possible cost in dollars to replace and pay for actual firefighting as the damage costs that incur from wildland fires varies so greatly. One of the varied costs is the replacement and repair of structures and remediate of the damaged properties. Then the rebuilding costs and replacing of the structures with laws requiring new buildings to meet new criteria as a result of state laws that may require more stringent building and construction practices far greater than the original building of the said structure. Also the estimate of damages to critical infrastructures such as power lines and delivery systems as it is difficult the collateral loses to businesses and individuals losing power for and unknown time. Also damages to railroads and bridges also to road way, freeways as it is impossible to gauge the actual lose amounts from commerce being impeded.

Many of the County's landfills, transfer stations, and closed disposal sites are situated in areas subject to wildfires. In 2003, the Old Fire burned through three separate sites and caused major damage at the Heaps Peak Transfer Station when the fire burned through the office building and Transfer Station site.

None of this takes into account the costs of labor and retardants, vehicle damages and fuel and wear and tear as well as equipment expended and used and or damaged. Along with replace any safety gear or injuries to any persons working to mitigate the wildland fire

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4.15 Flooding

The County has experienced severe and widespread flooding throughout its history. Several major drainage basins have the potential to subject residents and structures to a high risk of flooding. In addition, the cumulative increase in impervious surfaces has increased problems related to surface run- off. While complete avoidance or protection through control facilities is not practical, considerable improvement can be made through structural and non-structural methods.



The County currently utilizes land use zoning districts to prohibit habitable structures in floodways as defined by the federal requirements necessary to participate in the National Flood Insurance Program. The consistent adoption of overlays is needed to require special review, conditions, and the prohibition of some uses in floodplain areas (areas subject to 100-year floods), including dry lakes. In addition, there are land use policies and development standards that can be implemented, including reduction of impervious surfaces; increase of percolation, infiltration, and recharge; and the control of urban run-off. There is a need for the County to identify all areas of flood and drainage hazards, especially in the Desert Region where mapping is sparse, as well as areas with a heavy concentration of debris or the potential for dam inundation. Flood hazards are more comprehensively discussed in the Safety Background Report.

The vulnerable areas are addressed in the County's General Plan. See Sections 5 and 6 for additional information. San Bernardino County has seven (7) properties listed in the Repetitive Loss and Severe Repetitive Loss properties. All of the properties are single-family residences. The properties are located in:

- Barstow – 2 properties (1999 and 2005)
- Crestline (1980 and 1982)
- Forest Falls (1995 and 1999)
- Lake Arrowhead (1998 and 2005)
- Lytle Creek (1998 and 2005)
- Sugarloaf (1993 and 1995)

These properties were damaged during unusual storms and/or immediately after a wildfire in the area and are isolated properties in widely scattered areas of the County. The properties were not damaged during the 2009 or 2010 winter storm events. Property addresses are not listed to comply with privacy laws.

The areas are now covered by the County General Plan and County Ordinance. These are in compliance with the National Flood Insurance Program.

4.15.1 Population at Risk

Of greatest concern in the event of a flood is the potential for loss of life. Using 2012 population data aggregated by census blocks, an estimate was made of the population exposed to the 100 and 500-year floodplain. To account for census blocks that were partially within the floodplain, a weighted average was employed to calculate the proportion of the population within the floodplain. The results of the population overlay are shown in Figure 4-31. More than 9,500 residents live near or within the 100-year floodplain and approximately 13,346 county residents live within the 500-year floodplain. Approximately 18,816 county residents live within areas protected by levees.

Population Exposure

Population Count within Unincorporated San Bernardino County by Flood Hazard Zone

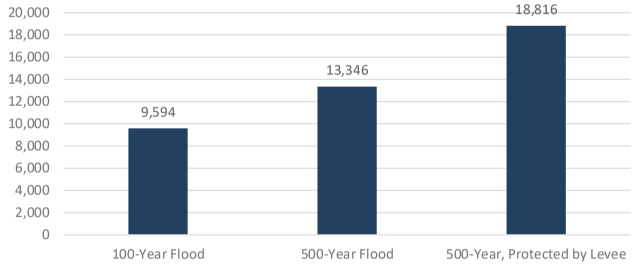


Figure 4-31: Population Exposed to NFIP Flood Zones

4.15.2 Residential Parcel Value with Flood Risk

The County's parcel layer was used as the basis for the inventory of improved residential parcels within the FEMA NFIP flood zones. In some cases, a parcel will be within in multiple flood zones. GIS was used to create centroids, or points, to represent the center of each parcel polygon – this is assumed to be the location of the structure for analysis purposes. The centroids were then overlaid with the floodplain layer to determine the flood risk for each structure. The flood zone in which the centroid was located was assigned to the entire parcel. This methodology assumed that every parcel with a square footage value greater than zero was developed in some way. Only improved parcels greater than $20,000 were analyzed.

Table 4-23 shows the count of at-risk parcels and their improvement and land exposure values.

Table 4-23: Parcels Exposed to NFIP Flood Zones

Flood Hazard Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
100-Year Flood	3,426	$ 518,483	$ 368,058	$ 886,541
500-Year Flood	3,397	$ 833,287	$ 338,728	$ 1,172,014
500-Year, Protected by Levee	4,608	$ 1,327,942	$ 527,317	$ 1,855,259
Grand Total	11,431	$ 2,679,711	$ 1,234,103	$ 3,913,814

While there are several limitations to this methodology, it does allow for potential loss estimation. It should be noted that the analysis may include structures in the floodplain that are elevated at or above the level of the base flood elevation, which will most likely decrease potential flood damage to these structures. Also, it is important to remember that the County Assessor's values are well below actual market values; thus, the actual value of assets at risk may be significantly higher than those included herein.

4.15.3 Critical Facilities Exposure

Critical facilities data were overlain with flood hazard data to determine the type and number of facilities within the 100- and 500-year floodplain. Flooding poses numerous risks to critical facilities and infrastructure:

- Roads or railroads that are blocked or damaged can prevent access throughout the area and can isolate residents and emergency service providers needing to reach vulnerable populations or to make repairs.
- Bridges washed out or blocked by floods or debris from floods also can cause isolation.
- Creek or river floodwaters can back up drainage systems causing localized flooding.
- Floodwaters can get into drinking water supplies causing contamination.
- Sewer systems can be backed up causing waste to spill into homes, neighborhoods, rivers, and streams.
- Underground utilities can also be damaged.

Tables 4-24 and 4-25 provide an inventory of critical facilities in the floodplain for San Bernardino County and it provides the location of lifelines relative to the floodplain in the areas of the San Bernardino County. With a total of 810 essential facilities, high potential losses, and transportation and lifeline structures located in either the 100 or 500-year flood zone, the impact to the community could be devastating if these critical facilities were damaged or destroyed during a flood event.

Table 4-24: Critical Facility Exposed to NFIP Flood Zones

Infrastructure Type	100 Year Flood Zone	500 Year Flood Zone	500 Year Flood Zone, Protected by Levee	Feature Count
Essential Facility	21	114	5	140
EOC	0	1	0	1
Fire Station	4	27	2	33
Hospital	0	4	0	4
Police Station	2	23	0	25
School	15	59	3	77
High Potential Loss	52	458	52	562
Child Care Center	13	57	3	73
Child Residential Care - 24 hour	0	2	0	2
Foster Family Agency	0	2	0	2
Adult Residential Care	0	37	3	40
Home Care Organization	0	2	0	2
Elder Residential Care	0	24	8	32
Communication Facility	0	7	0	7
Dam	2	3	0	5
Waste Water Facility	1	0	0	1
HAZMAT	0	16	1	17
EPA FRS Facility	33	286	35	354
FCC ASR	3	22	2	27
Transportation and Lifeline	26	77	5	108
Airport	2	5	0	7
Runway	2	5	0	7
Bus Facility	1	1	0	2
Highway Bridge	20	65	5	90
Railway Bridge	1	1	0	2
Grand Total	**99**	**649**	**62**	**810**

Table 4-25: Lifelines Exposure to NFIP Flood Zones

Facility Type	100 Year	500 Year Flood Zone	500 Year Flood Zone, Protected by Levee	Total Mileage
Transportation and Lifeline	204	1,952	69	2,225
Railway	9	44	6	59
Roads	195	1,908	63	2,166
Interstate Highway	1	34	1	36
State / County Highway	20	189	9	218
Primary Highway	7	20	-	28

Facility Type	100 Year	500 Year Flood Zone	500 Year Flood Zone, Protected by Levee	Total Mileage
Local Road, Major	32	377	38	447
Local Road	115	1,168	13	1,295
Other Minor Road	18	86	2	107
Vehicular Trail	2	15	-	17
Cul-de-Sac / Traffic Circle	0	1	-	1
Ramp	0	18	0	19
Grand Total	**204**	**1,952**	**69**	**2,225**

4.15.4 Loss Estimation Results

The Hazus analysis was used to assess the risk from and vulnerability to flooding within San Bernardino County. Hazus buildings data is aggregated to the census block level, known as the general building stock (GBS), which has a level of accuracy acceptable for hazard mitigation planning purposes. The following sections describe risk to and vulnerability of the GBS within the San Bernardino County mapped regulatory floodplain. The total value of exposed buildings and content within the San Bernardino planning area was generated using Hazus and is previously summarized.

Hazus calculates losses to structures from flooding by considering the depth of flooding and type of structure. Using historical flood insurance claim data, the software estimates the percentage of damage to structures and their contents by applying established depth-damage curves. Damage estimates are then translated to estimated dollar losses. The results are summarized in Tables 4-26 and 4-27 and Figure 4-32. While there are several limitations to the FEMA Hazus model, it does allow for potential loss estimation. It should be noted that the analysis may include structures in the floodplain that are elevated at or above the level of the base flood elevation, which will likely mitigate flood damage. Also, it is important to remember that the replacement costs are well below actual market values, thus, the actual value of assets at risk may be significantly higher than those included herein.

Table 4-26: Flood Loss Estimation (Based on Depth) in NFIP Flood Zones

Flood Hazard Zone	Building Loss ($000)	Building Loss (% of Total Value)	Content Loss ($000)	Content Loss (% of Total Value)	Total Estimated Loss ($000)	Total Estimated (% of Total Value)
100-Year	$ 34,749.00	0.1%	$ 24,858.00	0.1%	$ 59,849.00	0.2%
500-Year	$ 218,454.00	0.8%	$ 173,304.00	0.6%	$ 396,336.00	1.4%

Table 4-27: 100 Year Flood Los Estimation (Based on Depth) in NFIP Flood Zones by Occupancy Type

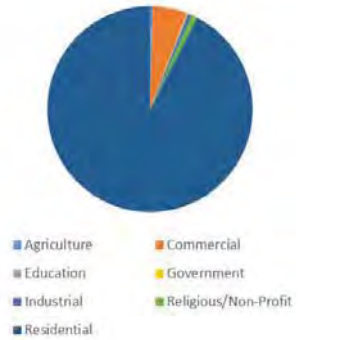
Building Type	Building Replacement Costs ($000)	Building Replacement Cost (% of Total Value)	Content Replacement Cost ($000)	Content Replacement Cost (% of Total Value)	Total Estimated Loss ($000)	Total Loss Estimation (% of Total Value)
Agriculture	$ 147.00	0.10%	$ 246.00	0.17%	$ 427.00	0.30%
Commercial	$ 1,874.00	0.08%	$ 4,458.00	0.18%	$ 6,463.00	0.26%
Education	$ 46.00	0.02%	$ 271.00	0.11%	$ 319.00	0.13%
Government	$ 56.00	0.07%	$ 304.00	0.39%	$ 370.00	0.48%
Industrial	$ 201.00	0.02%	$ 389.00	0.04%	$ 624.00	0.06%
Religious/Non-Profit	$ 326.00	0.09%	$ 1,946.00	0.55%	$ 2,279.00	0.65%
Residential	$ 32,099.00	0.14%	$ 17,244.00	0.07%	$ 49,367.00	0.21%
Grand Total	**$ 34,749**	**0.13%**	**$ 24,858**	**0.09%**	**$ 59,849**	**0.22%**

100 YR Flood Hazard

Estimated Content Loss by Occupancy Type

100 YR Flood Hazard

Estimated Building Loss by Occupancy Type



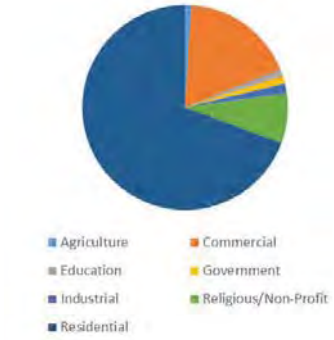
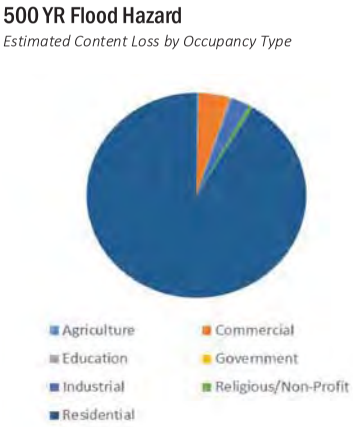


Figure 4-32: Total Building and Content Loss by Occupancy Type for 100 Year Flood

Table 4-28: 500 Year Flood Loss Estimation (Based on Depth) In NFIP Flood Zones by Occupancy Type

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (% of Total Value)	Content Replacement Cost ($000)	Content Replacement Cost (% of Total Value)	Total Estimated Loss ($000)	Total Loss Estimation (% of Total Value)
Agriculture	$ 674.00	0.48%	$ 981.00	0.69%	$ 1,781.00	1.26%
Commercial	$ 10,080.00	0.41%	$ 27,640.00	1.13%	$ 39,179.00	1.61%
Education	$ 720.00	0.29%	$ 3,563.00	1.44%	$ 4,355.00	1.76%
Government	$ -	0.00%	$ 2.00	0.00%	$ 9.00	0.01%
Industrial	$ 6,036.00	0.57%	$ 13,975.00	1.31%	$ 22,438.00	2.11%
Religious/Non-Profit	$ 1,210.00	0.34%	$ 6,070.00	1.72%	$ 7,332.00	2.08%
Residential	$ 199,734.00	0.86%	$ 121,073.00	0.52%	$321,242.00	1.38%
Grand Total	**$ 218,454**	**0.79%**	**$ 173,304**	**0.63%**	**$ 396,336**	**1.44%**



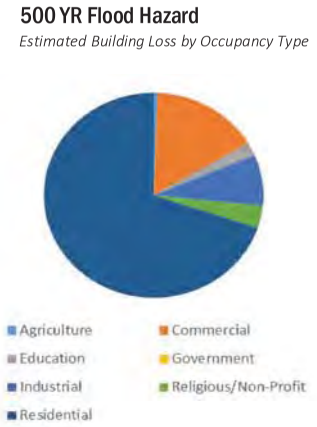


Figure 4-33: Total Building and Content Loss by Occupancy Type for 500 Year Flood

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4.16 Drought



Drought should not be viewed as merely a physical phenomenon or natural event. Its impacts on society result from the interplay between a natural event (less precipitation than expected resulting from natural climatic variability) and the demand people place on water supply.

Due to the lack of defined geographical boundaries, the vulnerability assessment for drought differs from other natural hazards. The impacts of drought can be categorized as economic, environmental, or social. Many economic impacts occur in agriculture and related sectors, including forestry and fisheries, because of the reliance of these sectors on surface and subsurface water supplies. In addition to obvious losses in yields in crop and livestock production, drought is associated with increases in insect infestations, plant disease, and wind erosion. Droughts also bring increased problems with insects and diseases to forests and reduce growth. The incidence of forest and range fires increases substantially during extended droughts, which in turn places human and wildlife populations, buildings, infrastructure and critical facilities, at higher levels of risk.

Income loss is another indicator used in assessing the impacts of drought because so many sectors are affected. Reduced income for farmers has a ripple effect. Retailers and others who provide goods and services to farmers face reduced business. This leads to unemployment, increased credit risk for financial institutions, capital shortfalls and loss of tax revenue for local, state and federal government. Less discretionary income affects the recreation and tourism industries. Prices for food, energy and other products increase as supplies are reduced. In some cases, local shortages of certain goods result in the need to import these goods from outside the stricken region.

4.16.1 Loss Estimation Results

No standardized methodology exists for estimating losses due to drought. Drought does not generally have a direct impact on critical and non-critical facilities and building stock. Instead, drought vulnerability is primarily measured by its potential impact to sectors of the County's economy and natural resources. In San Bernardino County some of the potential impacts to the economy include the following:

- Reduced agricultural and livestock production;
- Loss of timber from increased wildfires;
- Decreased municipal and industrial water supply;
- Loss of recreation/tourism; and
- Decreased wildlife and wildlife habitat.

4.16.2 Statewide Mandatory Water Reductions

Recognizing persistent, yet less severe, drought conditions throughout California, on May 18, 2016 the State Water Resources Control Board adopted an emergency water conservation

regulation requiring locally developed conservation standards based upon each water supplier's specific circumstances. It replaces the prior percentage reduction-based water conservation standard. In San Bernardino County, each water wholesaler (Mojave Water Agency) was required to calculate the supply of water for the next three years, considering drought conditions persist. Each water supply retailer subsequently self-certified the expected demand on water resources, determining whether or not there is sufficient supply to meet demand. Our Department certified that there is sufficient water supply to meet the demand over the next three years; however due to ongoing drought conditions in the region, water conservation efforts should continue. The County has developed a watering schedule, watering hour restrictions and additional end user watering restrictions which can be viewed here: http://www.specialdistricts.org/index.aspx?page=548

4.17 Terrorism



Translating most manmade hazard profiles into meaningful geospatial information is difficult at best. Instead, the planning team will use an asset-specific approach. Population, facilities, systems and assets will be prioritized and assessed in this vulnerability assessment.

Special consideration should be given to areas with high density and those containing vulnerable populations (young, old, and those whose primary language is not English).

Facilities at high risk may include gathering places, critical facilities/ transportation and lifelines and utilities.

4.17.1 Population at Risk

Since terrorism can happen anytime, anywhere, 100% of the population is vulnerable to terrorism. In particular, people with access and functional needs, the elderly and the very young are especially vulnerable because they often rely heavily on others in their daily lives. Persons with English as a second language are also vulnerable as they may not receive warnings or notifications related to an incident in their primary language.

4.17.2 Critical Facilities Exposure

Critical facilities may include essential facilities (such as hospitals, police and fire stations, evacuation centers, etc.), transportation systems, lifeline utility systems, high potential loss facilities (such as nuclear power plants, dams and military installations, etc.), and hazardous material facilities.

Gathering facilities should also receive special attention. Places of mass gathering not only present terrorists with potential opportunities for mass casualties, symbolism and high impact media coverage, they pose a broad range of security challenges for their owners and operators. The National Counter Terrorism Committee has noted that places of mass gathering have been specifically identified by religious and political extremists as attractive targets.

Places of mass gathering incorporate a diverse range of facilities including, but not limited to, sporting venues, shopping and business precincts, tourism/entertainment venues/attractions, hotels and convention centers, major events and public transport hubs. This also includes significant one off events.

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4.18 Climate Change



The vulnerability assessment for climate change is different from other natural hazards discussed in this HMP due to the lack of defined geographical boundaries. This section provides a summary of San Bernardino County's vulnerability to climate change.

The most serious threats to the public health of Californians will stem primarily from the higher frequency of extreme conditions, principally more frequent, more intense, and longer heat waves. A heat wave is defined as 5 or more consecutive extreme heat days. An increase in heat waves may increase the risk of directly related conditions such as heat stroke and dehydration.

In the desert areas of the County, the Extreme Heat Day Threshold temperatures are around 110°F and in the mountainous regions it is in the mid 80's. According to the Cal-Adapt Extreme Heat Tool, the number of extreme heat days (a day in April through October where the maximum temperature (Tmax) exceeds the 98th historical percentile of maximum temperatures based on daily temperature data between 1961 and 1990) will continue to increase rapidly from the present day to 2090.

Projections by Scripps Institution of Oceanography show little change in total annual precipitation in San Bernardino County. 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. The Mediterranean seasonal precipitation pattern is expected to continue, with most precipitation falling during winter from North Pacific storms. In the mountainous areas of the County, it is projected that the decadal average of snowpack will continue to decrease until 2090. As shown in Figure 4-34 the sharpest decreases in snowpack are projected to begin around 2030. The area projected to be burnt by wildfire toward the end of the century will not increase substantially in the County. The most change will be experienced in the mountainous regions.

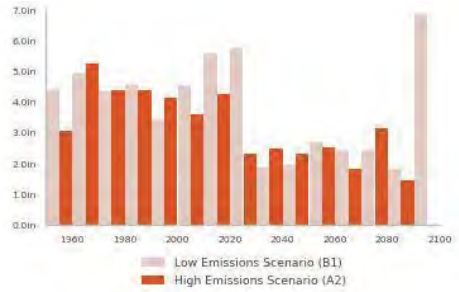


Figure 4-34: Decadal Snowpack Averages 1960-2090

Source: cal-adapt.org/snowpack/decadal

4.18.1 Population at Risk

Vulnerable populations should receive special attention when assessing the community's vulnerability to climate change. For example, care and sheltering during extreme heat conditions must be provided for vulnerable populations such as the elderly. Heat kills by taxing the human body beyond its abilities. In a normal year, about 175 Americans succumb to the demands of summer heat. According to the National Weather Service (NWS), among natural hazards, only the cold of winter—not lightning, hurricanes, tornados, floods, or earthquakes—takes a greater toll. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the heat wave of 1980, more than 1,250 people died.

Section 5. Community Capability Assessment

5.1 Existing Plans, Policies and Programs

San Bernardino County is encouraging all departments, special districts, and agencies to share reports and common information. This sharing and exchanging of ideas has led to more coordinated efforts and better planning. The driving document in the County of San Bernardino is the County's General Plan. The County General Plan provides the foundation on which all development and future programs are built upon.

5.1.1 San Bernardino County General Plan

The State of California recommends that the General Plan is updated every 10-20 years; depending mostly on whether or not the plan is meeting the community's needs. The San Bernardino County General Plan was last updated and adopted in 2007. There are seven (7) mandatory elements in a General Plan:

- Circulation Element,
- Conservation Element,
- Housing Element,
- Land Use Element,
- Noise Element,
- Open Space Element, and
- Safety Element.

However, there are several optional elements. The County of San Bernardino General Plan includes an optional element, the Economic Development Element.

The Land Use Element of the General Plan establishes 18 land use zoning districts that apply only to lands governed by the County; not for lands controlled by other jurisdictions or lands controlled by federal and state government (see Section 1.3.5, page 8 for a listing of the 18 Land Use districts in the Land Use Element). The Land Use Element also describes land use compatibility for the primary three (3) hazards: Geologic; Flood; and, Wildfire. Because of these commonalities between the General Plan and the MJHMP, the county Board of Supervisors has adopted the MJHMP as part of the County's General Plan.

5.1.2 Regulations, Code, Policies and Ordinances

The following titles of the San Bernardino County Code include regulations and ordinances on the following issues and topics related to hazard mitigation:

Table 5-1: County Development Code Hazard Crosswalk

Hazard	Plan/Program/ Regulation	Description
Multi-Hazard	**Title 2**	Emergency Services Uniform Fire Code and related miscellaneous fire regulations Police Regulations and Public Protection
Multi-Hazard	**Title 3**	Emergency Medical Services Domestic Water Sources and Systems Hazardous Materials and Toxics Control Waste Management
Multi-Hazard	**Title 6**	California Building Code California Electrical Code California Plumbing Code California Mechanical Code
Multi-Hazard	**Title 7**	Airport Rules and Regulations
Multi-Hazard	**Title 8**	Development Code includes regulations relative to Land Use, Development Standards, Safety Standards, and Environmental Protection.
Multi-Hazard	**Zoning Ordinances**	The County has also adopted Zoning Ordinances that are not part of the County Code but are part of the General Plan. These ordinances regulate land use; map the official land use and hazard overlay districts to include safety hazard and environmental protection areas.

5.1.3 Local Programs for Mitigation Implementation

The information in Table 5-2 is used to construct mitigation actions aligned with existing planning and regulatory capabilities of the County. Planning and regulatory tools typically used by local jurisdictions to implement hazard mitigation activities are building codes, zoning regulations, floodplain management policies, and other County programs or planning documents.

Table 5-2: Planning and Regulatory Mitigation Capabilities Summary

Hazard	Plan/Program/ Regulation	Responsible Agency	Comments
Multi-Hazard	Mountain Mutual Aid	Fire District	Mountain Mutual Aid is an operational group of emergency responders. It is comprised of all of the agencies and volunteer relief groups that would be and have been involved in any and all disasters on the mountain. It is of note to that their main and most frequent call to service is in response to a wildfire. They meet monthly and maintain themselves in a constant state of readiness.
Wildfire	Forest Care	Cal Fire	Forest Care is a program dedicated to creating a healthier forest. This program provides foresters to assess individual properties for thinning the vegetation and then provides 75% of the funding to do so. Funding originates at the Federal level but is passed through Cal Fire and it employs Cal Fire Foresters as well as staff from the National Forest Association

5.1.3.1 Public Education and Alert Programs

Table 5-3: Public Education and Alert Programs

Hazard	Program	Responsible Agency	Comments
Multi-Hazard	MAST	Multiple	Mountain Area Safety Taskforce (MAST) has a substantial public education component. All agencies participate with the goal to have no one on the mountain uneducated about creating a thinner forest which is a more fire safe forest. For more information on MAST, see Annex A Section A.6 Fire Protection District Mitigation Project .
Multi-Hazard	CERT	Fire District	The Community Emergency Response Team (CERT) Program educates people about disaster preparedness and trains them in basic response

Hazard	Program	Responsible Agency	Comments
			skills. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Multi-Hazard	Listos	Fire District	Listos, which means "ready" in Spanish, is a twelve-hour disaster preparedness course created specifically for the Spanish-speaking community and is delivered entirely in Spanish. The program is intended to be adaptable, flexible and culturally relevant. This means participants are encouraged to involve the entire family and accommodations are made for young children. San Bernardino County Fire, Office of Emergency Services currently partners with the Cities of Fontana and Rialto to bring Listos to their communities
Multi-Hazard	California Disaster Corps	Fire District	The Disaster Corps is a first-in-the-nation effort to professionalize, standardize and coordinate highly trained disaster volunteers statewide. This program initiative was built collaboratively in partnership with California Volunteers from the ground up through public-private partnerships and with a wide range of subject matter experts. See Annex A Section A.6 Fire Protection District Mitigation Project .
Multi-Hazard	TENS	Fire District	Telephone Emergency Notification Systems (TENS) During an emergency, public safety can be a direct function of the speed and accuracy of the dissemination of information. This is particularly important during emergencies that require evacuations. To that end the Board of Supervisors dedicated General Fund money in 2003 to the implementation of an automated phone dialing system that calls telephones in specific geographic areas of concern. All areas of San Bernardino County have all been preprogrammed so that during an emergency, the specific target group can be notified as quickly as possible.

Hazard	Program	Responsible Agency	Comments
Multi-Hazard	ECS	Fire District	The Emergency Communications Service (ECS) is a volunteer group providing front-line communications, technical and logistical support to the San Bernardino County Fire Department and Office of Emergency Services. Their primary mission is to support County Fire, County Government and other local agencies in time of disaster. In addition, ECS has provided telecommunications and event support to other County departments including Public Health, Behavioral Health, Public Works, Pre-School Services, Sheriff's Search and Rescue and other County Departments.
Multi-Hazard	AM Radio	Fire District	Community Based AM Radio Transmitters The Fire Safe Councils discovered the existence of very inexpensive but very effective community based AM radio transmitters. The transmitters are very effective for providing information and updates to a community that is either preparing for a community emergency or just had one. As a delivery modality they are extremely reliable because in most all emergencies the AM radio in your car is likely to be operational particularly when the electricity is out in your house.
Multi-Hazard	IPAWS	Fire District	During an emergency, alert and warning officials need to provide the public with life-saving information quickly. The Integrated Public Alert and Warning System (IPAWS) is a modernization and integration of the nation's alert and warning infrastructure and will save time when time matters most, protecting life and property. Federal, State, Territorial, Tribal, and local alerting authorities can use IPAWS and integrate local systems that use Common Alerting Protocol (CAP) standards with the IPAWS infrastructure. IPAWS provides public safety officials with an effective way to alert and warn the public about serious emergencies using the Emergency Alert System (EAS), Wireless Emergency Alerts (WEA), the

Hazard	Program	Responsible Agency	Comments
			National Oceanic and Atmospheric Administration (NOAA) Weather Radio, and other public alerting systems from a single interface.

5.1.3.2 Wildfire Mitigation Programs

San Bernardino County has one of the most comprehensive set of programs to mitigate the potential for catastrophic wildfires in the Nation. There is no other jurisdiction that has the comprehensive, multi-agency cooperation and coordination as is found in San Bernardino County. See Annex A Section A.6 Fire Protection District Mitigation Project to see how the Fire Protection District will implement the following programs:

Table 5-4: Wildfire Mitigation Programs

Hazard	Program	Responsible Agency	Comments
Wildfire	MAST	Multiple	The mission of the MAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for protection from wildfire. For more information on MAST, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Community Based Fuels Reduction program	Fire District	This program is designed to create community based fuel modification programs across the mountain communities. For more information see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Cal Fire	Cal Fire	Cal Fire provides programs to increase fire safety in high fire hazard severity zones. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	County Fire Hazard Abatement	Fire District	Fire Hazard Abatement works to reduce the potential for an individual's property to be the source of fire and structural ignitability. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .

Hazard	Program	Responsible Agency	Comments
Wildfire	Contractor Certification	City of Big Bear Lake Fire Department	This program trains and certifies landscape contractors to provide a qualified workforce to conduct fuels reduction activities on individual properties. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Southern California Edison (SCE)	Southern California Edison (SCE)	SCE removes dead trees near power lines to reduce fire hazards. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Wood Shake Roof Replacement	County	This code requires that all Wood Shake Roofs in the Fire Safety Overlay, as defined in the Development Code, ongoing effort.
Wildfire	Inland Empire Fire Safe Alliance	Inland Empire Fire Safe Alliance	The Alliance was created to act as a forum for all Fire Safe Councils in San Bernardino County. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Community Wildfire Protection Plans (CWPP)	Fire District	CWPPs are designed to provide a means for a community to have input into and actively participate in the planning, strategy, goals, and objectives of creating a fire safe community. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Organized Group Volunteer Activities	Fire District	There are several volunteer citizen groups throughout the County that are capable of providing significant resources that are not provided by traditional governmental agency services. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .

5.1.3.3 Earthquake/Geologic Mitigation Programs

San Bernardino County's seismic mitigation programs focus on two areas that have historically resulted in the greatest amount of damage and life loss from major earthquakes in California.

5.1.3.3.1 Bridge Retrofit Program

Caltrans inspects County and City bridges yearly every 2 years for structural sufficiency (which applies to earthquake) and functional obsolescence (which applies to floods). Caltrans provides reports that include recommended repairs or replacement. The County and Cities make the repairs and/or apply for bridge replacement funds thru the Federal Highway Bridge Program (HBR). Currently the County has 5 funded HBR replacements due to structural deficiencies:

- Dola Ditch, (out for bid to construct)
- Lanzit Ditch, (out for bid to construct)
- Garnett at Mill Creek (under construction)
- Yermo Rd at Manix Wash.(waiting for SCAG approval for additional funds to move forward with the Design & Environmental)
- Baker Blvd west of SR127. (waiting for HBP fund for Design & Environmental)
- National Trails Hwy at Kalmia Bridge (waiting for HBP funds)
- National Trails HWY @ Adena Ditch (Received HBP funds for design phase)
- Bridge Management (consultant on board that has prioritized all timber bridges on National Trails Highway and DPW is submitting groups of bridges for funding over a ten year period)

The design and environmental work has been started for Rock Springs Road (functionally obsolete bridge) using DPW funds, waiting for HBP funds for R/W phase.

The County has completed the construction of the Alabama Street at Plunge Creek bridge replacement using Federal Emergency Relief funds.

5.1.3.3.2 Unreinforced Masonry Building Program

In the 1990's, the County of San Bernardino compiled a master list of suspected Unreinforced Masonry Buildings within the unincorporated areas. Since that time, several sites have been incorporated and therefore, are now removed from County jurisdiction. In addition, several appear to have been demolished or retrofitted since the 1990's. The Land Use Services Department's Building and Safety Division is currently in the process of re-evaluating the URM list. Re-evaluation will include a field visit to each site photographing structures and verifying the occurrence of unreinforced masonry. This process is scheduled to be completed by the end of the 2010.The program would be an inspection program and maintenance and inspections as warranted.

There are no large publically utilized URM structures currently on the list. These types of structures are typically restricted to the incorporated areas of the County. There are only twenty-two (22) structures remaining on the list.

5.1.3.3.3 Geologic Hazard Mapping

The Seismic Hazards Mapping Act (Public Resources Code, Chapter 7.8 Section 2690-2699.6) directs the Department of Conservation, California Geological Survey (CGS) to identify and map areas prone to liquefaction, earthquake-induced landslides and amplified ground shaking. Although the San Bernardino area has a full spectrum of geologic hazards, CGS does not have adequate funding to complete the hazard mapping within the County.

5.1.3.4 Flood Mitigation Programs

The flood mitigation projects are programs that were established by San Bernardino County Flood Control District to protect life and property. These projects are typically designed to convey 1% annual chance or greater storm flows in order to mitigate danger to life and property, and critical infrastructure consisting of existing, new and future structures. Also, these projects include revisions to local land use and building codes where analysis or experience shows the need for code revisions or amendments to meet previously unidentified circumstances.

Hazard	Program	Responsible Agency	Comments
Flood	Flood Area Safety Taskforce(FAST)	Flood Control District	The FAST Organization stresses liaison with the communities, provides for community education and information, and places emphases on Community and city partnerships. For more information on FAST, see Annex B Section B.6 Flood Project Prioritization and Implementation.
Flood	Alluvial Fan Task Force	Alluvial Fan Task Force	The Task Force reviews the state of knowledge regarding alluvial fan floodplains, determine future research needs, and, if appropriate, develop recommendations relating to alluvial fan floodplain management, with an emphasis on alluvial fan floodplains that are being considered for development. For more information, see Annex B Section B.6 Flood Project Prioritization and Implementation.
Flood	StormReady	Flood Control District	San Bernardino County is a StormReady County. For more information, see Annex B Section B.6 Flood Project Prioritization and Implementation.

5.1.3.5 Climate Change Programs

5.1.3.5.1 Extreme Heat, Extreme Cold Programs

This document is a contingency plan supporting the San Bernardino County Emergency Operations Plan (EOP).

Excessive Cold events are commonplace in San Bernardino County and most often warrant monitoring activities only. These Standard Operating Guidelines provide GUIDANCE based on the most likely scenario, and can be expanded to meet the parameters of a "disaster" scenario if necessary.

The Extreme Weather – Excessive Cold Standard Operating Guidelines (SOG) were developed in response to the potential for Excessive Cold and cold related Power Outage events in San Bernardino County. The following objectives and activities are to prevent the harmful effects of excessive cold on at-risk populations and the potential for life-threatening repercussions of power outages during excessive cold events.

The information included in this plan is "situation" and/or "incident" driven and subject to revision by the Extreme Weather Committee as conditions warrant. Notifications are information dependent and modification of the activities in these guidelines may be required in response to changing conditions, situations and/or inaccurate weather predictions

5.1.3.5.2 San Bernardino County Fire Office of Emergency Services Heat Plan

This document is a contingency plan supporting the San Bernardino County Emergency Operations Plan (EOP). The Extreme Weather – Excessive Heat Standard Operating Guidelines (SOG) were developed in response to the potential for Excessive Heat and heat related Power Outage events in San Bernardino County. The following objectives and activities have been established to prevent the harmful effects of excessive heat on at-risk populations and the potential for life-threatening repercussions of power outages during excessive heat events. The Extreme Weather – Excessive Heat SOG describe the County operations during heat related emergencies and provide guidance for local jurisdictions in their preparation for heat emergencies and other related activities. The information included in this plan is "situation" and/or "incident" driven and subject to revision by the Extreme Weather Committee as conditions warrant. Notifications are information dependent and modification of the activities in these guidelines may be required in response to changing conditions, situations and/or inaccurate weather predictions.

5.2 Fiscal Resources

The 2016-17 recommended budgets of $5.4 Billion are balanced and consistent with policy and direction received from the Board of Supervisors. The 2016-17 Recommended Budgets address the following key issues:

- Ongoing funding for neglected raises for County employees
- Ongoing funding for maintenance of County roads
- Continues investment in facilities, infrastructure and operating systems.
- Ongoing funding of mental health and medical services for County residents.
- Maintains fiscal responsibility through contributions to the reserves of $62.8 million.

The budget represents the County General Fund and County restricted general funds .It also presents capitol project funds, special revenue funds, enterprise funds, internal service funds and permanent funds for all entities in the 2016-17 Recommended Budget including the County Board Governed County Service Areas, San Bernardino County Fire Protection District, San Bernardino County Flood Control District. Other agencies presented in the budget include County Industrial Development Authority, Inland Counties Emergency Medical Agency and the recently added Housing Authority of the County of San Bernardino. The total requirements for these funds in the 2016-17 are $5.4 billion, which includes amounts budgeted as contingencies or contributions to reserves. Excluding these amounts, total projected expenditures for the 2016-17 are $5.3 billion. The General fund Requirements total $2.9 billion and are funded by countywide discretionary revenues (primary property taxes), departmental revenues and other funding sources of the General Fund, of this $2.9 billion, only $558.3 million is truly discretionary.

5.2.1 The Budget in Brief

This budget book collectively presents the general fund, special revenue funds, capital project funds, internal service funds, and enterprise funds for the county and its Special Districts. The total spending authority for these funds in 2016– 2017 is $5.4 billion. The general fund spending authority totals $5.3 billion and is funded by countywide discretionary, and the beginning fund balance of the General Fund. Of this $2.9 billion, only $558.5 million is truly discretionary.

Table 5-5: Spending Authority for San Bernardino County

	Spending Authority (in Millions)		
	2015-16	2016–2017	Change
General Fund	$ 2,984.3	$ 2,911.1	$ (73.2)
Restricted Funds	49.3	49.7	(.4)
Capital Project Funds	1169.	911.3	(258.4)
Special Revenue Funds	257.6	298.4	40.7
Enterprise Funds	984.9	1001.	16.5
Internal Service Funds	1.6	0.0	(1.6)
	$ 5,692.0	**$ 5,420.0**	**272.0**

There is a $73.2 million net decrease in General Fund requirements due to a $106.1 million reduction in contributions to General Fund reserves, as the Board of Supervisors approved an increase to multiple County General Fund operational groups' requirements are increasing by $32.9 million. There are Law and Justice ($12.5 million). The Human Services Operational Group is anticipating increased State and Federal funding that will support Department of Behavioral Health services, including inpatient hospitalization, indigent hospital care, general mental health services, and services for children, youth, and families .The County is also continuing to allocate additional resources to meet the growing need for augmented health and mental health correctional services associated with Public Safety Realignment.

The net reduction of $258.4 Million is Special Revenue Funds is associated with the County's shift in 2015-16 from budgeting contingencies to instead placing unallocated resources in reserves. This technical change resulted in a large one-time contribution to reserves in 2015-16 that is not required in 2016-17. This reduction in contributions to reserves totaling $289.6 million is offset by increased operational costs of $31.2 million. This is due to increases within the Department of Behavioral Health's Mental Health Services Act (MHSA) budget unit and the County Fire Protection budget is increasing as a result of the pending annexation of fire prevention and suppression services from the City of San Bernardino (429.6 million) and Twentynine Palms ($1.7 million).

The $40.7 million increase in Capital Project Funds is primarily due to the planned construction of two Department of Behavioral funded Crisis Stabilization Centers and four Crisis Residential Treatment Centers totaling $36.5 million. This will enable Community Crisis Response Team (CCRT) clinics throughout the County to be expanded to provide 24 hour services and to respond to request by law enforcement for support during the night hours.

Enterprise Funds requirements are increasing a net $16.5 million. Notably, the Housing Authority of the County of San Bernardino has been added to the budget book and is contributing to the overall increase in Enterprise Fund requirements, including additional assumed payments for Housing Assistance and increased Capital Expenditures.

Table 5-6: 2015-2017 Staffing Budget

	Budgeted Staffing		
	2015–2016	2016–2017	Change
General Fund	14,332	14,425	93
Other Funds	6,375	6,508	133
Special Districts and Other Agencies	1402	15601	159
Total:	**22,109**	**36,534**	**385**

5.2.2 Budget Highlights (2016 – 2017)

Create and Maintain and Grow Jobs and Economic Value in the County

- The Real Estate Services Department of Project Management Division (formerly Architecture and Engineering) Capital improvement budget includes 355 active projects with total requirements of $295.2 million, including $128.2 million in new projects funded with $57.7 million of Discretionary General Funding includes an ongoing base budget of $12.0 million for maintenance and non-major Capital Improvement Plan (CIP) projects ,and $45.7 million for construction and major CIP projects .These major projects include $26.4 million for the 800 Megahertz Upgrade Project ,$12.2 million for various Sheriff's facility improvements ,$8.0 million for the County Buildings Acquisition and Retrofit Project including the upgrade of the County Government Center parking lots and grounds ,and $7.6 million for a variety of other projects.

Improve County Government Operations

- Enterprise Financial Management System: Implementation of the new system began in May 2016 with the first phase (out of two phases) continuing into 2016-17 at an estimated cost of $7.1 million. The total cost for the financial system is estimated to be $25.0 million and will streamline business processes and provide better management information.

- Public Health will continue its efforts to achieve and maintain National Accreditation, through the Public Health Accreditation Board (PHAB). Accreditation ensures the Department's continued focus on quality and performance improvement, transparency and accountability to all stakeholders, and the capacity to deliver core Public Health functions. The department will be submitting the required application to PHAB in December 2016.

- The County Library continues its plans to enhance service by replacing outdated computer hardware and software. Funding has been included in the Library's material's budget, which adds high demand items to the collection, including an expanded digital book collection.
- Land Use Services, in conjunction with Public Works, Information Services, and other County departments, continues to upgrade to a new enterprise permit solution, Accela. The new system will include a shared database, precise digital maps, and satellite images of land data that are linked to the County's GIS database. It will also provide field staff remote real-time access to the database. This solution will streamline the permitting process, offering the public access to a web portal to manage and monitor applications and permits online.

Operate in a Fiscally-Responsible and Business-like Manner

- The County Museum's budget of $3.8 million demonstrates the County's commitment to support the Museum through a time of transition. The budget includes $1.1 million in one-time Discretionary General Funding which includes bridge funds to support current operations and funding for activities related to re-accreditation. The County Museum continues to implement the consultant study recommendations as approved by the Board of Supervisors, to address organizational and financial challenges.

- The Transitional Assistance Department is in the second of a four year reduction to the State's CalFresh Match Waiver pursuant to the phase-out agreement adopted in the prior year State budget. This wavier allowed the County to draw additional Federal and half of the State funding without increasing the County's Maintenance of Effort. The budget includes the use of $2.5 million of the original $5.0 million general fund reserve that the Board approved in 2014-15 for this phase-out period.

Ensure Development of a Well-Planned, Balanced, and Sustainable County

- The County continues work on a complete overhaul of the County's General Plan, referred to as the Countywide Plan. This Countywide Plan will be a comprehensive web-based system to document land use planning and organizational governance policies. It will be comprised of three basic components: The Policy Plan (a comprehensive general plan); the County Business Plan (a system that will define and guide how the County government operates and manages itself); and the Regional Issues Forum (a web-based resource center containing information regarding shared Countywide issues). Additionally, the County is updating and expanding the community plans. When completed, there will be 27 web-based community plans involving 49 communities.

- A team of County departments will continue to monitor the drought and develop ways to reduce water usage at County facilities to show good stewardship of this valuable resource. The Special Districts Department, in collaboration with other County

departments, will continue to implement water conservation programs/strategies at various County Service Areas and Districts throughout the County.

- The Registrar of Voters budget fluctuates based on the 4-year election cycle, with the Presidential Election being the largest and most costly of the major elections. The Department is transitioning from a one minor and two major election cycles in 2015-16 to a one minor and one major election cycle for 2016-17. The budget includes provisions for the following: November 8, 2016 Presidential General Election (major); December 6, 2016 San Bernardino County Employees' Retirement Association Election (minor); and three anticipated, but unscheduled special elections (minor). The minor elections are 100% reimbursable; however, the November Presidential General Election is only 30% reimbursable and thus requires one-time Discretionary General Funding (Net County Cost) of $3.7 million for the year.

- The Public Works – Transportation budget includes over $35.0 million in major infrastructure projects, funded in part with Discretionary General Funding. Budgeted activities include design, right of way and/or construction for major projects including:
  - Bridge replacements on: Glen Helen Parkway, Baker Boulevard, Garnet Street, Rock Springs Road, Dola Ditch Bridge, Lanzit Ditch Bridge, Yermo Road and Arrowbear Drive;
  - New bridge on Shadow Mountain Road;
  - Widening of Slover Avenue in the Bloomington Area;
  - Installation of raised pavement markers on National Trails Highway in the Amboy area;
  - Reconstruction of Institution Road to improve access to the Sheriff facility in San Bernardino;
  - National Trails Highway Bridges: Bridge management plan for the repair, rehabilitation or replacement of 127 bridges on National Trails Highway and starting the design phase for replacement of 10 bridges:
  - Rehabilitation and re-profiling at various locations on Needles Highway in the Needles area;
  - Improvements to alleviate congestion and improve circulation of the interchange on Interstate 10 at Cedar Avenue

- The Public Works – Transportation budget includes $31.5 million worth of pavement improvement projects, funded in part with ongoing Discretionary General Funding, to preserve the County's roadways by investing enough to keep the system from deteriorating further.

- The Public Works – Solid Waste Management Division plans to complete $8.9 million of capital improvement projects, which includes the following:
  - $2.0 million for resurfacing the entrance and haul roads at the San Timoteo Landfill;
  - $957,000 for construction of Groundwater Treatment Systems at the closed Lenwood-Hinkley Landfill and Yucaipa Disposal Site;

- $1.5 million for the East Slope Stabilization and Mitigation project at the closed Heaps Peak Disposal Site;
- $1.5 million for construction of Landfill Gas Extraction Systems at the Barstow and Big Bear Landfills which includes $300,000 to bring electrical power to the Barstow Landfill

- The Public Works – Flood Control District (District) budget includes $37.6 million in capital improvement projects. The District anticipates completion of the following projects: Cactus Basin # 3, Wilson Creek Channel, Santa Ana River Flood Wall Repair, and the waterline relocations for Bandicoot Basin and Amethyst Basin. The District also plans to start construction on the following projects: Levee Certification Restoration for Patton Basin, Mojave River Levee, and Sand Creek/Warm Creek Confluence.

- Land Use Services Planning budget includes $150,000 of Discretionary General Funding for the preparation of a Morongo Basin Cultural Plan.

- The Special Districts department's budget includes $45.3 million capital improvement projects including the design and construction of the Big Bear Alpine Zoo relocation, rehabilitation of the Lake Gregory Dam, and construction of Snow Drop Road. Water and sanitation infrastructure projects of $19.2 million include pipeline replacements; water system improvements, and design and construction of a pipeline, a 75,000-gallon water reservoir, and a pump station in CSA 70 W-4 – Pioneertown.

- Community Development & Housing is constructing Phase 2 of the Bloomington Community and Neighborhood Revitalization. A total of 190 multi-generational affordable housing units include 120 family units and 70 senior units and the Bloomington Branch Library. The Bloomington Branch Library and the first phase of housing are completed. The second phase is currently under construction and will be completed by spring 2017.

Provide for the Safety, Health and Social Service Needs of County Residents

- The County is expanding efforts to provide homeless support to County residents through the flowing allocations included in the 2016-17 budget:
  - The Department of Behavioral Health is investing $4.0 million by providing basic needs, case management, outreach services, and additional built and supportive housing opportunities.
  - The Sheriff/Coroner/Public Administrator is continuing to fund the HOPE Program (Homeless Outreach Proactive Enforcement) Team ($620,000), which provides services to the homeless population by connecting them to the appropriate agencies for much needed services that help in the transition from homelessness.
  - The Probation Department has included $3.2 million towards transitional housing for adult offenders requiring Probation Department supervision.

- The Department of Behavioral Health is expanding Mental Health Treatment Services, notable in the following areas:
  - $1.0 million towards staffing Community Crisis Response Team clinics, which will now provide 24 hour services to departmental consumers and respond to requests by law enforcement for support during night hours. The department has also allocated $36.5 million towards the construction of new CCRT clinics throughout the County to expand these services.
  - $8.5 million for the Mental Health Act (MHSA) Comprehensive Children and Family Support Services program to support expanded mental health services for children.
  - $4.3 million for the MHSA Regional Adult Full Service Partnership (FSP) program support expanded mental health services to adults.
  - $1.0 million for the MHSA Forensic Integrated Mental Health Partnership program to expand services to develop peer support and mentoring strategies for individuals who have been released early from County jail or State prison.

- The Sheriff/Coroner/Public Administrator budget included $1.1 million of existing departmental resources for a program authorized by the Board as a pilot on December 15, 2015 (Item No. 72) related to the delivery of law enforcement services to unincorporated areas of the West End including the North Rancho/Etiwanda Preserve and the Mission Corridor, respectively. The program was successful and is now being incorporated as an ongoing service beginning in 2016-17 ,

- The Sheriff/Coroner/Public Administrator budget includes $9.0 million of one-time Discretionary General Funding (Net County Cost) to replace 2 aging and obsolete patrol helicopters: including equipment, travel and training for pilots and mechanics, installation of equipment, and delivery charges. The helicopter replacements will provide newer more reliable aircraft.
- The Public Defender Proposition 47 program will use media resources to reach all potential citizens who have convictions eligible for reclassification to further enhance their ability to rehabilitate within the community.

- County Fire is assuming fire, rescue, Emergency Medical Services (EMS), and prevention responsibilities within the Cities of San Bernardino ($29.6 million) and Twentynine Palms ($1.7 million) as a result of the pending annexations. This continued expansion of a regional approach will provide a more effective and efficient delivery of fire services for County residents.

- Land Use Services Code Enforcement is continuing to pilot various strategic initiatives to address issues with short-term rentals, particularly in the mountain areas. For 2016-17, a pilot program for a short-term rental hotline will be established where the public can report illegal or disruptive activities at short-term rental properties.

- The Information Services Department Telecommunication Services division is in the process of upgrading the County's Regional Public Safety Radio System (800 Mhz Upgrade Project). The project is currently on schedule, with an estimated completion date of 2020-21. The estimated cost of the project is $158.2 million primarily funded with Discretionary General Funding.

- The Department of Aging and Adult Services (DAAS) budget of $8.3 million will supplement programs such as the Elderly Nutrition, Supportive Services, Medicare Improvements for Patients and Providers Act, and Family Caregiver.

- The Arrowhead Regional Medical Center (ARMC) budget includes the addition of 14 positions to strengthen the Sterile Processing division to meet operational needs and ensure compliance with regulatory standards.

- The Department of Children and Family Services is implementing an After Hours Response Center (ARC) in June 2016 to provide optimal customer services to our community partners, children and families. The Center will enhance the departments critical after hour function of responding to child abuse, neglect and exploitation referrals called into the Child and Adult Abuse Hotline (CAAHL).

Pursue County Goals and Objectives by Working with Other Agencies

- ARMC is participating in California's 1115 waiver Renewal (Medi-Cal 2020), working alongside the California Association of Public Hospitals, the State of California, The Centers for Medicare & Medicaid Services, and multiple County departments focusing on improved patient outcomes, efficiencies and access in patient care integrated care models and procuring maximum reimbursement for performance of prescriptive clinical measures. The budget includes $52.5 million in revenues related to the Medicaid Waiver programs.

Focus on Recovery and Resiliency Following the December 2, 2015 Terrorist Attack (SB Strong)

- The County Administrative Office has commenced a countywide effort to document the impact and ongoing response to the December 2, 2015 terrorist attack while pursuing multiple sources of potential cost-reimbursement and to create a historic and best-practices document.

- The County has allocated approximately $10.2 million in funds towards improving security at County facilities. This includes $8.2 million in immediate improvements to facilities, such as expanded security guard services, upgraded security camera and key card access installations, and $2.0 million to conduct a security assessment of all County facilities.

Challenges in Fiscal Year 2016-17 and Beyond

Although the balancing of future costs with projected revenue has improved compared to prior County five year forecasts, broad economic challenges remain. The current economic expansion will be 7 years at the end of June 2016, which is the fourth longest in the history of the United States and cannot be assumed to last indefinitely. In addition, the fiscal uncertainly inherent in the State budget process continues to present a major challenge to the County's fiscal planning efforts.

Economic Challenges

The County's Five Year Financial Forecast covers July 2016 through June 2021 and includes moderate growth of major revenue streams throughout the period. Not included in the forecast are the impacts of a potential recession or the unknown economic impacts of the coming statewide $15 minimum wage.

By the end of the third year of the County's forecast the current economic expansion would match the longest expansion in history. Although the weakness of the current recovery and quantitative easing may have pushed off the next recession temporarily, it would be without precedent for the economy to expand throughout the County's entire five year forecast. In response to these unknown variables, the County has taken the approach of budgeting revenue growth in a conservative fashion over the entire five year forecast rather than assuming greater potential revenue increase in the immediate future with reductions in the later part of the forecast.

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Section 6. Mitigation Strategy

6.1 Mitigation Goals and Objectives

Goals and objectives discussed in this section help describe what actions should occur, using increasingly narrow descriptors. Long-term goals are developed which can be accomplished by objectives. To achieve the stated objectives "mitigation actions" provide specific measurable descriptors on how to accomplish the objective. The goals, objectives, and actions form the basis for the development of a Mitigation Action Strategy and specific mitigation projects to be considered for implementation.

The process consists of 1) setting goals and objectives, 2) considering mitigation alternatives, 3) identifying strategies or "actions", and 4) developing a prioritized action plan resulting in a mitigation strategy.

The following section provides an overview of the Mitigation Goals and Objectives for profiled hazards, Wildfire, Earthquake, Flood, Drought, Terrorism, and Climate Change for the County Unincorporated Area and the County's Special Districts. These goals were compiled from various sources including the County of San Bernardino 2007 General Plan. (See Section 3.5 for a detailed description of the process used by the County Planning Team)

6.1.1 All Hazard (AH)

AH GOAL: Increase readiness for all hazards in the unincorporated areas of San Bernardino County.

OBJECTIVE 1: Construct All-Hazard Response Facilities: Construct facilities to increase operational readiness to reduce impacts of natural hazards.

> **AH Action 1.1: Construct Valley Dispatch and Operations Center.** Construct facility and ensure cohesive working and response to any scale emergency and operations in a secure complex
>
> **AH Action 1.2: Construct Shelter Operations Compound (SHOC).** This shelter concept provides a new one-stop shelter concept. The SHOC combines a shelter, a Local Assistance Center (LAC) and a Non-LAC Unit in one easy location.

OBJECTIVE 2: Special District Funding: Continue Special Districts Projects relating to all hazards.

AH Action 2.1: Continue funding and support for Special Districts Projects relating to water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big

Bear Valley Recreation Park District and Bloomington Recreation and Park District for all hazards.

AH Action 2.2: Install Generators at Critical Facilities Retrofit existing buildings and facilities with connectors/ ATS for emergency generators and/or install permanent emergency generators at critical facilities, including wells and booster station locations.

AH Action 2.3: Water Systems Repair Plan Develop a plan for speeding the repair of and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies.

AH Action 2.4: Smart Water Meters and SCADA Utilization of SCADA and Smart Water Meters to get real time data on problems with the system and reduce drive time emissions as a result of traditional meter reading.

AH Action 2.5: Provide Employees with Emergency Supplies Provide emergency supplies of food, water, and portable generators for employees at office and field locations.

AH Action 2.6: Annual Tower and Guide Wire Inspections Conduct annual tower and guide wire inspections to mitigate storm/wind/earthquake hazards from knocking out communications.

AH Action 2.7: **Maintain Tower Lighting** Maintain lights on all tower locations.

AH Action 2.8: Designate Emergency Operations Sites Conduct an inventory or list of County Park Facilities and Community Centers to establish a list of pre-designated emergency operations or disaster relief sites. Not all Community Centers are an appropriate size to accommodate large numbers of evacuees and may only serve as command and control centers or distribution centers.

AH Action 2.9: Establish Power Sources for Emergency Operations Sites Establish small solar energy fields or other forms of renewable power at County Community Centers to
facilitate stand-alone emergency operations for the community.

AH Action 2.10: Connect Water Systems to Generators Connect water systems to generators to ensure delivery even in disaster situations.

AH Action 2.11: Establish a Centralized Communications Network Establish a centralized communications network to monitor channel output for TV Districts and provide emergency information by way of character generator tied to channel transmissions.

AH Action 2.12: Incorporate as appropriate requirements from the State of California's most recent land use regulations regarding the hazard mitigation planning process (Government Code 65302 and 8685.9).

6.1.2 Wildfire (WF)

WF GOAL: Continue to reduce fire hazards in the unincorporated areas of San Bernardino County.

WILDFIRE OBJECTIVE 1: **Mountain Area Safety Taskforce.** Continue the cooperation and coordination of Fire Hazard Mitigation efforts with all stakeholders in the mountain areas of San Bernardino County through participation in MAST.

WF Action 1.1: Continue Mountain Area Safety Taskforce (MAST) funding to support mitigation activity.

WILDFIRE OBJECTIVE 2: Support Mountain Mutual Aid Objectives. Continue development of and continue the mission of mutual aid between the first responders in the County mountain areas through County Mitigation Planning.

WF Action 2.1: Update Mountain Mutual Aid Mapbook to document.

WF Action 2.2: Update Community Structure Protection Plans as necessary.

WILDFIRE OBJECTIVE 3: Community Based Fuels Reduction Program. Continue the community based Fuels Reduction Program through community based programs, both volunteer and government funded.

WF Action 3.1: Implement identified community based fuels reduction projects.

WF Action 3.2: Develop fuels reduction "maintenance program" by obtaining participation from citizens and/or homeowners associations.

WF Action 3.3: Vegetation Removal Clear vegetation from Road District facilities/yards.

WILDFIRE OBJECTIVE 4: Forest Care. Continue providing assistance to homeowners by expanding services to all communities in the Mountain areas of the County.

WF Action 4.1: Increase homeowner assistance services to mountain residents for fuel reduction.

WF Action 4.2: Continue working with Southern California Edison to remove dead trees near power lines.

WILDFIRE OBJECTIVE 5: County Fire Hazard Abatement. Overcome funding shortfalls while improving service delivery.

WF Action 5.1: Inspect every residence in the mountain communities within the next two years to enforce the new Fire Hazard Abatement code that addresses green fuels.

WF Action 5.2: Continue to collaborate with Forest Care, Red, Cross and Cal Fire to overcome increased costs of enforcement.

WILDFIRE OBJECTIVE 6: Decrease Wildfire Hazards at Private Property through the Fire Hazard Abatement Programs

WF Action 6.1: Train and Certify landscape contractors to comply with the new Fire Hazard Abatement Code.

WF Action 6.2: Continue wildfire mitigation efforts under the Wood Shake Roof Replacement Program.

WF Action 6.3: Protect Property in Wilderness Areas Rockscape or pave property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.

WILDFIRE OBJECTIVE 7: Support Mitigation Strategies in Community Wildfire Protection Plans. Continue to improve CWPP's in cooperation with Cal Fire, the IEFSA and individual Fire Safe Councils.

WF Action 7.1: Modify independent and unique CWPPs into a more common framework making them similar but leaving room to provide specific hazard characteristics and mitigation actions for each community.

WILDFIRE OBJECTIVE 8: Improve Emergency Access. Improve and maintain emergency access for wildfire protection.

WF Action 8.1: Construct Arrowbear Drive Realignment and Widening

WF Action 8.2: Construct Cedar Glen Fire Access Road

WF Action 8.3: Structural Fire Breaks Widening Double the width of external fire breaks on grounds which have structures located in wilderness and or areas prone to wildfires.

WILDFIRE OBJECTIVE 9: Special District Funding: Continue Special Districts Projects relating to wildfire.

WF Action 9.1: Continue funding and support for Special Districts Projects relating to wildfire in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

WF Action 9.2: Emergency Water Supplies Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal. (completed with continuous fresh of supplies and rotation)

6.1.3 Earthquake/Geologic Hazards (EQ)

GOAL: Minimize exposure to structural and contents damage from geologic and seismic conditions. (Complements General Plan, Section VIII, Safety Element (Goal S 7)

EARTHQUAKE OBJECTIVE 1: Educate the public on reducing earthquake risk.

EQ Action 1.1: Improve public education programs and practices to residents for earthquake risk.

EARTHQUAKE OBJECTIVE 2: Protect occupants and structures in proposed developments from high levels of risk caused by rupture of the ground surface during an earthquake (Complements General Plan, Section VIII Safety Element Policy S 7.4).

EQ Action 2.1: Evaluate single family homes for Earthquake hazard when conducting permit applications and plan reviews.

EQ Action 2.2: Seismic Strapping for existing water tanks and future construction.

EQ Action 2.3: Employee Emergency Sheltering Develop a plan for short-term and intermediate-term sheltering of employees.

EARTHQUAKE OBJECTIVE 3: Continue geologic hazard mapping projects to minimize and prevent damage caused by earthquakes and other geologic hazards.

EQ Action 3.1: Identify liquefaction hazard areas outside the currently designated Geologic Hazard Overlay Districts.

EARTHQUAKE OBJECTIVE 4: Protect life and property from risks resulting from gravity-derived and/or earthquake-triggered landslides, expansive soils and/or other poor soil conditions. (Complements General Plan, Section VIII, Safety Element Policy § 7.6)

EQ Action 4.1: Require development on hillsides to minimizes the extent of topographic alteration and erosion, to maintain slope stability, and to reduce the potential for offsite sediment transport (Complements General Plan, Section VIII, Safety Element Policy § 6.1).

EQ Action 4.2: Generator Installation Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.

EARTHQUAKE OBJECTIVE 5: Reduce runoff over the cliffs in the Rimforest neighborhood. (Complements Rimforest Drainage Feasibility Study)

EQ Action 5.1: Divert runoff to Little Bear Creek.

EARTHQUAKE OBJECTIVE 6: Special District Funding: Continue Special Districts Projects relating to earthquake hazards.

EQ Action 6.1: Continue funding and support for Special Districts Projects relating to earthquake hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

6.1.4 Flood (FL)

GOAL: Provide adequate flood protection to minimize hazards and structural damage. (General Plan, Safety Element, Goal S 5)

FLOOD OBJECTIVE 1: National Flood Insurance Program. Participate in the National Flood Insurance Program (NFIP), which provides flood insurance within designated floodplains. (General Plan, Safety Element, Policy S 5)

FL Action 1.1: Update NFIP data and maps with newly identified flood hazard areas in the County, as new information becomes available.

FLOOD OBJECTIVE 2: Alluvial Task Force. Review and analyze the findings and recommendations from the recently released Alluvial Fan Task Force reports, as funding permits.

FL Action 2.1: Determine whether or not additional amendments to development standards or policies are merited, based on the completed analysis.

FLOOD OBJECTIVE 3: Flood Hazard Reduction. Reduce flood hazards through development standards and policies stated in the County of San Bernardino General Plan and County of San Bernardino 2010 Development Code.

FL Action 3.1: Amend the Flood Plain Safety Overlay District through automatic map updates as new data is released and published by FEMA.

FL Action 3.2: Review development plans to ensure compliance with ordinances.

FL Action 3.3: Inspect construction to ensure compliance with approved development plans.

FL Action 3.4: Soil Stabilization on Roadways and Along Roadway Shoulders Soil stabilization on roadway shoulders and dirt roads. This will prevent erosion caused by flood conditions.

FL Action 3.5: Encasing Pipelines Encase water pipelines with specific sized rock, gravel, and road base in natural waterways to prevent continual washout or exposure during heavy storm events/floods.

FLOOD OBJECTIVE 4: Future Flood Mitigation Projects. Improve existing facilities and construct new facilities to mitigate flooding with the County.

FL Action 4.1: In each flood control zone, construct facilities identified in those zones by the Flood Control Advisory Committee. See Flood Control District Annex for a listing of projects.

FLOOD OBJECTIVE 5: Special District Funding: Continue Special Districts Projects relating to flood hazards.

FL Action 6.1: Continue funding and support for Special Districts Projects relating to flood hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

FL Action 6.2: On Call Contractors Employ on call contractors to assist in emergency situations.

6.1.5 Drought (DR)

GOAL: Minimize the effects of drought on the County in all aspects including economically and socially.

DROUGHT OBJECTIVE 1: Educate the public on water conservation methods.

DR Action 1.1: Create a public awareness campaign advising citizens, business owners and farmers on water conservation.

DR Action 1.2: Provide incentives for farmers to grow crops that are less water intensive.

DR Action 1.3: Continue to coordinate with the San Bernardino Valley Water Conservation District to provide Qualified Water Efficient Landscaper (QWEL) training.

DR Action 1.4: Continue to enforce the watering schedule and watering restrictions throughout the County.

DROUGHT OBJECTIVE 2: Protect the quality of the County's watersheds.

DR Action 2.1: Approve the County's Watershed Water Quality Management Plan written in 2013.

DROUGHT OBJECTIVE 3: Special District Funding: Continue Special Districts Projects relating to drought hazards.

DR Action 3.1: Continue funding and support for Special Districts Projects relating to drought hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

6.1.6 Anti-Terrorism (AT)

GOAL: Use antiterrorism strategies to discourage terrorism and protect the people, infrastructure and assets in San Bernardino County from the effects of terrorism.

ANTI-TERRORISM OBJECTIVE 1: Use anti-terrorism design strategies to discourage / prevent acts of terrorism.

AT Action 1.1: Identify and prioritize mitigation activities (anti-terrorism force protection) at critical facilities and gathering places that are vulnerable to terrorist attacks.

ANTI-TERRORISM OBJECTIVE 2: Special District Funding: Continue Special Districts Projects relating to terrorism hazards.

AT Action 2.1: Continue funding and support for Special Districts Projects relating to terrorism hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

6.1.7 Climate Change (CC)

GOAL: Reduce the impacts of climate change on the County and limit human activities that change the atmosphere's makeup.

CLIMATE CHANGE OBJECTIVE 1: Meet greenhouse gas (GHG) reductions targets set forth by the Clean Air Act.

CC Action 1.1: Continue working with the South Coast Air Quality Management District and the Mojave Desert AQMD to meet GHG reductions targets.

CC Action 1.2: Continue implementing the energy conservation and efficiency measures identified in the County of San Bernardino Greenhouse Gas Emissions Reduction Plan. (San Bernardino County Renewable Energy and conservation Element)

CLIMATE CHANGE OBJECTIVE 2: Educate the public on the effects of climate change and reducing our impact.

CC Action 2.1: Encourage carpooling and the use of public/ alternative transportation methods.

CC Action 2.2: Optimize energy efficiency in the built environment and promote the local economic benefits of energy efficiency retrofits. (San Bernardino County Renewable Energy and conservation Element)

CC Action 2.3: Encourage residents and businesses to conserve energy. (San Bernardino County Renewable Energy and conservation Element)

CLIMATE CHANGE OBJECTIVE 3: Special District Funding: Continue Special Districts Projects relating to climate change hazards.

CC Action 3.1: Continue funding and support for Special Districts Projects relating to climate change hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

6.2 Mitigation Strategy

To narrow mitigation alternatives for inclusion, FEMA's six broad categories of mitigation alternatives were used. Each FEMA category is listed below. The HMP Planning Committee developed several mitigation alternatives for implementation under each mitigation category.

- Prevention (PRV)

- Property Protection (PPRO)
- Public Education and Awareness (PE&A)
- Natural Resource Protection (NRP)
- Emergency Services (ES)
- Structural Projects (SP)

Table 6-1 summarizes the mitigation alternatives for categories of projects addressing the hazards in the San Bernardino County Unincorporated Area Multi-Jurisdictional Hazard Mitigation Plan. The Table includes implementation strategies for the wildfire, earthquake/geologic hazards, flood, drought, climate change and terrorism.

Table 6-1: Mitigation Alternative Summary

Action	Lead Agency	Hazard	Funding Source
Prevention (PRV): **Preventative activities are intended to keep hazard problems from getting worse, and are typically administered through government programs or regulatory actions that influence the way land is developed and buildings are built. This includes the development of additional code requirements to further reduce or eliminate damages from the identified hazards.**	County Land Use Services	All Hazards	General Fund
Natural Resource Protection (NRP): **To locate and protect natural and cultural resources at risk from the identified hazards.**	Fire Protection District / Flood Control District	Wildfire and Flood	General Fund, Grants
Property Protection (PPRO): **Property protection measures involve the modification of existing buildings and structures to help them better withstand the forces of a hazard, or removal of the structures from hazardous locations.**	Fire Protection District.	Wildfire	General Fund, Grants
Public Education and Awareness (PE&A): **To continue and develop new public education programs targeting the top identified hazards.**	Fire Protection District.	All Hazards	General Fund, Grants

Action	Lead Agency	Hazard	Funding Source
Emergency Services (ES): **Although not typically considered a "mitigation" technique, emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:**	Fire Protections District	All Hazards	General Fund, Special District Funds, Grants
Structure Protection (SP) – Flooding **To continue to identify, fund, and build projects that reduce or eliminate flood hazards in the County.**	Flood Control District	Flooding Hazards	General Fund, Special District Funds, Grants
Structure Protection (SP)– Geological Hazards **To identify unknown hazards and develop additional new and retrofit requirements or programs to reduce or eliminate damage from geological hazards.**	Land Use Services	Geological Hazards	General Fund Grants
Structure Protection (SP) – Wildfire **To further protect structures at risk from wildfire through education, building, and enforcement codes and actions.**	Fire Protections District	Wildfire	General Fund, Special District Funds, Grants

6.2.1 Mitigation Action Plan

This section serves to identify *on-going* actions and projects in the County Unincorporated Area. With the results of the hazard risk assessment finalized, mitigation goal established, and capabilities assessed, the County and participating districts then set out to identify new mitigation actions that would reduce the outlined in the vulnerability assessment.

Not all identified mitigation actions are implementable in the 5-year plan cycle, due to technical feasibility, political acceptance, lack of funding, or other constraints. Once the mitigation actions for each participating jurisdiction were identified, they were evaluated and prioritized (by providing a time frame) to identify the most suitable mitigation actions for each participating jurisdiction to implement.

Cost effectiveness of each measure was a primary consideration when developing mitigation actions. Because mitigation is an investment to reduce future damages, it is important to select measures for which the reduced damages over the life of the measure are likely to be greater than the project cost. For structural projects, the level of cost effectiveness is primarily based on the likelihood of damages occurring in the future, the severity of the damages when they occur, and the level of effectiveness of the selected measure. While detailed analysis was not conducted during the mitigation action development process, these factors were of primary concern when selecting measures. For measures that do not result in a quantifiable reduction of damages, such as public education and outreach, the relationship of the probable future benefits and the cost of each measure was considered when developing the mitigation actions.

Based upon the participating jurisdiction capabilities, Table 6-2 shows primary actions selected for further implementation and development during the next planning cycle. Table 6-2 provides details for each mitigation action with mitigation action descriptions, FEMA mitigation category, responsible party, and timeframe.

Important to Note: See Jurisdictional Annexes for more information on implementation mechanisms and mitigation projects for each participating jurisdiction. If a participating jurisdiction is identified as a primary lead for implementation, the mitigation actions are also contained the corresponding jurisdictional annex.

Table 6-2: Mitigation Action Descriptions

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
ALL Hazard	**AH Action 1.1:** Valley Dispatch and Operations Center.	Update and maintain the operations of the facility and ensure cohesive working and response to any scale emergency and operations in a secure complex	ES	Budgetary Items from County and Federal Grant Funding. EMPG, HMPG, UASI.	Fire Protection District.	1-3 Years	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project.
ALL Hazard	**AH Action 1.2:** Maintain Shelter Operations Compound (SHOC). This shelter concept provides a new one-stop shelter concept. The SHOC combines a shelter, a Local Assistance Center (LAC) and a Non-LAC Unit in one easy location.	After the 2003 Wildland Fires, the County and American Red Cross recognized the need to provide services beyond basic care and short-term sheltering, especially during large fires, floods, and earthquakes The Mass Care & Shelter Plan and Concept of Operations, outlines the framework of a new one-stop shelter concept; Shelter Operations Compound (SHOC). It combines a shelter, a Local Assistance Center (LAC) and a Non-LAC Unit in one easy location. Residents can access public information and referral services through the LAC, and then take a short walk to the Non-LAC Unit for communication, postal services, and other private organizations/business at little to no cost. The completion of the Plan in 2012 will help to sync local resources, encourage local self-sufficiency, foster partnership between public and private agencies, and serve as a reference document for the region. By June 2017, the program will have 32 trailers/caches equipped with mass care and shelter supplies, strategically placed throughout the County and ready for rapid deployment. It is expected to serve over 12,000 residents. In addition to enhancing the comfort levels of shelter residents, the program will produce standardized documents and protocols for procuring and maintaining Mass Care and Shelter trailers/caches. These plans and programs will help the County prepare for and mitigate damages from hazards. This is an update and expansion of the plan and done without more grant funds.	ES	To increase Mass Care and Shelter capability of the county, grants from 2008-2009 Homeland Security Grant Program (HSGP) and 2009 Riverside Regional Urban Area Security Initiative (UASI) funded the Mass Care and Shelter Trailer/Cache Program.	Fire Protection District/	1-5 Years	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project.
All-Hazard	**AH Action 2.1:** Continue funding and support for Special Districts Projects relating to all hazards.	Continue funding and support for Special Districts Projects relating to water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District for all hazards. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
All-Hazard	**AH Action 2.2:** Install Generators at Critical Facilities	Retrofit existing buildings and facilities with connectors/ ATS for emergency generators and/or install permanent emergency generators at critical facilities, including wells and booster station locations.	ES, SP	TBD	Water Systems	TBD	Critical sites are already set up for connection or has a permanently installed generator

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
All-Hazard	**AH Action 2.3:** Water Systems Repair Plan	Develop a plan for speeding the repair of and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies.	PRV	SDD WAS	Water Systems	TBD	We have a warehouse and inventory. Add'l inventory would need to be purchased from local wholesaler
All-Hazard	**AH Action 2.4:** Smart Water Meters and SCADA	Utilization of SCADA and Smart Water Meters to get real time data on problems with the system and reduce drive time emissions as a result of traditional meter reading.	PRV	Individual CSAs	Water Systems	Ongoing	Both SCADA and Smart Meters have been installed and continue to be installed
All-Hazard	**AH Action 2.5:** Provide Employees with Emergency Supplies	Provide emergency supplies of food, water, and portable generators for employees at office and field locations.	ES	SDD/WAS	Water Systems	Ongoing	WAS has a stock of emergency food supplies, water, and generators.
All-Hazard	**AH Action 2.6:** Annual Tower and Guide Wire Inspections	Conduct annual tower and guide wire inspections to mitigate storm/wind/earthquake hazards from knocking out communications.	PRV	TBD	TV Districts	7/1/2016-7/1/2017	All Districts
All-Hazard	**AH Action 2.7**: Maintain Tower Lighting	Maintain lights on all tower locations.	SP	TBD	TV Districts	June-17	
All-Hazard	**AH Action 2.8:** Designate Emergency Operations Sites	Conduct an inventory or list of County Park Facilities and Community Centers to establish a list of pre-designated emergency operations or disaster relief sites. Not all Community Centers are an appropriate size to accommodate large numbers of evacuees and may only serve as command and control centers or distribution centers.	PRV	TBD	Park Districts	April-17	All Districts
All-Hazard	**AH Action 2.9:** Establish Power Sources for Emergency Operations Sites	Establish small solar energy fields or other forms of renewable power at County Community Centers to facilitate stand-alone emergency operations for the community.	PRV, SP	TBD	Park Districts	12/1/2016-7/1/2018	Lucerne Valley Joshua Tree
All-Hazard	**AH Action 2.10:** Connect Water Systems to Generators	Connect water systems to generators to ensure delivery even in disaster situations.	PRV, SP	TBD	Park Districts	TBD	
All-Hazard	**AH Action 2.11:** Establish a Centralized Communications Network	Establish a centralized communications network to monitor channel output for TV Districts and provide emergency information by way of character generator tied to channel transmissions.	PRV	TBD	TV Districts	7/1/2017-12/1/2017	All districts
All-Hazard	**AH Action 2.12** Incorporate as appropriate requirements from the State of California's	Government Code 65302.6 requires the following elements to be included in the hazard mitigation plan: (1) An initial earthquake performance evaluation of public facilities that provide essential services, shelter, and critical governmental functions.	PRV, NRP	TBD	Primary: Land Use Services	1-3 years	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
	most recent land use regulations regarding the hazard mitigation planning process (Government Code 65302 and 8685.9).	(2) An inventory of private facilities that are potentially hazardous, including, but not limited to, multiunit, soft story, concrete tilt-up, and concrete frame buildings. (3) A plan to reduce the potential risk from private and governmental facilities in the event of a disaster. Government Code 8685.9 requires that the state share shall not exceed 75 percent of total state eligible costs unless the local agency is located within a city, county, or city and county that has adopted a local hazard mitigation plan as part of the safety element of its general plan. In that situation, the Legislature may provide for a state share of local costs that exceeds 75 percent of total state eligible costs.			Secondary: Fire Protection District/		
All-Hazard	**AH Action 3.1:** Continue funding and support for Special Districts Projects relating to all hazards.	Continue funding and support for Special Districts Projects relating to water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District for all hazards. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	
Wildfire	**WF Action 1.1** Continue Mountain Area Safety Taskforce (MAST) funding to support mitigation activity.	MAST was formed to mitigate the region wide risk of a catastrophic wildfire due to dead and dying trees in the mountain communities. The mission of the MAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for the protection of property owners, residents, and property subject to the risk of catastrophic wildfire that could occur in San Bernardino County with an initial emphasis on the threat resulting from the Old and Grand Prix fires in 2003. MAST priorities are to continue reducing fire hazards through fuel reduction programs and hazard abatement though enforcement of county ordinances. The Mountain Area Safety Taskforce (MAST) Operations Section meets monthly. MAST Operations Section determines project priorities based on the benefit cost analysis of the projects and the effect of the project on the overall goals of the MAST organization. Goals can change as detailed Benefit Cost Analysis is conducted and CEQA/NEPA reviews are completed.	NRP, PPRO	Seeking additional funding through HMPG.	San Bernardino County Fire Protection District	On-Going	See Implementation plan on more information on MAST. See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .
Wildfire	**WF Action 2.1:** Update Mountain Mutual Aid Map Book to document updated information contained in 2016 HMP.	The Map Book portion of the Community Safety and Structure Protection Plan provides not only a street network of the area but more importantly it provides the locations of strategic and critical resources for fire fighters. These include but are not limited to safe zones, open areas, locations for refuge. They also identify areas within communities that have narrow and steep winding streets and or with limited ingress and egress. The document is handed out to all responding strike teams from out of the area and has proved invaluable in directing and coordinating an effective firefighting response and reduces the potential for life loss and property damage.	ES	Seeking additional funding through HMPG.	San Bernardino County Fire Protection District	On-Going	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Wildfire	**WF Action 2.2** Update Community Structure Protection Plans as necessary.	This is an on-going action (from the 2011 MJHMP) with the goal to continue development of and continue the mission of mutual aid between first responders in the County mountain areas.	PPRO		Fire Protection District	On-Going	
Wildfire	**WF Action 3.1:** Implement identified community based fuels reduction projects.	The Fuels Reduction Program is designed to create community based fuel modification programs across the mountain communities. These projects are selected specifically to reduce the potential for catastrophic wildfires and the damage that they can do to the communities. Project design, contracting, and operations are managed by the County's Public Works Department with priorities set by local fire chiefs in monthly MAST Operations Meetings. This program is the oldest and most significant for reducing wildfire threat on a mountain wide basis.	PPRO	Current Funding: Seeking additional funding through HMPG.	Primary: San Bernardino Public Works Department Secondary: County Fire Protection District	On-Going	
Wildfire	**WF Action 3.2:** Develop fuels reduction "maintenance program" by obtaining participation from citizens and/or homeowners associations.	To survive a wildfire, property owners need to manage the land surrounding their homes and communities effectively. Removing fuels in the wildland fuel reduction zone beyond the defensible space can reduce the speed and intensity of an oncoming wildfire. But if these areas aren't regularly **maintained**, they lose their effectiveness. Plants grow back, and flammable vegetation needs to be routinely removed and disposed of properly. This guide provides tips on how to create and maintain defensible space and wildland fuels treatments around your property.	PPRO, PE&A	Seeking additional funding through HMPG	Primary: Public Works Secondary: Fire Protection District	On-Going	
Wildfire	**WF Action 4.1** Increase homeowner assistance services to mountain residents for fuel reduction.	This is an ongoing wildfire mitigation action (from the 2011 MJHMP) for the group Forest Care to achieve the goal of providing assistance to homeowners by expanding services to all communities in the Mountain areas of the County. Forest Care is a program dedicated to creating a healthier forest. This program provides foresters to assess individual properties for thinning the vegetation and then provides 75% of the funding to do so.	PPRO, PE&A	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	
Wildfire	**WF Action 4.2** Continue working with Southern California Edison (SCE) to remove dead trees near power lines.	A significant number of fires across the State are caused by trees falling into power lines. When the forests in the mountain communities became infested with bark beetles the pine tree die off was unprecedented. Thousands of these dead trees were standing precariously close to power lines. Early in the Bark Beetle Emergency in 2004, Southern California Edison swiftly initiated a program to remove all trees that were dead, dying, and/or diseased that had the potential to fall into any SCE power lines.	PRV, PPRO	As of July of 2010 Southern California Edison (SCE) has spent $179,758,978 to remove dead dying and diseased trees.	San Bernardino County Fire Protection District	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
		The role of Southern California Edison was critical to the success of MAST both operationally and financially. Edison still removes the most difficult trees, the most costly trees; and the ones that are most likely to be the source of ignition for a wild land fire. They are also removing the trees that are immediately threatening homes. They have removed 118,305 trees since the inception of the program in 2004. They also provided reimbursements to people that removed their own trees.					
Wildfire	**WF Action 5.1:** Inspect every residence in the mountain communities throughout the year to enforce the Fire Hazard Abatement code that addresses green fuels.	The Fire Hazard Abatement Program conducts surveys to identify fire hazards throughout the year. Fire hazards are identified and notices to abate the hazard(s) are mailed to property owners. Property owners are given 30 days to abate the violations. Failure to abate may result in citations, penalties, and/or fees for abatement by the County. The Fire Hazard Abatement Program responds to complaints year round in the unincorporated areas and contracting Cities and Fire Districts. The Division completes more than 430,000 inspections, issues more than 45,000 Notices to Abate Fire Hazards, issues over 4,000 citations for non-compliance, and abates the fire hazards on more than 2,000 parcels annually. Within the last 5 years, the Fire Hazard Abatement Division has received even more financial resources that enable them to abate all properties declared a fire hazard.	PRV, PPRO, PE&A	Seeking additional funding through HMPG	Primary: Land Use Services Secondary: Fire Protection District	On-Going	For more information on Contractor Certification, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	**WF Action 5.2:** Continue to collaborate with Forest Care, Red, Cross and Cal Fire to overcome increased costs of enforcement.	This is an on-going action from the 2011 MJHMP with the goal of overcoming funding shortfalls for the County Fire Hazard Abatement Program.	PRV		San Bernardino County Fire Protection District	On-Going	
Wildfire	**WF Action 6.1** Train and Certify landscape contractors to comply with the Fire Hazard Abatement Code.	The City of Big Bear Lake created a program to train and certify landscape contractors to provide a qualified workforce to conduct fuels reduction activities on individual properties. The contractors are trained to comply with the new Fire Hazard Abatement Code that exists both in the City of Big Bear and the County unincorporated area. The City of Big Bear Lake Fire Department conducts the classes for landscapers and handy persons. This provides an incentive for the contractors and provides a level of certification that the homeowner can rely on when they are deciding to hire a landscape contractor to conduct fuels abatement around their home.	PRV, PPRO	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	On-Going

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Wildfire	**WF Action 6.2:** Continue wildfire mitigation efforts under the Wood Shake Roof Replacement Program.	The County successfully passed an ordinance that requires the replacement of wood shake roofs by 2014. MAST has successfully mapped all of the wood shake roofs in the fire safety overlay and has created a strategy as to which roofs will be selected to participate in the FEMA funded project. This is an on-going project in cooperation with Big Bear Lake Fire Protection District in order to provide more funding for wood shake roof replacements by property owners.	PRV, PPRO, SP		Primary: MAST Secondary: San Bernardino County Fire Protection District	On-Going	
Wildfire	**WF Action 6.3:** Protect Property in Wilderness Areas	Rockscape or pave property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.	PPRO, PRV, SP	TBD	Sewer Systems	January-17	All sewer pump stations have paving
Wildfire	**WF Action 7.1:** Modify independent and unique CWPPs into a more common framework making them similar but leaving room to provide specific hazard characteristics and mitigation actions for each community.	Community Wildfire Protection Plans are designed to provide a means for a community, usually through the Fire Safe Council, to have input into and actively participate in the planning, strategy, goals, and objectives of creating a fire safe community.	PRV	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	On-Going For more information on CWPP see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	**WF Action 8.1:** Construct Arrowbear Drive Realignment and Widening.	The Arrowbear community off State Highway 18 has limited access to State Highway 138. The existing bridge/spillway and road needs to be realigned and widened to facilitate access by emergency personnel during wildfires and flooding. Mitigation strategy for this is to remove and replace existing bridge/spillway, realign and widen the road.	SP	Seeking grant funding Total Cost: $3,000,000 Approx.	Primary: Public Works Secondary: San Bernardino County Fire Protection District	1-3 Years	
Wildfire	**WF Action 8.2:** Construct Cedar Glen Fire Access Road.	Lack of paved roads inhibits traffic circulation and the ability to enter and exit the area without backtracking during wildfire emergencies. Strategy is to Construct road and drainage improvements to Little Bear Creek Road and Elder Drive.	SP	Seeking grant funding **Total Cost:** $2,500,000	Public Works	1-3 Years	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Wildfire	**WF Action 8.3:** Structural Fire Breaks Widening	Double the width of external fire breaks on grounds which have structures located in wilderness and or areas prone to wildfires.	SP, PRV	Individual CSAs	Water Systems	7/1/2017-7/19/2019	
Wildfire	**WF Action 9.1:** Continue funding and support for Special Districts Projects relating to wildfire.	Continue funding and support for Special Districts Projects relating to wildfire in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	
Wildfire	**WF Action 9.2:** Emergency Water Supplies	Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal.(completed with continuous fresh of supplies and rotation)	ES	TBD	Roads	TBD	
Earthquake	**EQ Action 1.1:** Improve public education programs and practices to residents for earthquake risk.	Public education and outreach programs are an efficient and cost-effective way to promote meaningful changes within a community. A Program for Public Information (PPI) for earthquake awareness and mitigation could significantly reduce injury and property damage to earthquake. Use a suite of partnerships, activities, and products to educate the public about earthquake science and motivating homeowners to become prepared for earthquakes.	PE&A		Human Resources	5-10 Years	
Earthquake	**EQ Action 2.1:** Evaluate single family homes for Earthquake hazard when conducting permit applications and plan reviews.	82.15.040 Development Standards states that a structure used for human occupancy shall be located 50 feet or farther from any active earthquake fault traces. Lesser setbacks may be applicable in certain situations as determined by an appropriate geologic investigation and approved by the County Geologist or other engineering geologist designated by the Building Official. Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code Section 2621 et seq.) requires the delineation of potential damage areas along known active faults throughout California. It requires local governments to withhold approval of construction permits in those zones until geologic investigation has determined that the site is not threatened by surface displacement from future faulting.	PRV		Land Use Services	TBD	On-Going
Earthquake	**EQ Action 2.2:** Seismic Strapping	Seismic strapping for existing water tanks and future construction.	SP, PRV	CSA 64	Water Systems	7/17/2017-7/1/2019	Ongoing currently
Earthquake	**EQ Action 2.3:** Employee Emergency Sheltering	Develop a plan for short-term and intermediate-term sheltering of employees.	PRV	WAS	Sewer Systems	7/17/2017-7/19/2019	To purchase cots, small portable generators, tents, etc.

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Earthquake	**EQ Action 3.1:** Identify liquefaction hazard areas outside the currently designated Geologic Hazard Overlay Districts.	Supported by General Plan mechanism (General Plan, Section VIII, Safety Element Policy § 7.5; California Building Code §1803.5.11); Seismically- induced lateral spreading, and/or seismically-induced lateral flow, can cause devastating structural damage and a high potential for saturation exists when the groundwater level is within the upper 50 feet of alluvial material.	PRV		Land Use Services	5-10 Years	
Earthquake	**EQ Action 4.1**: Require development on hillsides to minimizes the extent of topographic alteration and erosion, to maintain slope stability, and to reduce the potential for offsite sediment transport (Complements General Plan, Section VIII, Safety Element Policy § 6.1).	This mitigation action is especially important in the San Bernardino and San Gabriel Mountains which have high slope failure / erosion potential. Typical slope mitigation techniques that are used include: Drainage Improvements - Since water is the biggest culprit in failing slopes, drainage improvements should be the first priority. Some drainage improvements may include: ▪ Collect or divert surface water from the problem slope. This may include catch basins, swales, or sealing tension cracks to prevent infiltration. ▪ Collect and remove subsurface water. This may include drains constructed within the subsurface to remove excess seepage, or lower ground water. Some earthwork mitigation techniques are as follows: ▪ Remove the upper soils of the slope to create a flatter slope. ▪ Buttress the slope toe by filling with rock, gravel, or soil. ▪ Benching the slope if each bench is on competent subgrade. ▪ Structural Improvements - Structural improvements include: ▪ Friction Piles ▪ Retaining walls ▪ Geo Grid ▪ Sheet Piles ▪ Rock Bolts ▪ Vegetative Cover Complements General Plan, Section VIII, Safety Element Policy § 7.6 Complements General Plan, Section VIII, Safety Element Policy § 6.1)	PRV	N/A	Land Use Services	On-Going	Provide enhanced information during the development review process to address slope failure concerns.
Earthquake	**EQ Action 4.2:** Generator Installation	Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.	SP, PPRO	TBD	Roads	TBD	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Earthquake	**EQ Action 5.1:** Divert runoff to Little Bear Creek.	To reduce the runoff over the cliff(s) in the Rimforest neighborhood, the runoff must be diverted to another path. This will be accomplished over three phases: • Phase 1: Reduce Runoff Tributary Area by 64%- 50.35 AC • Phase 2: Reduce Runoff Tributary Area by 30%- 23.79 AC • Phase 3: Reduce Runoff Tributary Area by 5%- 3.99 AC	SP, NRP, PRV		Primary: Public Works Secondary: Flood Control District		
Earthquake	**EQ Action 6.1:** Continue funding and support for Special Districts Projects relating to earthquake hazards.	Continue funding and support for Special Districts Projects relating to earthquake hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	
Flood	**FL Action 1.1:** Update NFIP data and maps with newly identified flood hazard areas in the County, as new information becomes available.	As required by the State of California, National Flood Insurance Program (NFIP) maps published by FEMA must be included in the HMP or General Plan Safety Element. Keeping this information current is an important mitigation action.	PRV, PPRO		San Bernardino County Flood Control District	On-Going	
Flood	**FL Action 2.1:** Determine whether or not additional amendments to development standards or policies are merited, based on the Alluvial Fan Task Force Recommendation.	This is an on-going mitigation action from the 2011 MJHMP.	PRV		Primary: San Bernardino County Flood Control District Secondary: Land Use Services	On-Going	
Flood	**FL Action 3.1:** Amend the Flood Plain Safety Overlay District through automatic map updates as new data is released and published by FEMA.	Current San Bernardino County Hazard Maps can be found at: http://cms.sbcounty.gov/lus/Planning/ZoningOverlayMaps/HazardMaps.aspx.	PRV, NRP		Primary: San Bernardino County Flood Control District Secondary: Land Use Services	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Flood	**FL Action 3.2:** Review development plans to ensure compliance with ordinances.	This is an on-going mitigation action from the 2011 MJHMP in order to reduce the flood hazards through development standards and policies stated in the General Plan and San Bernardino 2077 Development Code.	PRV		Primary: Land Use Services Secondary: San Bernardino County Flood Control District	On-Going	
Flood	**FL Action 3.3:** Inspect construction to ensure compliance with approved development plans.	This is an on-going mitigation action from the 2011 MJHMP in order to reduce the flood hazards through development standards and policies stated in the General Plan and San Bernardino 2077 Development Code.	PRV, PPRO, SP		Primary: Public Works Secondary: Flood Control District	On-Going	
Flood	**FL Action 3.4:** Soil Stabilization on Roadways and Along Roadway Shoulders	Soil stabilization on roadway shoulders and dirt roads. This will prevent erosion caused by flood conditions.	SP, PRV	TBD	Roads	TBD	
Flood	**FL Action 3.5:** Encasing Pipelines	Encase water pipelines with specific sized rock, gravel, and road base in natural waterways to prevent continual washout or exposure during heavy storm events/floods.	SP, PRV	CSA 70 J	Water Systems	7/17/2017-7/1/2027	
Flood	**FL Action 4.1:** In each flood control zone, construct facilities identified in those zones by the Flood Control Advisory Committee. See Flood Control District Annex for a listing of projects.	This is an ongoing mitigation action from the 2011 MJHMP to achieve the goal of improving existing facilities and construct new facilities to mitigate flooding within the County.	SP		Primary: Public Works Secondary: San Bernardino County Flood Control District	On-Going	
Flood	**FL Action 6.1:** Continue funding and support for Special Districts Projects relating to flood hazards.	Continue funding and support for Special Districts Projects relating to flood hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Flood	**FL Action 6.2:** On Call Contractors	Employ on call contractors to assist in emergency situations.	PRV, ES	TBD	Roads	TBD	
Drought	**DR Action 1.1:** Create a public awareness campaign advising citizens, business owners and farmers on water conservation.	Public education and outreach programs are an efficient and cost-effective way to promote meaningful changes within a community. A program to raise awareness on the importance of water conservation could significantly reduce the amount of water used by the public.	PE&A, NRP		Human Resources	TBD	
Drought	**DR Action 1.2:** Provide incentives for farmers to grow crops that are less water intensive.	Farmers use 80% of the State's water. By offering incentives to produce less water intensive foods (such as beets, carrots and potatoes) as opposed to more water intensive foods such as almonds, beef and pork) would make a substantial difference in water consumption.	NRP, PRV,		DAO Community Services?	On-Going	
Drought	**DR Action 1.3:** Continue to coordinate with the San Bernardino Valley Water Conservation District to provide Qualified Water Efficient Landscaper (QWEL) training.	The Qualified Water Efficient Landscaper training presents an affordable proactive local approach to reducing landscape water demand. QWEL provides graduates with knowledge in water efficient and sustainable landscape practices including water management and preservation of other valuable resources.	PE&A		Economic Development Agency?	On-Going	
Drought	**DR Action 1.2:** Approve the County's Watershed Water Quality Management Plan.	The County's Watershed Water Quality Management Plan written in 2013.	PRV, NRP			On-Going	
Drought	**DR Action 1.4:** Continue to enforce the watering schedule and watering restrictions throughout the County.	In response to the State Water Resources Control Board's 2016 emergency water conservation regulation, the County enforces a watering schedule for residential and commercial addresses.	PRV, NRP		Land Use Services	On-Going	
Drought	**DR Action 3.1:** Continue funding and support for Special Districts Projects relating to drought hazards.	Continue funding and support for Special Districts Projects relating to drought hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7	VARIES	VARIES	VARIES	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Anti-Terrorism	**AT Action 1.1:** Identify and prioritize mitigation activities (anti-terrorism force protection) at critical facilities and gathering places that are vulnerable to terrorist attacks.	Critical facilities may include essential facilities (such as hospitals, police and fire stations, evacuation centers, etc.), transportation systems, lifeline utility systems, high potential loss facilities (such as nuclear power plants, dams and military installations, etc.), and hazardous material facilities. Gathering facilities should also receive special attention. Places of mass gathering not only present terrorists with potential opportunities for mass casualties, symbolism and high impact media coverage, they pose a broad range of security challenges for their owners and operators.	PRV, PPRO		Land Use Services	On-Going	
Anti-Terrorism	**AT Action 2.1:** Continue funding and support for Special Districts Projects relating to terrorism hazards.	Continue funding and support for Special Districts Projects relating to terrorism hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	
Climate Change	**CC Action 1.1:** Continue working with the South Coast Air Quality Management District to meet GHG reductions targets.	The San Bernardino County General Plan Amendment and Greenhouse Gas Reduction Plan addresses the environmental effects specific to the proposed General Plan Amendment, Greenhouse Gas Reduction Plan, and associated Development Code Amendment and can be found here: http://www.sbcounty.gov/Uploads/lus/Countywide/GreenhouseGas/Full-Vol-1.pdf	PRV, NRP		Land Use Services	On-Going	
Climate Change	**CC Action 1.2:** Continue implementing the energy conservation and efficiency measures identified in the County of San Bernardino Greenhouse Gas Emissions Reduction Plan.	According to the San Bernardino County Renewable Energy and conservation Element, San Bernardino County's commercial, institutional and residential communities will continue to grow in the foreseeable future. Access to dependable and affordable energy sources is critical to maintaining and enhancing the quality of life enjoyed by San Bernardino residents and businesses. As energy needs grow, so do the needs to develop new energy sources.	PRV, NRP		Land Use Services	On-Going	
Climate Change	**CC Action 2.1:** Encourage carpooling and the use of public/ alternative transportation methods.	Reduction Measure R2T1 of the County of San Bernardino Greenhouse Gas Emissions Reduction Plan establishes an Employment Based Trip and VMT Reduction Policy. Some features include a compressed work week, car/vanpools, employee bicycle/pedestrian programs, and shuttle/ transit programs.	PE&A, PRV, NRP		Human Resources	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Climate Change	**CC Action 2.2:** Optimize energy efficiency in the built environment and promote the local economic benefits of energy efficiency retrofits. (San Bernardino County Renewable Energy and Conservation Element)	This is an on-going mitigation policy from the San Bernardino County Renewable Energy and Conservation Element.	SP, PE&A, PRV		Public Works	On-Going	
Climate Change	**CC Action 2.3:** Encourage residents and businesses to conserve energy. (San Bernardino County Renewable Energy and conservation Element)	This is an on-going mitigation policy from the San Bernardino County Renewable Energy and Conservation Element.	PE&A, NRP, PRV		Human Resources	On-Going	
Climate Change	**CC Action 3.1:** Continue funding and support for Special Districts Projects relating to climate change hazards.	Continue funding and support for Special Districts Projects relating to climate change hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	

Section 7. Plan Maintenance

7.1 Monitoring Evaluating and Updating the HMP

The San Bernardino County Fire Protection District Office of Emergency Services (OES) is the custodian of the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). In the 2010 MJHMP, County of San Bernardino indicated that the MJHMP would be reviewed annually. Although no formal meetings were held, OES reviewed the plan annually and collected new hazard mitigation information and mitigation efforts throughout the county. Additionally, OES referenced/reviewed the MJHMP before submitting grant applications to ensure the project was captured in the plan when applying for all grants to assist their mitigation efforts.

There are three (3) main components to the MJHMP: hazards, projects, and stakeholder involvement (public, as well as, county staff). The County and its Special Districts have focused on these components and over the last 5 years have made steady improvements in all areas. The County and its Special Districts participated and facilitated several meetings and established several tasks forces to help advance the understanding of hazards in the community. This information was shared with other county personnel and the general public. OES believes that this sharing of information leads to a more informed community, thus a more robust MJHMP.

Departments and Special Districts with projects track the status of the projects through the entire life cycle from concept to completion. Projects in progress are tracked to ensure all milestones are met and payments are made in a timely manner. Each year proposed projects are reviewed during budget development every spring and selected projects are submitted for funding to the appropriate funding source. These funding sources include but are not limited to grant funding, General Fund funding, and Special District funding.

Because the MJHMP is a living document that reflects ongoing hazard mitigation activities, the process of monitoring, evaluating, and updating will be critical to the effectiveness of hazard mitigation within the County Unincorporated Area. The County and its Special Districts will hold internal planning meetings to discuss current projects and evaluate newly proposed projects resulting from internal staff meetings and input from the public. The results of these Departmental/Special District meetings will be presented to the Multi-Jurisdictional Planning Team meetings at their annual meetings. To facilitate the Multi-Jurisdictional Hazard Mitigation Planning process, OES is proposing to conduct these annual meeting with the Multi-Jurisdictional County Planning Team where the Team Members will discuss the projects, priorities, and goals in the current plan and from individual Special District meetings and suggest any necessary changes. Results of the annual meeting will be retained and compiled for the 2016 update. The County Planning Team will continue to support focused outreach for county Departments and Districts as well as support Countywide activities.

7.1.1 Plan Adoption

To comply with DMA 2000, the San Bernardino County Board of Supervisors has officially adopted the 2016 San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan. The adoption of the 2016 MJHMP recognizes the County's commitment to reducing the impacts of natural hazards within the County limits. A copy of the 2016 MJHMP adoption resolution is included after the table of contents in this document.

7.1.2 Implementation

The knowledge gained from the MJHMP has helped the county enhance other planning efforts. One of the biggest results from the 2010 MJHMP efforts was the incorporation of the MJHMP into the 2007 General Plan's Safety Element. This merging of plans has help ensure development decisions are considering the most recent hazard information. It is the County's intent to incorporate by reference the updated MJHMP into the County General Plan upon approval from FEMA.

The MJHMP has also led to the strengthening and improvement of several County Ordinances, which are designed to ensure proper fuels reduction was completed in the Severe Fire Hazard Zones. Two new ordinances were passed requiring replacement of wood shake roofs in the Severe Fire Hazard Severity Zones by 2014 and the reduction of live fuel loads around structures in the Very High Fire Hazard zone.

The MJHMP goals and actions will be incorporated into various general operations of government. For example, much of the information from the MJHMP will be included in the County Operational Area Emergency Operation Plan (EOP). As any future County plans are developed, the Multi-Jurisdictional Hazard Mitigation Plan will be a great asset in any plan development efforts. As noted earlier, much of the information contained in this MJHMP is from the County General Plan and is already part of the planning process.

Additional benefit is gained from the County and its Special Districts reviewing existing mitigation projects and development of additional mitigation projects at their internal annual Planning Team meetings. This input includes comments and suggestions from the public as well as from the internal planning process of each County department and District.

7.1.2.1 Implementation through Existing County Mechanisms

7.1.2.1.1 All Hazards

7.1.2.1.2 Amendment to Title 6 County Code

An amendment to Title 6 of the County of San Bernardino Code to adopt by reference the 2010 Editions of the California Building Standards Codes went before the Board of Supervisors on

November 2, 2010 and was continued for a second reading on November 16, 2010 and approved unanimously. The amendment became effective on January 1, 2011.

The County of San Bernardino amendment to Title 6 of the County Code to adopt by reference the 2010 Editions of the California Building Standards Codes repealed the current chapters of Division 3 of Title 6 that reflect the 1994/1995 editions of the California Building Standards Codes and adopt the 2010 editions of these codes by reference.

The California Building Standards Commission approved the California Building Standards Code (Code) for a statewide effective date of January 1, 2011 and requires this Code apply in all parts of the state. This Code consists of the California Building, Residential, Plumbing, Mechanical, Electrical, Energy, Historical Buildings, Existing Building (Unreinforced Masonry) and the Green Building Standards Codes. Since this 2010 Edition was adopted by local ordinance, the prior editions of this code will be repealed and the most recent editions of the codes with applicable amendments requiring express findings and certain appendices necessary for the health and safety of the citizens of this County will be in effect within the unincorporated areas of San Bernardino County. The benefit of adopting this Code is that it provides consistency and clarification for the building community as well as building inspectors and plans examiners. State law (Health & Safety Code 18941.5 and 17958.7) requires the local government make express findings in order to amend building standards and the amendments must be necessary due to local climatic, geological, or topographical conditions.

Those amendments and findings are included in the County's ordinance and were filed with the California Building Standards Commission.

The recommended modifications not requiring express findings are administrative or procedural in nature and concern the local implementation issues that are not covered by building standards.

An example of this type of modification is to the California Residential Code, Section R105.3.1.1 which requires the Board of Appeals to confirm substantial valuations in the flood plain. The traditional purpose of the Board of Appeals has been reserved for a contested decision of the Building Official, and it is felt that it should remain as such.

With respect to grading and excavation regulations found in Appendix J of the 2010 State published code, the 2001 California Building Code dealt with grading with more clarity in regards to what activities require a permit and set forth rules to ensure large grading projects are scrutinized in greater detail than smaller projects by requiring more reporting and inspection of such work. The grading chapter in the 2001 Code has been trusted and in use in its primary form for years. The 2010 Appendix J grading chapter needs substantial amendment and modification to address all grading issues and is not recommended for adoption in its present form. The Board adopted the 2001 Appendix Chapter 33 regulations as part of this proposed ordinance. Relocation permit requirements have been moved to a new section of the Code, and it retains specific standards for relocation procedures in details not found in the 2010 State-published code. Clarification of the types of buildings affected by the new regulations has also been made.

Administrative changes to the 2010 California Existing Building Code (Part 10 of Title 24) were approved to outline the procedures required to set allowable time limits for the retrofit and repair of unreinforced masonry buildings. Staff is also recommending that authorization be given to the Building and Safety Division of the Land Use Services Department to issue Administrative Citations as an alternative means of enforcement of the County Code provisions.

Express findings are made for changes to the California Plumbing Code, Appendix K regarding the soil conditions that exist in this county. These changes are supported by the Environmental Health Division. These express findings are iterated in the ordinance and will be filed with the Building Standards Commission as required by law in order to become effective.

7.1.2.2 Wildfire

7.1.2.2.1 Inland Empire Fire Safe Alliance (IEFSA)

The Inland Empire Fire Safe Alliance (IEFSA) was created to act as a forum for all Fire Safe Councils in San Bernardino County. Some of the benefits are developing a consistent and comprehensive message to citizens about fire safety; coordinating efforts for grant administration, writing, and reporting; a one-stop shop for information, resources and research; and a centralized source for sharing of updates from cooperating governmental agencies. There are approximately 20 Fire Safe Councils active in San Bernardino County.

IEFSA has held bimonthly meetings for over 5 years and have been the focal point for all regional Fire Safe Councils including some from Riverside County. They have also held numerous workshops and seminars regarding fire resistive construction, and materials, BAER reports, CWPPs and grant writing. The IEFSA was the focal point for Fire Safe Councils (FSCs) that were working on completing their CWPPs and created a focus group and a steering committee to accomplish these critical plans. To support public education and involvement,

IEFSA created the web site www.fireinformation.com as well as participated in countless safety fairs and fire wise awareness activities. They also conducted a Public Education Media Exchange where all FSC and Agencies got together to share educational modalities and create common thought and educational threads. They have reached out to thousands of mountain residents in preparing them for wildfires.

7.1.2.2.2 Mountain Area Safety Taskforce (MAST)

MAST was formed to mitigate the region wide risk of a catastrophic wildfire due to dead and dying trees in the mountain communities. The mission of the MAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for the protection of property owners, residents, and property subject to the risk of catastrophic wildfire that could occur in San Bernardino County with an initial emphasis on the threat resulting from the Old and Grand Prix fires in 2003. MAST priorities are to continue reducing fire hazards through fuel reduction programs and hazard abatement though enforcement of county ordinances.

The Mountain Area Safety Taskforce (MAST) Operations Section meets monthly. MAST Operations Section determines project priorities based on the benefit cost analysis of the projects and the effect of the project on the overall goals of the MAST organization.

The MAST Unified Command identified the following objectives as their focus and direction:

- Provide for Community Safety.
- Develop Coordinated Public Information Dissemination Between Cities, County, Special Districts, State, Federal, and Non-Profit Agencies.
- Develop Immediate, Mid-range and Long-range Coordinated Agency Plans.
- Identify and Secure Potential Funding Resources to Provide Protective Measures.
- Document Task Force Activities Including Mission, Goals and Objectives, Policies, Procedures, and Outcomes. Prior to any type of flood threat, the following precautionary measures may be taken by MAST members to reduce the impact of impending fires:
- Review mutual aid agreements
- Define evacuation areas and trigger points
- Review the use of alert and warning systems
- Provide information to the public of fire prone areas and protective measures in progress or planned for those areas
- Educate public on emergency self-help and preparedness
- Develop and maintain emergency notification procedures and checklists

MAST is the central point of coordination for all projects related to the reduction of the potential for catastrophic wildfires. There are numerous participants and all levels of government. MAST partners collaborate to provide multi-agency technical support to ensure project success. Economic impacts are considered and the result has been significant increase in economic activity through thoughtful application of grant funding. MAST has been so successful in the environmental management of projects that all of the local environmental groups including national affiliates are now supporters of MAST fuels projects.

The MAST group includes:

- San Bernardino County Board of Supervisors
- County Administrative Office
- County Public Works-Flood Control/Transportation/Solid Waste

- County Fire Protection District
- County Fire Protection District/Office of Emergency Services (OES)
- County Sheriff's Department
- Southern California Edison
- Bear Valley Electric
- Arrowbear Lake Fire Department
- Big Bear City Fire Protection District
- City of Big Bear Lake Fire Department
- Crest Forest Fire Protection District
- Running Springs Fire Department
- USFS
- San Bernardino National Forest Association
- Forest Care
- Cal Fire
- Caltrans
- California Highway Patrol
- Inland Empire Fire Safe Alliance
- Angelus Oaks Fire Safe Council
- Arrowhead Communities Fire Safe Council
- Bear Valley Fire Safe Council
- Lytle Creek Fire Safe Council
- Mill Creek Fire Safe Council
- Mountain Rim Fire Safe Council
- Wrightwood Fire Safe Council

Since its beginnings, MAST has been the Unified Command that has successfully implemented and completed numerous programs leading to safer communities, a more educated public and an improved environment.

MAST provides an extensive Fuels Reduction Program. The Fuels Reduction Program began with removal of dead hazardous trees from areas threatening electrical transmission lines, evacuation routes, and structures within the San Bernardino Mountains. Dead and dying trees pose an extreme fire danger, and MAST members began removing these trees under state and federal grants, including a $70 million grant from the USDA Natural Resources Conservation Service. At the height of the program, Southern California Edison contractors were taking out 650 trees a day. As the program developed, additional hazards were identified, such as green fuel load density and wood shake roofs on structures within the San Bernardino Mountains

The MAST mission has expanded to include reducing green fuel by thinning live trees in densely wooded areas. Property owners also are being urged to thin the live trees and vegetation on their property to gain an upper hand on the bark beetle infestation and reduce the risk of catastrophic wildfires like the Grand Prix and Old fires in 2003.

Other MAST Achievements include:

- Increasing awareness of the drought-related bark beetle emergency and the threat of catastrophic wildfires
- Distributing fire safety and prevention information to the public
- Developing evacuation plans and distributing emergency planning information to the public
- Developing commercial use or disposal options for waste wood products.

The Mountain Area Safety Taskforce (MAST) Operations Section meets monthly. MAST Operations Section determines project priorities based on the benefit cost analysis of the projects and the effect of the project on the overall goals of the MAST organization.

Goals can change as detailed Benefit Cost Analysis is conducted and CEQA/NEPA reviews are completed.

7.1.2.2.3 Fire Safety Overlay District Mitigation

A General Plan Amendment to the Safety Element of the County of San Bernardino 2007 General Plan updated the Fire Safety Overlay District effective March 11, 2010. The Safety Element includes several hazard overlays that are included in the General Plan mapping system to inform the public of potential hazards to development of property within certain areas of the County and to enable the County to mitigate the risks presented to property owners by these hazards, by requiring fire resistant building construction methods. The overlays include potential fire hazards within the mountain regions as well as the valley and desert "interface". Over the past twenty years, certain federal and state agencies have been in the process of digitizing much of this hazard data. The digitization of this data has allowed for greater accuracy as well as more timely updates. In recognition of the new data from various federal and state agencies, the County updated the Fire Safety Overlay District contained within the Safety Element of the General Plan. The Fire Safety Overlay District is amended by modifying four General Plan Quad Maps to incorporate updated fire safety mapping published by Cal Fire for the Valley area.

As new information is received, the overlay maps are updated to reflect changes. These updates are made by the Land Use Services Department in collaboration with County Fire Protection District. More areas have been added through annexation and contract for services and so there has been large growth and the overlay will be updated. The future 2018 CountyWide Plan will replace the General Plan, and will contain more update maps and regulations that will allow development to occur but ensure safety and sustainability within the Fire Safety Overlay District.

7.1.2.2.4 Public Education Programs

The County through MAST conducted a comprehensive mountain-wide multi-modality Public Outreach Program from 2006 to 2008. It can be found at www.CalMAST.org. The program in both English and Spanish created and presented multiple public educational meetings, newsletters,

brochures, calendars, and posters. Because of the large number of visitors to the forest, MAST also created Emergency Information Visitors brochure and glove box sized Emergency Response Evacuation maps for the mountain communities. The program won national awards for advertising and public relations. Other jurisdictions initiated their own public education activities but brought them back through MAST so that the entire group could receive the benefit. The City of Big Bear Lake Fire Department was the most prolific in developing innovative and creative educational programs. They developed the Thin-Is-In website at (www.thinisin.org) that is an excellent site for citizens and agencies as well. Since the Big Bear Valley is served by an excellent radio station KBHR (k-bear) they have posted numerous public safety messages. Also during the Butler, Butler II and Slide Fires, KBHR provided constant updates to the community regarding the fire.

7.1.2.2.5 County Fire Hazard Abatement

Land Use Services Department, Environmental Health Division is responsible for Fire Hazard Abatement (FHA). Fire Hazard Abatement works to reduce the potential for an individual's property to be the source of fire and structural ignitability. Failing to maintain private property in a fire safe condition is seen as a fire threat and is considered a threat to neighbor's property rights. To obtain compliance, FHA issues notices of violation to properties that have dry vegetation and flammable green vegetation. If the property owner doesn't comply with the notice, FHA then obtains a warrant to go onto the property and abate the fire hazard.

The Fire Hazard Abatement portion of the County Code was completely rewritten and redesigned around real flammable fuels. The most significant change was to include certain types of green fuels as flammable vegetation.

Following in the City of Big Bear Lake's path, the County adopted the new code in the fall of 2008. In January of 2010 the County amended the Hazard Overlay maps.

The Fire Hazard Abatement Division of the Land Use Services Department conducts annual inspections of all parcels of land in mountain regions for the purpose of identifying exterior fire hazards. Biannual inspections are completed in valley and desert serviced areas. The targeted hazards include high energy release shrubs, dead and hazardous trees, flammable vegetation, weeds, grasses and combustible rubbish. The Division completes more than 430,000 inspections, issues more than 45,000 Notices to Abate Fire Hazards, issues over 4,000 citations for non-compliance, and abates the fire hazards on more than 2,000 parcels annually. Within the last 5 years, the Fire Hazard Abatement Division has received even more financial resources that enable them to abate all properties declared a fire hazard.

7.1.2.2.6 Countywide Fuels Management Program

In May of 2005 the San Bernardino County Fire Protection District and the San Bernardino County Flood Control District formed a partnership to implement the Hazardous Tree Removal Program, later the Fuels Management Program. In this endeavor the Flood Control District

formed the Hazardous Tree Removal Operations Division which was tasked with developing, bidding and administering Tree Removal and Fuel Reduction Contracts funded by various grants. Contracts originally focused on removing dead, dying, and diseased trees caused by the drought conditions and the bark beetle infestation. The program has evolved to include fuel modification projects which remove hazardous vegetative fuels through the thinning of live vegetation. In addition the location of the fuel reduction projects are moving beyond the limits of the San Bernardino Mountains and into the interface between the Mountain foothills and the high desert.

The following are the types of programs/projects included in the Fuels Management Program:

- Emergency Tree Removal Projects consist of the removal of a tree (or trees) that poses an immediate threat to safety, a structure, or the public right-of-way.
- Block Projects are dead dying diseased tree removal projects on multiple parcels which are located in close proximity to one another.
- Large Urban Parcel Projects are dead dying diseased tree removal projects on a single or multiple large parcels.
- Fuel Modification Projects focus on the removal of hazardous fire fuels in the wildland/urban interface. The fuels removed in these projects are both live and dead vegetation. The goal of these projects is to reduce a future forest fire's intensity as well as the removal of ladder fuels which carry the fire from the forest floor to the forest canopy and result in a crownfire.

In addition to the Hazardous Tree Removal Operations Division, the San Bernardino County Fire Fuels Management Crews are also funded by the same grant sources. The primary focus of the crews is to create and maintain fuel modification projects in the vicinity of communities at risk and construct fuel breaks. In addition the crews assist the public with curb side chipping programs throughout local partner jurisdictions.

7.1.2.2.7 Fireworks Interdiction

The unlawful transport of dangerous fireworks continues to be enforced by several local and state fire and law enforcement agencies, The program continues ensures that thousands of pounds of fireworks per year are seized and properly disposed of, preventing fires, fire injuries and fire deaths.

7.1.2.2.8 Programs Listed in Fire District Annex

Table 7-1: Wildfire Mitigation Implementation Methods

Mitigation type	Description
PPRO	SCE removes dead trees near power lines to reduce fire hazards. For more information, see Annex A Section A.6 Mitigation Project Prioritization and Implementation.
ES	Mountain Mutual Aid is an operational group of emergency responders.
PRV	The Alliance was created to act as a forum for all Fire Safe Councils in San Bernardino County. For more information, see Annex A Section A.6 Mitigation Project Prioritization and Implementation.
PRV	Fire Hazard Abatement works to reduce the potential for an individual's property to be the source of fire and structural ignitability. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
PE&A	Cal Fire provides programs to increase fire safety in high fire hazard severity zones. For more information, see Annex A Section A.6 Mitigation Project Prioritization and Implementation.
PRV, PPRO	The Contractor Certification program trains and certifies landscape contractors to provide a qualified workforce to conduct fuels reduction activities on individual properties. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
PRV, PPRO	CWPPs are designed to provide a means for a community to have input into and actively participate in the planning, strategy, goals, and objectives of creating a fire safe community. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .

7.1.2.3 Earthquake / Geologic

A General Plan Amendment to the Safety Element of the County of San Bernardino 2007 General Plan updated the Geologic Hazard Overlay Maps which became effective on March 11, 2010. The Safety Element includes several layers of hazard overlays that are included in the General Plan mapping system to inform the public of potential hazards to development of property within certain areas of the County and to enable the County to mitigate the risks presented to property owners by these hazards. These overlays include potential geologic hazards. Over the past twenty years, certain federal and state agencies have been in the process of digitizing much of this hazard data. The digitization of this data has allowed for greater accuracy as well as more timely updates. In recognition of the new data from various federal and state agencies, the County updated the geologic hazard overlay maps, specifically the Generalized Liquefaction

Susceptibility layer and the Generalized Landslide Susceptibility layer, contained within the Safety Element of the General Plan.

The Generalized Liquefaction Susceptibility layer was amended to modify four General Plan Quad Maps to incorporate new liquefaction data in the Big Bear Lake area designated by the County Geologist for the Big Bear Lake Valley. This information was then incorporated into the County-designated Geologic Hazard Overlay District.

The Generalized Landslide Susceptibility layer was amended by modifying 17 General Plan Quad Maps and one regional Quad Map, to incorporate updated existing landslide data published by the U. S. Geological Survey for the Mountain area. The County Geologist updated the landslide inventory within the Geologic Hazard Overlay District by incorporating new geologic mapping by the U.S. Geological Survey.

The following is a list of the updated General Plan Geologic Hazard Overlay Maps effective on March 11, 2010:

Table 7-2: General Plan Geologic Hazard Overlay Maps

Map #	Quad Name
FH08C	Fifteen Mile Valley
FH11C	Mt. San Antonio
FH12C	Telegraph Peak
FH13C	Cajon
FH14C	Silverwood Lake
FH15C	Lake Arrowhead
FH16C	Butler Peak
FH19C	Mt. Baldy
FH20C	Cucamonga Peak
FH21C	Devore
FH22C	San Bernardino North.
FH24C	Keller Peak
FH27C	Ontario
FH30C	San Bernardino South
FH31C	Redlands
FH32C	Yucaipa
FI09C	Fawnskin
FI10C	Big Bear City

Map #	Quad Name
FI17C	Big Bear Lake
FI18C	Moonridge
EH/FH C	SW Portion of County
FH23C	**Harrison Mtn.**

7.1.2.4 Flood

7.1.2.4.1 Existing Drainage Studies

Drainage studies including review of upstream properties, site drainage area, potential upstream development, and site-specific development will help to mitigate damage from future storm events. San Bernardino County owns landfill sites, transfer stations and closed disposal sites where combined site property totals several hundred acres. Landfills and disposal site properties include acreage that has been constructed to design grades and may include improved drainage systems. Also, within most landfill and disposal site properties there are many acres of property that remain in its natural state including native vegetation and natural grades. During severe weather events, both engineered areas and undisturbed areas are subject to erosion from storm run-off. The erosion can range from minor to severe depending on the storm event and amount of precipitation. Most sites where engineered drainage systems are in place hold up well experiencing only minor erosion and debris flow. However, during major storm events, runoff from native and unimproved areas carrying solids and debris flow may compromise downstream drainage systems and overwhelm system facilities. Much of the damage to landfill and disposal sites during the December 2010 Winter Storm event was caused by erosion with sediment carried from undeveloped/undisturbed areas or where no improved drainage system is in place.

Other events that may cause damage to property and structures include earthquakes, wildfires, high winds, extreme freezes, and lightning storms.

- Earthquakes have the potential of causing damage to site roadways, structures, and systems including concrete drainage systems, Landfill Gas systems (LFG) and Leachate Collection Recovery Systems (LCRS). With earthquakes, there is always the potential of slope failure and slides on the landfill surface. Damage to any of these facilities has the potential to result in an inability to temporarily service the community.
- High Winds can cause damage to temporary drainage structures, fencing, and metal structures. During past high wind events, Transfer Stations have experienced roof panels being torn from the beams. Landfill sites with exposed geo-synthetic liners may experience damage if the winds lift and tear the liners.
- In January 2007, the County experienced a loss of over $21,000 in damage when water pipes at three separate Transfer Stations froze, then burst, causing damage to offices and electrical equipment.

- Lightning storms have the potential to damage electrical components in scale houses, in-ground scales, LFG, and LCRS.

7.1.2.4.2 NFIP Program and County General Plan Policies

Because the County has entered into an agreement to participate in the National Flood Insurance Program (NFIP) which provides flood insurance within designated floodplains, the following goals, policies and programs shall apply:

As stated in the San Bernardino County General Plan Safety Element:

GOAL S 5
The County will provide adequate flood protection to minimize hazards and structural damage.

Policy S 5.1: Participate in the National Flood Insurance Program (NFIP), which provides flood insurance within designated floodplains.

Programs

1) Designate Floodway and Floodplain areas, as identified by the Federal Emergency Management Agency (FEMA) on flood insurance rate maps and flood boundary maps, as Floodway (FW) on the Land Use Maps and Floodplain Overlays on the Hazards Overlay Maps.

2) Designated floodway areas will be preserved for non-structural uses through restrictions of the FW Land Use Zoning District

3) All new development, including filling, grading, and construction, proposed within designated floodplains, will require submission of a written assessment prepared by a qualified hydrologist or engineer, in accordance with the latest "San Bernardino County Hydrology Manual" and the various detention basin policies (see Existing Policy FL-11), to determine whether the development will significantly increase flood hazard and to show that all new structures will be adequately protected. Development will be conditioned on receiving approval of this assessment by the San Bernardino County Surveyor Division of the Public Works Department. All new construction in a Floodplain Overlay area will be required to be flood-proofed, located, and designed to allow unrestricted flow of floodwaters.

4) The Land Use Compatibility Chart for 100-Year Flood Plains Table 5-1 will apply to County reviews of all discretionary and ministerial actions in County designated floodplains.

5) Lands within floodplain areas may be developed with non-critical and non-essential uses if mitigation measures are incorporated to ensure that the proposed development will not be hazardous, increase flood depths or velocities downstream, or degrade water quality, especially uses such as parks, trails, and open space.

6) Provide known flood hazard information with every discretionary or ministerial application.

7) When no mapped data exist, existing topographical, watershed, and drainage course data will be evaluated for a determination of potential flood hazard for every discretionary and ministerial action.

Policy S 5.2: Update data and maps with newly identified flood hazard areas in the County, as new information becomes available.

Programs

1) As new overflow studies and mapping are completed and approved by either the County's Land Development Engineer or the San Bernardino County Flood Control District, they will supplement the FEMA mapping and will be incorporated into Flood Hazard Overlay mapping.

2) Initiate and finance programs for the continuous evaluation and designation of floodway, floodplain, and drainage areas.

3) Timely application for FEMA mapping changes will be initiated to reflect any additions to or alterations in identified Floodways or Floodplains by the County Floodplain Management Administrator.

7.1.2.5 Drought

7.1.2.5.1 Water Efficient Landscape Ordinance

Over the years, the State of California has been promoting water conservation for all new development within the State. In a drought-prone California, where approximately 60 percent of all residential water is used in landscape applications, California lawmakers have adopted such legislation as Assembly Bill (AB) 325 (1990), AB 2717 (2004), and AB 1881 (2006) that outline, and in some instances mandate, the practice of water conservation in landscape applications. As part of AB 325, the Department of Water Resources (DWR) was charged to assemble a task force of stakeholders representing the landscape, water, and building industries as well as cities, counties, and other agencies that would help DWR prepare and promote the State's first Model Water Efficient Landscape Ordinance (MWELO).

While AB 325 did not require cities, counties, and other agencies within the State to comply with the first adopted MWELO, it did encourage local agencies to implement water conservation techniques into their local ordinances and codes. The County adopted Administrative Guidelines

that were amended several times and ultimately given the status of "regulation" when they were incorporated into the Development Code (Chapter 83.10) during the 2007 General Plan Update process.

In 2006, State lawmakers adopted AB 1881, which gave guidelines and timelines for revision of the State's MWELO and mandated that every city, county, or other agency within the State of California adopt the State's revised MWELO, or be in compliance with it through their own ordinance, by January 2010. Local agencies are required to report their final action, along with findings of ordinance effectiveness, to DWR by January 2011. While this process was underway, Senate Bill X7-7 was enacted (2009). This bill requires the State of California to achieve a 20 percent reduction in urban per capita water use by December 31, 2020; additionally, it requires the State to make incremental progress towards this goal by reducing per capita water use by at least 10 percent by December 31, 2015. These requirements were incorporated into the MWELO and, in February 2008, DWR made a draft of the State's revised MWELO available to all cities, counties, and other agencies within the State. The final version of the revised MWELO was released in September 2009.

Upon review of the final version of the State's MWELO and the provisions of AB 1881, staff determined the County would need to revise Development Code Chapter 83.10 which sets forth landscaping and irrigation standards within the unincorporated areas of the County. This would in part, become a mitigation measure to assist with any drought hazard the County may encounter. In the meanwhile, the County began enforcing the State's revised MWELO in January 2010, as required by law.
Once the proposed changes to the Development Code have been adopted by the Board of Supervisors, staff will notify and forward all required information regarding the adoption and effectiveness of the County's Water Efficient Landscaping Ordinance to the State DWR as required by January 2011.

The proposed Development Code Amendment will revise the landscaping standards to reflect the changes governed by and to be as effective as, the State of California's revised Model Water Efficient Landscape Ordinance, while continuing to recognize the unique character of the regions that make up the County of San Bernardino.
The ***proposed revisions*** will require the applicant/developer to:

- Design and install systems that meet more effective and efficient water conservation standards in all landscaped areas on a project site, including residential;
- Comply with the revised standards for all new and rehabilitated landscape areas regardless of square footage for projects that are not homeowner installed and for all new and rehabilitated landscape areas, that are homeowner installed, that are 5,000 square feet or greater. This includes the following:
    - Submit a comprehensive Landscape Documentation Package, which has been prepared by a landscape architect licensed to work in the State of California or other licensed professional authorized to design and prepare Landscape Plans within the State of California;

    - Submit estimated annual water budget calculations for compliance with water conservation practices and the efficient use of water for each new or rehabilitated landscape. Calculations for the annual water budget for a project/site specific landscape shall use the formulas for the Maximum Applied Water Allowance (MAWA) and the Estimated Annual Water Use (EAWU) outlined in the ordinance;
    - Submit a Landscape Certificate of Compliance prepared by the landscape professional who prepared the Landscape Documentation Package conveying the project's compliance with the requirements of Development Code prior to final inspection;
    - Planting material within landscaped areas shall be chosen based on the information found in the Water Use Classification of Landscape Species, third edition (WUCOLS III) and the climate zone for the region based on information found in Sunset Western Garden Book;
    - Irrigation systems shall be equipped with a "smart" irrigation controller, which automatically adjusts the frequency and/or duration of irrigation events in response to changing environmental conditions.
    - Submit a rough and/or precise grading plan on all projects proposing more than 50 cubic yards of grading;
    - Submit a soil management report, that includes recommendations for soil modification and/or amendment;
    - Submit a project-specific regular maintenance schedule and two project-specific irrigation schedules for those projects subject to the ordinance.

Other provisions of the new regulations include standards for non-potable/recycled water use where it is available and new enforcement standards for compliance with water conservation practices.

Since the State law became effective on January 1, 2010, the Landscape Plan Review Fee was adjusted (Ordinance #4412, June 22, 2010) to reflect the increase in staff time necessary to meet these additional requirements.

The Planning Commission considered this ordinance on October 21, 2010. There was no one at the hearing who wished to address the Commission on this issue. The Commission recommended that the Board adopt the ordinance as presented on a vote of four commissioners in favor and one absent.

The proposed amendment is exempt from the California Environmental Quality Act (CEQA) in accordance with Section 15061(b) (3) of the CEQA Guidelines as the proposed change does not have the potential to cause a significant effect on the environment.

The proposed Ordinance is to be presented to the County of San Bernardino Board of Supervisors for adoption in the first quarter of 2011. Utilizing either the State Water Efficient Landscape Ordinance, which is in effect currently, or the County's specific Water Efficient Landscape Ordinance; the drought mitigation for this hazard is positive.

7.1.2.5.2 San Bernardino County Desert Area Groundwater Inventory and Atlas

As of January 2011, the California Department of Water Resources anticipates releasing the Final Local Groundwater Assistance (LGA) Guidelines later this calendar year. In December 2009, the draft LGA Guidelines and Proposal Solicitation Package (PSP) was available for public comment. The comment period ended on January 12, 2010.

Local public agencies with authority to manage groundwater resources are encouraged to apply Examples of projects that may be considered are: Groundwater data collection, modeling, monitoring and management studies; monitoring programs and installation of equipment; basin management; development of information systems; and other groundwater related work.

The County of San Bernardino Board of Supervisors may consider an action directing staff to apply for the grant when it becomes available for a Desert Area Groundwater Inventory (DGI) and Atlas. The DGI falls within the scope of the Local Groundwater Assistance (LGA) Program, which is funded with Prop 84 IRWM funds anticipated to be available for fiscal year 2010-2011. Grants are limited to $250,000 per recipient, and total funding is $4.7 million.

California Department of Water Resources will give priority to local agencies with adopted groundwater management plans (SB1938 compliant), and which demonstrate collaboration with other local agencies in managing groundwater basins. County's groundwater management ordinance satisfies this requirement.

By having a Desert Area Groundwater Inventory and Atlas, this would enable the County to have a database providing locational and water depth information for specific regions of the County that currently do not have a groundwater inventory. This Inventory and Atlas would provide information applicable for flood mitigation or ground water availability for usage during severe drought. The location and water depth in the inventory are important for an earthquake hazard analysis, if liquefaction potential exists.

Since there is not a Desert Area Groundwater Inventory currently, and if liquefaction is a concern in a specific region of the County, then the water depth data would estimate the vertical distance from the land surface to the top of the groundwater aquifer (i.e., the groundwater-saturated layer.)

Table 7-3: Tentative Schedule for the LGA Grant

Date	Event	
TBD	Release Final LGA Guidelines and PSP	Dependent upon Grant approval
TBD	Proposal Applications Due	Dependent upon Grant approval
TBD	Public Release of Draft Award Recommendations	Dependent upon Grant approval

Fund Source: Proposition 84

7.1.3 Continued Public Involvement

As indicated earlier, the County will continue to engage the general public and seek input on the mitigation and preparedness planning process. In addition to the San Bernardino County Board of Supervisor meetings, the actions include:

- Municipal Advisory Communities throughout the unincorporated County area,
- Flood Zone Advisor Committees,
- Special District Advisory Committees,
- Public hearings for County General Plan updates held four times a year,
- MAST and FAST meetings,
- Fire Safe Council meetings,
- Community Emergency Response Team meetings, and
- Public events where educational efforts are undertaken in the unincorporated areas.

Additionally, the public is kept involved through annual programs such as the Great Shakeout held annually in October, SKY Warn events sponsored by the National Weather Service, and other monthly safety programs. The County will continue to use several different methods to reach out to the public: mailers, cable TV, website, social networks, e-mail, posting in public libraries, and fairs.

Section 8. Works Cited

USGS. (2009).

USGS. (2016, April 7). *USGS Earthquake Hazards Program*. Retrieved from https://earthquake.usgs.gov/learn/glossary/?term=earthquake

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Appendix A. Outreach Documentation

A.1 Ready SB County Preparedness App Message

An App message was sent out to over 15,000 persons with the App and it is attached to the San Bernardino County Fire Website. .Ready SB County Preparedness Mobile App can be used on either an Android or iPhone. This app provides multiple resources for our residents that will assist them in preparing for a disaster and enhancing the recovery process. Protect yourself and your loved ones before, during and after a disaster.

Get the Latest News from SBCounty.gov, CalTrans, National Weather Service, and San Bernardino County Fire Office of Emergency Services. This app will provide you with an emergency supply kit list, grocery list and checklists tailored to your needs. You can access and update your plan as needed. Learn all you need to plan for and respond to natural disasters, terrorism and pandemic flu in San Bernardino County

A.2. San Bernardino County Fire Public Input Requested

San Bernardino County Fire Department/Office of Emergency Services (OES) is coordinating the update of the San Bernardino County Unincorporated Area Multi Hazard Mitigation Plan. Hazard Mitigation Plans are updated every five years and must be approved by Cal OES and FEMA. The purpose of the public input and comment is to show progress being made and elimination of hazards since the last plan. Your input is appreciated by reviewing and commenting on the current plan (link below) by calling OES at 909-356-3998 – ask for David Davis. Comment period **closed at 5:00 p.m., Wednesday, November 3, 2016.**
http://www.sbcfire.org/oes/Documents.aspx



A.3. MJHMP PowerPoint Presentation









Annex A. Fire Protection District

A.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Fire Protection District, a previously participating jurisdiction to the 2011 San Bernardino County Hazard Mitigation Plan Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the Fire Protection District. This Annex provides additional information specific to the Fire Protection District, with a focus on providing additional details on mitigation actions and projects.

The Board of Supervisors acts as the Board of Directors for the County Flood Control District, and as part of their responsibilities as an elected member of the County of San Bernardino Board of Supervisors.

A.2 Fire District Profile

The San Bernardino County Fire Department is an all-risk/full-service fire department committed to providing the highest level of service in the most efficient and cost effective manner to the citizens and communities that we serve. At 20,160 square miles, San Bernardino County is the largest county in the continental United States. Our jurisdiction encompasses 19,278 square miles of extremely diverse environments that stretch from the Los Angeles County line on the west, to the Colorado River on the east, to the Nevada State line and Kern and Inyo counties on the north. We provide services to more than 60 communities/cities and all unincorporated areas of the county.

Mission Statement
Community-based all-risk emergency services organization dedicated to the health and well-being of the citizens of San Bernardino County through a balance of regionalized services delivery and accountability to the local community supported by centralized management and services.

Service Motto
Duty, Honor, Community.

Standard of Commitment
"Where Courage, Integrity, and Service Meet."

Vision Statement
Committed to Providing Premier Fire Services.

Hazard Mitigation Planning Group:
Michael Antonucci – Emergency Services Manager

A.3 Planning Process

As described above, the County Fire District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the San Bernardino County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table A-1. Additional details on plan participation and District representatives are included in Appendix A.

Table A-1: Fire District Planning Team

Name	Title / Role
Michael Antonucci	Emergency Services Manager
Cindy Serrano	Assistant Emergency Services Manager
David Davis	Emergency Services Officer
Miles Wagner	Emergency Services Officer
Cheryl Nagy	Emergency Services Officer
Carrie Cruz	Emergency Services Officer
Elli Maldonado	Office Assistant
Mary Barnett	Technical Writer / Plan Update and Edits
Michael Horton	Fire Marshal

Weekly meetings held every Tuesday since July 2016 with conference calls to the consultant group and other stakeholders plus all meetings listed in this document.

A.4 Hazard Identification and Prioritization

The County Fire Protection District Planning Team participated in the County hazard identification and prioritization process described in the base plan. The Fire District Planning Team assisted to summarize the extent, probability of future occurrences, potential magnitude/severity, and significance specific to the Fire District in the base plan.

The Planning Team (all participating jurisdictions) determined that the County and its Special Districts should focus over the next five (5) years on hazards that fell within the HIGH and MEDIUM “Probability” and “Impact” categories. While all the hazards present a potential problem in the County, the Planning Team felt that if they were able to reduce or eliminate the risk from “fire related” hazards, it would provide a greater service to the people within the jurisdiction. Table 4-3 illustrates how the final prioritization of the hazard; the “Green” colored box represents the highest priority hazards; and the “White” colored boxes represent lower (second and third tier) priority hazards.

Table A-2: Fire District Hazard Priority Matrix

		Impact		
		High	Medium	Low
Probability	High	**Wildfire** Flood Earthquake/ Geologic Hazards	Drought	
	Medium	Terrorism	Climate Change (Extreme Heat and other)	Hail Infestation
	Low		Dam Inundation	Tornado High Winds Winter Storm Lightning Extreme Cold

A.5 Coordination with existing Fire District Mechanisms

Coordination with other District planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the Fire Protection District integrated the previously-approved 2011 Plan into existing planning mechanisms and programs.

While not designed or proposed specifically as mitigation projects, the County Fire Protection District undertakes many activities that incorporate mitigation elements and integrate risk reduction as an additional benefit. The following describes a number of these projects which exemplify how the County integrates hazard mitigation into county-wide programs.

A.5.1 Critical Route Planning Committee

San Bernardino County Fire Protection District Office of Emergency Services has a “Critical Route Planning Committee” that is developing countywide routes and alternate routes for use in evacuating residents from a disaster area while simultaneously allowing first responders’ access into a disaster area without congestion and gridlock. The Committee members are from County departments, City and Town representatives, and key state and federal agencies. The Critical Route Planning effort is being coordinated with surrounding counties to prevent congestion and gridlock at the County boundaries.

A.5.2 Public Alert and Education Programs

A.5.2.1 Wireless Emergency Alerts (WEA)

During threatening emergencies in your area, authorized government agencies can send Wireless emergency Alerts to your mobile device. Messages regarding extreme weather, life threatening emergencies, AMBER alerts, and Presidential Alerts during a national emergency are all sent through the WEA system

A.5.2.2 Emergency Alert System (EAS)

The Emergency Alert Systems: national public warning system that requires TV and radio broadcasters, cable television systems, wireless cable systems, satellite digital audio radio service providers, direct broadcast satellite service providers and wireline video service providers to offer to the President the communications capability to address the American public during a national emergency. The FCC works with the Federal Emergency Management Agency and the National Oceanic and Atmospheric
Administration's National Weather Service to implement the EAS at the national level. Only the President determines when the EAS will be activated at the national level, and has delegated the administration of this function to FEMA.
Accordingly, FEMA activates the national EAS, and directs national EAS tests and exercises. The NWS uses the EAS on a local and statewide basis to provide the public with alerts and warnings regarding dangerous weather and other emergency conditions.

The EAS allows participating providers to send and receive emergency information quickly and automatically, even if their facilities are unattended. If one link in the system for spreading emergency alert information is broken, members of the public have multiple alternate sources of warning. EAS equipment also provides a method for automatic interruption of regular programming, and in certain instances is able to relay emergency messages in languages other than English.

A.5.2.3 Integrated Public Alert & Warning System (IPAWS)

During an emergency, alert and warning officials need to provide the public with lite-saving Information quickly. The Integrated Public Alert and Warning System (IPAWS) is a modernization and integration of the nation's alert and warning infrastructure and will save time when time matters most, protecting life and property. Federal, State, territorial, tribal and local alerting authorities can use IPAWS and integrate local systems that use Common Alerting Protocol (CAP) standards with the IPAWS infrastructure. IPAWS provides public safety officials with an effective way to alert and warn the public about serious emergencies using the Emergency Alert System {EAS}, Wireless Emergency Alerts (WEA), the National Oceanic and Atmospheric Administration (NOAA) Weather Radio and other public alerting systems from a single interface.

A.5.2.4 Telephone Emergency Notification System (TENS) Implementation

Emergency service agencies like the Sheriff's Office have implemented TENS on numerous occasions to notify residents in specified areas to evacuate. Most recently it was used to evacuate hundreds of homes in the eastern portion of Yucaipa during the Pendleton Fire and in Wrightwood during the Sheep Fire when the entire community was ordered evacuated.

A.5.2.5 Emergency Communications Services (ECS)

In the last 10 year the ECS program has continually provided support to all major and minor incidents. The more recent events were the Pilot Fire and the Blue Cut Fire in 2016. ECS provides communications and logistical support to public safety and disaster preparedness events. They have also set up a training program for other County Departments that are not typical emergency responders but provided support in an emergency. ECS delivered and set up amateur radio equipment for Department of Public Works, Department of Public Health, Preschool Services Department, and Department of Behavioral Health and provided training for the employees.

A.5.2.6 Fire Safe Council/CERT Community Based AM Radio Transmitters

The Wrightwood Fire Safe Council and the Big Bear City CSD set up and operates a local AM radio transmitter. It has been brought into use during local incidents including a power outage where it is very useful. In power outages, the AM radio in a person's car still works. It was also used to provide preparatory information to the citizens of Wrightwood as the Station Fire was approaching the community from the west. It is also used extensively during the Wrightwood Fire Wise Awareness Days to keep citizens apprised of community events.

A.5.3 OES Volunteer Programs

The San Bernardino County Fire, Office of Emergency Services (County OES) is proud to provide residents of San Bernardino County with meaningful disaster-related volunteer opportunities. Recognizing that during disasters and other emergencies professional responders may be overwhelmed or need assistance County OES trains residents to integrate with and support professional responders during incidents. County OES currently does these through three volunteer programs; the Community Emergency Response Team (CERT), Emergency Communications Service (ECS) and California Disaster Corps programs. Please visit the links below to learn about the programs offered.

A.5.3.1 Community Emergency Response Team (CERT)

The Community Emergency Response Team (CERT) Program educates people about disaster preparedness and trains them in basic response skills. Following a catastrophic event CERT

Members can assist themselves, their families, and others in their neighborhood or workplace until professional responders arrive. Fourteen (14) CERT programs are in the communities of:

- Angelus Oaks
- Big Bear Valley
- Helendale
- Lucerne Valley
- Lytle Creek
- Mill Creek Canyon
- Morongo Basin
- Mountain
- Oak Hills
- Phelan/Pinon Hills
- Rosena Ranch
- San Antonio Heights
- Silver Valley
- Wrightwood CERT

San Bernardino County Fire Protection District Office of Emergency Services has sworn in over 1000 CERT participants as California Disaster Service Workers. These participants have gone on to receive a Sheriff's Department background check to become members of their community's CERT.

The program receives guidance and resources from Department of Homeland Security, FEMA, Citizen Corps, and California Volunteers. The program is administered locally by the San Bernardino County Fire Protection District Office of Emergency Services.

A.5.3.2 LISTOS

Listos, which means "ready" in Spanish, is a twelve-hour disaster preparedness course created specifically for the Spanish-speaking community and is delivered entirely in Spanish. The program is intended to be adaptable, flexible and culturally relevant. This means participants are encouraged to involve the entire family and accommodations are made for young children. San Bernardino County Fire, Office of Emergency Services currently partners with the Cities of Fontana and Rialto to bring Listos to their communities

A.5.3.3 California Disaster Corps

The Disaster Corps is a first-in-the-nation effort to professionalize, standardize and coordinate highly trained disaster volunteers statewide. This program initiative was built collaboratively in partnership with California Volunteers from the ground up through public-private partnerships and with a wide range of subject matter experts including representatives from all levels of government, local emergency managers, state agency volunteer coordinators, and leaders in non-governmental volunteer programs.

Disaster Corps programs reside only in San Bernardino, San Francisco and Riverside Counties. San Bernardino County Disaster Corps volunteers are those volunteers participating in the volunteer programs residing within the unincorporated communities of San Bernardino County and have demonstrated commitment to their volunteer program and strive to continue developing their skills and training to better support their program and their community.

Within San Bernardino County Disaster Corps volunteers are set aside from regular CERT (Community Emergency Response Team) and ECS (Emergency Communication Services) volunteers by having the ability to be deployed throughout other areas of San Bernardino County and the state. They have received specialized training in SEMS and NIMS, plus have completed many other ICS courses and First Aid and CPR training. In addition there are additional training opportunities not offered to the regular CERT and ECS volunteers.

A.5.3.4 ECS Emergency Communications Service

The Emergency Communications Service (ECS) is a volunteer group providing front-line communications, technical and logistical support to the San Bernardino County Fire Department and Office of Emergency Services. Their primary mission is to support County Fire, County Government and other local agencies in time of disaster. In addition, ECS has provided telecommunications and event support to other County departments including Public Health, Behavioral Health, Public Works, Pre-School Services, Sheriff's Search and Rescue and other County Departments.

ECS coordinates disaster communications between city and county agencies, provides a communication link to Cal OES and ensures backup communication channels are kept open in times of a major disaster.

In an average calendar year, ECS supports approximately two-dozen events and incidents throughout the County. These events range from parades and community events, to major public safety incidents including fires and floods. The 200 ECS volunteers donate an average of 9,100 hours per year to the County of San Bernardino.

ECS currently provides multiple HAM licensing classes to County Departments and the residents of San Bernardino County each year.

A.5.4 ROPE Plan (Responders Organized For Pass Emergencies)

ROPE Field Operations Guide (FOG) and Standard Operating Guide (SOG) for use by participating Federal, State, County, and Municipal agencies and industries for day-to-day incidents in the Cajon Pass, as well as for larger regional incidents requiring coordinated and unified multi agency response. The ROPE FOG contains; communications information, emergency contact information, critical infrastructure mapping and ICS planning tools.

A.5.5 Great ShakeOut County Drill in all Disciplines (held annually)

The San Bernardino County Operational Area will be participating in the annual The Great ShakeOut drill which will focus on the Southern California Regional Catastrophic Plan (SCRCP). This plan is based on a large scale magnitude earthquake scenario along the southern section of the San Andres Fault. The purpose for participation in the Great ShakeOut Exercise is to address the County's potential to respond to a catastrophic earthquake event based on the plan, and to better prepare for such an occurrence. The goal of the exercise will be to conduct an effective multiagency/multi-jurisdictional evaluation of the Regional Catastrophic Plan with our Operational Area response partners.

A.5.6 "Ready SB" Smart Phone App for Disaster Preparedness Program

The new mobile app, Ready SB, provides residents with multiple resources that will assist them in preparing for a disaster. Ready SB is now available as a free download from the Apple App Store and the Google Play Store it can immediately help residents prepare themselves for emergencies.

Ready SB features include: "My Plan", an individual emergency plan and/or a family or group plan. The person that downloads the application will receive county wide alerts and notifications of emergency situations in that person's area. There is a feature called "Share My Status" it is a place to update your status via text or email.

The app also includes information about areas that need to be evacuated, where to go, what routes are open and also what resources are available during that emergency.
The app features include: Evacuation Routes and Shelters, Need to Know, and has a Resources List.

A.5.7 Cal Fire

Cal Fire provides programs to increase fire safety in high fire hazard severity zones. It funds and staffs programs from public education activities to performing fuel modifications with inmate crews. One example is the active Re-Leaf program where mountain residents are educated about drought tolerant and fire resistive landscaping that is available and sustainable. Cal Fire is also the lead agency on reforestation after a wildfire to ensure the stability of the environment. Cal Fire Foresters are active participants in the MAST process helping educate citizens and leading forestry activities on private lands within the USFS boundary.

Numerous fuels projects have been completed by State inmate crews that do significant hand work in dense fuels adjacent to communities. Cal Fire has also led the way in countless re-forestation projects that ensure that new stands of the same trees will repopulate an area and that the original forest won't be overtaken by a different type of replacement forest.

A.5.8 Organized Group Volunteer Activities

Mountain communities are populated by several volunteer citizen groups that are capable of providing significant resources that are not provided by traditional governmental agency services.

Volunteer groups particularly “Mountain Hearts and Lives” (MHL) responded to numerous emergencies particularly of note the Grass Valley and Slide Fires. These groups have also spent significant time working to prepare citizens for disasters. MHL has coordinated CERT training as well as HAM radio operator training. Other activities can be found at www.heartsandlives.org. Other partners that assist in coordinated endeavors for disaster preparedness and disaster relief are Rim Family Services and the Rim Resource Community Network. Members of these and other groups work very closely with MAST, Mountain Mutual Aid and the American Red Cross.

A.6 Fire Protection District Mitigation Project Prioritizing

Cost effectiveness of each measure was a primary consideration when developing mitigation actions. Because mitigation is an investment to reduce future damages, it is important to select measures for which the reduced damages over the life of the measure are likely to be greater than the project cost. For structural projects, the level of cost effectiveness is primarily based on the likelihood of damages occurring in the future, the severity of the damages when they occur, and the level of effectiveness of the selected measure. While detailed analysis was not conducted during the mitigation action development process, these factors were of primary concern when selecting measures. For measures that do not result in a quantifiable reduction of damages, such as public education and outreach, the relationship of the probable future benefits and the cost of each measure was considered when developing the mitigation actions.

Based upon the Fire Districts capabilities, Table A-3: Mitigation Project Prioritization and Implementation shows primary actions selected for further implementation and development during the next planning cycle. Table A-3 provides details for each mitigation action with mitigation action descriptions, FEMA mitigation category, responsible party, and timeframe.

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A.7 Fire Protection District Mitigation Project Actions

Table A-3: Mitigation Project Prioritization and Implementation

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
ALL Hazard	**AH Action 1.1:** Valley Dispatch and Operations Center.	Update and maintain the operations of the facility and ensure cohesive working and response to any scale emergency and operations in a secure complex	ES	General Fund and HMP Grant	Fire Protection District/	1-3 Years	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .
ALL Hazard	**AH Action 1.2:** Maintain Shelter Operations Compound (SHOC). This shelter concept provides a new one-stop shelter concept. The SHOC combines a shelter, a Local Assistance Center (LAC) and a Non-LAC Unit in one easy location.	After the 2003 Wildland Fires, the County and American Red Cross recognized the need to provide services beyond basic care and short-term sheltering, especially during large fires, floods, and earthquakes The Mass Care & Shelter Plan and Concept of Operations, outlines the framework of a new one-stop shelter concept, Shelter Operations Compound (SHOC). It combines a shelter, a Local Assistance Center (LAC) and a Non-LAC Unit in one easy location. Residents can access public information and referral services through the LAC, and then take a short walk to the Non-LAC Unit for communication, postal services, and other private organizations/business at little to no cost. The completion of the Plan in 2012 will help to sync local resources, encourage local self-sufficiency, foster partnership between public and private agencies, and serve as a reference document for the region. By June 2017, the program will have 32 trailers/caches equipped with mass care and shelter supplies, strategically placed throughout the County and ready for rapid deployment. It is expected to serve over 12,000 residents. In addition to enhancing the comfort levels of shelter residents, the program will produce standardized documents and protocols for procuring and maintaining Mass Care and Shelter trailers/caches. These plans and programs will help the County prepare for and mitigate damages from hazards. This is an update and expansion of the plan and done without more grant funds.	ES	To increase Mass Care and Shelter capability of the county, grants from 2008-2009 Homeland Security Grant Program (HSGP) and 2009 Riverside Regional Urban Area Security Initiative (UASI) funded the Mass Care and Shelter Trailer/Cache Program.	Fire Protection District/	1-5 Year	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .
All-Hazard	**AH Action 2.1** Incorporate as appropriate requirements from the State of California's most recent land use regulations regarding the hazard mitigation planning process (Government Code 65302 and 8685.9).	Government Code 65302.6 requires the following elements to be included in the hazard mitigation plan: (1) An initial earthquake performance evaluation of public facilities that provide essential services, shelter, and critical governmental functions.	PRV, NRP	General Fund	Primary: Land Use Services Secondary: Fire Protection District/	1-3 years	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
		(2) An inventory of private facilities that are potentially hazardous, including, but not limited to, multiunit, soft story, concrete tilt-up, and concrete frame buildings. (3) A plan to reduce the potential risk from private and governmental facilities in the event of a disaster. Government Code 8685.9 requires that the state share shall not exceed 75 percent of total state eligible costs unless the local agency is located within a city, county, or city and county that has adopted a local hazard mitigation plan as part of the safety element of its general plan. In that situation, the Legislature may provide for a state share of local costs that exceeds 75 percent of total state eligible costs.					
Wildfire	**WF Action 1.1** Continue Mountain Area Safety Taskforce (MAST) funding to support mitigation activity.	MAST was formed to mitigate the region wide risk of a catastrophic wildfire due to dead and dying trees in the mountain communities. The mission of the MAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for the protection of property owners, residents, and property subject to the risk of catastrophic wildfire that could occur in San Bernardino County with an initial emphasis on the threat resulting from the Old and Grand Prix fires in 2003. MAST priorities are to continue reducing fire hazards through fuel reduction programs and hazard abatement though enforcement of county ordinances. The Mountain Area Safety Taskforce (MAST) Operations Section meets monthly. MAST Operations Section determines project priorities based on the benefit cost analysis of the projects and the effect of the project on the overall goals of the MAST organization. Goals can change as detailed Benefit Cost Analysis is conducted and CEQA/NEPA reviews are completed.	NRP, PPRO	Seeking additional funding through HMPG.	San Bernardino County Fire Protection District	On-Going	See Implementation plan on more information on MAST. See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .
Wildfire	**WF Action 2.1:** Update Mountain Mutual Aid Map Book to document updated information contained in 2016 HMP.	The Map Book portion of the Community Safety and Structure Protection Plan provides not only a street network of the area but more importantly it provides the locations of strategic and critical resources for fire fighters. These include but are not limited to safe zones, open areas, locations for refuge. They also identify areas within communities that have narrow and steep winding streets and or with limited ingress and egress. The document is handed out to all responding strike teams from out of the	ES	Seeking additional funding through HMPG.	San Bernardino County Fire Protection District	On-Going	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
		area and has proved invaluable in directing and coordinating an effective fire-fighting response and reduces the potential for life loss and property damage.					
Wildfire	**WF Action 2.2** Update Community Structure Protection Plans as necessary.	This is an on-going action (from the 2011 MJHMP) with the goal to continue development of and continue the mission of mutual aid between first responders in the County mountain areas.	PPRO	HMP Grant Funding	Primary: San Bernardino County Fire Protection District Secondary: Land Use Services	On-Going	
Wildfire	**WF Action 3.1:** Implement identified community based fuels reduction projects.	The Fuels Reduction Program is designed to create community based fuel modification programs across the mountain communities. These projects are selected specifically to reduce the potential for catastrophic wildfires and the damage that they can do to the communities. Project design, contracting, and operations are managed by the County's Public Works Department with priorities set by local fire chiefs in monthly MAST Operations Meetings. This program is the oldest and most significant for reducing wildfire threat on a mountain wide basis.	PPRO	Current Funding: Seeking additional funding through HMPG.	Primary: San Bernardino Public Works Department Secondary: County Fire Protection District	On-Going	
Wildfire	**WF Action 3.2:** Develop fuels reduction "maintenance program" by obtaining participation from citizens and/or homeowners associations.	To survive a wildfire, property owners need to manage the land surrounding their homes and communities effectively. Removing fuels in the wildland fuel reduction zone beyond the defensible space can reduce the speed and intensity of an oncoming wildfire. But if these areas aren't regularly **maintained**, they lose their effectiveness. Plants grow back, and flammable vegetation needs to be routinely removed and disposed of properly. This guide provides tips on how to create and maintain defensible space and wildland fuels treatments around your property.	PPRO, PE&A	Seeking additional funding through HMPG	Primary: Public Works Secondary: Fire Protection District	On-Going	
Wildfire	**WF Action 4.1** Increase homeowner assistance services to mountain residents for fuel reduction.	This is an ongoing wildfire mitigation action (from the 2011 MJHMP) for the group Forest Care to achieve the goal of providing assistance to homeowners by expanding services to all communities in the Mountain areas of the County. Forest Care is a program dedicated to creating a healthier forest. This program provides foresters to assess individual properties for thinning the vegetation and then provides 75% of the funding to do so.	PPRO, PE&A	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Wildfire	**WF Action 4.2** Continue working with Southern California Edison (SCE) to remove dead trees near power lines.	A significant number of fires across the State are caused by trees falling into power lines. When the forests in the mountain communities became infested with bark beetles the pine tree die off was unprecedented. Thousands of these dead trees were standing precariously close to power lines. Early in the Bark Beetle Emergency in 2004, Southern California Edison swiftly initiated a program to remove all trees that were dead, dying, and/or diseased that had the potential to fall into any SCE power lines. The role of Southern California Edison was critical to the success of MAST both operationally and financially. Edison still removes the most difficult trees, the most costly trees; and the ones that are most likely to be the source of ignition for a wild land fire. They are also removing the trees that are immediately threatening homes. They have removed 118,305 trees since the inception of the program in 2004. They also provided reimbursements to people that removed their own trees.	PRV, PPRO	As of July of 2010 Southern California Edison (SCE) has spent $179,758,978 to remove dead dying and diseased trees.	San Bernardino County Fire Protection District	On-Going	
Wildfire	**WF Action 5.1:** Inspect every residence in the mountain communities throughout the year to enforce the Fire Hazard Abatement code that addresses green fuels.	The Fire Hazard Abatement Program conducts surveys to identify fire hazards throughout the year. Fire hazards are identified and notices to abate the hazard(s) are mailed to property owners. Property owners are given 30 days to abate the violations. Failure to abate may result in citations, penalties, and/or fees for abatement by the County. The Fire Hazard Abatement Program responds to complaints year round in the unincorporated areas and contracting Cities and Fire Districts. The Division completes more than 430,000 inspections, issues more than 45,000 Notices to Abate Fire Hazards, issues over 4,000 citations for non-compliance, and abates the fire hazards on more than 2,000 parcels annually. Within the last 5 years, the Fire Hazard Abatement Division has received even more financial	PRV, PPRO, PE&A	Seeking additional funding through HMPG	Primary: Land Use Services Secondary: San Bernardino County Fire Protection District	On-Going	For more information on Contractor Certification, see Annex A Section A.6 Fire Protection District Mitigation Project .

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
		resources that enable them to abate all properties declared a fire hazard.					
Wildfire	**WF Action 5.2:** Continue to collaborate with Forest Care, Red, Cross and Cal Fire to overcome increased costs of enforcement.	This is an on-going action from the 2011 MJHMP with the goal of overcoming funding shortfalls for the County Fire Hazard Abatement Program.	PRV	HMP Grant Funding	San Bernardino County Fire Protection District	On-Going	
Wildfire	**WF Action 6.1** Train and Certify landscape contractors to comply with the Fire Hazard Abatement Code.	The City of Big Bear Lake created a program to train and certify landscape contractors to provide a qualified workforce to conduct fuels reduction activities on individual properties. The contractors are trained to comply with the new Fire Hazard Abatement Code that exists both in the City of Big Bear and the County unincorporated area. The City of Big Bear Lake Fire Department conducts the classes for landscapers and handy persons. This provides an incentive for the contractors and provides a level of certification that the homeowner can rely on when they are deciding to hire a landscape contractor to conduct fuels abatement around their home.	PRV, PPRO	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	On-Going
Wildfire	**WF Action 6.2:** Continue wildfire mitigation efforts under the Wood Shake Roof Replacement Program.	The County successfully passed an ordinance that requires the replacement of wood shake roofs by 2014. MAST has successfully mapped all of the wood shake roofs in the fire safety overlay and has created a strategy as to which roofs will be selected to participate in the FEMA funded project. This is an on-going project in cooperation with Big Bear Lake Fire Protection District in order to provide more funding for wood shake roof replacements by property owners.	PRV, PPRO, SP	Various Grant Funding from Edison, FEMA, Cal Fire	Primary: MAST Secondary: San Bernardino County fire Protection District	On-Going	
Wildfire	**WF Action 7.1:** Modify independent and unique CWPPs into a more common framework making them similar but leaving room to provide specific hazard characteristics and mitigation actions for each community.	Community Wildfire Protection Plans are designed to provide a means for a community, usually through the Fire Safe Council, to have input into and actively participate in the planning, strategy, goals, and objectives of creating a fire safe community.	PRV	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	On-Going For more information on CWPP see Annex A Section A.6 Fire Protection District Mitigation Project .

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Wildfire	**WF Action 8.1:** Construct Arrowbear Drive Realignment and Widening.	The Arrowbear community off State Highway 18 has limited access to State Highway 138. The existing bridge/spillway and road needs to be realigned and widened to facilitate access by emergency personnel during wildfires and flooding. Mitigation strategy for this is to remove and replace existing bridge/spillway, realign and widen the road.	SP	Seeking grant funding Total Cost: $2,000,000	Primary: Public Works Secondary: San Bernardino County Fire Protection District	1-3 Years	
Wildfire	**WF Action 8.2:** Construct Cedar Glen Fire Access Road.	Lack of paved roads inhibits traffic circulation and the ability to enter and exit the area without backtracking during wildfire emergencies. Strategy is to Construct road and drainage improvements to Little Bear Creek Road and Elder Drive.	SP	Seeking grant funding **Total Cost:** $2,500,000	Primary: Public Works Secondary: San Bernardino County Fire Protection District	1-3 Years	
Wildfire	**WF Action 9.1:** Continue funding and support for Special Districts Projects relating to wildfire.	Continue funding and support for Special Districts Projects relating to wildfire in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	
Wildfire	**WF Action 9.2:** Emergency Water Supplies	Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal.(completed with continuous fresh of supplies and rotation)	ES	TBD	Roads	TBD	

Annex B. Flood Control District

B.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Flood Control District, a previously participating jurisdiction to the 2010 San Bernardino County Hazard Mitigation Plan Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the Flood Control District. This Annex provides additional information specific to the Flood Control District, with a focus on providing additional details on mitigation actions and projects.

The Board of Supervisors acts as the Board of Directors for the County Flood Control District, and as part of their responsibilities as an elected member of the County of San Bernardino Board of Supervisors.

B.2 Flood District Profile

Flood Control District Functions:
The Flood Control functions are handled through the San Bernardino County Flood Control District under State legislation enacted in 1939. The District has developed a very extensive system of facilities, including dams, conservation basins, channels, and storm drains. The purpose of these facilities is to intercept and convey flood flows through and away from the major developed areas of the County. The principle functions are:

- Flood protection on major streams.
- Water conservation.
- Storm Drain construction.

Mission:
To enhance the quality of life for our communities by developing and maintaining public infrastructure, and providing a variety of municipal services that complements our natural resources and environment.

Vision:
Lead the way to a thriving community through innovation in public works, fiscal responsibility, and environmental stewardship.

B.3 Planning Process

As described above, the County Flood Control District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the San Bernardino County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table B-4. Additional details on plan participation and District representatives are included in Appendix A.

Table B-4: Flood Control District Hazard Mitigation Planning Team

Name	Title	Role
Kevin Blakeslee	Deputy Director – Flood Control	Public Works Deputy Director
Kenneth Eke	Chief Flood Control Planning/ Water Resources Division	Public Works Engineer
Michael Fam	Flood Control Planning	Public Works Engineer
Mona Sadek	Flood Control Planning	Flood Control Planner
Marjorie Schrage	Flood Control Planning	Public Works Engineer Technician

B.4 Hazard Identification and Prioritization

The Flood Control District Planning Team participated in the County hazard identification and prioritization process described in the base plan. The Flood Control District Planning Team assisted to summarize the extent, probability of future occurrences, potential magnitude/severity, and significance specific to the Flood Control District (See Section 4).

The Planning Team determined that the County and its Special Districts should focus over the next five (5) years on hazards that fell within the HIGH and MEDIUM "Probability" and "Impact" categories. While all the hazards present a potential problem in the County, the Planning Team felt that if they were able to reduce or eliminate the risk from "food and drought related" hazards, it would provide a greater service to the people within the jurisdiction. Table 4-3 illustrates how the final prioritization of the hazard; the "Green" colored box represents the highest priority hazards; and the "White" colored boxes represent lower (second and third tier) priority hazards.

Table B-5: Prioritized Hazard Assessment Matrix

		Impact		
		High	Medium	Low
Probability	High	Wildfire **Flood**[x] Earthquake/ Geologic Hazards	Drought	
	Medium	Terrorism	Climate Change (Extreme Heat and other)	Hail Infestation
	Low		Dam Inundation	Tornado High Winds Winter Storm Lightning Extreme Cold

[x] = Flood District Area of Concentration

B.5 Coordination with Existing Flood District Mechanisms

Coordination with other County planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the Flood Control District integrated the previously-approved 2011 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2011 MJHMP through other plans and programs shown below.

B.5.1 Flood Area Safety Taskforce (FAST)

During the devastating fires in the fall of 2003, there was great concern of what the ramifications might be for flooding in the burned areas, as well as in the valleys. In response to these concerns, an organization was established that mirrored the Mountain Area Safety Taskforce (MAST), mentioned above, which played a key role in minimizing damage.

While the fires were ravishing the countryside, representatives from multiple agencies met often to address potential issues associated with flood, mud and debris flows develop a strategy and to protect communities from flooding incidents. These agencies united together to become the Flood Area Safety Taskforce (FAST). FAST is structured as an ICS/SEMS Organization for managing incident activities both readiness and response. The FAST Organization stresses liaison with the communities, provides for community education and information, and places emphases on Community and city partnerships.

The FAST group includes:

- Elected State officials
- Representatives from all five (5) County Supervisorial Districts
- State Office of Emergency Services
- County Administrative Office
- County Public Works-Flood Control/ Transportation/Solid Waste
- County Fire Protection District
- County Fire Protection District/Office of Emergency Services (OES)
- County Sheriff's Department
- Representatives from the cities of Fontana, Highland Rancho Cucamonga, Rialto, and San Bernardino.
- USFS
- Caltrans
- CHP

The mission of the FAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for the protection of property owners, residents, and property subject to the risk of erosion, mudflows, and flooding that could occur in San Bernardino County with an initial emphasis on the threat resulting from the Old and Grand Prix fires in 2003.

The FAST Unified Command identified the following objectives as the focus and direction of the FAST:

- Provide for Community Safety.
- Develop Coordinated Public Information Dissemination between Cities, County, State, Federal and Non-Profit Agencies.
- Develop Immediate, Mid-range and Long-range Coordinated Agency Plans.
- Identify and Secure Potential Funding Resources to Provide Document Task Force Activities Including Mission, Goals and Objectives, Policies, Procedures, and Outcomes.

Prior to any type of flood threat, the following precautionary measures may be taken by FAST members to reduce the impact of impending flooding:

- Review mutual aid agreements
- Define evacuation areas and trigger points
- Review the use of alert and warning systems
- Provide information to the public of potentially susceptible flooding areas and protective measures in progress or planned for those areas
- Educate public on emergency self-help and preparedness
- Develop and maintain emergency notification procedures and checklists.

A FAST Concept of Operations (CONOPS) was developed to provide activity guidelines for pre-flood activities related to National Weather Service (NWS) watches and warnings. Due to the unstable condition of the burned areas, activities and coordination needed to be established and implemented between departments.

The CONOPS is "situation" and "incident" driven and subject to revision by the Unified Command which includes County Flood Control District & Co Roads, County Fire Protection District, United States Forest Service (USFS), California Department of Transportation (Caltrans), California Highway Patrol (CHP), County Sheriff, City of Fontana, City of Highland, City of Rancho Cucamonga, City of Rialto, and City of San Bernardino. The Unified Command has the ability to modify activities in these guidelines in response to current situations and predicted changes. Currently, the CONOPS includes both summer and Winter Storm Event Readiness.

In addition, the CONOPS includes the San Bernardino County Flood Area Safety Taskforce Paging Network and a draft of the Alert Communication Matrix by Rain Amount/NWS Warning.

Over the past 10 years, the County has used the FAST CONOPS many times, greatly enhancing the County's ability to respond to flash flood in the desert and foothill areas. The CONOPS activity coordination between the agencies has been very successful. Because of the great success of the CONOPS, State Emergency Management Agency (Cal EMA) is using the CONOPS as a model for other agencies throughout the State.

In addition, San Bernardino County the CONOPS and FAST Plan is updated every two years and has done so since been put in to action the latest update being May of 2015.

B.5.2 Alluvial Fan Task Force

In December of 2002, the California Floodplain Management Task Force Report recommended that "The State should convene a task force specifically for alluvial fans, with stakeholder participation, to review the state of knowledge regarding alluvial fan floodplains, determine future research needs, and, if appropriate, develop recommendations relating to alluvial fan floodplain management, with an emphasis on alluvial fan floodplains that are being considered for development."

In September of 2004, Governor Arnold Schwarzenegger signed Assembly Bill 2141, which recommended the creation of the Alluvial Fan Task Force (Task Force). The Director of the Department of Water Resources (DWR) convened the Task Force in December of 2007 after funding to support Task Force activities was secured from a Pre-Disaster Mitigation Planning Grant from the Federal Emergency Management Agency (FEMA) and a state match was authorized by Assembly Bill 466. Funding supported the tasks charged to the Task Force including:

- Review the state of knowledge regarding alluvial fan floodplains;
- Determine future research needs;
- Develop a voluntary locally-adopted model ordinance for communities subject to alluvial fan flooding that supports land use decisions on alluvial fans;
- Develop local planning tools to assist local communities evaluate development on alluvial fans;
- Prepare recommendations relating to alluvial fan floodplain management.

Appointments to the Task Force by DWR Director Lester Snow represented a broad range of interests. Members included elected officials, represented by five Supervisors from Kern, Los Angeles, Riverside, San Diego and San Bernardino County where future alluvial fan development is projected. Appointments also included representatives of the development and environmental community, local floodplain managers and associated state and federal agencies, including the Federal Emergency Management Agency (FEMA), plus at-large members representing other issues related to future development on alluvial fans. The entire process was coordinated by the Water Resources Institute at California State University San Bernardino.

Primarily, the purpose of the Alluvial Fan Taskforce *Findings and Recommendations Report* (July 2010) and *The Integrated Approach for Sustainable Development on Alluvial Fans* (July 2010) documents are to provide a non-prescriptive and flexible model that local governments can use at their own discretion adapting to local conditions and needs that supports wise future land use decisions associated with development on alluvial fans.

As one of the ten Southern California counties studied by the Task Force, the County may review the development of the suite of local planning tools for pre-project screening for future development proposals on alluvial fans. If funding allows for the review, these planning tools may be useful as an optional database reference for project management. Additionally, the flood management tools designed to analyze alluvial fan flood hazards and formulate flood hazard protection, which were developed to be consistent with FEMA guidelines, may provide an optional data source for project development. Long term funding for updating and maintaining the pre-project screening tools database is a concern regarding the reliability for current data.

If funding exists, for the implementation of the *Integrated Approach for Sustainable Development on Alluvial Fans*, the methods contained therein may be used as some of the approaches for planning and evaluating the suitability of development on alluvial fans. During the analysis and review, if budgets allow, the long term ecological and financial sustainability issues would also be evaluated.

Based on the Findings from the Alluvial Fan Task Force process, recommendations were made for specific future actions that the State and other public agencies should consider regarding alluvial fans. The San Bernardino County Departments of Land Use, Special Districts and the Flood Control District are all coordinating on the below recommendations:

Recommendation 1: *on-going*

In February 2010, a General Plan Amendment (GPA) to the Safety Element of the 2007 General Plan was adopted to amend the Flood Plain Safety Overlay District to incorporate revised FEMA (Federal Emergency Management Agency) Flood Plain data, modifying 47 detail and seven regional General Plan Quad Maps. The GPA also adopted the FEMA Digital Flood Insurance Rate Map database as released by FEMA as it currently exists and as updated in the future for the County allowing for automatic map updates as new data are published by FEMA. This action by the County of San Bernardino Board of Supervisors implements the portion of the first recommendation from the Alluvial Fan Task Force by working with FEMA to continue updating flood insurance rate maps.

In addition, the GPA for the Safety Element in 2010 (a) amended the Generalized Landslide Susceptibility layer, modifying 17 General Plan Quad Maps and one regional Quad Map, to incorporate updated existing landslide data published by the U. S. Geological Survey for the Mountain area; (b) amended the Fire Safety Overlay District, modifying four General Plan Quad Maps to incorporate updated fire safety mapping published by Cal Fire for the Valley area; and (c) amended the Generalized Liquefaction Susceptibility layer, modifying four General Plan Quad Maps to incorporate new liquefaction data in the Big Bear Lake area designated by the County Geologist for the Big Bear Lake area.

Recommendation 2: *on-going*

The County will coordinate with the California Geological Survey (CGS) and the United States Geological Survey (USGS) to review any newly developed Quaternary geologic maps in alluvial fan areas in order to identify potential hazards in areas projected for future development.

Recommendation 4: *on-going*

Historical, documentation of flooding occurrences are preserved by the County's Flood Control District that would review the recommendation to identify flooding events that were associated with alluvial fans.

Recommendation 6: *on-going*

The increased severity and intensity of wildfires in Southern California increase flood risk because the same structures subject to fire risk are also prone to post-fire debris flows. Many of the debris basins that were constructed some time ago did not anticipate the increased severity and intensity of wildfires or the additional developments that would follow. The CalOES projects that climate change will further increase the severity of storms, wildland fires, flooding, mudslides and landslides in areas of Southern California where existing debris basins are located.

All of San Bernardino County Flood Control District's Debris Basins in the valley area; from the Los Angeles County Line to Yucaipa, were analyzed after the Grand Prix and Old Fires. Flood Control District Safety Assessment Teams utilized the Corps of Engineers' Los Angeles District methodology to determine debris production, the same methodology the Corps uses when designing debris basins. In many cases basins were physically expanded and additional measures such as K-rails and debris racks were installed. The understanding of post-fire debris flows continues to evolve; we work closely with the USGS as they develop Post Wildfire Debris Flow Hazard Assessments. The rainfall "Trigger Points" in our FAST CONOPS is a result of the USGS assessments. All Flood Control Basins are also studied on an annual basis to determine existing capacity.

Any additional funding to support our efforts will meet the intent of recommendation #6 which states that the State and local agencies should conduct assessments of the adequacy of strategically located debris basins under a range of scenarios in urbanized areas in light of increased fire and post-fire debris-flow events.

Recommendation 8: *on-going*

When funding sources become available for the maintenance and further development of the database for the web-based portal; which would be utilized as a pre-project screening and flood management tool for special alluvial fan areas, the County may evaluate the benefits of its use in the planning process.

Recommendation 9: future proposal

As financial resources are allocated, the County will consider the analysis of the Integrated Approach tools to be studied for use in land use planning for development on alluvial fans.

Recommendation 10: f*uture proposal*

If funding is provided, the County will review and propose for adoption a model ordinance tailored for the specific needs of the County.

Recommendation 12: *future proposal*

The County's Office of Legislative Affairs, after consulting with the appropriate departments and staff, may explore supporting the economic strategies recommended in the Integrated Approach regarding future maintenance of flood management infrastructure.

B.5.3 StormReady

On July 29, 2009, the National Weather Service recognized San Bernardino County as a "StormReady County". This recognition is valid until July 29, 2012 and has been renewed in use (2016) when the National Weather Service will review the County's weather related planning and notification procedures prior to renewing the "StormReady County" status.

San Bernardino County is the only StormReady jurisdiction in the United States covered by three Weather Forecast Offices. The NWS Offices are:

- San Diego, CA;
- Las Vegas, NV; and
- Phoenix, AZ.

This NWS Recognition may provide the County residents with a discount on their Flood Insurance premiums.

B.6 Mitigation Project Prioritization and Implementation

Flood Project Prioritization and Implementation

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Earthquake	**EQ Action 5.1:** Divert runoff to Little Bear Creek.	To reduce the runoff over the cliff(s) in the Rimforest neighborhood, the runoff must be diverted to another path. This will be accomplished over three phases: • Phase 1: Reduce Runoff Tributary Area by 64%- 50.35 AC • Phase 2: Reduce Runoff Tributary Area by 30%- 23.79 AC • Phase 3: Reduce Runoff Tributary Area by 5%- 3.99 AC	SP, NRP, PRV	TBD	Primary: Public Works Secondary: San Bernardino County Flood Control District		
Flood	**FL Action 1.1:** Update NFIP data and maps with newly identified flood hazard areas in the County, as new information becomes available.	As required by the State of California, National Flood Insurance Program (NFIP) maps published by FEMA must be included in the HMP or General Plan Safety Element. Keeping this information current is an important mitigation action.	PRV, PPRO	TBD	San Bernardino County Flood Control District	On-Going	
Flood	**FL Action 2.1:** Determine whether or not additional amendments to development standards or policies are merited, based on the Alluvial Fan Task Force Recommendations.	This is an on-going mitigation action from the 2011 MJHMP.	PRV	TBD	Primary: San Bernardino County Flood Control District Secondary: Land Use Services	On-Going	
Flood	**FL Action 3.1:** Amend the Flood Plain Safety Overlay District through automatic map updates as new data is released and published by FEMA.	Current San Bernardino County Hazard Maps can be found at: http://cms.sbcounty.gov/lus/Planning/ZoningOverlayMaps/HazardMaps.aspx.	PRV, NRP	TBD	Primary: San Bernardino County Flood Control District Secondary: Land Use Services	On-Going	
Flood	**FL Action 3.2:** Review development plans to ensure compliance with ordinances.	This is an on-going mitigation action from the 2011 MJHMP in order to reduce the flood hazards through development standards and policies stated in the General Plan and San Bernardino 2077 Development Code.	PRV	TBD	Primary: Land Use Services Secondary: San Bernardino	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
					County Flood Control District		
Flood	**FL Action 3.3:** Inspect construction to ensure compliance with approved development plans.	This is an on-going mitigation action from the 2011 MJHMP in order to reduce the flood hazards through development standards and policies stated in the General Plan and San Bernardino 2077 Development Code.	PRV, PPRO, SP	TBD	Primary: Public Works Secondary: San Bernardino County Flood Control District	On-Going	
Flood	**FL Action 4.1:** In each flood control zone, construct facilities identified in those zones by the Flood Control Advisory Committee. See the following pages for a listing of projects.	This is an ongoing mitigation action from the 2011 MJHMP to achieve the goal of improving existing facilities and construct new facilities to mitigate flooding within the County.	SP	TBD	Primary: Public Works Secondary: San Bernardino County Flood Control District	On-Going	

B.7 Flood Project Prioritization and Implementation

The Flood District project rankings utilize the same format as the 2011 Multi-Jurisdictional Hazard Mitigation Plan, and rankings are based on the current project funding status as shown on the County Flood Control District's 10 year Plan. A 'High' Local Priority, or (3), indicates that project funding is expected to be complete within about the next three years, depending on the Flood Zone and its' available revenue. A 'Medium' Local Priority (2) indicates that project funding is expected to be complete within about four to seven years. A 'Low' Local Priority (1) indicates that the project is on the 10-Year Plan but complete funding is likely eight to ten years or more in the future.

The task of determining local project priority is the responsibility of the County Flood Control District's staff and City Engineers. Each of the six zones of the District is represented by a Citizens Advisory Committee, composed of eleven members and serving by appointment of the Board of Supervisors without compensation. Each committee is formed of spirited citizens and public officials with unselfish and devoted interests, organized to meet annually or on call to afford recommendations to the Board of Supervisors on matters of tax levies, budgets, work programs, priority of projects, ventures and other counsel. The Mayor of each incorporated city in the District is a committee member with full standing for the appropriate zone.

County Flood Control District staff and the City Engineers for each zone meet twice per year to discuss future project needs and current project status. Projects are proposed based on the public safety needs within the particular zone. In addition to public safety, other issues are considered in the prioritization process such as grant funding, environmental reviews and approvals, and other impediments that may cause construction of the project to be delayed. (See Annex 1 for examples of how these prioritization factors are applied to proposed projects.)

Almost without reservation, the recommendations of these organized committees have been accepted by the Board of Supervisors in its administration of County Flood Control District functions.

Each flood control zone constructs facilities identified in those zones by the Flood Control Advisory Committee. The City Engineers for each zone along with the Flood Control District I Advisory Committee establishes Project Priorities based on Benefit Cost Analysis, Community input, and fiscal resources available for the project in addition to any other noted factors. The following three tables illustrate priority rankings based on three key factors: Total Cost, Hazard Assessment, and Potential Fatalities.

Table B-6: Priority Flood Control Projects

Project No	Completion Date	Total Cost	Total Funding	Status
1-112	5 Year Plan	$10,000,000	$10,000,000	Priority
1-114	10 Year Plan	$15,000,000	$1,000,000	Priority

Project No	Completion Date	Total Cost	Total Funding	Status
1-701	5 Year Plan	$1,100,000	$1,100,000	Priority
1-806	10 Year Plan	$5,000,000	$1,000,000	Priority
1-809	5 Year Plan	$8,500,000	$1,000,000	Priority
1-910	10 Year Plan	$10,000,000	$2,000,000	Priority
2-113	10 Year Plan	$3,100,000	$500,000	Priority
2-308	10 Year Plan	$27,000,000	$500,000	Priority
F01272	10 Year Plan	$31,600,000	$600,000	Priority
F01336	2017-2018	$12,800,000	$13,740,000	Priority
F01389-2	10 Year Plan	$2,700,000	$1,430,000	Priority
F01417	10 Year Plan	$39,500,000	$21,150,000	Priority
F01452-2	2017-2018	$38,400,000	$1,170,000	Priority
F01473	10 Year Plan	$8,100,000	$5,001,000	Priority
F01650	2017-2018	$5,200,000	$3,440,000	Priority
F01667	10 Year Plan	$26,900,000	$16,000,000	Priority
F01911	2018-2019	$8,700,000	$3,140,000	Priority
F02129	10 Year Plan	$16,700,000	$1,024,000	Priority
F02228	10 Year Plan	$8,700,000	$7,600,000	Priority
F02243	10 Year Plan	$2,400,000	$400,000	Priority
Totals:		$281,400,000	$91,795,000	

B.7.1 Priority Project Descriptions

B.7.1.1 1-112 West State Storm Drain – Priority

Channel Invert Repair
Status: Proposed
Completion Date: 5-year plan
Total Cost: 11.4 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure
Hazard Mitigated: Downstream flooding

B.7.1.2 1-114 Carbon Canyon Channel – Priority

Channel improvement
Status: Proposed
Completion Date: 10-year plan
Total Cost: 15 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure
Hazard Mitigated: Downstream flooding

B.7.1.3 1-701 Etiwanda Channel Invert Repair – Priority

Channel Invert Repair
Status: Proposed
Completion Date: 5-year plan
Total Cost: 1.1 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure
Hazard Mitigated: Downstream flooding

B.7.1.4 1-806 Hawker Crawford Channel and Rich Basin – Priority

Channel / Basin improvement
Status: Proposed
Completion Date: 10-year plan
Total Cost: 5 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure by reducing peak Q
Hazard Mitigated: Downstream flooding

B.7.1.5 1-809 West Fontana Channel (From Banana Basin to Hickory Basin) – Priority

Channel Repair
Status: Proposed
Completion Date: 5-year plan
Total Cost: 8.5 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure
Hazard Mitigated: Downstream flooding

B.7.1.6 1-910 Grove Basin-Priority

Basin out improvement
Status: Proposed
Completion Date: 10-year plan
Total Cost: 10 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure by reducing peak Q
Hazard Mitigated: Downstream flooding

B.7.1.7 2-113 Randal Basin outlet improvement – Priority

Outlet improvements D/S of the Basin
Status: Proposed
Completion Date: On 10-year plan

Local Priority: Medium
Total Cost: $3.1 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Public Safety
Hazard Mitigated: Potential failure & flooding downstream
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.1.8 2-308 Cable Creek Channel – Priority

Channel improvements
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Low
Total Cost: $27 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Compliance with FEMA Levee Certification program
Hazard Mitigated: Reduction of floodplain; reduction of potential for major flooding
Resources to Implement: High
Cost to Implement: High
Time to Implement: High

B.7.1.9 F01272 Rialto Channel, Etiwanda Avenue to Willow Avenue – Priority

Construct Rialto channel to ultimate condition
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Low
Total Cost: $31.6 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Rialto
Project Selected for: Public Safety & convenience Hazard Mitigated: Residential area flooding and road closures due to wash-outs
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.1.10 F01336 Amethyst Detention Basin – Priority

Construct a detention basin at Amethyst and Sycamore
Status: Design completed, Permits In process
Completion Date: Estimated 2017/2018
Local Priority: High
Total Cost: $12.8 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Victorville
Project Selected for: Public Safety; protection of local and downstream infrastructure by reducing peak Q
Hazard Mitigated: downstream flooding

Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.1.11 F01389-2 Mojave River Phase II – Priority

Construct earthen levee lined with 1/2 ton rock slope protection between Oro Grande Wash and Mojave River Phase I
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Low
Total Cost: $2.7million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: To finalize levee improvement construction; protection of Amtrak station
Hazard Mitigated: Local flooding, railroad flooding
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.1.12 F01417 Bandicoot Detention Basin (Phase I&II) – Priority

Construction of detention basin, inlet/outlet facilities, fencing to attenuate 10-year storm flows adjacent to California Aqueduct and downstream residential and commercial properties developments.
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Low
Total Cost: $39.5 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: To protect the State water aqueduct
Hazard Mitigated: Flood damage to aqueduct & local area
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.1.13 F01452-2 West Fontana Channel, Phase I – Priority

Construction of concrete channel from Juniper to Banana Basin
Status: In process
Completion Date: Estimated 2017/2018
Local Priority: Medium
Total Cost: $38.4 million
Funding Description: San Bernardino County Flood Control Taxes, City of Fontana
Project Selected for: Public safety & convenience
Hazard Mitigated: Flooding of railroad & Metrolink tracks; road damage & closure
Resources to Implement: Medium
Cost to Implement: High

Time to Implement: High

B.7.1.14 F01473 Rialto Channel – Priority

Construct channel improvements south of Interstate 10
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Medium
Total Cost: $8.1 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Rialto
Project Selected for: Public Safety
Hazard Mitigated: Existing channel is interim and undersized
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.1.15 F01650 Sand Creek/ Warm Creek Channels – Priority

Improve existing confluence of Sand Creek and Warm Creek Channels
Status: In process
Completion Date: Estimated 2017/2018
Local Priority: Medium
Total Cost: $5.2 million
Funding Description: San Bernardino County Flood Control
Project Selected for: channel improvements to interim storm drain system
Hazard Mitigated: Potential damage to infrastructure
Resources to Implement: High
Cost to Implement: High
Time to Implement: High

B.7.1.16 F01667 Cactus Basins #4 & 5 – Priority

Construction of detention basins to mitigate downstream flooding of Rialto Channel Work includes inlet/outlet structures
Status: Proposed
Completion Date: 10-year plan
Local Priority: Low
Total Cost: $26.9 million
Funding Description: San Bernardino County Flood Control, City of Rialto
Project Selected for: Ability to reduce downstream peak Q
Hazard Mitigated: flooding of nearby area

B.7.1.17 F01911 Elder Gulch – Priority

Construct trapezoidal rock-lined channel
Status: Proposed
Completion Date: Estimated FY 18/19
Local Priority: High

Total Cost: $8.7 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Public safety
Hazard Mitigated: Flooding of local area
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Medium

B.7.1.18 F02129 Wildwood Channel – Priority

Channel improvement
Status: In preliminary design process
Completion Date: On 10-year plan
Local Priority: High
Total Cost: $16.7 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Yucaipa
Project Selected for: History of flooding due to high debris flows
Hazard Mitigated: reduction in size of floodplain; minimized flooding
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Low

B.7.1.19 F02228 Plunge Creek Spillway – Priority

Repair of severe damage caused by storms in 2005
Status: Proposed
Completion Date: On 10-year plan
Local Priority: High
Total Cost: $3 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Necessary repairs due to previous flood damage
Hazard Mitigated: Potential failure & flooding downstream
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.1.20 F02243 Rialto Channel Priority Crossings – Priority

Status: In preliminary design process
Completion Date: On 10-year plan
Local Priority: Low
Total Cost: $2.4 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Rialto

Project Selected for: Public Safety & convenience
Hazard Mitigated: Elimination of flooding at intersections
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.2 Projects with Mitigation Benefits

Table B-7 is a list of the proposed projects to mitigate the Flood hazard within the County Unincorporated Area.

Table B-7: In Progress Flood Control Mitigation Projects

Project No	Completion Date	Total Cost	Total Funding	Status
F01312	2017/2018	4,400,000	2,200,000	Under Construction
F01666	2017/2018	17,800,000	17,800,000	Under Construction
F02094	2017	4,000,000	4,000,000	Under Construction
F02126	2017/2018	8,300,000	6,180,000	Under Construction
	Totals:	34,500,000	30,180,000	

B.7.2.1 F01312 English Channel/ Peyton Drive (Under Construction)

Construct triple RCB and channel upstream and downstream of Peyton Drive.
Status: In preliminary design process
Completion Date: Estimated 2017/2018
Local Priority: High
Total Cost: $4.4 million
Funding Description: San Bernardino County Flood Control Property Taxes, 50% and City of Chino Hills 50%
Project Selected for: Public safety & convenience
Hazard Mitigated: Flooding of roads in residential area
Resources to Implement: High
Cost to Implement: High
Time to Implement: Medium

B.7.2.2 F01666 Cactus Basin #3/ Expansion of Basin #3 – (Under Construction)

Status: In process
Completion Date: Estimated 2017/2018
Local Priority: High
Total Cost: $17.8 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Rialto

Project Selected for: Public safety & improved future development; protection of water filtration plant across the street; reduction of peak Q downstream.
Hazard Mitigated: Flooding of immediate area and downstream along Rialto Channel
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Medium

B.7.2.3 F02094 Cucamonga Basin #6, Phase II – (Under Construction)

Landscaping improvements
Status: Partial Completed
Completion Date: Mid-2011 – (Landscaping Phase Completion date end of 2017)
Local Priority: High
Total Cost: $4.0 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Environmental compliance & aesthetics
Hazard Mitigated:
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Low

B.7.2.4 F02126 Francis Street Storm Drain (Under Construction)

Construct ultimate storm drain improvements from Sultana Avenue east to beyond Grove Avenue
Status: In preliminary design process
Completion Date: Estimated 2017/2018
Local Priority: Low
Total Cost: $8.3 million
Funding Description: San Bernardino County Flood Control Property Taxes 75% and City of Ontario 25%
Project Selected for: Public safety & convenience
Hazard Mitigated: Existing storm drain is undersized/interim; local flooding
Resources to Implement: Medium

B.7.3 Future Year Projects

Table B-8: Future Year Projects

Project Number/Name	Completion Date	Total Cost	Status
2-509 Little Sand Creek	10 Year Plan	$10,500,000	Future
3-501 Mission Channel	10 Year Plan	$28,800,000	Future
3-601 Wilson Creek (10th St-I-10)	10 Year Plan	$38,800,000	Future
CSDP Drain Project	10 Year Plan	$18,500,000	Future
Extension of VV Line E-01	10 Year Plan	$2,000,000	Future
F01284	10 Year Plan	$7,200,000	Future
F01582	10 Year Plan	$19,000,000	Future
F01584	2018/2019	$11,700,000	Future
F01609	10 Year Plan	$32,500,000	Future

Project Number/Name	Completion Date	Total Cost	Status
F02225	10 Year Plan	$33,100,000	Future
F02475	10 Year Plan	$9,000,000	Future
F02476	10 Year Plan	$32,300,000	Future
H1458	2021	$3,000,000	Future
Institution Road	2021	$30,000,000	Future
Line C-01 Hesperia	10 Year Plan	$5,300,000	Future
Line D-01 Hesperia	10 Year Plan	$32,500,000	Future
Line E-01 Apple Valley	10 Year Plan	$36,300,000	Future
Lone Pine Canyon Road Culvert	TBD	$25,000,000	Future
National Trails Hwy Bridge	TBD	$40,000,000	Future
Old Waterman Canyon Rd Culvert	TBD	$2,500,000	Future
Pine View Dr. Storm Drain	TBD	$6,000,000	Future
Piute Wash	2021	$34,500,000	Future
Rimforest Drainage Project	10 Year Plan	$6,900,000	Future
Rock Springs Rd Bridge Replacement	TBD	$32,876,000	Future
Tussing Ranch-Juniper Basin	10 Year Plan	$6,500,000	Future
Yermo Rd/National Trails Hwy Bridge	TBD	$40,000,000	Future
	Totals:	$544,776,000	

B.7.3.1 2-509 Little Sand Creek

Creek improvements between Date Street and Del Lemon basin
Status: Proposed
Completion Date: 10-year plan
Local Priority: Medium
Total Cost: $10.5 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety; residential area with school nearby
Hazard Mitigated: Flooding and pedestrian hazards
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.3.2 3-501 Mission Channel

Channel Repair, Construct concrete channel improvements
Status: Proposed
Completion Date: 10-year plan
Local Priority: Medium
Total Cost: $28.8 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety; residential area with school nearby
Hazard Mitigated: Flooding and pedestrian hazards
Resources to Implement: Medium

Cost to Implement: High
Time to Implement: High

B.7.3.3 3-601 Wilson Creek (from 10st Street to I-10)

Channel Repair, between 10st Street to I-10
Status: Proposed
Completion Date: 10-year plan
Local Priority: Medium
Total Cost: $38.8 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety; residential area with school nearby
Hazard Mitigated: Flooding and pedestrian hazards
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.3.4 CSDP -- Storm Drain Project – Colton

Construction of storm drains from Randall Basin to the Santa Ana River according to Comprehensive Storm Drain Plan (CSDP) 3-5 and 3-8
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Medium
Total Cost: $18.5 million
Funding Description: San Bernardino County Flood Control Property Taxes
Hazard Mitigated: Existing channel is interim and undersized
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.3.5 Extension of Victorville Line E-01

Construct Storm Drain line E-01
Status: In preliminary design process
Completion Date: On 10-year plan
Local Priority: High
Total Cost: $2.0 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Victorville
Project Selected for: Public safety of commercial area
Hazard Mitigated: local flooding; road closure/road damage (State Hwy)
Resources to Implement: High
Cost to Implement: High
Time to Implement: Low

B.7.3.6 FO1284 Donnell Basin (Phase I&II)

Construct detention basin.
Status: Proposed
Completion Date: 10-year plan
Local Priority: Medium
Total Cost: $7.2 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Public Safety; roadway protection; Safe Routes to School Program (SR2S)
Hazard Mitigated: Flood protection for homes, infrastructure, and pedestrians
Resources to Implement: Low

B.7.3.7 FO1582 Desert Knolls II

Construct flood control channel from Apple Valley Road to Tuscola Road
Status: Proposed
Completion Date: On 10-year plan
Local Priority: High
Total Cost: $19 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety/future development
Hazard Mitigated: Potential localized flooding due to increased development
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.3.8 FO1584 Desert Knolls

Construct channel improvements from the Mojave River to Phase I
Strategy: Construct concrete lined channel to provide for 100 year storm flows and debris flows.
Status: Proposed
Completion Date: Estimated FY 18/19
Local Priority: High
Total Cost: $11.7 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Environmental requirements
Hazard Mitigated: This project is the mitigation aspect of Phase II
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Medium

B.7.3.9 FO1609 Ranchero Basin

Construct detention basin
Status: Proposed

Completion Date: 10-year plan
Local Priority: High
Total Cost: $32.5 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety and reduction of peak Q
Hazard Mitigated: Potential damage to bridges and roads downstream due to high flows
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.3.10 F02225 Del Rosa

Channel Repair, Construct concrete channel improvements between Pacific Street and Del Rosa Avenue
Status: Proposed
Completion Date: 10-year plan
Local Priority: Medium
Total Cost: $33.1 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety; residential area with school nearby
Hazard Mitigated: Flooding and pedestrian hazards
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.3.11 F02475 Seneca Basin

Construct detention basin
Status: Proposed
Completion Date: 10-year plan
Local Priority: High
Total Cost: $9 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety and reduction of peak Q
Hazard Mitigated: Potential damage to bridges and roads downstream due to high flows
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.3.12 F02476 Oak Hills Basin

Construct detention basin
Status: Proposed
Completion Date: 10-year plan
Local Priority: High
Total Cost: $32.3 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety and reduction of peak Q
Hazard Mitigated: Potential damage to bridges and roads downstream due to high flows
Resources to Implement: Low

Cost to Implement: High
Time to Implement: High

B.7.3.13 H1458 Arrowbear Dr. Bridge Replacement

Replacement of bridge crossing on Arrowbear Drive and increase spillway flow capacity to prevent flooding
Status: Proposed
Completion Date: 2021
Total Cost: $3,000,000.00
Funding Description: Major Local Highway Project Funds
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.14 Institution Road

Construction of bridge crossing along Institution Road on Cajon Wash
Status: Proposed
Completion Date: 2021
Total Cost: $30,000,000.00
Funding Description: seeking grant funding
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.15 Line C-01 Hesperia

Construction of concrete trapezoidal channel improvements, short reach of levee along the channel, 96 inch RCP and reconstruction of the existing deficient reach as a concrete trapezoidal channel with a portion of riprap channel
Status: Proposed
Completion Date: 10-year plan
Total Cost: $5.3 million
Funding Description: San Bernardino County flood Control
Project selected for: Public safety and roadway protection
Hazard Mitigated: Flooded roads and residential area
Resources to implement: High
Cost to implement: High
Time to implement: High

B.7.3.16 Line D-01 Hesperia

Improve the storm drain facility.
Status: Proposed
Completion Date: 10-year plan
Total Cost: $32.5 million
Funding Description: San Bernardino County flood Control
Project selected for: Public safety and roadway protection
Hazard Mitigated: Flooded roads and residential area
Resources to implement: High
Cost to implement: High

Time to implement: High

B.7.3.17 Line E-01 Apple Valley

Improve the storm drain facility.
Status: Proposed
Completion Date: 10-year plan
Total Cost: $36.3 million
Funding Description: San Bernardino County flood Control
Project selected for: Public safety and roadway protection
Hazard Mitigated: Flooded roads and residential area
Resources to implement: High
Cost to implement: High
Time to implement: High

B.7.3.18 Lone Pine Canyon Road Culvert

Construction of Culvert on Long Pine Canyon Road
Status: Proposed
Completion Date: No date until funding is available
Total Cost: $2,500,000.00
Funding Description: TBD
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.19 National Trails Highway Bridge Replacement

Removal of approximately 31 old timber bridges and construction of replacement bridges spanning Under 20' on National Trails Highway
Status: Preliminary engineering and environmental study only
Completion Date: No date until funding is available
Total Cost: $40,000,000.00
Funding Description: TBD
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.20 Old Waterman Canyon Road Culvert

Removal of approximately 31 old timber bridges and construction of replacement bridges spanning less than 20' on National Trails Highway
Status: Preliminary engineering and environmental study only
Completion Date: No date until funding is available
Total Cost: $2,500,000.00
Funding Description:
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.21 Pine View Dr. Storm Drain

Construction of storm drain on Pine View Drive
Status: Proposed
Completion Date: Shelf ready but no date until funding is available
Total Cost: $6,000,000.00
Funding Description: TBD
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.22 Piute Wash

Construction of bridge crossing along Needles highway road on Piute washes to prevent flooding and washing the road out.
Status: Proposed
Completion Date: 2021
Total Cost: $34,500,000
Funding Description: seeking grant funding
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.23 Rimforest Drainage Project – Rimforest Area

Capture the surface water within Rimforest and convey it to Little Bear Creek, away from the escarpment.
Status: In preliminary design process
Completion Date: On 10-year plan
Local Priority: High
Total Cost: $6.9 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Public safety of commercial area
Hazard Mitigated: Public safety and reduction of peak Q
Resources to Implement: High
Cost to Implement: High
Time to Implement: Low

B.7.3.24 Rock Springs Road Bridge Replacement

Construct Replacement Bridge on Glen Helen Parkway over Cajon Wash It will increase flow capacity with a longer span and reduce flooding of the roadway.
Status: Proposed
Completion Date: No date until full funding is available
Total Cost: $32,876,000
Funding Description: Partially funded with General Fund Money
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.25 Tussing Ranch – Juniper Basin

Construct detention basin
Status: Proposed
Completion Date: 10-year plan
Local Priority: High
Total Cost: $6.5 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety and reduction of peak Q
Hazard Mitigated: Potential damage to bridges and roads downstream due to high flows
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.3.26 Yermo Road and National Trails Highway Bridge Replacement

Removal of approximately 11 old timber bridges and construction of replacement bridges spanning under 20' on National Trails Highway and Yermo Road. The military is using high load tractors and trailers warranting the need to increase the load capacity of the bridges.
Status: Preliminary engineering and environmental study only
Completion Date: No date until funding is available
Total Cost: $40,000,000.00
Funding Description: TBD
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

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Annex C. Special Districts Department

C.1 Introduction

Special Districts Department, under the direction of the San Bernardino County Board of Supervisors, provides administrative oversight and manages the operation of over 100 special districts throughout San Bernardino County. Through the formation of County Service Areas (CSAs) and Improvement Zones, these special districts provide a variety of municipal-type services to unincorporated areas of the county.

C.2 Special Districts Profile

Special District Functions:
The County Service Areas (CSAs) and Improvement Zones can provide one or all of the following services to meet the individual needs of communities, neighborhoods and new developments depending on needs and financial feasibility:

- Cemetery
- Dam Operation
- Detention Basin
- Engineering and Construction
- Landscaping
- Open Spaces
- Park and Recreation
- Public Financing
- Refuse
- Roads
- Streetlights
- Television Translator
- Water and Sanitation

Mission:
The Special Districts Department works to ensure safe, healthy, and enjoyable communities by providing customizable programs and municipal services for those who work, play and stay in San Bernardino County.

Vision:
To be recognized as the preeminent provider of customized municipal services focusing on improved quality of life for the residents and visitors of San Bernardino County.

C.3 Planning Process

As described above, the County Flood Control District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the San Bernardino County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table C-9. Additional details on plan participation and District representatives are included in Appendix A.

Table C-9: Special District Hazard Mitigation Planning Team

Name	Title
Jeffrey Rigney	Director of Special Districts
Steve Samaras	Water and Sanitation Division Manager
Tim Millington	Engineering Division Manager,
Reese Troublefield	Operations Division Manager
Erin Opliger	Districts Services Coordinator

The Special Districts Department has attending the following planning meetings:

Meeting Date	Meeting Type	Attendees	Additional Details
6/23/16	LHMP Update - Kickoff Meeting	Steve Samaras, Erin Opliger	
8/30/16	LHMP Group Meeting	Erin Opliger	
10/26/16	LHMP Blue Jeans Meeting	Erin Opliger	

The County of San Bernardino Special Districts Department (Department) has historically identified goals, objectives, and projects to mitigate the negative effects of hazards. The Department continues to work with various Advisory Commissions and the public to identify and mitigate the impacts of hazards to the various services that the Department provides, including: cemetery operations, dam operations, detention basin operations, landscaping services, open space, parks and recreation, refuse services, roads, streetlights, television translator, water distribution and treatment system operations, sewer collection system operations, and wastewater treatment plant operations.

The Department diligently identifies the hazards that each service district or County Service Area (CSA) and its zones face, and has assessed the vulnerability according to the potential event. Hazards, whether they are technological or natural, affect CSAs with varying frequency and can cause injury, impose monetary losses, and the disruption of services, affecting the Department's mission as a public agency service provider. Losses can be substantially reduced or eliminated through comprehensive pre- disaster planning and mitigation actions.

Many groups and individuals have contributed to the Department's planning for Disasters and the necessary hazard mitigation efforts. Advisory Committees, located in the Department's various CSAs, provide on-going input and support for the various aspects of hazard mitigation, including identifying persistent hazards that develop after storm events and options for mitigation.

Department staff participates in the hazard mitigation process by completing semi-annual audits of various CSAs, recommending temporary fixes and/or permanent solutions. CSA customers and the public have also participated in hazard mitigation planning by approaching staff in the field, contacting the office, and/or attending public meetings to identify temporary and ongoing hazards that need to be addressed. These resources have proved valuable to the Department in identifying and mitigating potential hazards. The Department also uses the following process to prepare hazard mitigation plans:

- Identify and prioritize disaster events that are most probable and destructive;
- Identify critical facilities;
- Identify areas within communities that are most vulnerable;
- Develop goals and objectives for reducing the effects of a disaster event;
- Develop specific projects to be implemented for each goal;
- Identify funding sources;
- Develop procedures for monitoring progress;
- Mitigate identified potential hazards.

The Department has identified areas for mitigation projects within the Special Districts of San Bernardino County as a result of their internal planning processes. These projects, shown below, are organized by type of special district these proposed projects are in the conceptual stage and detailed planning will be done in the future as funding becomes available. Prioritization of projects will be done in the planning stages, based on the risk prioritizations developed for the current Multi-Jurisdictional Hazard Mitigation Plan.

C.4 Hazard Identification and Prioritization

The Special Districts Planning Team participated in the County hazard identification and prioritization process described in the base plan. The Special Districts Planning Team assisted to summarize the extent, probability of future occurrences, potential magnitude/severity, and significance specific to the Special Districts (See Section 4).

C.5 Coordination with County Planning Efforts

Coordination with other County planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the Special Districts integrated the previously-approved 2011 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2011 MJHMP through other plans and programs shown below.

C.5.1 3.2 Water Systems (Distribution Systems):

Fire:

- Rockscape or paved property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.
- Re-roof buildings and structures with tile, metal or fire resistant material.

Flood:

- Add drainage, elevate facilities and adjust sloping for facilities in low-lying areas and in natural waterways or floodplains. (Recent Completion)
- Conduct hydrologic and hydraulic studies for all facilities located near flood plains/natural waterways.
- Encase water pipelines with specific sized rock, gravel, and road base in natural waterways to prevent continual washout or exposure during heavy storm events/floods.

Earthquake:

- Retrofit structures to higher seismic standards.
- Purchase portable containers (Conex containers) to stage emergency supplies and equipment for the first responders (i.e. water, food, small off road vehicles, fuel, cots, toiletries, communication devices, blankets, wet weather gear, etc.) at strategic water system locations throughout County of San Bernardino. Conex containers can be relocated if necessary to assist field staff during a disaster to maintain the operations of water systems. (Recent Completion and in implementation phase)

General Hazard (Fire/Flood/Earthquake):

- Retrofit existing buildings and facilities with connectors/ATS for emergency generators and/or install permanent emergency generators at critical facilities, including wells and booster station locations.
- Develop a plan for speeding the repair of and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies.
- Develop a plan for areas subject to high ground shaking, earthquake-induced ground failure, and surface fault rupture to determine a replacement schedule for pipelines (along with importance, age, type of construction material, size, condition, and maintenance or repair history).(Project now in effect)
- Develop a plan for short-term and intermediate-term sheltering of employees.
- Develop a plan to work with local agencies that handle hazardous materials to coordinate mitigation efforts for the possible release of these materials due to a natural disaster such as an earthquake, flood, fire, or landslide.

- Utilization of SCADA and Smart Water Meters to get real time data on problems with the system and reduce drive time emissions as a result of traditional meter reading.
- Provide emergency supplies of food, water, and portable generators for employees at office and field locations.
- Install emergency generators at district facilities

C.5.2 3.3 Sewer Systems (Collection Systems):

Fire:

- Rockscape or pave property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.(Completion and program implementation by January 2017 estimated)
- Re-roof buildings and structures with tile or fire resistant material.

Flood:

- Add drainage, elevate facilities and adjust sloping for facilities in low-lying areas and in natural waterways or floodplains.
- Encase sewer pipelines with specific sized rock, gravel, and road base in natural waterways to prevent continual washout or exposure during heavy storm events/floods.

Earthquake:

- Develop a plan for short-term and intermediate-term sheltering of employees.
- Retrofit structures to higher seismic standards.

General Hazard (Fire/Flood/Earthquake):

- Retrofit existing buildings and facilities with connectors/ATS for emergency generators and/or install permanent emergency generators.

- Develop a plan for speeding the repair and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies.
- Develop a plan for areas subject to high ground shaking, earthquake-induced ground failure, and surface fault rupture to determine a replacement schedule for pipelines (along with importance, age, type of construction material, size, condition, and maintenance or repair history).
- Install emergency power generators at district facilities.

C.5.3 3.4 Wastewater Treatment Plant

Fire:

- Rockscape or pave property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.
- Purchase and store water pumps capable of suppressing fire.

Flood

- Add drainage, elevate facilities and adjust sloping for facilities in low-lying areas and in natural waterways or floodplains.

Earthquake:

- Develop a plan for short-term and intermediate-term sheltering of employees.

C.5.4 3.5 Roads

Fire:

- Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.
- Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal.(completed with continuous fresh of supplies and rotation)
- Clear vegetation from Road District facilities/yards

Flood:

- Upgrade culverts in all flood prone areas. Most existing culvert sizes were never designed for high water volume. Upgrading will prevent roadway washouts caused by water bypassing existing culverts.(Complete and continuous maintenance)
- Upgrade culvert sizes in Main Channels and replace old culverts in Main Channels as required.(complete and continuous maintenance)
- Slope stabilization at water crossing areas along roadways. This will prevent the loss of the roadways at these areas by preventing undermining by the water.
- Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.
- Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal.
- Soil stabilization on roadway shoulders. This will prevent erosion caused by flood conditions.

- Soil stabilization of dirt roadways. This will help mitigate the loss of material from the roadway during flooding conditions.
- Employ on call contractors to assist in emergency situations.

Earthquake:
Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.
Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal. (Completed and refresh of supplies as needed)

C.5.5 3.6 Television Translator Districts

General Hazard (Fire, Flooding, Earthquake):

- Install and maintain emergency generators at all TV Translator sites. Newberry Springs, Lucerne Valley, and Morongo Valley TV Transmitter sites are in need emergency generators. Pinto and Elephant Mountain sites have existing generators. Installing emergency generators at these sites will enable emergency information to be disseminated to the residents living in these remote locations.(Complete and maintenance of upgrades)
- Establish a centralized communications network to monitor channel output for TV Districts and provide emergency information by way of character generator tied to channel transmissions.
- Conduct annual tower and guide wire inspections to mitigate storm/wind/earthquake hazards from knocking out communications.
- Install poly insulators on power poles with high voltage power lines for Pinto Mountain. Establish an open purchase order for a High Voltage Electrician to provide annual inspections of power poles and service lines.(Completed and continuous maintenance)
- Maintain roadways on mountaintops and within washes leading to remote tower sites. Earthquakes and flash floods can block roadways, making them impassable to restore emergency communications.
- Maintain lights on all tower locations.

C.5.6 3.7 Parks Districts

- Trim large trees in parks to avert limb breakage and toppling during storm events.
- Establish emergency centers to ration drinking water at various County Park Community Centers.
- Establish community garden plots in designated County Park areas as an ongoing and emergency food source, including planting fruit bearing trees.
- Conduct an inventory or list of County Park Facilities and Community Centers to establish a list of pre-designated emergency operations or disaster relief sites. Not all Community

Centers are an appropriate size to accommodate large numbers of evacuees and may only serve as command and control centers or distribution centers.
- Establish small solar energy fields or other forms of renewable power at County Community Centers to facilitate stand-alone emergency operations for the community.
- Conduct repair and replacement of old roofs, and clearing of gutters and roof drains to minimize potential damage from major storm events.(Completed and continuous maintenance)
- Conduct an evaluation or study of County Park and Community Center facilities to install curbs, retaining walls, and drains to carry or divert water away from buildings.
- Connect water systems to generators to ensure delivery even in disaster situations.
- Provide emergency supply of food and water for employees in disaster situations.

C.6 Special Districts Mitigation Project Prioritizing

Cost effectiveness of each measure was a primary consideration when developing mitigation actions. Because mitigation is an investment to reduce future damages, it is important to select measures for which the reduced damages over the life of the measure are likely to be greater than the project cost. For structural projects, the level of cost effectiveness is primarily based on the likelihood of damages occurring in the future, the severity of the damages when they occur, and the level of effectiveness of the selected measure. While detailed analysis was not conducted during the mitigation action development process, these factors were of primary concern when selecting measures. For measures that do not result in a quantifiable reduction of damages, such as public education and outreach, the relationship of the probable future benefits and the cost of each measure was considered when developing the mitigation actions.

Based upon the Special Districts capabilities, Table C-10 shows primary actions selected for further implementation and development during the next planning cycle. Table C-10 provides details for each mitigation action with mitigation action descriptions, FEMA mitigation category, responsible party, and timeframe.

C.7 Special Districts Mitigation Actions

Table C-10: Mitigation Project Prioritization and Implementation

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
All-Hazard	**AH Action 2.1:** Continue funding and support for Special Districts Projects relating to all hazards.	Continue funding and support for Special Districts Projects relating to water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District for all hazards. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
All-Hazard	**AH Action 2.2:** Install Generators at Critical Facilities	Retrofit existing buildings and facilities with connectors/ ATS for emergency generators and/or install permanent emergency generators at critical facilities, including wells and booster station locations.	ES, SP	TBD	Water Systems	TBD	Critical sites are already set up for connection or has a permanently installed generator
All-Hazard	**AH Action 2.3:** Water Systems Repair Plan	Develop a plan for speeding the repair of and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies.	PRV	SDD WAS	Water Systems	TBD	We have a warehouse and inventory. Add'l inventory would need to be purchased from local wholesaler
All-Hazard	**AH Action 2.4:** Smart Water Meters and SCADA	Utilization of SCADA and Smart Water Meters to get real time data on problems with the system and reduce drive time emissions as a result of traditional meter reading.	PRV	Individual CSAs	Water Systems	Ongoing	Both SCADA and Smart Meters have been installed and continue to be installed
All-Hazard	**AH Action 2.5:** Provide Employees with Emergency Supplies	Provide emergency supplies of food, water, and portable generators for employees at office and field locations.	ES	SDD/WAS	Water Systems	Ongoing	WAS has a stock of emergency food supplies, water, and generators.
All-Hazard	**AH Action 2.6:** Annual Tower and Guide Wire Inspections	Conduct annual tower and guide wire inspections to mitigate storm/wind/earthquake hazards from knocking out communications.	PRV	TBD	TV Districts	7/1/2016-7/1/2017	All Districts
All-Hazard	**AH Action 2.7**: Maintain Tower Lighting	Maintain lights on all tower locations.	SP	TBD	TV Districts	June-17	
All-Hazard	**AH Action 2.8:** Designate Emergency Operations Sites	Conduct an inventory or list of County Park Facilities and Community Centers to establish a list of pre-designated emergency operations or disaster relief sites. Not all Community Centers are an appropriate size to accommodate large numbers of evacuees and may only serve as command and control centers or distribution centers.	PRV	TBD	Park Districts	April-17	All Districts
All-Hazard	**AH Action 2.9:** Establish Power Sources for Emergency Operations Sites	Establish small solar energy fields or other forms of renewable power at County Community Centers to facilitate stand-alone emergency operations for the community.	PRV, SP	TBD	Park Districts	12/1/2016-7/1/2018	Lucerne Valley Joshua Tree
All-Hazard	**AH Action 2.10:** Connect Water Systems to Generators	Connect water systems to generators to ensure delivery even in disaster situations.	PRV, SP	TBD	Park Districts	TBD	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
All-Hazard	**AH Action 2.11:** Establish a Centralized Communications Network	Establish a centralized communications network to monitor channel output for TV Districts and provide emergency information by way of character generator tied to channel transmissions.	PRV	TBD	TV Districts	7/1/2017-12/1/2017	All districts
Wildfire	**WF Action 3.3:** Vegetation Removal	Clear vegetation from Road District facilities/yards	PRV	TBD	Roads	TBD	
Wildfire	**WF Action 6.3:** Protect Property in Wilderness Areas	Rockscape or pave property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.	PPRO, PRV, SP	TBD	Sewer Systems	January-17	All sewer pump stations have paving
Wildfire	**WF Action 8.3:** Structural Fire Breaks Widening	Double the width of external fire breaks on grounds which have structures located in wilderness and or areas prone to wildfires.	SP, PRV	Individual CSAs	Water Systems	7/1/2017-7/19/2019	
Wildfire	**WF Action 9.1:** Continue funding and support for Special Districts Projects relating to wildfire.	Continue funding and support for Special Districts Projects relating to wildfire in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
Wildfire	**WF Action 9.2:** Emergency Water Supplies	Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal.(completed with continuous fresh of supplies and rotation)	ES	TBD	Roads	TBD	
Earthquake	**EQ Action 2.2:** Seismic Strapping	Seismic strapping for existing water tanks and future construction.	SP, PRV	CSA 64	Water Systems	7/17/2017- 7/1/2019	Ongoing currently
Earthquake	**EQ Action 2.3:** Employee Emergency Sheltering	Develop a plan for short-term and intermediate-term sheltering of employees.	PRV	WAS	Sewer Systems	7/17/2017-7/19/2019	To purchase cots, small portable generators, tents, etc.
Earthquake	**EQ Action 4.2:** Generator Installation	Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.	SP, PPRO	TBD	Roads	TBD	
Earthquake	**EQ Action 6.1:** Continue funding and support for Special Districts Projects relating to earthquake hazards.	Continue funding and support for Special Districts Projects relating to earthquake hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
Flood	**FL Action 3.4:** Soil Stabilization on Roadways and Along Roadway Shoulders	Soil stabilization on roadway shoulders and dirt roads. This will prevent erosion caused by flood conditions.	SP, PRV	TBD	Roads	TBD	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Flood	**FL Action 3.5:** Encasing Pipelines	Encase water pipelines with specific sized rock, gravel, and road base in natural waterways to prevent continual washout or exposure during heavy storm events/floods.	SP, PRV	CSA 70 J	Water Systems	7/17/2017-7/1/2027	
Flood	**FL Action 6.1:** Continue funding and support for Special Districts Projects relating to flood hazards.	Continue funding and support for Special Districts Projects relating to flood hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
Flood	**FL Action 6.2:** On Call Contractors	Employ on call contractors to assist in emergency situations.	PRV, ES	TBD	Roads	TBD	
Drought	**DR Action 3.1:** Continue funding and support for Special Districts Projects relating to drought hazards.	Continue funding and support for Special Districts Projects relating to drought hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
Anti-Terrorism	**AT Action 2.1:** Continue funding and support for Special Districts Projects relating to terrorism hazards.	Continue funding and support for Special Districts Projects relating to terrorism hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
Climate Change	**CC Action 3.1:** Continue funding and support for Special Districts Projects relating to climate change hazards.	Continue funding and support for Special Districts Projects relating to climate change hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	

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APPENDIX F

RIVERSIDE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

COUNTY OF RIVERSIDE

Multi-Jurisdictional

Local Hazard Mitigation Plan

July 2018





Bruce Barton, Director

County of Riverside Emergency Management Department

Contact Information

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Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

Executive Summary

The purpose of the Riverside County Operational Area Multi-Jurisdictional Local Hazard Mitigation Plan is to identify the County's hazards, review and assess past disaster occurrences, estimate the probability of future occurrences and set goals to mitigate potential risks to reduce or eliminate long-term risk to people and property from natural and man-made hazards.

The plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 to achieve eligibility and potentially secure mitigation funding through Federal Emergency Management Agency (FEMA) Flood Mitigation Assistance, Pre-Disaster Mitigation, and Hazard Mitigation Grant Programs.

Riverside County's continual efforts to maintain a disaster-mitigation strategy is on-going. Our goal is to develop and maintain an all-inclusive plan to include all jurisdictions, special districts, businesses and community organizations and to promote consistency, continuity and unification.

The County's planning process followed a methodology presented by FEMA and Cal-OES which included conducting meetings with the Operational Area Planning Committee (OAPC) coordinated by Riverside County Emergency Management Department comprised of participating Federal, State and local jurisdictions agencies, special districts, school districts, non-profit communities, universities, businesses, Tribal Leaders, Healthcare Facilities and general public.

The plan identifies vulnerabilities, provides recommendations for prioritized mitigation actions, evaluates resources and identifies mitigation shortcomings, provides future mitigation planning and maintenance of existing plan.

The plan will be implemented upon FEMA approval.

Plan Adoption/Resolution

The County and its participating jurisdictions will submit plans to Cal OES for review prior to being submitted to FEMA and will adhere to the recommended process. In addition, the County and its participants will wait to receive an "Approval Pending Adoption" before taking the plan to the local governing bodies for adoption. Upon approval, County and participating jurisdictions will insert signed resolution.

(See Appendix A for Draft Resolution)

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

Acknowledgments

County Board of Supervisors:
District 1 – Kevin Jeffries
District 2 – John F. Tavaglione
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Patricia Uematsu, Supervising Account Technician
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Sandy Olinga, Administrative Services Analyst I

Local Hazard Mitigation Plan External Steering Committee (OAPC)
Federal, State and Local Government, Special Districts, Tribal Leaders, Healthcare Facilities, Non-Governmental Organizations, Faith- based organizations, businesses, Emergency Services Coordinators and other key Stakeholders.

Local Hazard Mitigation Internal Planning Steering Committee
Cal OES
Agricultural Commissioner's Office
Environmental Health
Riverside County Animal Services
Riverside County Fire- CAL FIRE
Riverside County Flood Control
Riverside County Human Resources
Riverside County Office of Education
Riverside County University Health System
Riverside County Sheriff's Office
Riverside County Information Technology
Riverside County Transportation and Land Management Agency
SoCal Edison
SoCal Gas
NOAA

Jurisdictional Participation
Special thanks to the participating local jurisdictions and special districts for collecting and compiling historical disaster information, providing area hazard identification summaries and completing their stand-alone local hazard mitigation plans. The local hazard assessments and insight are very instrumental to incorporate mitigation actions in the Riverside County Multi-Jurisdictional Hazard Mitigation Plan

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Participant Annexes for 2017 Plan

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A-1	City of Banning		Agua Caliente Band of Cahuilla Indians - DROPPED OUT
A-2	City of Beaumont		
A-3	City of Blythe	A-27	Morongo Band of Mission Indians
A-4	City of Calimesa		Ramona Band of Indians - DROPPED OUT
A-5	City of Canyon Lake		
A-6	City of Cathedral	**Special Districts**	
A-7	City of Coachella	A-28	Beaumont Unified
A-8	City of Corona	A-29	Desert Sands USD
A-9	City of Desert Hot Springs	A-30	Eastern Municipal Water
A-10	City of Eastvale	A-31	Hemet Unified School District
A-11	City of Hemet	A-32	High Valley Water
A-12	City of Indian Wells	A-33	Idyllwild Fire Protection
A-13	City of Indio	A-34	Imperial Irrigation District
A-14	City of Jurupa Valley	A-35	Kaiser Hospital - Riverside
A-15	City of La Quinta	A-36	Lake Elsinore USD
A-16	City of Lake Elsinore		March Air Force Base – DROPPED OUT
A-17	City of Murrieta	A-37	Moreno Valley USD
A-18	City of Norco	A-38	Perris Union HSD
A-19	City of Palm Desert	A-39	Rancho California Water
A-20	City of Palm Spring	A-40	Riverside Community Colleges
A-21	City of Perris	A-41	Riverside County Office of Education
A-22	City of Rancho Mirage	A-42	Riverside Unified School District
A-23	City of Riverside	A-43	San Jacinto USD
A-24	City of Temecula	A-44	Santa Ana Watershed
A-25	City of San Jacinto	A-45	Western Municipal Water
A-26	City of Wildomar		

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Section 1.0 – Local Hazard Mitigation Plan

1.1 Plan Description

The 2017 Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP) was written with the assistance and cooperation of multiple departments within the County of Riverside and multiple cities, tribes and special districts. This plan is an update to the 2012 LHMP and reaffirms the commitment of the Riverside County Operational Area to reduce risks from natural and other hazards.

Since 1965, Riverside County has had 44 Federal Disaster Declarations. The most recent Federally Declared Disaster was in March, 2017 and was the result of winter storms and flooding. In addition, the county has experienced 22 Governor-Proclaimed State Disasters, with the most recent in February 2017. In 2016, Riverside County was impacted by earthquakes, floods, high winds, high heat and fires. These natural disasters will occur again, many on a yearly basis.

Riverside County cities, tribes, communities and special districts share the common goal of becoming a disaster resistant county.

1.2 Purpose of Plan and Authority

Disaster Mitigation Act of 2000 (DMA 2000) (Public Law 106-390) provides the legal basis for FEMA mitigation planning requirements for State, local and Indian Tribal governments as a condition of mitigation grant assistance. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act by repealing the previous mitigation planning provisions and replacing them with a new set of requirements that emphasize the need for State, local, and Indian Tribal entities to closely coordinate mitigation planning and implementation efforts. The requirement for a State Hazard Mitigation Plan (SHMP) is continued as a condition of disaster assistance, adding incentives for increased coordination and integration of mitigation activities at the State level. DMA 2000 also established a new requirement for local mitigation plans and authorized up to seven (7) percent of Hazard Mitigation Grant Program (HMPG) funds available to a State for development of State, local, and Indian Tribal mitigation plans.

The FEMA Mitigation and Insurance Strategic Plan for 2014-2018 identifies critical goals, objectives, and strategies to enhance the way FEMA carries out its mitigation and insurance mission. The plan is designed to help build and sustain collaboration with Federal, State, Tribal, Territorial, and community partners through a strategic framework that guides day-to-day work leading to more resilient communities nationwide.

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The County of Riverside Emergency Management Department shares many of FEMA's goals and objectives including the following:

FEMA Objective 1.2: Provide support to local leaders and tribal officials to strengthen recovery and mitigation core capabilities

"Pursue a proactive approach in building stakeholder relationships FEMA Strategic Plan 2014–2018 with local leaders to help them better identify and address their disaster recovery challenges."

FEMA Objective 1.3: Increase disaster awareness and action by improving communication

"Pre-disaster preparedness communication aims to make the public aware of potential hazard risks and the steps they should take to stay safe when a disaster strikes."

FEMA Objective 4.3: Enhance the effectiveness, financial stability, and affordability of the National Flood Insurance Program

"The National Flood Insurance Program (NFIP) serves as a keystone for national efforts to reduce the loss of life and property from flood disasters…NFIP will explore ways to develop and implement more accurate methods of calculating risk, and place a greater emphasis on cost-effective mitigation as a way of lowering long-term expenses"

1.3 Grant Programs with Mitigation Plan Requirements

The Hazard Mitigation Grant Program (HMGP) is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (the Stafford Act), Title 42, United States Code (U.S.C.) 5170c. The key purpose of HMGP is to ensure that the opportunity to take critical mitigation measures to reduce the risk of loss of life and property from future disasters is not lost during the reconstruction process following a disaster. HMGP is available, when authorized under a Presidential major disaster declaration, in the areas of the State requested by the Governor. The amount of HMGP funding available to the Applicant is based upon the total Federal assistance to be provided by FEMA for disaster recovery under the Presidential major disaster declaration.

The Flood Mitigation Assistance (FMA) program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended (NFIA), 42 U.S.C. 4104c, with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FEMA requires that the state, tribal, or local government applying for this form of assistance have adopted a hazard mitigation plan as a condition of receiving funding.

The Pre-Disaster Mitigation (PDM) program is authorized by Section 203 of the Stafford Act, 42 U.S.C. 5133. The PDM program is designed to assist States, Territories, Indian

Tribal governments, and local communities in implementing a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and mitigate structures during future hazard events, reducing reliance on Federal assistance during future disasters.

See section 7.4 for Fiscal Mitigation Capabilities

Section 322 of DMA 2000 specifically addresses mitigation planning at the state and local levels. It identifies new requirements that allow HMGP funds to be used for planning activities, and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan prior to a disaster. States and communities must have an approved mitigation plan on file prior to receiving post-disaster HMGP funds. Local and tribal mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities.

State governments have certain responsibilities for implementing Section 322, including:

- Preparing and submitting a standard or enhanced state mitigation plan
- Reviewing and updating the state mitigation plan every five years

Providing technical assistance and training to local governments to assist them in applying for HMGP grants and in developing local mitigation plans; and reviewing and approving local plans if the state is designated a managing state and has an approved enhanced plan.

DMA 2000 is intended to facilitate cooperation between state and local authorities. It encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance. This enhanced planning network is intended to enable local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects.

FEMA prepared an Interim Final Rule, published in the Federal Register on February 26, 2002 (44 CFR Parts 201 and 206), which establishes planning and funding criteria for states and local communities.

The Riverside County Operational Area Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP) supports the values and goals of the Federal Emergency Management Agency, and the California Office of Emergency Services. The 2013 State Hazard Mitigation Plan was used as a reference and source for relevant information and changes in the State of California Hazard Mitigation Planning process. The County of Riverside Emergency Management Department is also participating in the 2018 State Hazard Mitigation update planning process.

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The 2013 State Hazard Mitigation Plan – An Enhanced State Mitigation Plan

The document is a comprehensive update of the 2010 SHMP. It performs the following functions:

1. Documents statewide hazard mitigation systems implemented in California
2. Describes strategies and priorities for future mitigation activities
3. Highlights new hazard mitigation initiatives since the 2010 SHMP
4. Describes and illustrates mitigation progress and success stories
5. Facilitates integration of local, state, tribal, and private sector hazard mitigation activities into a comprehensive statewide effort
6. Meets state and federal statutory and regulatory requirements for an enhanced State Mitigation Plan

Goals Shared with State Multi-Hazard Mitigation Plan

The Riverside Operational Area's LHMP goals are shared with the State of California 2018 Multi- Hazard Mitigation Plan.

Goal 1: Significantly reduce life loss and injuries

Goal 2: Minimize damage to structures and property, as well as interruption of essential services and activities

Goal 3: Protect the Environment

Goal 4: Promote hazard mitigation and community resilience as both integrated public policy and standard business practice

While the Disaster Mitigation Act of 2000 ("DMA 2000") requires that local communities address only natural hazards, the Federal Emergency Management Agency (FEMA) recommends that local comprehensive mitigation plans address man-made and technological hazards to the extent possible. In the 2012 Plan, Riverside OA addressed an expansive set of hazards. Upon review of the hazards since 2012, and the numbers of man-made incidents, the OA will continue to address the large set of man-made, technological and natural hazards. Communication Failure and Cyber Attacks have been added to the 2017 list of hazards.

In developing the original 2005 hazard list, the goal was to create a list by identifying as many hazards as could be found in the county. This list was used as part of the planning process. Some of the disasters identified on the list were found to have a limited amount of

supporting information about the potential impact, specific locations in the county where the hazard might arise, and the magnitude of that hazard on the economy, infrastructure, and residents of the County.

The 2012 update used the 2005 hazard list as a reference. The hazards were reassessed to ensure that the threat of the hazard was still viable. The same process was used for the 2017 plan update. The 2017 LHMP Steering Committee met to address each hazard individually. Probability, severity, health systems impact, and mitigation capabilities were all taken into consideration while reorganizing the hazard ranking.

Support of Broader County Vision

The Riverside County Operational Area Multi-Jurisdictional LHMP supports the broader vision and values of the County of Riverside, along with the cities, special districts, and Tribal Leaders within the County. As stated in Riverside County General Plan of December 2015, Riverside County's vision is summarized by saying:

"Riverside County is a family of special communities in a remarkable environmental setting."

The values embodies in the General Plan vision are:

"Our vision is based on values that provide the foundation for common ground that, in turn; underpin the General Plan's goals, policies, and actions. The people of Riverside County declare that they join together in holding the following values and seeking a community future based on them. It can be argued that our values are optimistic and very ambitious: that they require our best instincts to prevail. Of course-why would we seek less in shaping our communities? So, with that theme in mind, let us express the values that have motivated our community building and that will continue to do so in the future."

- Community
- Health
- Inter-relatedness
- Rights
- Responsibilities
- Risks
- Diversity
- Equity
- Valued Contributions
- Varied Communities
- Balance
- Participation
- Volunteerism
- Decision Making
- Creativity and Innovation
- Distinctiveness
- Livable Centers
- Housing
- Natural Environment
- Man-made Environment
- Multi-Modal Transportation
- Employment

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- Safety
- Planning Integration
- Communication and Information
- Quality Management
- Sustainability
- Recreation
- Healthy Food
- Costs
- Governmental Cooperation
- Youth in the Community

Riverside County Emergency Management Department Mission

The Riverside County Operational Area Multi-Jurisdictional LHMP supports the mission of the Emergency Management Department, through focusing efforts on mitigation actions intended to lessen the impact of natural, man-made, and technological disasters.

EMD Mission:

The mission of the Riverside County Emergency Management Department is to be a leader in emergency management to ensure the safety and security of the residents and visitors of Riverside County and to facilitate and support County Government and stakeholder efforts to mitigate, prepare for, respond to, and recover from natural and human caused emergencies and disasters.

The EMD Director expands on this Mission by stating:

"The Riverside County Emergency Management Department is comprised of dedicated personnel who strive to ensure the safety and security of the residents, businesses and visitors of Riverside County"

1.4 Multi-Jurisdictional Participants

Table 2: Multi-Jurisdictional Participants

Local City Jurisdictions	*City of San Jacinto
*City of Banning	*City of Temecula
*City of Beaumont	*City of Wildomar
*City of Blythe	**Tribes**
*City of Calimesa	Morongo Band of Mission Indians
*City of Canyon Lake	**Special Districts**
*City of Cathedral	*Beaumont Unified School District
*City of Coachella	Desert Sands Unified School District
*City of Corona	Eastern Municipal Water District
*City of Desert Hot Springs	*Hemet Unified School District
*City of Eastvale	*High Valley Water District
*City of Hemet	*Idyllwild Fire Protection District
*City of Indian Wells	*Imperial Irrigation District
*City of Indio	Kaiser Hospital - Riverside
*City of Jurupa Valley	*Lake Elsinore Unified School District
*City of La Quinta	Moreno Valley Unified School District
*City of Lake Elsinore	*Perris Union High School District
*City of Murrieta	*Rancho California Water District
*City of Norco	*Riverside Community College
*City of Palm Desert	*Riverside County Office of Education
*City of Palm Spring	*Riverside Unified School District
*City of Perris	*San Jacinto Unified School District
*City of Rancho Mirage	Santa Ana Watershed
*City of Riverside	*Western Municipal Water District

*Participated in 2012 Plan

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2017 Cities, Tribes and Special Districts

In the 2005 plan we had a total of 53 cities and special districts that participated: 24 Cities, 1 Tribe, 10 Hospitals, 8 School Districts and 10 special districts.

In the 2012 plan we had a total 53 cities and special districts that participated: 27 Cities, 1 Community Service District, 14 School District/Education, 1 Fire Protection District, 1 Hospital, 1 Sanitary District and 8 Water Districts.

In the 2017 plan, we have a total of 45 cities, special districts and tribes that participated: 26 Cities, 1 Tribe, 10 School District/Education, 1 Hospital, 1 Fire Protection District and 7 Special Districts.

The decrease in participation for the 2017 plan is primarily economic. Several previous participants had expressed that budget cuts have affected their staff and level of dedication participating mitigation efforts with in their jurisdictions.

Section 2.0 – Community Profile

2.1 History

Taking its name from the City of Riverside, the county was formed in 1893 from a small portion of San Bernardino County and a larger part of San Diego County.

Although the county marks its political beginnings in 1893, the land was occupied long before Europeans and their descendants entered the areas, by several Native American groups including the Serranos, the Luisenos, the Cupenos, the Chemehuevi, and the Cahuillas.

When Spain claimed California from the Native Americans the Spaniards began putting a series of missions in what was then called Alta California. The San Gabriel mission claimed lands in what are now Jurupa, Riverside, San Jacinto, and the San Gorgonio Pass, while the San Luis Rey mission claimed land in what are now Lake Elsinore, Temecula, and Murrieta. These lands were used for grazing of the large herds of cattle and sheep that belonged to the missions. In 1776, and again in 1778, Juan Bautista de Anza, an army captain charged with discovering an overland route from the Mexican state of Sonora to San Gabriel and Los Angeles, passed through much of Riverside County and described fertile valleys, lakes, and sub-desert areas.

In 1822, Mexico successfully revolted against Spain, and California came under Mexican jurisdiction. The missions and their lands were secularized beginning in 1834 and the land was transferred as "grants" to Californians who were citizens of Mexico. The "grants" were called ranchos, and many of the ranchos in Riverside County have lent their names to modern-day locales - Jurupa, San Jacinto, San Gorgonio, Temecula, and La Laguna (Lake Elsinore). The first land grant in what is now Riverside County, Rancho Jurupa, was given to Juan Bandini in 1838.

With the advent of the transcontinental railroad in 1869, land speculators, developers, and colonists came to Southern California. The first colony in what would become Riverside County was Riverside itself. Judge John Wesley North brought a group of associates and co-investors out to Southern California, and founded Riverside on part of the Jurupa Rancho.

By the late 1880's and early 1890's, there was growing discontent between Riverside and San Bernardino, its neighbor 10 miles to the north. There were many differences between the two towns. San Bernardino was predominantly Democratic in nature, allowed saloons, and had been a hot-bed of secessionist sympathy during the Civil War. Riverside was temperance minded (few saloons if any were allowed in Riverside proper) and Republican. After a series of charges about unfair use of tax monies to the benefit

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of the City of San Bernardino only, several people from Riverside decided to investigate the possibility of a new county. Joined by San Diego County residents in the Temecula and San Jacinto Valleys and the desert region who were tired of living so far from their county seat, they petitioned the State legislature, held an election, and on May 9, 1893 the County of Riverside officially formed.

The County's early years were linked to the agriculture industry. The navel orange tree was planted and found to be such a success that full-scale planting started. By the time of Riverside County's formation, Riverside had grown to become the wealthiest city per capita in the country, due to the riches of the navel orange.

Further residential developments in Riverside County included Banning and Beaumont in the San Gorgonio Pass; Hemet south of San Jacinto; Moreno Valley east of Riverside; Perris, Lake Elsinore, Murrieta and Temecula along the California Southern Railroad; Palm Springs, Palm Desert, Indio and Coachella along the Southern Pacific route to Yuma; and Blythe on the Colorado River.

The last 35 years have brought dramatic population growth to Riverside County. Between 1980 and 1990, the number of residents grew by over 76% making Riverside the fastest-growing County in California. By 1992, the County was "home" to over 1.3 million residents. The County experienced a growth rate of 7.8 percent from 2010-2015.

The U.S. Census Bureau 2016 estimates show that the County has nearly doubled its population in the last 25 years with the current population at 2.4 million residence. The County population is now larger than that of 16 states, among them, Alaska, Hawaii, Maine, New Mexico, and West Virginia.

2.2 Geography and Climate

Riverside County is the fourth largest county in the State of California, stretching nearly 200 miles west to east and comprising over 7,200 square miles of fertile river valleys, low deserts, mountains, foothills, and rolling plains. Riverside County shares borders with densely populated Orange, San Diego, San Bernardino and Imperial Counties. The County extends from within 14 miles of the Pacific Ocean, as the crow flies, to the Colorado River and La Paz County, Arizona.

Geographically

Riverside County is mostly desert in the central and eastern portions of the county, and has a Mediterranean climate in the western portion of the County. The County lies inland of Los Angeles County and is bordered by Orange County to the west, San Bernardino County to the north, and San Diego County and Imperial County to the south.

Riverside County extends from the Santa Ana River at the eastern end of the Los Angeles basin, eastward to the Colorado River. It includes the desert regions of the Coachella Valley and Palm Springs, as well as the San Jacinto, Little San Bernardino and Santa Rosa mountains. It contains portions of Anza-Borrego Desert State Park and Salton Sea State Recreation Area, as well as most of Joshua Tree National Park. Riverside County has five nationally protected areas: the Cleveland National Forest, Coachella Valley National Wildlife Refuge, and Joshua Tree National Park, a portion of the San Bernardino National Forest and the Santa Rosa and San Jacinto Mountains National Monument. The county has visitors all year round because of the varied climates and ability to visit mountains and deserts all in one day.

The county has a total area of 7,303.13 square miles (18,915.0 km2), of which 7,207.37 square miles (18,667.0 km2) (or 98.69%) is land and 95.76 square miles (248.0 km2) (or 1.31%) is water. At roughly 180 miles (290 km) wide in the east-west dimension, the area of the county is massive. Riverside County is roughly the size of the State of New Jersey in total area. The Colorado River town of Blythe is a three-hour drive from the county seat, Riverside.

There are at least three geomorphic provinces: the Inland Empire western portion, the Santa Rosa Mountains communities and the desert region. Other possible subdivisions include tribal lands, the Colorado River communities, and the Salton Sea. The Inland Empire area of southern California is made up of the western portion of Riverside County.

Geographically from east to west, Riverside County is mostly desert, with high heat in the summer and comfortable weather in the winter. Most of Joshua Tree National Park is located in the eastern part of the county. Elevations range from 11,499 feet (3,505 m) at the top of the San Gorgonio Mountain to 220 ft. (-67.1 m) below sea level at the Salton Sea. As you move towards the west, the San Jacinto Mountains separate the desert from the valleys. The summit of Mount San Jacinto stands 10,834 feet above sea level, and the San Jacinto Mountains are the second highest mountain range in Southern California. The Santa Ana River travels from Mt. San Gorgonio for nearly 100 miles (160 km) through San Bernardino, Riverside, and Orange counties before it eventually spills into the Pacific Ocean at Newport Beach and Huntington Beach. The western portion of the county has a Mediterranean climate and is the most densely populated area. The Santa Rosa Mountains, as well as the Southern California portion of the Sonoran Desert, physically divide Riverside County from San Diego County.

Riverside County is home to a variety of endangered and protected species. Skillful planning and negotiation have resulted in the creation of several large habitat preserves, and the development of a multi-species habitat protection plan (MSHCP) for the western County area. The Plan protects 146 native species of plants, birds and animals and

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covers 1.26 million acres. The County is also participating in a MSHCP with the Coachella Valley Association of Governments in the Coachella Valley and surrounding mountains.

Famous resort cities of the Coachella Valley such as Indian Wells, La Quinta, Rancho Mirage, Palm Springs and Palm Desert are located in Riverside County. Riverside County is also home to many famous concerts and tournaments. The Coachella Valley Music and Arts Festival is a two weekend event that attracts 198 thousand attendees and affects the local economy by over 84 million dollars a year. Stagecoach is a country music festival that attracts about 190 thousand over a three day period. The BNP Paribas Open is the largest professional combined ATP and WTA tennis tournament in the world. It houses 96 single players and 32 teams within the two stadiums.

Another factor that brings people into Riverside County is the agriculture. There is an influx of farm workers according to the crop. Indio is the center of an important date growing region.

In the Desert areas, there is an increase in population during the winter by “Snow Birds”. Many of the desert visitors are elderly or retired, and may have Access and Functional Needs requirements. The term snowbird is used to describe people from the U.S. Northeast, U.S. Midwest, or Canada who spend a large portion of winter in warmer locales such as California, Arizona, Florida, Texas, the Carolinas, or elsewhere along the Sun Belt region of the southern and southwest United States, Mexico, and areas of the Caribbean.

Snowbirds are typically retirees, and business owners who have a second home in a warmer location or whose business can be easily moved from place to place, such as flea market and swap meet vendors. Some snowbirds carry their homes with them, as campers (mounted on bus or truck frames) or as boats following the east coast Intracoastal water-way.

Climate

On average, there are 272 sunny days per year in Riverside County. The County average July high is around 95 degrees and the January low is 43. Riverside County has on average 10 inches of rain per year. The US average is 37. Riverside County average snowfall is one (1) inch. The average US city gets 25 inches of snow per year. The number of days with any measurable precipitation is 30.

Figure 1: Riverside County Climate

Climate	Riverside, CA	United States
Rainfall (in.)	10.3	36.5
Snowfall (in.)	0.003	25
Precipitation Days	20	100
Sunny Days	277	205
Avg. High	92.8	86.5
Avg. Low	41.6	20.5
UV Index	5.7	4.3
Elevation ft.	1,231	1,060

*Chart is current as of December 2016

The information regarding the averages of the county does not accurately reflect the drastic differences in climate between the East and West portions of the county. The East County climate is a hot desert atmosphere. It faces average highs in the summer months that reach into the 100's. The West County however, stays closer to the low 90's. The following charts represent the two sides of the county:

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Figure 2: East County Average Annual Temperature

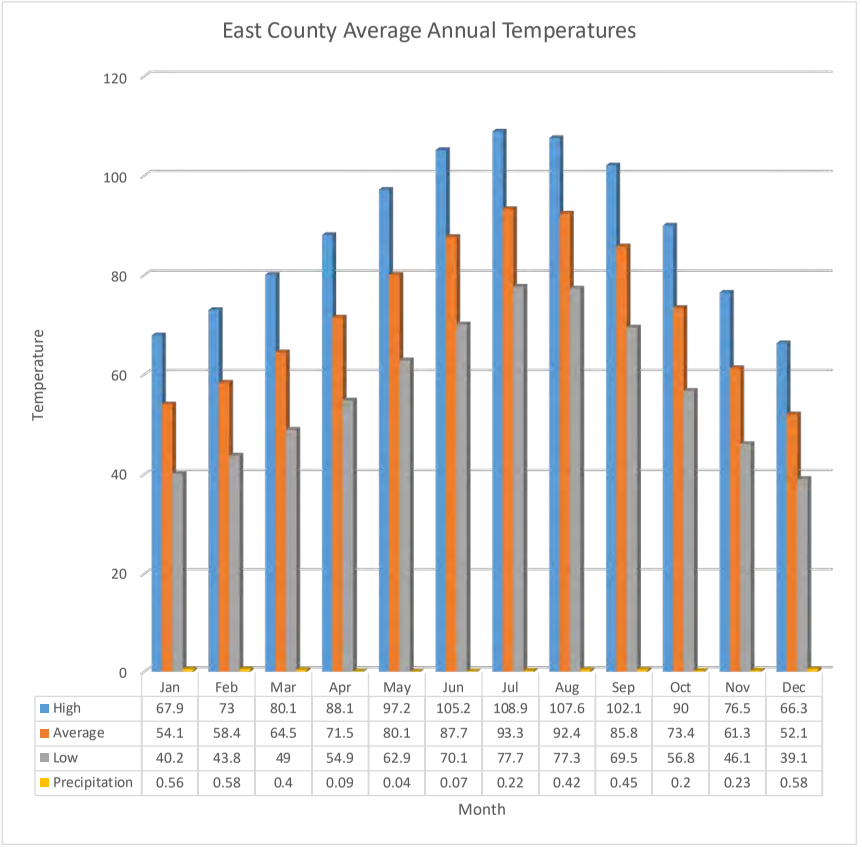
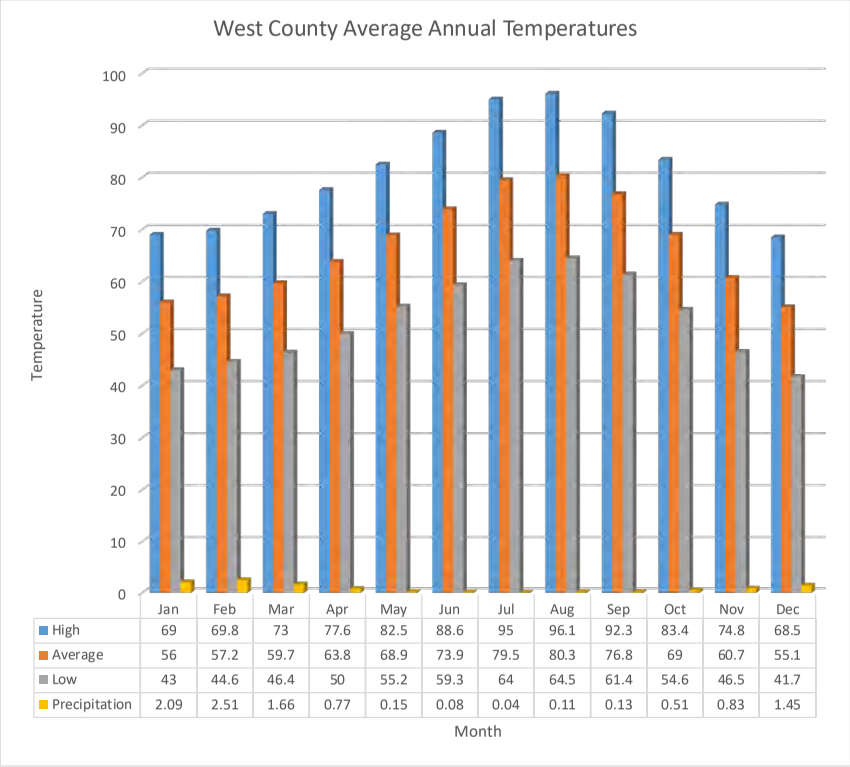


Figure 3: West County Average Annual Temperature



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High	69	69.8	73	77.6	82.5	88.6	95	96.1	92.3	83.4	74.8	68.5
Average	56	57.2	59.7	63.8	68.9	73.9	79.5	80.3	76.8	69	60.7	55.1
Low	43	44.6	46.4	50	55.2	59.3	64	64.5	61.4	54.6	46.5	41.7
Precipitation	2.09	2.51	1.66	0.77	0.15	0.08	0.04	0.11	0.13	0.51	0.83	1.45

*Charts are based on the most current information gathered from NOAA as of May 2017
Source:
http://www.bestplaces.net/climate/city/california/riverside
https://www.ncdc.noaa.gov/cdo-web/datatools/normals

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2.3 Population Trends

Population growth in Riverside County has been quite rapid over the past two decades as can be seen in Figure 3 on the next page. According to the California Department of Finance, the population grew from approximately 1.2 million 1990 to nearly 2.3 million as of January 1, 2016. During this period, the county's population nearly doubled, making it one of the fastest growing counties in California.

Figure 4: Unincorporated Area Population

RIVERSIDE COUNTY

7,295.6 sq.miles — Incorporated in 1893

POPULATION CHARACTERISTICS

Population

1970	459,074 (*1)
1980	663,166 (*1)
1990	1,170,413 (*1)
1995	1,365,500 (*2)
1996	1,391,800 (*2)
1997	1,420,600 (*2)
1998	1,451,400 (*2)
1999	1,490,500 (*2)
2000	1,545,387 (*1)
2001	1,589,708 (*2)
2002	1,655,291 (*2)
2003	1,730,219 (*2)
2004	1,814,485 (*2)
2005	1,895,695 (*2)
2006	1,975,913 (*2)
2007	2,049,902 (*2)
2008	2,102,741 (*2)
2009	2,140,626 (*2)
2010	2,189,641 (*1)
2011	2,205,731 (*2)
2012	2,227,577 (*2)
2013	2,255,059 (*2)

Projections

2020	2,595,259 (*3)
2035	3,354,958 (*3)

2013 Racial & Ethnic Population (*4)

	Number	Percent
White	904,279	40.1%
African American	135,304	6.0%
Asian	130,793	5.8%
Amer Indian/Alaska Native	11,275	0.5%
Hawaiian and Pac Islander	6,765	0.3%
Some Other Races	6,765	0.3%
Two or More Races	45,101	2.0%
Hispanic*	1,014,777	45.0%
Total	2,255,059	100.0%

* Hispanic can be of any race

Vital Statistics (*5)

Year	Total Births	Birth Rate*	Total Death	Death Rate*
2009	31,512	14.7	13,747	6.4
2010	29,417	11.2	13,971	6.3
2011	30,609	13.9	14,638	6.6
2012	30,427	13.6	14,739	6.6

* Rates per 1,000 population

2013 Voter Registration (*6)

	Number	Percent
Democrat	340,932	35.9%
Republican	377,774	41.7%
Other	45,466	4.6%
No Party Preference	169,784	17.7%
Total Registered	933,956	100.0%

2013 Population by Age (*4)

	Number	Percent
< 5	170,643	7.6%
5-9	172,958	7.7%
10-14	184,825	8.2%
15-19	191,278	8.5%
20-24	157,741	7.0%
25-34	291,743	12.9%
35-44	308,615	13.7%
45-54	298,117	13.2%
55-59	116,524	5.2%
60-64	98,312	4.4%
65-74	142,726	6.3%
75-84	90,836	4.0%
85+	30,740	1.4%
Total	2,255,059	100.0%
Median Age:		33.5

2013 Population by Sex (*4)

	Number	Percent
Male	1,123,019	49.8%
Female	1,132,040	50.2%
Total	2,255,059	100.0%

Sources: (*1) Decennial Census, US Census Bureau
(*2) January Estimate, CA State Department of Finance
(*3) Riverside County Projections 2010 (RCP10)
(*4) American Community Survey 2007-2011 5-Year Estimates and CA State Department of Finance
(*5) Riverside County Department of Public Health
(*6) California Secretary of State, February 2013
Note: Totals might not add up due to rounding.

*Chart was developed by Riverside County GIS in 2013 and is the most current information available

Source:
http://gis.rivcoit.org/Portals/0/Documents/rcd/progress_reports/pr_2013/riverside_county.pdf

Figure 5: Historical Population Estimates for Riverside County Cities

RIVERSIDE COUNTY CENTER FOR DEMOGRAPHICS

Riverside County Economic Development Agency
P.O. Box 1180 * Riverside, CA 92502 * (951) 955-8916

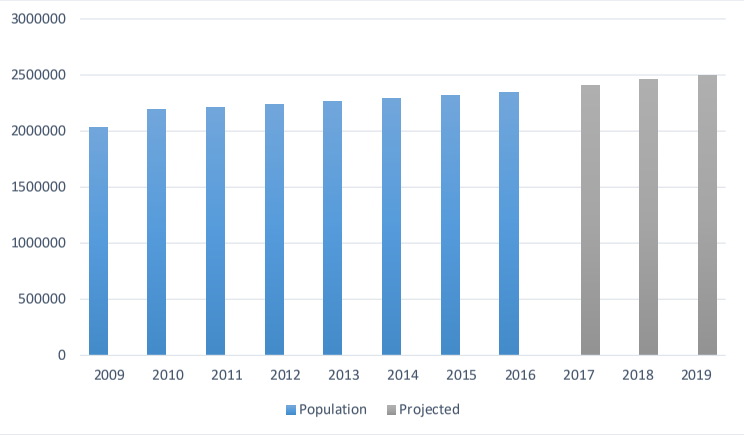
RIVERSIDE COUNTY
Historical Population Estimates, with 2010 Census Counts

City	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Banning	29,603	29,818	30,133	30,332	30,483	30,659	30,834			
Beaumont	36,877	38,201	39,359	40,666	41,864	43,601	45,118			
Blythe	20,817	20,121	20,570	19,894	19,305	19,254	19,813			
Calimesa	7,879	7,923	7,956	7,932	8,040	8,138	8,289			
Canyon Lake	10,561	10,623	10,629	10,543	10,564	10,608	10,681			
Cathedral City	51,200	51,604	52,485	53,163	53,480	53,859	54,261			
Coachella	40,704	41,517	42,426	43,676	44,614	45,001	45,407			
Corona	152,374	153,665	156,178	159,469	162,000	163,317	164,659			
Desert Hot Springs	25,938	27,393	27,973	28,385	28,605	28,794	29,048			
Eastvale	*	54,263	55,881	57,458	59,375	60,825	63,162			
Hemet	78,657	79,412	79,489	78,842	79,176	79,548	80,070			
Indian Wells	4,958	5,012	5,103	5,199	5,265	5,336	5,412			
Indio	76,036	77,168	79,185	83,450	84,655	86,683	88,058			
Jurupa Valley	*	*	95,970	95,731	96,025	96,898	98,177			
Lake Elsinore	51,821	52,484	53,457	56,039	57,368	59,142	61,006			
La Quinta	37,467	37,784	38,100	38,156	38,720	39,311	39,977			
Menifee	77,519	79,472	81,540	83,885	85,455	87,286	89,004			
Moreno Valley	193,365	195,200	198,353	200,889	202,191	203,696	205,383			
Murrieta	103,466	104,636	107,214	110,183	111,226	112,576	113,795			
Norco	27,063	27,062	27,314	27,048	27,037	26,392	26,896			
Palm Desert	48,445	48,957	48,924	48,282	48,494	48,835	49,335			
Palm Springs	44,552	44,943	45,326	45,465	45,818	46,204	46,654			
Perris	68,386	69,693	70,307	70,700	71,743	72,476	73,722			
Rancho Mirage	17,218	17,454	17,583	17,685	17,783	17,920	18,070			
Riverside	303,871	307,207	311,332	316,162	318,511	321,655	324,696			
San Jacinto	44,199	44,616	45,385	46,216	46,649	47,087	47,656			
Temecula	100,097	101,507	103,133	104,145	105,368	107,794	109,064			
Wildomar	32,176	32,543	33,050	33,685	34,271	34,758	35,168			
Incorporated	1,685,249	1,760,278	1,884,355	1,913,280	1,934,085	1,957,653	1,983,415			
Unincorporated	504,392	452,596	355,360	353,269	357,008	360,271	364,413			
County Total	2,189,641	2,212,874	2,239,715	2,266,549	2,291,093	2,317,924	2,347,828			

Source: California Department of Finance

*Current as of May 2017

Figure 6: Riverside County Population Growth - 2009 – 2019



Source: Riverside County Center for Demographics 2017

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Table 3 below displays Riverside County's population change and the components of this population change from 1971 through a projection of 2020. Net migration (in-migration minus out-migration) has accounted for the majority of the of the population growth for Riverside County for the past four (4) decades.

Population growth has slowed in recent years, but remained relatively high in 2016 at roughly 1.3 percent. Migration continues to be positive in the County, though at slower rates than early in the decade. Population growth will accelerate over the forecast, but does not approach the previous peak levels.

Table 3: Riverside County Population Change (1971-2020)

RIVERSIDE COUNTY

AVERAGE ANNUAL COMPONENTS OF POPULATION CHANGE

YEAR 1971 - 2010

Years	Change	Births	Deaths	Natural Increase	Net Migration	Net Migration % of Change
1971-75	14580	7602	4960	2642	11938	82%
1976-80	27060	9657	5844	3812	23248	86%
1981-85	33320	13436	7001	6435	26885	81%
1986-90	70380	19310	8691	10679	59761	85%
1991-95	38108	25154	10205	14949	23159	61%
1996-00	36055	23597	11538	12060	23995	67%
2001-05	72862	27475	13088	14387	58475	80%
2006-10	47529	32969	14145	18824	28705	60%
2011-15	23460	30538	15777	14761	22530	96%
2016-20	31471	30303	16474	13829	24883	79%

Source: CA Department of Finance 2016

2.4 Economy

California Department of Transportation Long-Term Social-Economic Forecast: Riverside

Riverside County is the fourth largest county in California in terms of total land area. Riverside County has a population of 2.3 million people and a total of 649,700 wage and salary jobs. The income per capita is $35,495, and the average salary per worker is $52,144.

In 2015, total employment increased by 2.6 percent across Southern California. Riverside County added a total of 27,200 jobs, representing a growth rate of 4.4 percent. The unemployment rate improved rapidly, falling from 8.3 percent in 2014 to 6.7 percent in 2015.

In 2015, job growth was strongest in construction (+4,600 jobs), education and healthcare (+4,500 jobs), leisure and hospitality (+3,800 jobs), and transportation and warehousing (+3,300 jobs). Job losses were not observed in any major sector.

Over the past five years, the population has increased at an average annual rate of 1.2 percent. A substantial portion of this growth was the result of net migration, as an average of 12,200 each year.

Forecast Highlights

- In 2016, total wage and salary employment will increase by 3.0 percent. From 2016 to 2021, total employment will grow at an annual average rate of 1.6 percent.
- Average salaries are currently below the California state average, and will remain so over the foreseeable future. In Riverside County, inflation-adjusted salaries are forecasted to rise by an average of 1.0 percent per year between 2016 and 2021.
- From 2016 to 2021, employment growth will be broad-based, as most sectors will increase by at least 1.5 percent per year. The strongest growth will be observed in education and healthcare, retail trade, and professional services. Combined, these industries will account for 54 percent of net job growth.
- The population is expected to increase by 1.3 percent in 2016. Annual growth in the 2016-2021 period is expected to average 1.5 percent.
- Net migration will gradually increase. An average of 24,883 net migrants are projected to enter the county each year between 2016 and 2021.

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- Real per capita income is expected to rise by 2.0 percent in 2016, and increase by an average of 0.9 percent per year between 2016 and 2021.
- Total taxable sales are projected to increase by an average of 2.6 percent per year over the next five years.
- Industrial production will rise by 3.3 percent in 2016. From 2016 to 2021, the growth rate of industrial production is expected to average 2.5 percent per year.

Source: http://www.dot.ca.gov/hq/tpp/offices/eab/index_files/2016/Riverside2016.pdf

Figure 7: Riverside County Economic and Labor Force Characteristics

RIVERSIDE COUNTY

ECONOMIC AND LABOR FORCE CHARACTERISTICS

Labor Force Participation (*1)

Year	Labor Force	Employed	Unemployed	Unemployment Rate
2007	903,800	849,400	54,300	6.0%
2008	912,100	834,700	77,400	8.5%
2009	916,600	793,600	123,000	13.4%
2010	913,800	779,500	134,300	14.7%
2011	938,400	810,600	127,800	13.6%
2012	937,300	824,500	112,700	12.0%
2013*	944,500	828,800	115,600	12.2%

* Preliminary August 2013

Employment/Jobs Projections (*3)

2020	927,300
2035	1,285,284

* Jobs within county

2011 Employment/Jobs by Industry Sector (*2)

Agriculture, Forestry, Fishing and Hunting	13,783
Mining, Quarrying, and Oil and Gas Extraction	405
Utilities	4,488
Construction	33,602
Manufacturing	39,733
Wholesale Trade	22,625
Retail Trade	82,169
Transportation and Warehousing	20,453
Information	7,105
Finance and Insurance	10,944
Real Estate and Rental and Leasing	7,613
Professional, Scientific, and Technical Services	18,789
Management of Companies and Enterprises	2,937
Administration & Support, Waste Mngt and Remediation	35,130
Educational Services	67,761
Health Care and Social Assistance	61,087
Arts, Entertainment, and Recreation	19,543
Accommodation and Food Services	68,997
Other Services (excluding Public Administration)	29,384
Public Administration	34,922
Total All Jobs	**581,470**

*Jobs within county

Median Household Income

2000	$ 42,887 (*4)
2011	$ 58,365 (*5)

Taxable Sales in 1,000s of Dollars (*6)

Year	Total
2003	$21,709,135
2004	$25,237,148
2005	$28,256,491
2006	$29,816,237
2007	$29,023,609
2008	$26,003,595
2009	$22,227,877
2010	$23,152,780
2011	$25,641,497

Sources: (*1) CA Employment Development Department (County residents working anywhere. Data are not seasonally adjusted)
(*2) U.S. Census Bureau Local Employment Dynamics
(*3) Riverside County Projections 2010 (RCP10)
(*4) Decennial Census, US Census Bureau (in 1999 inflation-adjusted dollars)
(*5) 2007-2011 American Community Survey 5-Year Estimates (in 2011 inflation-adjusted dollars)
(*6) State Board of Equalization
Note: Totals might not add up due to rounding.

*Chart was developed by Riverside County GIS in 2013 and is the most current information available
Source:
http://gis.rivcoit.org/Portals/0/Documents/rcd/progress_reports/pr_2013/riverside_county.pdf

Figure 8: Annual Labor Force and Employment Averages

Riverside County Economic Development Agency
P.O. Box 1180 * Riverside, CA 92502 * (951) 955-8916

ANNUAL LABOR FORCE AND EMPLOYMENT AVERAGES
County of Riverside

Year	Civilian Labor Force	Employment	Unemployment Number	Unemployment Percent
1999	691,500	653,600	37,900	5.5
2000	680,700	644,200	36,500	5.4
2001	711,100	672,000	39,100	5.5
2002	750,400	701,800	48,600	6.5
2003	781,700	730,700	51,100	6.5
2004	820,900	771,600	49,300	6
2005	854,300	808,100	46,100	5.4
2006	886,300	841,700	44,600	5
2007	907,400	852,900	54,500	6.0
2008	916,700	838,800	77,900	8.5
2009	916,600	793,600	123,000	13.4
2010	913,400	779,100	134,300	14.7
2011	938,400	810,600	127,800	13.6
2012	944,500	828,800	115,600	12.2
2013	953,200	855,300	97,900	10.3
2014	1,011,500	928,200	83,400	8.2
2015	1,035,200	965,500	69,600	6.7
2016	1,047,800	983,800	64,000	6.1

2016 Monthly Labor Force and Employment Data **
County of Riverside

Month	Civilian Labor Force	Employment	Unemployment Number	Unemployment Percent
January	1,041,000	979,400	61,600	5.9
February	1,041,100	979,600	61,400	5.9
March	1,041,400	980,000	61,400	5.9
April	1,036,500	977,300	59,300	5.7
May	1,033,500	978,000	55,500	5.4
June	1,044,300	974,500	69,800	6.7
July	1,049,600	974,600	75,000	7.1
August	1,050,500	978,300	72,200	6.9
September	1,053,800	985,800	68,000	6.5
October	1,059,800	993,200	66,600	6.3
November	1,062,500	1,002,300	60,200	5.7
December*	1,059,400	1,002,900	56,500	5.3

* Preliminary data

** Labor force data for all geographic areas now reflect the March 2012 benchmark and Census 2010 population controls at the state level.

Source: State of California Employment Development Department.

https://www.rivcoeda.org/LinkClick.aspx?fileticket=POJLaM6rSMQ%3d&tabid=1110

Figure 9: County of Riverside Major Employers

Riverside County Economic Development Agency
P.O. Box 1180 * Riverside, CA 92502 * (951) 955-8916

Major Employers
County of Riverside

Employer	Number of Employees	Location	Description
County of Riverside	21,984	Countywide	County Government
March Air Reserve Base	8,500	March ARB	Military Reserve Base
University of California, Riverside	8,306	Riverside	University
Amazon	7,500	Moreno Valley	E-retalier
Stater Bros. Markets	6,900	Countywide	Supermarkets
Kaiser Permanente Riverside Medical Center	5,300	Riverside	Hospital
Corona-Norco Unified School District	5,098	Corona	School District
Desert Sands Unified School District	4,202	La Quinta	School District
Riverside Unified School District	3,973	Riverside	School District
Pechanga Resort & Casino	3,931	Temecula	Resort Casino
Riverside University Health System - Medical Center	3,600	Moreno Valley	Hospital
Hemet Unified School District	3,468	Hemet	School District
Moreno Valley Unified School District	3,454	Moreno Valley	School District
Eisenhower Medical Center	3,365	Rancho Mirage	Hospital
Morongo Casino, Resort & Spa	3,359	Cabazon	Resort Casino
Temecula Valley Unified School District	2,951	Temecula	School District
Lake Elsinore Unified School District	2,539	Lake Elsinore	School District
City of Riverside	2,500	Riverside	City Government
JW Marriott Desert Springs Resort & Spa	2,304	Palm Desert	Resort & Spa
Palm Springs Unified School District	2,243	Palm Springs	School District
Coachella Valley Unified School District	2,209	Thermal	School District
Agua Caliente Band of Cahuilla Indians	2,152	Palm Springs	Tribal Government/Casinos
Jurupa Unified School District	2,144	Jurupa Valley	School District
Murrieta Valley Unified School District	2,128	Murrieta	School District
Alvord Unified School District	2,113	Riverside	School District
Riverside Community Hospital	2,017	Riverside	Hospital
Abbot Vascular	2,000	Temecula	Medical & Surgical Instruments Manufacturer
Riverside Community College District	1,965	Riverside	Community College District
Desert Regional Medical Center	1,906	Palm Springs	Hospital
Riverside County Office of Education	1,555	Riverside	Education
Naval Surface Warfare Center	1,450	Norco	Naval Weapons Research
Parkview Community Hospital Medical Center	1,439	Riverside	Hospital
Professional Hospital Supply	1,300	Temecula	Medical & Surgical Supplies Distributor
La Quinta Resort & Club	1,233	La Quinta	Resort
Ironwood State Prison	1,150	Blythe	Level I & III Prison
California Rehabilitation Center	1,139	Norco	Level II Prison
Fantasy Springs Resort Casino	1,100	Indio	Resort Casino
Corona Regional Medical Center	1,059	Corona	Hospital
Mt. San Jacinto College	1,016	San Jacinto	Community College District

Source: Employers Listed, Websites & Public Records, 2015

Figure 10: Employment Growth Projections

Industry sector	Thousands of jobs			Change		Percent distribution			Annual rate of change	
	2002	2012	2022	2002–2012	2012–2022	2002	2012	2022	2002–2012	2012–2022
Total[1]	142,294.9	145,355.8	160,983.7	3,060.9	15,627.9	100.0	100.0	100.0	0.2	1.0
Nonagriculture wage and salary[2]	131,028.3	134,427.6	149,751.3	3,399.3	15,323.7	92.1	92.5	93.0	.3	1.1
Goods producing, excluding agriculture	22,486.7	18,360.3	19,554.2	–4,126.4	1,193.9	15.8	12.6	12.1	–2.0	.6
Mining	512.3	800.5	921.7	288.2	121.2	.4	.6	.6	4.6	1.4
Construction	6,715.7	5,640.9	7,263.0	–1,074.8	1,622.1	4.7	3.9	4.5	–1.7	2.6
Manufacturing	15,258.7	11,918.9	11,369.4	–3,339.8	–549.5	10.7	8.2	7.1	–2.4	–.5
Service providing	108,541.6	116,067.3	130,197.1	7,525.7	14,129.8	76.3	79.9	80.9	.7	1.2
Utilities	596.3	554.2	497.8	–42.1	–56.4	.4	.4	.3	–.7	–1.1
Wholesale trade	5,652.4	5,672.8	6,143.2	20.4	470.4	4.0	3.9	3.8	.0	.8
Retail trade	15,025.1	14,875.3	15,966.2	–149.8	1,090.9	10.6	10.2	9.9	–.1	.7
Transportation and warehousing	4,223.8	4,414.7	4,742.0	190.9	327.3	3.0	3.0	2.9	.4	.7
Information	3,394.6	2,677.6	2,612.4	–717.0	–65.2	2.4	1.8	1.6	–2.3	–.2
Financial activities	7,847.1	7,786.3	8,537.3	–60.8	751.0	5.5	5.4	5.3	–.1	.9
Professional and business services	15,976.2	17,930.2	21,413.0	1,954.0	3,482.8	11.2	12.3	13.3	1.2	1.8
Educational services	2,642.8	3,346.9	4,022.2	704.1	675.3	1.9	2.3	2.5	2.4	1.9
Health care and social assistance	13,555.6	16,971.8	21,965.9	3,416.2	4,994.1	9.5	11.7	13.6	2.3	2.6
Leisure and hospitality	11,986.0	13,745.8	15,035.0	1,759.8	1,289.2	8.4	9.5	9.3	1.4	.9
Other services	6,129.0	6,174.5	6,823.4	45.5	648.9	4.3	4.2	4.2	.1	1.0
Federal government	2,766.0	2,814.0	2,406.5	48.0	–407.5	1.9	1.9	1.5	.2	–1.6
State and local government	18,746.7	19,103.2	20,032.2	356.5	929.0	13.2	13.1	12.4	.2	.5
Agriculture, forestry, fishing, and hunting[3]	2,245.4	2,112.7	1,889.2	–132.7	–223.5	1.6	1.5	1.2	–.6	–1.1
Agriculture wage and salary	1,217.4	1,306.9	1,281.8	89.5	–25.1	.9	.9	.8	.7	–.2
Agriculture self-employed and unpaid family workers	1,028.0	805.8	607.4	–222.2	–198.4	.7	.6	.4	–2.4	–2.8
Nonagriculture self-employed and unpaid family workers	9,021.2	8,815.5	9,343.2	–205.7	527.7	6.3	6.1	5.8	–.2	.6

Source: U.S. Bureau of Labor Statistics, Employment Projections Program.

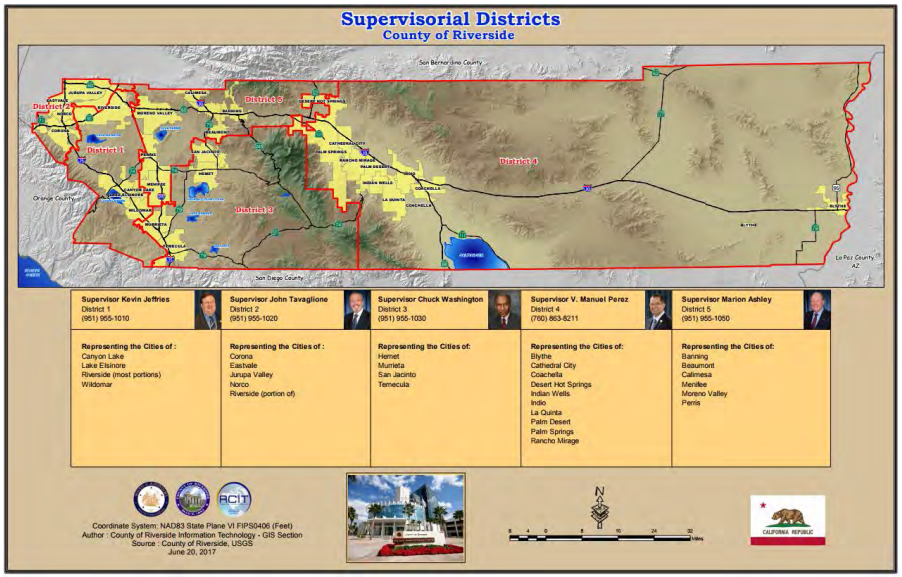
Governing Body

Riverside County is governed by a five-member Board of Supervisors. By law, Supervisorial district boundaries are adjusted every ten years based on population changes reported by the U.S. Census Bureau. Map 1 outlines the current Supervisorial Districts.

In 2016, the population by districts is the following:

- District 1 (Kevin Jeffries): 458,407
- District 2 (John Tavaglione): 458,372
- District 3 (Chuck Washington): 477,763
- District 4 (Manuel Perez): 467,430
- District 5 (Marion Ashley): 480,820

Map 1: Riverside County Supervisor Districts



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2.5 Land Use and Development Trends

Existing land use within Riverside County is a mosaic of varying types of uses, ownership, character, and intensity. Uses include:

- Rural residential
- Single family detached
- Single family attached
- High-density residential (apartments)
- Mobile homes
- Recreational open space
- Other open space
- Heavy industrial
- Warehouse
- Vacant
- Agriculture
- Water
- Utilities
- Public facilities
- Schools
- Retail / Office
- Tourism / Commercial recreation
- Light industrial /Business Park
- Mineral extraction

While population growth continues, so does the need for further development. There are Land Use policies and elements within the Riverside County General Plan to help assure orderly development.

In addition, the Local Agency Formation Commission (LAFCO) of Riverside County is tasked with the mission to provide an orderly pattern of growth that reconciles the varied needs of the County. One of the fundamental principles of LAFCO is to ensure the

establishment of an appropriate and logical municipal government structure for the distribution of efficient and appropriate public services.

LAFCO Land Use Objectives include:

- Discouragement of urban sprawl;
- Preservation of the physical and economic integrity of agricultural lands;
- Preservation of open space within urban development patterns;
- Orderly formation and development of agencies by shaping local agency boundaries;
- Minimization of agencies providing services to a given area; and
- Utilization of Spheres of Influence to guide future development of agency boundaries.

Examples of development in Riverside County are:

Keller Crossing was approved on October 9, 2013. This "Green Concept" environment set to create a mixed-use pedestrian-friendly community that is based on sustainability. This 200-acre property is located in western Riverside County, near Murrieta.

Completed in July 2013, Temecula added a new hospital with in its city limits to accommodate the needs of its residents. The medical facility sits on a 35-acre parcel and holds a total of 320 beds.

Belle Terre is a 342.3- acre residential community located in Riverside's French Valley. This development proposed a community of up to 1,282 homes. The Zoning Ordinance was approved on December 1, 2014.

The Wine Country on the outskirts of Temecula is continuing to see a lot of development activity. Recognizing this, the Board of Supervisors adopted the Wine Country Community Plan in 2014, which consisted of revisions to the County General Plan, new design guidelines, and new zone classifications. The area has been classified as a Wine County Zone with the purpose of encourage agricultural cultivation, vineyards, wineries, equestrian uses, preserve the wine-making atmosphere, estate living, equestrian life-style and protect this area and its residents from incompatible uses which could result in reduced agricultural productivity and increased urbanization within the policy area.

The Cabazon Outlet Mall in has expanded to add an additional 50 stores, an increase of 30%. The expansion was completed in 2014 and it included: 50 new retail stores, a 1,100 parking space structure, wider walkways and improved landscaping. The Cabazon Outlet

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Mall is now a 650,000 square foot complex with a total of 180 stores, making it one of the largest outlet centers in the state.

In February 2015, the Colina del Oro housing plan was initiated and approved by Riverside County Local Agency Formation Commission (LAFCO). It is a master-planned community consisting of both single and multi-family residential units. Within the community an array of recreational facilities would be built such as a community park, community center, trails, and an open space park. 490 dwellings were planned within the 11.4 acre community.

A new Kaiser Permanente health care facility is expected to open in 2023 in Murrieta. The plan is set to develop a 37-acre parcel of land. A press release from Kaiser Permanente, dated April 29, 2016, stated that they have broken ground for the new medical center.

Figure 11: Housing and Household Characteristics

RIVERSIDE COUNTY

HOUSING & HOUSEHOLD CHARACTERISTICS

Housing Units

1970	169,757	(*1)
1980	295,069	(*1)
1990	483,847	(*1)
2000	584,674	(*1)
2001	595,606	(*2)
2002	613,338	(*2)
2003	633,749	(*2)
2004	659,388	(*2)
2005	689,340	(*2)
2006	721,699	(*2)
2007	753,286	(*2)
2008	772,480	(*2)
2009	779,077	(*2)
2010	800,707	(*1)
2011	804,913	(*2)
2012	807,970	(*2)
2013	812,234	(*2)
Projections		
2020	955,853	(*3)
2035	1,228,188	(*3)

Housing Units by Type

	2010 (*1)	Percent	2013 (*2)	Percent
Single Detached	543,209	67.8%	551,857	67.9%
Single Attached	50,784	6.3%	51,041	6.3%
Multi-Family: 2 to 4	38,409	4.8%	38,530	4.7%
Multi-Family: 5 Plus	89,577	11.2%	91,784	11.3%
Mobile Homes	78,728	9.8%	79,022	9.7%
Total Units	800,707	100.0%	812,234	100.0%
Occupancy	686,260	85.7%	696,290	85.7%
Vacancy	114,447	14.3%	115,944	14.3%

Median Home Price (*4)

2002	$202,914
2003	$248,780
2004	$331,106
2005	$400,000
2006	$420,000
2007	$395,000
2008	$260,000
2009	$190,000
2010	$200,000
2011	$195,000
2012	$210,000
2013*	$264,750

*August 2013

Persons Per Household

2000	2.98	(*1)
2010	3.14	(*1)
2013	3.19	(*2)

Housing Unit Building Permits (*5)

Year	Single-Family Structure	All Multi-Family Structure	Total Units
1995	7,378	182	7,560
1996	7,127	472	7,599
1997	8,042	938	8,980
1998	9,671	1,868	11,539
1999	11,823	1,472	13,295
2000	13,323	1,702	15,025
2001	16,778	2,234	19,012
2002	20,912	1,343	22,255
2003	25,424	4,929	30,353
2004	29,182	4,264	33,446
2005	30,350	4,023	34,373
2006	20,882	3,883	24,765
2007	9,717	2,617	12,334
2008	3,820	1,943	5,763
2009	3,406	666	4,072
2010	4,027	520	4,547
2011	2,275	989	3,264
2012	3,107	945	4,052
2013*	2,840	858	3,698

* Preliminary August 2013

Sources: (*1) Decennial Census, US Census Bureau
(*2) January Estimate, CA State Dept. of Finance.
(*3) Riverside County Projections 2010 (RCP10)
(*4) DataQuick Reports
(*5) US Department of Housing & Urban Development, State of the Cities Data Systems
Note: Totals might not add up due to rounding.

*Chart was developed by Riverside County GIS in 2013 and is the most current information available
Source:http://gis.rivcoit.org/Portals/0/Documents/rcd/progress_reports/pr_2013/riverside_county.pdf

Table 4: Housing Projections by City

Housing Units					
Jurisdiction	**2015**	**2020**	**2025**	**2030**	**2035**
Banning	14,611	17,260	20,416	23,177	25,202
Beaumont	17,267	20,787	24,276	27,982	28,958
Blythe	5,947	6,537	6,798	7,046	7,303
Calimesa	5,300	6,804	8,135	9,984	11,858
Canyon Lake	4,549	4,641	4,733	4,825	4,917
Cathedral City	23,627	25,127	26,627	28,127	29,627
Coachella	13,200	19,010	25,200	31,349	36,542
Corona	47,368	48,162	48,974	49,894	50,891
Desert Hot Springs	18,149	20,229	22,251	24,341	26,501
Hemet	45,313	50,507	55,211	60,724	66,199
Indian Wells	5,296	5,450	5,603	5,653	5,706
Indio	32,027	34,321	36,552	38,857	41,240
La Quinta	22,719	23,353	23,913	24,462	24,978
Lake Elsinore	20,833	24,141	27,240	30,092	32,663
Menifee	35,226	40,259	43,870	47,442	51,461
Moreno Valley	59,797	64,427	69,011	74,467	78,065
Murrieta	36,162	37,512	38,861	40,210	41,560
Norco	7,849	8,362	8,719	8,888	9,083
Palm Desert	35,867	37,011	37,954	39,113	40,143
Palm Springs	35,190	36,381	37,671	38,912	40,153
Perris	20,816	24,468	27,845	31,220	34,747
Rancho Mirage	13,834	14,922	16,010	17,098	18,186
Riverside	107,325	113,000	116,883	122,659	126,968
San Jacinto	21,055	26,422	30,142	32,775	35,053
Temecula	35,270	36,321	37,979	38,690	39,400
Wildomar	12,722	14,537	15,837	17,124	18,573
Unincorporated County	186,938	221,346	255,534	286,562	324,571
Riverside County Total	884,258	981,297	1,072,247	1,161,671	1,250,549

Source: Western Riverside Council of Government Council (WRCOG)

2.6 Cities of Riverside County

Riverside County has 28 cities and multiple special districts. All cities, with the exception of Moreno Valley and Menifee are participants in the 2017 LHMP. The City of Jurupa Valley is our newest city and the Planning Commission held its inaugural meeting January 23, 2012.

All of the participating cities, tribes, special districts and school districts attended the workshops, several meetings and assisted with the hazard analysis for the region. The cities and special districts cooperated during the LHMP process, sharing information and discussing the issues that impacted their areas. The discussions increased the knowledge base of all participants in regards to hazards in their areas and across Riverside County. The participants provided insight on additional hazards and concerns their jurisdictions face, but are not “disasters” and are not common across the county.

Participating jurisdictions in the Riverside County LHMP have their own governing bodies (e.g., city councils, tribal councils, water district boards, hospital boards, etc.) and upon Cal OES and FEMA approval they will formally adopt the plan via resolution through their governing body.

2.6.1 Banning

The City of Banning is a corporate city in Riverside County in the San Gorgonio Pass area of California. It is approximately twenty-three (23) square miles in area and is 30 miles east of the County seat in the City of Riverside. Banning is 80 miles east of Los Angeles, 23 miles west of Palm Springs, 25 miles north of the resort mountain community of Idyllwild, and is immediately adjacent to Beaumont to the west and the Morongo Indian Reservation to the east.

The Union Pacific Railroad and California State Highway 10 both run through the middle of the City. Smith Creek, a waterway that starts in the mountains and runs through the lower part of the valley, is close to Banning’s southern and eastern boundaries.

Banning enjoys a yearly average daily temperature of approximately 79 degrees. Average temperatures are in the high 90’s during the summer and low 40’s during the winter. The average rainfall for Banning is about 3 inches per year.

Incorporated in 1913, the City of Banning has a rich and colorful history. Initially, Banning served as a stagecoach and railroad stop between the Arizona territories and Los Angeles. Today, Banning is home to nearly 30,000 residents and features clean air, ample water supplies and the memorable and inspiring scenic vistas of Mt. San Gorgonio

and Mt. San Jacinto. Its signature community event is Stagecoach Days, an annual rodeo and parade that celebrates Banning’s Western heritage.

2.6.2 Beaumont

The City of Beaumont is located in the westernmost portion of Riverside County and is bounded by City of Calimesa and unincorporated County areas, on the north by the unincorporated County areas (Cherry Valley), on the south by unincorporated County areas and the City of San Jacinto, and on the east by the City of Banning. The City straddles the San Gorgonio Pass, the only easterly link with the greater Los Angeles Metropolitan area. Beaumont is located approximately 70 miles northeast of Los Angeles, 21 miles northeast of Riverside, and 21 miles southeast of San Bernardino. The geographic area governed by the Beaumont General Plan includes the City's corporate boundaries as the existed in 2005 and the City's established Sphere of Influence. Because there is considerable variation within the area governed by the General Plan, the larger Beaumont Planning Area has been subdivided into eight smaller planning areas: 1) Town Center Planning Area, 2) Oak Valley Planning Area, 3) North Beaumont Planning Area, 4) East Beaumont Planning Area, 5) 6th Street Corridor Planning Area, 6) Southeast Beaumont Planning Area, Southwest Planning Area, 8) West Beaumont Planning Areas.

The City of Beaumont was incorporated in November 1912. Founded at the turn of the twentieth century, Beaumont is proud of its rich history and rural charm. The town served as a welcome “stopping-off point” for early travelers making their way from the Mohave desert to Los Angeles, and later for L.A. residents eager to vacation in Palm Springs. Some, however, set down roots, drawn by the beautiful mountain vistas, clean, crisp air, and the abundance of cherry and apple orchards. Beaumont is proud of these early settlers and their families, many of whom continue to live and thrive in Beaumont.

Population- City of Beaumont is estimated to have 45,118. (2015) The City of Beaumont provided specific information regarding extreme wind events, and the public notices that are sent during a wind event.

2.6.3 Blythe

The City of Blythe is a corporate city in Riverside County in the Palo Verde Valley of California. The City of Blythe comprises approximately 16,400 acres (approximately 27 square miles) in area and is 145 miles east of the County seat, the City of Riverside. The City’s sphere of influence (SOI) surrounds the incorporated city limits and comprises approximately 12,800 acres (approximately 20 square miles). The jurisdiction sits directly adjacent to La Paz County, Arizona on its eastern boundary and Imperial County along its southern boundary. The Colorado River is a waterway that forms the eastern boundary

of the City. Regional access to the City is provided by Interstate-10 (I-10), State Highway 78 (SR-78), and State Route 95 (US 95). The Greyhound bus line also provides access to and from Blythe.

Jurisdiction's climate can be described as moderate. Temperatures and rainfall for jurisdiction are typical of that of the rest of Riverside County.

The City of Blythe is a General Law city which was incorporated in 1916. It is located 225 miles east of Los Angeles and 150 miles west of Phoenix Arizona. The Colorado River embraces the east side of the Palo Verde Valley. The City has a Council-Manager form of municipal government. The City Council appoints the City Manager who is responsible for the day to day administration of City business and the coordination of all departments. The City Council is composed of five members elected biannually to alternating four-year terms. The City of Blythe encompasses an area of approximately 26.8 square miles and is situated 265 feet above sea level. Blythe enjoys a comfortable California desert climate with winter temperatures averaging 55-75 degrees, and summer temperatures averaging 85-110 degrees. Annual rainfall is approximately 3 inches per year.

2.6.4 Calimesa

The City is located in the northwestern portion of Riverside County, between the cities of Yucaipa and Beaumont, between San Bernardino and Palm Springs. Calimesa is located in the region known as the Inland Empire, which covers all of San Bernardino and Riverside Counties and is between the foothills of the San Bernardino and San Jacinto Mountains. The city's elevation ranges between 2,300 to 3,500 feet above sea level. According to the United States Census Bureau, the city has a total area of 14.8 square miles, all of it land.

Climatic Conditions: Generally, Calimesa has an arid climate. Annual rainfall varies from ten (10) to twenty three (23) inches within the San Gorgonio Pass area of Riverside County and the City. Hot, dry Santa Ana winds are common to areas within the City. These winds constitute a contributing factor, which causes small fires originating in rural and urban development to spread quickly and create the need for an increased level of fire protection.

The City of Calimesa was incorporated on December 1, 1990, soon after the incorporation of its northern neighbor, the City of Yucaipa. Prior to its incorporation, the City of Calimesa existed as an unincorporated town that straddled the Riverside–San Bernardino County line at the location where Interstate 10 climbs the San Gorgonio Pass going eastward from Redlands, California.

Historically, Calimesa is divided from the City of Yucaipa by the Wildwood Canyon Wash; but politically, "County Line Road" divides the two towns. Much of what was originally

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known as "Calimesa" actually lies within the city boundaries of Yucaipa, including "I-Street" (Calimesa) Park, and Calimesa Elementary School. Because State of California law prohibits the incorporation or annexation of cities over county lines, the City was unable to adjoin what was considered the town of Calimesa when it finally incorporated. When Yucaipa incorporated, they included the area outside of the Yucaipa Valley on the "hilltop" or "mesa" that was traditionally known as Calimesa within its city boundaries, so as not to leave a gap of unincorporated area between the two towns. And although the two cities are in separate counties, both Yucaipa and Calimesa share same basic street grid system and addressing, including many named and alphabetical street which extend from Yucaipa well into Calimesa. The general boundary between the two cities is County Line Road, which ironically does not follow the exact county line in some places due to the alignment of Calimesa Creek, which meanders in and out of both Yucaipa and Calimesa.

The City Limits of Calimesa also extend southwest to the City of Beaumont, California. Although much less refined, the boundaries between Beaumont and Calimesa fall generally along the Southern California Edison (SCE) right-of-way that extends from the El Casco electrical sub-station facility near Moreno Valley, eastward. Near the I-10 freeway, Champions Drive is the common boundary between the two Cities. The City of Calimesa has an estimated population of 8,173.

2.6.5 Canyon Lake

The City of Canyon Lake is an incorporated city in Riverside County. It is approximately four and a half square miles in area and is 31 miles south of the County seat, the City of Riverside. The City of Canyon Lake sits directly adjacent to the City of Menifee on its eastern boundary, City of Lake Elsinore on its Western and southern boundaries. The City of Canyon Lake lies between the I-15 and I-215. Railroad Canyon Road, an arterial highway, bisects the community and provides the major connection to these freeways. The San Jacinto River, a waterway that starts in the Mountains and runs over 75 miles through the County, feeds into Canyon Lake and flows into Lake Elsinore.

The City of Canyon Lake climate in winter is rarely extreme, low temperatures almost never go below freezing. In the summer the high temperatures will hover in the high 90's but during heat waves can exceed 100 degrees. Rainfall is typical of that of the rest of Riverside County.

The City of Canyon Lake was established in March of 1968 as a relaxed private gated community offering recreational opportunities. Canyon Lake is primarily a bedroom community of mature and newer homes. As a private gated community, Canyon Lake has an equestrian center, campground, and many other amenities. The City of Canyon Lake incorporated on December 1, 1990 to become more responsive to its residents.

2.6.6 Cathedral City

The City of Cathedral City is a corporate city in Riverside County in the Coachella Valley of California. It is approximately 20 square miles in area and is 64 miles east of the County seat, the City of Riverside. All borders of Cathedral City are within Riverside County. The Union Pacific Railroad and Interstate Highway 10 both run through the northern-most portion of the City. The Santa Rosa Mountains border the southern-most portion of the city.

Cathedral City's climate can be described as arid most of the year, with summer heat in excess of 110 degrees Fahrenheit anytime from June through September, and colder winter evening temperatures as low as 25 degrees Fahrenheit from December through February.

The average rainfall is less than three inches per year. Temperatures and rainfall for Cathedral City are typical of the rest of the Coachella Valley (eastern Riverside County).

Cathedral City was established in 1925 and incorporated in 1981. Strategically located, with city limits on both sides of Interstate 10, Cathedral City is a haven for expanding and relocating businesses. Cathedral City's population ranks in the top three cities in the Coachella Valley.

Businesses view the region as a triangle of opportunity between Los Angeles and San Diego. Coachella Valley is situated inland, approximately equal distances from each metropolitan area. This triangle of commercial businesses, light industry, and professional services is expanding and becoming one metropolis of continued growth.

2.6.7 Coachella

Coachella is a city in Riverside County, California; it is the easternmost city in the region collectively known as the Coachella Valley. It is located 28 miles east of Palm Springs, 72 miles east of Riverside, and 130 miles east of Los Angeles.

The eastern half of the Coachella valley is below sea level, and the area's average elevation is 68 feet (35 m) below sea level. The Salton Sea, a saltwater lake located about 10 miles (16 km) South of Coachella, lies 227 feet (69 m) below sea level.

The city also lends its name to the Coachella grapefruit; the town's stretch of State Route 111 is named Grapefruit Boulevard in its honor. Harrison Street or State Route 86 is declared historic U.S. Route 99, the major thoroughfare that connects with Interstate 10 a few miles north of town.

Known as the "City of Eternal Sunshine", Coachella is largely a rural, agricultural, family-oriented community in the desert and one of the state's fastest growing cities in the late

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20th century. When it first incorporated back in 1946, it had 1,000 residents, but the population was 45,407 at the 2010 census.

The city was originally founded as Woodspur in 1876, when the Southern Pacific Railroad built a rail siding on the site. In the 1880s the indigenous Cahuilla tribe sold their land plots to the railroads for new lands east of the current town site, and in the 1890s, a few hundred traqueros took up settlement along the tracks.

The origin of the name Coachella is unclear, but in 1901 the citizens of Woodspur voted on a new name for their community; at their town hall meeting, the homeowners settled on "Coachella". Some locals believe it was a misspelling of Conchilla, a Spanish word for the small white snail shells found in the valley's sandy soil, vestiges of a lake which dried up over 3,000 years ago.

Coachella began as a 2.5-square-mile (6.5 km2) territory gridded out on the mesquite covered desert floor. Not until the 1950s did Coachella begin to expand into its present range, about 32 square miles (83 km2), an area which contained large year-round agricultural corporate farms and fruit groves, particularly of citrus (lemons, oranges, grapefruit) and date palms.

Coachella became a city in 1946. During the incorporation voting process, the first city council was tentatively elected: Lester C. Cox, T. E. Reyes, John W. Westerfield, Lester True, and Paul S. Atkinson. Also elected on November 26, 1946, were City Clerk Marie L. Johnson and City Treasurer John C. Skene. John Westerfield was appointed mayor at the first meeting.

2.6.8 Corona

The City of Corona is located approximately 45 miles southeast of Los Angeles in western Riverside County. It is located in a valley, framed by mountains and the Prado Basin. Original settlements focused development in an area within and adjacent to Grand Boulevard. As the City grew, the geographic limitations imposed by the Cleveland National Forest to the south and the Prado Basin to the northeast created natural barriers that confined the City. The City is bordered by the City of Norco to the north, the City of Riverside to the east, and Riverside County to the west and south.

The City limits encompass 39.2 square miles and the population is approximately 159,132. A city whose heritage spans more than a century, Corona has emerged as an ethnically diverse community, where a significant percentage of the population is made up of young, well-educated families. The Corona community boasts many amenities that provide a first-rate quality of life for residents. The City has more than 394 acres of parks, with sports fields, basketball courts, playgrounds, tennis courts, two skate parks and an outdoor pool.

Two major freeways and one railroad transect Corona. The Riverside Freeway (SR-91) runs east/west directly north of the City's center, Interstate 15 (I-15) runs north/south near the eastern edge of the City, and the railroad parallels SR-91. These corridors are major transportation routes to the economic center of Orange County from the Inland Empire. Two geographical areas are considered to be within the boundaries of the City of Corona General Plan Planning area: lands within the City's corporate limits, and lands within its Sphere of Influence (SOI). .

The SOI was defined by the City, the Southern California Association of Governments (SCAG), and the Riverside County Local Agency Formation Commission (LAFCO). It represents the areas likely to be served by and potentially annexed to the City. The SOI includes three geographically distinct areas including the West, East and South Spheres. The West Sphere encompasses three geographic areas: the Prado Basin, Coronita and the Foothill area. The East Sphere includes the areas of Home Gardens, Eagle Valley East, and El Cerrito. Temescal Canyon makes up the South Sphere.

The City of Corona Planning area is within the South Coast Air Basin of California. The air basin is a 6,600-square mile area encompassing the non-desert portions of Riverside, Los Angeles, and San Bernardino Counties and all of Orange County. Bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, the South Coast Air Basin is an area of high air pollution poten0tial.

The climate of the South Coast Air Basin is dominated by the strength and position of the semi-permanent high-pressure center over the Pacific Ocean near Hawaii. It creates the climate conditions typical of Southern California, (i.e., relatively cool summers, mild winters, infrequent rainfall, cool daytime sea breezes, comfortable humidity, and ample sunshine). Periods of extremely hot weather, winter storms, or Santa Ana wind conditions interrupt this pattern. Unfortunately, the same atmospheric processes that create the desirable living climate combine to restrict the ability of the atmosphere to disperse the air pollution generated by the region's population.

The location of the Planning Area, east of the Chino Hills and Santa Ana Mountains, insulates it from the moderating effect of the ocean. Temperatures and precipitation in Corona varies more dramatically than coastal areas of the basin. Average summertime high temperatures range between about 85 to 92 degrees Fahrenheit from June through September, and average wintertime low temperatures are generally near 40 degrees in December and January. Rainfall is highly variable and confined almost exclusively to the winter months. Rainfall in Corona averages about 12.6 inches annually.

Predominating winds travel from the ocean, across the urbanized coastal areas of Orange and Los Angeles Counties, to Corona through the Santa Ana River Canyon. The canyon

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acts as a funnel for air masses moving across the basin. Daytime winds are typically channeled through the canyon to create steady, abnormally high (greater than 12mph) wind velocities from the west. Typical nighttime conditions reverse, and light winds (less than 1 mph) drift back towards the ocean. Exceptions to this pattern occur when a high-pressure center forms over the western United States and creates the strong, hot, dry, gusty Santa Ana winds, which move through Corona from the eastern deserts into the canyon.

Corona's historic resources are those physical elements, both structural and natural, which define Corona's past. They help give the City its unique identity, charm, and orientation. These resources, when well preserved and maintained, provide the community with a sense of permanence, which fosters civic pride and stewardship among its residents and businesses. Information describing the historic and cultural resources were derived from the California Environmental Resources Evaluation Systems (CERES) website, as well as the Riverside County Integrated Project (RCIP) (March 2000) existing setting conditions. Corona's history is an evolution of Native American inhabitation, Missionary influence, agricultural development, and eventual rapid urbanization. The City's growth and development is typical of many other areas in Southern California.

In the early 1700s, prior to the arrival of the Spanish, the Gabrieleno and Luiseno Indians occupied the Corona area. These Native Americans used the hot waters in Temescal Canyon for bathing and religious ceremonies. Current residents and visitors still enjoy the rejuvenating mud baths and hot springs at the Glen Ivy Springs resort. Luiseno religious ceremonies were strictly followed, and remnants of some of their artistic pictographs and petroglyphs can still be found on rocks in undeveloped areas.

In the early 1800s, the agricultural and cattle ranching base developed and portions of Corona became part of the Mexican land grants (Rancho La Sierra Yorba, Rancho Jurupa, Rancho El Rincon, and Rancho El Sobrante de San Jacinto). With the Treaty of Guadalupe Hidalgo (1846), Mexico ceded the Corona area as part of California to the United States. The Yorba, Serrano, Sepulveda, Cot, and Botiller families' ranched sheep and cattle on the original ranchos in the area. Remnants of the Serrano tanning vats are still found on Old Temescal Canyon Road. In 1849, the California gold rush brought prospectors, settlers, and new development to southern California. The Butterfield Stage stops and the Serrano adobes are found along this road.

In 1886, developer Robert Taylor persuaded his partners: Rimpau, Joy, Garretson and Merrill to form the South Riverside Land and Water Company. Together they raised approximately $110,000 to purchase approximately 12,000 acres of good agricultural land. Taylor realized the importance of water for the soon to be developed community, and additional funds were used to ensure that sufficient water rights were obtained. Taylor hired Anaheim engineer H. C. Kellogg to design a circular Grand Boulevard three miles

round. Early residents used to parade their fancy buggies on this circular street that enclosed the main functions of the community: schools, churches, residences and stores. To the north along the railroad tracks were the manufacturing plants and packing houses. The southern end of town was left to the citrus industry, and the mining companies were established just outside the city's southeastern and eastern city limits.

The town's founders initially named their development South Riverside after the successful citrus community of Riverside, just a few miles away. Almost all of the new settlers planted orange and lemon trees in hopes of gaining future profits. New groves continued to spring up and, by 1912, there were 5,000 acres of established lemon and orange groves. By 1913, Corona shipped more fruit than any other town in Southern California. In 1961, citrus was still considered the backbone of Corona's economy and the largest source of revenue. In that year, citrus covered 7,500 acres. The labor force fluctuated between 400 and 1,800 workers at the peak of the harvest. An additional 500 people worked at the Exchange Lemon Products plant. By 1982, Corona's agricultural industry faced a bleak future as production costs made the economics of farming financially unsuccessful. Plans were begun to replace the groves with approximately 12,500 dwelling units.

On July 13, 1896 residents voted to incorporate and change the name of the community to Corona, which is Spanish for crown, in honor of the City's circular Grand Boulevard. By 1900, the population had reached 1,434 people. On September 9, 1913, in observance of California's Admission's Day, Corona residents celebrated with an international automobile race on the Boulevard. The event attracted such auto racing greats as: Ralph DePalma, Barney Oldfield, Terrible Teddy Tetzlaff and Earl Cooper. More than 100,000 people came to the town of 4,000 to watch Cooper win the race and a prize of $8,250. It was so successful that races were held again in 1914 and 1916. The demise of the Corona road races was due not only to tragic deaths, which occurred in 1916, but also because of the cost and local effort needed to continually stage such an extravagant event.

2.6.9 Desert Hot Springs

Desert Hot Springs is located approximately 112 miles from Los Angeles, in the center of Riverside County. The City sits in the foothills of the San Bernardino Mountains, and overlooks the entire Coachella Valley. The southern city boundaries are adjacent to Palm Springs and Cathedral City, divided by Interstate 10. To the east of the city is the unincorporated community of Sky Valley. To the west are the unincorporated areas of North Palm Springs and White Water. To the north of the city is predominately Joshua Tree National Park and lands governed by the Department of Interior, Bureau of Land

Management (BLM). The City also sits at two entry points of the recently recognized, Sand to Snow National Monument.

The area has sparse vegetation, which is consistent with the Southern California lower desert. Annual grass and desert flowers are dependent on annual precipitation averaging just over 5 inches a year. Temperatures during the summer can reach 115 degrees during the peak day and the high 80's during the night. Winter temperatures are in the high 70's to low 80's and lows at night average in the 50's. Summers tend to produce occasional monsoonal thunder storms, while the winter tends to be windy, depending on the low pressures systems reacting with the local mountain ranges.

In 1913 Cabot Yerxa arrived in the City. He was the first Homesteader and discovered hot water on Miracle Hill. Due to the San Andreas Fault bisecting the hill, one side has cold water, the other has hot. His large adobe, hand built by Yerxa, is one of the oldest adobe structures in Riverside County and is listed on the Nation Register of Historic Places.

The town was founded by L. W. Coffee on July 12, 1941. The original site was centered on the intersection of Palm Drive and Pierson Blvd. and was only a square mile in area. He named it Desert Hot Springs in honor of the waters Yerxa had discovered.

The City of Desert Hot Springs incorporated in 1963, with 1,000 residents.

Since that time, Desert Hot Springs has solidified itself as a tourist destination through its small spa hotels. In its early days the city's seclusion appealed to urban "escapees".

Desert Hot Springs experienced periods of dizzying growth in the 1980s and 1990s when most of the vacant lots were filled with new houses and duplex apartments. The city's population doubled in the 1980s and increased by another 5,000 in the 2000 census. Between 2000 and 2010 the population grew by 9000 residents resulting in a final population count of 25,938 full time residents following the 2010 census.

With much of the City's land undeveloped, development in the city and population is expected to steadily grow for many years to come.

The City is the home to (5) Elementary Schools, (2) Middle Schools and (1) High School, (3) Parks and a Health and Wellness Center serving residents of the Community.

In 2014 the City Council adopted Ordinances allowing for Medical Marijuana Dispensaries and the large scale Cultivation of Medical Marijuana. Development of this rapidly growing industry is permitted in the Industrial Zone of the City.

2.6.10 Eastvale

Eastvale is one of the newest cities in Western Riverside County. Eastvale incorporated on October 1, 2010 since then it has grown to a population of over 63,162 residents. Eastvale is 13.2 square miles strategically poised between Interstate 15 and California State Routes 91, 60, and 71, making access easy for residents, visitors and businesses alike. Residents and visitors find the close proximity of Ontario International Airport to be a metropolitan advantage yet enjoy the small-town, neighborly charm of our young community.

2.6.11 Hemet

The City of Hemet is located in the San Jacinto Valley in Riverside County, approximately 80 miles southeast of Downtown Los Angeles. The city covers about half of the valley, which it shares with the neighboring City of San Jacinto to the north and Diamond Valley Lake to the south. The San Jacinto Mountains to north provide a beautiful natural backdrop to the City.

The average annual rainfall in Hemet is approximately 12 inches. The annual high temperature is 82 degrees while the annual low is 46 degrees. Average temperature in Hemet is 65 degrees. During the 19th century the land in Hemet was used for cattle ranching by Mission San Luis Rey. On January 20, 1910 the City of Hemet was incorporated and maintains a Council-Manager form of government. The incorporation helped to serve the growing city which also became a trading center for the San Jacinto Valley agriculture of citrus, apricots, peaches, olives and walnuts. During WWII the City of Hemet hosted the Ryan School of Aeronautics, training over 6,000 fliers for the Army Air Force. Hemet-Ryan Airport still exists today in the same location.

2.6.12 Indian Wells

Indian Wells is a small-scale residential-resort community located within the Coachella Valley in Riverside County. The City of La Quinta and the City of Palm Desert, along with unincorporated areas of Riverside County, adjoin the City. The current City limits encompass approximately 9,240 acres, or 14.4 square miles. Primary access to the City is from State Highway 111. Primary access to the region is by Interstate 10. State Route 74 also provides access to the Coachella Valley region from the south. Unincorporated lands to the northeast of the City are included within the Indian Wells sphere of influence.

Indian Wells is best known for its world class resorts, catering to golf and tennis enthusiasts, and quality residential lifestyle. Residents of the City enjoy an ideal climate, with over 330 days of sunshine each year. The City's beautiful surroundings include views of the Santa Rosa and San Jacinto Mountains.

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Indian Wells officially became a city on July 14, 1967. At that time, Indian Wells was the 16th city to incorporate in Riverside County and the 400th in California. It was the fourth city, after Indio, Coachella, and Palm Springs, to incorporate in the Coachella Valley. The election for incorporation was held on June 27, 1967 and, according to the League of California Cities, had the largest percentage of approval for incorporation of any city in California. The voter turnout was 87 percent of the 285 registered voters with 93 percent in favor of becoming a city. At incorporation, there were an estimated 855 legal residents and 585 homes. The Indian Wells area was inhabited long before incorporation, however. The name Indian Wells originated from a Cahuilla Indian hand-dug well, documented on the earliest maps of California prior to 1850. The original well was generally located north of present day Highway 111 and east of Miles Avenue. The well serves as a stage station until a public well was established around 1870, and remained in use until 1910. Like most communities that were established in the Coachella Valley, Indian Wells' origins are based on travelers' needs for water and a place to rest. Both wells were destroyed by a massive flood in 1916.

2.6.13 Indio

The City of Indio is a corporate city located in Riverside County, within the Coachella Valley of Southern California's Colorado Desert region, approximately 70 miles east of the County seat (City of Riverside), and 125 miles east of Los Angeles. The City limits encompass approximately 29.2 square miles in area. The City of Indio sits directly adjacent to the City of La Quinta, the City of Coachella and the unincorporated areas of Riverside County. The Union Pacific Railroad, State Highway 111, and Interstate 10 run through the length of the City. The Coachella Valley Water District operates an aqueduct which conveys water from the Colorado River into the Coachella Valley and bisects the City from east to west and north to south.

The climate of the City of Indio is influenced by the surrounding mountain ranges that contribute to the unique year-round warm and dry climate, with some of the warmest winters west of the Rocky Mountains. Indio experiences warm winters and hot summer climates with average annual high temperatures of 89.5 degrees Fahrenheit, and average annual low of 62.1 Fahrenheit. Summer highs above 110 degrees Fahrenheit are common while summer night lows often stay above 90 degrees Fahrenheit. The City of Indio is adjacent to the geologic Salton Sink and within the site of historic Lake Cahuilla. Indio is an official National Bird Sanctuary, as seasonal bird migration flight routes cross the city en route to and from the Salton Sea.

Indio began as an Indian Village and winter home for Native Americans who regularly migrated from the surrounding mountains in the winter to the palm oases along the San Andreas Fault zone and other locations providing water, vegetation and shelter. The

Villages were located throughout the Coachella Valley and along the shores of ancient Lake Cahuilla. The discovery of gold in California in 1848 and the resulting Gold Rush brought a stream of miners and settlers through the Coachella Valley, providing a southern route to California less hazardous than crossing the Sierras. In 1872, Indio was selected as a division point for the Southern Pacific Railroad with the first train arriving in 1876 from Los Angeles and the completed southern transcontinental route in 1877. Indio's first settlers were mainly railroad employees and local shopkeepers. By 1909, the Indio School census indicated that the school district had 43 families and 82 children within its boundaries. In 1914 the Southern Sierras Power Company completed an electric power line to the Coachella Valley to provide power for pumping water and powering homes. In 1930, Indio became the Coachella Valley's first incorporated city.

2.6.14 Jurupa Valley

The City of Jurupa Valley is the newest city to incorporate within the State of California, in the County of Riverside, with an incorporation date of July 1, 2011. Jurupa Valley is approximately 44 square miles in area and is approximately 5 miles west of the County seat, the City of Riverside. Jurupa Valley is approximately 60 miles east of the City of Los Angeles and approximately 90 miles north of San Diego. It covers the area north and west of the Santa Ana River, south of the Riverside-San Bernardino County line, and east of Interstate 15 with CA Hwy 60 intersecting the length of the city from the east to the west.

The City of Jurupa Valley has a moderate climate with annual rainfall at approximately 2 – 3.5 inches per year. Vegetation is green and bountiful in the winter but can become dry and dense during the summer months. Summers are warm and can reach temperatures above 109 degrees during the peak of the day and remain in the high 80's during the evenings. Winter weather is mild averaging 65 – 76 degrees during the day and dropping down into the mid 30's or 40's in the evenings. Throughout most of the year, you can usually count on warm sunny days, with occasional mild to gusty winds throughout the late summer, fall, and early winter seasons. The population of Jurupa Valley was incorporated after the 2010 US State Census. Currently, the city's population is 100,314 according to the 2015 US State Census.

2.6.15 Lake Elsinore

The City of Lake Elsinore is a corporate city nestled at the foot of the Cleveland National Forest, within the southwest portion of Riverside County. The City boasts that Lake Elsinore is the largest natural recreational lake in Southern California and is bounded by wetlands. City of Lake Elsinore is located on the I-15 corridor at the intersection of State Route 74, 20 miles south of State Route 91. We are approximately a one-hour drive east from metropolitan Orange County and forty-five minutes southwest from Riverside. San

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Diego is approximately a one-hour-and-fifteen-minute drive south on I-15. Highway 74 connects westward over the Ortega Mountains to Orange County beach communities and eastward to mountain and desert cities in Riverside County. Lake Elsinore is 73 miles southeast of Los Angeles and 74 miles northeast of San Diego. The average rainfall per year is less than 12 inches total. The average winter low temperature is 35.8 degrees, while the average summer high is 98.4 degrees. The community enjoys a yearly average daily temperature of 78.5 degrees.

The City of City of Lake Elsinore was organized, formed and incorporated under the laws of the State of California on April 9, 1888. From earliest times, the 300 natural Sulphur springs that fed Lake Elsinore were believed to have curative and magical properties by its Native American Indian inhabitants. These first inhabitants were called the Lake Entengvo Wumoma, which meant "Hot Springs by the Little Sea."

Joining the Native American Indian inhabitants, the Spanish missionaries, soldiers, ranchers and American trappers came to the valley. The Spanish padres renamed the lake "Laguna Grande."

Early settlers established a town site around the lake, which they renamed Elsinore, representing the immortality given the town of Elsinore in Denmark by Shakespeare in "Hamlet." In the 1920s and 1930s, the City became a playground for movie stars and the lake a destination for world-record-setting boat races and Olympic swim team training. Sportsmen hunted duck on the lake and deer in the hills.

Lake Elsinore has a "Council-Manager" general law form of government where the City Manager is appointed by the City Council and is the Chief Executive Officer of the Municipal Corporation. The Council acts as the board of directors of the municipal corporation and meets in a public forum where citizens may participate in the governmental process. The City Council consists of five members elected at-large, on a non-partisan basis. Residents elect the Mayor and four Council members, making each accountable to the entire citizenry.

2.6.16 La Quinta

The City of La Quinta is a corporate city in Riverside County. La Quinta is situated approximately 150 miles northeast of San Diego and 130 miles east of Los Angeles on the desert floor of the Coachella Valley. The valley is flanked on three sides by the Little San Bernardino, Santa Rosa, and San Jacinto Mountains. The protection afforded by the mountains contributes to the arid climate. Average rainfall per year is less than 5 inches total. Low temperatures rarely drop below freezing, while highs during the summer are usually in the triple digits and can reach into the 120 F degrees; however, it's a "dry" heat. Visitors from colder climates flock to La Quinta and surrounding cities in the Coachella

Valley from November to May because of our extremely mild winters. La Quinta's climate can be described as Lower California desert.

The City of La Quinta was organized, formed and incorporated under the laws of the State of California on May 1, 1982. It has a "Council-Manager" general law form of government where the City Manager is appointed by the City Council and is the Chief Executive Officer of the Municipal Corporation. The Council acts as the board of directors of the municipal corporation and meets in a public forum where citizens may participate in the governmental process. The City Council consists of five members elected at-large, on a non-partisan basis. Residents elect the Mayor and four Council members, making each accountable to the entire citizenry.

2.6.17 Menifee (Not Participating)

The City of Menifee is located in southwestern Riverside County approximately 30 miles southeast of the City of Riverside, California. The City encompasses approximately 50 square miles with an overall population of 83,447.

On June 3, 2008, the residents of the communities encompassing the City of Menifee voted to incorporate Menifee into Riverside County's twenty-sixth city. The new City of Menifee was officially established on October 1, 2008.

Interstate 215 traverses north and south through the center of Menifee, with existing community commercial areas located primarily along Newport, Bradley, and McCall Roads off of I-215.

2.6.18 Moreno Valley (Not Participating)

The City of Moreno Valley was officially incorporated on December 3, 1984 as a California general law municipality. Moreno Valley is comprised of three once-rural communities (Sunnymead, Edgemont and Moreno) and is located in the northwestern portion of Riverside County, approximately 66 miles east of Los Angeles, 42 miles west of Palm Springs and 100 miles north of San Diego. Moreno Valley is situated in a crescent of land bounded by the Box Springs Mountains to the north, the hills of the Badlands to the east and the mountains of Lake Perris State Recreation Area. The surrounding jurisdictions include the City of Riverside, the City of Perris, March Air Reserve Base, the San Jacinto Wildlife Area and Lake Perris State Recreation Area. The population of Moreno Valley is estimated at 201,175.

2.6.19 Murrieta

The City of Murrieta is an incorporated city in Riverside County. It is approximately 34 square miles in area and is 50 miles south of the County seat, the City of Riverside. The

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City of Murrieta sits directly adjacent to the City of Temecula on the south, City of Menifee on the east, and the City of Wildomar on the northern boundaries. Murrieta is served by two major interstate freeways. I-215 runs through the eastern portion of the city, and I-15 runs through the western portion of the city. The Santa Margarita Watershed runs through the southwest portion of the City. Storm water runoff from portions of Lake Elsinore and Murrieta collects in the Murrieta & Temecula creeks and forms the Santa Margarita River south of the City.

The City of Murrieta's winters are almost never extreme, low temperatures rarely go below freezing. In the summer the high temperatures will hover in the 90's, but some days may go over 100 during heat waves. Rainfall for City of Murrieta is typical of that of the rest of Riverside County.

In 1980, Murrieta population was estimated to be 2,200. When Murrieta officially became a city on July 1, 1991, it was already home to more than 24,000 residents. By 2016, more than 113,000 people had moved into the City of Murrieta community, making it one of the five largest in Riverside County. The natural scenic beauty of the area and what is still by California standards reasonably priced housing continues to attract significant numbers of residents and businesses who are finding Murrieta a great place to grow. Those living in the community find distinguished schools, abundant recreation, excellent medical facilities, expanding employment opportunities and one of the lowest crime rates in Southern California. Entrepreneurs find a market growing larger by the day, above average household incomes, a skilled labor force and a business-friendly City Hall. It's a community with a past and vision for its future. One that welcomes challenges embraces opportunity. More and more people are discovering what the Murrieta fathers envisioned more than a century ago: Murrieta is, indeed, a great place to grow.

2.6.20 Norco

The City of Norco is located in the northwestern portion of Riverside County, near the convergence of Los Angeles, Orange, and Riverside Counties, approximately 45 miles southeast of the City of Los Angeles. It is located in a valley, framed by mountains and the Prado Basin. Original Settlements focused development in an area within and adjacent to Hamner Avenue, Highway. As the City grew, the geographic limitations imposed by the Norco Hills to the east and the Santa Ana River and the Prado Basin to the north and west created natural barriers that confined the City. The City is bordered by the City of Corona to the south and southwest, the City of Riverside to the east, and the cities of Eastvale and Jurupa Valley to the north and northeast.

One major freeway transects Norco with no railroads. Interstate 15 (I-15) runs north/south through the middle of the City. This corridor is the major north-south transportation route in Southern California between Las Vegas and San Diego with nearby direct freeway

interconnects to Los Angeles and Orange counties and the rest of the Inland Empire. The current City corporate limits are fairly congruous with the City's Sphere of Influence (SOI). The City currently includes 15 square miles, with less than 50 acres currently in Riverside County remaining within the SOI.

The SOI was defined by the City, the Southern California Association of Governments (SCAG), and the Riverside County Local Agency Formation Commission (LAFCO). It represents those areas likely to be served by and potentially annexed to the City. The SOI includes two small geographically distinct areas including a single row of mostly developed single-family homes along Bluff Street at the City's southwestern edge along the river bluffs and undeveloped property largely in the river floodplain in the northeast corner of the City. The City currently manages approximately 690 acres of open space within its Park Lands and an internal trail system throughout the City and its public right away of approximately 120 miles.

The City of Norco Planning area is within the South Coast Air Basin of California. The air basin is a 6,600-square mile area encompassing the non-desert portions of Riverside, Los Angeles, and San Bernardino Counties and all of Orange County. Bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, the South Coast Air Basin is an area of high air pollution potential. The climate of the South Coast Air Basin is dominated by the strength and position of the semi-permanent high-pressure center over the Pacific Ocean near Hawaii. It creates the climate conditions typical of Southern California, (i.e., relatively cool summers, mild winters, infrequent rainfall, cool daytime sea breezes, comfortable humidity, and ample sunshine). Periods of extremely hot weather, winter storms, or Santa Ana wind conditions interrupt this pattern. Unfortunately, the same atmospheric processes that create the desirable living climate combines to restrict the ability of the atmosphere to disperse the air pollution generated by the region's population.

The location of the Planning Area, east of the Chino Hills and Santa Ana Mountains farther south, insulates it from the moderating effect of the ocean. Temperatures and precipitation in Norco vary more dramatically than coastal areas of the basin. Average summertime high temperatures range between about 85 to 92 degrees Fahrenheit from June through September, and average wintertime low temperatures are generally near 40 degrees in December and January. Rainfall is highly variable and confined almost exclusively to the winter months. Rainfall in Norco averages about 12.6 inches annually. Predominating winds travel from the ocean, across the urbanized coastal areas of Orange and Los Angeles Counties, to Norco through the Santa Ana River Canyon. The canyon acts as a funnel for air masses moving across the basin. Daytime winds are typically channeled through the canyon to create steady, abnormally high (greater than 12mph) wind velocities from the west. Typical nighttime conditions reverse, and light winds (less

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than 1 mph) drift back towards the ocean. Exceptions to this pattern occur when a high-pressure center forms over the western United States and creates the strong, hot, dry, gusty Santa Ana winds, which move through Norco from the eastern deserts into the canyon.

The pre-European history of Norco is much like the rest of Southern California where various tribes of Indians occupied the different portions of the region. The Luiseno Indians used and occupied a region that included the Norco-Corona area. The main village was in Temescal Canyon, and the Norco area was used as a hunting-gathering location. In 1846 the Norco area became part of the Mexican land grant, part of which was eventually purchased for the purposed of growing orange trees. That was not successful and the land was sold and subdivided as part of the Riverside Orange Heights Tract.

The concept of "Norco" began as a subdivision of the North Corona Land Company in 1910, which again attempted to develop the area with orchard citrus crops, avocados, olives, etc. Years of experimentation showed the area was not suited to that purpose due to high winds, frost, and poor soil conditions. In 1921 the property was sold to the North Corona Land Company. At that time, fewer than 100 families resided in the area which was mainly a small farming community. The farmers gradually ventured into animal raising, especially poultry and rabbits, some of which are still active today.

By the mid-1920's, the North Corona Land Company owned 5,409 acres in the area. When the first school and the Norconian Club were constructed, the Norconian Club was constructed at hot sulfur well discovered while digging for irrigation water. It occupied a 700- acre site and was for years a favorite of Hollywood celebrities. Its use declined during the 1930's and in 1941 the U.S. Navy bought the hotel and expanded it into a premier World War II-era hospital. Today, its grounds are divided between a weapons research facility and a state prison. Most of the resort remains intact, and its history and architecture have earned it a listing on the National Register of Historic Places. Today local leaders and organizations are working to ensure its recognition and preservation.

The community's first public recreational facility was developed in 1948 when the old Norco School was acquired as a community center. The Norco Recreation and Park District was then formed to maintain and operate the property. During the 1950's and 1960's Norco began to experience more growth, resulting from the population explosion occurring throughout the Southern California metropolitan area. The San Bernardino and Riverside freeways made the area more accessible from Los Angeles and Orange Counties, and Norco's animal keeping lifestyle came within commuting distance from major centers of employment. Because of rapid growth in surrounding communities, and the previous loss of other animal keeping communities in the Los Angeles and Orange Counties when development pressures increased there, the City of Norco was

incorporated in 1964 to preserve the animal keeping community that had established roots here.

The development of the 130 acres of Silverlakes Equestrian and Sports Park along Hamner Avenue, between Norco and Eastvale, is currently attracting over 1 million visitors annually to the city and the region. The dominant activities in the park is soccer supplemented by equestrian horse competition.

City of Norco is located in the northwestern portion of Riverside County. The City of Norco is surrounded by the City of Eastvale, Corona and Riverside. During the late 50's and early 60's, southern California experienced rapid growth and due to the previous loss of other animal keeping communities in the Los Angeles and Orange Counties areas, the City of Norco was incorporated in 1964 to preserve the animal keeping community. The City of Norco currently includes 14.3 square miles. The current population is approximately 27,336.

2.6.21 Palm Desert

The City of Palm Desert is a charter city in Riverside County. The City of Palm Desert is a business, resort, and residential community centrally located in the heart of the Coachella Valley, in southeastern Riverside County, California. Known as the cultural and retail center of the desert communities, the City is 125 miles east of Los Angeles and just 15 miles east of Palm Springs. The valley is flanked on three sides by the Little San Bernardino, Santa Rosa, and San Jacinto Mountains. The protection afforded by the mountains contributes to the arid climate. Average rainfall per year is less than four inches. Low temperatures rarely drop below freezing, while highs during the summer are usually in the triple digits and can reach 115-120 degrees Fahrenheit; however, it's a "dry" heat, with occasional periods of high humidity in the late summer months. Visitors from colder climates flock to Palm Desert and surrounding cities in the Coachella Valley from November to May because of the extremely mild winters.

The City of Palm Desert incorporated as a charter city on November 26, 1973. It has a "Council-Manager" charter city form of government where the City Manager is appointed by the City Council and is the Chief Executive Officer of the Municipal Corporation. The Council acts as the board of directors of the municipal corporation and meets in a public forum where citizens may participate in the governmental process. The City Council consists of five members elected at-large, on a non-partisan basis.

2.6.22 Palm Springs

The City of Palm Springs is a charter city in Riverside County located in the State of California. The City is nestled at the base of the San Jacinto and Santa Rosa Mountains,

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approximately 60 miles east of Riverside. Serving as the "gateway city" for the Coachella Valley, the City of Palm Springs comprises an incorporated area that encompasses 60,440 acres, or nearly 95 square miles. Palm Springs has a residential population of approximately 47,371 and an estimated seasonal population of over a 100,000 residents and guests.

The City of Palm Springs is located within Riverside County Region VI Southern Administrative Region of the California Office of Emergency Services Agency (Cal OES). Primary access to the City is provided by Interstate 10 and California State Highway 111; north–south access to the City is provided via Indian Canyon Drive and Gene Autry Trail. The Southern Pacific Railroad and Kinder Morgan natural gas pipeline run through the Coachella Valley and specifically through the City's northern boundary.

Palm Springs has an arid desert climate with annual rainfall of less than six inches. There are more than one hundred days a year when temperatures are 100°F or more. Hot, dry winds during the summer months along with seasonal Santa Ana winds are common to Palm Springs.

The San Andreas Fault is a major earthquake fault located only a few miles north of Palm Springs. In addition, there are numerous minor faults located throughout Riverside County which are subject to earthquakes.

The area encompassing the present City of Palm Springs was discovered centuries ago by the Agua Caliente Band of Cahuilla Indians, who established their village around the natural hot mineral springs (current site of the Spa Resort Casino) known for their medicinal and healing capabilities. Throughout the 19th century, many explorers, colonizers, and soldiers came through the desert, but it wasn't until 1853 that United States Topographical Engineers described the combination of palm trees and warm springs they encountered as "Palm Springs." The name became more commonly used several years later.

In 1877, the Southern Pacific Railroad completed its line through the desert to the Pacific Ocean. A Congressional policy established that every odd section of land for 10 miles on either side if the track become the property of the railroad. Early development in Palm Springs was associated with attempts to establish agricultural activity in the area and in the southern portions of the Coachella Valley.

In the 1920s, the region became a retreat for successful business and movie personalities, who took advantage of the warm weather, the remote location, and the hot water spas. The tourist and resort community of Palm Springs developed over the following decades and dramatically changed the character and economy of the Coachella Valley. In 1938, the City of Palm Springs was officially incorporated.

In the 1950s, about 3000 sections of land were transferred to the Agua Caliente Band of Cahuilla Indians in a checkerboard pattern. The checkerboard pattern is divided into Indian and non-Indian property holdings, based upon a grid pattern of square-mile sections of alternating ownerships. Indian land which has been subdivided into sections, half sections, and sometimes even smaller areas—is controlled by the Tribal Council or by individual allottees of the Agua Caliente Band of Cahuilla Indians (the Tribe). Over time, this checkerboard land-ownership pattern has led to inconsistent patterns of development, since the majority of development has occurred on non-Indian and non-Tribal owned lands.

The City has one hospital and the only trauma center for the Coachella Valley, Desert Regional Medical Center. The Medical Center is a 385-bed full service acute care facility that includes a Level II trauma center. There are four public full service elementary schools, one middle school, one high school, and one alternative school within the City of Palm Springs that are administered by the Palm Springs Unified School District. The city has a regional airport (Palm Springs International Airport), numerous large and small hotels, shopping centers, and commercial/industrial zones. Interstate 10 and State Highway 111 traverse the City as well as several main arterial roadways.

The City operates its own police and fire departments and also relies on local volunteer organizations for assistance in emergency response, communications, and other necessary emergency services.

2.6.23 Perris

The Jurisdiction is a corporate city in Riverside County in the Coachella Valley of California. The City of Perris is 35 Square Miles in size with a population of 77,000 people and is 10 miles southeast of the County seat, the City of Riverside. Jurisdiction sits directly adjacent to San Bernardino County on its southern boundaries, and San Bernardino County is ten miles to the north. The Burlington Northern and Santa Fe Railway Railroad and California State Highway 215 both run through the middle of the City. State Highway 74 is runs through 4th Street, continues as part of CA State Highway 215 then continues along Pincante Rd through Romoland on the west. Lake Perris is located on the northeast outside City of Perris. Perris Valley Airport is privately owned. It lies in the lower center of the city off Goetz Road. March Air Force Base is located just north of the city and its jurisdiction connects to City of Perris.

Jurisdiction's climate can be described as sunny, mild Mediterranean climate. On average, Perris gets only 10 inches of rain per year. The humidity is quite low all year. The July high temperatures average 97 degrees, while January low temperatures average 35 degrees. There are 275 sunny days per year.

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City of Perris was incorporated in 1911. The California Southern Railroad connected through the city in the 1880s to build a rail connection between the present day cities of Barstow and San Diego. This is how the City of Perris began to form. While the railroad had played an important part in establishing the new town, the people now turned to agriculture for their future development. Because of limited groundwater, dry grain farming was the main crop before water was brought to the valley by the Eastern Municipal Water district in the early 1950's. Alfalfa, the King potato (which would produce two crops a year), and still later, sugar beets became the mainstay of farming the Perris Valley.

With the construction of Lake Perris in the late 60's and early 70's - Perris once again became attractive - this time as a recreational area. In addition to the lake's activities Perris' hot air ballooning, Orange Empire Railway Museum and skydiving activities attract international recognition.

2.6.24 Rancho Mirage

The City of Rancho Mirage is located in Riverside County in the Coachella Valley of California. Rancho Mirage is approximately 24.8 square miles in area and is 70 miles east of the County seat, the City of Riverside. Riverside County covers 7,208 square miles (approximately the same size as the state of New Jersey) and stretches from Orange County to the Colorado River which forms the border with the state of Arizona. Adjacent counties include San Bernardino County to the north, La Paz county Arizona to the east, Imperial and San Diego counties to the south and Orange County to the west.

Rancho Mirage is located within the Coachella Valley, which extends for approximately 45 miles (72 km) in Riverside County southeast from the San Bernardino Mountains to the saltwater Salton Sea, the largest lake in California. The Valley is approximately 15 miles (24 km) wide along most of its length, bounded on the west by the San Jacinto Mountains, the south by the Santa Rosa Mountains and on the north and east by the Little San Bernardino Mountains. These mountains peak at around 11,000 feet (3,400 m) and tend to average between three to five thousand feet. This effectively blocks the marine layer familiar to most other Southern Californian areas. The Salton Sea is located to the southeast of the Coachella Valley with a surface elevation of 227 feet below sea level.

Regional geomorphology is largely due to the San Andreas Fault which enters the valley at the Chocolate Mountains and Salton Sea in the southeast corner and then follows the centerline of the Little San Bernardino Mountains on the north side of the Coachella Valley. The fault is easily visible along its northern length as a strip of intermittent green against an otherwise bare mountain.

Geographically, the county is mostly desert in the central and eastern portions of the county which includes the Coachella Valley and the City of Rancho Mirage. The Coachella Valley is considered the northwestern portion of the Sonoran Desert. In the summer months daytime temperatures range from 104 °F (40 °C) to 118 °F (48 °C) and nighttime lows from 77 °F (25 °C) to 86 °F (30 °C). During winter, the daytime temperatures range from 70 °F (21 °C) to 90 °F (32 °C) and corresponding nights range from 46 °F (8 °C) to 68 °F (20 °C) making it a popular winter resort destination. Due to its warm year-round climate, the region is well known for the production of tropical fruits such as mangoes, figs and dates. According to the Coachella Valley Water District, average annual rainfall is approximately three inches. The mountains that flank the west and south sides of the Valley are often covered in snow during the winter months, and it is not uncommon for snow levels to dip to 2000'.

The primary arterial to the Coachella Valley is Interstate 10, which runs east-west; while State Route 111 runs for about 30 miles along the southwestern rim of the valley and serves as the main arterial highway between almost all Coachella Valley cities. A four-lane expressway, State Highway 86S opened in the early 1990s as a "special" bypass (hence the "S" designation) of two-lane Highway 86 and connects with Imperial and San Diego counties. The rail right-of-way that parallels the I-10 freeway between San Bernardino and Indio is operated by the Union Pacific Railroad (UPRR). There are no surface roads crossing the railroad tracks within the City. One older two lane bridge (Ramon Road) and one newly constructed six lane bridge crosses the railroad and Interstate 10.

Currently the only passenger rail service in the Coachella Valley is a three times per week long distance train operated by Amtrak between Los Angeles and Florida. This train is known as the "Sunset Limited". The Sunset Limited train operates through this area in the very early hours of the morning in both directions and primarily serves the leisure and tourism market. The Riverside County Transportation Commission (RCTC) and the State of California have been evaluating the feasibility of establishing an intercity passenger rail route between Los Angeles, Fullerton, Riverside, Palm Springs, and Indio. The Union Pacific Railroad (UPRR) continues its firm opposition to any new passenger service on its tracks through this area. Notwithstanding this opposition, the California Department of Transportation (Caltrans) continues to propose such service in the California State Rail Plan. Caltrans has no unilateral powers to compel the UPRR to permit the operation of this train. Nevertheless, for intercity trains (as opposed to a commuter or Metrolink train), there are certain federal processes in place that can ultimately lead to an order compelling the railroad to operate the service.

The public agencies requesting the intercity service may be required to invest large sums in the physical infrastructure of the railroad. Some estimates place the capital investment

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requirement at a minimum of $500 million for a new set of tracks. RCTC is working closely with the Coachella Valley and the Pass Areas on this issue and supports the expansion of rail service to additional areas of Riverside County.

Public transportation in the valley, including Rancho Mirage, is provided by the SunLine Transit Agency based in Thousand Palms, which was among the country's first transit agencies to totally convert to alternate fuel vehicles, including full-sized buses powered by fuel cells.

Aviation in the area is served by the Palm Springs International Airport in Palm Springs, Jacqueline Cochran Regional Airport in Thermal and Bermuda Dunes Municipal Airport in Bermuda Dunes. Palm Springs International airport (PSP) is currently served by ten airlines. In 2015, there were a total of 1,888,657 passengers embarking or disembarking at PSP. Although Alaska, SkyWest and American have the largest share of passenger travel; WestJet has grown significantly with the influx of Canadians purchasing vacation homes in the valley. Currently, WestJet serves Vancouver, Calgary, Edmonton, Winnipeg and Toronto (seasonally). Seasonal flights from PSP to New York (Virgin), San Jose (Horizon), Stockton (Allegiant), Denver (Frontier) and Houston (Continental).

The City of Rancho Mirage is a well-known desert resort and residential community in the Coachella Valley. With major regional medical facilities, the Valley's most vibrant and attractive commercial centers, and world-class resort hotels, Rancho Mirage is a desirable destination for residents and visitors alike.

The City has taken shape in a beautiful valley setting surrounded by dramatic views of the Santa Rosa and San Jacinto Mountains to the south and west and the Little San Bernardino Mountains to the north. Lushly landscaped golf course communities and broad arterial streets on the Coachella Valley floor have created a "garden in the desert".

The City of Rancho Mirage was incorporated on August 3, 1973, bringing autonomy to residents and businesses over land use and development on approximately 15.6 square miles of land. Since City incorporation, expansion has occurred without sacrificing the quality of life that originally attracted residents and the City now comprises approximately 16,070 acres or 25 square miles. Its Sphere of Influence (SOI) – County managed lands over which the City has an advisory role – total another 1,202 acres or 1.9 square miles. The City of Rancho Mirage has a Council/Manager form of government and became a Charter City in 1997.

From the beginning, Rancho Mirage was primarily a residential community. Succeeding decades brought new assets and resources. In the 1960s, commercial businesses expanded and "Restaurant Row" developed. The 1970s saw the introduction of the Eisenhower Medical Center as well as five of the City's country clubs. Residential construction boomed in the 1970s and 1980s and that period also saw the addition of

world class destination resorts – Marriott's Rancho Las Palmas (now KSL's Rancho Las Palmas Resort & Spa), the Westin Mission Hills and The Lodge (now the Ritz Carlton Rancho Mirage).

Development in past years has focused along Highway 111 with the majority of future development expected to be near Interstate 10. From the 1990s to present day, the City has added entertainment and shopping venues such as The River (a 250,000 square foot mixed use entertainment/commercial development) and Monterey Marketplace (a 400,000 square foot "big-box" retail center); worked with the Annenberg Trust to transform the Sunnylands Estate and Visitors Center into a world class educational/conference facility, and completed the state-of-the-art Rancho Mirage Public Library. In addition, the recent completion of the Section 19 Specific Plan will permit a large scale mixed use development adjacent to the 16 story Agua Caliente Casino Resort and proposed multi-modal transit station.

2.6.25 Riverside

The City of Riverside is located in Riverside County, California, United States, and is the county seat. Named for its location beside the Santa Ana River, it is located at the center of the Inland Empire and is the largest city in the Riverside-San Bernardino-Ontario metropolitan area of Southern California, the 4th largest inland California City and is located approximately 60 miles (97 km) east of Los Angeles. Riverside is the 59th most populous City in the United States and the 12th most populous city in California. The City of Riverside is currently 81 square miles according to the 2015 U.S. Census Quick Facts, and has an estimated population of 322,424.

2.6.26 San Jacinto

The City of San Jacinto is a corporate city in Riverside County in the San Jacinto Valley of California. It is approximately 27 square miles in area and is approximately 30 miles east of the County seat, the City of Riverside. San Jacinto is approximately 90 miles east of the City of Los Angeles and approximately 90 miles north of San Diego. The City of San Jacinto sits directly north of City of Hemet on its southern boundary and approximately 10 miles southeasterly of City of Moreno Valley. California State Highway 79 runs north and south through the City. The San Jacinto River, normally a dry riverbed that begins in the San Jacinto Mountains, runs through the northern part of the San Jacinto Valley in a north westerly direction, sitting on the north-easterly boundary of the City. The Soboba Band of Luiseño Indians Tribe is also located northeasterly and adjacent to the City of San Jacinto.

The climate in San Jacinto is considered moderate. Summers are warm and winters are mild. You can usually count on a nice sunny day since San Jacinto averages 342 days of

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sunshine each year, and are typical of that of the rest of Riverside County. Winter weather is mild averaging 70-75 degrees daytime, and summers are typically warm with highs averaging 90-95 degrees. The average rainfall is approx. 12.5 inches per year.

Founded in 1870, and incorporated in April 1888, San Jacinto is one of Riverside County's oldest communities, with roots that stretch back to the earliest days of California. Because of its mild climate and fertile land, the region became home to Native Peoples, Spaniards, Mexicans and Americans - all of whom have made a unique and indelible imprint on the character of the valley. Tourism also had an impact on the Valley, beginning around 1900.

Natural hot springs along the north side of the Valley stimulated the development of several tourist resorts with hotels, guest cabins and bath houses. Gilman Hot Springs was the best-known resort. It was originally developed in the 1880s, and was acquired in 1913 by the Gilman family, who ran the resort for 65 years. Soboba Hot Springs was also popular, with its Indian-style cottages scattered along the hillside. Further west was Eden Hot Springs.

The Estudillo Mansion is currently owned by the City of San Jacinto. The City of San Jacinto successfully completed the interior and exterior Estudillo Mansion Restoration project. There has also been the addition of a Water Conservation Garden, parking lot and landscape improvements with a dedication event on May 16, 2009

The City of San Jacinto is a general-law form of government with Council-Manager administration. Council members are elected, with the City Manager appointed by the five council-members elected at-large. The City of San Jacinto is not a participant in the Riverside County Operational Area Multi-Jurisdictional Local Hazard Mitigation Plan. The city has an estimated population of 45,563.

2.6.27 Temecula

The City of Temecula is an incorporated city in Riverside County in the Southwestern portion of the County. It has a population of approximately 106,780. Since incorporation in 1989, as a General Law City, the City has created a desirable community with exceptional public safety, community services, recreational amenities, and a robust commerce.

It is 30.17 square miles and is 30 miles south of the County seat, the City of Riverside. Temecula sits north of and adjacent to San Diego County. The City's eastern and western boundaries are with Riverside County Jurisdictions and to the north is the City of Murrieta. Interstate Highway 15 travels north and south through the western portion of the City. State Highway 79 travels east from the City on both the southern and northern portions of the city. Murrieta Creek which is a pathway from Lake Skinner Reservoir is on the western portion of the City and Temecula Creek which is a pathway from the Vail Lake

Reservoir is on the southern portion of the City. They combine to form the Santa Margarita River in the extreme southwest portion of the jurisdiction. The Santa Margarita Mountains run along the western portion of the jurisdiction.

The City of Temecula's mean yearly temperature 64.7°F with an average high temperature of 76.5°F and an average low of 52.9°F. The average annual rainfall is 11.11 inches.

2.6.28 Wildomar

The City of Wildomar is a corporate city in Riverside County in the Southwest County of California. It is approximately 24 square miles in area and is 41 miles south of the County seat, the City of Riverside. City of Wildomar sits directly adjacent to the City of Murrieta on the south, City of Menifee on the east, and the City of Lake Elsinore on the northern boundaries. The 15 freeway runs through the middle of the City. The Santa Margarita Watershed runs through the southwest portion of the City. Stormwater runoff from portions of Lake Elsinore and Wildomar collects in the Murrieta & Temecula creeks and forms the Santa Margarita River south of the City.

City of Wildomar's climate in winter is almost never extreme, low temperatures rarely go below freezing. In the summer the high temperatures will hover in the 90's, but some days may go over 100 during heat waves. Rainfall for City of Wildomar is typical of that of the rest of Riverside County.

Wildomar is a community of old and new, more mature homes and acreages with horses and other animals mixed with more modern housing tracts. Nestled between the cities of Murrieta and Lake Elsinore, Wildomar officially became a city on July 1, 2008, at that time home to about 28,000 residents.

The name Wildomar was coined from the names of its three founders -- the WIL from William Collier, the DO from Donald Graham and the MAR from Margaret Collier Graham.

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2.7 Tribes of Riverside County

Riverside County has 12 Indian Tribes within or bordering the County.

2.7.1 Agua Caliente Indian Reservation

The Agua Caliente Band of Cahuilla Indians is a federally-recognized Indian Tribe located in Palm Springs, Calif., with 32,000 acres of reservation lands that spread across Palm Springs, Cathedral City, Rancho Mirage, and into the Santa Rosa and San Jacinto mountains. The Tribe's developments include two Palm Springs golf courses, the Spa Resort Casino in downtown Palm Springs, and the Agua Caliente Casino Resort Spa in Rancho Mirage, which includes the 2,000 seat concert venue, The Show. It also operates the Indian Canyon and Tahquitz Canyon parks, both open to the public.

The Tribal Government employs approximately 200 employees, in addition to over 2,000 employees directly associated with its gaming and hospitality operations. The majority of these employees do not live on the Reservation, but commute from outlying communities, such as, Banning, Palm Desert, Desert Hot Springs, and the high desert mountains, increasing the population on the Reservation during the normal business hours.

Tribal employees work in Tribal offices or in the field. Normal business hours are between the hours of 7:00 a.m. to 6:00 p.m. Monday through Friday. It is common for certain employees (Rangers, Maintenance Crew) to work in remote areas of the Reservation where communications may prove difficult.

2.7.2 Augustine Indian Reservation

The Augustine Band of Cahuilla Indians (Tribe) is a federally recognized Indian tribe located in the County of Riverside, California. It was established by Executive Order in 1891. The Augustine Reservation is part of an area occupied for the last 1,000 years by the Cahuilla Indians. The Reservation consists of approximately 602 acres located in the Coachella Valley in southern California, adjacent to the City of Coachella and approximately thirty miles from the City of Palm Springs.

2.7.3 Cabazon Indian Reservation

The members of the Cabazon Band of Mission Indians (Tribe), a federally recognized Native American Indian tribe, are descendants of the Cahuilla Indians who have occupied the desert region of southern California for 2,500 to 3,000 years. As one of approximately a dozen independent clans of the Cahuilla, the Tribe claims its own name, territory and common ancestry. Although the Tribe numbered 600 in the mid-1800s, the population had dwindled to less than 50 by the start of the 1980's. Since that time, under a

reorganized tribal government, the Tribe had increased their economic base by taking advantage of opportunities in the "Desert Resorts" area of California's Coachella Valley.

The Tribe is a sovereign nation under the laws of the United States of America and is operated under a democratic form of government. As a sovereign nation, the entire Cabazon community consists of tribal members. Tribal authority resides in the General Council, which meets every three months to confer and make decisions on tribal issues. All tribal members, age eighteen or older, sit on the General Council, which elects a Business Committee every four years. The Business Committee manages the day-to-day operations of the tribe, including making decisions about new business ventures. As Cabazon is a relatively small tribe, this organizational strategy assures that all viewpoints of the tribal community are considered and that the skills and resources of all community members are incorporated into all facets of formulation and implementation of tribal decision making.

The Cabazon Band of Mission Indians' Reservation was established by an act of Congress in 1876 and occupies three separate areas of land consisting of 1,701 acres in the eastern end of the Coachella Valley. This land is held in trust by the federal government for the benefit of the tribe under the jurisdiction of the tribal government.

2.7.4 Cahuilla Indian Reservation

The Cahuilla Reservation is located in Riverside County near the town of Anza. It is 18,884 acres in total, but 16,884 acres of the reservation belongs to individual members of the tribe. 2,000 acres belong to the entire tribe in common. It was founded in 1875. The Cahuilla Band of Mission Indians is headquartered in Anza, California. They are governed by a democratically elected tribal council. Their current tribal chairman is Daniel Salgado and the Vice-Chairwoman is Andrea Candelaria.

2.7.5 Colorado River Indian Reservation

The Colorado River Indian Tribes include four distinct Tribes - the Mohave, Chemehuevi, Hopi and Navajo. There are currently about 4,277 active Tribal members.

The CRIT Reservation was created in 1865 by the Federal Government for "Indians of the Colorado River and its tributaries," originally for the Mohave and Chemehuevi, who had inhabited the area for centuries. People of the Hopi and Navajo Tribes were relocated to the reservation in later years.

The reservation stretches along the Colorado River on both the Arizona and California side. It includes almost 300,000 acres of land, with the river serving as the focal point and lifeblood of the area.

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The primary community in the CRIT Reservation is Parker, Arizona, which is located on a combination of Tribal land, leased land that is owned by CRIT and land owned by non-Native Americans. There are other, smaller communities on the reservation, including Poston, located 10 miles south of Parker.

2.7.6 Morongo

The Morongo Reservation is located in the northern and western half of Riverside County, California, approximately 90 miles east of Los Angeles. The Reservation, with an area of approximately 54 square miles, covers portions of the southern flank of the San Gorgonio Mountains, the northern flank of the San Jacinto Mountains, and the valley floor of the San Gorgonio River. It has contiguous boundaries with the City of Banning and the unincorporated community of Cabazon (the only city in California to unincorporated) in the San Gorgonio Pass Area.

The Tribe is one of 107 federally recognized Indian tribes in California. The Tribla Hazard Mitigation Plan (THMP) addresses all the property, infrastructure, and natural environment of the Reservation and under the authority and control of the Tribe. The plan is purposely exclusive of specific sites in its address to protected historical, religious, and cultural resources outside of the Reservation, as the interest in their protection is greater than the potential benefit of identifying their location in this plan.

The Morongo Tribal Council functions as legislative body of the Tribe and additionally manages tribal economic enterprise functions that are normally outside the scope of other governmental agencies. The Tribe provides full municipal like services to its residents including, security, fire, public work functions, water and wastewater treatment, environmental protection, waste management and recycling, natural and cultural resource preservation, emergency management, and other functions typical of a functioning community. According to the United States Census Bureau's "Profile of General Demographic Characteristics: 2010 the population on the Reservation is 1,353 persons.

2.7.7 Pechanga Indian Reservation

The Pechanga Indian Reservation borders the City of Temecula to the northwest, the Town of Rainbow to the southwest, and the Cleveland National Forest to the south and east. The General Council of the Tribe is made up of the adult voting members of the band and elects the Pechanga Tribal Council. The Pechanga Indian Reservation encompasses over 6,700 acres with the most recent lands added in 2008. The current land use is mostly rural residential, with homes generally located along the central portion of the reservation along Pechanga Creek.

2.7.8 Ramona Band of Cahuilla

The Ramona Band of Cahuilla is a southern California Indian tribe whose reservation is located approximately thirty miles east of Temecula and four miles north of the unincorporated town of Anza, off Highway 371 in Riverside County. The Ramona Reservation was set aside by Executive Order in 1891 and a trust patent for the Reservation was issued in 1893.

The Ramona Reservation encompasses approximately 560 acres. The Reservation is situated at the southwestern base of Thomas Mountain in the southern San Jacinto Mountains. Hog Lake Road provides the only access to the Ramona Reservation.

There are 3 homes on the Reservation and seven residents. There are also several additional buildings, including a maintenance yard, a power house and 5 yurts associated with the Band's Eco-tourism project. All electricity for the homes/buildings is provided by hybrid electrical systems consisting of solar and wind generation with generator back-ups. None of the homes/buildings on the reservation are connected to the "grid".

In early 2017, approximately 82 acres of land were transferred from fee simple into trust status by the Ramona Band of Cahuilla. Thus, the lands are now tribal lands under the jurisdiction of the Ramona Band of Cahuilla. The lands transferred include approximately 75 acres along Bautista Road just south of the Ramona Reservation and approximately 6.73 acres along SR 371 in Anza.

There are three (3) buildings located on the lands in Anza. The buildings included the Ramona Band's administrative offices and library. Each of the buildings has access to the power grid. Water is provided to the buildings via wells located on the property, and each of the buildings has a septic system. Moreover, a tiger tank of 5000 gallons provides water storage for use, if needed, for fire suppression.

The lands located along Bautista Road are all unimproved. One of the parcels lies at the junction of Bautista Road and Hog Lake Road and is the access point to the Ramona Reservation. The other parcels are covered with vegetation.

2.7.9 Santa Rosa Indian Reservation

The Santa Rosa Band of Cahuilla Indians Reservation is part of an area, which has been occupied by the Cahuilla for the past 1,000 years. The Reservation consists of 11,021 acres in four separate parcels and is located in the Santa Rosa Mountains near the community of Anza in Riverside California.

They are descendants from the Mountain Cahuilla Band, which historically occupied the mountains south of San Jacinto Peak. The largest parcel is called the Santa Rosa Parcel

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and is located 1.25 miles east of the junction of SR –74 and SR – 371. Three separate parcels completely occupy Sections 32, 34, and 36 of T7S, R5E and are one-mile southeast of the main Santa Rosa Parcel. The parcel in Section 34 is called the Old Village Parcel, where their ancestors first settled and the parcel in section 36 is called the Toro Parcel, which is leased out as a microwave relay communications site.

The Santa Rosa Reservation was established on February 2, 1907, under authority of the Act of 1891 as amended. The Act of April 17, 1937 authorized the Secretary of the interior to purchase 640 acres to be held in trust for the Tribe. All reservation land is tribally owned and un-allotted, though some of the land is under assignment and has been passed from generation to generation.

Currently there are approximately 70 people living on the reservation. They are a customs and traditions tribe with a total of 118 members. A tribal council governs with members elected to two-year terms. Because of the very limited size of the band, the Tribal Council also acts as the Planning Committee.

2.7.10 Soboba Band of Mission Indians

The Soboba Band of Luiseno Indians ancestral home is the Soboba Reservation located on the San Jacinto River at the base of the western foothills of the San Jacinto Mountains in Riverside County, California. The Tribal trust lands consist of approximately 7,877 acres of reservation including a large parcel of adjoining undeveloped property called the "Jones Ranch". The current population on the Soboba Reservation is approximately 1,200.

2.7.11 Torres-Martinez Indian Reservation (partly in Imperial County, California)

The Torres Martinez Desert Cahuilla Indians (Tribe) is a Sovereign Indian Nation and a federally recognized Indian Tribe located in Southern California. Its Tribal land base was established by Executive Order of the United States Federal government on May 15, 1876 as the Torres Martinez Reservation. The Tribal land base consists of 24,822 acres of harsh rugged desert terrain in a checkerboard pattern located in the most rural parts of the Coachella Valley in Southern California. A portion of the Tribal area is submerged under the Salton Sea. The Reservation lands straddle Imperial and Riverside Counties and lie about 50 miles north of the US – Mexico International Border. Temperatures reach 120 degrees Fahrenheit in the summer.

The majority of those living on the reservation live in the Tribe's housing development project which was funded by HUD (36 homes) located about 6 miles away from the Tribe's headquarters (boundaries: Avenue 62 North, Avenue 64 South, Monroe St./Wilma Jean Way West, and Jackson St. East).

The Tribal school-age children who live on the reservation for primarily attend public schools (Grades K-12th) administered by the Coachella Valley School Unified District (CVUSD) or the Desert Sands Unified School District (DSUSD). Several public schools are located within or near the reservation boundaries of the Tribe.

2.7.12 Twenty-Nine Palms Indian Reservation (partly in San Bernardino County)

The Twenty-Nine Palms Band of Mission Indians is a United States federally recognized Tribe located in Southern California. The Tribe's members are descendants of the Chemehuevi, who are indigenous people that migrated from the Colorado River area. Geographically, the Tribe has two Reservation sections located near the City of Twenty-nine Palms in San Bernardino County and near the City of Coachella in Riverside County. The San Bernardino County section contains 150 acres of undeveloped land which is adjacent to the Joshua Tree National Park. The Riverside County section contains 242 acres, which has rights-of-way for the Interstate 10 freeway and State Highway 86. On this section, the Tribe has an operating Class 3 Gaming Facility, Tribal Administrative Offices, and Tribal Environmental Protection Agency, which accounts for more than 700 employees. Currently, there is no residential development on either Reservation section.

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2.8 Special Districts

2.8.1 Participating School Districts

Beaumont Unified School District

The Beaumont Unified School District is located in the westernmost portion of Riverside County and is located at the intersection of Interstate 10 and Interstate 60. The District is west of the city of the Banning, North of the city San Jacinto, east of the city of Calimesa and unincorporated areas of Riverside lie to the north and east. The student population of the school district is 9,719.

Desert Sands Unified School District

The Desert Sands Unified School District is a pre K-12 grade school district located in the heart of Riverside County's Coachella Valley. DSUSD currently has 34 school sites. Included here are 20 elementary schools, 7 middle schools, 6 high schools, and 1 Early Childhood Education Center. Alternative education and continuation programs are offered at two of the district's high schools, Summit/Horizon and Amistad. DSUSD serves the communities of La Quinta, Palm Desert, Indio, Indian Wells, Bermuda Dunes, and portions of Rancho Mirage and Coachella, California. The combined student population of DSUSD is approximately 30,000 students. In addition to the schools, DSUSD also has a District Education Center complex, and Maintenance and Transportation facilities located in the City of La Quinta.

Hemet Unified School District

The HUSD is a public school district in Riverside County in the San Jacinto Valley of California. Broken down into 3 categories of schools, with it is approximately 1,250 certificated staff are employed by the district, along with approximately 1,480 classified employees plus approximately 960 substitutes, the district employs over 3,690. These employees work from our 28 sites and district offices to serve our student enrollment of over 21,700. The District serves the cities of Hemet, Anza, Aguanga, Winchester, and Idyllwild.

Lake Elsinore Unified School District

The Lake Elsinore Unified School District (LEUSD) was formed in 1989 when Elsinore Union High and Elsinore Elementary merged and unified. It covers 140 square miles including the city of Lake Elsinore, Canyon Lake, Wildomar, as well as a portion of North Murrieta including the communities in and around Ortega Highway and Horsethief

Canyon. Lake Elsinore Unified serves several communities with a combined population of approximately 100,000 and specifically educates 22,000 students.

Moreno Valley Unified School District

The Moreno Valley Unified School District is located in the western portion of Riverside County. The District is bound by the City of Perris to the south, and the City of Riverside to west. The District is bounded by the unincorporated areas to the north and east. The student population of the school district is 34,000.

Perris High Unified School District

The Perris Union High School District (PUHSD) is located in the City of Perris, a community fifteen miles southeast of the City of Riverside. PUHSD covers approximately 184 square miles and includes the City of Perris, City of Menifee and the unincorporated communities of Romoland as well as a portion of Nuview.

PUHSD currently educates approximately 9,000 students residing through (1) 7-8 middle school, (3) comprehensive high schools, (2) alternative high school programs and (1) dependent charter military school. The school district also provides adult educational services.

Riverside Community College District (RCCD)

Riverside Community College District is a three-college higher education system serving residents of Riverside and surrounding counties in California. It is the seventh oldest community college in the state and the fifth largest. RCCD colleges are located in the cities for Riverside, Moreno Valley and Norco. The District's service area is over 450 square miles with a wide range of social, economic, and ethnic diversity in one of the most rapidly growing counties in the nation. Colleges and Annex sites sit within 1/2 mile of major California Freeways and Railroad tracks. Riverside Community College District's average enrollment exceeded 35,000.

Riverside County Office of Education (RCOE)

RCOE directly serves over 8,368 students; over 2,100 of those students are classified as special needs students.

RCOE has a total of 138 sites: (4) School of Career Education campuses (Accredited post-secondary occupational training programs); (14) Career Technical Education sites at district school locations; (40) RCOE Alternative Education program sites on school district sites, independent RCOE sites, and detentions; (40) Special Education program sites located on school districts sites, RCOE sites as well as youth/adult Jails/detention

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centers; and (22) Head Start / Migrant Head Start sites. Three of which are located in Imperial County with one site approximately 1-mile from the Mexico border.

RCOE provides support and professional development opportunities to (23) school districts comprised of (4) Elementary Districts; (1) High School District; and (18) Unified school districts (totaling over 407 K-12 school sites and representing over 427,000 students, 30,000 of those students are classified as special needs students). In addition to providing services to county school districts, RCOE provides support to: one (1) Tribal school; one (1) California School for the Deaf; four (4) community colleges; and twenty-seven (27) charter schools.

Riverside Unified School District

Riverside Unified School District (RUSD) covers just over 92 square miles and encompasses most of the City of Riverside from Van Buren Blvd. and La Sierra Ave. to the west, the Santa River and County line to the north, the city limits to the east and the unincorporated areas of Lake Mathews and Woodcrest to the south.

Riverside Unified is currently the 15th largest school district in the state serving approximately 42,300 K-12 students. The district has 30 elementary schools, 7 middle schools, 5 comprehensive high schools, two continuation schools, one virtual school, and one special education school. The school district also provides pre-school and adult educational services.

San Jacinto School District

San Jacinto School District is in the City of San Jacinto that encompasses seven (7) elementary schools, three (3) middle schools, one (1) traditional high school, one (1) continuation high school and two (2) pre-schools for a total of 14 schools. The jurisdiction also includes a District Office, Facilities and Operations Department, and Nutrition Services. The San Jacinto Unified School District has a staff number of 1,522 and student population of 9,825. San Jacinto School District has a total population of 11,347.

2.8.2 Fire Protection

Idyllwild Fire District

The Jurisdiction is a Special Fire District located in the unincorporated mountain community of Idyllwild, located in Riverside County. It is approximately 5 square miles in area located about 60 miles east of the county seat, the City of Riverside. The community of Idyllwild is surrounded on all sides by the San Bernardino National Forest and is transected from NE to SW by Strawberry Creek. Even though there is a creek running through the community, there is no land that would be considered "flood plain".

The "District" is in mountainous terrain running from 5,000' to 6,500' elevation in a mixed conifer forest fuel type. The Clark section of the San Jacinto Fault runs NW to SE and is SW of the community approximately 7 miles at the closest point. The San Jacinto Fault is considered to be the most active fault in Southern California (D.M. Morton and J.C. Matti, USGS 2005, revised 2008)

Idyllwild averages 26 inches of rain per year with some of that falling as snow in three to four storms per winter. Summer thunderstorms also contribute to the rainfall total as well as wildland fires from lightning.

2.8.3 Health Care Facilities

Kaiser

Kaiser Permanente, as a whole, had 10.2 million health plan members, 186,497 employees, 18,652 physicians, 51,010 nurses, 38 medical centers, and 622 medical offices reported in 2015. The non-profit Kaiser Foundation Health Plan and Kaiser Foundation Hospitals entities reported a combined $1.9 billion in net income on $60.7 billion in operating revenues. Each Permanente Medical Group operates as a separate for-profit partnership or professional corporation in its individual territory, and while none publicly reports its financial results, each is primarily funded by reimbursements from its respective regional Kaiser Foundation Health Plan entity. KFHP is one of the largest not for profit organizations in the United States.

Kaiser Permanente Riverside Medical Center is a general medical and surgical hospital in Riverside, CA. Kaiser Permanente Riverside Medical Center has 226 beds and was opened in 1989. Currently, we provide care for over 500,000 members throughout Riverside County.

2.8.4 Water Districts

Eastern Municipal Water District

Eastern Municipal Water District (EMWD), headquartered in Perris, California provides water, wastewater and recycled water service to nearly 800,000 people across a 555 square mile service area from Moreno Valley to Temecula and east to the San Jacinto Valley. EMWD is California's sixth largest water provider and the largest in Riverside County and was established in 1950 through a public vote. It is one of 26 member agencies of The Metropolitan Water District of Southern California. EMWD owns and operates two potable water filtration plants, two groundwater desalination facilities, four regional water reclamation facilities, more than 2,400 miles of potable water pipeline, 1,800 miles of sewer pipeline and 200 miles of recycled water pipeline. EMWD's water

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supply sources include local groundwater (potable and desalinated), imported water from the Colorado River and State Water Project systems and recycled water. EMWD also wholesales to seven water agencies within or adjacent to its service area boundaries.

Imperial Irrigation District

Imperial Irrigation District (IID) was formed under the State Water Code and is considered a Special District under the governance structure of the State of California. IID is the energy provider to all of Imperial County and portions of Riverside and San Diego Counties, and is also the raw water provider to all municipalities and agricultural users in Imperial County. Throughout the past several years, the district's water and energy operations have been impacted by severe storms (micro bursts), floods and earthquakes varying in magnitude, with the largest being 7.2 on the Richter scale. Imperial Irrigation District provides service to 100,000 customers in the County of Riverside.

Rancho California Water District

The Rancho California Water District (RCWD) serves the area known as Temecula/Rancho California, which includes the City of Temecula, portions of the City of Murrieta and unincorporated areas of southwest Riverside County. The area served is approximately 156 square miles in area and is 42 miles east of the County seat, the City of Riverside. The population of the RCWD service area was estimated 108,920 in 2015.

High Valleys Water District

The High Valleys Water District, Banning, CA, is located in an unincorporated area known as Twin Pines/Poppet Flats, in Riverside County in the Coachella Valley of California. It is approximately 5 square miles in area and is 44 miles east of the County seat, the City of Riverside. The High Valleys Water District was founded in 1971 and serves the Poppet Flats, Twin Pines and Mt. Edna communities. Since they do not have any natural water resources, they purchase our water (which is already treated) from the City of Banning. The water is pumped up eight (8) miles to the mountain through three separate booster stations, into three storage tanks and 40 miles of pipe and delivered to approximately 225 customers. They have five (5) elected Board members, a Board Secretary, Office Administrative Assistant, a General Manager, two Field Techs, and an on-call/as-needed office assistant. There is no sewer service as the communities are all on septic tanks. Some residents have well-systems, which annual backflow testing is done at those locations.

Santa Ana Watershed

The Santa Ana Watershed Project Authority is a Joint Powers Authority formed in 1969 by Eastern Municipal Water District, Inland Empire Utilities Agency, Orange County Water District, San Bernardino Valley Municipal Water District and the Western Municipal Water District. One of SAWPA's main functions is to operate the Inland Empire Brine Line, a 73-mile large diameter regional brine disposal system created to protect water quality in the Santa Ana River and its tributaries. The Brine Line is located in both San Bernardino and Riverside Counties. The Brine Line collects high salt discharges from municipal groundwater treatment plants, power plants, various industries and it serves as an emergency connection to several municipal wastewater treatment plants. Currently, there are a total of 32 active facilities discharging to the Brine Line. All flows collected by the Inland Empire Brine Line are conveyed to Orange County Sanitation District Facilities for treatment and disposal.

The Inland Empire Brine Line serves the portion of the Santa Ana River Watershed within Riverside (1,244 sq. miles) and San Bernardino (1,014 sq. miles) Counties. According to the 2010 U.S. Census, the total population within the Inland Empire Brine Line service area is 3,415,953 inhabitants: 1,686,024 in Riverside County and 1,729,929 in San Bernardino County.

Western Municipal Water District

Western Municipal Water District is a Special District in Riverside County in the Inland Empire of California. It services approximately 510 square miles in area and serves portions of the Cities of Riverside, Corona, Perris, Murrieta, and Norco, as well as unincorporated areas of Western Riverside County. The District has areas adjacent to Orange County on its western boundary, San Bernardino County on its north and eastern boundaries, and San Diego County to the south. The Burlington Northern & Santa Fe Railroad and California State Highways 90 and 215 both run alongside sections of the perimeter of the District in Riverside and Perris. Interstate Highway 15 runs along a section of the District's service areas near Murrieta and Corona. The Santa Ana River, a waterway that starts in the Mountains and runs through the cities of Riverside, Corona and Norco, is close to the District's northern boundary. Murrieta Creek runs through the District's service area in Murrieta.

Western Municipal Water District was established on January 19, 1954. On November 12, 1954 Western was annexed to and became a member of Metropolitan Water District of Southern California providing water for mostly agricultural use. In the early 1960's Western began retail water service to domestic water customers. Western originally depended on Colorado River water and in 1979 it changed its primary source of water to

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the State Water Project drawing water from Northern California. Today the District serves over 25,000 retail and eight wholesale customers.

Section 3.0 - The Planning Process

While the Disaster Mitigation Act of 2000 ("DMA 2000") requires that local communities address only natural hazards, the Federal Emergency Management Agency (FEMA) recommends that local comprehensive mitigation plans address man-made and technological hazards to the extent possible. In the 2012 Multi-Jurisdictional Local Hazard Mitigation Plan, the Riverside County Operational Area (RCOA) addressed an expansive set of hazards. Upon review of the hazards since 2012 and the number of incidents that had man-made causes, the Riverside County OA will continue to address the large set of man-made and technological hazards.

The 2017 Riverside County Multi-Jurisdictional Local Hazard Mitigation Plan update review process initially started August 2016.

3.1 Planning Process Overview

The Riverside County Emergency Management Department (EMD) formed an internal EMD Planning Team, a Local Hazard Mitigation Plan Steering Committee and continued to utilize the Operational Area Planning Committee (OAPC) as an external planning committee.

Each Planning Team was comprised of various EMD personnel, Riverside County Department leaders, emergency managers and key personnel to discuss the most practical methodology to review and update Riverside County's 2017 plan.

A plan template and other various tools were developed and sent to participants to assist them with creating a new plan or to review and update their existing plan. The County held multiple meetings, workshops and conference calls to assist participants with drafting or updating plans.

(See Appendix B for Participants).

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3.2 Hazard Mitigation 2017 Planning

Riverside County recognizes the importance of involving all of the stakeholders and utilized the following planning methodologies:

- Reviewed the process of risk assessments and hazard identification with all submitting participants
- Reviewed mitigation actions that are proposed, pending and completed
- Encouraged participation with the planning process by holding community meetings, individual workshops and conference calls
- Coordinated staffing resources to cities and special districts to assist with plan development and provided pertinent detailed information specific to jurisdictions
- Posted information on official Riverside County Emergency Management Department websites
    - RivCoEMD.org
    - RivCoReady.org
- Provided a list of upcoming mitigation training information on Riverside County Public Health Emergency Preparedness and Response (PHEPR) website
    - RivCoPHEPR.org

Project Pre-Plan Research:

- Reviewed the 2012 LHMP, Crosswalk and Comments from Reviewer
- Reviewed the 2013 Local Mitigation Planning Handbook (FEMA)
- Reviewed the 2011 Local Mitigation Plan Review Guide
- Reviewed the 2013 State of California Multi-Hazard Mitigation Plan
- Identified gaps and discuss findings with management team
- Determined resolutions for gaps and discuss what updates are necessary

Project Plan

- Continually update the Operational Area Plan
- Perpetual maintenance of Local Hazard Mitigation Plan
- Engage all participants through outreach efforts
- Submittal of participant annex and worksheets

3.3 2012 LHMP Tools

The LHMP Steering Committee determined the best approach was to use the tools that were developed in 2009 to assist in updating the LHMP. The following worksheets and

tools were utilized as a reference for each jurisdiction to evaluate its capabilities, determine its need and to assist in developing goals and strategies:

- Local Jurisdiction Contact Information worksheet
- Hazard Identification Questionnaire
- Specific Hazards Summary Worksheet
- Jurisdiction Vulnerability Worksheet/ Severity Table
- Local Jurisdiction Proposed Mitigation Action and Strategy Proposal
- Local Development Trends Questionnaire
- Provided website: http://myplan.calema.ca.gov
- EMD personnel assigned to assist with the development of the plan and provide additional information when necessary
- Hosted and provided facilities for workshops
- Developed and provided step by step instruction guides
- Provided assistance via email, phone calls and one-on-one meetings
- Assisted jurisdictions obtain/create maps
- Provided maps for individual jurisdictions
- Provided incident information for their jurisdiction or authority
- Provided information on mitigation trainings and seminars

3.4 Participating Jurisdictions Planning Process

The 2017 LHMP has a variety of participants and parties with vested interest across the County. The submitting participants include cities, education, fire protection, hospital, and water districts.

The Participants List is found in Section 1.4 or Appendix B: Participants.

The goals of the Operational Area are to ensure the plan is comprehensive and easy to utilize and implement. The final 2017 Multi-Jurisdictional Local Hazard Mitigation Plan consists of the Riverside County Operational Area Plan and the individual Annexes. Each annex is designed to be a stand-alone Local Hazard Mitigation Plan for the cities and special districts, yet clearly show a linkage to the Operational Area Plan, other County Plans (e.g. County General Plan) and the State Hazard Mitigation Plan. (See Annexes A1-46)

The 2017 LHMP outreach presentations were given in 12 community outreach meetings, 12 LHMP workshops and 32 meetings were held with individual cities or special districts. (See Appendix D)

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During the LHMP process, participants were provided directions on how to complete the "Annex" and other templates. Resources provided to participants included: worksheets, templates, examples, websites, mapping sites and other resources to assist in the process. Riverside County Emergency Management Department personnel were available to assist each participating jurisdiction during the LHMP process.

Additional information and resources were emailed to the participants as they became available through "E-Blasts" (mass email sent to every participant). An example is the "My Plan" mapping website on the Hazard Mitigation Portal for Cal OES.

A flexible timeline was presented in the meetings, and sent out via email as changes occurred. The review process of the draft annexes is outlined as follows:

- Participants submitted draft LHMP via email to EMD for review and comments.
- EMD reviewed plans, crosswalks and inventory worksheet to ensure completeness
- Checklists were utilized to document all components of the plans were complete and accompanied with all worksheets and attachments referenced in the plan
- Acknowledgement and checklists were sent back to the participants noting identified gap findings and comments. We requested additional information as necessary
- After revisions were completed by participants, the draft was resubmitted to EMD for adoption into the Multi-Jurisdictional Local Hazard Mitigation Plan
- All correspondence, meetings, and conference calls were recorded in a database to track status of plan

3.5 Regional Planning Process (Riverside County Operational Area)

The Operational Area began the regional planning process by creating the EMD Planning Team who has extensive experience in Emergency Management and vast knowledge of the hazards and mitigation efforts in Riverside County.

EMD's external LHMP Steering Committee included EMD Management and the Operational Area Planning Committee (OAPC). The committee includes representatives from EMD, the Board of Supervisors, city emergency managers, city elected officials, tribal representatives, school districts and special districts. The initial coordination of the LHMP update process was presented to the OAPC attendees and letters of commitment and participation were sent via email to reginal stakeholders through the Operational Area Planning Committee distribution list.

The quarterly Operational Area Planning Committee (OAPC) meetings are intended to engage:

- local jurisdictions
- businesses
- non-profit organizations
- faith-based organizations
- governmental agencies
- tribal communities
- special districts
- educational institutions
- utility companies
- public transportation
- healthcare facilities

The Operational Area Planning Committee (OAPC) Mission:

- To provide facilities, systems, and emergency management training for the officials of the Riverside County Operational Area, including County and City government personnel and participating special districts.
- To effectively and efficiently manage a disaster affecting jurisdictions within the Riverside County Operational Area (Govt. Code 8550 et. seq.).

The Riverside County Operational Area is governed by the Board of Supervisors and the Operational Area Planning Committee (OAPC). OAPC meets quarterly.

OAPC has several subcommittees who are responsible for determining the use and distribution of funds from grants channeled directly through the Operational Area, i.e., Homeland Security, Buffer Zone Protection Plan grant programs, Local Hazard Mitigation Steering Committee, Mass Care and Shelter Task Force and Community Emergency Response Team (CERT) Program Manager Committee.

Please see Appendix D: Meetings for list of OAPC attendees and sign-in sheets.

3.6 EMD Planning Team

The internal EMD Planning Team consists of the EMD Management and key personnel of EMD. The job classifications of the committee included:

- Director
- Deputy Director
- Program Chief II

- Emergency Services Manager
- Program Coordinator II
- Emergency Services Coordinators (7)
- Emergency Medical Services Specialist (3)
- Senior Health Educator
- Health Education Assistant
- Volunteer Services Program Manager
- Grants Personnel (Administrative Services Analyst II, Contracts and Grants Analyst and Account Technician II)
- Office Assistant III
- Secretary

EMD as a whole department is structured to resemble the Incident Command System (ISC) Organizational Chart. There are four divisions; Preparedness, Operations, Business and Finance, and Emergency Medical Services. The Department is able to expand or contact similarly to ICS and places an importance on Span of Control. The following pages have figures of the Emergency Management Department Organizational Chart.

Figure 12: Riverside County Emergency Management Department Organizational Chart:

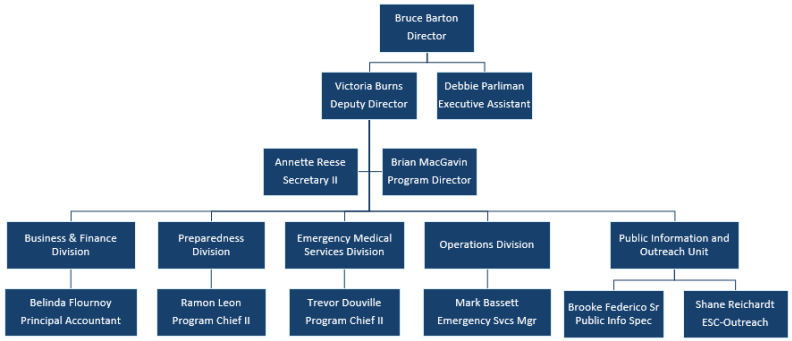


Figure 13: EMD Preparedness Division

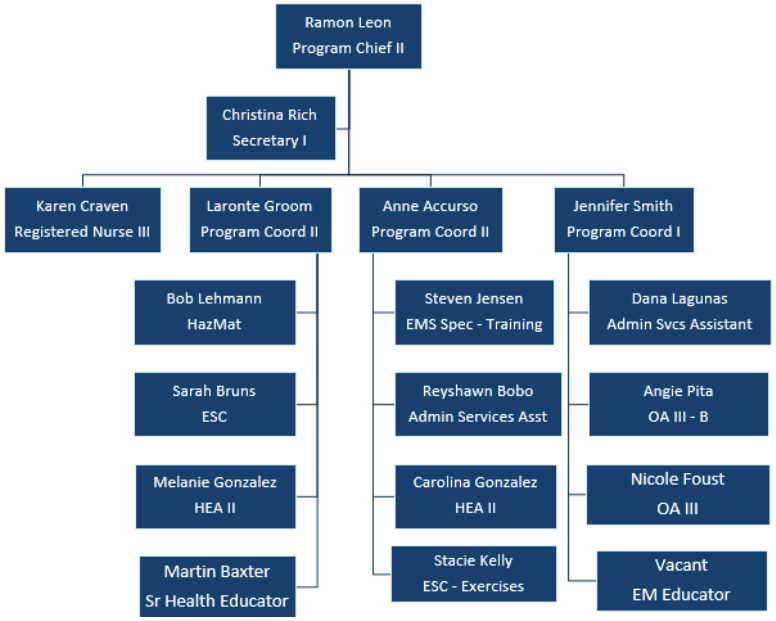


Figure 14: EMD Operations Division

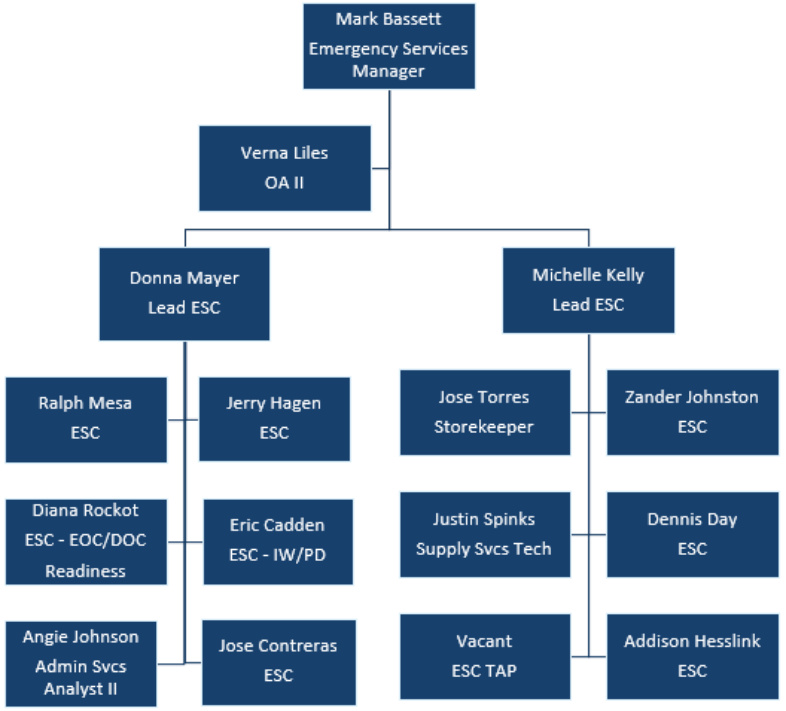


Figure 15: EMD Riverside Emergency Medical Services Agency Division

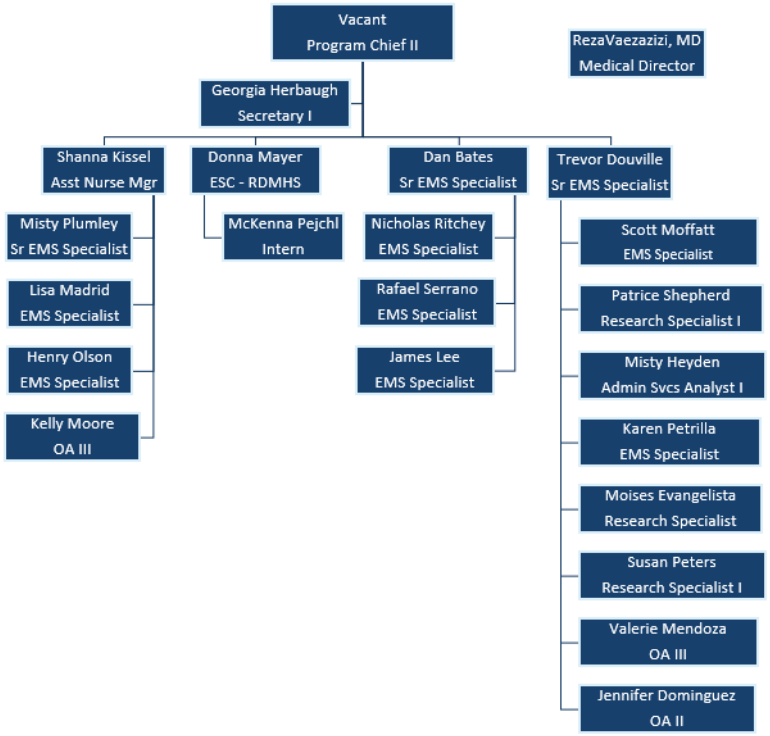
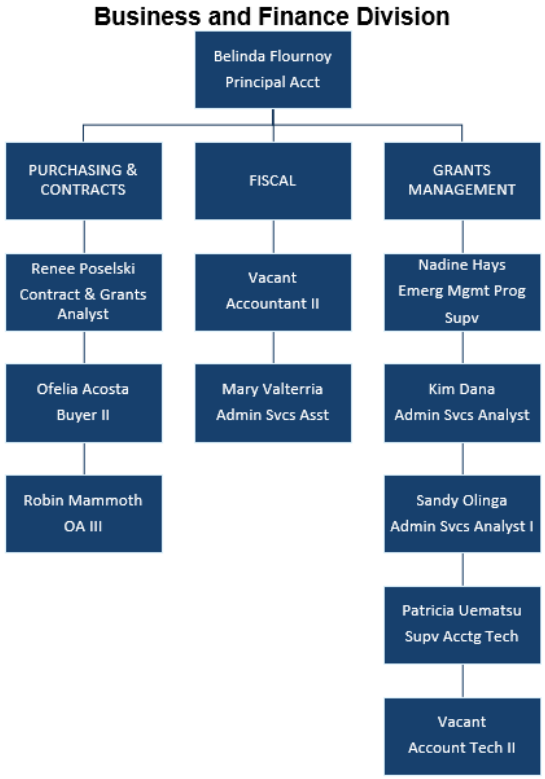


Figure 16: EMD Business and Finance Division



3.7 LHMP Steering Committee Partners

Riverside County recognizes that any successful planning activity, such as the development of a comprehensive plan, involves bringing together a cross-section of the public to reach consensus on how to achieve a desired outcome or resolve a community problem. Using this inclusive process, the public gains a better understanding of the problem or issue and strives to develop a vision along with goals, priorities, and actions.

The result is a common set of community values and widespread support for directing financial, technical, and human resources to an agreed upon course of action, usually identified in a plan. The same is true for mitigation planning. An effective and open public involvement process ensures that all citizens understand risks and vulnerability so that they will work with the jurisdiction and support policies, actions and tools that over the long-term will lead to reduction and/or eliminate long-term risk to human life and property in the event of a disaster or hazard.

An introductory meeting was held with County Department leaders and a presentation given to develop a planning and review process. The following table identifies the agencies that were represented.

Table 5: Internal Steering Committee Partnering Agencies

DEPARTMENTS	POSITION	TOPIC
Agricultural Commissioner's Office	Deputy Ag Commissioner	Insect Infestation, Drought
Animal Services	Commissioner of Field Services, Lieutenant of Field Services	Animals affected
Assessor's Office	Secretary	Population and Building Data
Cal OES	Emergency Services Coordinator	Drought, Earthquake, Insect Infestation, State Representative
Economic Development Agency	Aviation Facilities Specialist/Grants, Aviation Secretary, Assistant Director, Facilities Management Division	Population and Demographics

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Emergency Management Department	Program Director, Program Coordinator II, Emergency Services Coordinator, Health Education Assistant, Office Assistant	Goals and Objectives, Nuclear, Power Outage, Pipeline, Communication Failure, Cyber Attack, Extreme Weather, Landslides, Aqueduct
Environmental Health	Deputy Director	Hazardous Materials, Earthquake
Flood Control	Principle Engineer	Dam failure, Flood Hazard
Imperial Irrigation Water District	Emergency Services Coordinator	Aqueduct, Power Outage
NOAA	Acting Meteorologist In Charge	Extreme Weather, Drought
Public Health	Branch Chief	Pandemic and Disease/Contamination,
RC-HR / County Hospitals	Safety Coordinator	Health Care Facilities, Health Impact, Behavior Health
Riverside County Fire	Chief, Division Chief	Wildfire, Pipeline, Transportation and Hazardous Materials
Riverside County IT	Deputy Chief Information Security Officer, Chief Information Security Officer, Information Technology Officer II, Supervising Communications Analyst	Communication Failure and Cyber Attack
Riverside County Office of Education	Safety, Emergency Preparedness Coordinator	Schools, Shelters, Critical Facilities
Sheriff's Office	Sergeant	Civil unrest, Jails, Terrorism
SoCal Edison	Local Public Affairs Officer	Power Outages
SoCal Gas	Public Affairs Manager	Pipeline
Transportation and Land Management Agency	Chief Engineering Geologist, Admin Services Manager	Earthquake, Landslide, GIS, General plan references

Various portions of the 2012 plan included information that was provided by internal county departments. These sections were highlighted and given to the originating departments for review, comments, and updates by utilizing the following methodology:

- Review information provided and identify necessary corrections for updates
- Review definition for hazards to ensure accuracy
- Provide any additional incidents that occurred between 2012 to present
- For revisions or updates, provide supporting documentation with credible sources including but not limited to, studies (planning, safety, mitigation, etc.) maps, charts, tables, photos, surveys, cost-benefit analysis or technical guidance
- Facilitate discussions for each hazard prioritization and mitigation measure
- Develop a group or team from your department to review the document and changes prior to sending the information back to EMD
- Contact EMD to answer any questions or to provide additional comments
- Provide updated maps
- Return all revisions to EMD

The Transportation and Land Management Agency (TLMA) provided updated county-wide maps that had been included in the 2012 Multi-Jurisdictional Plan and the County's 2015 General Plan.

As part of the planning process, a review of the unincorporated area was conducted to assess existing and new hazards through utilization of MyPlan though Cal OES.

Emergency Management Agencies in the neighboring and surrounding counties were contacted to discuss their mitigation efforts and plans, inclusive of:

- Orange County
- San Bernardino County
- San Diego County
- La Paz County (Arizona)

Outreach was conducted with tribal communities in Riverside County. Most of the tribes have completed Tribal Hazard Mitigation Plans. The participating tribe that joined the County in the 2017 update expressed their intent to build a stronger partnership with the County.

(See Section 2.7 for all tribes located in Riverside County)

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3.8 Public Outreach

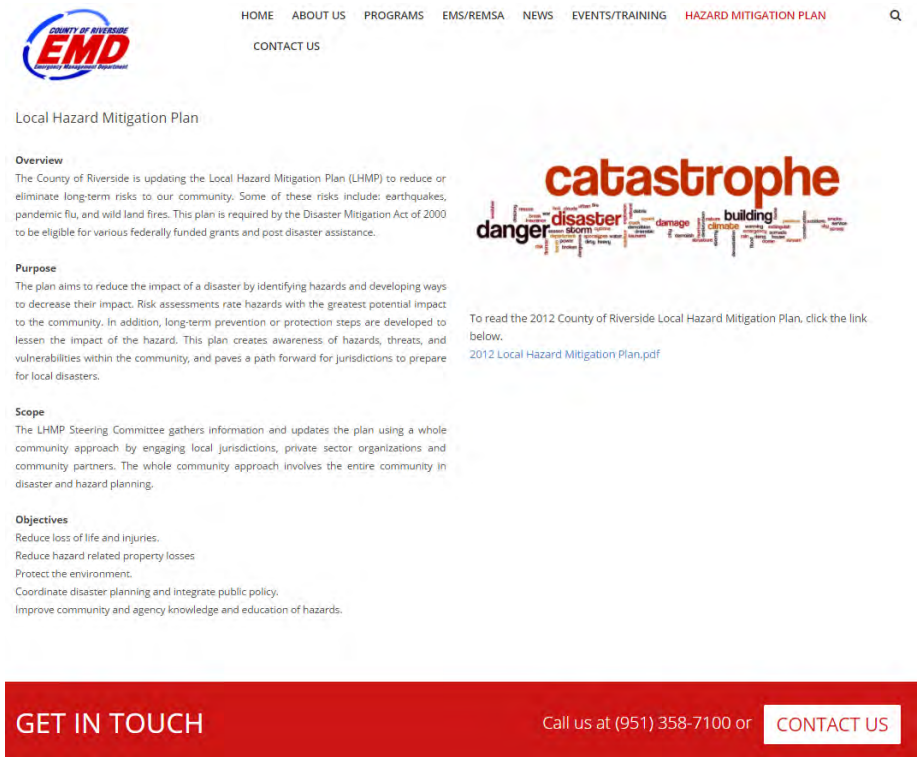
Public notice of the LHMP update was posted on the Emergency Management Department Website (RivCoEMD.org), Twitter and announced at various community meetings throughout the County. All meetings were open to the public and allowed public comment. The audience represented various vested individuals who provided input, insight, and concerns regarding the hazards affecting their specific communities. Comments made were regarding the incorporation of particular hazards that the plan already addresses.

(Please see Appendix D for all outreach and meeting information)

In an attempt to seek public comment postcards with LHMP and National Flood Insurance Program (NFIP) information was distributed thought the County. The post cards will be presented at County owned Fire stations as well as community events. Every year during National Preparedness Month the postcards will be distributed again to continue to seek comments throughout the plan cycle. English and Spanish versions were available. For 2017 National Preparedness Month locations where postcards were distributed, please see Appendix D.

Figure 17: EMD LHMP Website

LHMP URL: http://www.rivcoemd.org/LHMP



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Figure 18: Twitter Post

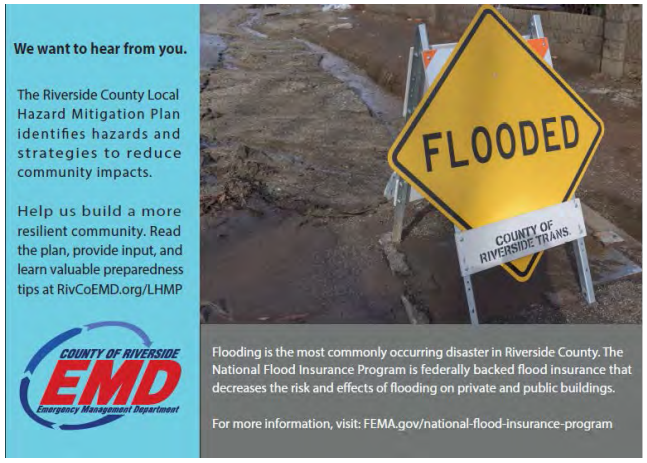
Twitter URL:
https://twitter.com/RivCoReady?ref_src=twsrc%5Etfw&ref_url=http%3A%2F%2Frivcoemd.org%2Frivcoready%2F



Figure 19 LHMP Postcard Side 1



Figure 20 LHMP Postcard Side 2



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Figure 21: LHMP Spanish Postcard Side 1



Figure 22: LHMP Spanish Postcard Side 2



3.8.1 Hazard Mitigation Meetings

Internal EMD Planning meetings were held to discuss review findings and the process was planned as explained in Section 3.1. The EMD Planning Team met regularly to discuss plan progress, participant status and any other matters as necessary.

Organizational efforts were initiated with the County and participating jurisdictions to inform and educate the plan participants of the purpose and need for updating the countywide hazard mitigation plan. An initial meeting was held with key community representatives to discuss the plan update process. The initial jurisdiction kick-off meetings were held on December 6th, 8th, 13th and 15th in 2016. In 2017 workshops were then held the first two weeks of February and June. FEMA's two day course G-318 (Mitigation Planning for Local and Tribal Communities) was hosted by EMD on April 3rd and 4th.

Table 6: Table of Presentations and Meetings

The following table documents public outreach efforts and community meetings:

Public Outreach Presentations and Updates

Date	Name of Meeting, Location	Type of Presentation	Number Attending	Hours
6/22/2016	Western Riverside Emergency Council (WREC) Meeting, Riverside	Informed Council of upcoming Plan update and encouraged participation	19	20 mins.
7/14/2016	Operational Area Planning Committee (OAPC) Meeting, Beaumont	Informed OA on upcoming Plan to update	163	15 mins
9/19/2016	Palo Verde COMM. Meeting, Blythe, CA.	LHMP discussion, Local Hazard Mitigation Plan update process, encouraged East County participation and Public Outreach	16	1
9/29/2016	Email Distribution #1	Email blast, Distributed contact verification emails for partnering jurisdictions and agencies. Provided LHMP informational guides and resources.	_	_

10/6/2016	Local Hazard Mitigation Plan Steering Committee Kick-Off for County Departments	Overview of Hazard Mitigation FEMA 2011 LHMP Review Guide Update Process County Inventory Checklist County Risk Assessment Participants, New, Returning, and Not Participating	19	2
10/11/2016	Emergency Management Project Committee	Project Overview, LHMP introduction, planning process	34	10 mins.
10/13/2016	Operational Area Planning Committee (OAPC) Meeting, Beaumont	Updated OA on progress of update, offered participants opportunity to reach out to county for technical support, offered public opportunity to ask questions and provide comment (no comments made)	64	2
10/19/2016	Steering Committee Email Distribution #1	Informed the members of the google drive that contains LHMP documentation for additional support Informed about the next steps and what about the next meeting date Provided contact information for EMD LHMP staff	_	_
12/1/2016	Email Distribution #2	Invitation to LHMP Template workshop, update on county hazard identification/ranking, and general information on where they should be in the update process	_	_
12/6/2016	Tribal Workshop, Riverside	Overview of Hazard Mitigation FEMA 2011 LHMP Review Guide County Update Process and Progress Mitigation Websites and Resources Technical Support	7	1
12/8/2016	City Workshop, Riverside	Overview of Hazard Mitigation FEMA 2011 LHMP Review Guide County Update Process and Progress Mitigation Websites and	15	2

		Resources Technical Support		
12/8/2016	Mountain Emergency Communications COMM. Meeting, Idyllwild, CA	LHMP discussion, Local Hazard Mitigation Plan update process	7	2
12/13/2016	Special District Workshop, Riverside	Overview of Hazard Mitigation FEMA 2011 LHMP Review Guide County Update Process and Progress Mitigation Websites and Resources Technical Support	8	1
12/15/2016	School District Workshop, Riverside	Overview of Hazard Mitigation FEMA 2011 LHMP Review Guide County Update Process and Progress Mitigation Websites and Resources Technical Support	7	2.5
12/15/2016	Northwest COMM. Meeting, Jurupa Valley, CA	LHMP discussion, Local Hazard Mitigation Plan update process	12	2
12/20/2016	Southwest COMM. Meeting, Murrieta, CA	LHMP discussion, Local Hazard Mitigation Plan update process	6	2
12/29/2016	Steering Committee Email Distribution #2	Sent each member questions about specific hazards that pertained to the department they work for	_	_
1/4/2017	Email Distribution #3	Informed LHMP participants of additional LHMP workshops that will be hosted to provide further assistance	_	_
1/11/2017	Local Hazard Mitigation Plan Steering Committee, Riverside	Group Discussion, Hazard Identification/Ranking Final Review, Mitigation Actions and Strategies Brainstorm	16	2

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1/12/2017	Operational Area Planning Committee (OAPC) Meeting, Beaumont	Updated OA on progress of update, offered participants opportunity to reach out to county for technical support, offered public opportunity to ask questions and provide comment (no comments made)	74	2
1/19/2016	Steering Committee Email Distribution #3	Thanked all members for participating in the previous meeting. Provided the risk scores of the hazards that were discussed at the previous meeting. Provided the most current updates for the mitigation actions from 2012 & asked for each of them to provide new actions for current county hazards. Informed about the next meeting date	_	_
2/7/2017	City Workshop, Riverside	Answered LHMP questions & concerns. Provided additional assistance if needed Reviewed LHMP drafts if needed	10	1
2/8/2017	School District Workshop, Riverside	Answered LHMP questions & concerns. Provided additional assistance if needed. Reviewed LHMP drafts if needed	2	1
2/9/2017	Special District Workshop, Riverside	Answered LHMP questions & concerns Provided additional assistance if needed Reviewed LHMP drafts if needed	4	1
2/14/2017	Email Distribution #4	Informed LHMP participants about the final 2017 LHMP County Hazard Ranking. Talked about a possible LHMP Training that EMD is deciding on hosting Informed about the Senate Bills 1000 & 379. Provided a link to help participants obtain maps for their jurisdiction if they are having trouble with Hazus	_	_

2/23/2017	Email Distribution #5	Informed LHMP participants about the cancellation of the April workshops due to the substation of having the LHMP FEMA Training. Informed about the confirmation of the FEMA G-318 Training that will be hosted April 3-4 and provided the sign-up link. Informed that the June workshops are still going to be held to provide any additional assistance on the plan	_	_
2/27/2017	Riverside County Emergency Managers Committee	Provided Cities and various County Departments information on the status of the update. Offered information on how committee participants could become involved in the planning process		2
3/1/2017	Steering Committee Reminder Email	Reminded members that the date for submitting new mitigation actions for the current top 10 county hazards was approaching	_	_
3/15/2017	Palo Verde COMM. Meeting, Blythe, CA	LHMP discussion, Local Hazard Mitigation Plan update process	18	1.5
4/5/17	Operational Area Planning Committee and Annual Disaster Council Meeting	Updated OA on progress of update, offered participants opportunity to reach out to county for technical support, offered public opportunity to ask questions and provide comment		2
4/21/2017	Steering Committee Email Distribution #4	Provided minutes from previous meeting, informed about reviewing LHMP mitigation actions and goals/objectives, sent calendar invite for next meeting	_	_
4/24/2017	Steering Committee Email	Sent selected committee members to provide input on LHMP hazard profiles depending on the hazard that corresponds to the department they represent	_	_

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6/5/2017	Tribal Workshop, Riverside	Answered LHMP questions & concerns. Provided additional assistance if needed Reviewed LHMP drafts if needed	4	1
6/6/2017	City Workshop, Riverside	Answered LHMP questions & concerns. Provided additional assistance if needed Reviewed LHMP drafts if needed	8	1
6/7/2017	School District Workshop, Riverside	Answered LHMP questions & concerns. Provided additional assistance if needed Reviewed LHMP drafts if needed	6	1
6/8/2017	Special District Workshop, Riverside	Answered LHMP questions & concerns, Provided additional assistance if needed Reviewed LHMP drafts if needed	6	1
7/13/2017	Operational Area Planning Committee (OAPC) Meeting, Beaumont	Updated OA on progress of update, offered participants opportunity to reach out to county for technical support, offered public opportunity to ask questions and provide comment (no comments made)		2
8/17/2017	Local Hazard Mitigation Plan Steering Committee, Riverside	Review completed sections for finalization	10	1
9/2/2017	Indio Preparedness Month Booth, Home Depot, at 42100 Jackson Street from 9 a.m. - 12 p.m.	Personal preparedness and mitigation information		3
9/5/2017	Twitter Post	LHMP and NFIP information		
9/9/2017	Riverside Preparedness Month Booth, Galleria at Tyler, 1299 Galleria at Tyler from 11 a.m. - 3 p.m.	Personal preparedness and mitigation information		4
9/9/2017	Farm Barn, Wildomar Preparedness and Mitigation Presentation	Personal preparedness and mitigation information		1
9/12/2017	County Preparedness Month Booth, County of Riverside Administration Center, 4080 Lemon Street, from 10:30 a.m. - 1:30 p.m.	Personal preparedness and mitigation information		5

9/16/2017	Lake Elsinore Preparedness Month Booth, 710 W. Graham Ave., Lake Elsinore, CA	Personal preparedness and mitigation information		4
9/16/2017	Perris Preparedness Month Booth, Walmart, 1800 N. Perris Blvd from 8 a.m. - 12 p.m.	Personal preparedness and mitigation information		4
9/23/2017	Jurupa Valley Preparedness Month Booth, K-Mart, 7840 Limonite Avenue from 8 a.m. - 12 p.m.	Personal preparedness and mitigation information		4
9/30/2017	Hemet Preparedness Month Booth, Hemet Valley Mall, 2200 W. Florida Ave. from 8 a.m. - 12 p.m.	Personal preparedness and mitigation information		4

Table 7: Participant Meetings

The following table documents participant facilitated meetings:

LHMP Meetings Attended

Date	Location	Type of Meeting	Number Attending	Hours
8/24/2016	City Emergency Operations Center, Riverside	One to One Assistance LHMP Process Familiarity and HAZUS/GIS information	3	1
11/10/2016	Hemet Fire Administration Building, Hemet	Plan review, update process and clarification assistance	3	2.5
11/15/2016	Riverside EMD	Plan review, update process and clarification assistance	2	1
12/13/2016	Conference call to Mather	CA SHMPT Quarterly Meeting	N/A	4.5
12/14/2016	Hemet	Plan review, update process and clarification assistance	3	2
12/15/2016	Moreno Valley	Plan review, update process and clarification assistance	6	1
2/7/2017	Riverside EMD	Plan review, update process and clarification assistance	2	1
3/14/2017	Perris	Participation with Eastern Municipal Water Districts Planning Committee	10	2.5
3/15/2017	Riverside EMD	Plan review, update process and clarification assistance	3	5

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3/28/2017	Riverside EMD	Plan review, update process and clarification assistance	3	2
3/29/2017	Beaumont Police Department	Plan review, update process and clarification assistance	4	2
4/11/2017	Mather	CA SHMPT Quarterly Meeting	N/A	4.5
4/11/2017	Murrieta Fire Administration	Plan review, update process and clarification assistance	4	1.15
4/13/2017	Cathedral City Fire Station	Plan review, update process and clarification assistance	2	2
4/20/2017	Banning City Hall	Plan review, update process and clarification assistance	3	1.5
4/20/2017	Desert Sands USD	Plan review, update process and clarification assistance	4	2
4/25/2017	Calimesa City Hall	Plan review, update process and clarification assistance		
4/25/2017	Temecula City Hall	Plan review, update process and clarification assistance	4	1.15
4/26/2017	Perris	Participation with Eastern Municipal Water Districts Planning Committee	6	2
4/27/2017	San Jacinto City Hall	Meeting with City Manager and staff to discuss joining the County LHMP	5	
5/1/2017	Moreno Valley USD	Plan review, update process and clarification assistance	3	1.5
5/1/2017	Lake Elsinore USD	Plan review, update process and clarification assistance	2	1.15
5/2/2017	Banning - High Valley Water District	Plan review, update process and clarification assistance	3	2
5/3/2017	Indian Wells & Palm Desert	Plan review, update process and clarification assistance	2	7
5/9/2017	La Quinta City Hall	Plan review, update process and clarification assistance	2	1.5
5/17/2017	Beaumont Police Department	Plan review, update process and clarification assistance	5	1.5
5/18/2017	Desert Hot Springs	Plan review, update process and clarification assistance	3	3
5/24/2017	Riverside EOC	Participation in Riversides LHMP planning meeting	6	1
5/25/2017	Wildomar City Hall	Plan review, update process and clarification assistance	3	2
5/25/2017	San Jacinto City Hall	Plan review, update process and clarification assistance	2	2.5
5/31/2017	Murrieta Fire Administration	Plan review, update process and clarification assistance	3	3
6/19/2017	Riverside EMD	LHMP and HMGP assistance for La Quinta	2	1

For complete meeting lists, sign-in sheets, and agendas please see Appendix D.

The public outreach meetings for the LHMP process were conducted in multiple venues. The meetings outlined a brief history of previous hazards, mitigation actions, and the benefits of a multi-jurisdictional hazard mitigation plan in Riverside County.

As part of the public outreach and the regional outreach and planning, the audience was asked at different times during the presentations if there are any hazards they were concerned about, not addressed or problem that has occurred in their living or working areas in the county.

The documented concerns are the following:

- High Winds
- Wildfire
- Earthquake
- Flooding
- Communication Failures
- Lack of trained volunteers
- Information on Jurisdictional Hazards

All of these concerns are being addressed in the hazard profiles located in Section 5, as well as current and future mitigation actions.

For a complete list of actions please see Appendix C

3.9 Existing Plans and Studies

Coordination with other community planning efforts is also paramount to the success of this plan. Hazard mitigation planning involves identifying existing policies, tools and actions that will reduce a community's risk and vulnerability to hazards. Riverside County uses a variety of comprehensive planning mechanisms, such as general plans and ordinances, to guide growth and development. Integrating existing planning efforts and mitigation policies and action strategies into this plan establishes a credible and comprehensive plan that ties into and supports other community programs. The development of this plan incorporated information from the following existing plans,

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ordinances, studies, reports and initiatives as well as other relevant data from neighboring communities and other jurisdictions.

- General Plan
- Zoning Ordinances
- Subdivision Ordinances
- Water Conservation
- Wildfire Ordinance
- California Building Codes
- Riverside County Flood Control Master Drainage Plan
- Safety Element General Plan
- Community Wildfire Protection Plan(s)
- Riverside County Flood Insurance Studies
- Riverside County General Plan and Background Report
- Riverside County Multi-Hazard Mitigation Plan, 2012
- Riverside Operational Area Emergency Operations Plan
- State of California Multi-Hazard Mitigation Plan

Section 4.0 – Updates and Mitigation Actions

4.1 Updates to 2012 Plan

In the 2012 plan cycle, Riverside County identified Pandemic Influenza as a hazard because populations worldwide are at risk for infection and illness. In the past influenza has spread worldwide within months and is expected to spread even more quickly today with air travel. In the 2012 plan Pandemic was ranked fairly low in the list of County hazards. In the 2017 plan Pandemic ranked in our top 3 hazards with earthquakes and wildfires.

The LHMP Steering Committee felt Communication Failure should be added to the 2017 plan because it has the potential to affect response capabilities in both small and large events. In 2016 a 911 failure impacted the EMS system. This had the potential to lead to loss of life in the Coachella Valley. During disasters, communication failures can have a detrimental effect on the operation of the County Emergency Operation Center (EOC) ultimately hindering the OA's agencies ability to return to normal operations.

Dependence on computer systems has opened up vulnerabilities. Sensitive security information stored along with personal information is now stored on networks. For those reasons, computer networks have become a target for hackers and organizations with the intent to do harm. In 2016 the County of Riverside was a target for Ransom Ware.

The maps that are in the 2017 plan are current maps from County Transportation GIS Division and Cal OES's MyPlan Program.

Some revisions to the 2012 plan mitigation actions included:

- Revised Risk Assessment, concerning updated hazard information
- Changed jurisdictional and Special Districts participants.
- Incorporation of existing plans, ordinances and studies.

New Goals and Mitigation Strategies were added that reflect our top ten (10) hazards and risks for Riverside County.

1. Earthquake
2. Pandemic Flu
3. Wildland Fire
4. Electrical Failure
5. Emergent Disease/Contamination
6. Cyber Attack
7. Terrorist Event
8. Communications Failure

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9. Flood
10. Civil Disorder

4.2 Hazard Updates

The hazards identified in the 2012 LHMP remain fairly similar in 2017, however the 2017 LHMP Steering Committee added Communication Failure and Cyber Attack as additional hazards. The overall ranking of the hazards has changed as well.

Table 8: Hazard Identification Table

Hazard	Reason Hazard Identified
Earthquake	• History of events • Presence of fault lines and geologic activity
Pandemic Flu	• Due to air travel and urban expansion there is increasing probability of health related emergencies
Wildland Fire	• History of events • Presence of a large amount of timber and brush
Electrical Failure	• History of events
Emergent Disease/Contamination	• History of events
Cyber Attack	• History of events and danger to sensitive security information for Health Care Facilities
Terrorist Event	• Heightened sense of awareness since September 2001 • History of event in December 2015
Communications Failure	• History of events • Impact level of events
Flood	• History of events and the presence of a large number of rivers and channels
Civil Disorder	• Vulnerability due to number of public venues
Drought	• History of events • Potential to drastically increase wildfire hazard

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Nuclear/Radiological Incident	• Vulnerability due to transportation routes and relative proximity of San Onofre Nuclear Generating Station (SONGS)
Extreme Weather	• History of events
Transportation Failure	• History of events and the presence of a large number of transportation corridors and airport flight paths
Dam Failure	• Vulnerability of dams
Aqueduct	• Presence of aqueducts serving multiple counties
Tornado	• History of events
Insect Infestation	• History of events
Jail/Prison Event	• Vulnerability of State and County correctional facilities
Pipeline Disruption	• History of events • Multiple pipelines within the OA
Landslide	• History of events
HazMat Incident	• History of events • Many transportation corridors and Hazardous Materials Facilities
Water Supply Disruption/Contamination	• History of events • Potential disruption to the OA

4.3 Mitigation Actions and Updates

4.3.1 2012 Plan Updated Mitigation Actions

2012 mitigation strategies and projects are summarized in the following table to show progress made:

Table 9: Mitigation Actions and Updates

Mitigation Actions Table

Type of Hazard	Mitigation Actions	Departments/ Jurisdictions	Status Update
ALL	Incorporate Updated Local Hazard Mitigation Plan into Riverside County General Plan	Transportation, Land Management Agency and Riverside Office of Emergency Services	Recently updated and approved on December 2015 by Board of Supervisors. Adopted 2015, which includes a new reference to implement the Local Hazard Mitigation Plan within the Safety Element.
DROUGHT	Construct reservoirs and water tanks to increase water storage	Water Conservation, Agriculture and County Fire	On-going, no update has been made
EARTHQUAKE	CREWS Earthquake Mitigation Project	County-wide	Ongoing process of recruiting non-participating cities in the Coachella Valley area into the early earthquake warning program.
FIRE	Purchase Masticator to remove vegetation and brush in heavily populated areas prone to fires.	Riverside County Fire	No change. Project still on hold due to lack of funding. Potential future purchase

FIRE	Shake Shingle Roof Replacement Project	Idyllwild	In 2013 Mountain Communities Fire Safe Council was awarded a FEMA grant to replace hazardous shake/wood shingle roofs in the San Jacinto WUI (Wildland Urban Interface) One hundred homes were reroofed with Class A roofing material. The grant was completed in October 2016.
FIRE	Single Tree Removal – removed dying and dead trees.	Idyllwild	Ongoing: dead and dying trees are continuously monitored and removed as needed.
FIRE	Hazard Abatement- Fuel treatment program to remove 1120 acres of natural fuel	Mountain Communities Fire Safe Council Program - Idyllwild	Reducing fuels on private property in the San Jacinto WUI is an on-going activity of Mountain Fire Safe Council. To date, more than 1,600 acres have been treated with the financial help of grant funds awarded to MCFSC
FLOOD	Norco Storm Drain This project is an underground storm drain which will address flooding along Pedley Avenue/Sixth Street.	Riverside County Flood Control	Project completed on 04/05/2011.
FLOOD	Santa Ana River, Norco Bluffs [Corps Project] –Stabilization Project is a Corps of Engineers project that consists of a soil cement structure constructed to the 100-year flood level at the base of the bluff.	Riverside County Flood, Transportation Land Management Agency and Riverside County Fire	The bluff stabilization work was completed in 2004. The District is continuing to work with the Corps on wrapping up the project, including completion of a Project Operation and Maintenance Manual. Once the Corps approves the O&M Manual, the project can be transferred to the District for ownership, operation and maintenance.
FLOOD	Temescal Creek-Foster Road Storm Drain (2-8-00493-01) - This project is an underground storm drain in Foster Road extending from Interstate 15 to Temescal Creek.	Riverside-Corona Resource Conservation District Riverside County Flood Control	Project completed on 09/01/2015
FLOOD	Dillon Road – State Hwy 62 Road Project to clear debris. Road has 25 dips that cause flooding during storms.	Transportation, Land, Management Agency Riverside County Fire	Ongoing; The current action plan is to barricade the low dip sections when they are flooded and remove the storm debris when the water recedes.

FLOOD	Underground storm drain which will extend approximately 1,300 feet south on Pedley Avenue from Norco MDP Line NA on Sixth Street. This project will address localized flooding along Pedley Avenue.	Flood Control and City of Norco	Finished Spring 2011
FLOOD	Restore 100 yr level flood protection to the three million residents within the floodplain downstream from Prado Dam. The Corps proposes to increase both the storage capacity of Prado Dam and its outlet discharge capacity. The embankment will be raised 30 feet, while the spillway sill will be raised 20 feet and the gated discharge capacity will be tripled.	Flood Control	**Part 1** of this project involving Riverside County Flood Control and TLMA was completed **Part 2** of this project involving only Riverside County Flood Control is still pending approval
FLOOD	Ultimate channel improvements for the existing interim channel from 6th Street to the terminus near Rose Court.	City of Norco	Project has not started with no estimation on start date. The District is currently working on 60% design plans and anticipates 90% design plans will be completed in 2017. FEMA processing will be necessary to revise the currently mapped floodplain once the construction is completed.
FLOOD	Improvements to the existing channel between Parkridge Avenue and River Road. The channel is planned as a concrete lined open channel	City of Norco and Riverside County Transportation Land Management Agency	Project began Circa 7/2013 and was finished Circa 2/2014. Lead Agency was RCFC & WCD
FLOOD	Underground storm drain extending from the existing Stage 1 near Pedley Avenue, east on 7th Street to California Avenue then south on California approximately 800 feet to a sump.	Transportation, Land, & Management Agency and Flood Control	Project completed on 04/05/2011
FLOOD	Collection of "mitigation" charges from builders in Mockingbird Canyon with the intention of providing relief to flood prone properties in the lower canyon	Mockingbird Canyon	In process of collecting funds. Charging investors $500 per lot. Talks about whether to keep this project or abandon it. Considered a “mini” ADP (Area Drainage Project)
FLOOD	Storm Drain Last portion will be constructed as part of the same	City of Corona	Project completed on 04/24/2012, Project revised on 04/25/2012.

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	contract as the Ontario Avenue Storm Drain project		
FLOOD	A 1,050-foot drain to de-water a sump in Frank Avenue in the south Mira Loma area	Riverside County Flood Control and City of Eastvale	Project completed on 01/31/2012
FLOOD	The original project consisted of a 54 acre-foot debris basin at the southerly end of Smith Road and a concrete rectangular channel extending northerly to Cajalco Road. Mitigation required for the basin project includes removal of non-native vegetation, debris and remnants of abandoned structures as well as re-grading and establishment of native vegetation.	Riverside County Flood Control	Project completed on 01/10/2006
FLOOD	Underground storm drain in the City of Corona extending from East Grand Boulevard north in Joy Street to Temescal Creek Channel. Design began on this project in 2003 at which time it was discovered during a field check of the preliminary drawings that a recently installed Edison conduit in Joy Street overlapped the only viable alignment for the storm drain. The street is so heavily laden with utilities here is no longer room to install a drain.	City of Corona	Design Phase Schedule for advertisement in March 2017
FLOOD	Underground storm drain in Ontario Avenue extending upstream from the District's existing El Cerrito Channel at El Cerrito Road about 3,000 feet to State Street just west of Interstate 15.	Riverside County Flood Control and Transportation Land & Management Agency	Project revised on 04/25/2012
FLOOD	Underground storm drain in Foster Road extending from Interstate 15 to Temescal Creek	Temescal Creek-Foster Road Storm Drain	Construction began in January 2015 and was completed in September 2015.

FLOOD	Multi-year plan to construct a levee system (approximately 1,200 feet river bottom width) between the existing Corps of Engineers' levee 9,500 feet upstream of State Street, and a point about 8,200 feet downstream of Sanderson Avenue, a distance of about 5 miles. Floodwalls are required to be constructed over the Metropolitan Water District facilities just east of State Street.	San Jacinto and Transportation and Land Management	Funding was received in November 2015 - the levee was included in a suite of projects that received Proposition 84 grant funding from the California Department of Water Resources. The Prop 84 contribution is anticipated to be about $3.5 million.
FLOOD	Project to build MDP extending from South W. Esplanade to east Midway Street to South San Jacinto Street to collect flows from the larger Park Hill basin watershed	City of San Jacinto	Construction for the project began on April 25, 2014 and was completed on July 2, 2015.
FLOOD	Construction of an underground storm drain that extends from a proposed detention basin at the intersection of Potter Road and De Anza Drive then southwest in De Anza to Young Street. The City of San Jacinto is administering the project.	City of San Jacinto and Transportation and Land Management	Project still pending
FLOOD	Underground storm drain from an outlet north of Holland Road southerly in Hawthorne Avenue to a collection system south of Craig Avenue	City of Menifee and Transportation and Land Management	Project Completed 3/01/2011
FLOOD	Project is an underground storm drain that extends from near Yale Street east on Stetson Avenue approximately 1 mile to Dartmouth Street	City of Hemet	Project completed on 09/04/2007
FLOOD	Project is an underground storm drain on Whittier Boulevard extending from the existing storm drain at Palm Avenue east to San Jacinto Street	Riverside County Flood Control and City of Hemet	Project completed on 08/23/2016
FLOOD	Underground storm drain extending from an existing storm drain in Meridian Street near Berkeley venue south in Meridian Street to Whittier Avenue.	Riverside County Flood Control and City of Hemet	Stage 1 completed on 06/21/2016. Stage 2 still pending approval.

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FLOOD	Project is for major flood control project to extend from the San Jacinto River near Goetz Road east approximately 6 miles to Juniper Flats Road and incorporates both lined and unlined open channel, underground storm drains and two major detention basins.	City of Menifee and Transportation, Land and Management Agency	Project built in 4 stages. Some stages have been completed, but others still not finished.
FLOOD	Open channel along Nuevo Road from Dunlap Drive to Perris Valley Channel	City of Perris, Riverside County Transportation and Flood Control	Under new contract: Starting Jan. 2017 and will range about 2.5 yrs. for this entire project to be completed; first part will take about 180 days to complete, but time frame will be extended.
FLOOD	East Ironwood Avenue to Petit Street. Part of the work the City of Moreno Valley is doing in association with improvements to the Moreno Beach Drive & 60 freeway interchange.	City of Moreno Valley and Transportation and Land Management	Storm Drain Line K-1 – City completed design in 2014. Currently seeing construction funding of approximately $2.5m.
FLOOD	Project is an open channel extending from Nason Basin northeasterly approximately 2,500 feet to Ironwood Avenue	City of Moreno Valley and Transportation and Land Management Agency	Storm Drain Line K from Ironwood to the Nason Basin – RCFC&WCD secured an easement in 2014 to receive flows from Line K-1 noted above. Action completed in 2014.
FLOOD **EARTHQUAKE**	Norco Streambank Stabilization. Project consists of a soil cement toe protection structure constructed to the 100-year flood level at the base of the bluff, and a stable earthen buttress fill constructed to the top of the bluff from I-15 Bridge to Center Avenue	Riverside County Flood Control and Transportation Land & Management Agency	Project Completed
FLOOD **EARTHQUAKE**	Stabilization of Interstate 15 near Alhambra Street, as a part of the Prado Dam enlargement feature of the Santa Ana River Mainstream Project at no cost to the District. The project involves the construction of a toe-protection-only structure from Hamner Avenue downstream to approximately 5th Street	Transportation Land Management Agency	Project still pending

LANDSLIDE EARTHQUAKE FLOOD	Proposed improvements include installation of slope protection along the Green River Mobile Home Park, as well as the exposed slopes adjacent to the Green River Homeowners Association and Highway 91 just downstream of Highway 71.	Transportation and Land Management Agency	**Phase 2A**-The District has completed its acquisition of the necessary easements and fee interests from Riverside County, private lands, and Caltrans. Construction of Phase 2A was completed in Fiscal Year 2015/2016. **Phase 2B-Construction** of this segment was completed in Fiscal Year 2014/2015.

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4.3.2 2017 New Mitigation Actions

The 2017 LHMP Steering Committee identified the following Mitigation Actions since the completion of the 2012 plan update. These mitigation actions were prioritized based on the top ten high priority county hazards. This was determined using the county risk assessment that is shown on section 5.2 page 195 "**Figure 23:** 2017 County Hazard Ranking and Risk Scores." The actions below list ways that "all hazards" can be mitigated following the county's top ten hazards starting from the highest. The financial impact of each action does not affect the ranking.

Table 10: 2017 New Mitigation Actions Table

2017 Mitigation Actions Table

Type of Hazard	Mitigation Actions	Departments/ Jurisdictions	Status Update/Timeframe	Potential Funding Source
All Hazards	CERT Training and retention	Riverside County Emergency Management Department	July 2018 – Ongoing On-going for the life of the current plan (yrs. 2018-2023). There will be one training in each of the county districts per year to ensure community members throughout the county get the opportunity to refresh and reinforce their CERT skills. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Homeland Security Program (SHSP)
All Hazards	Continue to utilize the Safety Element of the Riverside County General Plan and the Riverside County FD Master Plan as base documents to implement goals, objectives, and mitigation actions	All Riverside County Departments	On-going for the life of the current plan (yrs. 2018-2023). The Safety Element in the General Plan is continuously updated as new information and changes arise. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Earthquake	Working with CalOES & FEMA to revise the Southern California Catastrophic	All Cities in Riverside County	On-going for the life of the current plan (yrs. 2018-2023). Riverside County will continue to collaborate with Cal OES/ FEMA to improve and update	County General Fund

	Earthquake Response Plan		this plan as needed. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	
Earthquake	Reviewed Office of Statewide Health Planning and Development (OSHPD), Structural Performance Categories and Nonstructural Performance Categories (SPC/NPC) Ratings of Acute Care Hospital Buildings and reported the findings at EM Healthcare Coalition	Riverside County Emergency Management Department & Riverside County Hospitals	On-going for the life of the current plan (yrs. 2018-2023).These reports will continuously be reviewed to make sure they are up to date and consistent with any changes. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	Hospital Preparedness Program (HPP) Grant
Earthquake	Worked with local City Emergency Manager (EM) to address '08 Golden Guardian Riverside County Shake Out Scenario/Assumptions	Riverside County Emergency Management Department	On-going for the life of the current plan (yrs. 2018-2023). County will continuously work with City EM to update and inform of changes or thoughts to improve the annual Shake Out Scenario and help the community increase their preparedness skills. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Earthquake	Mitigate potential seismic hazards through adoption and strict enforcement of current building codes	Riverside County Transportation, Land, Management Agency	On-going for the life of the current plan (yrs. 2018-2023). The codes will be revised and updated to be consistent with emergency measures that can help prevent earthquake impacts in county buildings. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund

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Pandemic Flu	Provide training on immunization techniques	Riverside University Health System-Public Health	On-going for the life of the current plan (yrs. 2018-2023). Continue training to teach any new techniques, strategies, and to ensure all staff are proficient. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	Public Health Emergency Preparedness Grant (PHEP)
Pandemic Flu	Participated and conducted a Non-Medical Intervention Tabletop Exercise	Riverside County Emergency Management Department & Riverside University Health System-Public Health	Completed on 09/28/2015	Pan Flu Grant PHEP Grant
Pandemic Flu	Participated and conducted a Flu vaccination exercise	Riverside County Emergency Management Department & Riverside University Health System-Public Health	Completed on 11/10/2016	Pan Flu Grant PHEP Grant
Pandemic Flu	Generate a draft Crisis Care Plan	Riverside County Emergency Management Department & Riverside University Health System-Public Health	Completed 08/30/2016	Pan Flu Grant PHEP Grant HPP Grant
Pandemic Flu	Training Medical Reserve Corp (MRC) in hospital surge exercises	Riverside County Emergency Management Department	Started in 2011 and is on-going for the life of the current plan (yrs. 2018-2023). Continue training to keep updating and informing volunteers to increase their skills. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	HPP Grant State Homeland Security Program (SHSP)
Pandemic Flu	Training Medical Reserve Corp. (MRC) volunteers in Alternate Care Site	Riverside County Emergency Management Department	Completed in 2014	HPP Grant State Homeland Security Program (SHSP)Pan Flu Grant

Wildland Fire	Create wildfire protection zones that reduce the risks to citizens and firefighters from fire dangers	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continuously update and develop protection zones that can help decrease wildfire risks in the community. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Strengthen defensible space inspections in fire prone areas	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continue inspections in locations that are susceptible to fires. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State and County General Funds & Structural Fire Taxes
Wildland Fire	Continue maintenance of existing fire roads throughout the county to provide fire department access	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continue keeping the roads well paved and easy to have fire trucks be able to drive on. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Fuel reduction projects throughout the county to reduce fire potential	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continuously improve and develop projects to lower the impact of fires in the county. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Develop and enforce construction and design standards that ensure the development incorporates fire prevention features	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continuously enforce and update measures to prevent fire hazards. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	Developer Fees
Wildland Fire	Conduct and implement long range fire safe planning through code adoption/policies	Riverside County Fire Department & CAL Fire & Riverside County Transportation,	On-going for the life of the current plan (yrs. 2018-2023). Continuously implement code policies to integrate them into the Safety Element as they are developed/updated and	County General Fund and Fire Marshal Fees

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	consistent with the Safety Element of the General Plan	Land, Management Agency (Planning Division)	approved. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	
Wildland Fire	Ben Clark Training Center to provide wildland fire protection related classes to fire personnel	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continuously make sure that this center is available to provide wildland fire protection classes to fire staff to improve their skills on fire mitigation and preparedness. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund, private colleges fees, and State Mission Grant funding
Wildland Fire	Continue wildland fire suppression/prepare dness to maintain a state of readiness throughout the year	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide skills training to the community to be prepared for disasters. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Rapid intervention, identification and mitigation of Goldspot Oak Bore Beetle (GSOB) trees at various infestation levels on State Responsibility Area (SRA) lands throughout the county. Herbicide or tree removal if necessary	CAL Fire Unit Forester	On-going for the life of the current plan (yrs. 2018-2023).Continuously monitor infestation levels of GSOB trees to continue removing infested trees if necessary. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Rapid intervention, identification and mitigation of Pine Bark Beetle infestation, epidemic during times of drought. Removal of trees that are symptomatic or the	CAL Fire Unit Forester	On-Going for the life of the current plan (yrs. 2018-2023).Continuously monitor infestation levels of Pine Bark Beetle to continue removing infested trees or to continue using pesticides if necessary. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding

	use of pesticide when applicable			
Wildland Fire	Continue Truck Trail and road maintenance to provide access for fire suppression vehicles and personnel.	CAL Fire Unit Forester	On-Going for the life of the current plan (yrs. 2018-2023). Continuously preserve and improve Truck Trail and roads, if needed, for rapid available access to fire suppression vehicles. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Continue Fire Road maintenance of culverts and road prisms in open space areas on SRA land to allow for adequate drainage.	CAL Fire Unit Forester	On-Going for the life of the current plan (yrs. 2018-2023). Continuously preserve and improve culverts and road prisms, if needed, for sufficient drainage. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Electrical Failure	Coordinated with Southern California Edison to be included in their power outage notifications	Riverside County Emergency Management Department	On-going for the life of the current plan (yrs. 2018-2023). EMD joined SoCal Edison's recipient list as of Dec. 2016 to continuously be informed of any emergency notifications to help prevent electrical failure impacts. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Emergent Disease/ Contamination	Drafted a Region VI Highly Contagious Disease Transportation Plan	Riverside County Emergency Management Department	Completed on 12/08/2016	HPP Grant Ebola Grant
Emergent Disease/ Contamination	Facilitated a Region VI Highly Contagious Disease Transportation Tabletop Exercise	Riverside County Emergency Management Department	Completed on 09/29/2016 The situation manual for this was completed on 11/14/2016	HPP Grant Ebola Grant

Emergent Disease/ Contamination	Drafted a Riverside County Viral Hemorrhagic Fever Preparedness and Response Plan (VHF Plan)	Riverside County Emergency Management Department & Riverside University Health System-Public Health	Completed on 11/2016	HPP Grant Ebola Grant
Cyber Attack	**Enterprise Intrusion Prevention System (IPS)** Protects the county network from Internet-based threats and attacks (~140,000 attacks/day on average)	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continue to update and maintain the IPS network to protect the county from any form of cyber-attacks or threats. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Cyber Attack	**Enterprise Breach Detection System** Inspects all internal/lateral county network traffic for indicators of compromise (IOCs) enabling the ISO to rapidly detect, respond to, contain, and prevent cyber-attacks, malware outbreaks, network reconnaissance, data exfiltration, and C2 (command & control) and botnet activities	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continuously inspect the county network to detect forms of threats or attacks. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Cyber Attack	**Albert Sensor** Monitors and reports to the Center for Internet Security (CIS) Multi-State Information Sharing and Analysis Center (MS-ISAC) all Domain Name	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continuously maintain the Albert Sensor in order keep having the association with the Department of Homeland Security's database on alerting network threats for the county. This action will be reassessed during the monitoring and	County General Fund

	System (DNS) and NetFlow traffic for correlation with the Department of Homeland Security's threat intelligence database for real-time alerting of malicious network connections to blacklisted IP address on the Internet		update phase of the County's 2017 LHMP.	
Cyber Attack	**Countywide Security Awareness Training** SANS Securing The Human information security and privacy training modules deployed on county learning management system (LMS) Educates our workforce on how to be extra vigilant and things to look out for to avoid falling victim to a targeted attack	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide training to the county's workforce on signs of cyber-attacks and prevent them from being a victim of these attacks. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Cyber Attack	**Enterprise Security Information Event Management (SIEM)** Serves as the county's centralized security event log management repository and correlation engine	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continue to maintain the SIEM to monitor and prevent security threats. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund

Cyber Attack	**Enterprise Internet Proxy (Web Filter)** Prevents county employees and malware from accessing compromised/malicious websites and C2 (command & control) servers, in addition to non-county authorized websites based on category/content filtration policies/rules	Riverside County Technology Information	May 2017 – December 2018 Product (Blue Coat Proxy Advance Secure Gateway (ASG)) has been procured and is in the process of being deployed.	County General Fund
Cyber Attack	**Governance, Risk, & Compliance (GRC) Software Suite** Platform on which our security operations (active network monitoring, breach detection, incident response, business impact analysis, threat containment/eradication, alerting/reporting, process workflow automation, security audits, risk assessments/register, regulatory compliance checks) will be carried out	Riverside County Technology Information	Implementation estimated to begin in June 2017 – July 2018. Product (RSA Archer GRC) has been procured and is in the process of being deployed.	County General Fund
Cyber Attack	**Security Operations Center (SOC)** Planning phase completed, construction estimated to begin in September 2017	Riverside County Information Technology	September 2017 – September 2018. The County's Cyber Security Operations Center (SOC) is under construction.	County General Fund

Cyber Attack	**Information Security Forum (ISF)** Convene on a quarterly basis with department information security officers/liaisons to discuss key security topics, risk trends, and other related matters, including: Formation of a Critical Security Incident Response Team (CSIRT) Conducting security incident/breach simulations and tabletop exercises	Riverside County Information Technology	October 2018 – ongoing This forum will be on-going for the life of the current plan (yrs. 2018-2023). Will continue to conduct constant security incident/breach simulations and tabletop exercises that can help prevent cyber-attacks in the future. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP. The ISO is in the process of identifying members to serve on the Critical Security Incident Response Team (CSIRT). Estimated timeline for formation and initial kickoff meeting is October 2018.	County General Fund
Terrorist Event	SWAT team trained to respond to terrorism events	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide training to reflect personnel attrition and train on new tactics. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Terrorist Event	Hazard Device Team trained to respond to terrorism events	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide training to reflect personnel attrition and train on new tactics and trends. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Terrorist Event	Sheriff Emergency Response Team trained to respond to terrorism events	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide training to reflect personnel attrition and train on new trends. This action will be reassessed during the	County General Fund

			monitoring and update phase of the County's 2017 LHMP.	
Terrorist Event	Sheriff personnel are assigned to the Joint Terrorism Task Force	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Continuously integrate new sheriff personnel to improve this group's structure and capabilities. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Terrorist Event	Ben Clark Training Center provides terrorism related classes for Law Enforcement and First Responders.	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Classes are funded each year through the State Homeland Security Program (SHSP) to continuously educate and train personnel on new skills and improve their abilities. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Terrorist Event	Tactical response training	Riverside County Sheriff & Riverside County Fire Department	On-going for the life of the current plan (yrs. 2018-2023). Continuously train and improve on tactical response. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Communications Failure	**County of Riverside Network (CORNET)** Redundant Internet connections Backbone links are configured with a mesh topology to provide full redundancy	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continuously configure links to prevent the termination of internet connections. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Communications Failure	**Enterprise Voice Network (VoIP)** Centralized SIP trunking for	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide accessibility to phone carrier	County General Fund

	ingress/egress PSTN access via 8 geographically separated locations Carrier failover protection for inbound voice traffic Enterprise call processing for VoIP Endpoints are logically and physically separated into 3 datacenters ensuring a High-Availability solution Remote site routers configured for SRST; in times of WAN outages, local IP Phones will re-register to local equipment, providing inter-site calling and access to the PSAP via carrier provided analog circuits		connection and call processing. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	
Communications Failure	**Enterprise Best Practices** Internal escalation contact list for all essential personal readily available 24x7 On-Call staffing availability for both Voice and Data Networks Vendor support available at 24x7x4 for all critical	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continue to update contact list when staff support is needed in case of emergencies. Continue to train staff on technologies that arise and equip facilities with power backup supplies. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund

	Network and Voice equipment Regular professional staff training on emerging technologies Frequent equipment configuration backups to SAN Critical Enterprise level equipment is located at facilities with full battery and generator backup power			
Communications Failure	**Enterprise Emergency Notification System** InformaCast Advanced on-premise notification solution for immediate reach to the County's 20,000+ VoIP endpoints InformaCast Mobile cloud-based notification solution to extend the County's reach off-network to mobile devices such as cellular phones and tablets	Riverside County Technology Information	On-Premise solution has been rolled out to all County VoIP endpoints. Mobile Solution has been rolled out to EMD. Mobile solution is ready to be rolled out to other departments as requested. On-going for the life of the current plan (yrs. 2018-2023). Continue to have a notification system to be able to have the ability to connect with off-network devices in case of a communications failure, including Wi-Fi. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund Department Funds; departments who wish to take advantage of this service will be billed back to the departments based on how many users

Communications Failure	**Network Connectivity** Use of Cellular based redundant WAN links for critical county locations. Introduction of MPLS technologies to provide alternate network paths for County locations	Riverside County Technology Information	Several locations have purchased a Cellular based redundant WAN link . Solution can be purchased by other departments. Installation can take up to 6 weeks to install, based on equipment availability. On-going for the life of the current plan (yrs. 2018-2023). Continue to provide alternate network paths for County locations in the case of a communication failure. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund Department Funds; billable by the cellular carrier to requesting departments
Flood	**University Wash Channel, Stage 3 Project No. 221-1-8-00120-03-12** This project will increase public safety and improve local economics by retrofitting an older, built-out commercial/industrial area with drainage infrastructure to alleviate repeated flood damage to existing businesses. The project will also address street and intersection flooding	Riverside County Flood Control and Water Conservation District	Notice To Proceed 2/21/17 Completed 11/14/17	Riverside County Flood Control funds Cost: $3,044,500
Flood	**Monroe MDP – Monroe Channel Project No. 1-8-00071 Stage 4** At request of the City of Riverside, replacement of	Riverside County Flood Control and Water Conservation District	Expected to be advertise in 4th Quarter 2016 Notice to Proceed 8/30/17 Completed 5/01/18	Riverside County Flood Control funds Cost:$2,489,067

	City's existing open channel with underground reinforced concrete box with 10-year storm capacity. Project limits are from California Avenue upstream to Magnolia Avenue			
Flood	**Jurupa – Pyrite MDP Line A-2 Project No. 1-8-00234 Stage 1** Master planned lateral stormdrain to Jurupa Channel. Project is east-west drain crossing Agate Street about 1,000 feet south of Jurupa Road. Outlet point at Jurupa Channel is unimproved and likely to remain so	Riverside County Flood Control and Water Conservation District	30% Plans & R/W Acquisition as of 1/10/17 Projected Start: 9/2018 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $338,332
Flood	**University MDP Line 3 Project No. 1-8-09020 Stage 1** The MDP proposes Line 3 as approximately 2,900 feet of 30" RCP east in Blaine Street then northeast to Blaine Street Retention Basin. The Blaine Street Retention Basin is located 600 feet north of Blaine Street between Valencia Hill Drive and Mt. Vernon Avenue.	Riverside County Flood Control and Water Conservation District	Pending approval Projected Start: 12/2020 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $2,926,028

	Budgeted for scoping study and evaluation of FEMA map floodplain limits only			
Flood	**Santa Ana River Stabilization Project No. 1-8-00010 Stg. 90** The USACE is expected to initiate restoration of the federally constructed reach of the Santa Ana River Levee system downstream of San Bernardino County line to Tequesquite. Exact form of project not set. Work will likely include repair of groins and toe protection	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $10,685,000
Flood	**Box Springs Dam – Outlet Modification Project No. 1-8-00041** Reconstruct outlet structure to prevent blockage from sediment accumulation	Riverside County Flood Control and Water Conservation District	Pending until Woodcrest Dam is complete 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $981,842
Flood	**Sycamore Dam – Outlet Structure Modifications Project No. 1-8-00042** This project will upgrade the level of safety and serviceability. Initial project components	Riverside County Flood Control and Water Conservation District	Pending until Woodcrest Dam is complete 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $1,854,991

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	include the repair/reinforcement of the existing outlet channel; construction of a new debris rack structure; erosion controls on the embankment of the dam; construction of a safer access road into the facility; design for a safer routing of flood waters from the emergency spillway to Central Avenue; and the installation of a control section to measure outflow from the outlet pipe of the dam. Completion of this project is planned to follow the Woodcrest Dam Outlet Modification project.			
Flood	**Alessandro Dam Outlet Modification Project No. 1-8-00043** Reconstruct outlet structure to prevent blockage from sediment accumulation	Riverside County Flood Control and Water Conservation District	Pending until Woodcrest Dam is complete 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $907,682
Flood	**Prenda Dam Outlet Modification Project No. 1-8-00044**	Riverside County Flood Control and Water Conservation District	Pending until Woodcrest Dam is complete 5 year CIP (Capital Improvement Plan)	Riverside County Flood Control funds Cost: $1,238,312

	Reconstruct outlet structure to prevent blockage from sediment accumulation		Projected start and end: during the life of the plan (2018-2023)	
Flood	**Woodcrest Dam Outlet Modification Project No. 1-8-00045** This project will upgrade the level of safety and serviceability. The approved Project Charter identifies the primary scope of work for the project as follows: design and construction of a new inlet structure to reduce potential for clogging of the outlet works; rehabilitation of the existing outlet gate assembly and control stem; implementation of an automated gate control system; rehabilitation of the outlet pipe; restoration of the outlet channel; and installation of surficial erosion controls on the surface of the dam embankment. Once completed, this project will serve as an example for performing similar upgrades to the remaining	Riverside County Flood Control and Water Conservation District	Development of design plans and specifications on hold until latest Geotechnical investigation is complete Projected Start: March 2019 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $2,216,529

	Riverside Reservoirs			
Flood	**North Norco Channel Stage 10 Project No. 222-2-8-00140-10-12** The project is located just upstream of River Road within the city of Norco in Riverside County, California. This project consists of approximately 550 lineal feet of triple cell reinforced concrete box and 125 lineal feet of open concrete channel transition, will replace the existing interim dirt channel. The project remedies ongoing flooding problems in the area thus resulting in positive impacts to residents and businesses	Riverside County Flood Control and Water Conservation District	Completed 9/9/14	Riverside County Flood Control funds
Flood	**Corona MDP Line 5 Stage 1 Project No. 2-8-00280** This project includes the construction of an underground storm drain beginning in Sherman Avenue south of Railroad Street and	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $1,397,201

	extending down Railroad Street westerly to Smith Street. The City is willing to undertake the design and construction of this project using District funding.			
Flood	**Corona MDP Line 52 Stage 1 Project No. 2-8-00350** An underground storm drain extending north from Third Street along E. Grand Boulevard then under the 91 Freeway to Temescal Creek Channel	City Of Corona	Notice to Proceed 7/29/17 Expected Completion: Summer 2018	Riverside County Flood Control funds City of Corona Funds Cost: $4,522,000
Flood	**Coldwater Canyon Structural Improvements Project 2-8-00505** Proposed conceptual improvements include 1) reducing flood risk and nuisance to traveling public on Temescal Canyon Road at the intersection of Glen Ivy Road; and 2) an armored berm along the east bank of Coldwater Wash downstream of the intersection of Temescal Canyon Road and Glen Ivy Road. The armored berm would	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $6,005,806

	prevent the migration of the active Coldwater Wash Channel, thereby protecting the west side of the Mountain Cove Development. Conceptual improvements are pending friendly acquisition of the underlying parcels needed for the project			
Flood	**Coldwater Canyon Floodplain Acquisition Project No. 2-8-00505** Funded portion of project includes a hydrologic and geomorphologic assessment of Coldwater Canyon Wash from Glen Ivy Road to Temescal Wash. Study will evaluate the stability of Coldwater Canyon Wash and recommend potential minimalist interventions, if necessary, to protect Squaw Mountain Bridge and prevent erosion of Painted Hills development canyon slopes along Coldwater Canyon Wash. Balance of funds	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: included in the $6,005,806 amount for Coldwater Canyon Structural Improvement project listed above

	would support potential interventions recommended by the report including floodplain buyout			
Flood	**Southeast Compton Wash At Corona Sanitary landfill Project No. 2-8-09054** Riverside County Waste Management District has requested assistance solving ongoing flooding and erosion problems along the southeast side of the landfill	Riverside County Waste Management District**	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $500,000
Flood	**Lake Mathews Estates Water Quality Pond Project No. 2-8-09058** Proposed in the "Drainage Water Quality Management Plan for the Lake Matthews Watershed", this roughly 10-acre project is to be located on the south side of Cajalco Road about ¾-mile west of Wood Road. The project will capture first flush runoff from Cajalco Creek and carry it to an off-channel pond to	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $2,794,983

	be treated and/or infiltrated			
Flood	**Temescal Wash Floodplain Project No. 2-8-00052** Acquisition of floodplain area for flood protection, water conservation and habitat mitigation banking	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $23,534,000
Flood	**Arroyo Del Toro Channel Stage 1 Project No. 223-3-8-00170-01-12** This project collects flows that pass under Interstate 15, flow through the cemetery and flood the intersection of Riverside Drive and Collier Avenue. The flows will now be collected in a channel and conveyed via an underground storm drain system to the Collier Marsh area	Riverside County Flood Control and Water Conservation District	Completed 6/16/15	Riverside County Flood Control funds

Flood	**Ortega Channel Retrofit Project No. 3-8-00070** Project will replace a portion of the clog-prone storm drain with a more easily accessible and maintainable open channel	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $1,628,761
Flood	**LITTLE LAKE MDP LINE B, STG 1 STETSON AVENUE CHANNEL, STG 7 aka HEMET MDP LINE D Project Nos. 224-4-8-00265-01-12 224-4-8-00211-07-12** The District constructed a segment of the District's Little Lake MOP Line B. This infrastructure will diminish neighborhood flooding and damage to private property and businesses and improve the safety of the traveling public during storm events. This new drain will also permanently reduce flood-related street maintenance and repair costs for the City of Hemet. Little Lake MDP Line B Stage 1 is located primarily within the City of	Riverside County Flood Control and Water Conservation District	Stage 1 Completed 06/21/16 Stage 2 Pending approval Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $6,398,777

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	Hemet, with small portions extending into the City of San Jacinto and unincorporated Riverside County beginning approximate 300 feet north of Berkley Ave and terminating approximately 200 feet south of Florida			
Flood	**Homeland MDP Line 2, Stage 2 Project No. 224-4-8-00337-02-12** The District constructed a segment of drainage infrastructure described in the District's Romoland Master Drainage Plan as Romoland MOP Line A, Stages 4, 5 and 6, Romoland MOP Lines A-2 and A-3, Stage 1, and Briggs Basin. In conjunction with the District's Homeland MDP Line 1, Stage 1, completion of this drainage infrastructure will reduce the floodplain by approximately 1, 762 acres and enable revisions to the FEMA Flood Insurance Rate Maps that result in	Riverside County Flood Control and Water Conservation District	Completed 6/5/12	Riverside County Flood Control funds

	a significant reduction in flood insurance premiums. The District's Homeland MDP Line 1, Stage 1 project is currently ongoing with an anticipated completion in February 2017			
Flood	**Sunnymead MDP Line P-6 Stage 2 Project No. 224-4-8-00716-02-12** The District constructed a segment of drainage infrastructure described in the District's Sunnymead Master Drainage Plan which remedies ongoing flooding problems in the area thus resulting in positive impacts toresidents and businesses.	Riverside County Flood Control and Water Conservation District	Completed 3/25/2014	Riverside County Flood Control funds
Flood	**San Jacinto MDP Line C, Stage 2, Lines C-4, C-5 & B Project No. 224-4-8-00124-02-12** The District constructed a segment of drainage infrastructure described in the District's San Jacinto Master Drainage Plan, which remedies the	Riverside County Flood Control and Water Conservation District	Completed 6/30/15	Riverside County Flood Control funds

	ongoing flooding problems at the intersections of San Jacinto Avenue and Menlo Avenue, San Jacinto Avenue and Midway Street, and Santa Fe Street and Midway Street. Consequently, the removal of ponding water at these intersections during storm events improves traffic and pedestrian safety and public access to the businesses along San Jacinto and Menlo Avenues. The District partnered with the City of San Jacinto to further improve normal residential traffic safety by replacing and reconstructing Midway Street between San Jacinto Avenue and Santa Fe Street			
Flood	**West End Moreno MDP Line LL Project No. 224-4-8-00783-01-12** The District constructed a segment of drainage infrastructure described in the District's West End Moreno MDP which remedies ongoing flooding problems in the	Riverside County Flood Control and Water Conservation District	Completed 5/12/15	Riverside County Flood Control funds

	area, thus resulting in positive impacts to residents and businesses			
Flood	**Romoland MDP Line A, STGS 4,5,6, Homeland MDP Line 1 Briggs Basin, Romoland MDP Lines A-2 and A-3 Project No. 224-4-8-00310-04-12** The District constructed a segment of drainage infrastructure described in the District's Romoland Master Drainage Plan as Romoland MOP Line A, Stages 4, 5 and 6, Romoland MOP Lines A-2 and A-3, Stage 1, and Briggs Basin. In conjunction with the District's Homeland MDP Line 1, Stage 1, completion of this drainage infrastructure will reduce the floodplain by approximately 1, 762 acres and enable revisions to the FEMA Flood Insurance Rate Maps that result in a significant reduction in flood insurance premiums. The District's	Riverside County Flood Control and Water Conservation District	Completed 8/23/16	Riverside County Flood Control funds

	Homeland MDP Line 1, Stage 1 project is currently ongoing with an anticipated completion in February 2017			
Flood	**Little Lake MDP Line B Stage 2 Project No. 4-8-00265** An underground storm drain from just south of Florida Avenue, southerly in Meridian Street to Whittier Avenue.	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $6,804,257
Flood	**San Jacinto River Stage 3 Project No. 4-8-00020** "Stage 3" covers the nearly 10-mile river reach beginning at the entrance to Railroad Canyon and ending upstream at the Ramona Expressway crossing near the Bernasconi Hills. This environmentally and fiscally challenged project has been through several evolutions and has been essentially dormant for nearly a decade. Funding shown is for intensive planning/engineering study of options for managing future development. Goal	Riverside County Flood Control and Water Conservation District	Pending approval Projected Start: 11/2019 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds ADP (Area Drainage Plan) Funds Cost: $70,000,000

	is to develop a viable project for the San Jacinto River from Ramona Expressway to Railroad Canyon considering flood management, transportation, environmental and other opportunities and constraints			
Flood	**Gilman Home Channel Lateral A Stage 3 Gilman Home Channel Stage 90 Project No. 225-5-8-00171-03-12** The District constructed a segment of drainage infrastructure described in the District's Banning Master Drainage Plan which remedies ongoing flooding problems in the area, thus resulting in positive impacts to residents and businesses. Moreover, this project will enable revision of the FEMA Flood Insurance Rate Maps in the impacted area resulting in a significant reduction in flood insurance premiums. Many owners with federally insured	Riverside County Flood Control and Water Conservation District	Completed 9/22/15	Riverside County Flood Control funds

	home loans will realize savings of several thousands of dollars per year			
Flood	**Beaumont MDP Line 16 Stage 1 Project No. 5-8-00201** Project would build MDP Line 16 in Grand Avenue from Beaumont Cherry Valley Water District (BCVWD) infiltration ponds easterly to Bellflower Avenue as an element of a cooperative project with the BCVWD to provide both flood control and storm water capture to recharge groundwater	Riverside County Flood Control and Water Conservation District	Pending approval Projected Start: 12/2020 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $5,353,074
Flood	**Eagle Canyon Dam Stage 1 Project No. 6-8-00190** The District constructed a segment of drainage infrastructure described in the District's Palm Springs Master Drainage Plan. Construction of this project also includes remediation of potentially hazardous and nonhazardous illegally dumped materials and	Riverside County Flood Control and Water Conservation District	Completed 11/17/15	Riverside County Flood Control funds

	remedies ongoing flooding problems in the area, thus resulting in positive impacts to residents and businesses. Additionally, Palm Springs MDP Line 43 and Lateral 43A, the underground dam outlet, is currently under construction and completion is anticipated for February 2016. Completion of the underground infrastructure will enable revisions to the FEMA Flood Insurance Rate Maps in the impacted area immediately downstream of Eagle Canyon and will result in a significant reduction in flood insurance premiums			
Flood	**Palm Springs MDP Line 43 and Lateral 43A Project No. 226-6-8-00163-01-12** The District constructed a segment of drainage infrastructure described in the District's Palm Springs Master Drainage Plan as Palm Springs MOP Line 43 and Lateral	Riverside County Flood Control and Water Conservation District	Completed 3/15/16	Riverside County Flood Control funds

	43A. Construction of this project serves as the underground outlet to the District's Eagle Canyon Dam facility that was completed on September 21, 2015 with the Notice of Completion accepted by the Board as Agenda Item Number 11-1 on November 17, 2015. Completion of both District facilities will enable revisions to the FEMA Flood Insurance Rate Maps in the impacted area immediately downstream of Eagle Canyon Dam and will result in a significant reduction in flood insurance premiums			
Flood	**Murrieta Creek Channel (Phase II & III) Project No. 7-8-00021** Murrieta Creek Flood Control Project from Old Town Temecula to Elm Street in Murrieta	Riverside County Flood Control and Water Conservation District/United States Army Corps of Engineers*	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $82,000,000

Flood	**Whitewater River Levee Restoration Project No. 6-8-00250** Restoration work to increase freeboard and bring levee adjacent to Cimarron Golf Resort into compliance with FEMA certification guidelines	Riverside County Flood Control and Water Conservation District	Pending – Full scope of restoration work not yet established but funding figure shown is based on preliminary engineer's estimate 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost:1,260,000
Flood	**Palm Canyon Wash – Cherley Creek Levee Restoration Stage 90 Project No. 6-8-00040** Major construction to bring levee serving small tributary upstream of South Palm Canyon Wash into compliance with FEMA certification guidelines. Project will be combination of RSP and soil-cement lined channel and levee	Riverside County Flood Control and Water Conservation District	Expected Advertise Date: 2nd Quarter 2018 Projected Start: 08/2019 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $6,187,021
Flood	**Banning MDP Line D-2 Stage 1 Project No. 5-8-00169** This project is over one mile of underground storm drain that connects to the existing Ramsey Street Storm Drain at the intersection of Hargrave Street and Ramsey Street. It includes Line D-2, Stage 1 which will continue northerly along Hargrave Street for approximately 5,250 feet before terminating at Indian School Lane. Line D-2A, Stage 1 will tie into Line D-2 at the intersection of Hargrave Street and Theodore Street. Line D-2A will continue westerly along Theodore Street for approximately 600 feet before terminating at Florida Street.	RCFC/City of Banning	Notice to Proceed: 5/15/17 Completed: 2/27/18	Riverside County Flood Control funds

Civil Disorder	Trained and equipped Mobile Field Force Teams throughout the county	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide training to reflect personnel attrition; Less-lethal equipment acquired. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund

Note: Please refer to individual annexes for a full listing of jurisdictional Mitigation Actions

Figure 24: Riverside County FY Capital Assets

Capital asset activity for the year ended June 30, 2016 was as follows (in thousands):

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Notes to the Basic Financial Statements (Continued)
June 30, 2016

NOTE 8 – CAPITAL ASSETS

Capital asset activity for the year ended June 30, 2016 was as follows (In thousands):

	Balance July 1, 2015	Additions	Retirements	Transfers	Balance June 30, 2016
Governmental activities:					
Capital assets, not being depreciated:					
Land & easements	$ 529,885	$ 7,889	$ (188)	$ -	$ 537,586
Construction in progress	757,220	295,880	(221)	(343,280)	709,599
Total capital assets, not being depreciated	1,287,105	303,769	(409)	(343,280)	1,247,185
Capital assets, being depreciated:					
Infrastructure					
Flood channels	266,840	-	-	1,656	268,496
Flood storm drains	423,741	1,094	-	27,064	451,899
Flood dams and basins	33,968	-	-	10,559	44,527
Roads	1,886,995	29,398	-	217,937	2,134,330
Traffic signals	38,113	197	-	4,496	42,806
Bridges	202,814	2,285	-	5,191	210,290
Runways	24,179	-	-	-	24,179
Sewer systems	-	-	-	2,924	2,924
Communication towers	16,146	-	-	-	16,146
Parks trails and improvements	15,562	-	-	1,578	17,140
Land improvements	110	-	-	-	110
Structures and improvements	1,592,498	22,642	(1,089)	67,735	1,681,786
Equipment	524,781	54,434	(26,963)	4,116	556,368
Total capital assets, being depreciated	5,025,747	110,050	(28,052)	343,256	5,451,001
Less accumulated depreciation for:					
Infrastructure	(1,221,481)	(121,966)	-	-	(1,343,447)
Land improvements	(25)	(1)	-	-	(26)
Structures and improvements	(424,466)	(39,587)	882	300	(462,871)
Equipment	(311,223)	(37,550)	25,725	(276)	(323,324)
Total accumulated depreciation	(1,957,195)	(199,104)	26,607	24	(2,129,668)
Total capital assets, being depreciated, net	3,068,552	(89,054)	(1,445)	343,280	3,321,333
Governmental activities capital assets, net	$ 4,355,657	$ 214,715	$ (1,854)	$ -	$ 4,568,518

Source: (Riverside County Comprehensive Annual Financial Report 2016)

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4.4 Critical Facilities and Infrastructures

Critical facilities are facilities that pose unacceptable risks to public safety if severely damaged or non-operational. In Riverside County, critical facilities include schools, hospitals, fire stations, police stations, emergency operation centers, communication centers, dams, and industrial sites that use or store explosives, toxic materials. It is essential that critical facilities have no structural weaknesses that can lead to collapse.

Critical facilities may provide only limited services if lifelines are disrupted. Seismic hazard mitigation for lifeline structures is complex given the diversity of lifeline facilities. Earthquake ground motion could affect a variety of lifeline structures such as the control tower in an airport or the buildings that house computers and telephone circuits that are central to communications networks. Strong ground motion can also result in damage to freeway interchanges and bridges that are essential for successful transportation of goods and services. Buried pipelines are generally not damaged by strong ground motions, but can be severely disrupted in areas of surface rupture, liquefaction, or landslides.

Figure 25: Riverside County Capital Assets

COUNTY OF RIVERSIDE
Capital Asset Statistics by Function
Last Ten Fiscal Years
June 30, 2016

	Fiscal Year Ending June 30				
Function/Program	**2016**	**2015**	**2014**	**2013**	**2012**
County Libraries					
Branch libraries	35	35	35	35	33
Book mobiles	2	2	2	2	2
Books in collection	1,168,364	1,382,932	1,393,689	1,657,925	1,570,834
Museum	1	-	-	-	-
Riverside University Health Systems - Medical Center					
Major clinics	4	4	4	4	4
Routine and specialty clinics	44	44	44	37	
Beds licensed	439	439	439	439	439
Fire					
Stations	37	37	37	38	42
Trucks	158	158	145	142	145
Parks and Recreation					
Regional parks	11	14	11	11	11
Historic sites	5	5	5	5	5
Nature centers	4	4	4	4	4
Archaeological sites	6	5	6	6	6
Wildlife reserves	9	7	9	9	9
RV and mobile home parks	2	2	3	3	3
Managed areas	5	5	5	5	5
Recreational facilities	3	1	3	2	2
Community centers	1	1	-	-	-
Sheriff					
Patrol stations	10	10	10	10	10
Patrol vehicles	930	932	928	916	915
Waste Resources					
Landfills	6	6	6	6	6
Capacity in tons	62,191,202	54,232,021	54,230,474	54,230,474	54,189,339

Source: (Riverside County Comprehensive Annual Financial Report, 2016)

*Note: this data reflects the asset statistics for the unincorporated portions of Riverside County. Please refer to individual annexes for participating jurisdiction data.

4.4.1 Mitigation Goals and Strategies Relating to Critical Facilities

From approximately 2011 to 2013 the Riverside County General Plan is/was undergoing an update. It was approved and adopted in 2015. The Riverside County Multi-Jurisdictional Local Hazard Mitigation Plan was included in the Safety Element of the 2015 General Plan. Upon completion of the LHMP plan update and FEMA approval, EMD will coordinate an update with the Riverside County Transportation and Land Management Agency to the Safety Element of the General Plan in accordance with Senate Bill 1000.

The General Plan identified the following policies relating to critical facilities.

S 7.7 Strengthen the project permit and review process to ensure that proper actions are taken to reduce hazard impacts and to encourage structural and nonstructural design and construction. Damage must be minimized for critical facilities, and susceptibility to structural collapse must be minimized, if not eliminated

A. Ensure that special development standards, designs, and construction practices reduce risk to tolerable levels for projects involving critical facilities, large-scale residential development, and major commercial or industrial development through conditional use permits and the subdivision review process. If appropriate, impact fees should be assessed to finance required actions.

B. Require mitigation measures to reduce potential damage caused by ground failure for sites determined to have potential for liquefaction. Such measures shall apply to critical facilities, utilities, and large commercial and industrial projects as a condition of project approval.

C. Require that planned lifeline utilities, as a condition of project approval, be designed, located, structurally upgraded, fit with safety shutoff valves, be designed for easy maintenance, and have redundant back up lines where unstable slopes, earth cracks, active faults, or areas of liquefaction cannot be avoided.

D. Review proposed uses of fault setback areas closely to ensure that county infrastructure (roads, utilities, and drains) are not unduly placed at risk by the developer. Insurance, bonding, or compensation plans should be used to compensate the County of Riverside for the potential costs of repair.

S 7.8 Promote strengthening of planned and existing utilities and lifelines, the retrofit and rehabilitation of existing weak structures, and the relocation of certain critical facilities. S 7.9 Find alternatives that improve site safety for the protection of critical facilities. Property acquisition for open space, change in building use or occupancy, or other appropriate measures can be employed to reduce risks posed by hazards. (AI 101)

S 7.10 Discourage development of critical facilities that are proposed in dam failure inundation areas, and apply hazardous materials safety guidelines within such zones

S 7.11 Coordinate with the Public Utilities Commission (PUC) and/or utilize the Capital Improvement Program, to strengthen, relocate, or take other appropriate measures to safeguard high-voltage lines, water, sewer, natural gas and petroleum pipelines, and trunk electrical and telephone conduits that (AI 4):

- Extend through areas of high liquefaction potential.
- Cross active faults.
- Traverse earth cracks or landslides.

S 7.12 Require extra design considerations for lifelines across subsidence areas

Source: (All from Safety Element S-7: Critical Facilities and Lifelines)

Note: The Mitigation Goals and Strategies related to each hazard are found in Section 5 of the 2017 LHMP.

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4.4.2 Loss Factors

The loss estimates provided in this LHMP are based on data currently available and result in an approximation of risk used to understand relative risk from various hazards and potential losses. There are uncertainties inherent in any loss estimation methodology, in part from incomplete knowledge concerning the different hazards, as well as approximations and simplifications used in the analysis. You can see from the map below that the region of Riverside County has the highest number of declared disasters since 1950.

Figure 26: 2013 California State Hazard Mitigation Plan, Primary Sources of Disaster Losses



Table 4.F from the 2013 SHMP Chapter 4, identifies disaster incidents, casualties, and Cal OES costs by type. Cal OES has revised the database during the preparation of the 2013 State Hazard Mitigation Plan (SHMP).

Table 11: Disaster Incidents, Casualties, and Cost by Type

Table 4.F: Disaster Incidents, Casualties, and Cost by Type, 1950 - 2012

Disaster Type	Emergencies Through 2012	State Emergency Proclamations Though 2012	Federal Disaster Declarations Though 2012	Deaths Through 2012*	Injuries Through 2012*	Cal OES-Administered Costs Though 2012*
Fire	178	75	122	129	2,139	$2,735,466,734
Flood	129	116	47	294	759	$4,548,964,020
Earthquake	23	21	13	193	18,962	$8,110,772,990
Agricultural	18	17	0	0	0	$389,895,974
Freeze	9	8	4	0	0	$1,017,890,620
Landslide	9	8	1	24	0	$126,172,037
Economic	6	6	1	0	0	$32,823,425
Civil Unrest	6	6	1	85	3,331	$167,722,732
Drought	8	8	0	0	0	$2,686,858,480
Hazardous Material	5	3	0	0	0	0
Wind	3	3	0	0	0	$82,100
Air Disaster	2	2	0	232	2	0
Facility	2	2	0	0	0	$654,897
Road Damage	3	3	0	0	0	$462,986
Tsunami	3	3	2	13	1	$49,617,379
Invasive Species	1	1	0	0	0	0
Storms	6	6	1	0	0	$69,392,668
Tornado	1	1	0	0	0	0
Other	5	5	0	0	0	$10,660,320
Total	***417***	***294***	***192***	***970***	***25,194***	***$19,947,437,362***

Source: Cal OES database

Table 4.F from the SHMP, which shows the pattern of statewide emergencies, disasters and associated losses by hazard types since 1950, when coupled with seismic knowledge, suggests the following findings:

- Earthquakes occur less frequently than the other primary hazards causing disasters but account for the greatest combined losses (deaths, injuries, and damage costs).

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- Wildfires are the most frequent source of declared disasters and account for the third highest combined losses.
- Floods are the second most frequent disaster source and account for the second highest combined losses.
- Earthquake costs exceeded wildfire costs by four times, using limited measures identified in these tables.
- Although floods have resulted in a greater number of total deaths during this period, earthquakes have accounted for the highest number of combined deaths and injuries.
- Earthquakes represent by far the greatest long term catastrophic disaster threat.

From this analysis it is clear that these three hazards – earthquakes, fires, and floods – are the predominant disasters in California since 1950. For this reason these hazards are being addressed in the 2017 Mitigation Strategies and are among the top ten hazards for the County.

For Riverside County, fires occur more often, but there have been more declarations for Flooding. The Earthquake hazard for Riverside County is compounded by the three major faults that traverse the county: San Andreas, Elsinore and San Jacinto Faults.

Earthquake hazard mitigation is particularly relevant to SHMP Goal 1 (Significantly reduce life loss and injuries) and SHMP Goal 2 (Minimize damage to structures and property), set forth in Chapter 2 of the SHMP. In light of both the social and economic disruption caused by moderate-sized earthquakes, together with the significant potential for catastrophic earthquakes greater in magnitude than those experienced since 1950, heightened attention is needed for mitigation strategies relating to this particular hazard. Earthquake mitigation actions often involve expensive projects that will be considered as funding becomes available.

The 2013 State Hazard Mitigation Plan (SHMP) is the data source contained in Figure 26 “2013 California State Hazard Mitigation Plan, Primary Sources of Disaster Losses” and Table 14 “Disaster Incidents, Casualties, and Cost by Type.” Once the 2018 SHMP is completed and approved, Figure 26 and Table 14 will be updated to include the most recent maps and new information.

4.4.3 2015 General Plan Policies on High Risk Facilities

Many essential public facilities and hazardous materials sites are located within the 100-year flood zones of Riverside County making them a high risk facility. These facilities include: 14 of Riverside County's 39 airports; 4 of 18 hospitals; 47 of 109 police stations, fire stations and emergency operation centers; 92 of 380 schools; 446 of 1,306 highway bridges; and 695 of 1,978 hazardous materials sites.

In attempts to mitigate future damages from hazards Riverside County has adopted the following policies related to high risk facilities:

S 4.12 Require certain existing essential, dependent care, and high-risk facilities that are not in conformance with provisions of the County zoning to upgrade or modify building use to a level of safety consistent with the inundation risk.

S 4.13 Require that facilities storing substantial quantities of hazardous materials within inundation zones shall be adequately flood-proofed and hazardous materials containers shall be anchored and secured to prevent flotation and contamination.

S 4.14 Require that dependent care facilities have all flood-vulnerable electrical circuitry flood-proofed.

S 4.15 Require that high-risk facilities maintain and rehearse inundation response plans.

S 4.16 Utilize power of public land acquisition and other land use measures to create open space zoning of inundation zones in areas that are destined for redevelopment; when this is not feasible, low density land uses should be employed.

S 4.17 Continue to assess and upgrade inundation risk and protection in the County.

S 4.18 Require that the design and upgrade of street storm drains be based on the depth of inundation, relative risk to public health and safety, the potential for hindrance of emergency access and regress from excessive flood depth, and the threat of contamination of the storm drain system with sewage effluent. In general, the 10-year flood flows shall be contained within the top of curbs and the 100-year flood flows within the street right-of-way.

S 4.19 Encourage periodic reevaluation of the 500-year, 100-year and 10-year flood hazard in the county by state, federal, county, and other sources, and use such

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studies to improve existing protection, to review protection standards proposed for new development and redevelopment, and to update emergency response plans.

S 4.20 Balance flood control mitigation with open space and environmental protection.

S 4.21 Encourage the use of specific plans to allow increased densities in certain areas of a proposed development; or apply Transfer of Development Credits to encourage the placement of appropriate land uses in natural hazard areas, including open space, passive recreational uses, or other development capable of tolerating these hazards.

S 4.22 Take an active role in acquiring property in high-risk flood zones and designating the land as open space for public use or wildlife habitat.

Source: (All from Safety Element S-4: High Risk Facilities)

4.5 Estimated Property Loss

Table 12: Riverside County Property Values by City

RIVERSIDE COUNTY ASSESSOR
ASSESSED VALUE FOR CITIES
2016/2017

CITY	TOTAL 2016/2017 LOCAL ROLL	LESS NON-REIMBURSED EXEMPTIONS	NET TANGIBLE VALUE	LESS HOMEOWNER'S EXEMPTIONS	2016/2017 NET TAXABLE VALUE	2015/2016 NET TAXABLE VALUE	ASSESSED VALUE CHANGE	PERCENTAGE CHANGE
BANNING	2,045,247,539	45,871,853	1,999,375,686	37,881,836	1,961,493,850	1,882,818,554	78,675,296	4.18%
BEAUMONT	4,033,833,512	72,476,220	3,961,357,292	45,964,609	3,915,392,683	3,643,317,362	272,075,321	7.47%
BLYTHE	761,613,603	63,004,403	698,609,200	10,157,238	688,451,962	650,422,651	38,029,311	5.85%
CALIMESA	777,715,662	23,367,990	754,347,672	11,668,290	742,679,382	688,503,238	54,176,144	7.87%
CANYON LAKE	1,652,995,284	7,904,074	1,645,091,210	15,499,400	1,629,591,810	1,576,999,192	52,592,618	3.33%
CATHEDRAL CITY	4,283,435,909	138,609,909	4,144,826,000	45,685,725	4,099,140,275	3,895,539,688	203,600,587	5.23%
COACHELLA	1,830,946,311	145,800,821	1,685,145,490	20,232,061	1,664,913,429	1,568,941,117	95,972,312	6.12%
CORONA	19,089,817,282	295,245,447	18,794,571,835	137,765,442	18,656,806,393	17,908,062,535	748,743,858	4.18%
DESERT HOT SPRINGS	1,551,338,227	50,664,372	1,500,673,855	18,806,180	1,481,867,675	1,387,764,103	94,103,572	6.78%
EASTVALE	8,480,220,118	24,367,500	8,455,852,618	52,006,677	8,403,845,941	7,985,398,302	418,447,639	5.24%
HEMET	5,462,283,087	160,726,514	5,301,556,573	83,700,458	5,217,856,115	4,910,865,826	306,990,289	6.25%
INDIAN WELLS	5,405,900,297	44,360,931	5,361,539,366	8,750,000	5,352,789,366	5,199,720,372	153,068,994	2.94%
INDIO	7,833,242,426	166,041,389	7,667,201,037	67,986,440	7,599,214,597	7,227,358,677	371,855,920	5.15%
JURUPA VALLEY	8,549,381,868	73,158,280	8,476,223,588	71,144,081	8,405,079,507	7,759,097,935	645,981,572	8.33%
LA QUINTA	12,656,728,074	153,105,942	12,503,622,132	49,049,000	12,454,573,132	11,928,886,312	525,686,820	4.41%
LAKE ELSINORE	5,307,465,580	51,072,923	5,256,392,657	44,361,317	5,212,031,340	4,804,948,961	407,082,379	8.47%
MENIFEE	8,298,729,553	144,682,408	8,154,047,145	104,886,464	8,049,160,681	7,546,039,225	503,121,456	6.67%
MORENO VALLEY	14,312,770,759	265,286,262	14,047,484,497	137,670,247	13,909,814,250	13,082,108,737	827,705,513	6.33%
MURRIETA	12,399,753,873	427,027,712	11,972,726,161	106,791,901	11,865,934,260	11,517,794,187	348,140,073	3.02%
NORCO	3,070,099,530	56,750,389	3,013,349,141	28,081,200	2,985,267,941	2,869,322,737	115,945,204	4.04%
PALM DESERT	14,272,341,711	177,182,717	14,095,158,994	67,417,332	14,027,741,662	13,676,360,170	351,381,492	2.57%
PALM SPRINGS	11,645,678,225	248,294,657	11,397,383,568	60,181,033	11,337,202,535	10,611,925,311	725,277,224	6.83%
PERRIS	5,260,169,698	62,427,955	5,197,741,743	42,537,361	5,155,204,382	4,701,427,764	453,776,618	9.65%
RANCHO MIRAGE	8,800,691,414	547,774,373	8,252,917,041	29,367,800	8,223,549,241	7,902,324,250	321,224,991	4.06%
RIVERSIDE	28,238,701,299	1,258,881,996	26,979,819,303	240,204,427	26,739,614,876	25,457,203,551	1,282,411,325	5.04%
SAN JACINTO	2,686,709,160	53,470,350	2,633,238,810	37,396,030	2,595,842,780	2,450,518,477	145,324,303	5.93%
TEMECULA	14,978,634,970	211,399,196	14,767,235,774	107,238,640	14,659,997,134	13,956,583,981	703,413,153	5.04%
WILDOMAR	3,076,506,781	78,932,764	2,997,574,017	34,419,940	2,963,154,077	2,792,309,928	170,844,149	6.12%
CITY TOTALS	216,762,951,752	5,047,889,347	211,715,062,405	1,716,851,129	209,998,211,276	199,582,563,143	10,415,648,133	5.22%

Table 13: Unincorporated Riverside County Property Values

RIVERSIDE COUNTY ASSESSOR
ASSESSED VALUE FOR UNINCORPORATED AREAS
2016/2017

AREA	TOTAL 2016/2017 LOCAL ROLL	LESS NON-REIMBURSED EXEMPTIONS	NET TANGIBLE VALUE	LESS HOMEOWNER'S EXEMPTIONS	2016/2017 NET TAXABLE VALUE	2015/2016 NET TAXABLE VALUE	ASSESSED VALUE CHANGE	PERCENTAGE CHANGE
Alvord	1,230,054,315	4,293,168	1,225,761,147	13,185,200	1,212,575,947	1,168,289,865	44,286,082	3.79%
Banning	857,212,468	6,125,583	851,086,885	4,479,983	846,606,902	852,236,383	(5,629,481)	-0.66%
Beaumont	648,297,773	15,075,109	633,222,664	10,993,484	622,229,180	586,683,054	35,546,126	6.06%
Coachella	1,671,093,056	80,010,632	1,591,082,424	8,069,138	1,583,013,286	1,510,147,344	72,865,942	4.83%
Colton	116,664,357	2,395,678	114,268,679	1,022,000	113,246,679	109,632,339	3,614,340	3.30%
Corona-Norco	3,875,856,489	25,066,596	3,850,789,893	37,439,128	3,813,350,765	3,662,399,145	150,951,620	4.12%
Desert Center	225,135,919	268,078	224,867,841	286,731	224,581,110	230,368,870	(5,787,760)	-2.51%
Desert Sands	3,278,845,921	24,635,707	3,254,210,214	29,894,896	3,224,315,318	3,160,090,327	64,224,991	2.03%
Elsinore	1,751,940,102	26,941,744	1,724,998,358	20,938,252	1,704,060,106	1,619,779,503	84,280,603	5.20%
Hemet	4,630,913,679	178,713,683	4,452,199,996	60,345,499	4,391,854,497	4,219,200,805	172,653,692	4.09%
Menifee	723,454,268	4,564,864	718,889,404	5,084,800	713,804,604	633,826,810	79,977,794	12.62%
Moreno	675,058,135	6,544,761	668,513,374	1,183,000	667,330,374	667,642,315	(311,941)	-0.05%
Murrieta	2,324,077,841	6,592,272	2,317,485,569	11,002,600	2,306,482,969	2,232,361,878	74,121,091	3.32%
Nuview	748,064,054	5,474,709	742,589,345	9,152,982	733,436,363	684,809,351	48,627,012	7.10%
Palm Springs	2,056,242,569	80,765,934	1,975,476,635	25,297,200	1,950,179,435	1,901,356,909	48,822,526	2.57%
Palo Verde	632,543,996	2,784,631	629,759,365	2,604,106	627,155,259	595,860,635	31,294,624	5.25%
Perris	690,091,152	2,975,783	687,115,369	7,771,056	679,344,313	639,320,863	40,023,450	6.26%
Riverside	3,199,609,739	36,371,239	3,163,238,500	33,399,108	3,129,839,392	2,912,917,501	216,921,891	7.45%
Romoland	477,974,775	4,577,213	473,397,562	9,274,571	464,122,991	429,229,956	34,893,035	8.13%
San Jacinto	253,872,969	124,842,772	129,030,197	1,572,281	127,457,916	122,212,421	5,245,495	4.29%
Temecula	6,526,157,456	97,664,677	6,428,492,779	48,139,000	6,380,353,779	5,988,694,048	391,659,731	6.54%
Val Verde	1,597,610,712	148,031,619	1,449,579,093	14,465,706	1,435,113,387	1,369,550,576	65,562,811	4.79%
Yucaipa	99,434,526	135,778	99,298,748	917,000	98,381,748	94,389,584	3,992,164	4.23%
TOTALS	38,290,206,271	884,852,230	37,405,354,041	356,517,721	37,048,836,320	35,391,000,482	1,657,835,838	4.68%

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Section 5.0 – Risk Assessment

5.1 Overview and Risk Assessment Process

The risk assessment process identifies and profiles relevant hazards and assesses the exposure of lives, property, and infrastructure to these hazards. The Risk is measured by hazard, vulnerability and exposure probability.

The Riverside County Multi-Jurisdiction Hazard Mitigation Plan's risk assessment follows the methodology described in the FEMA publication *Understanding Your Risks—Identifying Hazards and Estimating Losses* (FEMA 386-2, 2002), which breaks the assessment down to a four-step process:

- Identify Hazards
- Profile Hazard Events
- Inventory Assets
- Estimate Losses

This risk assessment covers the entire geographical extent of Riverside County, including the incorporated communities and other participating jurisdictions. Since this plan is a multi-jurisdictional plan, participating jurisdictions completed their own hazard analysis and risk assessment and many have ranked their hazards differently than the County to match the needs of their jurisdiction. The County Local Hazard Mitigation Steering Committee has evaluated how these identified hazards and risks vary from jurisdiction to jurisdiction. These individual hazards and assessments are briefly outlined in this chapter with more details found in the jurisdiction's annex. If no additional data is provided in an annex, it should be assumed that the risk and potential impacts to the affected jurisdiction are similar to those described here for the entire Riverside County Operational Area LHMP.

The Riverside County Operational Area LHMP update involved a comprehensive review and update of each section of the risk assessment with new data, where available, and new analyses.

5.1.1 Results and Methodology

The County Local Hazard Mitigation Steering Committee utilized the existing 2012 Local Hazard Mitigation Plan identified hazards. Using existing hazard data and input gained through planning meetings, the Hazard Mitigation Steering Committee agreed upon a list of natural, man-made and technological hazards that could affect Riverside County.

Hazard data from the California Office of Emergency Services (Cal OES), FEMA, and many other sources were examined to assess the significance of these hazards to the planning area. Significance was measured in general terms and focused on key criteria such as frequency and resulting damage, which includes deaths and injuries, as well as property and economic damage. The natural hazards evaluated as part of this plan include those that have occurred historically or have the potential to cause significant human and/or monetary losses in the future. Man-made and technological hazards were evaluated in the same manner. During the assessment of the identified County hazards the Steering Committee realized the need to add Cyber Attack and Communication Failure to the Local Hazard Mitigation Plan. The Committee based this decision off of the history of events and probability of future occurrences.

Please see table 4.1 Hazard Identification Table for justification of each hazards ranking.

Table 14: 2017 LHMP Top 5 Identified Hazards

Riverside County Multi-Jurisdictional Local Hazard Mitigation Plan Risk Assessment Chart						
Jurisdiction	Priority Risk/ Hazards					Differs from County Priorities?
County	**#1**	**#2**	**#3**	**#4**	**#5**	
Riverside OA	Earthquake	Pan Flu	Wildfire	Electrical Failure	Emergent. Disease	See Section 5.3
Cities						
Banning	Earthquake	Fire	Transportation	HazMat	Flood	Yes
Beaumont	Earthquake	Fire	Flood	HazMat	Transportation	Yes
Blythe	Extreme Weather	Wind	Power Failure	Transportation	HazMat	Yes
Calimesa	Fire	Earthquake	Flood	Extreme Weather	Drought	Yes
Canyon Lake	Flood	Earthquake	Fire	Transportation	Nuclear Incident	Yes
Cathedral City	Earthquake	Flood	Wind	Landslide	Extreme Weather	Yes

Coachella	Earthquake	Extreme Weather	HazMat	Power Failure	Wind	Yes
Corona	Earthquake	Fire	Power Failure	Terrorism	Flood	Yes
Desert Hot Springs	Earthquake	Flood	Fire	Extreme Weather	Wind	Yes
Eastvale	Earth	Flood	Fire	Pipeline	Insect Infestation	Yes
Hemet	Earthquake	Pan Flu	Fire	Electrical Failure	Emergent Disease	No
Indian Wells	Earthquake	Flood	Extreme Weather	Power Failure	Wind	Yes
Indio	Earthquake	Extreme Weather	Emergent Disease	Pan Flu	Drought	Yes
Jurupa Valley	Earthquake	Pan Flu	Fire	Power Failure	Emergency Disease	No
La Quinta	Earthquake	Flood	Power Failure	Extreme Weather	Drought	Yes
Lake Elsinore	Fire	Flood	Power Failure	Extreme Weather	Drought	Yes
Murrieta	Earthquake	Pan Flu	Fire	Power Failure	Emergent Disease	No
Norco	Flood	Fire	Earthquake	Extreme Weather	Agricultural Hazard	Yes
Palm Desert	Earthquake	Flood	Extreme Weather	Power Failure	Drought	Yes
Palm Springs	Earthquake	Power Failure	Transportation	Extreme Weather	Wind	Yes

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Perris	Fire	Flood	Earthquake	HazMat	Power Failure	Yes
Rancho Mirage	Earthquake	Flood	Fire	Drought	Civil Unrest	Yes
Riverside	Earthquake	Flood	Drought	Terrorism	Fire	Yes
San Jacinto	Earthquake	Extreme Weather	Flood	Landslide	Drought	Yes
Temecula	Transportation	Earthquake	Flood	Terrorism	Fire	Yes
Wildomar	Earthquake	Fire	Drought	Flood	Extreme Weather	Yes
Tribes						
Morongo	Wildfire	Severe Wind Event	Earthquake	Electrical Failure	Transportation	Yes
Special Districts						
Eastern Municipal Water	N/A	N/A	N/A	N/A	N/A	See Annex
High Valleys Water	Extreme Weather	Drought	Fire	Wind	Power Failure	Yes
Idyllwild Fire Protection	Fire	Drought	Insect Infestation	Earthquake	Pan Flu	Yes
Imperial Irrigation District	Earthquake	Extreme Weather	Terrorism	N/A	N/A	Yes
Kaiser	Earthquake	Fire	Extreme Weather	Drought	Wind	Yes

Rancho California Water	Earthquake	Drought	Flood	Fire	N/A	Yes
Santa Ana Watershed	Earthquake	Wind	N/A	N/A	N/A	Yes
Western Municipal Water	Pipeline	Power	Extreme Weather	Drought	Wind	Yes
School Districts						
Beaumont Unified	Earthquake	Wind	Drought	Fire	Flood	Yes
Desert Sands Unified	Earthquake	Flood	Extreme Weather	HazMat	Drought	Yes
Hemet Unified	Civil Disorder	Extreme Weather	Wind	Flood	Fire	Yes
Lake Elsinore Unified	Earthquake	Pan Flu	Extreme Weather	Flood	Nuclear	Yes
Moreno Valley Unified	Earthquake	Fire	Extreme Weather	Power Failure	Wind	Yes
Perris Union High School	Earthquake	Fire	Wind	Pan Flu	Flood	Yes
Riverside Community College	Insect Infestation	Jail/Prison Event	Civil Disorder	Nuclear	Terrorism	Yes
Riverside County Office of Education	Earthquake	Wildland Fire	Pandemic	Flood	Severe Wind	Yes
Riverside Unified	Earthquake	Power Failure	Pipeline	HazMat	Extreme Weather	Yes
San Jacinto Unified	Earthquake	Fire	Flood	Wind	Extreme Weather	Yes

Please refer to individual annexes for additional hazard priorities for participating jurisdictions.

5.2 Agency Inventory Description

All participants were asked to evaluate the potential for an event to occur in their jurisdiction by hazard and the potential impact based on:

1. Economic loss and recovery
2. Physical loss of structures (residential, commercial, and critical facilities)
3. Infrastructure loss or damage
4. Continuity of operations for a normal daily governmental activities
5. Ability to quickly recover from the event and return to normal daily activities
6. Loss of life and potential injuries from the event.

The participants were then asked to rate the potential and severity using a scale of between 0 and 4 (4 being the most severe). The jurisdictions were also asked to rank the listed hazards as they relate to their jurisdiction from 1 to 20 (1 being the highest overall threat to their jurisdiction).

The following table was given to participants during the 2012 plan update and again for the 2017 update. Participants were informed that the county hazards were likely to be re-ranked and Communication Failure and Cyber-attack would be added.

Figure 27: 2012 and 2017 Participant Ranking Chart

NAME:	AGENCY:		DATE :		
	COUNTY		LOCAL JURISDICTION		
HAZARD	SEVERITY 0 - 4	PROBABILITY 0 - 4	SEVERITY 0 - 4	PROBABILITY 0 - 4	RANKING 1 - 20
1. EARTHQUAKE					
2. WILDLAND FIRE					
3. FLOOD					
OTHER NATURAL HAZARDS					
4. DROUGHT					
5. LANDSLIDES					
6. INSECT INFESTATION					
7. EXTREME SUMMER/WINTER WEATHER					
8. SEVERE WIND EVENT					
AGRICULTURAL					
9. DISEASE/CONTAMINATION					
10. TERRORISM					
OTHER MAN-MADE					
11. PIPELINE					
12. AQUEDUCT					
13. TRANSPORTATION					
14. POWER OUTAGE					
15. HAZMAT ACCIDENTS					
16. NUCLEAR ACCIDENT					
17. TERRORISM					
18. CIVIL UNREST					
19. JAIL/PRISON EVENT					
MEDICAL					
20. PANDEMIC					

Note: Please refer to the individual Local Hazard Mitigation Plans for participating jurisdiction

Please See Appendix E for the Inventory Worksheet template provided to participants.

The County Ranking used a similar format when looking at the probability and severity of a potential hazard but also included information on Healthcare Impact and Mitigation Capabilities. The following chart was used by the Local Hazard Mitigation Steering Committee while ranking the 2017 Hazards.

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Figure 28: 2017 County Hazard Ranking and Risk Scores

HAZARD	PROBABILITY	SEVERITY	HEALTHCARE	EMS	BEHAVIORAL / MENTAL HEALTH	RESPONDER AGENCIES	COMMUNITY AGENCIES	*RISK SCORE*
	Improbable: 0 Remote: 1 Occasional: 2 Probable: 3 Frequent: 4	NA: 0 Negligible: 1 Marginal: 2 Critical: 3 Catastrophic: 4	NA: 0 Negligible: 1 Marginal: 2 Critical: 3 Catastrophic: 4	NA: 0 Negligible: 1 Marginal: 2 Critical: 3 Catastrophic: 4	NA: 0 Negligible: 1 Marginal: 2 Critical: 3 Catastrophic: 4	NA: 0 Low: 1 Moderate: 2 High: 3 Extreme: 4	NA: 0 Low: 1 Moderate: 2 High: 3 Extreme: 4	
Aqueduct	2	3	2	2	2	2	3	0.38
Drought	3	3	2	2	2	2	2	1.13
Earthquake	2	4	4	4	3	2	2	3.50
Extreme Weather	2	3	2	2	2	2	2	0.75
Flood	3	3	2	3	2	2	3	1.13
Insect Infestation	3	2	2	1	1	2	2	0.00
Landslide	3	3	1	1	1	2	2	-0.56
Tornado	1	2	2	2	2	2	2	0.25
Wildland Fire	4	3	3	3	3	3	3	2.25
Civil Disorder	2	3	3	3	1	4	0	1.13
Communications Failure	2	3	3	3	3	3	3	1.13
Cyber Attack	4	2	3	2	2	3	1	1.50
Dam Failure	1	3	2	3	2	2	3	0.38
Electrical Failure	4	4	2	2	2	2	2	2.00
HazMat Incident	4	3	2	2	1	3	3	-0.75
Jail/Prison Event	1	2	1	1	1	4	0	-0.13
Nuclear/Radiological Incident	1	4	2	3	3	2	2	1.00
Pipeline Disruption	2	3	2	2	1	3	3	-0.38
Terrorist Event - MCI	1	3	3	3	4	3	1	1.13
Transportation Failure	2	3	2	2	1	2	2	0.38
Water Supply Disruption/Contamination	3	2	0	0	0	2	2	-1.50
Emergent Disease/Contamination	3	3	3	3	2	3	2	1.69
Pandemic Flu	2	4	4	4	4	3	2	3.50

5.3 Hazard Profiles and Descriptions

Hazard Assessment and Identification

The County utilized the tools described in Section 3.3 for the hazard identification process and provided them to the individual cities and special districts. Cal OES MyPlan was used for information about floods, earthquake, fire and some critical facilities locations. Additionally, Riverside County Transportation and Land Management Agency provided maps detailing where hazards and critical facilities are located.

All participating jurisdictions and special districts conducted a risk assessment and identified hazards specific to their jurisdiction, document the impact of those hazards, and develop specific goals and strategies to address the risks and hazards.

The probability of each hazard in Riverside County was determined by rating their occurrence level from 0 - 4, in which each level or number represented a specific descriptor. For example, improbable = (0), remote = (1), occasional = (2), probable = (3), and frequent = (4). Each descriptor was defined according to how often each hazard occurs in Riverside County.

- *Improbable* means it is not likely to happen in more than ten years
- *Remote* means it happens once in ten years
- *Occasional* means it happens once in five years
- *Probable* means it happens once every two years (biannual)
- *Frequent* means it happens at least once a year (annually)

Identification of Hazards

With its varying topography; a mix of urban and rural areas and rapidly growing permanent, transient, and recreational populations, the Riverside County Operational Area is subject to potential negative impacts from a broad range of hazards and threats. There are three broad categories of hazards that threaten the OA:

- Natural hazards
- Technological hazards
- Man-Made hazards

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5.3.1 Earthquake

Severity: 4

Probability: 2

Risk Score: 3.50

OA Jurisdictions Affected by Earthquakes

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

Hazard Definition

An earthquake is a sudden, rapid shaking of the ground caused by the breaking and shifting of rock beneath the Earth's surface. For hundreds of millions of years, the forces of plate tectonics have shaped the Earth as the huge plates that form the Earth's surface move slowly over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middle of plates.

Where earthquakes have struck before, they can strike again, often without warning. The major form of direct damage from most earthquakes is damage to construction. Bridges are particularly vulnerable to collapse and dam failure may generate major downstream flooding. Buildings vary in susceptibility depending on their construction and the types of soils on which they are built. Earthquakes destroy utility infrastructure which, in turn, may set off fires, hinder rescue efforts, and impact normal functions for an extended period of time. The hazard of earthquakes varies from place to place depending on the regional and local geology. Ground shaking may occur 65 miles or more from the epicenter (the point on the ground surface above the focus). Ground shaking can change the mechanical properties of some fine grained, saturated soils, where upon the soils liquefy and act as a fluid (liquefaction).

Most earthquake-related injuries result from collapsing walls, flying glass, and falling objects as a result of the ground shaking.

Figure 29: Historical Earthquakes in the Riverside County Area - 5.0 and Above

Year	Richter Scale Magnitude	Description
1812	7.0	Occurred on the southern section of the San Andreas fault near Wrightwood.
1857	7.9	Occurred 60 miles northwest of Fort Tejon and ruptured 225 miles of the San Andreas fault.
1890	6.5	Occurred in the "San Jacinto or Elsinore Fault region" on the Rockhorse Truck Trail, north of the Borrego Valley Airport.
1890	6.5	Occurred in the same region as the 1890 earthquake.
1899	6.4	San Jacinto earthquake destroys San Jacinto and Hemet
1910	5.0	Occurred on the Elsinore fault northwest of the City of Lake Elsinore.
1918	6.9	San Jacinto earthquake strikes the same area that was damaged by an earthquake 19 years earlier.
1923	6.3	North San Jacinto Fault earthquake damaged the San Bernardino and Redlands area. This the last known time that this fault, which runs under the I-215/I-10 interchange, ruptured in this area.
1937	6.0	Terwilliger Valley earthquake was in the same general area as the 1890 earthquake.
1942	6.3	Fish Creek Mountains earthquake was south of the Ocotillo airport.
1954	6.2	Arroyo Salada earthquake was west of the Salton Sea.
1968	6.5	Borrego Mountain Earthquake was northeast of Ocotillo Wells
1987	6.6	Superstition Hills earthquake near the Salton Sea
1992	7.2	Occurred near Landers, California and caused the rupture of five different faults. Those faults were: Johnson Valley, Landers, Homestead Valley, Emerson, and Camp Rock.
1992	7.3	Occurred 3 hours after the Landers Earthquake with an epicenter near Big Bear, CA
1994	6.8	Northridge Earthquake
1999	7.4	Hector Mine Earthquake
2010	5.4	Borrego Springs earthquake believed by seismologists to have been possibly triggered by the strong earthquake which occurred near Calexico in 2010.

Located within Riverside County are several known active and potentially active earthquake faults, including the San Andreas Fault, San Jacinto Fault, and Elsinore Fault In the event of an earthquake, the location of the epicenter, as well as the time of day and season of the year, would have a profound effect on the number of deaths and casualties, as well as property damage.

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Research centers devoted to the detection and logging of earthquake events record the ongoing weekly activity of small magnitude in Riverside County faults. The most recent earthquake in Riverside County was located in Banning on July 7, 2017, and had a magnitude of 1.1. There are a number of small scale earthquakes that happen weekly but larger scale or catastrophe shaking is less likely.

A **moderate** earthquake occurring in or near Riverside County could result in deaths, casualties, property damage, environmental damage, and disruption of normal government and community services. The effects could be aggravated by collateral emergencies such as fires, flooding, hazardous material spills, utility disruptions, landslides, transportation emergencies, and the possible failure of several dams in Riverside County. The community needs would most likely exceed the response capability of the County's emergency management organizations, requiring mutual assistance from volunteer and private agencies, the California Office of Emergency Services (Cal OES), and the Federal Emergency Support Functions.

A **catastrophic** earthquake in Riverside County could cause thousands of casualties, extensive major property damage, disruption in communications and utility systems, disruption in supply and distribution systems, and general panic. An earthquake of this magnitude could directly affect all of Riverside County and most of southern California, causing a critical demand on mutual aid resources and competition for national relief.

Key effects and response considerations:

- **Effects on people and housing.** In any earthquake, the primary consideration is saving lives. Time and effort must also be dedicated to providing for mental health for reuniting families, providing shelter to displaced persons, and restoring basic needs and services. Major efforts will be required to remove debris and clear roadways, demolish unsafe structures, assist in re-establishing public services and utilities, and provide continuing care and temporary housing for affected citizens.

  A survey of local, State, and Federal government emergency plans indicate that although there is a general capacity to respond to small and intermediate-sized earthquakes, it is unlikely that any of these governmental units will be able to cope with the immediate impact of a great quake, such as a Magnitude (M) 8.3 event on the south-central San Andreas fault. The general public must realize that the assistance that they have been used to expecting simply will not be immediately available. In fact, in the event of an earthquake of such magnitude, citizens must be prepared to wait for up to 72 hours or more for any type of organized response.

- **Effects on commercial and industrial structures.** After any earthquake, individuals are likely to lose wages due to the inability of businesses to function because of damaged goods and/or facilities. With business losses, the County of Riverside and the cities in the Riverside County Operational Area will lose revenue. Economic recovery from even a minor earthquake will be critical to the communities involved.

- **Effects on infrastructure.** The damage caused by an earthquake can lead to the paralysis of the local infrastructure: police, fire, medical and governmental services.

- **Effects on Critical Facilities.** A large number of critical facilities have been identified as being adjacent to the various faults in the County and surrounding counties. The list of facilities includes hospitals, fire stations, law enforcement facilities, and schools.

  Effects on agriculture. Earthquakes can cause loss of human life, loss of animal life, and property damage to structures and land dedicated to agricultural uses. The most significant long-term impacts on agriculture from earthquakes are those that arise from the cascading effects of fire and flood.

Historically, the San Andreas Fault is the most active among the fault network that cuts through rocks of the California coastal region. The entire San Andreas Fault system is more than 800 miles long and extends to depths of at least 10 miles within the earth. The San Andreas Fault in California forms a continuous, narrow break in the earth's crust that extends from northern California southward to Cajon Pass near San Bernardino; southeastward from Cajon Pass. Several branching faults, including the San Jacinto and Banning faults, share the movement of the crustal plates as the fault continues to the south east, on to the Salton Sea and on to Baja California Sea of Cortez.

Recent studies of the eastern section of the San Andreas near San Gorgonio Pass reveal that this area is more advanced in the cycle of strain accumulation than the western area at the Cajon Pass. Earthquake activity around the Southern San Andreas, including the June 1992 Landers-Big Bear earthquakes, has prompted scientists to increase their studies of this area.

The San Jacinto fault has had a higher level of moderate-to- large earthquakes during the past 50 to 100 years, although the rate of slip is not as high. Geodetic data indicates there is an "appreciable" strain accumulation across both faults, implying that either one or both may be primed for release. One of the larger and more active fault segments of

the San Jacinto fault, the Casa Loma Faults, runs from near Perris Reservoir to just north of Anza. Also, another large and active named segment is the Clark Fault, which runs from near Hemet to just 9 miles southwest of the shore of the Salton Sea. Historically, this section of the San Jacinto Fault produced a series of large earthquakes starting in 1899 on average every 14 years with the longest interval being 19 years. The last slip occurred on the Superstition Hills and Elmore Ranch sequence in1987. In 2015, the Working Group on California Earthquake Probabilities (WGCEP) estimated 30-year probabilities of 19 percent for an M 6.7 and larger event on the Southern San Jacinto Fault.

A third major fault zone that traverses Riverside County is the Elsinore Fault. The Elsinore Fault Zone is one of the largest in southern California. The main trace of the Elsinore fault zone has only seen one historical event greater than magnitude 5.2 – the earthquake of 1910, a magnitude 6 shock near Temescal Valley.

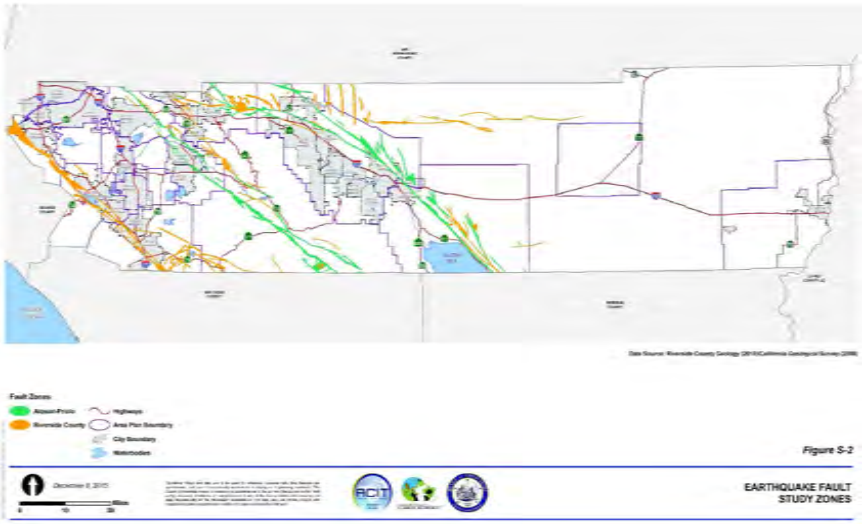
Risk Assessment Conclusion.

Riverside County is at risk for a significant earthquake causing catastrophic damage and strains on response and mitigation resources. Both property and human life are at high risk. The County experiences hundreds of minor quakes and tremblers each month from the myriad of faults in the area. Studies indicate that stress is building up in major faults like the San Andreas. A major quake could happen at any time.

Earthquake risk is very high in the most heavily populated western portion of the County and the Coachella Valley, due to the presence of two of California's most active faults, the San Andreas and San Jacinto. The risk is moderate in the eastern portion of the County beyond the Coachella Valley.

The following maps have been provided by the Riverside County Transportation and Land Management Agency and developed using Cal OES MyPlan.

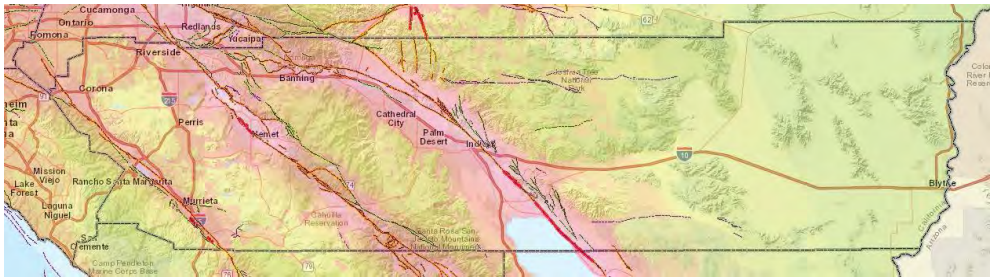
Map 2: Riverside County Faults and Zones



Map 3: Fault Activity



Map 4: Ground Shaking Potential



Relationship to Other Hazards – Cascading Effects

Earthquakes can cause many cascading effects such as fires, flooding, hazardous material spills, utility disruptions, landslides, transportation emergencies, electrical failure and the possible failure of several dams in Riverside County.

Hazus Assessment

HAZUS®MH was used to generate general building stock and essential facility loss estimates for five different natural hazard scenarios. Two of the scenarios were large scenario earthquakes. The earthquakes chosen for analysis were an M6.8 Elsinore Fault Scenario Earthquake, and the M7.8 "ShakeOut" Scenario Earthquake on the Southern San Andreas Fault.

Risk assessment results were generated using the following HAZUS®MH analysis options:

- **General Buildings**
  - Ground Motion
  - Damage State Probabilities
  - Damage
  - Direct Economic Loss
- **Essential Facilities**
  - Medical Care
  - Police Stations
  - Fire Stations
  - Emergency Response
  - Schools
- **Transportation Systems**
  - Highways
  - Railways
  - Light Rail
  - Bus System
  - Port and Harbor
  - Ferry System
  - Airport Transportation
- **Utility Systems**
  - Potable Water
  - Waste Water
  - Oil
  - Natural Gas

- Electric Power
- Communication

- **Induced Physical Damage**
  - Fire following
  - Debris
- **Direct Social Losses**
  - Casualties
  - Shelter

Table 18 (ES-2) provides a summary of HAZUS®MH-estimated regional impacts for Riverside County for the two earthquake scenarios. As shown in the tables, the total estimated direct economic loss related to building damage ranges from $1.8B to $9.8B in the two scenario events. It should be noted that these totals are for Riverside County only. Both earthquake scenarios have the potential to cause additional damage in adjacent counties (for example, the Elsinore scenario would also significantly impact San Diego and Orange counties), whose losses are not tabulated here.

Table 15: Summary of HAZUS estimated Impacts on Riverside County for Two Earthquake Scenarios

Table ES-2. Summary of HAZUS®MH-estimated Impacts on Riverside County for Two Earthquake Scenarios

Impact Category	M6.8Elsinore	M7.8"ShakeOut" San Andreas*
Economic Loss due to Building Damage	$1.2B	$6.9 B
Total Building-related Direct Economic Loss	$1.8B	$9.8 B
# Buildings in Complete Damage State	100	25,000* (many MH)
Debris Generated (million tons)	0.3	3.5
Displaced Households	110 Households	19,000 Households*
People Needing Short-term Shelter	90 People	8,600 People*
Fatalities (2 am, 2 pm, 5 pm)	<10,<10,<10	60 bldg (70 all causes)*
Total Injuries (2 am, 2 pm, 5 pm)	200, 200, 220	11,600 bldg (11,900 all)*
% of Households without Water	<1%	99%
# Highway Bridges w/ at least Moderate Damage (potentially closed)	None expected	100

*Note: selected custom estimates for the "ShakeOut" scenario have been taken from the full USGS technical report, "*The ShakeOut Scenario*". http://pubs.usgs.gov/of/2008/1150

Table 19 summarizes expected essential facility performance in the two earthquake events. Estimated building damages to essential facilities in Riverside County ranges from about $64M - $351M. These loss totals should not be considered all-inclusive, as replacement cost data was not available for many hospitals, and a small number of schools and police facilities.

Table 16: Summary of HAZUS – estimated Impacts for Riverside County Essential Facilities in Two Earthquake Scenarios

Essential Facility	Category	M6.8 Elsinore		M7.8 "ShakeOut" San Andreas	
		Mean Damage	Economic Loss ($1,000)	Mean Damage	Economic Loss ($1,000)
Hospitals*	Medium	2%	$4,858	14%	$3,842
	Large	0%	$899	26%	$5,180
Schools	K-12 (default data)	1%	$2,375	2%	$3,708
	K-12 (providing data)	1%	$54,774	6%	$314,182
	CCD (providing data)	0%	$706	5%	$24,465
EOCs		1%	$3	6%	$20
Police Stations		0%	$3	7%	$35
Fire Stations		1%	$3	4%	$14
TOTALS			**$63,620**		**$351,446**

*Note: In Riverside County, there are no hospitals which would be categorized by HAZUS as "Small" (<50 licensed acute care beds)

Elsinore Earthquake Scenario – Regional Impacts

The M6.8 Elsinore scenario earthquake will impact the western-most communities and infrastructure of Riverside County. A summary of regional impacts is provided in Figure 29. These impacts are described below.

Of the approximately 647,000 buildings modeled within the improved general building stock data for Riverside County, less than 1% (approximately 100) are expected to suffer "complete" damage in the Elsinore scenario earthquake. These buildings would be considered "red-tagged" or unsafe for continued occupancy. A small percentage of these buildings (15% or less) have the potential for collapse, suggesting the need for Urban

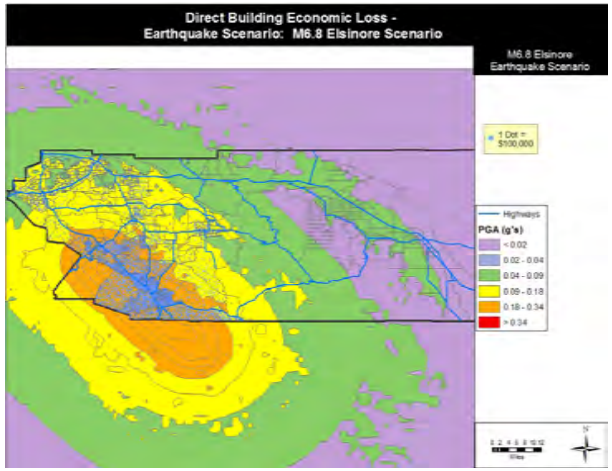
Search & Rescue (USAR). Approximately 2,200 buildings (0.3%) are expected to suffer "extensive" damage, and would be considered "yellow-tagged", with restrictions on continued use. While the remainder of buildings would be considered "green-tagged" (safe for occupancy, although some damage may have occurred), as many as 3% (20,500) would be expected to suffer "moderate" damage, and an additional 13% (82,700) would suffer "slight" damage.

As much as 0.3 million tons of debris may result from these damaged buildings – 47% is expected to be heavy debris (concrete and steel), requiring heavy equipment to break down and remove, while 53% is expected to be light debris (wood, brick and other debris).

The number of people killed as a result of shaking-induced and transportation system damage is expected to be less than 10, regardless of the time of day that the earthquake occurs.

Total injuries, including the range of injuries from minor injuries treated with basic medical care to mortal injuries (deaths), are expected to be on the order of 200-220. Transportation of the injured for treatment is not expected to be impacted by transportation system damage, as no bridge in the County is expected to suffer "moderate" damage or greater.

Figure 30: Direct Building Economic Loss



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"ShakeOut" San Andreas Earthquake Scenario Regional Impacts

The M7.8 "ShakeOut" San Andreas scenario earthquake will impact most of the populated portions of Riverside County. A summary of impacts is provided in Table 19. It should be noted, however, that some impact estimates have been taken from the improved estimates developed by the extensive community modeling effort (Jones, et al., 2008) conducted for the "ShakeOut" exercise. The use of these estimates is noted where appropriate.

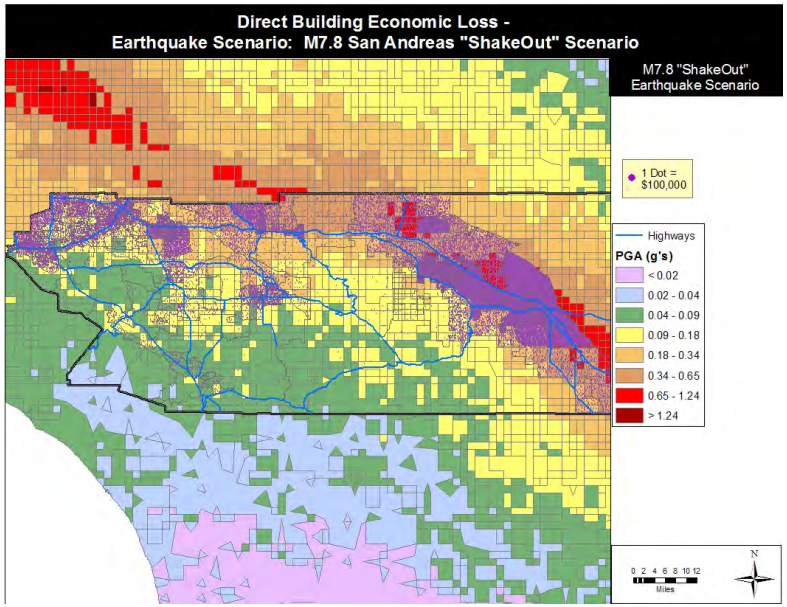
Table 17: Summary of HAZUS – Estimated Impacts for Riverside County Due to an M7.8 Scenario Earthquake on the "ShakeOut" San Andreas Fault

Economic Loss due to Building Damage	$6.9 B
Total Building-related Direct Economic Loss	$9.8 B
# Buildings in Complete Damage State	25,000* (many MH)
Debris Generated (million tons)	3.5
Displaced Households	19,000 Households*
People Needing Short-term Shelter	8,600 People*
Fatalities (2 am, 2 pm, 5 pm)	60 in buildings (70 all causes)*
Total Injuries (2 am, 2 pm, 5 pm)	11,600 in buildings (11,900 all)*
% of Households without Water	99%
# Highway Bridges w/ at least Moderate Damage (potentially closed)	100

*Note: selected custom estimates for the "ShakeOut" scenario have been taken from: http://pubs.usgs.gov/of/2008/1150

In the M7.8 "ShakeOut" Scenario earthquake on the San Andreas Fault, dollar losses related to shaking-induced building damage are estimated to reach $6.9 billion, while total direct economic losses are expected to be approximately $9.8 billion. The geographic distribution of total direct economic loss is mapped in Figure 4-9.

Figure 31: Direct Economic Loss in Riverside County Resulting from an M7.8 Scenario Earthquake on the "ShakeOut" San Andreas Fault



According to the published "ShakeOut" scenario (Jones, et al., 2008), approximately 25,000 buildings would be expected to suffer "Complete" damage in the scenario earthquake. These building, predominantly residential mobile homes, would be considered "red-tagged" or unsafe for continued occupancy. A small percentage of these buildings (15% or less) have the potential for collapse, suggesting the need for Urban Search & Rescue. More than 18,000 buildings are expected to suffer "Extensive" damage in this scenario earthquake and would be considered "yellow-tagged", with restrictions on continued use. While the remainder of buildings would be considered "green-tagged" (safe for occupancy, although some damage may have occurred), approximately 63,000 would be expected to suffer "Moderate" damage, and an additional 137,000 would suffer "Slight" damage.

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Almost 3.5 million tons of debris may result from these damaged buildings – 58% is expected to be heavy debris (concrete and steel), requiring heavy equipment to break down and remove, while 42% is expected to be light debris (wood, brick and other debris).

In the "ShakeOut" scenario (Jones, et al., 2008), damage to single family and multi-family dwellings is expected to result in the displacement of approximately 19,000 households. Immediately after the earthquake, significant disruption to the water supply and distribution system is expected, essentially impacting the entire county. While many of the displaced may find shelter with friends and family, or in available hotels, approximately 8,600 people are expected to seek public shelter.

The number of people killed as a result of shaking-induced building, transportation system damage, and post-earthquake fire may be on the order of 60 to 70 people. Total injuries, including the range of injuries from minor injuries treated with basic medical care to mortal injuries (deaths) from all causes, are estimated to reach 11,900 within the County.

Transportation of the injured for treatment could be impacted by transportation system damage with as many as 100 bridges in the County suffering at least "Moderate" damage.

Essential Facility Impacts

Table 19 provides an overview of essential facility performance in the "ShakeOut" San Andreas Scenario earthquake. The table lists the number of essential facility sites and buildings (these numbers will differ for multi-building campuses, such as schools and hospitals). The table also provides the total building replacement value and the number of buildings for which value data was available. As can be seen in the table, replacement cost data for hospitals was generally not available, unlike most other essential facility types. Expected building performance in this earthquake event is on the order of 7% damage or less for EOCs, fire stations, police stations, and schools, but as much as 26% damage for large hospitals. The total economic loss for essential facilities has been estimated to exceed $351 million, with 97% of the total loss occurring in schools. It should be noted that although cost data is only available for 31 hospital buildings (out of 77), these 31 buildings suffer more than $9 million in loss, indicating that the actual total economic loss for hospitals would be significant, but can't be estimated at this time because of the lack of replacement value data.

Table 18: Riverside County Essential Facility Loss Estimates – M7.8 "ShakeOut" San Andreas Fault Scenario Earthquake

Essential Facility	Category	No. of Facilities/ Sites	No. of Buildings	No. of Beds	Replacement Cost ($1,000)	# Buildings w/ replacement cost data	Functionality Day 1 (%)	Mean Damage	Economic Loss ($1,000)
Hospitals*	Medium	8	28	793	$162,827	21	64	14%	$3,842
	Large	8	49	2,467	$200,792	10	26	26%	$5,180
Schools	K-12 (default data)	152	152		$219,600	152	74	2%	$3,708
	K-12 (providing data)	689	9,981		$6,049,534	9,213	64	6%	$314,182
	CCD (providing data)	12	258		$356,708	257	54	5%	$24,465
EOCs		43	43		$310,273	43	60	6%	$20
Police Stations		51	51		$675,299	48	57	7%	$35
Fire Stations		156	156		$366,493	156	72	4%	$14
TOTALS		**1,119**	**10,718**	**3,260**	**$8,341,525**	**9,900**			**$351,446**

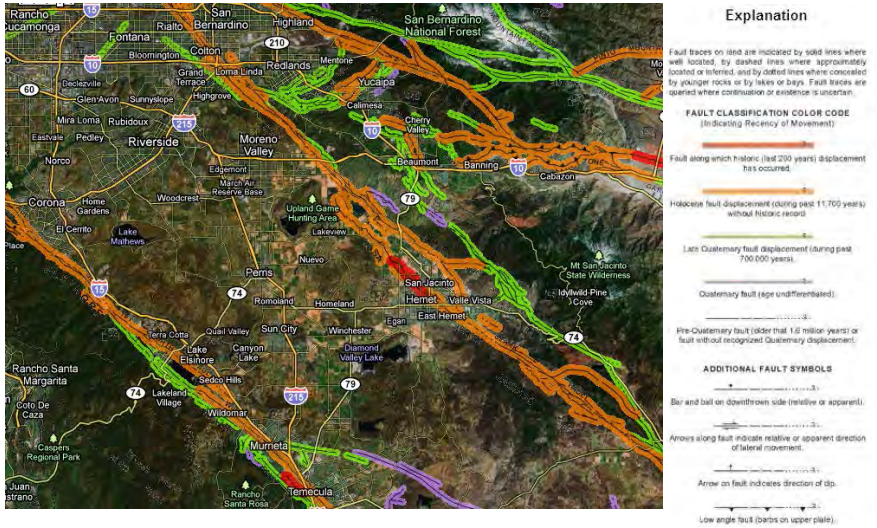
*Note: In Riverside County, there are no hospitals which would be categorized by HAZUS as "Small" (<50 licensed acute care beds)

The following three maps are from the Fault Activity Map of California, California Geologic Survey, Data Map

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Map 5: Fault Activity Map of California, Western Riverside County



Map 6: Fault Activity Map of California, Central Riverside County





Map 7: Fault Activity Map of California, Eastern Riverside County





5.3.2 Pandemic Flu

Severity: 4

Probability: 2

Risk Score: 3.50

OA Jurisdictions Affected by Pandemic and Epidemic

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

Hazard Definition

A disease outbreak can cause illness and result in significant casualties. Since 1900, there have been four influenza pandemics that killed approximately 600,000 people in the United States. In 2009 the H1N1 flu was first identified in Imperial and San Diego counties, killing more than 550 Californians, sent thousands more to hospitals, caused widespread fear and anxiety and the declaration of a public health emergency. H1N1 in 2009 tested the State's medical infrastructure as never before. H1N1 quickly spread nationwide and then around the globe, taking a heavy toll on people not usually susceptible to serious influenza.

History

2009 - Rise of H1N1, popularly referred to as the Swine Flu. According to the California Center for Infectious Diseases, the H1N1 flu (2009 H1N1 influenza virus) is a type of influenza virus that causes respiratory disease that can spread between people. While most people who have been sick have recovered without needing medical treatment, hospitalizations and deaths from infection with this virus has occurred. The spread of H1N1 flu occurs in the same way that seasonal flu spreads. Flu viruses are spread mainly from person to person through coughing or sneezing by people with influenza. As a result of preparation and mitigation strategies such as vaccinations and public education, the threat of a full-blown H1N1 pandemic in the U.S. is receding. However, the possibility of another pandemic still exists.

2003 - A previous pandemic flu threat that still looms is the avian flu. Birds can contract avian flu and pass it along to humans. Some strains of the avian flu are more virulent than others. Public health experts continue to be alert to the risk of a possible re-emergence of a 2003 epidemic of avian flu among people primarily in Asia. People who had been very close contact with infected birds (for example, people who lived with chickens in their houses) contracted a virulent form of avian

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flu and there was a significant death rate from this disease. Thus far, the avian flu virus has not mutated and has not demonstrated easy transmission from person to person. However, were the virus to mutate in a highly virulent form and become easily transmissible from person to person, the public health community would be very concerned about the potential for a pandemic influenza outbreak. Such a pandemic could disrupt all aspects of society and severely affect the economy.

Risk Assessment

Influenza, also known as the flu, is a disease that attacks the respiratory system (nose, throat, and lungs) in humans. Although mild cases may be similar to a viral "cold," influenza is typically much more severe. It usually comes on suddenly; may include fever, headache, tiredness, dry cough, sore throat, nasal congestion, and body aches; and more often results in complications such as pneumonia. Seasonal influenza is a yearly occurrence that causes serious flu-related complications primarily for persons aged 65 and older and those with chronic health conditions (such as asthma, diabetes, or heart disease), pregnant women, and young children. Those who are exposed but do not succumb develop immunity to the strain circulating that year. Worldwide pandemics of influenza occur when a novel virus emerges to which the population has little immunity. The 20th century saw three such pandemics, the most notable of which was the 1918 Spanish influenza pandemic that was responsible for 20 million deaths throughout the world. Secondary impacts include significant economic disruption that can occur due to loss of employee work time and costs of treating or preventing spread of the flu.

Source: https://archive.cdph.ca.gov/HealthInfo/discond/Pages/Influenza(Flu).aspx

California Department of Public Health

The 2009 H1N1 influenza (flu) pandemic occurred against a backdrop of pandemic response planning at all levels of government including years of developing, refining and regularly exercising response plans at the international, federal, state, local, and community levels. At the time, experts believed that avian influenza A (H5N1) viruses posed the greatest pandemic threat. H5N1 viruses were endemic in poultry in parts of the world and were infecting people sporadically, often with deadly results. Given that reality, pandemic preparedness efforts were largely based on a scenario of severe human illness caused by an H5N1 virus. Despite differences in planning scenarios and the actual 2009 H1N1 pandemic, many of the systems established through pandemic planning were used and useful for the 2009 H1N1 pandemic response.

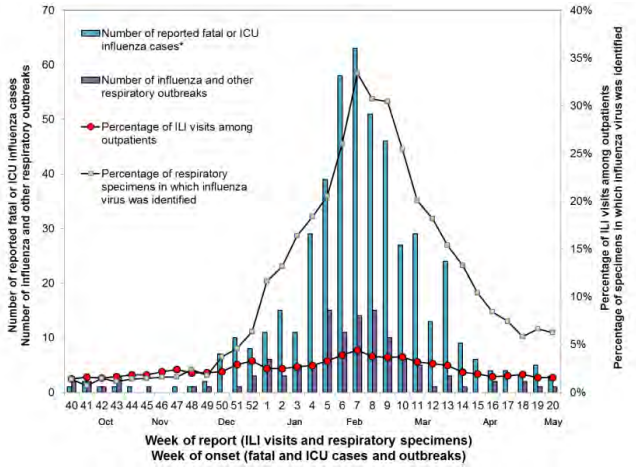
http://www.cdc.gov/h1n1flu/cdcresponse.htm (see attachment for complete document report)

The California Department of Public Health (CDPH) monitors flu conditions on an annual bases, including all virologic, case based and syndromic surveillance. CDPH works with Riverside County to help the community prepare and mitigate the effects of Pandemic Flu.

- **Effects on people and housing.** The risk to people can be severe, leading to hospitalization and possibly loss of life. Damage to housing as a result of Pandemic Flu is not likely.
- **Effects on commercial and industrial structures**. The risks are minimal to structures.
- **Effects on infrastructure.** The risks are minimal, but if there is a pandemic the risk will decrease the numbers of workers that go to work, which can have economic and functional effects to the organizations in a community. Continuity of Business and Continuity of Government planning goes into action in these cases.
- **Effects on agriculture.** The risk of animals borne disease can be great in a pandemic, depending on the disease. The impact to agriculture can be great, again depending on the disease.

The following charts are from the CDPH Influenza and Other Respiratory Diseases

Figure 32: Surveillance Report for the 2015–2016 Flu Season.



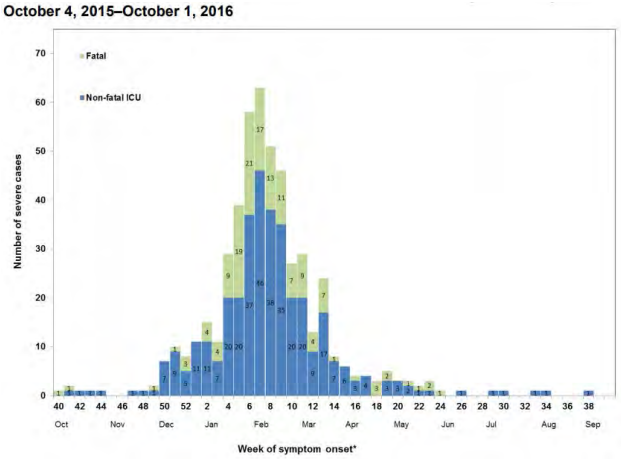


Table 19: Statewide 2011-2016 Influenza Cases0

Appendix I. Number of fatal and non-fatal ICU cases of laboratory-confirmed influenza in persons <65 years of age reported to the California Department of Public Health, by local health jurisdiction, 2011–2012 influenza season through 2015–2016 influenza season

	2011-2012*		2012-2013*		2013-2014*		2014-2015*		2015-2016*	
Jurisdiction	Fatal	Non-fatal ICU	Fatal	Non-fatal ICU	Fatal	Non-fatal ICU	Fatal	Non-fatal ICU	Fatal	Non-fatal ICU
CALIFORNIA	51	166	116	241	416	837	79	290	144	355
Alameda†	6	9	3	3	12	26	2	12	5	19
Berkeley City	0	0	0	0	0	1	0	0	0	1
Alpine	0	0	0	0	0	0	0	0	0	0
Amador	0	0	0	0	0	3	0	1	0	1
Butte	0	2	0	1	3	3	0	0	0	1
Calaveras	0	0	0	0	2	2	0	0	0	0
Colusa	0	0	0	0	0	1	0	0	0	0
Contra Costa	0	9	1	12	9	40	1	8	1	11
Del Norte	0	0	1	0	0	0	0	0	0	0
El Dorado	0	0	0	0	3	8	0	1	0	3
Fresno	3	10	7	14	22	18	4	14	5	8
Glenn	0	0	0	0	1	1	0	0	0	0
Humboldt	0	0	0	3	1	6	1	1	1	1
Imperial	0	0	0	0	2	6	0	0	0	1
Inyo	0	0	0	0	0	0	0	0	0	1
Kern	1	2	2	0	11	23	0	5	1	1
Kings	0	0	0	0	7	5	0	2	1	2
Lake	0	2	0	0	1	5	0	3	0	1
Lassen	0	0	0	0	1	1	0	0	0	0
Los Angeles†	12	0	32	0	75	22	16	7	36	0
Long Beach City	1	2	1	0	8	4	1	5	1	10
Pasadena City	0	0	0	0	0	0	0	0	0	0
Madera	0	0	2	1	3	6	1	1	1	1
Marin	0	0	0	1	2	1	0	2	0	0
Mariposa	0	0	0	0	0	0	0	1	0	0
Mendocino	0	1	0	1	4	12	0	0	0	1
Merced	0	1	0	0	5	6	0	0	0	1
Modoc	0	0	0	0	0	0	0	0	0	0
Mono	0	0	0	0	0	0	0	0	0	0
Monterey	0	1	0	4	7	12	2	6	1	2
Napa	0	0	0	0	0	7	1	1	0	3
Nevada	1	0	0	0	1	4	0	2	0	0
Orange	2	18	6	31	22	35	11	23	14	40
Placer	0	0	0	2	1	9	1	3	1	3
Plumas	0	0	0	0	0	0	0	1	0	0
Riverside	0	16	6	14	23	43	2	14	9	22
Sacramento	3	25	10	40	29	96	4	27	8	42
San Benito	0	0	0	1	0	0	0	0	0	1
San Bernardino	5	15	7	13	31	52	4	15	6	32
San Diego	5	10	17	43	44	112	8	59	28	64
San Francisco	0	1	2	1	4	28	1	0	0	0
San Joaquin	2	5	0	8	8	23	3	8	2	9
San Luis Obispo	0	0	2	2	1	7	0	3	0	3
San Mateo	2	10	1	3	6	18	5	12	2	6
Santa Barbara	0	2	1	4	3	9	2	6	4	10
Santa Clara	1	8	9	10	20	45	2	14	6	17
Santa Cruz	0	1	0	4	5	6	0	6	0	4
Shasta	0	0	0	0	3	10	0	1	0	5
Sierra	0	0	0	0	0	0	0	0	0	0
Siskiyou	0	0	0	0	2	5	0	0	0	0
Solano	0	1	0	7	3	14	2	10	2	6
Sonoma	0	0	0	1	7	19	1	2	5	4
Stanislaus	2	6	1	3	13	31	2	2	1	2
Sutter	0	0	0	1	1	3	0	0	0	0
Tehama	0	0	1	2	0	2	0	0	0	1
Trinity	0	0	0	0	0	0	1	0	0	0
Tulare	1	1	1	2	5	25	0	2	0	3
Tuolumne	0	0	0	0	1	1	0	0	0	0
Ventura	4	7	3	6	3	11	1	9	3	7
Yolo	0	1	0	3	1	10	0	1	0	4
Yuba	0	0	0	0	0	0	0	0	0	1

* 2011–2012: October 2, 2011–September 29, 2012; 2012–2013: September 30, 2012–September 28, 2013; 2013–2014: September 29, 2013–September 27, 2014; 2014-2015: September 28, 2014-October 3, 2015; 2015-2016: October 4, 2015-October 2, 2016

† Does not include city counts

Source:Https://archive.cdph.ca.gov/HealthInfo/discond/Documents/CA%20Year%20End%20Flu%20Summary_2015-2016_final.pdf

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5.3.3 Wildland Fire

Severity: 3

Probability: 4

Risk Score: 2.25

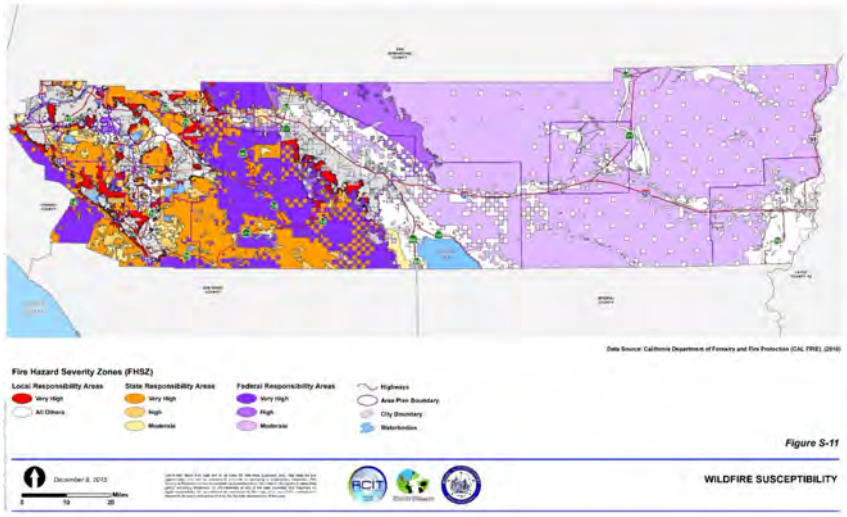
OA Jurisdictions Affected by Wildfire

- Fern Valley Water District
- Idyllwild Fire Protection District
- Idyllwild Water District
- Menifee Union School District
- Temecula Valley Unified School District
- Riverside County Office of Education
- Riverside Unified School District
- San Jacinto Unified School District

Cities in which CAL FIRE has made recommendations on Very High Fire Hazard Severity Zones (VHFHSZ) in Riverside County (22 cities)

- Banning
- Beaumont
- Calimesa
- Canyon Lake
- Cathedral City
- Corona
- Desert Hot Springs
- Hemet
- Jurupa Valley
- Lake Elsinore
- Menifee
- Moreno Valley
- Murrieta
- Norco
- Palm Desert
- Palm Springs
- Perris
- Rancho Mirage
- Riverside
- San Jacinto
- Temecula
- Wildomar

Map 8: Riverside County Wildland Fire Threat



Hazard Definition

A wildfire is an uncontrolled fire spreading through vegetative fuels, posing danger and destruction to property. Wildfires can occur in undeveloped areas and spread to urban areas.

Public Resources Code §4114 and §4130 authorize the State Board of Forestry and Fire Protection (Board) to establish a fire plan which, among other things, establishes the levels of statewide fire protection services for State Responsibility Area (SRA) lands. These levels of service recognize other fire protection resources at the federal and local level that collectively provide a regional and statewide emergency response capability. In addition, California's integrated mutual aid fire protection system provides fire protection services through automatic and mutual aid agreements for fire incidents across all ownerships where structures and other human development are more concentrated.

The California Fire Plan is the state's road map for reducing the risk of wildfire. The Fire Plan is a cooperative effort between the State Board of Forestry and Fire Protection and the California Department of Forestry and Fire Protection. By placing the emphasis on what needs to be done long before a fire starts, the Fire Plan looks to reduce firefighting costs and property losses, increase firefighter safety, and to contribute to ecosystem health.

State Responsibility Areas (SRAs)

State Responsibility Areas (SRAs) are those lands within California that meet specific geographic and environmental criteria. These are areas where CAL FIRE has legal and financial responsibility for wildland fire protection and where CAL FIRE administers fire hazard classifications and building standard regulations. SRAs are defined as lands that 1) are county unincorporated areas, 2) are not federally owned, 3) have wildland vegetation cover rather than agricultural or ornamental plants, 4) have watershed and/or range/forage value, and 5) have housing densities not exceeding three units per acre.60 Similar to the Federal Responsibility Areas (FRAs), where SRAs contain built environment or development, the responsibility for fire protection of those improvements (non-wildland) is that of a local government agency.

Local Responsibility Areas (LRAs)

Local Responsibility Areas (LRAs) include land within incorporated cities, cultivated agriculture lands and non-flammable areas in unincorporated areas and those lands that do not meet the criteria for SRA or FRA. LRA fire protection is typically provided by city fire departments, fire protection districts, and counties, and by CAL FIRE under contract

to local governments. LRAs may include flammable vegetation and Wildland-Urban Interface (WUI) areas where the financial and jurisdictional responsibility for improvement and wildland fire protection is that of a local government agency.

Homes in Wildland-Urban Interface (WUI) Areas

Wildfire poses a significant risk to the people of California and their homes, as evidenced by an increasing trend in structural losses from wildland fires. The risk is predominantly associated with wildland-urban interface (WUI) areas. WUI is a general term that applies to development interspersed within or adjacent to landscapes that support wildland fire.

Housing Unit Density Classes:

Class Description

- Rural/Outlying: From one housing unit per five acres to one housing unit per twenty acres.
- Urban: Dwelling unit density of 2 to 8 units per acre.
- Wildland Urban Interface: The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.
- Wildland Intermix Interface is a condition where homes and other structures are scattered throughout a wildland area.

Managing the human/wildfire conflict requires a commitment of resources and a focused mitigation plan over the long term. The approach must be system-wide and include the following:

- An informed, educated public that takes responsibility for its own decisions relating to wildfire protection
- An effective wildfire suppression program
- An aggressive hazardous fuels management program

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- Land use policies and standards that protect life, property, and natural resources
- Building and fire codes that reduce structural ignitions from windblown embers and flame contact from WUI fires and impede or halt fire spread within the structure once ignited
- Construction and property standards that provide defensible space

While some wildfires start by natural causes, humans cause four out of every five wildfires. Wildfires started by humans are usually the result of debris burns, arson, or carelessness. As a natural hazard, a wildfire is often the direct result of a lightning strike that may destroy personal property and public land areas, especially on state and national forest lands. The predominate dangers from wildfires are:

1. Injury or loss of life to people living in the affected area or using the area for recreational facilities.
2. Injury or loss of life to first responders.
3. The destruction of timber, property, wildlife

History

There is a long history of wildfires in Riverside County. The table below represents Wildland Fires of 100 acres or greater from 2001 to 2017. The source of the information is the California Department of Forestry and Fire Protection.

Table 20: Riverside County Large Fires 300 Acres and Greater (2001-2017)

Wildland Incidents within Riverside to include Local and State Incidents.

YEAR	NUMBER OF LARGE FIRES
2017	6 (as of July 2017)
2016	3
2015	5
2014	1
2013	5
2012	7
2011	1
2010	4
2009	3
2008	3
2007	6
2006	12
2005	7
2004	6
2003	9
2002	5
2001	5

Source: http://cdfdata.fire.ca.gov/incidents/incidents_search_results?search=riverside

Interestingly, the preceding Riverside County Wildland Fire Threat map points out the distinct bi-lateral character of Riverside County. The western end of the County is more

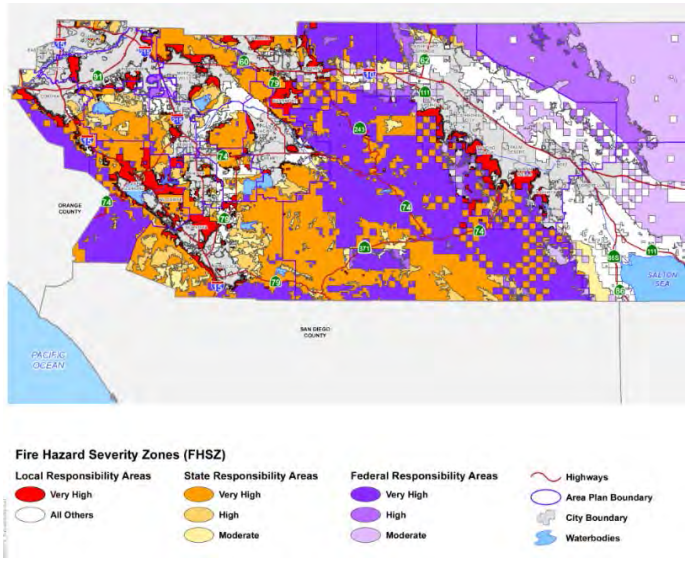
urban, densely populated, and covered with vegetation that is susceptible to wildfires. The eastern end of the County is primarily desert, with far less population and far less vegetation than the western end of the County.

The categories are:

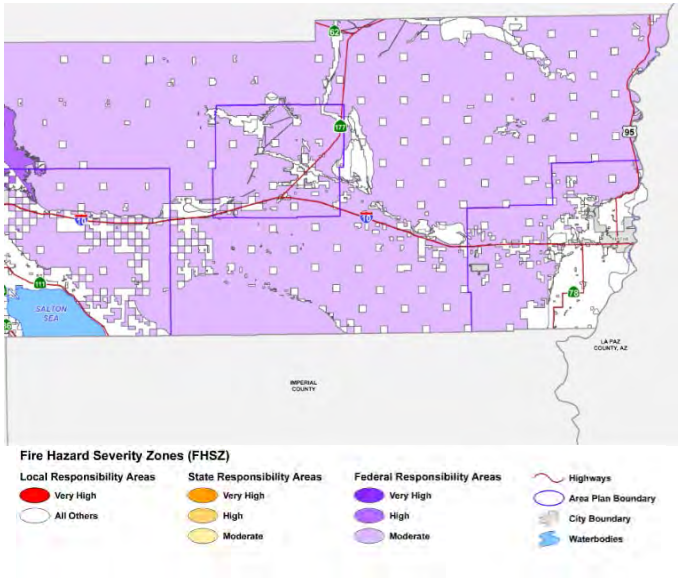
- Little or No Threat
- Moderate
- High
- Very High
- Extreme

The following two maps are maps of Fire Hazard Severity Zones. They show the wildfire susceptibility Risks and the local responsibility area, and the state or federal responsibility areas.

Map 9: Western Riverside County Wildfire Susceptibility Risks Map



Map 10: Eastern Riverside County Wildfire Susceptibility Risks Map



Risk Assessment

Fire is a continuous threat in Southern California, particularly in Riverside County. The major areas of concern are the wildland and urban interfaces. Hundreds of homes now border major forests and brush areas. With thousands of people living near and visiting wildland areas, the probability of human-caused fires is growing. Although occurring with less frequency, the threat of fire from lightning strikes also exists. The Idyllwild area, San Jacinto Mountains is heavily forested and high hazard area.

Generally, the dry seasons are a major time for an increase in the number of forest fires and structure fires. The standard "shake roof" is a particular hazard, as is the poor control of flammable growth around structures. During times of the strong "Santa Ana" winds, fire danger is particularly high.

The increase of industrial complexes, transportation networks, and utility networks pose a threat that is not seasonal, but rather year-round. Associated with industry and transportation networks is the ever present problem of hazardous materials. Although not necessarily a wildland threat, a fire occurring in an urban area involving hazardous materials could have serious consequences.

Due to the undeveloped and rugged terrain in parts of Riverside County, highly flammable brush- covered land, and long, dry summers, many portions of the County have experienced numerous wildland fires in the recent past.

- **Effects on people and structures.** The effects on people and housing can be significant. Many fires shown in the table above resulted in the evacuation of homes. Wildfires have the potential to destroy residential and commercial buildings, as well as critical infrastructure.

- **Effects on infrastructure.** Due to destroyed powerlines, wildfires often result in power outages. These outages can be extensive in geographic area and numbers of persons affected.

- **Effects on Critical Facilities.** There are approximately 15 fire stations that are in potential direct risk from wildland fires. There are additional critical locations within the Idyllwild area that are at a high danger risk from wildland fires. In many cases (i.e. fire stations and schools) these facilities cannot be relocated into a safer area.

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- **Effects on agriculture.** Effects on agriculture can be devastating. In addition to the obvious impacts on animals and crops, wildfire can have deleterious effects on soil and water that will affect agriculture for an extended period of time.

Relationship to Other Hazards – Cascading Effects

Major wildfires can completely destroy ground cover causing flooding and erosion. If heavy rains follow a major fire, flash floods, heavy erosion, landslides and mudflows can occur. These cascading effects can have ruinous impacts on people, structures, infrastructure, and agriculture.

Risk Assessment Conclusion.

The western end of Riverside County is far more susceptible to wildfire than the eastern end of the County. The effects can be far-reaching in terms of the number of acres involved, the toll on human life, and the economic consequences. Wildfire will continue to be a high-risk hazard for Riverside County.

5.3.4 Electrical Failure – Power Outage

Severity: 4

Probability: 4

Risk Score: 2.00

OA Jurisdictions Affected by Power Outage Incidents

- Cathedral City
- City of La Quinta
- City of Palm Springs
- Desert Water Agency
- Imperial Irrigation District
- Western Municipal Water District

Hazard Definition

Identifying Energy Shortage Hazards

California continues to experience both population growth and weather cycles that contribute to a heavy demand for power. Climate change may also increase California's vulnerability to energy shortage hazards. Predicted increases in heat waves, as well as increasingly severe winter storms, will put ever greater strain on California's electricity system.

Hydro-generation provides approximately 20 percent of California's electric power, with the balance coming from fossil fuels, nuclear, and renewable sources. Rotating outages and/or blackouts such as those experienced in 2000 and 2001 can occur due to losses in transmission or generation and/or extremely severe temperatures that lead to heavy electric power consumption.

The electric power industry does not have a universal agreement for classifying disruptions.

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Nevertheless, it is important to recognize that different types of outages are possible so that plans may be made to handle them effectively. Electric power disruptions can be generally grouped into two categories: intentional and unintentional.

There are four types of intentional disruptions:

1. Planned (Maintenance): Some disruptions are intentional and can be scheduled. For example, a disruption may be necessary when components of the power system are taken out of service for maintenance or upgrading. Scheduled intentional disruptions can last from several minutes to several hours, and customers are usually notified in advance.

2. Unscheduled (Repair): Some intentional disruptions must be done "on the spot." As a result, advance notice cannot be provided. For example, a fire department or a police department may request a disruption in service during a fire or an accident.

3. Demand-Side Management: Some customers (i.e., on the demand side) have entered into an agreement with their utility provider to curtail their demand for electricity during periods of peak system loads. In return for agreeing to these disruptions, these customers receive a lower electric rate and/or a rebate.

4. Load Shedding (Rotating): When the power system is under extreme stress due to heavy demand and/or failure of critical components, it is sometimes necessary to intentionally interrupt the service to selected customers to prevent the entire system from collapsing. In such cases, customer service (or load) is cut, sometimes with little or no warning. One form of load shedding called a "rotating blackout" involves cutting service to selected customers for a predetermined period (usually not more than two hours). As power is restored to one block of customers, the power to another block of customers is interrupted to reduce the overall load on the system.

Unintentional or unplanned disruptions are outages that come with essentially no advance notice. This type of disruption is the most problematic. The following are categories of unplanned disruptions:

- Accident by the utility, utility contractor, or others.
- Malfunction or equipment failure due, for example, to age, improper operation, excessive operation, or manufacturing defect; special subcategories cover broken fuse links and underground cable, joint, or termination failures.
- Equipment overload (utility company or customer).

- Reduced capability (equipment that cannot operate within its design criteria).
- Tree contact other than from storms.
- Vandalism or intentional damage.
- Weather, including ice/snow, lightning, wind, earthquake, flood, and broken tree limbs taking down power lines.
- A wildfire that damages transmission lines.

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Table 21: Riverside County Power Outages (1993-2017)

Location	Date	Incident Description
Riverside County	10/28/1993	Variety of fires. 129 structures destroyed. Power outages. 6 injuries.
Greater Jurupa Area	1/6/1996	Property damage, power disruption, road damage.
Beaumont	2/17/1999	60mph winds damaged roofs, downed trees and power lines, and created a dense dust storm. A plume of dust penetrated homes and covered all surfaces and filled closets and cupboards. Yards had 3" to 6" of silt. 1128 homes damaged. 27 vehicles.
Hector Mine Earthquake	10/16/1999	Minor damage to buildings, power interruption, communication interruption, gas line break causing a leak.
Blythe	8/23/2000	Power outage from storms. Provided shelter for 24 people.
Desert Cities	8/27/2000	Thunderstorm and wildfires caused power interruption. 2,800 customers without power.
Eastern Coachella Valley	7/3/2001	Power failure. Several thousand people affected.
Riverside County	2/9/2002	High wind. Damage throughout the County. Roof damage, structure fires, wildfires started but were contained before 15 acre point. Power outages from the wind.
Moreno Valley	7/22/2002	51 home blackout. Transformer fire. Illegal dumping of used motor oil into the transformer vault.
Mira Loma, Jurupa, Rubidoux, Pedley, Sky Country	1/6/2003	High wind caused road closures, downed trees and power lines. Semi-truck overturns. Power outages affecting 10,000. Fire.
Riverside County	1/14/2003	Power lines down with 936,569 people affected, trees felled, homes damaged, fire triggered from downed lines,

Elsinore, Hemet, Moreno Valley, Perris, San Jacinto and Temecula in the southeastern area of Riverside County	4/23/2009	Substation load interruption led to loss of power to 280.000 residents
Riverside County, Orange County, parts of Arizona and Mexico	9/8/2011	Cascading outages led to approximately 2.7 million customers without power due to an 11-minute system disturbance. Power loss lasted as long as 12 hours for some affected. Riverside County's Imperial Irrigation District was directly affected.
Thousand Palms, Indio and Desert Hot Springs	4/30/2014	A cut fiber ring led to communication failure for 261 residents. Power outages for 10,500 residents due to windy conditions.
Riverside	3/11/2016	Micro-burst caused down powerlines and power outages, 3,000 people affected.
Riverside	4/29/2016	Power outage led to 20,020 SoCal Edison customers affected.
Moreno Valley	2/10/2017	8,137 residents lost power due to substation malfunction
Riverside University Health System	5/11/2017	Scheduled maintenance required the hospital to switch to partial generator power for 16 hours.
Desert Reginal Hospital	5/17/2017	Experience power outage and ran off generators for
Riverside	10/26/2017	Load shedding caused loss of power to 104,000 residents

Risk Assessment

The possibility of catastrophic damage to property or loss of life due directly to power failure is slight. An individual could lose their life if they come into contact with a downed power line. Although the risk of a power outage is high, the direct damage potential is low.

Power outages or interrupted service often occur during electrical storms and high winds. Wildfires also cause power outages in Riverside County. There is a very real possibility of a widespread blackout due to the earthquake.

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- **Effects on people and housing**. Impacts due directly to power failure are slight. If the persons require electric powered medical equipment, they will be at greater risk. In the areas of the county that can be impacted by high temperatures, or very cold temperatures, a power outage can have an on the heating or cooling abilities.

- **Effects on commercial and industrial structures**. Impacts due directly to power failure are slight. If the outage lasts many days, the impact would be of a greater severity.

- **Effects on infrastructure.** Impacts to the ability of infrastructure in the area of failure to support emergency response may be significant, although not permanent.

- **Effect on Critical Facilities.** Most critical facilities are required to have a back- up generator, but there is no official list of "all" critical having and maintain working back- up generators. Depending on the facility, the power outage can have strong effects on parts of the population that need medical devices, also for cooling and heating purposes.

- **Effects on agriculture.** Impacts due directly to power failure are slight.

Relationship to Other Hazards – Cascading Effects

As noted, other hazards such as an earthquake, wildfire, electrical storms, and high winds may be causes of blackouts.

Risk Assessment Conclusion

The County needs to be prepared to restore power should there be a failure due to downed lines caused by another hazardous condition or any other reason.

5.3.5 Emergent Disease/Contamination

Severity: 3

Probability: 3

Risk Score: 1.69

OA Jurisdictions Affected by Emergent Disease/Contamination

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

Hazard Definition

According to the Center for Disease Control, the term "emerging infectious diseases" refers to diseases of infectious origin whose incidence in humans has either increased within the past two decades or threatens to increase in the near future. Emergent diseases are new, new to the area, reappearing in the area after being fairly dormant, or a strain has become resistant to antibiotics. These illnesses are caused by bacteria, viruses or fungi that have entered into the body and began to multiply. Infectious diseases can be spread throughout the County population in a number of different ways:

- Vector (Bug bites)
- Person to person
- Contaminated food water or soil

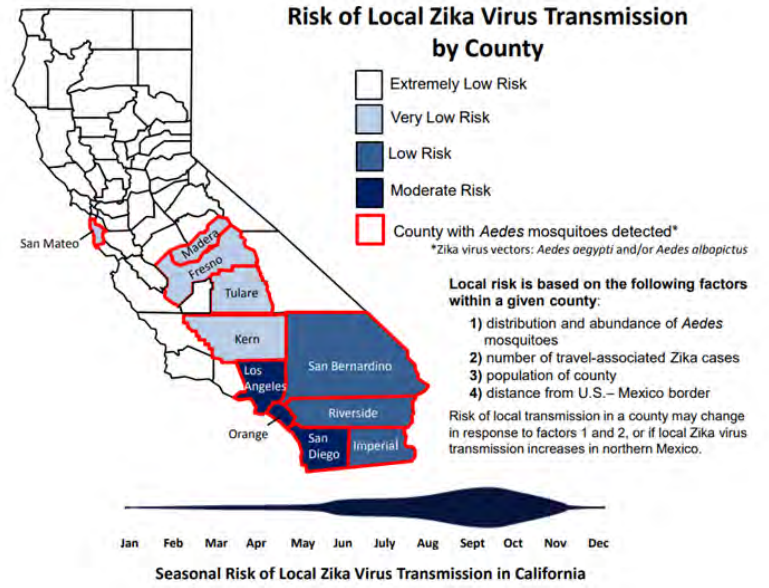
Zika

Zika is a virus that is predominantly transmitted through the vector. Female Aedes ageypti are more dangerous than males. This is due to the fact that females have blood meals and males do not. They also spread the infection through laying eggs in standing water. Riverside County has detected Aedes ageypti, however, the ones that have been tested do not carry the virus. The reported cases in Riverside County have all been travel related illnesses. The threat of transmission is still present due to the potential sexual transmission of the virus.

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Figure 33: Zika Risk Map by County



Source:https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/LocalZikaRiskMap.pdf

Ebola

Ebola is dominant in African countries, though with the ease of travel it has the potential to make its way to California. It is transmitted through blood, bodily fluids, direct contact with broken skin, contaminated needles and infected primates. When infected it can be fatal. Ebola can spread rapidly within Health Care Facilities when staff are not properly trained of not wearing adequate personal protective gear.

Risk Assessment

- **Effects on people and housing.** The risk to people can be severe, leading to hospitalization and possibly loss of life. Damages to housing as a result of Pandemic Flu are not likely.

- **Effects on commercial and industrial structures.** The risks are minimal to structures.

- **Effects on infrastructure.** The risks are minimal, but if there is an emergent outbreak the risk to people will lessen the numbers of workers that can go to their regular employment, which can strain the maintaining the infrastructure. Continuity of Business and of Government may become an issue. Outbreaks also but a strain on schools, hospitals, doctor offices and businesses.

- **Effects on agriculture:** Agriculture can be devastatingly affected by emergency diseases. There are a number of vector borne illnesses that can affect livestock such as Lyme disease, Salmonella and rabies. Plant pests or viruses can cause huge losses in crops that can threaten food safety and farmer livelihood stability.

History of Events

2015/17 – Zika was confirmed in Riverside County in 2015 with 14 infections. In 2017, there were 2 confirmed cases. All cases were travel related. Report accuracy reflects confirmed cases. Due to the symptoms mirroring a cold, the number could be higher but the mortality rate for this disease is very low. Its greatest impact is on a pregnant woman. 153 cases were reported within the state of California as of August 2016. Sexual transmission is a possibility with this virus. Transmitting mosquitos, Aedes ageypti, are present within the County.

2014/16 – Riverside County was alerted of the 2014 West Africa Ebola Outbreak in West African countries. Worldwide, a total of 1,975 cases where confirmed and 1,069 deaths were reported in August 2014. In 2016 the numbers had grown to 15,261 confirmed cases and 11,325 fatalities, It was the largest outbreak in history. Infection Control Measures were released from the Riverside Department of Public Health to first responders and EMS professionals. Though Riverside did not experience an outbreak or confirm a case, they were on high alert of the potential spread of the disease.

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2015 – West Nile was contracted by 737 people within the county and there were 45 reported deaths.

2013 – Large scale Tuberculosis testing. 2 cases were confirmed and 72 were treated for latent TB infections.

2004 – Botulism Type A was detected in four inmates with in Riverside County.

2003 – West Nile Virus was detected in birds in the City of Riverside and the Coachella Valley. There was one reported human case within the County. Imperial and Los Angeles Counties also reported human cases.

Relationship to Other Hazards – Cascading Effects

This hazard has the potential to impact EMS first responders and Health Care Facilities. In the event that the timing of an outbreak coincided with another hazard, the healthcare impact could be extensive.

Risk Assessment Conclusion

Public Health Departments for the County, State, nation and the world constantly monitor all emerging diseases. This gives medical personnel the necessary time to prepare or mitigate possible effects of an emerging disease.

As a result of the Ebola and Zika outbreaks, Riverside County EMS Agency released Policy 3307, Emerging Viruses. Its purpose is to specify procedures to be followed when highly pathogenic emerging viruses are suspected during emergency call taking and response, or confirmed prior to interfaculty transport.

5.3.6 Cyber Attack

Severity: 2

Probability: 4

Risk Score: 1.50

OA Jurisdictions Affected by Cyber Attack

- All incorporated cities of Riverside County

Hazard Definition

Cyber-terrorism is the use of computer network tools to shut down critical government infrastructures such as energy, transportation, and government operations, or to coerce or intimidate a government or civilian population. The premise of cyber terrorism is that as nations and critical infrastructure became more dependent on computer networks for their operation, new vulnerabilities are created. A hostile nation or group could exploit these vulnerabilities to penetrate a poorly secured computer network and disrupt or even shut down critical public or business operations.

The goal of cyber terrorism is believed to be aimed at hurting the economy of a region or country, and to amplify the effects of a traditional physical terrorist attack by causing additional confusion and panic.

Cyber-terrorism. Recent incidents illustrate the County's vulnerability to cyber- terrorism.

- **Effects on people and housing**. If a Cyber-attack were to happen at a Healthcare Facility the effects could be detrimental to patients. Sensitive Security Information could be obtained and the hackers could release patient files, payment information and other personal data that could harm individuals and employees.
- **Effects on commercial and industrial structures**. Depending on levels of contamination and exposure, effects could range from minimal to devastating.
- **Effects on infrastructure**. Cyber-terrorism can have profound effects on infrastructure. If an attack were to happen in a critical facility it could potentially make it inoperable.
- **Effects on agriculture.** Depending on levels of contamination and exposure, effects could range from minimal to devastating.

History of Events

In 2016 the County of Riverside Emergency Management Department was targeted for a ransomware attack that resulted in a disruption of work. It also affected the DOC shared drive, which could have hindered response to a disaster.

Relationship to Other Hazards – Cascading Effects

Cyber-attacks have the ability to shut down entire facilities. If an attack were to happen during a disaster it could greatly affect the response of first responders and EOC personnel.

Risk Assessment Conclusion

Cyber-attacks happen within the County on a daily basis. The Riverside County Information Technology Department (RCIT) has multiple prevention systems in place that protect County servers and network systems. RCIT monitors County systems 24 hours a day and has the Albert Sensor that will report to the Center for Internet Security (CIS), Multi-State Information Sharing and Analysis Center (MS-ISAC) all Domain Name System (DNS) and NetFlow traffic for correlation with the Department of Homeland Security's threat intelligence database for real-time alerting of malicious network connections to blacklisted IP address on the Internet. Another implemented system is the Enterprise Breach Detection System that inspects all internal/lateral county network traffic for indicators of compromise (IOCs) enabling the ISO to rapidly detect, respond to, contain, and prevent cyber-attacks, malware outbreaks, network reconnaissance, data exfiltration, and C2 (command & control) and botnet activities.

RCIT is also in the process of implementing more programs for the safety of the County's networks. Due to the level of security, the threat of a Cyber-attack is fairly low, but the potential damages could be very damaging.

5.3.7 Terrorist Event

Severity: 3

Probability: 1

Risk Score: 1.13

OA Jurisdictions Affected by Terrorism

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

Hazard Definition

Terrorism is the use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives. Terrorist acts or and acts of war may cause casualties, extensive property damage, fires, flooding, and other ensuing hazards.

Terrorism takes many forms, including:

- Chemical
- Biological
- Radiological
- Nuclear
- Explosive
- Cyber-terrorism
- Active shooters
- Vehicle Ramming

Chemical: Chemical weapons have been used primarily to terrorize an unprotected civilian population and not as a weapon of war. This is because of fear of retaliation and the likelihood that the agent would contaminate the battlefield for a long period of time.

Some analysts suggest that the possibility of a chemical attack would appear far more likely than either the use of nuclear or biological materials, largely due to the easy availability of many of the necessary precursor substances needed to construct chemical weapons. Additionally, the rudimentary technical knowledge needed to build a working chemical device is taught in every college level chemistry course in the world.

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Some chemical agents are odorless and tasteless and are difficult to detect. They can have an immediate effect (a few seconds to a few minutes) or a delayed effect (several hours to several days).

Biological: Biological weapons are defined as any infectious agent such as a bacteria or virus used to produce illness or death in people, animals, or plants. This definition is often expanded to include biologically-derived toxins and poisons. Biological agents can be dispersed as aerosols or airborne particles. Terrorists may use biological agents to contaminate food or water because the agents are extremely difficult to detect.

Radiological: A radioactive material is a material made up of unstable atoms which give off excess energy in the form of radiation through the process of radioactive decay.

Radiation cannot be detected by human senses. Wherever radioactive materials are used, transported, or stored there is a potential for a radiological accident to occur. Some of their most common uses include:

- By doctors to detect and treat serious diseases.
- By educational institutions and companies for research.
- By the military to power large ships and submarines.
- By companies in the manufacture of products.
- As a critical base material to help produce the commercial electrical power that is generated by a nuclear power plant.
- As one of the critical components in nuclear weapons, which are relied upon to help deter the threat of war.

Nuclear: The possibility exists that a terrorist organization might acquire the capability of creating a small nuclear detonation. A single nuclear detonation in the United States would likely produce fallout affecting an area many times greater than that of the blast itself. There is also the possibility that a terrorist will construct a “dirty bomb”, a bomb that is used to distribute nuclear-contaminated materials. It would have less of an effect than a “traditional” nuclear bomb, but the terror effect on the population would be great.

Explosive: The possibility exists that a terrorist may attack with conventional explosives, particular in a public setting. Innumerable incidents have occurred around the world involving car bombs, truck bombs, and bombs attached directly to terrorist individuals.

Cyber Terrorism: Please see Section 5.3.6

Active shooters: Active shooter events in the nation have increased dramatically over the last 17 years. According to the report "a Study of Active Shooter Incidents in the United States Between 2000 and 2013" produced by the Department of Justice, it states that there have been 160 Active Shooter incidents from 2000-2013. Furthermore, in the updated version of that report for 2014-2015, it states that there has been an additional 40 Active Shooter incidents spanning 26 states. These attacks have led to 92 casualties and 139 wounded.

Vehicle Ramming: The use of vehicle ramming has steadily increased and it is likely that this tactic will continue to rise. This attack style required little specialized training or skill and poses little risk to the assailant. It is seen as an effective style due to its minimal detection when acquiring the weapon and overall flexibility when planning target location and targets. Known terrorist organizations encourage ramming and have even released tips on maximizing casualties.

History

Fortunately, Riverside County has little history of incidents of terrorism. However, threats and incidents have been on the rise over the last 17 years.

Riverside County has also been impacted by terrorist acts in surrounding counties. On December 2nd, 2015 a disgruntled employee shot and killed many former coworkers in San Bernardino County. The "Waterman Incident" affected Riverside County in the following ways:

- Activation of the Riverside County Medical Health Operational Area Coordinator (MHOAC) for outreach to Riverside Environmental Health and Riverside Behavioral Health representatives.
- The MHOAC completed a comprehensive list of available Riverside resources (to include name, contact info, and wrap around service requirements).
- The MHOAC provided the resource list to the Regional Disaster Medical Health Specialist (RDMHS).
- Riverside Environmental Health sent 63 employees and Behavioral Health sent 89 employees to San Bernardino County to support the initial response and re-establishment of the San Bernardino County Environmental Health Division from December 2015 through June 2016.

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Risk Assessment

Chemical. A terrorist would not have to build a complicated chemical release device. During favorable weather conditions, an already existing chemical plant could be sabotaged or bombed releasing a toxic cloud to drift into a populated area. The result could be just as dangerous as having placed a smaller chemical device in a more confined space. This type of incident would cause the maximum amount of fear, trepidation, and potential panic among the civilian population, and thus achieve a major terrorist objective.

Biological. The agents are cheap, easy to make, and simple to conceal. Even small amounts, if effectively deployed, could cause massive injuries and overwhelm emergency rooms. The production of biological weapons can be carried out virtually anywhere — in simple laboratories, on a farm, or even in a home.

However, experts say it remains very difficult to transform a deadly virus or bacterium into a weapon that can be effectively dispersed. A bomb carrying a biological agent would likely destroy the germ as it explodes. Dispersing the agents with aerosols is challenging because biomaterials are often wet and can clog sprayers. Most agree that, while a biological attack could be devastating in theory, in reality, the logistical challenges of developing effective agents and then dispersing them makes it less likely a terrorist could carry out a successful widespread assault.

Radiological/Nuclear. Under extreme circumstances an accident or intentional explosion involving radiological materials can cause very serious problems. Consequences may include death, severe health risks to the public, damage to the environment, and an extraordinary loss of, or damage to, property.

Explosive. While generally more limited in the extent of the damage inflicted, explosive terrorist attacks may have consequences including death and damage to property. Targets would include county fairs, music festivals, critical facilities and sporting events.

Active shooters: The increase of violent crimes throughout the nation has increased awareness within Riverside County. The possibility of an attack has increased. Though the threat to infrastructure is fairly limited this hazard could result in loss of life, injury and economic disruption. Targets could include public events, government facilities, schools and shopping centers.

Vehicle Ramming: This terrorist tactic has been increasing over the last five years. Riverside County has a very low history of this event but moderate probabilities of it happening again. This tactic is very hard to detect and mitigation is extremely difficult to

carry out. Riverside County Sheriff's Department has increased their awareness of this terrorist style in an attempt to foil any attempted ramming incident.

Extremists, especially in European countries have moved towards filling the vehicles with explosives to increase the number of fatalities in an attack. Though this approach has not yet made it to Riverside County, the potential threat has increased.

Relationship to Other Hazards – Cascading Effects

Terrorism has the potential to cause a cascading event. After a terrorist incident people may display signs of civil disorder driven by fear.

Risk Assessment Conclusion.

The western end of Riverside County is far more susceptible to terrorism than the eastern end of the County. The effects can be far-reaching in terms of the number of buildings involved, the toll on human life, and the economic consequences.

5.3.8 Communications Failure

Severity: 3

Probability: 2

Risk Score: 1.13

OA Jurisdictions Affected by Network Communications Failure

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

Hazard Definition

CoRNet

The County of Riverside Network (CoRNet) provides Voice and Data communication for most County departments and facilities. CoRNet is a distributed design consisting of Regional Hub locations to which sites in each region have their point to point circuits connected. Each of these Hub locations is then connected to its adjacent Hub locations via high bandwidth circuits.

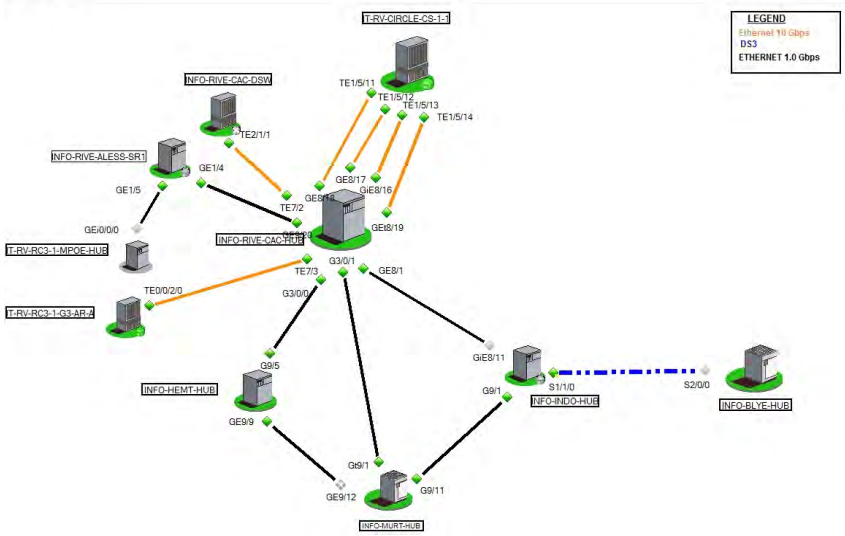
Voice Services are controlled from the County Administration Center Hub with redundancy provided by the Indio Hub location. Application Services and Internet Services for the County are delivered via the County Administration Center Hub location and soon from the RC3 Data Center.

With the completion of the Converged Network Project in 2016, CoRNet now provides both Voice and Data over the same network infrastructure. The same network connection that provided a data connection for the customers hardwired PC's now provides the connectivity for all phone communications and wireless devices.

A loss of Network connectivity now impacts both Voice and Data and wireless (Wi-Fi) communications. In the event of a Communication Failure, the entire County would be affected.

There are multiple hazards that could result in a "Network" failure such as Earthquake, Power Outage and other Natural Disasters.

Network Map



Indio Hub Failure

- Sites impacted
  - All CoRNet connected Desert locations
- Services impacted
  - All Voice, Data and Wifi services for this region.

Murrieta (SWJC) Hub Failure

- Sites impacted
  - All CoRNet connected South County locations
- Services impacted
  - All Voice, Data and Wifi services for this region.

Hemet Hub Failure

- Sites impacted
  - All CoRNet connected Hemet area County locations
- Services impacted

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  - All Voice, Data and Wifi services for this region.

Riverside Hub Failure

- Sites impacted
  - All Central Riverside locations (Voice, Data and Wifi)
  - All County Hubs will lose all application and Internet based services
  - All State and Vendor provided application services.
- Services impacted
  - All Voice communications for Central Riverside locations.
  - All other Hubs would fail over to the Indio Hub for Voice.
  - All County Hubs will lose all application, Internet and Wifi based services.

PSEC

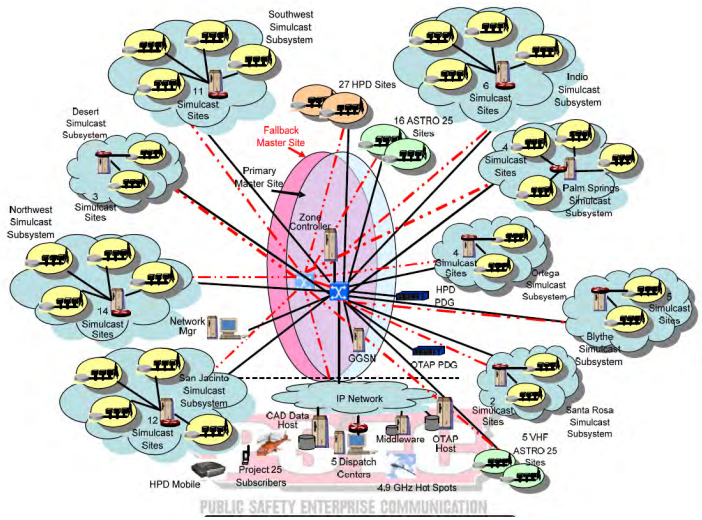
The Riverside County Information Technology/Public Safety Enterprise Communications (RCIT/PSEC) Division provides public safety communications for all participating City and County law enforcement, fire service, public works, and allied agencies in Riverside County. In January of 2014, RCIT/PSEC replaced an aging countywide Enhanced Digital Access Communications System (EDACS) system with a Motorola 7.x APCO P25 Phase 2 high availability and Dynamic System Resilience voice radio system and a High-Performance Data system with a mobile VPN client for multiple network access. PSEC provides and manages all aspects of Public Safety Radio Services and mobile data for participating agencies which include almost all County agencies and the city police departments of Banning, Murrieta, Riverside, and Corona.

Thirty plus full-time staff provide 24/7/365 Public Safety Communications for over 6,800 voice and data mobile users who operate over a 7,303 square mile area. The PSEC radio system provides all levels of government communications for the 2,189,641* residents of Riverside County including first responder dispatch for Law Enforcement 9-1-1 Dispatch Centers. The staff maintains:

- 76 radio and microwave remote sites
- 75 PSEC radio Voice and Data transmitter Sites
- 1 – Primary Motorola (M)- Core Site
- 1 Motorola (M) Core Dynamic System Resilience (DSR) Site
- 86 licensed Microwave Hops
- Approximately 5500 Voice Users
- Approximately 1300 Mobile and Tablet Data Users
- 8 Dispatch Centers

The PSEC Division of RCIT processed 24,421,574.0 Public Safety Transmissions for FY16/17

Figure 34: PSEC System Architecture



System Redundancy

A significant and material attribute of the System is how it performs during various failure conditions. The PSEC ASTRO 25 Radio System is designed with multiple levels of redundancy and the ability to provide continued communications should failures occur. Because the System can be a lifeline to County users and citizens, there is no tolerance for System failure. The System can withstand multiple failures and still provide full-featured trunked communications.

At each remote site, dispatch location and Master site, components that have the potential to interrupt communications have been backed up with redundant components. The system is designed such that multiple component failures must occur before users will notice a degradation in performance (other than a brief period during the switch over to a redundant component).

Master Sites

There are two Master sites. In the event of a catastrophic failure of the one Master site, the second Master site will take over operation of the entire system. In the event of a loss of microwave communications links between the east side and the west side of the county, one Master site can take over system operations in the east county, while the second will continue to control the west county. In this scenario, dispatchers at either location of the Master sites would not be able to reach units operating on the east side of the county, nor the west.

History of Events

CoRNet

Riverside County has not experienced a large scale Communication Failure with CoRNet.

PSEC

In early 2017 the PSEC radio system had a technical issue that led to the temporary disruption of 911 services in the Indio/Palm Springs area.

Risk Assessment Conclusion

CoRNet

As RCIT continues working toward redundancy in many areas (Data Center, MPLS, Redundant Internet Connections etc.), it is important to understand the scope of an outage depending on where it occurs on CoRNet under the current design.

While a single Hub failure would only impact the locations serviced through that Hub. Other hub locations would not be affected. A failure of the Riverside Hub would have a widespread impact. A failure at the Riverside Hub would result in the loss of all Application, Internet and Wi-Fi services for the entire county.

PSEC

The RCIT/PSEC Division has developed hardened sites to maintain Public Safety two-way communications to support first responders during natural disasters and civil disturbance. All of the microwave and core sites are hardened with towers that are rated

to either 85 or 120 mph wind, Seismic Zone 4, and are maintained by professionals dedicated to Public Safety Communications.

The PSEC system is highly redundant with several layers of fault tolerance. There are multiple routing paths for routers, switches, trunked repeaters, overlapping coverage and core roaming services. Although individual sites may be affected by a major earthquake or another disaster, the PSEC system has been designed to offer a high level of operability overall.

Restoration of downed infrastructure could take hours to a month(s) depending on the severity of the damage with the worst case being a loss of physical infrastructure.

The PSEC system has already performed well in minor earthquakes and major fires. The system has also been highly available on a day to day basis. The probability of the system working to support first responders is high if the PSEC Division properly maintains the system and is funded to do so.

The Core and Radio Network Interface (RNI) has intrusion detection and is isolated from the outside with multiple layers of firewalls to protected from Cyber Attacks. A comprehensive assessment by RCIT ISO and the manufacturer Motorola was performed when the PSEC radio system was deployed. RCIT ISO can be contacted to provide more details on how the RCIT network is protected

Relationship to Other Hazards – Cascading Effects

Any loss of The RCIT/PSEC Public Safety Voice and Data system would affect first responder performance during emergencies of all types in Riverside County for Law, Fire, EMS and local government entities like Public Works.

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5.3.9 Flood

Severity: 3

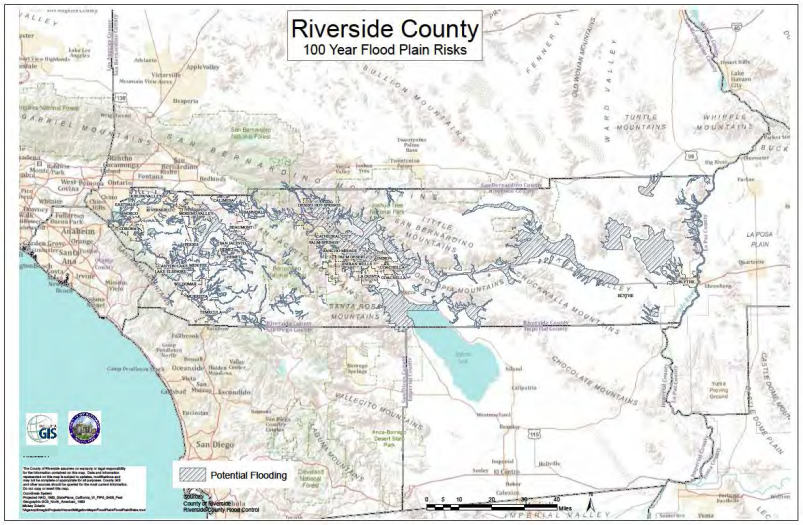
Probability: 3

Risk Score: 1.13

OA Jurisdictions Affected by Flooding

- City of Blythe
- City of Calimesa
- City of Canyon Lake
- City of Cathedral City
- City of Desert Hot Springs
- City of Eastvale
- City of Indian Wells
- City of Jurupa Valley
- City of La Quinta
- City of Lake Elsinore
- City of Norco
- City of Palm Desert
- City of Perris
- City of San Jacinto
- City of Temecula
- City of Wildomar
- Rancho California Water District
- Riverside County Office of Education
- Riverside Unified School District

Map 11: Riverside County 100 Year Flood Plain Risks



Hazard Definition

A flood is defined as an overflowing of water onto an area of land that is normally dry. Floods generally occur from natural causes, usually weather-related, often in conjunction with a prolonged period of seasonal precipitation or with sudden and very heavy rain falls. Floods can, however, result from human causes as a dam impoundment bursting. Dam break floods are usually associated with intense rainfall or prolonged flood conditions. In the Riverside County area, a major earthquake could cause a dam failure. In a dam failure scenario, the greatest threat to life and property typically occurs in those areas located immediately below the dam since flood depths and discharges generally decrease as the flood wave moves downstream.

Floods are generally classed as either slow-rise or flash floods. Slow-rise floods may be preceded by a warning time lasting from hours to days, or possibly weeks. Evacuation and sandbagging for a slow rise flood may lessen the flood-related damage. Conversely, flash floods are characterized by extremely short warning times.

Hydrologic Regions

Although Riverside County occasionally experiences periods of significant drought, the County can also experience periods of substantial rainfall. When Riverside County does experience heavy rain, or rain over a period of days or weeks, many areas of the County are subject to flooding. Runoff from rain drains either naturally into rivers, washes, and creeks or into flood control facilities. Flash flooding is also a common problem, especially in the Coachella Valley and the easterly portions of the county. Flash flooding is typically associated with short duration, high-intensity precipitation events often associated with summer thunderstorms. Such events can occur even during a drought.

The topography of the County varies from mountainous areas several thousand feet above sea level to low desert areas that are actually below sea level. Riverside County falls within two distinct Natural Hydrologic Regions as described in the State of California Multi-Hazard Mitigation Plan (SHMP):

South Coast Region

The South Coast hydrologic region extends up from the U.S. - Mexico border to the Tehachapi, San Bernardino, San Gabriel, and San Jacinto mountains. Nearly one-third of the area is coastal plain. This region contains major urban centers, including the counties of Los Angeles, Orange, and San Diego. Much of the flooding is sudden and severe, resulting in massive slides, debris flows, and mudflows. The western portion of

Riverside County falls within the South Coast Region and contains portions of the Santa Ana River, San Jacinto River and Santa Margarita River watersheds.

Colorado River – Desert Region

The dominant hydrologic features of this region are the Colorado River, which forms its eastern boundary, and the Salton Sea, which lies just shy of its western boundary. The region is marked by the San Bernardino and San Jacinto mountains. The region is also bounded by the U.S.- Mexico border to the south and the South Lahontan region to the north. This is generally a sparsely populated agricultural region that experiences sporadic flooding; however, the upper Coachella Valley has a much higher population density. Both common winter storm events and summertime monsoonal flows from Mexico's Pacific Coast can spawn massive rainstorms, general flooding and flash floods. The Eastern portion of Riverside County falls within the Desert Region and contains portions of the Whitewater River and Colorado River watersheds.

Characteristic Weather Patterns

In Riverside County, various weather patterns are associated with flood events such as El Niño conditions, La Niña conditions, Summer Monsoons, and "Pineapple Express".

Floods that affect Riverside County can be attributed to three different types of storm events:

1. A general winter storm that combines high-intensity rainfall and a rapid melting of the mountain snow pack.
2. A tropical storm out of the southern Pacific Ocean.
3. A summer thunderstorm, particularly in the desert areas.

There are three principal types of flood hazards:

1. Stream flooding (including bridge scour and stream erosion)
2. Flash flooding (including debris and mud flows)
3. Sheet flow flooding (including alluvial fan flooding)

The major rivers in the South Coast hydrologic region of Riverside County are dry most of the year and pose flood threats to developments within the floodplain during general storms of long duration. When a major storm moves into the area, the excess precipitation becomes surface runoff. Resultant flood flows have predominantly short durations and

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sharp peaks. Increased urbanization increases flood potential by increasing the percentage of impervious surfaces.

In the Desert hydrologic region, high-intensity rainfall from the period of July to August can produce severe flash flooding. Winter rains are generally more widespread in the desert and flash flood potential is less due to the lower intensity of rainfall. Winter rains are nonetheless capable of producing flooding but are somewhat more predictable. There is a severe danger to motorists who may attempt to drive through flooded washes which are typically dry.

Storms with high volumes of precipitation in a short period of time have occurred in the County causing flash floods, contaminated drinking water, disrupted electrical service, and damaged homes and contents. In addition, land that has been denuded of foliage and trees due to fire or human activity has experienced serious erosion from the rainfall.

Excessive precipitation can inundate soil in slopes causing mudslides and landslides. These events can destroy homes, block highways, and destroy power lines. The County is vulnerable to this type of flood damage. Heavy storms also can strand individuals playing near or crossing streams, rivers, flood control channels and intersections.

Riverside County has several major river systems, dams, and reservoirs. Excessive rainfall can stress these systems causing serious damage to property and potential loss of life. Rivers can overflow their banks, destroying bridges and washing out roads and highways during major flood events. Dam failure is discussed in a separate section of this LHMP on that specific hazard.

History

Table 22: Riverside County Flood History

Location	Date of Incident	Reported Damage	Number Injured	Incident Description
Riverside County	1/17/1993	$12,629,191	0	Flooding
Idyllwild	3/5/1995	$1,000,000	Not Avail.	Flooding caused by rains. 3,000 acres of farmland flooded. Portions of Highway 74 washed away
Mecca	3/6/1995	$1,000,000	2	Flooding caused by rains.
Riverside County	2/6/1998	12,629,191	0	El Nino storms flooding, debris, road damage water damage to homes

Cherry Valley, Calimesa, Yucaipa-Oak Glen Conservation Camp, Banning	7/11-12/1999	$750,000	3	Flash flood. Camp and property damaged.
Desert Hot Springs	3/5/2000	$300,000	1	Flooding caused by rain and snow
Moreno Valley	3/7/2000	$1,500,000	Not Avail.	Flooding caused by rain. Mudslides. Homes and property destroyed.
Eastern Riverside County	8/29/2000	Not Avail.	0	Flash flood due to severe thunderstorm, hail, heavy rain.
Eastern Riverside County	7/6/2001	$3,383,000	0	Flash flood. Road damage, farmland damage, crop damage.
County Areas & Riverside City	11/24/2001	Not Avail.	Not Avail.	Flood channel blocked. Homes flooded.
Moreno Valley, Cathedral City	8/18/2003	$500,000	Not Avail.	Flash flood Government buildings flooded
Anza, Banning	9/4/2003	$150,000	Not Avail.	Flash flood.
Corona, Palm Springs	11/12/2003	$10,000	0	Flash flood.
Mira Loma, Moreno Valley	2/2/2004	$10,000	Not Avail.	Flash flood.
Temecula, Riverside, Mira	2/18/2004	$55,000	Not Avail.	Flash flood.
Mira Loma, Moreno Valley, Perris, Sun City, Lake Elsinore	10/20/2004	$500,000	0	Flash flood.
Riverside County FEMA DR -1577	12/27/2004	Not Avail	Not Avail	Severe Storms, Flooding, Debris Flows and mud slides
Riverside County FEMA DR -1585	2/16/2005	Not Avail	Not Avail	Severe Storms, Flooding, Debris Flows and mud slides
Riverside County FEMA DR -1884	3/8/2010	Not Avail	Not Avail	Severe Storms, Flooding, Debris Flows and mud slides
Riverside County FEMA DR -1952	12/17/2010	Not Avail	Not Avail	Severe Storms, Flooding, Debris Flows and mud slides

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Hemet, Coachella Valley and Thousand Palms	9/7-8/2014	Not Avail	Not Avail	Flash flooding in Coachella Valley. Mud and water closed roads and stranded vehicles in La Quinta, Palm Desert, and Thousand Palms. Homes in La Quinta were surrounded by water. Moving water was 3 feet deep on roads and 4 to 5 feet of standing water submerged vehicles.
Throughout County	12/3-4/2014	Not Avail	1	Flooding resulted, with mud, debris and water closing several roadways and stranding vehicles. Mud with debris 10 feet high piled up on Soboba Rd. north of San Jacinto. A swift water rescue was needed.
Throughout County	7/19/2015	Not Avail	1	Flooding in the county lead to the need for a swift water rescue, the washout of Interstate-10 near Desert Center, and neighborhood in and near Moreno Valley flooded causing damage to resident's homes and property.
Menifee	9/8/2015	Not Avail	Not Avail	Flooding
Temecula	1/5-7/2016	Not Avail	Not Avail	Flooding
Throughout County	2/27/2017	Not Avail	1	Flooding resulted from the storm. A swift water rescue was needed in Temecula. Heavy road damage disrupted traffic.

Source: https://www.weather.gov/media/sgx/documents/weatherhistory.pdf
http://www.cnrfc.noaa.gov/storm_summaries/dec2010storms.php
http://ks.water.usgs.gov/pubs/reports/wsp.2499.sumca0193.html
http://www.floodcontrol.co.riverside.ca.us/Downloads/AnnualReports/DistrictAnnualReport15-16.pdf

Flood Hazard Mapping

For floodplain management purposes, the following discussion describes the Federal Emergency Management Agency (FEMA) definition of "100-year flood." The term "100-

year flood" is misleading. It is not a flood that will occur once every 100 years. Rather, the flood elevation has a 1 percent chance of being equaled or exceeded each year. Thus, a 100-year flood could occur more than once in a relatively short period of time. The one percent chance flood is used by the National Flood Insurance Program (NFIP) as the minimum standard for floodplain management regulation and, in most cases, triggers the need for mandatory flood insurance coverage. A structure located within a FEMA Special Flood Hazard Area has a 26 percent chance of suffering flood damage during the term of a 30-year mortgage.

Riverside County utilizes several sources to determine local flood hazards: FEMA Flood Insurance Rate Maps, DWR Awareness Maps, and local flood zone delineation maps as identified in Riverside County Ordinance 458 (updated 6/9/2017). For floodplain management purposes, the County regulates unincorporated development within each of the above maps. Each of the incorporated Cities administers its own floodplain management program and may or may not utilize floodplain information beyond that provided by FEMA's Flood Insurance Rate Maps.

FEMA Flood Insurance Rate Mapping

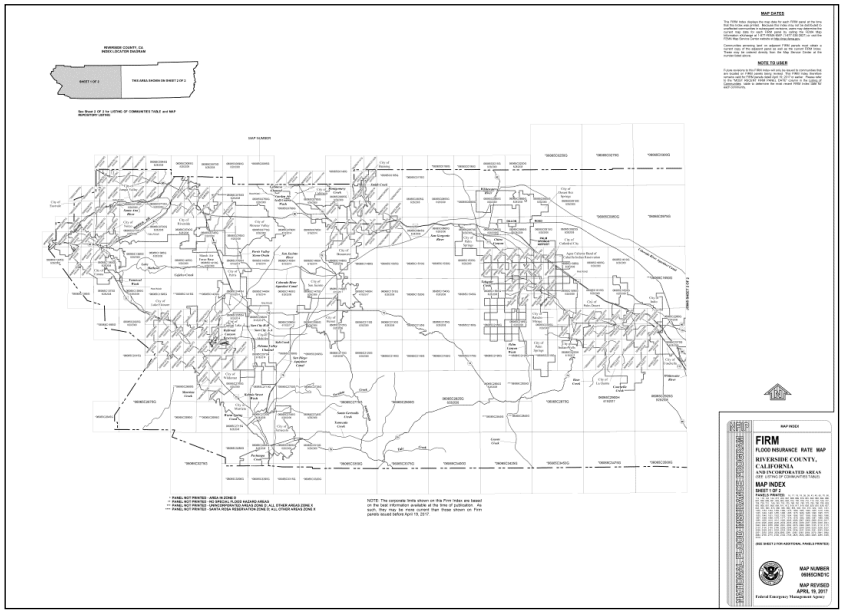
FEMA updated the Digital Flood Insurance Rate Maps (DFIRMS) effective range from August 28, 2008, to April 19, 2017, depending on when jurisdictions requested maps to be updated. The DFIRMS are available for public viewing from FEMA's website:

Source: http://msc.fema.gov/portal/advanceSearch#searchresultsanchor

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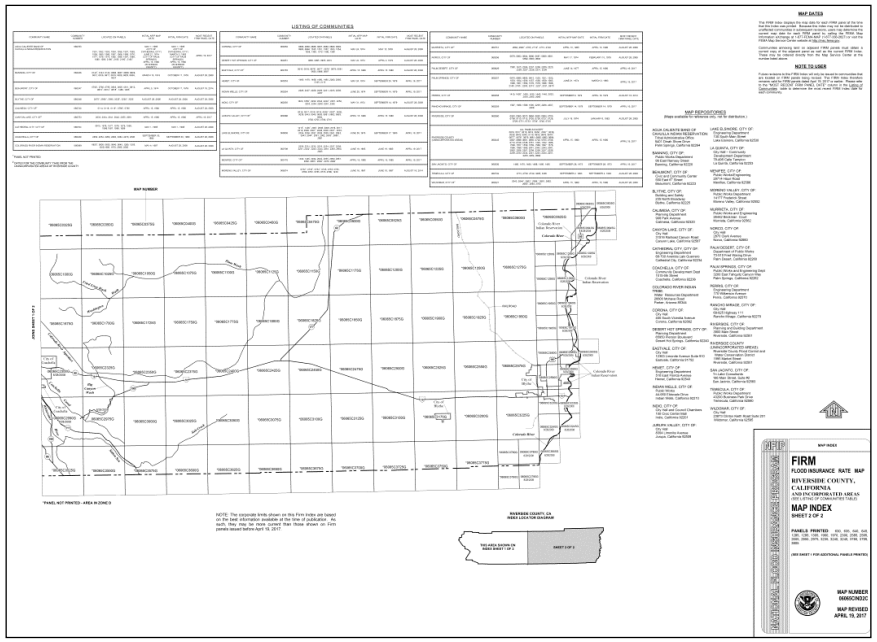
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Map 12: FEMA FIRM Map 2017 – West County



Source: http://msc.fema.gov/portal/advanceSearch#searchresultsanchor

Map 13: FEMA FIRM Map 2017 – East County



Source: http://msc.fema.gov/portal/advanceSearch#searchresultsanchor

Table 23: FIRM Flood Zones

Zone	Description
A	Area with a 1% annual chance of flooding. No depths or Base Flood Elevations (BFEs) are shown.
AE	Base floodplain where BFEs are provided. AE Zones are now used on digital FIRMs instead of A1 - A30 Zones.
A1 through 30	Known as numbered A Zones, these are the base floodplains in the old FIRM format where a BFE is shown.
AH	Area with a 1% annual chance of shallow flooding with an average depth ranging from 1 to 3 feet. BFEs are shown at selected intervals.
AO	River or stream flood hazard area, or area with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow with an average depth ranging from 1 to 3 feet. Average flood depths derived from detailed analyses are shown.
AR	Area with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam).
A99	Area with a 1% annual chance of flooding protected by a federal flood control system where construction has reached specified legal requirements. No depths or BFEs are shown.
V	Coastal area with a 1% or greater chance of flooding and an additional hazard associated with storm waves. No BFEs are shown within these zones.
VE or V1 through 30	Coastal area with a 1% or greater chance of flooding and an additional hazard associated with storm waves. BFEs are shown at selected intervals.
B, C, X	Zones considered having moderate to low risk of flooding, although flood insurance is available to property owners and renters in communities that participate in the NFIP.
D	Area with possible but undetermined flood hazards, where no flood hazard analysis has been conducted.

FEMA also conducted a Flood Insurance Study and determined that the following areas have the potential to flood.

Figure 24: Flood Insurance Study Areas

Water Source Studied	Water Source Studied	Water Source Studied
Acacia Creek Drain	Lincoln Avenue Drain	San Sevaine Channel
Alessandro Wash	Little Morongo Wash	Santa Ana River
All American Canal	Long Canyon Wash	Sheet Flow along Ocotillo Road
Arlington Canal	Macomber Palms Channel	Smith Creek
Arroyo Del Toro	Magnesia Falls Road	Smith Creek West Tributary
Bear Creek	Magnesia Springs Channel	South Norco Channel and Trib.s A and B
Beaumont Chanel	Main Street Drain	Spring Brook
Bedford Canyon Wash	Mangular Channel	Spring Brook Wash
Big Morongo Wash	Marshall Creek	Stetson Avenue Channel
Biskra Palms Channel	McVicker Canyon Wash	Stovepipe Canyon Creek
Blind Canyon Channel	Metz Road Basin	Stream A (Vicinity of Des. Hot Springs)
Bly Channel	Mirage Indian Trail Wash	Sun City Channels A-A, C-C, H-H and X-X
Box Springs Wash	Mission Creek	Sun City Southeast Tributary
Calimesa Channel	Mockingbird Canyon Wash	Sunny Slope Channel
Carrizo Alluvial Fan	Montgomery Creek	Sunnymead Storm Channel
Channel H	Mountain Avenue Wash	Taylor Avenue Drain
Cherry Avenue Channel	Murrieta Creek	Temecula Creek
Coachella Valley Stormwater Channel	North Cathedral Channel	Temescal Wash
Country Club Creek and North Tributary	North Norco Channel and Trib.s A, B and C	Tequesquite Arroyo
Day Creek Santa Ana River	North Palm Springs Wash	The Veldt
Dead Indian Alluvial Fan	North Side Wolf Valley Creek	Third Street Basin
Deep Canyon Alluvial Fan	Oak Street Channel	Thousand Palms Canyon Wash
Deep Canyon Storm Water Channel	Ocotillo Drive Wash	Thousand Palms Main Channel
Desert Hot Springs Channel	Orange Lateral	Thousand Palms Tributaries A, B and C
Dunes View Road Channel	Ortega Wash	Thunderbird Wash
Dry Morongo Wash	Ortega Channel	Tramview Wash
East Cathedral Channel	Palm Canyon Wash	Tramview Wash Tributary
East Gilman Home Channel	Palm Valley Drain	University Wash
East Rancho Mirage Storm Channel	Park Hill Drain	Wash G
El Cerrito Channel	Pechanga Creek	Wash I
Elsinore Spillway Channel	Perris Valley Storm Drain	Wasson Canyon Creek
Garden Air Gold Course Wash	Pigeon Pass Channel	West Cathedral Channel
Gilman Home Channel	Prenda Wash	West Norco Channel
Harrison Wash	Pushawalla Canyon Wash	West Pershing Channel
Hemet Storm Channel	Pyrite Channel	Whitewater River
Highland Springs Channel	Rache Channel	Whitewater River (C.V.S.C.)
Interstate-10 Wash	Ramsey Street Drain	Whittier Avenue Channel
Kalmia Street Wash	Rice Canyon Wash	Woodcrest Wash
Lake Elsinore	Salt Creek and Tributary	Unnamed Stream A
Lakeland Village Channel	Salt Creek Overflow	Unnamed Stream B
Lakeview Wash	San Gorgonio River	Unnamed Stream C
Leach Canyon Channel	San Jacinto River	1001 Ranch Drain
Lime Street Channel	San Jacinto Lateral	1001 Ranch Drain West Tributary

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DWR Awareness Floodplain Mapping

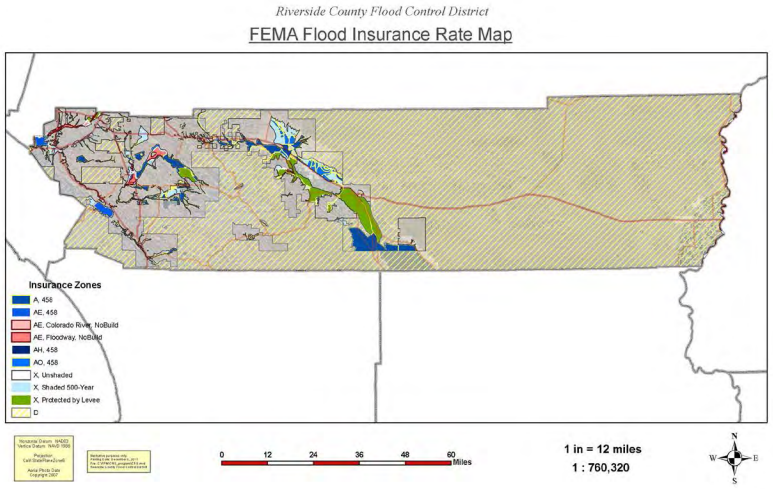
The intent of the California Department of Water Resources (DWR) Awareness Floodplain Mapping project was to identify all pertinent flood hazard areas by 2015 for areas that are not mapped under the FEMA National Flood Insurance Program (NFIP) and to provide the community and residents an additional tool in understanding potential flood hazards currently not mapped as a regulated floodplain. The awareness maps identify the 100-year flood hazard areas using approximate assessment procedures. These floodplains are shown as flood-prone areas without specific depths and other flood hazard data. Awareness Floodplain Maps were incorporated into County Ordinance 458.

The maps that were originally adopted are available on the DWR website. DWR will not be modifying these maps since it was a one-time project. As development occurs and the floodplains change due to channelization, the floodplain limits of the Awareness floodplains are being updated by Riverside County Flood Control (RCFC) and will be reflected on the RCFC interactive maps found at:

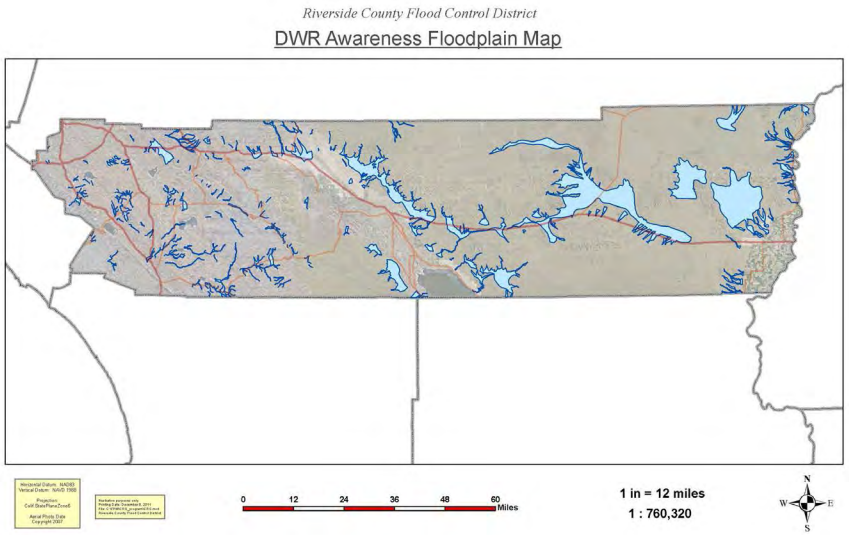
http://rcflood.org/FloodDetermination/FloodDetermination_V09.aspx

California Department of Water Resources Awareness Floodplain Maps can be found at http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/awareness_floodplain_maps/

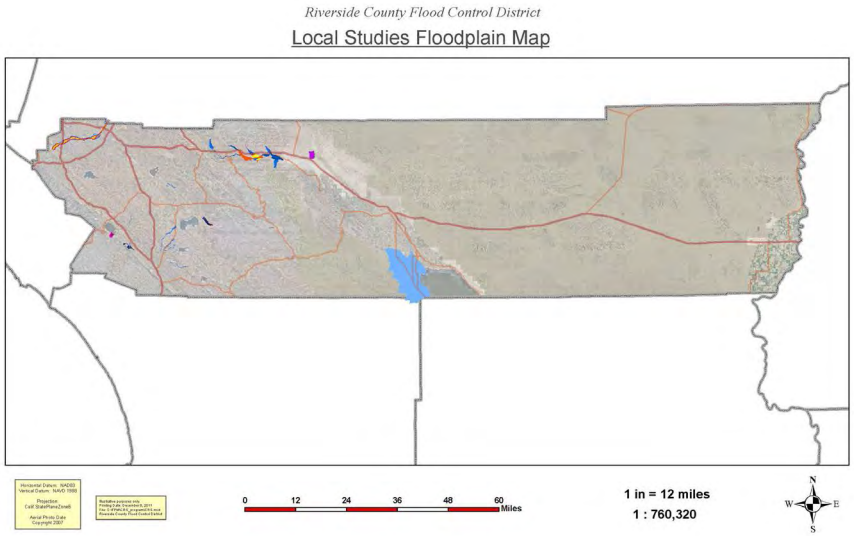
Map 14: FEMA Flood Insurance Rate Map



Map 15: DWR Awareness Floodplain Map



Map 16: Local Studies Floodplain Map



Risk Assessment

As stated in the State of California Multi-Hazard Mitigation Plan, Riverside County has 27 declared flood disasters from the period of 1950 – December 2012. The total can be updated to 29 when adding the two flood disaster declarations in 2015 and 2017. The State's plan also shows Riverside County has a population of 295,081 living within FIRM-Designated Floodplains (based on 2000 Census Data). According to the 2017 Southern California Association of Governments (SCAG) Unincorporated Area of Riverside County Report, the number of residents living in the unincorporated area has increased to 364,413.

HAZUS was used to generate general building stock and essential facility loss estimates for three different floods in the County – a 1% annual chance flood event (100-year flood) with the existing certified levee system in the County intact, a 1% annual chance flood event without consideration of these levees, and a 500-year (0.2% chance per year) flood. Flood hazard data from DFIRM maps available at FEMA's Map Service Center were used to develop the flood scenarios.

Table 24: Summary of HAZUS – Estimated Impacts on Riverside County for Three Flood Scenarios

Impact Category	100-Year	100-Year w/o Levee	500-Year
Economic Loss due to Building Damage, Total Building-related Direct	$0.81 B $1.7 B	$2.3 B $4.9 B	$3.6 B $7.8 B
# Buildings in Complete Damage State	1,356	3,655	6,262
Debris Generated (million tons)	0.20	0.50	0.78
Displaced Households, People Needing Short- term Shelter	16,896 41,846	79,078 223,787	125,887 357,092
# Highway Bridges w/ at least Moderate Damage (potentially closed)	0 (of 4 damaged)	0 (of 4 damaged)	0 (of 4 damaged)

Table 25: Summary of HAZUS – Estimated Impacts for Riverside County Essential Facilities in Three Flood Scenarios

Essential Facility	Category	100-Year		100-Year w/o Levee		500-Year	
		Time to Restore (Days)	Economic Loss ($1,000)	Time to Restore (Days)	Economic Loss ($1,000)	Time to Restore (Days)	Economic Loss ($1,000)
Hospitals*	Medium	0	$0	540	$0	540	$0
	Large	0	$0	540	$0	360-540	$0
Schools	K-12 (default data)	480	$115	480	$865	480	$2,232
	K-12 (providing data)	360-720	$12,482	360-720	$38,838	360-720	$66,911
	CCD (providing data)	0	$0	360-480	$6,285	360-480	$6,285
EOCs		0	$0	480	$560	360-480	$5,113
Police Stations		480	$0	360-480	$0	360-480	$796
Fire Stations		480	$692	360-480	$692	360-630	$1,994
TOTALS		**360-720**	**$13,289**	**360-720**	**$47,240**	**360-720**	**$83,331**

*Note: In Riverside County, there are no hospitals which would be categorized by HAZUS as "Small" (<50 licensed acute care beds)

- **Effects on People and Housing:** Of the approximately 647,000 buildings modeled within the general building stock for Riverside County, about 1% (6,262) are expected to suffer "complete" damage in the 0.2% annual chance flood event (500-year flood) scenario. These building would be considered "red-tagged" or unsafe for continued occupancy. About 94% of the 6,262 buildings are manufactured housing (i.e., mobile homes). Approximately 43,000 buildings (6.6%) are expected to suffer more than 20% damage or more while about 18,000 buildings are estimated to suffer flood damage of less than 20%. As much as 0.78 million tons of debris may result from these damaged buildings – 21% is expected to be heavy debris (concrete and steel), requiring heavy equipment to break down and remove, while 79% is expected to be light debris (wood, brick, drywall and other debris).

Damage to single family and multi-family dwellings is expected to result in the displacement of almost 126,000 households. While many of the displaced may find shelter with friends and family, or in available hotels, as many as 357,000 people are expected to seek short-term public shelter. This large number of people would likely overwhelm the emergency sheltering capacity of the county. The displaced populace should be able to move to safe locations without too much difficulty. While four (4) bridges in the county's transportation system are expected to suffer minor flood damage, the bridges are expected to remain functional.

- **Essential Facility Impacts:** Table 29 provides an overview of essential facility performance in the 0.2% annual chance flood event (500-year flood) with levees scenario. The table lists the number of essential facility sites and buildings (these numbers will differ for multi-building campuses, such as schools and hospitals). The table also provides the total building replacement value, and the number of buildings for which value data was available. As can be seen in the table, replacement cost data for hospitals was generally not available, unlike most other essential facility types. Expected building damage in this flooding event ranges from 0% damage for numerous essential facility types with some, but minimal, flooding, to as much as 7.1% mean damage for one school district. The total economic loss for essential facilities has been estimated to reach about $83 million, almost 91% of which ($75 million) will occur in schools and about 6% of which will occur in EOCs ($5.1 million). It should be noted that no hospital losses were estimated since all hospitals impacted by this flooding scenario did not provide replacement value data. (The full economic impact on hospitals can't be estimated at this time because of the lack of comprehensive replacement value data).

Table 26: Riverside County Essential Facility Loss Estimates – 0.2% Annual Chance Flood Scenario

Essential Facility	Category	No. of Facilities/Sites	No. of Buildings	No. of Beds	Replacement Cost ($1,000)	# Buildings w/ replacement	# Non-Functional Buildings	Time to Restore (Days)	Economic Loss ($1,000)
Hospitals*	Medium	8	28	793	$162,827	21	0	540	$0
	Large	8	49	2,467	$200,792	10	0	360-540	$0
Schools	K-12 (default data)	152	152		$219,600	152	31	480	$2,232
	K-12 (providing data)	689	9,981		$6,049,534	9,213	1,111	360-720	$66,911
	CCD (providing data)	12	258		$356,708	257	92	360-480	$6,285
EOCs		43	43		$310,273	43	4	360-480	$5,113
Police Stations		51	51		$675,299	48	2	360-480	$796
Fire Stations		156	156		$366,493	156	8	360-630	$1,994
TOTALS		**1,119**	**10,718**	**3,260**	**$8,341,525**	**9,900**	**1,248**	**360-720**	**$83,331**

Note: In Riverside County, there are no hospitals which would be categorized by HAZUS as "Small" (<50 licensed acute care beds)

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Table 27: Estimated Impacts on Riverside County Fire Stations in a 1% Annual Chance Flood Scenario

Agency	Number of Buildings	Replacement Cost ($1,000)	# Buildings w/ replacement cost data	No. Non-Functional Buildings	Restoration Time (Days)	Mean Building Damage	Economic Loss ($1,000)
Cathedral City FD	3	$10,500	3	0	360-480	0.0%	$0
Corona FD	7	$23,170	7	2	480	7.0%	$385
Hemet FD	5	$15,360	5	1	480-630	6.2%	$604
Murrieta FD	4	$9,530	4	0	0	0.0%	$0
Norco FD	2	$4,750	2	0	480	0.0%	$0
Palm Springs FD	5	$6,115	5	0	360-480	0.0%	$0
Pechanga FD	2	$5,430	2	0	0	0.0%	$0
Riverside County FD	95	$249,411	95	3	360-480	1.0%	$740
Riverside FD	17	$11,875	17	1	480	4.5%	$60
Other Agencies	4	$10,600	4	0	0	0.0%	$0
USFS	12	$19,752	12	1	480	4.4%	$205
TOTALS	**156**	**$366,493**	**156**	**8**	**360-630**	**2.9%**	**$1,994**

Table 28: Estimated Impacts on Riverside County EOCs in a 0.2% Annual Chance Flood (Levees Intact) Scenario

County	No. of Buildings	Replacement Cost ($1,000)	No. Non-Functional Buildings	Restoration Time (Days)	Mean Damage	Economic Loss ($1,000)
Riverside	43	$310,273	4	360-480	1.7%	$5,113

Table 29: Estimated Impacts on Riverside County Police Facilities in a 0.2% Annual Chance Flood (Levees Intact) Scenario

Agency	Number of Buildings	Replacement Cost ($1,000)	# Non-Functional Buildings	Time to Restore (Days)	Mean Damage	Economic Loss ($1,000)
Riverside County Sheriff	30	$491,973	2	360-480	1.2%	$796
Other Agencies	21	$183,326	0	360-480	0.0%	$0
TOTALS	**51**	**$675,299**	**2**	**360-480**	**0.2%**	**$796**

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Table 30: Estimated Impacts on Riverside School Districts in a 0.2% Annual Chance Flood Scenario

Category	District Name	Number of Facilities/ Sites*	No. of Buildings	Replacement Cost ($1,000)	# Buildings w/ replacement cost data	# Non-Functional Buildings	Restoration Time (Days)	Mean Damage	Economic Loss ($1,000)
K-12 (default data)		151	**152**	$219,600	152	31	480	5.2%	$2,232
K-12 (providing data)	Alvord USD	26	**525**	$274,026	525	8	360-480	1.4%	$583
	Banning USD	11	186	$92,169	180	30	360-480	2.7%	$892
	Beaumont USD	20	209	$179,231	208	36	360-480	4.7%	$6,424
	Coachella Valley USD	30	707	$271,777	691	128	360-480	2.3%	$4,392
	Corona-Norco USD	49	855	$718,384	855	128	360-480	2.0%	$6,792
	Desert Center USD	2	25	$13,438	25	0	0	0.0%	$0
	Desert Sands USD	33	681	$519,732	655	212	360-480	2.0%	$16,475
	Hemet USD	29	621	$294,809	620	81	360-480	2.0%	$5,681
	Jurupa USD	29	547	$285,015	547	8	360-480	1.3%	$330
	Lake Elsinore USD	29	539	$0	0	116	360-720	7.1%	$0
	Menifee Union SD	13	213	$116,628	211	0	0	0.0%	$0
	Moreno Valley USD	36	639	$361,250	639	31	480	6.0%	$1,451
	Murrieta Valley USD	18	470	$299,250	470	0	0	0.0%	$0
	Nuview Union SD	5	79	$38,186	79	7	360-480	1.2%	$901
	Palm Springs USD	31	493	$414,806	492	150	360-360	3.3%	$7,922
	Palo Verde USD	9	121	$83,907	121	0	0	0.0%	$0
	Perris SD	12	175	$98,885	174	13	360-480	3.1%	$1,315
	Perris Union High SD	13	226	$202,431	221	12	360-480	2.6%	$5,405
	Riverside Co Office of	167	326	$149,923	159	66	360-480	4.4%	$2,013
	Riverside USD	47	1,015	$497,272	1,015	22	360-480	1.8%	$941
	Romoland SD	5	63	$46,793	63	0	0	0.0%	$0
	San Jacinto USD	16	213	$130,375	213	62	360-480	1.6%	$5,380
	San Jacinto Valley	1	13	$1,105	13	1	360-480	0.4%	$14
	Temecula Valley USD	32	643	$548,085	642	0	0	0.0%	$0
	Val Verde USD	25	386	$388,179	384	0	0	0.0%	$0
	Yucaipa-Calimesa	1	11	$23,878	11	0	0	0.0%	$0
CCD (providing data)	Desert CCD	1	75	$84,687	74	62	360-480	4.1%	$4,130
	Mt. San Jacinto CCD	2	73	$96,439	73	30	360-480	4.5%	$2,155
	Palo Verde CCD	5	12	$37,440	12	0	0	0.0%	$0
	Riverside CCD	4	98	$138,142	98	0	0	0.0%	$0
TOTALS		**852**	**10,39**	**$6,625,842**	**9,622**	**1,234**	**360-720**	**3.3%**	**$75,428**

Table 31: Estimated Impacts on Riverside County Hospitals in a 0.2% Annual Chance Flood Scenario

Hospital Size[20]	Supervisorial District	No. of Hospital Sites	Number of Buildings	Number of Licensed Beds	Replacement Cost ($1,000)	No. Buildings w/ replacement cost data	# Non-Functional Buildings	Restoration Time (Days)	Mean Damage	Economic Loss ($1,000)
Medium	1st	1	7	122	$36,575	7	0	0	0.0%	$0
Large		2	5	406	$0	0	0	360-540	0.0%	$0
Medium	2nd	0								
Large		2	8	533	$0	0	0	0	0.0%	$0
Medium	3rd	3	5	297	$98,000	5	0	540	0.0%	$0
Large		1	10	433	$200,792	10	0	0	0.0%	$0
Medium	4th	2	11	196	$7,474	5	0	540	0.0%	$0
Large		2	25	656	$0	0	0	540	0.0%	$0
Medium	5th	2	5	178	$20,778	4	0	0	0.0%	$0
Large		1	1	439	$0	0	0	0	0.0%	$0
TOTALS		**16**	**77**	**3,260**	**$363,619**	**31**	**0**	**360-540**	**0.0%**	**$0**

Note: In Riverside County, there are no hospitals which would be categorized by HAZUS as "Small" (<50 Licensed acute care beds)

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- **Effects on Infrastructure:** A slow-rising flood situation will progress through a series of stages, beginning with minor rainfall and evolving to a major event such as substantial flooding. Once flooding begins, personnel will be needed to assist in rescuing persons trapped by floodwaters, securing utilities, cordoning off flood areas, and controlling traffic. These actions may overtax local agencies, and additional personnel and resources may be required. It is anticipated that existing mutual aid resources would be used as necessary to augment local resources.

  Many essential public and quasi-public facilities and hazardous materials sites are located within the 100- or 500-year flood zones of Riverside County. As of the writing of the Safety Element of the County's General Plan, these included 14 of the County's 39 airports; 4 of 18 hospitals; 47 of 109 police stations, fire stations, and emergency operation centers; 92 of 380 schools; 446 of 1,306 highway bridges; and 695 of 1,978 hazardous materials sites.

- **Effects on Agriculture:** As the historical events in Riverside County show, effects on agriculture can be devastating. Flooding can damage crops, livestock, and dairy stock. In addition to the obvious impacts on animals and crops, flooding can have deleterious effects on soil and the ability to reinvigorate the agricultural activities affected once the flood waters recede.

Risk Assessment Conclusion

Flooding due to heavy precipitation or dam failure is a potential hazard in Riverside County, with the resultant possibilities for damage to property and loss of life. Severe flooding can be particularly costly. In a relative sense, flooding due to precipitation does not present the degree of danger posed by other hazards such as major earthquakes. If there is flooding due to dam failure, the danger could be cataclysmic.

Relationship to Other Hazards – Cascading Effects

Fire can breakout because of dysfunctional electrical goods. Hazardous materials can also get into floodways, causing health concerns and polluted water supplies.

5.3.10 Civil Disorder

Severity: 3

Probability: 2

Risk Score: 1.13

OA Jurisdictions Affected by Civil Disorder

- All incorporated cities of Riverside County

Hazard Definition

Civil disorder or unrest is usually triggered by dramatic political or social events. Every major metropolitan area in California has experienced and is at risk for, civil disorder. The most significant civil unrest incident in the State was the 1992 Los Angeles Civil Disturbance that resulted in 53 deaths, over 2,300 injuries and over $800 million in damages. This event also precipitated simultaneous, but smaller, incidents throughout California and the country.

Civil disorder is an incident intended to disrupt community affairs and threaten the public safety. Civil disorder includes riots, mob violence, and any unlawful demonstration resulting in police intervention and arrests. Civil Unrest is generally associated with controversial political, judicial, and/or economic issues and events.

History

Riverside County is not a place where there has been a lot of historic civil disturbance events of noticeable magnitude. There are locations within Riverside County where large public gatherings take place. These locations have the potential for unstable conditions, possibly affecting the ability of a jurisdiction in the County to provide sufficient law enforcement and fire protective services.

May 1, 2017 – "May Day" protest in Riverside to oppose President Trump's actions against undocumented workers, LGBT rights, fair wages, Black Lives Matter, refugees and immigrants.

January 31, 2017 – Protests held in Riverside to protest President Trumps Travel restrictions from seven primarily Muslim countries.

January 21, 2017 – Thousands marched in Downtown Riverside for Woman's rights.

November 10, 2016 – UC Riverside students marched in an anti-Trump rally.

May 7, 2016 – Trump supporters rally in Temecula approximately 350 people attended.

July 13, 2012 – Rally against violent crimes at the Riverside Public Library.

January 31, 2012 – Union Strike at various locations in Riverside County.

December 2, 2011 - Protests at all of the main entrances to the Mission Inn where Buster was holding a re-election fundraiser.

November 6, 2011 - There was an "Occupy" protest near City Hall, and 8 protesters were arrested.

November 22, 2011 - 200 to 300 students gathered at UCR's bell tower at the center of campus to protest. (Occupy UC Riverside).

April 15, 2010 - Riverside County Tax Day Tea Parties' Protest Rally (Tea Party).

January 13, 2009 - The Riverside County Board of Supervisors today temporarily suspended an ordinance it passed last week to limit protests outside a large Church of Scientology compound near Hemet. Protesters show up about once a month outside Golden Era Productions, home to 500 Scientologists, on Gilman Springs Road.

December 2004 - A demonstration at county administrative buildings that was part of a nationwide protest sponsored by the American Family Rights Association.

Risk Assessment

During a Civil Unrest incident that affects Riverside County, there are certain critical facilities within the County that may be more at risk than others. These critical facilities include venues for musical concerts and sporting events, facilities where legal and illegal demonstrations are held, and any other facilities with events that attract large numbers of people. All of these situations create significant traffic congestion and the potential for disruptive behavior.

- **Effects on people and housing.** The effects of a Civil Unrest are varied and usually based on the type, severity, scope, and duration of the disturbance. Effects may include illegal assemblies, injuries, and even loss of life.

- **Effects on commercial and industrial structures**. Effects may include traffic congestion or gridlock, illegal assemblies, disruption of utility service, and property damage.

- **Effects on infrastructure.** Effects may include traffic congestion or gridlock, disruption of utility service, and property damage.
- **Effects on agriculture.** Effects may include traffic congestion or gridlock, disruption of goods transportation services, and property damage.

Risk Assessment Conclusion

The overall risk of civil unrest in Riverside County is low.

Relationship to Other Hazards – Cascading Effects

Civil Unrest may lead to a fire, destruction of property, disruption of power, injury to persons, and even loss of life. It also has the potential to affect first responder response times by traffic blocking protesting techniques.

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5.3.11 Drought

Severity: 3

Probability: 3

Risk Score: 1.13

OA Jurisdictions Affected by Drought

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

Hazard Definition

A drought is a long period of extremely dry weather when there is not enough rain for the successful growing of crops or the replenishment of water supplies.

Drought is a gradual phenomenon. Normally, one dry year does not constitute a drought in California but rather serves as a reminder of the need to plan for droughts. California's extensive system of water supply infrastructure (reservoirs, groundwater basins, and interregional conveyance facilities) generally mitigates the effects of short-term dry periods for most water users.

Drought can have secondary impacts. For example, drought is a major determinant of wildfire hazard, in that it creates greater propensity for fire starts and larger, more prolonged conflagrations fueled by excessively dry vegetation, along with reduced water supply for firefighting purposes. Drought is also an economic hazard. Significant economic impacts on California's agriculture industry can occur as a result of short and long term drought conditions; these include hardships to farmers, farm workers, packers, and shippers of agricultural products. In some cases, droughts can also cause significant increases in food prices to the consumer due to shortages.

Past experience with California droughts tells us that drought impacts are felt first by those most dependent on or affected by annual rainfall – agencies fighting forest fires, ranchers engaged in dryland grazing, rural residents relying on wells in low yield rock formations, or small water systems lacking a reliable water source.

The driest single year in California's measured hydrologic history is 1977.

California's last major statewide drought was 2014-2017. On April 17, 2017, Governor Jerry Brown issues EO B-40, officially ending the drought state of emergency.

Climate scientists studying California weather patterns find that drought conditions are likely to become more frequent and persistent over the 21st century due to climate change. The experiences of California during recent years underscore the need to examine more closely the state's water storage, distribution, management, conservation, and use policies.

California Progress as of 2017:

In January 2014, with California facing one of the most severe droughts on record, Governor Brown proclaimed a State of Emergency due to drought conditions beginning in 2012 through 2016. An interagency Drought Task Force was convened to monitor drought impacts and advise on actions to be taken if drought conditions worsened. The Drought Task Force also developed a plan for the provision of emergency food supplies, financial assistance and unemployment services in communities that suffer high levels of unemployment due to drought conditions.

In September 2014, Governor Brown issued an Executive Order authorizing Cal OES to provide California Disaster Assistance Act (CDAA) funding for local government assistance to provide emergency water supplies to households without water for drinking and/or sanitation purposes.

In April 2017, Governor Brown lifted the Executive Order Proclaiming a drought, however, he retained prohibition on wasteful practices.

The Drought Contingency Plan (DCP) contains strategies and actions that state agencies have taken or may take to prepare for, respond to, and recover from droughts. Its purpose is to minimize drought impacts by improving agency coordination and enhancing monitoring and early warning capabilities, water shortage impact assessments, and preparedness, response, and recovery programs. The DCP identifies an integrated, regional approach to addressing drought, drought action levels, and appropriate agency responses as drought conditions change. It calls for coordination and clearly defined roles and responsibilities of federal, state, and local agencies, and timely dissemination of information to decision-makers.

Five levels of drought response are identified. These range from Level 1, representing an: Abnormally Dry period (calling for raising awareness), to Level 3, a Severe Drought (requiring mandatory conservation in some communities and emergency actions), to Level 5, an Exceptional Drought (water supplies may be cut off and maximum response). A Governor's emergency drought proclamation may be initiated at Level 3.

Drought can be defined according to meteorological, hydrological, or agricultural criteria.

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Meteorological drought is usually based on long-term precipitation departures from normal, but there is no consensus regarding the threshold of the deficit or the minimum duration of the lack of precipitation that makes a dry spell an official drought.

Hydrological drought refers to deficiencies in surface and subsurface water supplies. It is measured as stream flow, as well as lake, reservoir, and ground water levels.

Agricultural drought occurs when there is insufficient soil moisture to meet the needs of a particular crop at a particular time. A deficit of rainfall over cropped areas during critical periods of the growth cycle can result in destroyed or underdeveloped crops with greatly depleted yields. Agricultural drought is typically evident after meteorological drought but before a hydrological drought.

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

History

Riverside County chronically experiences drought cycles. Drought causes stress on the County's ability to provide water to the community. In addition, drought conditions can cause extensive weakening of trees in forested areas causing them to become highly vulnerable to disease and insect infestation. Many trees have weakened and died, creating a severe fire hazard. Furthermore, wildland brush areas were dry, presenting wildfire risk.

Figure 35: California's drought level first week of March 2011-2015

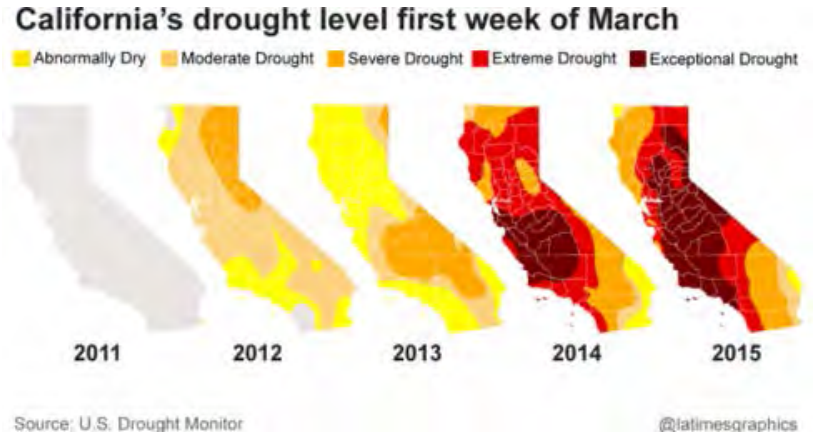
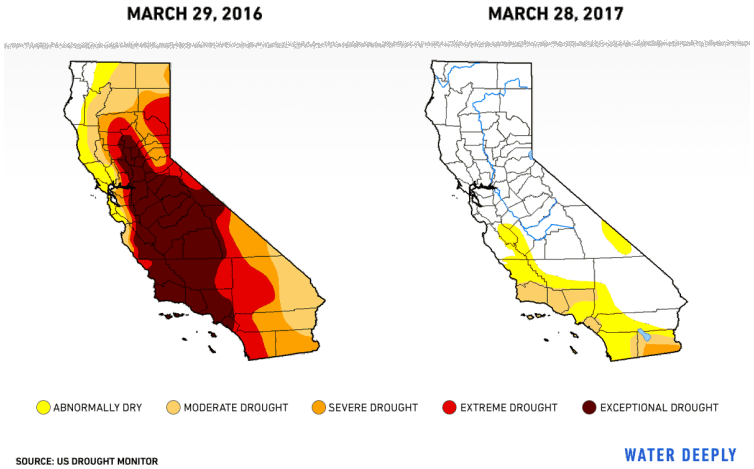


Figure 36: California's drought level March 2016-2017



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Drought Risk Assessment

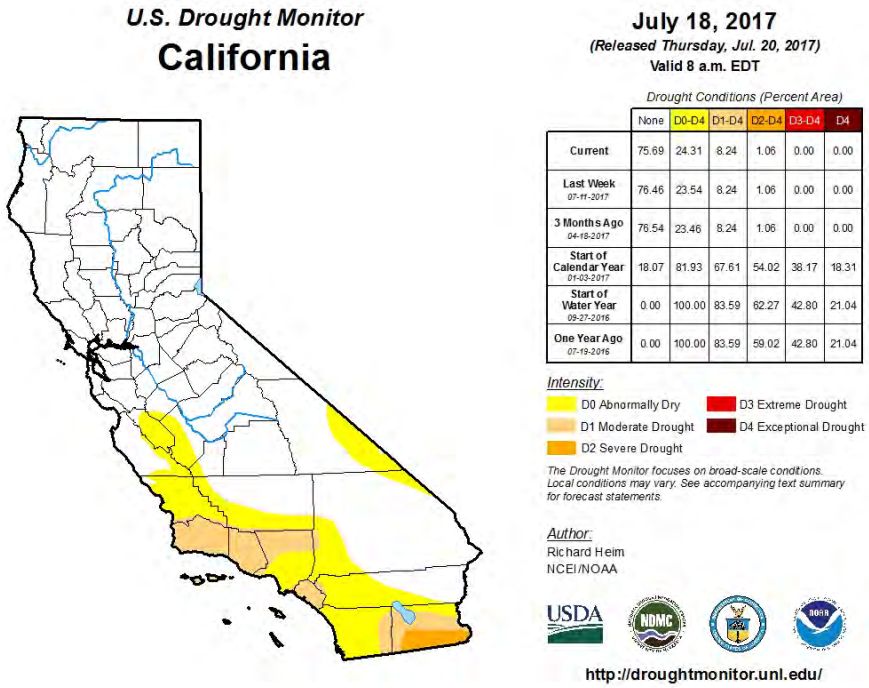
The Department of Water Resources produces a California Water Plan every five years that not only includes a statewide water budget but also regional watershed water budgets. These water budgets are based on California Department of Finance population projections and indicate clearly that demand for water will exceed supply in 2020 whether or not a drought condition exists at that time. The largest average-year shortages are forecasted for the South Coast Region, which heavily relies on imported water. Future average-year shortages in the South Coast Region reflect forecasted population growth plus lower Colorado River supplies as California reduces its use of Colorado River water to the State's basic apportionment.

Although a drought in and of itself is not a direct threat to property and life, the impact on the County's agricultural industry and home development can be monumental. The costs to the County for the current drought in terms of fire damage and forest management have been in the millions. This is a chronic problem for Riverside County and accounts for significant indirect costs, loss of property and threat to human life.

Relationship to Other Hazards – Cascading Effects

Drought can increase the severity of other hazards. For example, drought can lead to an increase in dead vegetation when can increase fire hazards. It can also lead to increased insect infestations.

Figure 37: U.S Drought Monitor – California



5.3.12 Nuclear/Radiological Incident

Severity: 4

Probability: 1

Risk Score: 1.00

OA Jurisdictions Affected by Nuclear Incidents

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

Hazard Definition

Radiological Accidents

Radioactive materials are routinely transported in California. These materials include the medical and industrial sources described below, as well as wastes that have radioactive components. Many of the radioactive waste shipments come from research and cleanup efforts at national laboratories.

Radiological accidents that result in the release of radioactive materials may result in long-term health risks and contamination of the state resources, including air, water supply, groundwater, and agricultural lands.

Profiling Radiological Accident Hazards

Due to strict regulation of nuclear power plants in the United States, significant nuclear power incidents that can cause harm to the public have a low probability of occurrence, and none have occurred in California. Even though the probability of a catastrophic event involving a nuclear power plant is extremely low and these plants are extremely well protected, the consequences of a severe accident or a successful terrorist attack on a nuclear power plant that results in a release of radioactive materials could be very significant.

State and local governments having jurisdiction within ten miles of an operating nuclear power plant must plan, train, and conduct emergency exercises annually in accordance with federal regulations. Detailed emergency plans are maintained by each affected agency. Four Emergency Classification Levels (ECLs) have been established in federal regulations to characterize the severity of the emergency and the response actions

required. The ECLs must be used as the foundation for emergency response planning, training and exercises.

Planning Zones

A series of zones have been established around each nuclear power plant to clearly identify the required activities in the event of an accident. Although three specific zones are identified, efforts to protect public health and safety and the environment are made without regard to whether particular areas are inside or outside of these zones:

- The Emergency Planning Zone is an approximate 10-mile radius around the plants. Plans for this zone are in place to protect people, property, and the environment from the effects of exposure to a radioactively contaminated plume.
- The Ingestion Pathway Zone covers an approximate 50-mile radius around the plant. In this zone, plans are in place to mitigate the effects of radioactive contamination to agriculture, and food processing and distribution.

There are three general situations that could affect Riverside County, namely:

1. A situation involving nuclear weapons, which is discussed in the Terrorism section of this LHMP (Section 5.3.7);
2. A situation involving the transportation of nuclear materials; and
3. An incident involving the San Onofre Nuclear Generating Station (SONGS).

As will be discussed in the Terrorism section of this LHMP, the possibility exists that a terrorist organization might acquire the capability of creating a small nuclear detonation. A single nuclear detonation in the United States would likely produce fallout affecting an area many times greater than that of the blast itself. There is also the possibility that a terrorist will construct a “dirty bomb”, a bomb that is used to distribute nuclear-contaminated materials. It would have less of an effect than a “traditional” nuclear bomb, but the terror effect on the population would be great.

A nuclear incident could be initiated by a transportation emergency, either accidental or intentional. See the Transportation Emergencies section of this LHMP (Section 5.3.14).

SONGS is located on the Pacific Coast in northwestern San Diego County, approximately 4 miles southeast of the City of San Clemente. Surrounding San Onofre is a Basic Emergency Planning Zone, approximately 10 miles in radius within which certain precautionary actions must be taken and specific precautionary plans must be prepared.

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This zone does not include any portion of Riverside County. Beyond this zone is an area that could be affected by radioactive fallout being deposited in such a manner as to detrimentally affect the human food chain, which includes all of Riverside County. This area is identified as the Ingestion Pathway Zone. Specifically, the primary threat is that of radioactive iodine 131 being deposited upon fodder consumed by dairy cows and subsequently appearing in milk in the public marketplace.

History of Events

Fortunately, Riverside County has not experienced a nuclear accident.

Risk Assessment

Transportation of nuclear and/or irradiated materials is of growing concern. A severe transportation incident could require the evacuation of a large number of people, major rerouting of traffic systems, and an expensive decontamination process for the area involved. Ancillary problems associated with such an incident are discussed in the sections of this LHMP dealing with Hazardous Materials and with Transportation Incidents.

Radiological Waste Transportation

Since 1989, the staff of the Energy Commission has represented California on two western state groups: the Western Governors' Association WIPP Transportation Advisory Group and the Western Interstate Energy Board's High-Level Radioactive Waste Committee. Both groups work with the U.S. Department of Energy and other state regional groups to develop accident prevention and emergency response plans for major federal non-classified shipments of radioactive waste. Staff also coordinates the California Nuclear Transport Working Group that develops and updates accident prevention and emergency response plans for federal shipments of transuranic waste to the Waste Isolation Pilot Plant (WIPP) in New Mexico.

To mitigate disaster, federal regulations require that:

- radiological materials transported by train use special packaging based on the hazard of the shipment
- there are extensive worker training and documentation
- vehicle and packages of radioactive materials are inspected
- The waste travels via specific, controlled routes.

More information about radiological waste transportation can be found on Cal OES's radiological *transportation website.*

A detailed discussion of radiation hazards and their effects on humans along with a description of the operation of a nuclear power generating facility and the hazards posed thereby are contained in the State of California Nuclear Power Plant Emergency Response Plan and in other documents.

The State Nuclear Power Plant Emergency Response Plan assigns to the County of Riverside responsibility for certain actions to protect the public and the environment within Riverside County from the effects of an accident. The plan also lists the support and assistance available from various State and Federal organizations.

- **Effects on people and housing.** Depending on levels of radiation exposure, the effects could range from minimal to devastating.
- **Effects on commercial and industrial structures.** Depending on levels of radiation exposure, the effects could range from minimal to devastating.
- **Effects on infrastructure.** Depending on levels of radiation exposure, the effects could range from minimal to devastating.
- **Effects on agriculture.** Depending on levels of radiation exposure, the effects could range from minimal to devastating.

Risk Assessment Conclusion

The nearest plant to Riverside County is San Onofre, which is a three tower facility in San Diego County. In 1992 the site retired Tower 1. Towers 2 and 3 remained operational until 2012. In March of 2015 SoCal Edison was granted permission to decommission towers 2 and 3 and permanently close the site. The estimated date for full closure of the power plan is December 31, 2031.

The County is far enough away from nuclear power plants that cataclysmic exposure is not likely. There is the possibility of Riverside County being used as a major evacuation route from a nuclear plant accident. This would tax the County's response resources. The radiation from an accident would, of course, negatively affect the area.

Relationship to Other Hazards – Cascading Effects

Cascading effects of a nuclear incident could include contaminated water, air, and soil. It could also impact first responders and the 911 system.

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5.3.13 Extreme Weather

Severity: 3

Probability: 2

Risk Score: 0.75

OA Jurisdictions Affected by Extreme Weather

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

Hazard Definition

Extreme weather hazards in Riverside County include:

- Extreme Heat
- Severe Cold
- Wind Event
- Fog Event
- Agricultural Event

Climate Change can impact weather patterns within the County. Climate changes can increase or change effects of weather. Some changes may include reduced water supply, increased temperatures, decreased precipitation and increased wildfire risks.

The National Climate Data Center (NCDC) receives Storm Data from the National Weather Service. The National Weather service receives their information from a variety of sources, which include but are not limited to: county, state and federal emergency management officials, local law enforcement officials, SKYWARN spotters, NWS damage surveys, newspaper clipping services, the insurance industry and the general public.

Storm Data Disclaimer:

Storm Data is an official publication of the National Oceanic and Atmospheric Administration (NOAA) which documents the occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce. In addition, it is a partial record of other significant meteorological events, such as record maximum or minimum temperatures or precipitation that occurs in connection with another event. Some information appearing in

Storm Data may be provided by or gathered from sources outside the National Weather Service (NWS), such as the media, law enforcement and/or other government agencies, private companies, individuals, etc. An effort is made to use the best available information but because of time and resource constraints, information from these sources may be unverified by the NWS. Therefore, when using information from Storm Data, customers should be cautious as the NWS does not guarantee the accuracy or validity of the information.

Table 32: Storm Data Table (4/30/1950 to 8/7/2017)

Type	# of Events	Property Loss	Crop Loss	Deaths	Injuries
Drought	26	N/A	N/A	N/A	N/A
Dust Storm	26	405 K	100 K	0	77
Flood	246	88.405 M	5.200 M	7	26
Fog	18	25K	0	0	21
Funnel Cloud	26	0	0	0	0
Hail	30	131.5 K	10 K	0	2
High Winds	227	65.579 M	36.705 M	8	71
Lightning	30	254.5 K	10.1K	1	6
Precipitation	25	40.400 M	0	0	26
Snow and Ice	57	1.386 M	0	4	102
Strong Winds	19	999 K	0	1	2
Temp Extremes	25	1.330 M	1.175 M	31	39
Thunderstorm Winds	119	4.980 M	10 K	0	0
Tornado	24	21.537 M	0	0	4

Type	# of Events	Property Loss	Crop Loss	Deaths	Injuries
Wild and Forest Fire	161	190.892 M	1.247 M	1	131
Totals	**1,329**	**2.229 B**	**174.429 M**	**53**	**507**

Note: Figures in the chart above were gathered from NOAA's Storm Event Database and may not be a complete listing of previous hazard occurrences.

Riverside County's weather has a history of extremes. There are basically three weather regions in the County, each with its own type of weather and each with a different impact on the County. In some cases, the high temperatures in the desert are harmful to the public, but beneficial to agriculture. In other cases, a steady rainfall that raises the water table can be good for the County, yet too much rain will cause flooding and a disruption in the production of agricultural goods.

Average Climates across the County

The Weather Tables portray the averages for several areas across the County of Riverside. The cities included are Riverside, Idyllwild and Blythe. These cover the Desert, Mountain and Valley Regions, and are clear examples of the weather extremes within the county.

Riverside Climate

Climate Riverside - California °C | °F

	Jan	Feb	Mar	Apr	May	Jun
Average high in °F:	68	68	71	76	80	87
Average low in °F:	43	44	46	49	54	57
Av. precipitation in inch:	2.32	2.4	1.69	0.67	0.2	0.08
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-

	Jul	Aug	Sep	Oct	Nov	Dec
Average high in °F:	94	95	91	83	74	67
Average low in °F:	62	62	59	53	46	42
Av. precipitation in inch:	0.04	0.08	0.16	0.47	0.83	1.38
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-

Source: http://www.usclimatedata.com/climate/riverside/california/united-states/usca1695

Idyllwild Climate

Climate Idyllwild - California °C | °F

	Jan	Feb	Mar	Apr	May	Jun
Average high in °F:	56	56	59	64	72	80
Average low in °F:	30	30	31	35	41	47
Av. precipitation in inch:	4.88	5.35	3.78	1.81	0.43	0.16
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-
Average snowfall in inch:	8	8	6	3	1	0

	Jul	Aug	Sep	Oct	Nov	Dec
Average high in °F:	86	86	81	71	62	55
Average low in °F:	54	54	49	41	34	29
Av. precipitation in inch:	0.67	0.79	0.83	1.22	2.52	3.7
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-
Average snowfall in inch:	0	0	0	0	2	4

Source: http://www.usclimatedata.com/climate/idyllwild/california/united-states/usca0506

Blythe Climate

Climate Blythe - California °C | °F

	Jan	Feb	Mar	Apr	May	Jun
Average high in °F:	68	73	80	88	97	105
Average low in °F:	40	44	49	55	63	69
Av. precipitation in inch:	0.55	0.59	0.39	0.08	0.04	0.04
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-

	Jul	Aug	Sep	Oct	Nov	Dec
Average high in °F:	109	108	102	90	76	66
Average low in °F:	78	77	69	57	46	39
Av. precipitation in inch:	0.24	0.43	0.43	0.2	0.24	0.59
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-

Source: http://www.usclimatedata.com/climate/idyllwild/california/united-states/usca0506

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5.3.13.1 Extreme Heat

Overview

Extreme heat can be described as overly hot temperatures that are sustained to the extent that human and animal overexposure can cause heat illness and death. Heat illness is a major cause of preventable morbidity in regions characterized by high ambient temperatures.

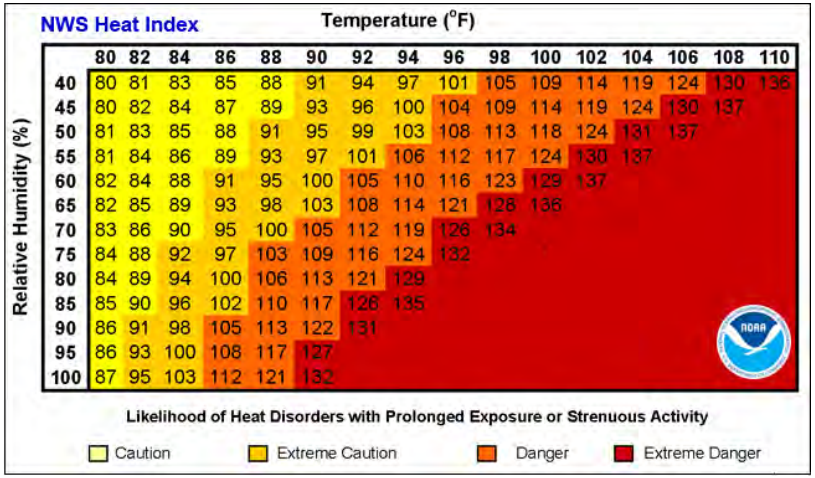
Riverside County has a wide range of temperatures, from freezing in some areas during the winter months to extremely hot temperatures for long periods of time during the summer in the deserts and other areas. In 2011 Riverside County and several other counties were impacted by a power outage during a period of high temperatures. The State Hazard Mitigation Plan addresses the issue of Extreme Heat Hazards, and this information has been included in this LHMP.

The figure on the next page illustrates the Heat Index (HI) as a function of heat and relative humidity. The Heat Index describes how hot the heat-humidity combination makes the air feel. As relative humidity increases, the air seems warmer than it actually is because the body is less able to cool itself via evaporation of perspiration. As the Heat Index rises, so do health risks.

Specifically:

- When the Heat Index is 90°F, heat exhaustion is possible with prolonged exposure and/or physical activity.
- When it is 90° to 105°F, heat exhaustion is probable with the possibility of sunstroke or heat cramps with prolonged exposure and/or physical activity.
- When it is 105° to 129°F, sunstroke, heat cramps or heat exhaustion is likely, and heatstroke is possible with prolonged exposure and/or physical activity.
- When it is 130°F and higher, heatstroke and sunstroke are extremely likely with continued exposure. Physical activity and prolonged exposure to the heat increase the risks.

Figure 38: The National Weather Service (NWS) Heat Index



Source: http://www.nws.noaa.gov/os/heat/heat_index.shtml

The National Weather Service (NWS) will initiate its Heat Index Program Alert procedures when the high temperature is expected to exceed 105° to 110° (depending on local climate) for at least two consecutive days.

Extreme Heat and infrastructure

Extreme heat can not only result in loss of life and injury but it can also cause damages to infrastructures. According to the 2017 update Draft of the Safeguarding California Plan, highway systems can be affected by extreme heat by roads buckling and rutting.

Profiling Extreme Heat Hazards (from the 2013 SHMP)

"Heat waves do not cause damage or elicit the immediate response that floods, fires, earthquakes, and other disasters do. They have, however, claimed many lives in comparison with other disasters. For example, the 1989 Loma Prieta Earthquake resulted in 63 deaths while the 1992 Northridge Earthquake was responsible for the loss of 55 lives. The catastrophic 2003 Southern California Firestorms resulted in 24

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deaths. However, according to the 2013 SHMP, the worst single heat wave event in California occurred in Southern California in 1955, when an eight-day heat wave is said to have resulted in 946 deaths. The 2013 SHMP also states that the July 2006 heat wave in California caused the deaths of at least 136 people over a 13-day period (6 deaths were still under investigation in 2007). Another source, the Spatial Hazard Events and Loss Data for the United States (SHELDUS), estimates that approximately 47 heat events occurred in California between the years 1960 and 2008. Adjusted to 2008 dollars, SHELDUS reports that severe heat events in California caused roughly $1.8 million in property damage and $531.7 million in crop damage. From 2012 to 2014 there were 159 fatalities related to extreme Heat events within California.

The California Climate Adaptation Strategy (CAS), citing a California Energy Commission study, states that "over the past 15 years, heat waves have claimed more lives in California than all other declared disaster events combined." Despite this history, however, not a single heat emergency was formally proclaimed at the state level or declared as a federal disaster between 1960 and 2008. Though no formal explanation exists for this seeming contradiction, scholars have written about the exclusion of heat events as declared disasters. For example, Eric Klinenberg, author of an account of a heat wave which killed 739 people in the City of Chicago in July 1995, suggests that the hidden nature of social vulnerability combined with the inconspicuous nature of heat events (unlike earthquakes, floods, wildfires, tornados, etc.) prevent them from being declared as legitimate disasters.61 Further, although heat events can have a devastating effect on agriculture, heat-caused property damage over the last 48 years has been relatively small.

Treating Heat as a "Legitimate Disaster" (from the 2013 SHMP)

These facts raise several issues. First, since the primary goal of the SHMP is to significantly reduce the loss of life and injuries in the state of California, heat is considered a legitimate disaster type. Though heat does not cause much economic damage or damage to the built environment, the number of people it has killed underscores the importance of mitigating its impacts. Second, heat events highlight the importance of thoughtful social vulnerability analyses. While changes to the built environment can greatly alter vulnerability to different hazards, social vulnerability and resiliency are especially important during heat events. For example, socially isolated elderly persons are especially vulnerable. Any mitigation efforts aimed at reducing heat losses will focus on ways to reduce social isolation as well as changes to the built environment. Third, heat events illustrate how seemingly unrelated phenomena combine to create a disaster. For example, the increased use of air conditioners during heat waves can lead to power outages, which makes the events even more deadly. Upgrading water and power infrastructure, then, is a form of heat disaster mitigation.

Situational and physical characteristics help to identify vulnerable populations that may not comfortably or safely access and use disaster resources. Specifically, when discussing heat related emergency preparedness, the following groups could be considered vulnerable or at greater risk in a heat emergency:

- Infants and small children under age three
- Women who are pregnant
- Elderly people (age 65 and older)
- Homeless
- The obese
- The bedridden
- Mentally ill
- Those with cognitive disorders
- Those with medical conditions (e.g., heart disease, diabetes, high blood pressure)
- Those requiring life-saving medications (e.g., for high blood pressure, depression, insomnia)
- Individuals with drug or alcohol addictions
- Those with mobility constraints
- People who are non-ambulatory
- Those under extreme working conditions
- The poor
- People who are socially isolated
- Non-English speakers who may not have access to information

Animals, including domestic pets, livestock, and poultry are also susceptible to extreme heat. For example, dogs and cats are in danger of heat stroke in temperatures of 110°F. The heat wave of 2006 resulted in 15 reported pet deaths and more than 25,000 cattle, and 700,000 fowl heat-related deaths.

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Table 33: 1991 -2013 Heat Deaths in California

	< 1	1-4	5-9	10-14	15-19	20-24	25-44	45-64	65-84	85+	*Total*
1991	0	0	0	0	0	1	6	5	5	0	***17***
1992	0	0	0	1	2	0	8	3	2	1	***17***
1993	0	1	0	0	0	1	1	3	6	0	***12***
1994	0	0	0	0	0	0	7	7	9	0	***23***
1995	0	0	0	0	0	1	6	5	3	2	***17***
1996	0	1	0	0	0	0	5	8	7	0	***21***
1997	0	0	0	0	0	0	3	0	3	1	***7***
1998	0	0	0	0	0	2	3	2	2	0	***9***
1999	0	2	0	0	0	0	5	3	8	1	***19***
2000	2	0	1	0	0	2	10	9	8	3	***35***
2001	0	3	0	0	0	0	3	8	4	1	***19***
2002	2	1	0	0	0	1	12	4	3	1	***24***
2003	1	0	0	0	1	3	12	6	6	0	***29***
2004	1	2	0	0	0	1	9	8	6	1	***28***
2005	0	1	1	2	0	2	13	7	5	5	***36***
2006	1	0	0	0	0	3	22	48	38	10	***122***
2007	2	1	0	0	2	2	14	13	4	4	***42***
2008	0	0	0	0	1	1	5	15	3	4	***29***
2009	1	0	0	0	1	2	8	15	7	5	***39***
2010	1	0	0	0	1	1	5	9	4	1	***22***
2011	0	0	0	0	0	1	3	8	4	1	***17***
2012	0	0	0	0	1	2	17	13	7	4	***44***
2013	1	0	0	1	2	2	10	14	11	2	***43***
Total	***12***	***12***	***2***	***4***	***11***	***28***	***187***	***213***	***155***	***47***	***671***

*Current as of June 2017
Source: CDPH Vital Statistics Death Statistical Master Files
Prepared by: California Department of Public Health, Safe and Active Communities Branch
Report generated from http://epicenter.cdph.ca.gov on: August 07, 2017

5.3.13.2 Severe Cold

Overview

Riverside County generally experiences a Mediterranean or Desert climate. When temperatures suddenly drop it can potentially lead to loss of life in humans and livestock, as well as severely damage crops.

When temperatures drop below freezing that is the most dangerous time for crops. When water freezes it expands, this effect causes damage to a plants structure and may cause it to die.

Identifying Freeze Hazards (2013 SHMP)

Sustained temperatures below freezing in California's generally mild weather regions can cause life loss and health risks to vulnerable populations. Although infrequent, freezes can severely affect California agriculture. Freezing temperatures occurring during winter and spring growing seasons can cause extensive crop damage.

Secondary impacts of freeze disasters can include major economic impacts on farmers, farm workers, packers, and shippers of agricultural products. Freezes can also cause significant increases in food prices to the consumer due to shortages.

Freezing spells are likely to become less frequent in California as climate temperatures increase. If emissions follow higher pathways, freezing events could occur only once per decade in a sizable portion of the state by the second half of the 21st century. While fewer freezing spells would decrease cold-related health effects, too few freezes could lead to increased incidence of disease as vectors and pathogens do not die off (CNRA 2009).

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5.3.13.3 Wind Event

Overview

Windstorms are a hazard for many of the participating.

Santa Ana Winds have caused large amounts of damage and increased the fire damage level dramatically. Santa Ana Winds are generally defined as warm, dry winds that blow from the east or northeast (offshore). These winds occur below the passes and canyons of the coastal ranges of Southern California and in the Los Angeles basin. Santa Ana winds often blow with exceptional speed in the Santa Ana Canyon (the canyon from which it derives its name). Forecasters at the NWS in Oxnard and San Diego usually place speed minimums on these winds and reserve the use of "Santa Ana" for winds greater than 25 knots.

The complex topography of Southern California combined with various atmospheric conditions creates numerous scenarios that may cause widespread or isolated Santa Ana events. Commonly, Santa Ana winds develop when a region of high pressure builds over the Great Basin (the high plateau east of the Sierra Mountains and west of the Rocky Mountains including most of Nevada and Utah). The clockwise circulation around the center of this high pressure area forces air downslope from the high plateau. The air warms as it descends toward the California coast at the rate of 5 degrees F per 1000 feet due to compressional heating. Thus, compressional heating provides the primary source of warming. The air is dry since it originated in the desert, and it dries out even more as it is heated.

Santa Ana winds commonly occur between October and February with December having the highest frequency of events. Summer events are rare. Wind speeds are typically north to east at 35 knots through and below passes and canyons with gusts to 50 knots. Stronger Santa Ana winds can have gusts greater than 60 knots over widespread areas and gusts greater than 100 knots in favored areas. Frequently, the strongest winds in the basin occur during the night and morning hours due to the absence of a sea breeze. The sea breeze which typically blows onshore daily can moderate the Santa Ana winds during the late morning and afternoon hours.

The following maps and photos show the direction of the Santa Ana winds as they travel from the stable, high-pressure weather system called the Great Basin High through the canyons and towards the low-pressure system off the Pacific. Riverside County is in the direct path of the ocean-bound Santa Ana winds.

Figure 39: Direction of Santa Ana Wind Patterns



Source: http://www.theweatherprediction.com/weatherpapers/049/

Risk Assessment

The Santa Ana Winds pose several different types of threats.

1. By themselves, the winds pose a threat to the health of the people and to structures in the County.

a. Health risks relate primarily to breathing problems caused by the blowing dust and plant pollen.

b. Structural issues relating to the winds range from roofs being blown off to trees falling onto buildings.

2. The winds increase the threat and/or severity of fires in the urban areas

a. Wind-blown flames will spread more rapidly when pushed by high Santa Ana Winds.

3. Santa Ana Winds dry out brush and forest areas and increase the speed of a fire.

4. Santa Ana Winds cause power lines to arc, resulting in fires
5. Santa Ana Winds can either cause trees to fall on power lines or power lines to break, causing power outages.

Wind Erosion

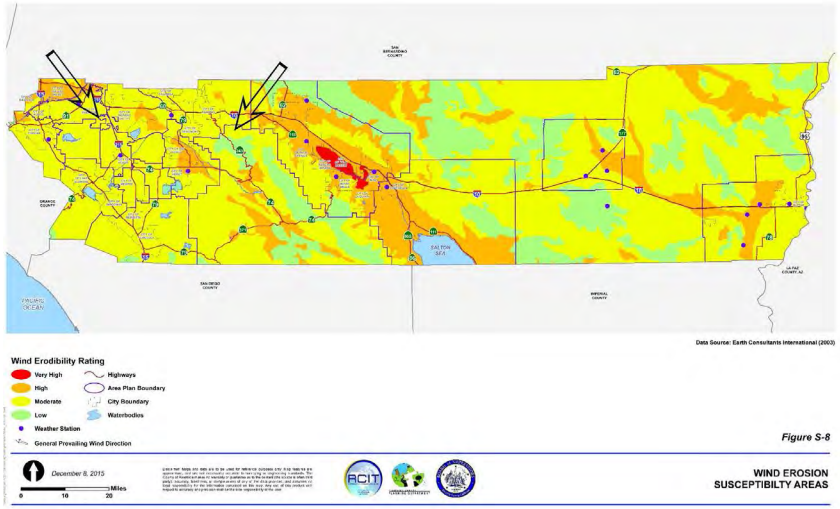
Soil erosion is also a natural on-going process that transports, erodes and displaces soil particles through a transport mechanism, such as flowing water or the wind. Loose texture and steep slopes primarily result in high wind erosion potential in soils. Wind erosion is most severe in arid regions, where sandy or loamy sediments are un-vegetated and exposed to severe wind conditions.

In addition to the problems caused by the Santa Ana Winds, wind erosion is a serious environmental problem attracting global attention. Soil movement is initiated as a result of wind forces exerted against the surface of the ground. Dust particles in the air create major health problems. Atmospheric dust causes respiratory discomfort, may carry pathogens that cause eye infections and skin disorders and reduces highway and air traffic visibility. Dust storms can cause additional problems. Buildings, fences, roads, crops, trees and shrubs can all be damaged by abrasive blowing soil.

The wind and wind-blown sand are an environmentally-limiting factor throughout much of Riverside County. Approximately 20 percent of the land area of Riverside County is vulnerable to "high" and "very high" wind erosion susceptibility. The Coachella Valley, the Santa Ana River Channel in northwestern Riverside County, and areas in and around the Cities of Hemet and San Jacinto are zones of high wind erosion susceptibility. Human intervention can accelerate the natural erosion process. For instance, typical consequences of development increase erosion potential from the removal of vegetative cover and reduction of overall permeable area. These activities can lead to increased water runoff rates and concentrated flows that have greater potential to erode exposed soils. The effects of excessive erosion range from nuisance problems that require additional maintenance, such as increased siltation in storm drains, to instances of more severe damage, where water courses are down-cut and gullies develop. These processes can eventually undermine adjacent structures or topography. Human activities that disturb soils in arid regions increase wind erosion potential. Many of the desert areas are also susceptible to blowing sand, a severe

form of wind erosion that damages property and accumulates soil on roadways. The majority of the soils within the district exhibit moderate to high erosion potential, which can be compounded by development.

Map 17: Riverside County Wind Erosion Map



5.3.13.4 Fog Event

Overview

Fog forms from air being cooled to the point where it can no longer hold all of the water vapor it contains. For example, rain can cool and moisten the air near the surface until fog forms. A cloud-free, humid air mass at night can lead to fog formation, where land and water surfaces that have warmed up during the summer are still evaporating water into the atmosphere. This is called radiation fog. A warm moist air mass blowing over a cold surface also can cause fog to form, called advection fog.

Fog can have a devastating effect on transportation. Nighttime driving in the fog is dangerous and multi-car pileups have resulted from drivers using excessive speed for the conditions and visibility. Fog contributes to transportation accidents and is a life safety hazard. These accidents can cause multiple injuries and deaths and could have serious implications for human health and the environment if a hazardous or nuclear waste shipment were involved. Dense fog may also delay emergency response vehicles.

This hazard does not occur regularly but has had an impact on the highways.

5.3.13.5 Agricultural Event

Overview

Agriculture in Riverside County must be considered from two standpoints, namely, both as a product producer/exporter and a major economic provider to the County of Riverside. In 2014, Riverside County ranked in the top fourteen leading agricultural counties in California, with an agricultural production value of $1.36 billion. Major agricultural industries include milk, nursery products, citrus and avocado, grapes, vegetables and hay.

Riverside County is divided into two general agriculture regions (Desert and Western Riverside County), with the San Bernardino National Forest acting as a natural dividing line.

Desert - Coachella Valley & Palo Verde Valley

Agriculture is the second largest industry in the Desert Valleys and is primarily crop- related. Over 61% of Riverside County's crop production is grown in the Coachella and Palo Verde Valleys. In addition to crop production, many supporting industries, such as packing and distribution, are located in the desert

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area. The Coachella Valley produces 95% of all dates grown in the United States and the annual fruit crop exceeds 40 million pounds. The Desert's list of agriculture-related products includes:

- Vegetable & Melon Crops (Bell Peppers, Lettuce, Corn, Watermelon, etc.)
- Nursery Stock
- Turf/Sod Producers
- Field Crops (Hay, Cotton, Wheat, etc.)
- Citrus
- Tree & Vine Crops (Table Grapes, Dates)

Western Riverside County (WR)

Agriculture in the Western Riverside County region is an ever-changing industry. With the large increase in housing in this area of the County over the past few years, there has been a reduction of several agriculture-related industries. This reduction is primarily in the poultry and dairy industries. The Western Riverside County list of agriculture-related products includes:

- Dairy Cattle
- Nursery Stock
- Beef Cattle
- Poultry and Eggs
- Citrus Crops
- Tree and Vine Crops (Avocado, Wine Grapes)
- Field Crops (Wheat, Hay, Green Chop)
- Vegetable Crops (Potatoes, etc.)
- Fish Hatcheries (for domestic and international distribution)

Statistics for Riverside County Agriculture

Table 11: USDA statistics for Riverside County Agriculture for 2012 show the following:

Payroll	$16 million
Farms	3,440
Farm Acreage	344,044
Crop Value Production	$1.03 billion +
Livestock, poultry value including production	$146 million +
Dairy cows	42,954
Sheep and Lambs	36,846
20 week old and older layers	4,127,452
Wheat for Grain Acreage	6,400

United States Department of Agriculture, National Agricultural Statistics Service reports listed the following as the Top 5 commodities in 2015.

Table 12: Top 5 Commodities

Milk Products	$165,124 million
Table Grapes	$143,988 million
Nursery Stock	$137,707 million
Lemons	$120,557 million
Hay	$81,760 million

History

Table 13: Agriculture-related disasters in Riverside County:

Riverside County Agriculture Disasters

Year	Disaster	Commodity	Damages	Region
1979-80	Wind	Avocado and Citrus	$40,000.00	
1979-80	Rain/Floods (El Nino)	Olive Trees (4,200)	$319,494.00	WR.
1979-80	Rain/Floods	Sugar beets, Barley &	$182,711.00	WR.
1979-	Rain/Floods	Potato Crop	$2,000,000.00	WR.
1979-80	Rain/Floods	Dairy and Livestock	$211,900.00	WR.
1982-1983	Rain/Floods (El Nino)	All agriculture		Countywide
1990 *	Insect Infestation-Med- fly	Fruit		Countywide
1990-91	Freezing temperatures	Citrus, avocados,	$15,450,000.00	Countywide
1990-	Drought			WR
1991	Insect Infestation-white fly	Melons, squash, cucumbers,		WR, Desert
1992-	Rain/Flood			
1993-94	Insect Infestation-Med- Fly	Fruit		WR
1996	Plant disease-Karnel Blunt	Wheat		WR/Blythe
1997-98	Rain/Flood (El Nino)	Wheat	$167,000.00	WR
1997-98	Rain/Flood (El Nino)	Livestock & Dairy	$4,100,000.00	WR

1999	Freezing temperatures	Citrus	$1,630,000.00	Countywide
*1999-2002 **	*Insect spread disease - (Pierce's Disease)*	*Wine Grapes*	*$16,000,000.00*	*WR*
*2001-July **	*Rain/Floods-Desert Storm*	*Misc. land & irrigation damage*	*~ $1,000,000.00*	*CV*
2002-2003	Drought	Dairy farms, dry land crops, etc.		Countywide
2002	High Winds/Freeze	Avocado & Citrus Crops	$8,586,000.00	WR
2002-03	Animal Disease-END	Poultry - 300,000 birds in So. Calif.		WR
2003-04	Wildfire	Nursery, various		WR
2004-05	Severe Storms – Excessive Moisture	All Agricultural Commodities		Countywide
2005	Severe Storms – Excessive Moisture	All Agricultural Commodities		Countywide
2006	Excessive	Livestock		WR
2007	Winter Storms	All Agricultural		Countywide
2007	Wildfires	Avocados		WR
2007	Below Normal Temperatures, Winter Storms	All Agricultural Commodities		Countywide

2007	Hail	All Agricultural		Countywide
2007	Drought	Grain Crops, Livestock	$3.8 Million +	WR
2008	Wildfires	All Agricultural		WR
2009	Drought	Grain Crops, Livestock	$5.0 Million +	WR
2010	Earthquake	Agricultural Buildings		Coachella Valley
2010	Winter Storms – Flooding, Debris Flow,	All Agricultural Commodities		Countywide
2013-2016	Drought	Crops damaged due to		County Wide

*Denotes a locally declared disaster

Risk *Assessment*

When considering Agriculture the County factored in both crops and animals/livestock. Both groups have a three day window before serious damages occur (aside from physical damages that may happen due to earthquake or floods).

Animals

Most beef and dairy ranches, chicken ranches, swine farms, and other agricultural animal facilities usually only have a 2-to-3 day supply of feed on-site. Most of the large feed providers in the County do not have more than a 3-to-5 day supply. Restocking of feed supplies is done primarily by rail to the feed providers and then by truck to the local ranches.

In addition to providing feed for the animals, the impact on the dairy farms would be immense. The time factor for the dairy farms would be almost immediate. Not being able to move milk to the milk house was a major concern. Dairy cows have to be milked and without the ability to transport the milk off property, that milk has to be disposed of in some way so as not to contaminate the soil or create a positive host for insects.

Crops

Although many crops are time sensitive and there is a limited amount of storage space in local packing houses, transportation issues vary based on the time of year and crop season.

Water Related Hazards

Many crops are not as water-dependent as animals are, though some ground and vine crops have a very short lifespan without an adequate supply. Short-term water supplies can be provided to animals through the use of water trucks; however, water trucks cannot support large crop areas with an adequate level of water.

Water-related issues included:

1. Local water supply (wells, holding ponds, etc.) contamination occurring either naturally or from man-made causes
2. Loss of water supply due to pipeline or aqueduct damage from an earthquake.

Hazmat Incidents – On-Property and Off-Property

The definition for an On-Property Hazmat incident relates to the improper use of chemicals, crop-dusting accidents or errors, accidental chemical spills into the ground, and other similar incidents. Off-Property Hazmat events relate to the typical transportation Hazmat incident. Both groups (animal-related and crop-related) were very concerned about the impact of an On-Property event. There was a higher level of concern about the impact of an Off-Property event for animals than for crops. Both groups rated the probability of either type of event occurring as low.

Transportation Events

Transportation events were listed as either short-term (less than 3 days) or long-term (over 3 days) and included:

1. Railroad accidents interrupting the delivery of products into the County;
2. Railroad accidents interrupting the movement of products out of the County;
3. A railroad or trucking strike; and

4. A disruption in transportation lines due to an earthquake, flood, fire, or another event.

Both animals and crops viewed the 3-day point as critical from both an economic and operational standpoint, with the crop group indicating that the 3-day window could be reduced based on whether or not it was picking season.

Insect infestation and Disease to Crops and Vines

There is an ever-changing potential for damage to local crops and vines from disease and insect infestation. The County has been attacked by a wide variety of pests, insects, and diseases, and because of the diversity of the types of crops in the County, maintaining a pro-active approach has been difficult. Studies and history show that should there be a disease outbreak or contamination of crops/vines, the economic impact would be enormous. Recent events in other states have shown the potential for bans on importation of cattle/dairy products from affected states.

One of the primary concerns of the producers in the County is the illegal or uninspected importation of plants into this region. The majority of insect, pest, and disease issues in the County can be attributed to this problem.

Table 37: Primary Crop-related Insect Infestations for Riverside County

The table below shows the primary crop-related insect infestations in the County over the past twenty years:

NAME
AFRICANIZED HONEY BEE
BARK BEETLE
CITRUS LEAFMINER
GLASSY-WINGED SHARPSHOOTER
GYPSY MOTH
HONEY BEE TRACHEAL MITE
JAPANESE BEETLE
LESSER SNOW SCALE
MAGNOLIA WHITE SCALE
MEDITERRANEAN FRUIT FLY
ORIENTAL FRUIT FLY
PIERCE'S DISEASE
RED IMPORTED FIRE ANT
STING NEMATODE
TROPICAL PALM SCALE
VARROA MITE/HONEY BEE
ASIAN CITRUS PSYLLID
SILVERLEAF WHITEFLY
POLYPHAGOUS SHOT-HOLE BORER

Figure 40: 2015 Pest Interceptions Chart

PEST INTERCEPTIONS - 2015

Scientific Name	Common Name	Pest Rating	Interceptions
Solenopsis invicta	Red Imported Fire Ant	A	30
Maconellicoccus hirsutus	Pink Hibiscus Mealybug	A	8
Lopholeacaspsis cockerelli	Cockerell Scale	A	3
Pseudaulacaspis cockerelli	Magnolia White Scale	A	1
Ceroplastes floridensis	Florida Wax Scale	A	1
Paropeas achatinaceum	Land Snail	A	1
Aspidiotus destructor	Coconut Scale	A	1
Homalodisca vitripennis	Glassy-Winged Sharpshooter	B	2
Aonideilla aurantii	California Red Scale	B	1
Pulvinaria urbicola	Urban Soft Scale	B	1
Bradybaena similaris	Asian Tramp Snail	B	1
Fatoua villosa	Crabweed	B	1
Nipaecoccus sp.	Mealybug	Q	2
Paracoccus sp.	Mealybug	Q	2
Aspindiella sacchari	Armored Scale	Q	1
Phenacoccus peruvianus	Mealybug	Q	1
Ferriasia sp.	Mealybug	Q	1
Milviscutulus sp.	Scale	Q	1
Ophelimus mastielli	Gall Wasp	Q	1
Bambusaspis miliaris	Bamboo Pit Scale	Q	1

Animal Diseases

There have not been recent incidents of catastrophic outbreaks of disease in the cattle/dairy industry. This is due in part to excellent precluding efforts on behalf of the cattle/dairy industry. Studies and history show that if there is an outbreak of cattle/dairy- related disease, the economic impact would be enormous. Recent events in other states have shown the potential for bans on importation of cattle/dairy products from affected states. In a short period of time, the inability to export products from the County would have wide-ranging economic effects.

The poultry industry is particularly vulnerable to the spread of disease because many fowl are kept in residential back yards and are therefore hard to monitor. Diseases can be spread by mosquitoes and/or ranch service operations that often serve more than one farm, increasing the odds of infection being spread. Outbreaks of the Exotic Newcastle Disease in the poultry industry in 2003 have resulted in the necessary depopulation of 3.16 million chickens in the County. This disease required the quarantine of a large area of Southern California, including all of Riverside County. The economic loss to the ranchers and County as a whole was estimated to be 161 million.

Diseases of primary concern to the area are:

- Avian Influenza
- Exotic Newcastle Disease
- Fowl Pox
- Hoof-and-Mouth Disease
- Transmissible Spongiform Encephalopathies

Loss of Electrical Power

The loss of electrical power is becoming more of a concern to all areas of agriculture. Depending on the season, the loss of electrical supply to a poultry ranch can be devastating within 2-to-4 hours because of the inability to keep the chickens cool. The loss of electrical power for over a 12 hour period can be devastating to a dairy farmer who cannot milk dairy cows.

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5.3.14 Transportation Failure

Severity: 3

Probability: 2

Risk Score: 0.38

OA Jurisdictions Affected by Transportation Hazard Incidents

- Riverside Community College District
- San Gorgonio Memorial Hospital
- Banning
- Beaumont
- Blythe
- Calimesa
- Canyon Lake
- Cathedral City
- Coachella
- Corona
- Desert Hot Springs
- Eastvale
- Hemet Indian Wells
- Indio
- Jurupa Valley
- La Quinta
- Lake Elsinore
- Menifee
- Moreno Valley
- Murrieta
- Norco
- Palm Desert
- Palm Springs
- Perris
- Rancho Mirage
- Riverside
- San Jacinto
- Temecula
- Wildomar

Hazard Definition

Transportation hazards are incidents involving air, rail, or highway transport of goods or passenger travel resulting in property damage, death, or serious injury. The incidents can be caused by transportation of hazardous materials, earthquake, hazardous weather, or other hazardous conditions affecting the uninterrupted flow of transportation and/or public safety.

Five major transportation systems operate within Riverside County.

1. Highways
2. Railroads
3. Air traffic
4. High-pressure petroleum and gas lines
5. Aqueducts.

Pipelines and aqueducts are treated separately in following sections of this LHMP.

History

Highways. The traffic density on the freeway and highway systems in the western part of the County is of particular concern. The population and economic growth in this area have caused increased demand on these networks.

Although the seasons do not have a large impact on Riverside County, there is the threat of poor visibility due to winter fog. Adding to this problem is the fact that one out of every ten trucks on the freeway carries some sort of hazardous materials. (In addition, California Highway Patrol statistics show that 20 – 25 percent of them are usually driven in an unsafe mechanical condition.)

Rail Lines. Major rail transport lines through Riverside County include Union Pacific and the Burlington Northern Santa Fe (BNSF) Railway Companies. Rails, cars, supporting bridges, overpasses, and electrically-operated switching mechanisms are susceptible to damage.

Union Pacific and the BNSF Railway Companies lines enter the Coachella Valley from Imperial County along the eastern shore of the Salton Sea.

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Major population centers affected by railroad transportation are vulnerable to the impact of a wide variety of hazardous materials transported by these carriers. Additionally, there are lines running east and west that carry significant tonnage daily. Some of these lines are in remote areas, but that does not lessen the overall seriousness of their impact.

Airlines / Airports.

The western part of Riverside County has some of the busiest air traffic areas in the United States. Commercial, as well as military traffic, is very heavy. The number of near misses reported by pilots underscores the increasing possibility of a mid-air collision over the County.

There are two major airports in Riverside County: March Air Reserve Base and Palm Springs International. There are also numerous smaller municipal and commercial airports and private air strips:

- Banning Airport
- Bermuda Dunes Airport
- Blythe Airport
- Chiriaco Summit Airport
- Corona Municipal Airport
- Desert Center Airport
- Flabob Airport
- French Valley Airport
- Hemet- Ryan Airport
- Lake Elsinore/Skylark Airport
- Perris Valley Airport
- Rancho California Airport
- Riverside Municipal Airport
- Jacqueline Cochran Regional Airport

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In addition, there are five major out-of-county airports operating in the vicinity of Riverside County with significant flight-paths over the County:

1. John Wayne Airport (Orange County)
2. Long Beach Airport (Los Angeles County)
3. Los Angeles International (LAX) Airport
4. Ontario Airport (San Bernardino County)
5. Chino Airport (Airport Influence Area extends into Riverside County)
6. San Diego International Airport (SAN) San Diego County

Risk Assessment

The possibility for a transportation hazard to occur is ongoing. There have been railway incidents in the recent past, although they have not been numerous and have not caused extensive damage. Semi-trucking incidents are not uncommon and could result in a hazardous spill at any time, although notable events have not occurred in recent history. There has not been a serious airline accident in the area in the recent past.

- **Effects on people and housing.** As the historical events in Riverside County show, people may be evacuated when a transportation emergency occurs. Relative to some of the other natural hazards assessed earlier in this LHMP, the numbers of people affected by transportation emergencies are usually less. However, a transportation accident on Interstate 10 during a period of high heat can result in hundreds (or more) of commuters being stranded on the highway with little resources for an extended period of time.

- **Effects on commercial and industrial structures**. There may be economic consequences due to transportation emergencies, but the damage is generally limited to clean-up of facilities and grounds or simply interruption of business due to evacuation.

- **Effects on infrastructure.** Transportation emergencies may result in downed power lines. Also, Hazmat materials released in a transportation emergency may impact waterways and drainage systems, and incidents can lead to the evacuation of schools, business districts, and residential areas.

- **Effects on agriculture**. Transportation is essential to the agricultural industry.

For all elements of agriculture other than those that are dairy-related, any incident that affects transportation for more than three days is "major." For the dairy segment of the agricultural industry, any incident that affects the ability to transport product by more than 12 hours is considered "major."

Risk Assessment Conclusion.

In general, transportation hazards are not cataclysmic in terms of widespread property damage and loss of life. Existing emergency operations should be equipped to handle almost of any transportation hazard that may occur.

However, because Riverside County has an agricultural production value of over $1 billion, any transportation emergency that affects the ability of agriculture to conduct its routine business (importing supplies and exporting production) can have severe economic consequences for the County.

Relationship to Other Hazards – Cascading Effects

Depending on the location of the incident, the cascading effects of transportation emergencies are generally limited to those of Hazmat incidents, Fires or Extreme Weather (if the incident occurs in the desert when the temperatures are very high, citizens in vehicles stopped for several hours can suffer from the heat and lack of conveniences). In all cases, health and life may be threatened.

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5.3.15 Dam Failure

Severity: 3

Probability: 1

Risk Score: 0.38

OA Jurisdictions Affected by Dam Failure

- Norco
- Eastvale
- Corona
- Lake Elsinore
- Wildomar
- Murrieta
- Temecula
- Perris
- Menifee
- Riverside
- Jurupa Valley
- Hemet
- Moreno Valley
- San Jacinto
- Various Portions of unincorporated areas in the West County

Hazard Definition

The term "dam failure" encompasses a wide variety of circumstances. Potential causes of a dam failure are numerous and can be attributed to deficiencies in the original design of the dam, the quality of construction, the maintenance of the dam and operation of the appurtenances while the dam is in operation, and acts of nature including precipitation in excess of the design, flood, and damage from earthquakes. Water over topping the dam crest is a common cause of failure in earth dams.

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

Flooding of the area below the dam may occur as the result of structural failure of the dam, overtopping, or a seiche. The primary danger associated with a dam failure is the swift, unpredictable flooding of those areas immediately downstream of the dam.

There are three general types of dams: earth and rock fill, concrete arch or hydraulic fill, and concrete gravity. Each of these types of dams has different failure characteristics. The earth/rock fill dam will fail gradually due to the erosion of the breach; a flood wave will build gradually to a peak and then decline until the reservoir is empty. A concrete arch or hydraulic fill dam will fail almost instantaneously; with a very rapid build-up to a peak and then a gradual decline. A concrete gravity dam will fail somewhere in between instantaneous and gradual, with the corresponding build-up of flood wave.

History

Historically, Riverside County has not experienced any significant dam failure incidents, although there are several major dams in the County of both the earthen and steel reinforced concrete type

Risk Assessment

The County of Riverside is subject to potential flooding from several local dams, reservoirs, streams, rivers, and washes. These include but are not limited to, Lake Elsinore, the Colorado River, and the San Jacinto River. Seasonal flooding with the failure of run-off storage reservoirs, canals, and levees could seriously compound the situation, particularly in or near urban population centers. From the time of complete failure to inundation could be as little as 5-to-10 minutes.

Portions of Riverside County along the Colorado River corridor could suffer from a catastrophic failure of dams that are located far outside the borders of Riverside County. These dams include Palo Verde Diversion Dam, Headgate Rock Dam, Parker Dam, Davis Dam, and Hoover Dam. If there were a catastrophic dam failure, it is estimated that it would take a minimum of 23 hours before the flood waters reach the City of Blythe.

With major disruptions in power and communications systems, a warning may not be received from dam or reservoir sites in time to initiate an organized evacuation or broadcast warnings via emergency radio stations. If a credible prediction is initiated, then preparation for a damaging earthquake could begin and residents and business owners within dam inundation areas could be directed to assembly areas to wait for official word regarding safe re-entry. This method of direction and control could substantially reduce potential loss of life, if enough warning were available.

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- **Effects on Agriculture** can be catastrophic, both for crops and for animals. Loss of property is a real risk, as well.

Risk Assessment Conclusion.

Although dam failure incidents have not historically been a problem in Riverside County, the County's location with respect to earthquake fault lines presents the very real danger of dam failure due to quakes. If this were to occur, the effects could be catastrophic. Also, as noted above, seasonal flooding with the failure of run-off storage reservoirs, canals, and levees could seriously compound the risks of dam failure and additional flooding.

Relationship to Other Hazards – Cascading Effects

Dam failure obviously causes downstream flooding. It may also lead to power failures and downed power lines. The secondary effects of dam failure can include the disruption of the local and state economies by damage to buildings and roads, the severance of communications, the disruption of supply and delivery mechanisms, additional welfare, and emergency aid to the recovering economy.

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Table 38: Dams within the County of Riverside

Listed Alphabetically By County

Dam No.	National ID No.	Name	Owner	County	Stream	Year Built	Capacity (Ac-ft)	Res. Area (Acres)	Drainage Area (mi^2)	Crest Elev. (ft)
1003-003	CA00798	Alessandro	Riverside County Flood Control And Water Conservation	Riverside	Alessandro Cr	1956	370	17	4.63	1146
1003-007	CA00802	Boxsprings	Riverside County Flood Control And Water Conservation	Riverside	Box Springs Cr	1960	405	29	4	1139
35-021	CA01441	Cajalco Creek	Metropolitan Water Dist	Riverside	Cajalco Creek	2001	889	74.4	22.7	1512
87-008	CA01204	Declez Retention	San Bernardino County Flood Control District	Riverside	San Sevaine Cr	1984	331	21	10.7	849
35-018	CA01410	Diamond Valley Lake	Metropolitan Water District	Riverside	Domenigoni Valley Cr	2000	800000	4860	13	1769
35-019	CA01413	Diamond Valley Lake Forebay	Metropolitan Water District	Riverside	Domenigoni Val Can	1999	500	31	0.13	1497.5
1812-000	CA01302	Dunn Ranch	Agri-Empire,A Calif Corp	Riverside	Hamilton Cr	1987	90	7	0.2	142.5
1003.02	CA10503	Eagle Canyon Debris Basin	Riverside County Flood Control And Water Conservation	Riverside	Eagle Canyon	2015	222	7.1	-	405
822-000	CA00767	El Casco	Riverside Land Conservancy	Riverside	San Timoteo Creek	1879	143	15	0.09	116
81-000	CA00304	Fairmount Park	City Of Riverside	Riverside	Santa Ana River	1923	200	40	22	793
827-000	CA00769	Foster	Idyllwild Water District	Riverside	Lily Creek	1945	56	6	0.85	5812
35-020	CA01424	Goodhart Canyon Detention Basin	Metropolitan Water Dist	Riverside	Goodhart Canyon	1999	1026	98	3.8	1627.2

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1003	CA00787	Harrison Street	Riverside County Flood Control And Water Conservation	Riverside	Harrison Creek	1954	208	14	2.03	1123.5
35-016	CA01349	Henry J Mills No 2	Metropolitan Water Dist	Riverside	Offstream	1996	92	5	0.1	1651.2
35-014	CA01085	Henry J Mills Reservoir	Metropolitan Water Dist	Riverside	Offstream	1979	83	6	0	1651
35-017	CA01374	Hj Mills Reclamation	Metropolitan Water District	Riverside	Offstream	1996	98	16	0.03	1593
1003-014	CA01212	Jurupa Basin	Riverside County Flood Control And Water Conservation	Riverside	Jurupa Wash	1983	167	17	1.69	855
817-000	CA00763	Lake Hemet	Lake Hemet Municipal Water District	Riverside	San Jacinto Riv	1895	14000	470	67	4341.5
1003-016	CA01392	Lakeview	Riverside County Flood Control And Water Conservation	Riverside	San Jacinto Riv	1994	530	39	7.6	1621
818-002	CA00766	Lee Lake	Elsinore Valley Mun Wd	Riverside	Temescal Creek	1919	1100	70	53	1153
1003-009	CA01103	Mabey Canyon	Riverside County Flood Control And Water Conservation	Riverside	Mabey Creek	1974	68	5	1.5	1146
1003-011	CA01211	Mary Street	Riverside County Flood Control And Water Conservation	Riverside	Alessandro Wash	1981	320	19	6.7	1009
35-000	CA00212	Mathews	Metropolitan Water District of Southern California	Riverside	Cajalco Creek	1938	182000	2750	40	1404
1003-015	CA01197	Metz Road Debris Basin	Riverside County Flood Control And Water Conservation	Riverside	San Jacinto Riv	1981	88	20	1	1470.5
81-003	CA00305	Mockingbird Canyon	City Of Riverside	Riverside	Mockingbird Can	1914	1250	64	13.13	1015

1003-010	CA01179	Oak Street	Riverside County Flood Control And Water Conservation	Riverside	Oak Street Cr	1979	138	36	6.02	1034
1-068	CA00054	Perris	California Department Of Water Resources	Riverside	Bernasconi Pass	1973	131452	2340	10	1600
1003-006	CA00801	Pigeon Pass	Riverside County Flood Control And Water Conservation	Riverside	Pigeon Pass	1958	900	86	8.71	1702.5
1003-004	CA00799	Prenda	Riverside County Flood Control And Water Conservation	Riverside	Prenda Creek	1954	192	15	1.93	1242
829-000	CA00771	Quail Valley	Forecast Homes	Riverside	San Jacinto Riv	1959	103	10	1.6	1490
818-000	CA00765	Railroad Canyon	Elsinore Valley Mun Wd	Riverside	San Jacinto River	1928	11586	525	664	1410
35-012	CA00223	Robert A Skinner	Metropolitan Water Dist	Riverside	Tucalota Creek	1973	43800	860	51.5	1493
35-015	CA01271	Skinner Clearwell	Metropolitan Water District	Riverside	Offstream	1991	356	14	0	1433
1811-000	CA01237	Sunnymead Ranch	Sunnymead Ranch Comm Assoc	Riverside	Reche Canyon	1985	400	35	2	1770
1003-005	CA00800	Sycamore	Riverside County Flood Control And Water Conservation	Riverside	Sycamore Canyon	1956	860	57	10.7	1013
1003-013	CA01170	Tahchevah	Riverside County Flood Control And Water Conservation	Riverside	Tachevah Creek	1964	650	60	3.2	582
1003-012	CA01242	Tahquitz Creek Debris	Riverside County Flood Control And Water Conservation	Riverside	Tahquitz Creek	1991	75	5	18	562
2028-000	CA00770	Vail	Rancho Calif Water District	Riverside	Temecula Creek	1949	51000	1078	306	1482.6
1003-008	CA00803	Wide Canyon	Riverside County Flood Control And Water Conservation	Riverside	West Wide Canyon	1968	1490	57	33.5	1560

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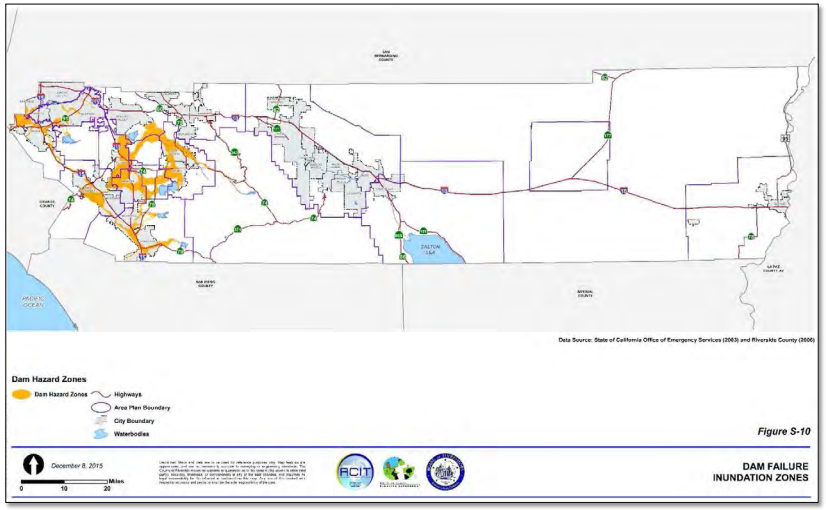
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1003-000	CA00796	Woodcrest	Riverside County Flood Control And Water Conservation	Riverside	Woodcrest Creek	1954	420	24	5.32	1122.5

The most recent damn built was Eagle Canyon Debris Basin in 2015

Descriptions of the dams, their inundation impact on the County, and a delineation of response efforts are outlined in the 2015 Draft version of the Flood and Dam Inundation Plan, maintained by Riverside County Transportation and Land Management Agency.

Map 18: Riverside County Dam Inundation Risks



5.3.16 Aqueduct

Severity: 3

Probability: 2

Risk Score: 0.38

OA Jurisdictions Affected by Aqueduct Failure

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

Hazard Definition

An Aqueducts is an artificial channel to transport water. There are two major Aqueducts that traverse Riverside County:

- California Aqueduct
- Colorado River Aqueduct.

The California Aqueduct is a 444-mile long, artificially river shaped facility that is a crucial component of the State Water Project. The California Department of Water Resources states that the Project includes 34 storage facilities, reservoirs and lakes; 20 pumping plants; 4 pumping-generating plants; 5 hydroelectric power plants; and about 701 miles of open canals and pipelines. It travels from Sacramento into San Bernardino County and finally ends in western Riverside County. The East Branch is the portion of the Aqueduct that transports water for storage into Lake Perris.

The Colorado River Aqueduct stretches 242 miles across Arizona and California. According to the American Society of Civil Engineers, it consists of more than 90 miles of tunnels, nearly 55 miles of cut-and-cover conduit, almost 30 miles of siphons, and five pumping stations. More than a billion gallons of water travel through it a day. It travels from Arizona into San Bernardino County, enters the eastern portion of Riverside County and travels the length of the County until it ends near the City of Riverside. It was built and is currently maintained by the Metropolitan Water District of Southern California.

Figure 41: California Aqueducts



Source: 2013 (SHMP)

History of Events

Riverside County has not experienced a large scale Aqueduct incident.

Risk Assessment

An earthquake or landslide could severely damage the two main aqueducts that travel through the county, possibly render them out of service. In this event the water supply to the County would be greatly affected.

Long periods of droughts have been known to damage aqueduct infrastructure. Wells have needed to work harder to pump low levels of water. This has resulted in many irrigation districts to raise the sides of canals to encourage gravitational water flow. However, this tactic can negatively affect bridges.

- **Effects on people and housing.** There is a low impact on housing unless the aqueduct was to flood a residential area. The impact to people can range from minor to disastrous. A failure could greatly impact the County's water supply leaving the County to source water elsewhere until the damages to the aqueduct can be remedied. It can also impact the economy in the event that crops are damaged and farmers lose valuable product.

- **Effects on commercial and industrial structures**. There is a low impact on commercial and industrial structures.

- **Effects on infrastructure.** There is a low impact on infrastructure.

- **Effects on agriculture.** In the event of an aqueduct failure crops could be devastatingly impacted.

Risk Assessment Conclusion

This hazard has a low probability but has the potential to have catastrophic impacts to the county.

Relationship to Other Hazards – Cascading Effects

An Aqueduct failure could lead to water supply contamination or disruption and flooding. It could also increase the effects of a drought.

5.3.17 Tornado

Severity: 2

Probability: 1

Risk Score: 0.25

OA Jurisdictions Affected by Tornados

- Hemet
- Perris
- Desert Center
- Coachella Valley
- Mecca
- Homeland

Hazard Definition

Tornados

Tornadoes are spawned when there is warm, moist air near the ground, cool air aloft, and winds that speed up and change direction. An obstruction, such as a house, in the path of the wind, causes it to change direction. This change increases pressure on parts of the house, and the combination of increased pressures and fluctuating wind speeds creates stresses that frequently cause structural failures.

In order to measure the intensity and wind strength of a tornado, Dr. T. Theodore Fujita developed the Fujita Tornado Damage Scale. This scale compares the estimated wind velocity with the corresponding amount of suspected damage. The scale measures six classifications of tornadoes with increasing magnitude from an "F0" tornado to an "F6+" tornado.

Tornados, like those that occur every year in the Midwest and Southeast parts of the United States, are a rare phenomenon in most of California, with most tornado-like activity coming from micro-bursts.

The chart below depicts the Fujita Tornado Damage Scale:

Table 39: Fujita Tornado Damage Scale

Scale	Wind Estimate (mph)	Typical Damage
F0	< 73	**Light damage.** Some damage to chimneys and TV antennas; breaks twigs off trees; pushes over shallow-rooted trees.
F1	73-112	**Moderate damage.** Peels surface off roofs; windows broken; light trailer houses pushed or overturned; some trees uprooted or snapped; moving automobiles pushed off the road. 74 mph is the beginning of hurricane wind speed.
F2	113-157	**Considerable damage.** Roofs torn off frame houses leaving strong upright walls; weak buildings in rural areas demolished; trailer houses destroyed; large trees snapped or uprooted; railroad boxcars pushed over; light object missiles generated; cars blown off highway.
F3	158-206	**Severe damage.** Roofs and some walls torn off frame houses; some rural buildings completely demolished; trains overturned; steel-framed hangar-warehouse-type structures torn; cars lifted off the ground; most trees in a forest uprooted snapped, or leveled.
F4	207-260	**Devastating damage.** Whole frame houses leveled, leaving piles of debris; steel structures badly damaged; trees debarked by small flying debris; cars and trains thrown some distances or rolled considerable distances; large missiles generated.
F5	261-318	**Incredible damage.** Whole frame houses tossed off foundations; steel-reinforced concrete structures badly damaged; automobile-sized missiles generated; trees debarked; incredible phenomena can occur.
F6-F12	319 to sonic	**Inconceivable damage.** Should a tornado with the maximum wind speed in excess of F5 occur, the extent and types of damage may not be conceived. A number of missiles such as iceboxes, water heaters, storage tanks, automobiles, etc. will create serious secondary damage on structures.
Source: http://weather.latimes.com/tornadoFAQ.asp		

Microbursts

Unlike tornados, microbursts are strong, damaging winds that strike the ground and often give the impression a tornado has struck. They frequently occur during intense thunderstorms. The origin of a microburst is downward moving air from a thunderstorm's core. But unlike a tornado, they affect only a rather small area.

University of Chicago storm researcher Dr. Ted Fujita first coined the term “downburst” to describe strong, downdraft winds flowing out of a thunderstorm cell that he believed were responsible for the crash of Eastern Airlines Flight 66 in June of 1975.

A downburst is a straight-direction surface wind in excess of 39 mph caused by a small-scale, strong downdraft from the base of convective thundershowers and thunderstorms. In later investigations into the phenomena, he defined two sub-categories of downbursts: the larger macro bursts and small microbursts.

Macro bursts are downbursts with winds up to 117 mph that spread across a path greater than 2.5 miles wide at the surface and which last from 5 to 30 minutes. The microburst, on the other hand, is confined to an even smaller area, less than 2.5 miles in diameter from the initial point of downdraft impact. An intense microburst can result in damaging winds near 270 km/hr (170 mph) and often last for less than five minutes.

“Downbursts of all sizes descend from the upper regions of severe thunderstorms when the air accelerates downward through either exceptionally strong evaporative cooling or by very heavy rain which drags dry air down with it. When the rapidly descending air strikes the ground, it spreads outward in all directions, like a fast-running faucet stream hitting the sink bottom.

When the microburst wind hits an object on the ground such as a house, garage or tree, it can flatten the buildings and strip limbs and branches from the tree. After striking the ground, the powerful outward running gust can wreak further havoc along its path. Damage associated with a microburst is often mistaken for the work of a tornado, particularly directly under the microburst. However, damage patterns away from the impact area are characteristic of straight-line winds rather than the twisted pattern of tornado damage.”

History

The history table demonstrates the high number of tornados and microbursts that have occurred in the County.

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Figure 42: Historical Tornados Statistics for Riverside

DATE	FORCE	DEATH(S)	INJURED	DISTANCE
10/17/2015	0	0	0	22
09/09/2012	0	0	0	14
08/12/2012	0	0	0	16
05/22/2008	0	0	0	11
05/22/2008	2	0	1	8
05/22/2008	0	0	0	8
05/22/2008	0	0	0	10
07/23/2006	0	0	0	20
07/23/2005	0	0	0	27
03/04/2005	0	0	0	11
02/26/2005	0	0	0	17
01/09/2005	0	0	0	29
12/21/2001	0	0	0	28
02/24/2001	0	0	0	27
02/16/2000	0	0	0	30
05/13/1998	0	0	0	21
02/07/1994	0	0	0	28
02/08/1993	0	0	0	28
01/17/1993	0	0	1	28
03/20/1991	0	0	0	1
03/20/1991	0	0	0	16
02/28/1991	0	0	0	27
01/18/1988	0	0	0	27

Source:http://www.homefacts.com/tornadoes/California/Riverside-County/Riverside.html

Map 19: Past Riverside Count Tornadoes



Source: http://www.tornadohistoryproject.com/tornado/California/Riverside/map

Risk Assessment

- **Effects on people and housing.** Tornadoes are very dangerous and can destroy homes and injure or kill Riverside County residents. The county has been fortunate in the past because we have not experienced loss of life and very few injuries caused by tornadoes or airborne debris.

- **Effects on commercial and industrial structures.** Industrial structures could house Hazardous Materials that have to potential to be released if the facility is damaged. Workers could be trapped under debris if the tornado hits during business hours.

- **Effects on infrastructure.** Infrastructures could be damaged by high winds at building failure points such as rook joist or wall stud- bottom plate intersections. Flying debris can also cause damages.

- **Effects on agriculture.** Tornadoes have the power to destroy crops or tools/structures needed by the farmer to tend his crops. It can also lead to the death of livestock.

Risk Assessment Conclusion

Riverside County's "Tornado Alley" spans from the 15 Corridor to desert center and is highly susceptible to microburst and tornados that result is high dollar recovery costs.

Relationship to Other Hazards – Cascading Effects

Tornados can destroy powerlines causing disruption in power to residents and commercial properties. They can damage critical facilities and devastate homes.

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5.3.18 Insect Infestation

Severity: 2

Probability: 3

Risk Score: 0.00

OA Jurisdictions Affected by Insect Infestation

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

(Bark Beetle)

- Idyllwild Fire Protection District

(Red Imported Fire Ant Quarantine)

- Alvord Unified School District
- Cathedral City
- City of Banning
- City of Blythe
- City of Calimesa
- City of Canyon Lake
- City of Coachella
- City of Corona
- City of Desert Hot Springs
- City of Hemet
- City of Indian Wells
- City of Indio -- only portions of the city are within the boundaries of the Red Imported Fire Ant Quarantine area
- City of La Quinta
- City of Lake Elsinore
- City of Moreno Valley – only portions of the city are within the boundaries of the Red Imported Fire Ant Quarantine area
- City of Murrieta
- City of Norco
- City of Palm Desert -- only portions of the city are within the boundaries of the Red Imported Fire Ant Quarantine area
- City of Palm Springs -- only portions of the city are within the boundaries of the Red Imported Fire Ant Quarantine area
- City of Perris
- City of Rancho Mirage -- only portions of the city are within the boundaries of the Red Imported Fire Ant Quarantine area
- City of Riverside
- City of Temecula
- Home Gardens County Water District
- Idyllwild Water District
- Lake Elsinore Unified School District
- Menifee Unified School District
- Moreno Valley Unified School District
- Rancho California Water District
- Riverside Community Hospital
- Riverside County Office of Education, Children, and Family Services
- Riverside County Transportation

and Land Management Agency
- Riverside Unified School District
- San Gorgonio Pass Water Agency
- Valley Sanitation District
- Western Municipal Water District

Hazard Definition

Insect infestation occurs when an undesirable type of insect inhabits an area in a manner that causes serious harm to: cash crops, livestock, or poultry; wild land trees, plants, or animals; or humans. Countless insects live on, in, and around plants, animals, and humans in all environments. Many are harmless, while others can cause fatal damage. Under some conditions, insects that have been present and relatively harmless can become hazardous. For example, severe drought conditions can weaken trees and make them more susceptible to destruction from insect attacks.

The major forms of insects are:

- **Chewing insects** are defoliating insects. They generally strip plants of green matter such as leaves. Caterpillars and beetles make up the largest proportion of chewing insects. Under normal conditions, trees can usually bounce back from an attack of these defoliators, though repeat infestation will weaken a tree and can eventually kill it by starving it of energy.

- **Boring, or tunneling, insects** cause damage by boring into the stem, roots, or twigs of a tree. Some lay eggs that then hatch and the larvae burrow more deeply into the wood, blocking off the water-conducting tissues of the tree. Boring insects generally feed on the vascular tissues of the tree. If the infestation is serious, the upper leaves are starved of nutrients and moisture, and the tree can die. Signs of borer infestation include entry/exit holes in the bark, small mounds of sawdust at the base, and sections of the crown wilting and dying.

- **Sucking insects** do their damage by sucking out the liquid from leaves and twigs. Many sucking insects are relatively immobile, living on the outside of a plant and forming a hard protective outer coating while they feed on the plant's juices. Quite often they will excrete a sweet, sticky substance known as honeydew which contains unprocessed plant material. Honeydew can cause sooty mold to form on leaves and can become a nuisance. Signs of infestation include scaly formations on branches, dieback of leaves, and honeydew production.

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Table 40: Example Insect Species

NAME
AFRICANIZED HONEY BEE
BARK BEETLE
CITRUS LEAFMINER
GLASSY-WINGED SHARPSHOOTER
GYPSY MOTH
HONEY BEE TRACHEAL MITE
JAPANESE BEETLE
LESSER SNOW SCALE
MAGNOLIA WHITE SCALE
MEDITERRANEAN FRUIT FLY
ORIENTAL FRUIT FLY
RED IMPORTED FIRE ANT
STING NEMATODE
TROPICAL PALM SCALE
VARROA MITE/HONEY BEE
ASIAN CITRUS PSYLLID
SILVERLEAF WHITEFLY
POLYPHAGOUS SHOT-HOLE BORER
ASIAN CITRUS PSYLLID
GOLDSPOT OAK BORE BEETLE, (GSOB)
PINE BARK BEETLE
SHOT HOLE BORER BEETLE
KUROSHIO SHOT HOLE BORERS

In conjunction with the above outlined problems, insects can carry and spread or vector disease to plants, animals, and people.

Definition of Vector Control

Vector Control Programs are responsible for providing services that reduce the risk of illness caused by any organism transporting a pathogen. Some examples of these organisms and some of the pathogens they can carry are:

- Mosquito - West Nile Virus, St. Louis Encephalitis, Western Equine Encephalitis
- Rodent Fleas - Plague

- Western Black Legged Tick - Lyme Disease
- Rodents - Hantavirus

Riverside County actually has three vector control agencies. There are two Vector Control Districts and the County Vector Control Program operating through the Department of Environmental Health. The Coachella Valley Mosquito and Vector Control District manages these services for a portion of the desert community around the Coachella Valley. The Northwest Mosquito and Vector Control District provides services in the northwest portion of the county. The County Vector Control program covers the unincorporated areas of the County and other areas such as contracted cities that may fall outside of the two other vector district boundaries.

History

Presently - Parts of Riverside County (Moreno Valley, Indio, Rancho Mirage, Palm Desert, Bermuda Dunes, and Palm Springs) are under quarantine by state and federal officials to stop the spread of Red Imported Fire Ants. The quarantine limits the movement of plants and soil and requires commercial nursery growers to take steps to ensure their products are free of Red Imported Fire Ants. It is believed that the infestations in Southern California may stem from the shipment of infested nursery stock from the southeastern states.

2012 - Polyphagous Shot-Hole Borer, an insect pest that attacks over 200 types of agricultural and landscape trees, became widespread in Southern California. By 2015, this insect pest was established in Western Riverside County. This insect pest is detrimental to the avocado industry and landscape ornamental trees in California.

2009 - A portion of Riverside County (Coachella Valley) was placed under quarantine for Asian Citrus Psyllid (ACP). In 2011, the quarantine area was expanded to include Western Riverside County. The quarantine limits the movement of nursery stock and citrus from the quarantine area. Growers must take steps to ensure their products are free from ACP prior to movement.

2003 -Governor Gray Davis proclaimed a State of Emergency in Riverside, San Bernardino, and San Diego Counties where hundreds of thousands of trees were dead and dying after being weakened by drought and attacked by an infestation of bark beetles. Trees on more than 150,000 acres died and an estimated 75,000 residents were threatened by catastrophic wildfire, injury, and property damage from falling trees.

1999-2000, an insect-spread disease (Pierce's Disease spread by Glassy-winged Sharpshooter) caused over $16 million damage to wine grapes in the west County area. Riverside County is under quarantine by state officials to stop the spread of

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Glassy-winged Sharpshooter and Pierce's Disease. The quarantine limits the movement of nursery stock, bulk grapes, bulk citrus and requires inspection and certification of these commodities by the local Agricultural Commissioner prior to movement from the infested area.

1991-1994 - Africanized Honey Bees entered California near Blythe. Since 1994, they have spread to all counties in Southern California (Imperial, San Diego, Orange, Los Angeles, Riverside, San Bernardino, Ventura and Kern). In 1993-94 and 1990, Med-fly infestations damaged fruit Countywide. In 1991, a whitefly infestation damaged melons, squash, and cucumbers Countywide.

Risk Assessment

Riverside County has a demonstrated vulnerability to insect infestation. The climate makes it possible for insects to reproduce with little natural hindrance to their proliferation.

Programs for monitoring Encephalitis in Riverside County have been in effect for more than two decades in a cooperative effort with the California Department of Public Health (CDPH), the University of California, the Mosquito and Vector Control Association of California, and the Riverside County Public Health Department. Since its introduction to Southern California in 2003, West Nile Virus surveillance has been a primary focus. This type of surveillance is driven by live mosquito trapping and processing for virus detection. The dead bird surveillance program is also headed up by CDPH where the public can report dead birds via their website (www.westnile.ca.gov) or a telephone hotline (1-877-WNV-BIRD). If CDPH staff determines that a dead bird is deemed acceptable for testing, Vector Control offices are notified for collection and testing. Another aspect of this program consists of sentinel chicken flocks being placed in areas where high populations of Culex tarsalis, the western encephalitis mosquito, are known to exist and where such areas infringe on local communities. Blood samples are sent to the CDPH Viral & Rickettsial Disease Laboratory where they are analyzed for the antibodies to the viruses. All of these disease indicators allow programs to focus their vector control efforts. Since 2006, at least seventy three cases of West Nile virus human infections have been reported within Riverside County with ten fatalities. Horses have also been infected and succumbed to this disease.

In Riverside County, Plague is associated with animal disease outbreaks in populations of California Ground Squirrels. The vector is the Squirrel Flea. In 1979 during a disease outbreak among California ground squirrels in Silent Valley, located south of the City of Banning, a boy contracted Plague. It was properly diagnosed and he recovered. This incident provided impetus to start the Plague Surveillance Program and eventually establish the County's Vector Control Program. Over the course of the past several

decades surveillance activities have isolated Plague endemic areas in the San Jacinto Mountain range.

- **Effects on people and housing.** In the case of the Bark Beetle, the fire hazard it creates can cause the loss of homes and life as demonstrated in the fall fires of 2003. In the case of certain mosquitoes, West Nile Virus has infected humans and horses.

- **Effects on agriculture, and commercial and industrial structures.** If a given insect is particularly hazardous to forests, crops, or property, it can cost the County millions of dollars in lost revenue and eradication and replacement.

Risk Assessment Conclusion.

Insect infestation is an ongoing threat to agriculture and public health in Riverside County. The effects on people and property can be disastrous and costly.

The County and independent vector control special districts have aggressive programs utilizing:

- Disease surveillance such as certified personnel, insect/rodent traps, lab testing capacities, and Sentinel chicken flocks.
- Vector control equipment and approved pesticides.
- Public outreach.

Relationship to Other Hazards – Cascading Effects

The Bark Beetle infestation is a classic example of cascading effects. The insect killed hundreds of thousands of trees, increasing the wildfire hazard, which resulted in the unfortunate devastation of the fall fires of 2003.

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5.3.19 Jail/Prison Event

Severity: 2

Probability: 1

Risk Score: -0.13
OA Jurisdictions Affected by Jail or Prison Events

- Blythe
- Riverside
- Norco
- Banning
- Indio
- Murrieta

Hazard Definition

There are numerous State of California Correctional Institutions and County correctional facilities in Riverside County. Law enforcement is tasked with maintaining order in the facilities and preventing inmates from escaping into the community.

Chuckawalla Valley State Prison in Blythe provides long-term housing and services for male felons classified as medium and low-medium custody inmates.

Ironwood State Prison in Blythe provides services for minimum and medium custody inmates through academic education, vocational instruction, and support services. The prison also has the Institutional Hearing Program (IHP) which prepares inmates who are illegal immigrants for release to United States Immigration and Naturalization Service custody and the return to their native country.

The California Rehabilitation Center (CRC) in Norco is a medium Level II correctional facility and that only accommodates male inmates since April 2007. The CRC inmate population consists of felon commitments as well as Civil Addicts.

The California Institution for Woman (CIW) in Chino accommodates all custody levels of female inmates and functions as a reception/processing center for incoming female inmates. In addition to its large general population, CIW houses inmates with special

needs such as pregnancy, psychiatric care, methadone, and medical problems such as HIV infection.

The California Institution for Men in Chino consists of four separate facilities under the administration of one warden. Located three miles south of the city of Chino, the facilities provide housing for minimum through medium custody inmates. The reception centers receive and process newly committed male felons from several southern California counties. The California Youth Authority operates a facility in Chino. While all of these facilities are in the County of San Bernardino, their close proximity to Riverside County and the City of Corona necessitate their inclusion here as facilities of concern to Riverside County.

In addition, there are five correctional facilities within the County, namely:

1. Robert Pressley Detention Center
2. Blythe Jail
3. Indio Jail
4. Southwest County Jail (Murrieta)
5. Larry D. Smith Correctional Facility

History

Historically, the threat to society has been low. Law enforcement has demonstrated an overall capability to maintain the incarcerated population in a manner that does not pose an immediate threat to the general population.

Risk Assessment

It is important that law enforcement remains in a state of readiness for any incidents that could precipitate a threatening situation.

The passing of Assembly Bill 109 (2011) has shifted state prison populations back into the county jail populations as a way to stop state prison overcrowding. The effects of this change are just now being seen. Time will tell what the overall impact to Riverside County and its citizens will actually be.

Riots within the facilities generally do not pose a direct threat to the public on the outside. Occasionally an inmate has escaped correctional facilities. The danger involved in their escape is predicated on the escapee's criminal characteristics.

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Riverside County Regional Medical Center provides medical care to both state and local inmates in an area designated as a prison ward, which could have a severe impact on health care delivery at the facility during and immediately after a prison ward incident. The degree of disruption would, of course, depend on the extent of the incident.

- **Effects on people and housing.** Relatively speaking, the risks are minimal. However, violent offenders escaping custody in a disaster could lead to residents in the surrounding areas being at risk of harm.
- **Effects on commercial and industrial structures**. The risks are minimal.
- **Effects on infrastructure.** The risks are minimal.
- **Effects on agriculture.** The risks are minimal.

Risk Assessment Conclusion.

Relatively speaking, the risks of jail and prison incidents will remain a minimal threat to the County. It is important that law enforcement remains in a state of readiness for any incidents that could precipitate a threatening situation.

Relationship to Other Hazards – Cascading Effects

In the event that Interstate 10 becomes damaged, it could affect evaluation routes and essential supplies from getting into the prison or jail.

Risks are minimal but have the potential to decrease responder availability during disasters if a facility is damaged. Another possible drain on resources would be in the event of inmate relocation due to damaged facilities or the potential damage to a facility.

5.3.20 Pipeline Disruption

Severity: 3

Probability: 2

Risk Score: -0.38

OA Jurisdictions Affected by Pipeline Incidents

- Desert Water Agency
- Western Municipal Water District
- City of Banning
- City of Beaumont
- City of Corona
- City of Palm Springs
- City of Temecula
- Riverside Community College District
- San Gorgonio Memorial Hospital

Hazard Definition

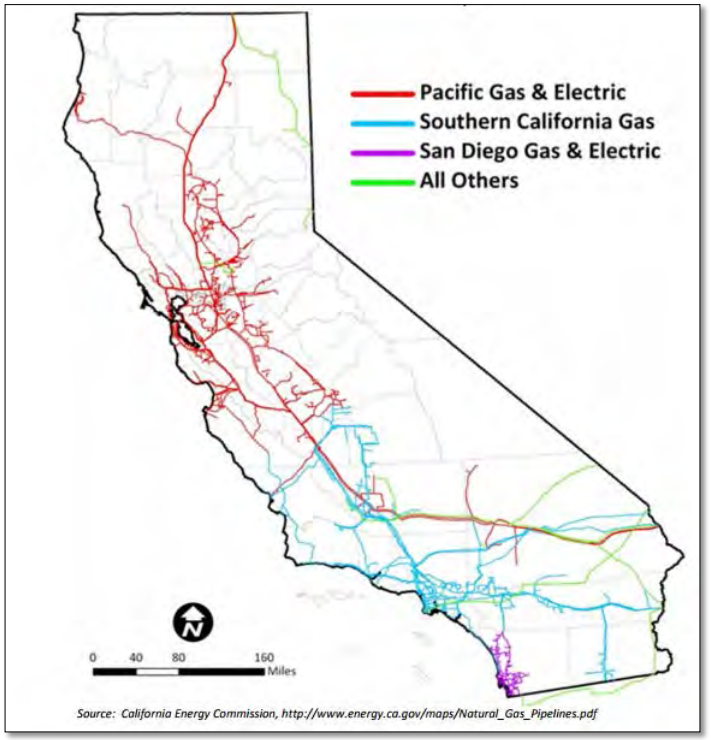
There are many pipeline distribution systems that transit Riverside County, including systems for water, natural gas, and petroleum products.

Identifying Natural Gas Pipeline Hazards (SHMP)

The United States is heavily dependent on transmission pipelines to distribute energy and fuel sources. Virtually all natural gas, which accounts for about 28 percent of the energy consumed annually, is transported by transmission pipelines. Energy demand in the United States continues to increase. Although California is a leader in exploring and implementing alternative energy sources such as the wind and solar, the expansion of traditional energy sources, such as natural gas, continues. Increased urbanization is resulting in more people living and working close to existing gas transmission pipelines that were placed prior to government agencies adopting and implementing land use and other pipeline safety regulations.

Compounding the potential risk is the age and gradual deteriorating of the gas transmission system due to natural causes. Significant failure, including pipe breaks and explosions, can result in loss of life, injury, property damage, and environmental impacts. Causes of and contributors to pipeline failures include construction errors, material defects, internal and external corrosion, operational errors, control system malfunctions, outside force damage, subsidence, and seismicity. Growth in population, urbanization, and land development near transmission pipelines, together with the addition of new facilities to meet new demands, may increase the likelihood of pipeline damage due to human activity and the exposure of people and property to pipeline failures.

Figure 43: California Gas Lines



Major water conveyance systems consist of the Colorado River Aqueduct operated by Metropolitan Water District (MWD) of Southern California, the California Aqueduct operated by the State Department of Water Resources (DWR), and water distribution lines operated by MWD.

A major pipeline carrying natural gas parallels Interstate 10 and Highway 60 throughout the County. This pipeline brings gas from the southwestern states into Southern California.

Petroleum products are stored and distributed at many major areas throughout the County. Of particular interest are the aviation fuel tanks and pipelines located at March Air Reserve Base. Although under the control of the U.S. Government, their potential for impact on the surrounding area is of interest to the County.

History

Fortunately, Riverside County has not experienced a large scale pipeline disruption. However, there are multiple small incidents on a yearly basis that are handled by the respective resource provider.

Risk Assessment

A rupture of the main line with a major release could have serious effects in terms of flooding and property damage. A gas line rupture could explode causing serious property damage and loss of life.

- **Effects on people and housing.** The consequences to people and housing from pipeline disruption can range from flooding to explosion, both could be quite severe.
- **Effects on commercial and industrial structures.** Similarly, the effects on commercial and industrial structures from flooding or explosion could be severe.
- **Effects on agriculture.** In the same way, the effects on agriculture from flooding or explosion could be severe.

Risk Assessment Conclusion.

Pipelines are vulnerable to especially with the possibility of an earthquake, causing significant breakage. The degree of damage county-wide for a given rupture would be minimal, even though there might be significant injuries, loss of life and property in the

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immediate area of the incident, depending on what kind of pipe ruptures and where the rupture occurs.

Relationship to Other Hazards – Cascading Effects

Pipeline incidents may lead to flooding, fires and air, water and land contamination. Incidents with natural gas or petroleum product pipelines may lead to explosion and fire.

5.3.21 Landslide

Severity: 3

Probability: 3

Risk Score: -0.58

OA Jurisdictions Affected by Landslide Incidents

- Most mountain areas within the County

Hazard Definition

Like its earthquake-generating faults, California's mountainous terrain is also a consequence of dynamic geologic processes in operation as the North American Plate grinds past the Pacific Plate. More than one-third of California is mountainous terrain that generally trends parallel to the coast, forming a barrier that captures moisture from offshore storms originating in the Gulf of Alaska and Mexico. Steep topography, weak rocks, heavy winter rains, and occasional earthquakes all lead to slope failures more frequently than would otherwise occur under gravity alone.

A landslide is the breaking away and gravity-driven downward movement of hill slope materials, which can travel at speeds ranging from fractions of an inch per year to tens of miles per hour depending on the slope steepness and water content of the rock/soil mass.

Landslides range from the size of an automobile to a mile or more in length and width and, due to their sheer weight and speed, can cause serious damage and loss of life. Their secondary effects can be far reaching; for example, catastrophic flooding can result from the sudden release of river water impounded by landslide debris or slope failure of an earthen dam.

Although the area affected by a single landslide is less than that of earthquakes, landslides are pervasive in California's mountainous terrain and occur far more often, resulting in cumulative losses approaching $200 million in a given year. Average annual landslide losses in California are estimated at about $100 million. Because landslides occur as isolated events in both time and location, and there is presently no systematic means in place for documenting their losses, landslide hazard is often underestimated or goes unrecognized in the policy arena, even though landslides continue to cause millions of dollars in cumulative damage to California's homes, businesses, and infrastructure.

A landslide is a geologic hazard where the force of gravity combines with other factors to cause earth material to move or slide down an incline. Some landslides move slowly and cause damage gradually, whereas others move so rapidly that they can destroy property and take lives suddenly and unexpectedly. Slopes with the greatest potential for sliding

are between 34 degrees and 37 degrees. Although steep slopes are commonly present where landslides occur, it is not necessary for the slopes to be long.

Landslides, rock falls, and debris flows occur continuously on all slopes; some processes act very slowly, while others occur very suddenly, often with disastrous results. As human populations expand over more of the land surface, these processes become an increasing concern.

The most common types of landslides are (U.S. Department of the Interior, U.S. Geological Survey, Fact Sheet 2004-3072, July 2004):

Slides - Although many types of mass movements are included in the general term "landslide," the more restrictive use of the term refers only to mass movements, where there is a distinct zone of weakness that separates the slide material from the more stable underlying material.

Falls - Abrupt movements of masses of geologic materials, such as rocks and boulders that become detached from steep slopes or cliffs.

Topples - Toppling failures are distinguished by the forward rotation of a unit or units about some pivotal point, below or low in the unit, under the actions of gravity and forces exerted by adjacent units or by fluids in cracks.

Flows – There are five basic categories of flows that differ from one another in fundamental ways.

a. Debris flows: A debris flow is a form of rapid mass movement in which a combination of loose soil, rock, organic matter, air, and water mobilize as a slurry that flows downslope.
b. Debris avalanche: This is a variety of very rapid to extremely rapid debris flow.
c. Earthflow: The slope material liquefies and runs out, forming a bowl or depression at the head. The flow itself is elongate and usually occurs in fine-grained materials or clay-bearing rocks on moderate slopes and under saturated conditions. However, dry flows of granular material are also possible.
d. Mudflow: A mudflow is an earthflow consisting of material that is wet enough to flow rapidly and that contains at least 50 percent sand-, silt-, and clay-sized particles. In some instances, for example in many newspaper reports, mudflows and debris flows are commonly referred to as "mudslides."
e. Creep: Creep is the imperceptibly slow, steady, downward movement of slope-forming soil or rock.

Lateral Spreads - Lateral spreads are distinctive because they usually occur on very gentle slopes or flat terrain. The dominant mode of movement is lateral extension accompanied by shear or tensile fractures. The failure is caused by liquefaction, the process whereby saturated, loose, cohesionless sediments (usually sands and silts) are transformed from a solid into a liquefied state.

The geologic setting of southern California locally is conducive to slope failures and slope-failure deposits (landslides) that can be a hazard to human life and property. These hazards are created when geologic materials are displaced down a topographic slope under the influence of gravity. Factors that determine slope-failure occurrence include:

1. Slope angle
2. Geologic materials (substrate)
3. Climatic conditions
4. Earthquake shaking
5. Debris Flows

Sudden "mudslides" gushing down rain-sodden slopes and gullies are widely recognized by geologists as a hazard to human life and property. Most "mudslides" are localized in small gullies, threatening only those buildings and roadways in their direct path. They can burst out of the soil on almost any rain-saturated hill when rainfall is heavy enough. Often they occur without warning in localities where they have never been seen before.

There are predictable relationships between local geology and landslides, rockfalls and debris flows. Knowledge of these relationships can improve planning and reduce vulnerability. Slope stability is dependent on many factors and their interrelationships, including rock type, pore water pressure, slope steepness, and natural or man-made undercutting.

Riverside County has a history of landslides during seasons of high precipitation.

History

January, 2016 – Landslides near Banning resulted from a low 4.3 magnitude earthquake.

December, 2014 – Mud Flow in Gilman Springs, San Jacinto.

2002 – Landslide on Highway 60 in San Timoteo Badlands

Risk Assessment

There is a continuing risk of landslides during seasons of high precipitation. In addition, earthquakes could also cause significant landslides. The County has a great deal of hilly and mountainous terrain increasing the likelihood of a landslide incident.

- **Effects on people and structures**. Landslides constitute a threat to property, road safety, and life. Small landslides would not pose a serious risk. However, there is a possibility that a severe landslide in a populated area could cause significant damage and risk to life.
- **Effects on infrastructure**. Landslides can cause disruptions in power supply pipelines, power and telephone poles, and County roads and highways.
- **Effect on Critical Facilities**. An initial review of known landslide locations and the location of critical facilities indicates that there does not appear to be any of these facilities in close proximity to a Landslide Management Zone.
- **Effects on agriculture**. Similar to the threats to people and structures, small landslides would not pose a serious risk. However, there is the possibility that a severe landslide could cause significant damage and risk of life to elements of the agricultural industry.

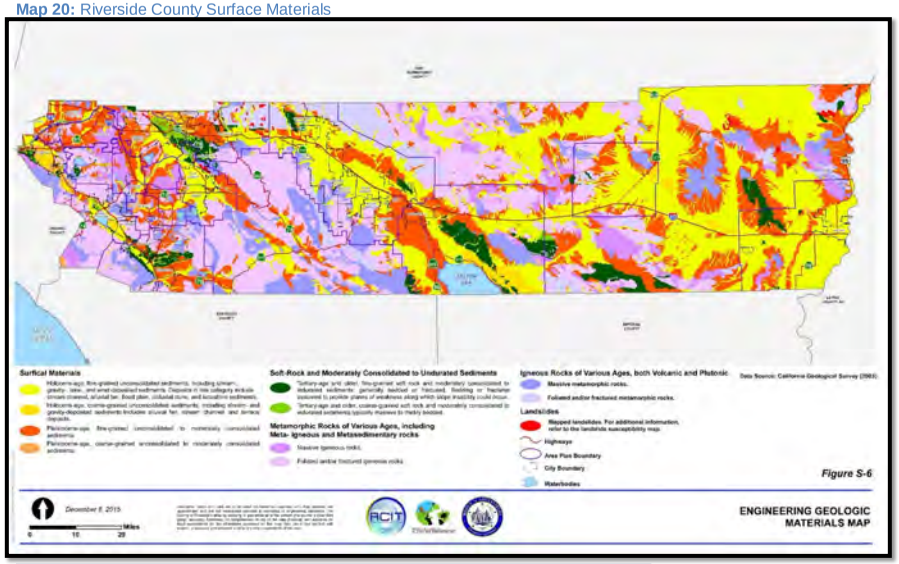
Risk Assessment Conclusion

Landslides are a continuing risk in Riverside County, especially during seasons of high precipitation. History has shown also that many landslides occur in areas where landslides have not been predicted.

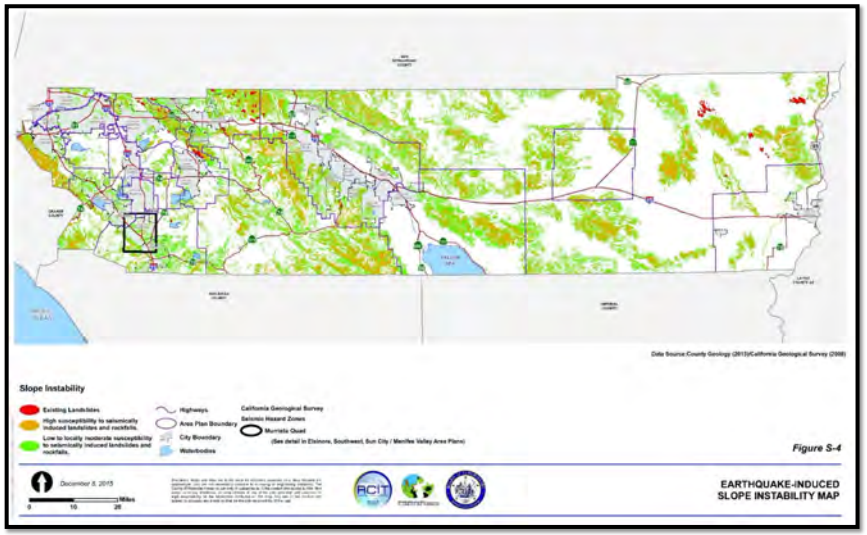
Relationship to Other Hazards – Cascading Effects

As noted, landslides can be the result of an earthquake or severe weather. The starting mechanism for a landslide will determine some of the cascading events. The end result is if a landslide occurs in a populated area, or area used by people, earth materials can cover or impede the area as described above. If a landslide were to impact power lines or other utility systems a cascading effect could be power, utility or sewer loss.

Map 20: Riverside County Surface Materials



Map 21: Riverside County Slope Instability Map



5.3.22 Hazardous Materials Incident

Severity: 3

Probability: 4

Risk Score: -0.75

OA Jurisdictions Affected by Hazardous Materials Incidents

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

Hazard Definition

Hazardous materials (Hazmat), consist of substances that by their nature, lack of containment, and reactivity, have the capability for inflicting harm. Hazmat poses a threat to health and the environment when improperly managed. Hazmat can be toxic, corrosive, flammable, explosive, reactive, an irritant, or a strong sensitizer. Hazmat substances also include certain infectious agents, radiological materials, oxidizers, oil, used oil, petroleum products, and industrial solid waste substances.

Hazardous materials can pose a threat where they are manufactured, stored, transported or used. They are used in almost every manufacturing operation and by retailers, service industries, and homeowners.

Hazardous material incidents are one of the most common threats to public health and the environment. Incidents may occur as the result of natural disasters, human error, terrorism, and/or accident.

Hazmat incidents typically take five forms:

1. Fixed facility incidents
    - Laws require those facilities to notify state and local authorities about what is being used or produced there and incidents with the materials can be planned for.
2. Transportation incidents
    - Transportation incidents are more difficult to prepare for because it is impossible to know what material(s) could be involved until an accident actually happens.

3. Pipeline incidents
    - Pipelines carry natural gas and petroleum. Breakages in pipelines carry differing amounts of danger, depending on where and how the break occurs, and what is in the pipe.
4. Terrorism incidents (or suspected Terrorism)
    - Intentional acts involving violence and/ or the threat of violence. Similar to transportation incidents, these occurrences are more difficult to prepare for due to unknown locations and substances.
5. Illegal Disposal / Abandonment
    - Similar to transportation incidents, these occurrences are more difficult to prepare for due to unknown locations and substances.

History

Many forms of hazardous materials are present in both the rural and urban areas of Riverside County. They are present in permanent storage locations, roadway and railway transport mediums, long-distance pipelines, and at various industrial and agricultural application sites. The County's location, with its rail and highway transportation routes, and various industries, has a growing potential for serious hazardous materials incidents. Interstates 10, 15 and 215, and State Highways 60 and 91 are all heavily traveled by trucks. Those trucks carry a wide variety of hazardous materials including gasoline, corrosives, oxidizers, pesticides, and radioactive materials.

The railroad lines traveling throughout the County also carry some extremely hazardous cargoes. Fortunately, the railroads have a good safety record with regard to the transportation of hazardous materials.

Traffic on railroads is not as prevalent as on truck routes in Riverside County, but poses a much greater problem when an accident is involved due to the volumes of hazardous materials on board.

There is a great deal of air traffic along the airways above Riverside County with the March Air Reserve Base Palm Springs International Airport, French Valley Airport, Hemet-Ryan Airport, Riverside Municipal Airport, Jacqueline Cochran Regional Airport and Bermuda Dunes Airport all operating within the County. The potential for a hazardous materials incident exists, especially with respect to military operations.

There are many pipeline distribution systems that traverse the County. These are discussed in Section 5.3.20.

Table 41: History of Hazmat Incidents in 2016

Riverside County Department of Environmental Health Hazmat Incidents July 1, 2015 to June 30, 2016	
HAZARDOUS MATERIALS INCIDENT TYPE	TOTAL NUMBER
General Emergency Response (do not fit other categories)	28
Drug Labs	23
Drug Dumps	3
Facility Incidents	122
Roadway Incidents	119
Aircraft Incidents	3
Railroad Incidents	7
Mercury Incidents	5
Dielectric Fluid Incidents	40
Radiological Incidents	0
Pesticide Incidents	2
Medical Waste Incidents	9
Noxious Odor Incidents	39
Illegal Disposal of Substances	207
Transportation/Manifesting Violations	0
Suspected Terrorism	4
TOTAL Hazardous Materials Incidents:	**611**

The Riverside County Department of Environmental Health Hazardous Materials Emergency Response Program handled over 611 incidents in fiscal year (FY15/16) often in conjunction with Cal Fire countywide except for a few cities that handled Haz Mat incidents within their jurisdiction. The incidents cover all areas described in the definition section.

In 2016 The Riverside County Fire department responded to 613 Hazardous Materials Incidents.

The administering agencies within Riverside County are responsible for the control of fixed hazardous materials facilities, including the Participating Agencies of Riverside Fire Department and Corona Fire Department.

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Risk Assessment

The amount of hazardous materials transported over rail and roadways on a daily basis is unknown, but estimated to be steadily increasing as our economy grows. There is the potential for a hazardous materials incident almost anywhere on the numerous highways and roads that crisscross Riverside County. The greatest concern focuses on the 10, 15, 60, 91, and 215 freeways. The most vulnerable areas along these routes are considered to be the on/off ramps and interchanges.

A major concern with the trucking industry is the safe operation of their trucks. With the deregulation of the trucking industry, spot checks of trucks in many states, including California, have shown that a large percentage of trucks currently in service are not in safe enough condition to be operated on public highways.

Many industries are moving into the County. Many facilities exist today, with more construction forecast. To support these industries, the County is likely to realize a large increase in the transportation of toxic, flammable, and corrosive materials into and out of the County. With the increased use of hazardous materials, there is an increased need for safe hazardous waste management and disposal. There will be the increased transportation of hazardous materials waste to proper disposal sites located outside of Riverside County.

Illegal dumping and clandestine drug labs are also a hazardous materials problem. Although not exclusive to Riverside County, the County is a target for these activities due to its accessibility in the outlying areas and the open living conditions in the mountain and desert areas.

No Class I landfills are operated in Riverside County. Seven Class III landfills are active in Riverside County. All accept only non-hazardous solid wastes and are located in unincorporated areas. Six of these landfills are operated by the Riverside County Waste Resources Department, while one (El Sobrante) is privately owned and operated. The El Sobrante, Badlands, Lamb Canyon, and Blythe landfills currently accept waste from outside of Riverside County. Blythe however, only takes small loads or may refuse to accept waste because it is a relatively small facility.

Hazardous waste generators include food and beverage processors as well as battery, semi- conductor, and metal container manufacturers, as well as automobile repair facilities, munition manufacturers, utility districts, and other industries. Although hazardous waste generators are scattered throughout Riverside County, most of the large generators of hazardous waste are located in the western portion of the County, including in the cities of Corona, Jurupa Valley, Riverside, and Temecula.

Nearly all of Riverside County residents have some type of hazardous materials in their homes. Examples include motor oil, paints, cleaners, aerosols, and pesticides. Household hazardous materials pose serious health issues for people who improperly use or dispose of these materials. Adverse environmental impacts can occur when household hazardous materials are disposed of in unlined sanitary landfills, where these materials may leach through the soil and contaminate groundwater.

Medical facilities, including clinics, hospitals, professional offices, blood and plasma centers, and medical research facilities generate a wide variety of hazardous substances. These substances may include contaminated medical equipment or supplies, infectious biological matter, prescription medicines, and radioactive materials used in medical procedures. The disposal of medical waste is achieved by on-site autoclaving of red-bagged waste (any medical waste that could possibly transmit a pathogen) and subsequently transported to a Class III landfill, or to a permitted incinerator. The Riverside County Department of Environmental Health has regulatory control over the disposal of medical and biological waste.

- **Effects on people and housing.** Historical events in Riverside County have necessitated evacuations when a Hazmat incident occurs. Relative to some of the other natural hazards assessed earlier in this LHMP, the numbers of people affected by Hazmat incidents are usually less.

- **Effects on commercial and industrial structures.** There may be economic consequences due to Hazmat incidents, but the damage is generally limited to clean-up of facilities and grounds, or simply an interruption of business due to evacuation.

- **Effects on infrastructure.** Hazmat incidents involving transportation may result in downed power lines. Also, Hazmat materials may impact waterways and drainage systems, and incidents can lead to the evacuation of schools, business districts, and residential areas.

- **Effects on agriculture.** As noted previously, there is a long history of agricultural production in Riverside County. Agricultural activities typically include the storage and periodic application of pesticides, herbicides, and fertilizers, as well as the storage and use of toxic fuels and solvents. The infiltration of these substances may leach into local groundwater supplies, presenting an elevated risk of groundwater contamination.

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Risk Assessment Conclusion

Although Hazmat incidents can have serious property damage and even loss of life, Hazmat accidents do not generally affect extremely large areas. Hazmat incidents present a real danger and are highly unpredictable in terms of determining when or where they will occur, but generally do not pose a serious threat to the ability of Riverside County to respond. Reasonable preparation by law enforcement, fire department, and medical community enables the County to deal with the majority of likely events. Many emergency workers prepare for Hazmat events as part of their ongoing training. Agencies and facilities are also routinely equipped to deal with most events that might occur.

Relationship to Other Hazards – Cascading Effects

Besides the immediate effect of a hazardous materials incident at the scene of the emergency, there are ancillary effects as well. For instance, there may be impacts on waterways and drainage systems, and the evacuation of schools, business districts, and residential areas.

5.3.23 Water Supply Disruption/Contamination

Severity: 2

Probability: 3

Risk Score: -1.50

OA Jurisdictions Affected by Hazardous Materials Incidents

- All incorporated cities of Riverside County
- Unincorporated areas of Riverside County

Hazard Definition

People exposed to water supply disruption or toxic pollutants caused by contaminations may be threatened by a number of health risks:

- Dehydration, hepatitis, and cancer
- Eating contaminated food products, such as fish from contaminated waters; meat, milk, or eggs from animals that fed on contaminated plants; and fruits and vegetables grown in contaminated soil
- Drinking water contaminated by toxic pollutants
- Ingesting contaminated soil. Young children are especially vulnerable because they often ingest soil from their hands or from objects they place in their mouths
- Touching (making skin contact with) contaminated soil, dust, or water (for example, during recreational use of contaminated water bodies)

Risk Assessment

According to the Environmental Protection Agency, there are four major types of drinking water contamination; physical, chemical, biological, and radiological.

Physical contaminants primarily impact the physical appearance or other physical properties of water. Examples of physical contaminants are sediment or organic material suspended in the water of lakes, rivers and streams from soil erosion.

Chemical contaminants are elements or compounds. These contaminants may be naturally occurring or man-made. Examples of chemical contaminants include nitrogen,

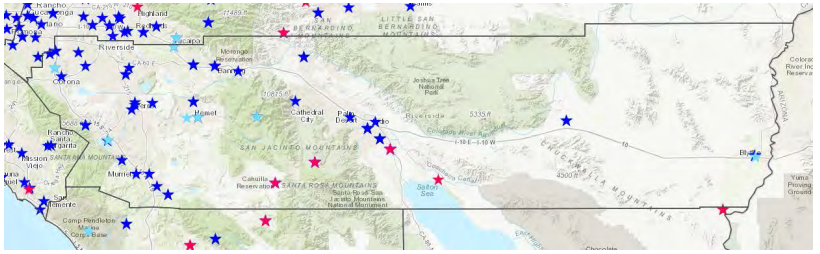
bleach, salts, pesticides, metals, toxins produced by bacteria, and human or animal drugs.

Biological contaminants are organisms in water. They are also referred to as microbes or microbiological contaminants. Examples of biological or microbial contaminants include bacteria, viruses, protozoan, and parasites.

Radiological contaminants are chemical elements with an unbalanced number of protons and neutrons resulting in unstable atoms that can emit ionizing radiation. Examples of radiological contaminants include cesium, plutonium and uranium.

Source: https://www.epa.gov/ccl/types-drinking-water-contaminants

Ground water contamination is also a major threat because of its use for drinking water and irrigation. Potential groundwater contaminants include; storage tanks, septic systems, hazardous waste, landfills, chemicals and road salts, and littering.



Source: waterboards.maps.arcgis.com

Map illustrated water systems in Riverside County. Blue stars represent in compliance water systems, red stars are systems out of compliance as of July 2017.

- **Effects on people and housing.** The effect on housing is relatively low, but the effect on people may be devastating. Though the County encourages residents to store at least 72 hours of water for their household, the reality is only a small percentage actual partake in that practice. This means that in the event of disruption or contamination that renders usable water sources limited, people may become dehydrated and suffer from other serious health issues such as cancer. In the event that contamination happens during the summer months when temperatures reach 90-105, the population is at an even higher risk.

- **Effects on commercial and industrial structures.** The effect to structures is relatively low.
- **Effects on infrastructure.** The effect to structures is relatively low.
- **Effects on agriculture.** Water contamination could devastate agriculture in Riverside County. The contaminant could be poisonous to crops and livestock. Depending on the level of exposure, entire field could be damaged to the point of total loss.

History

March 2, 2017 – 198 residents were exposed to water contaminated with uranium in the unincorporated area of Pinyon Pines.

Risk Assessment Conclusion

Due to high levels of monitoring and preparedness within water agencies, the threat of water contamination is fairly low. However, it could greatly impact the county if it is caused by a cascading event such as an earthquake.

Relationship to Other Hazards – Cascading Effects

The loss of water could drastically affect other man-made and natural hazards. In the event of an earthquake and pipelines are damaged, it could greatly reduce the amount of water available to fight fires. The amount of water available to residents would also be drastically reduced.

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Section 6.0 – Community Rating System

The County of Riverside and all cities within the County participate in the National Flood Insurance Program (NFIP). Riverside County Ordinance NO. 458 Regulating Special Flood Hazard Areas and Implementing the National Flood Insurance Program was last updated on August 14, 2014.

Riverside County also participates in the Community Rating System (CRS). The rating system is a voluntary NFIP program that aims to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management. In addition to the county, four cities participate in CRS: Lake Elsinore, Moreno Valley, Murrieta, and Palm Springs.

The most active in the Community Rating System within the County is Palm Springs. Their high scores in the system allow the city to offer the highest discount off of flood insurance (20% for SFHA and 10% for Non-SFHA).

Community Number	Community Name	CRS Entry Date	Current Effective Date	Current Class	% Discount for SFHA	% Discount for Non-SFHA	Status
060245	Riverside County*	10/01/10	05/01/16	7	15	5	C
060636	Lake Elsinore	10/01/09	05/01/14	8	10	5	C
065074	Moreno Valley	10/01/91	10/01/96	8	10	5	C
060751	Murrieta	10/01/97	10/01/97	9	5	5	C
060257	Palm Springs	10/01/92	05/01/11	6	20	10	C

Note: SFHA, Special Flood Hazard Areas

6.1 Repetitive Loss Properties

Areas which have flooded in the past are highly likely to experience recurring flooding. The repetitive nature of flood damage is cause for concern. FEMA, in coordination with the state, identifies California's top Repetitive Loss (RL) Communities. Riverside County is not a top Repetitive Loss community. Riverside County unincorporated areas only have eleven identified repetitive loss properties. That is an increase of four properties since the 2012 plan. Two of the eleven repetitive loss properties have been mitigated and the Riverside County Flood Control District is investigating ways to mitigate the remaining five properties so as to avoid future flooding incidents. Options being considered are both structural and non-structural mitigation measures.

Table 42: Riverside County Repetitive Loss Properties

City	Mitigated?	Insured?	Date of Loss	Date of Loss	Total Paid
LAKE ELSINORE	YES	NO	02/14/1980	01/05/1979	$91,618.83
LAKE ELSINORE	NO	NO	12/04/1982	03/15/1980	$21,052.64
LAKE ELSINORE	NO	NO	04/15/1983	08/11/1980	$ 6,436.09
HEMET	YES	NO	03/02/1983	09/06/1981	$ 2,684.06
RIPLEY	NO	NO	09/23/1983	07/23/1983	$ 6,602.15
CORONA	NO	NO	01/04/1995	12/04/1987	$ 70,282.69
THOUSAND PALMS	NO	NO	12/22/2010	10/17/2005	$ 26,331.18
THOUSAND PALMS	NO	YES	09/08/2014	02/25/2005	$ 44,272.25
THOUSAND PALMS	NO	YES	09/08/2014	12/22/2010	$ 29,896.05

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THOUSAND PALMS	NO	YES	09/08/2014	12/22/2010	$ 33,345.35
THOUSAND PALMS	NO	YES	09/08/2014	01/22/2010	$ 119,638.09

6.2 National Flood Insurance Program

Public Law 90-448 of 1968, known as the National Flood Insurance Act, established the National Flood Insurance Program (NFIP) which provides for federal government underwriting of flood insurance policies sold by private companies. Supported by a national mapping system showing boundaries for 100- and 500-year floodplains, the NFIP encourages local governments to direct development away from floodplain areas or mitigate flood risks through local floodplain management regulations. Through the Community Rating Service (CRS), the NFIP provides for financial incentives in the form of lower insurance rates for local communities encouraging mitigation of flood hazards in a manner parallel to rate incentives related to private fire insurance and enforced by the mortgage industry. The National Flood Insurance Act was modified in 1994 to provide for flood hazard mitigation planning and project grants.

The unincorporated community of Riverside County joined the NFIP on April 15, 1980. Currently, unincorporated Riverside County is one of 30 local communities that participate in the NFIP. Please refer to the table on the following page for participating jurisdictions.

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Table 43: Jurisdictions and authorities participating with National Flood Insurance Program

CID	COMMUNITY NAME	INIT FHBM	INIT FIRM IDENTIFIED	CURR EFF MAP DATE	REG-EMER DATE	IDENTIFIED TRIBAL
060763C	AGUA CALIENTE BAND OF CAHUILLA INDIANS TRIBE	06/21/74	03/02/83	04/19/17	06/21/96	Yes
060246#	BANNING	03/15/74	10/17/78	08/28/08	10/17/78	No
060247#	BEAUMONT	04/05/74	10/17/78	08/18/14	10/17/78	No
060248#	BLYTHE	05/10/74	06/30/76	(NSFHA)	06/30/76	No
060740#	CALIMESA	-	08/28/08	08/28/08	05/01/91	No
060753C	CANYON LAKE	-	11/20/96	04/19/17	09/15/98	No
060704#	CATHEDRAL CITY	-	05/01/85	08/28/08	11/12/82	No
060249#	COACHELLA	05/17/74	09/30/80	(NSFHA)	09/30/80	No
060250#	CORONA	05/24/74	05/15/78	08/28/08	05/15/78	No
060251#	DESERT HOT SPRINGS	05/24/74	04/02/79	08/28/08	04/02/79	No
060155#	EASTVALE	-	08/28/08	08/28/08	06/05/13	No
060253C	HEMET	05/24/74	09/29/78	04/19/17	09/29/78	No
060254C	INDIAN WELLS	06/28/74	09/14/79	04/19/17	09/14/79	No
060255#	INDIO	05/31/74	09/14/79	08/28/08	09/14/79	No
060286#	JURUPA VALLEY	-	08/18/14	08/18/14	09/23/13	No

060709C	LA QUINTA	-	06/19/85	04/19/17	07/01/85	No
060636C	LAKE ELSINORE	06/28/74	09/17/80	04/19/17	09/17/80	No
060176C	MENIFEE	-	08/28/08	04/19/17	05/03/12	No
065074#	MORENO VALLEY	-	06/18/87	08/18/14	06/18/87	No
060751#	MURRIETA	-	04/15/80	08/28/08	06/09/93	No
060256#	NORCO	05/17/74	02/15/79	08/28/08	02/15/79	No
060629C	PALM DESERT	06/14/77	04/15/80	04/19/17	04/15/80	No
060257C	PALM SPRINGS	06/21/74	03/02/83	04/19/17	03/02/83	No
060258#	PERRIS	09/06/74	04/16/79	08/18/14	04/16/79	No
060259C	RANCHO MIRAGE	-	09/14/79	04/19/17	09/14/79	No
060245C	RIVERSIDE COUNTY *	-	04/15/80	04/19/17	04/15/80	No
060260#	RIVERSIDE	07/19/74	01/06/83	08/28/08	01/06/83	No
065056C	SAN JACINTO	-	09/28/73	04/19/17	09/28/73	No
060742#	TEMECULA	-	09/02/93	08/28/08	08/28/91	No
060221#	WILDOMAR	-	08/28/08	08/28/08	01/20/11	No

Section 7.0 – Capabilities Assessment

7.1 Regulatory Mitigation Table

Table 44: Regulatory Tools

Regulatory Tool	Yes/No	Comments
General Plan	Yes	General Plan December 15, 2015
Zoning Ordinance	Yes	Adopted updates to General Plan on December 15, 2015, Ordinance No. 348: Providing For Land Use Planning And Zoning Regulations and Related Functions of the County of Riverside effective 1/05/17
Subdivision Ordinance	Yes	Adopted updates to General Plan on December 15, 2015, Riverside County Ordinance No. 460: Subdivision Regulations, Riverside County Code of Ordinances, Title 16
Site Plan Review Requirements	Yes	Adopted updates to General Plan on December 15, 2015, Building and Safety Department submission requirements
Growth Management Ordinance	Yes	Adopted updates to General Plan on December 15, 2015,
Floodplain Ordinance	Yes	Adopted updates to General Plan on December 15, 2015, Riverside County Ordinance No. 458: Regulating Flood Hazards and Implementing the National Flood Insurance Program, last amended 8/28/08
Other special purpose ordinance (storm water, water conservation, wildfire)	Yes	Adopted updates to General Plan on December 15, 2015, Riverside County Ordinance No. 754: Establishing Stormwater/Urban Runoff Management and Discharge Controls, Ordinance No. 859: The Water Efficient Landscaping Requirements, Ordinance No, 787: Adopting the 2016 California Fire Code as Amended 1/1/17.
Building Code	Yes	Riverside County Ordinance 457: Building Codes and Fees, California Building Code, 2016

Fire Department ISO rating	Yes	Rating: 4 (Under reevaluation, expected update in October 2017)
Erosion or sediment control program		Adopted updates to General Plan on December 15, 2015
Storm Water Management Program	Yes	Riverside County Ordinance No. 754: Establishing Stormwater/Urban Runoff Management and Discharge Controls, Riverside County Flood Control Storm Water Protection Program
Capital Improvements Plan	Yes	CIP Budget and proposals updated in November 2015
Economic Development Plan	Yes	Riverside County Economic Development Strategic Action Plan – 2013-2016, Riverside County Economic Development Strategy (CEDS) 2015/2016 Annual Update
Local Emergency Operations Plan	Yes	Riverside County Emergency Operations Plan updated in February 2006
Flood Insurance Study or other engineering study for streams	Yes	County of Riverside Environmental Impact Report No. 521, Section 4.11 March 2014, Riverside County Unincorporated Areas Flood Insurance Study, 2008
Master Drainage Plan	Yes	Last Report, Lakeland Village in March 2015

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7.2 Administrative/Technical Mitigation Table

Table 45: Administrative/Technical Mitigation Tools

Department/Position	Yes/No	Personnel/Resources
Agricultural Commissioner's Office	Yes	Agricultural Biologist, EOC Responders
Assessor's Office	Yes	Parcels information, Loss Estimates, Planners
Environmental Health	Yes	Program Chief, Hazmat and Environmental Specialist, EOC Responder's
Public Health	Yes	Nurses, Program Managers, EOC Responder's, Behavioral Health programs that provide resources and information for community members and mentally ill individuals.
Emergency Management Department	Yes	Division Chiefs, Program Coordinators, Emergency Services Coordinators, Administrative Services Personnel
Emergency Medical	Yes	EMS Specialist, Agency Chief, EOC Responder's
Animal Services	Yes	Chief Operations, Executive Management, Animal Control Officers, Administrative Personnel, EOC Responder's, Riverside Emergency Animal Rescue System (R.E.A.R.S.)
Riverside County Fire	Yes	Firefighters I/II, Engineers, Captains, Battalion Chiefs, Division Chiefs, Deputy Chiefs, County Fire Chief, Prevention Specialists, Forester's , Emergency Services Coordinators, Emergency Services program Supervisor, Deputy Director, Incident Management Teams, Administrative Services Personnel

Flood Control	Yes	Flood Control Specialist and Managers, Engineers, GIS Specialists, EOC Responder's
Sheriff's Office	Yes	Sherriff's Emergency Response Team (SERT) members, EOC Responder's
Roads	Yes	Engineers, EOC Responder's, Highway Operations Superintendent
Building and Safety Planning Dept.	Yes	Planners, Principle Building Inspectors, Engineers, EOC Responder's
Geographic Information System	Yes	GIS Specialist, CIS Supervisors, GIS Analysts, EOC Responder's
Information Technology	Yes	Chief Information Officer, IT Officers, EOC Responder's, Communication, Field assets, IT Support
Air Quality Management District	Yes	Air Monitoring
Waste Management	Yes	Operations Supervisor, Hazardous Waste Supervisor, Specialist, Engineers
Disaster Corps	Yes	Trained Volunteers, Deployment Capabilities both in the Operational Area and Statewide.
Radio Amateur Civil Emergency Services (R.A.C.E.S.)	Yes	Radio Operators, EOC Responders

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7.3 Fiscal Mitigation Capabilities

Table 46: Fiscal Mitigation Capabilities

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Community Development Block Grants	Yes	Must meet eligibility requirements
Capital improvements project funding	Yes	Funds set aside for fiscal year 11/12 per Board of Supervisor's district
Authority to levy taxes for specific purposes	Yes	With voter approval
Impact fees for new development	Yes	Planning, Fire, Building & Safety
Incur debt through general obligation bonds	Yes	With voter approval
Incur debt through special tax bonds	Yes	With voter approval
Pre-Hazard Mitigation Grants	Yes	
Post-Mitigation Grants	Yes	

7.4 Funding Opportunities

The Hazard Mitigation Grant Program (HMGP) is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (the Stafford Act), Title 42, United States Code (U.S.C.) 5170c. The key purpose of HMGP is to take critical mitigation measures to reduce the risk of loss of life and property from future disasters during the reconstruction process following a disaster. HMGP is available, when authorized under a Presidential major disaster declaration, in the areas requested by the California Governor. The amount of HMGP funding available to the Applicant is based upon the total Federal assistance to be provided by FEMA for disaster recovery under the Presidential major disaster declaration.

The Flood Mitigation Assistance (FMA) program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended (NFIA), 42 U.S.C. 4104c, with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP).

The Pre-Disaster Mitigation (PDM) program is authorized by Section 203 of the Stafford Act, 42 U.S.C. 5133. The PDM program is designed to assist States, Territories, Tribal governments, and local communities in implementing a sustained pre-disaster hazard mitigation program to reduce the overall risk to the population and structures from future hazard events, while also reducing Federal disaster response expense.

Table 47: Grant Funding Opportunities for Mitigation

Grant Name	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 to reduce injuries, loss of life, property damage, and reconstruction 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, Federal Emergency Management Agency	To prevent future losses of lives property due to disasters; to implement State of local 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.	FEMA 500 C Street S.W. 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 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 Program (PA)	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

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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
Land and Water Conservation Fund Grants	U. S. Department of the Interior, National Park Service	To acquire and develop outdoor recreation areas and facilities for the general public, to meet current and future needs.	NPS PO Box 37217 Washington, DC 20013-7127 Phone: (202) 565-1200 www.nps.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 of coordination water and related land resources 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
Assistance to Firefighters Grant	U. S. Department of Homeland Security, Federal Emergency Management Agency	Competitively awarded project grants to provide direct assistance, on a competitive basis, to fire departments for the purpose of protecting the health and safety of the public and firefighting personnel against fire and fire-related hazards	FEMA 500 C Street S.W. Washington, DC 20472 Phone (202) 646-4621 www.fema.gov
Fire Management Assistance Grants	U. S. Department of Homeland Security, Federal Emergency Management Agency	To provide project grants and the provision of specialized services for the mitigation, management, and control of fires that would constitute a major disaster.	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

7.5 Mitigation Outreach and Partnerships

In addition to the capabilities and funding sources listed in sections 7.1 – 7.4, Riverside County provides training, exercises, workshops and volunteer management to non-profit organizations, faith-based organizations, businesses, and other local municipalities and programs to better accomplish mitigation.

Various communities as well as County of Riverside Emergency Management Department provides Community Emergency Response Team (CERT) training to the public and county employees. Following a major disaster, first responders who provide fire and medical assistance will not be able to immediately meet all of the demands for their services. The Community Emergency Response Team (CERT) Program provides for community and employee self-sufficiency in order to meet the general public's urgent life-saving and sustenance needs until emergency personnel arrive. The Community Emergency Response Team (CERT) Program educates people about disaster preparedness and trains them in basic response skills, such as fire safety, light search and rescue, and disaster medial operations. CERT members assist their fellow citizens/coworkers in their community or workplace following a disaster. CERT members take an active role in their community by preparing for a disaster, thus reducing their own impact risk.

There are currently Twenty (22) jurisdictions supporting CERT Programs within the County: Riverside County EMD, Beaumont, Corona, Indio, La Quinta, Lake Elsinore, Cathedral City, Moreno Valley, Murrieta, Palm Springs, Perris, Riverside, Temecula, San Jacinto, Menifee, Wildomar, Canyon Lake, Rancho Mirage, Desert Hot Springs, Palm Desert, Blythe and the town of Idyllwild.

In addition to the volunteer program, EMD coordinates the Radio Amateur Civil Emergency Service (RACES), a group of licensed radio amateurs who operate during declared emergencies. Once activated by local, county or State jurisdictions, RACES may assist any agency to provide emergency communications support as requested by the County of Riverside. RACES members trains volunteers how to operate amateur radios to mitigate communication failures. RACES members conduct radio tests to ensure critical facilities, including hospitals, maintain redundant communications in case of a failure. The County manages the Medical Reserve Corps (MRC) which coordinates the skills of practicing and retired physicians, nurses and other health professionals as well as other citizens interested in health issues. MRC focuses on these specific personnel who are eager to volunteer in order to address their community's ongoing public health needs and to help their community during large-scale emergency situations. MRC volunteers may also serve a vital role by assisting their communities with ongoing public

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health needs through public awareness of disease outbreaks, immunizations, screenings, health and nutrition education and volunteering in community health centers and local hospitals.

EMD joins forces with the Riverside University Health System – Public Health (RUHS-PH) by providing a flu clinic for community members to receive their flu shot free of charge. This clinic provides a means for the County to mitigate pandemic flu as a hazard by vaccinating more people, reducing the impact or risk of a pandemic flu outbreak.

EMD coordinates with RUHS-PH, the Riverside Emergency Medical Services Agency (REMSA), hospitals, local health care facilities, and other disciplines to develop the annual Statewide Medical Health Exercise (SWMHE). Each year the state selects a scenario focusing on testing objectives designed to improve understanding of response procedures, building collaborative relationships, and identify areas of improvement. The SWMHE plays a critical role in the on-going support to Public Health and Medical preparedness and mitigation efforts by local, regional, and State agencies. Participation in the exercise allows hospitals, ambulance providers, law enforcement, and fire to test and validate policies, plans, procedures, training, equipment, and agreements. In addition, it helps clarify and train personnel in roles and responsibilities, improve interagency coordination, identify gaps in resources and response plans, strengthen relationships among all participating agencies, meet various requirements from regulatory and accreditation agencies.

EMD provides a Healthcare Operations Decontamination (HCO-D) course to train hospital staff and county first responders to improve their abilities, mitigating hazmat incidents. This course allows healthcare workers to improve their response capabilities, reducing the impact of the hazmat incident on patients, community members and their facilities.

Workshops and trainings on plan developing are offered by EMD staff to assist jurisdictions create plans that can address mitigation actions for affecting hazards. For example, Point of Dispensing (POD) trainings and workshops are provided to cities and other disciplines in Riverside County to allow them to be prepared and diminish the effect of a disease outbreak. With the help of EMD, the jurisdictions can create an approved plan that will list some of the actions they have or would like to have in place to prevent their community members from being affected by emergent diseases.

EMD administers the Hospital Preparedness Program (HPP) grant. The grant provides funds to purchase emergency equipment, ensuring hospitals, clinics, and long-term facilities throughout the county are equipped with the proper supplies to help prevent and

mitigate the effects of disasters. The grant also funds training for healthcare workers to increase their skills and abilities in mitigating hazards.

Citizen Corps Councils have additionally been established in the Temecula, Lake Elsinore, Wildomar and Jurupa Valley. These provide a cadre of credentialed volunteers for the jurisdiction to utilize during a disaster response.

Riverside County has an established General Plan that was updated and adopted in December 2015. According to the County's Transportation & Land Management Agency (TLMA), the plan is designed to ensure that the County retains its core identity by guiding future growth. This growth should respect the diversity of the region and configure development in relation to the land it occupies and ensures that its various parts relate. It is the County's over-arching policy to document for land use matters. It also determines housing needs, need for roads, and locations for commercial and industrial use will be better suited throughout the County for the next 20 years and beyond. The overall implementation process of the LHMP can be supported by the General Plan through the incorporation of mitigation actions, goals, or polices.

The Zoning Ordinance for Riverside County administers the County's General Plan. TLMA states that while the General Plan identifies land use designations in the long-term, the Zoning Ordinance identifies specific and immediate uses for land. The General Plan's successful implementation can only occur if the County of Riverside Zoning Ordinance is updated and consistent with the plan as state law mandates General Plan-Zoning consistency and is able to implement the long-term intent of the Plan. Implementation of mitigation actions that include improving structures can be accomplished by adopting them into this Ordinance.

The Subdivision Ordinance for Riverside County is mandated by State law to conduct a local approval of land subdivision via the Subdivision Map Act. TLMA implies that local review of proposed subdivisions and parcel maps includes assessment of consistency with, and implementation of, the County's General Plan. This ordinance can have the ability to support the implementation of mitigation objectives and policies stated in the LHMP.

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Section 8.0 – Goals and Strategies

8.1 Goals and Objectives

Goal 1: Reduce Loss of Life and Injuries

Objective 1.1: Provide timely notification and direction to the public in preparation for imminent and potential hazards.

Objective 1.2: Protect public health and safety through mitigation, preparing for, responding to, and recovering from the effects of natural, technological or man-made disasters.

Objective 1.3: Reduce hazard impacts and protect life, property and the environment from damages.

Objective 1.4: Improve understanding of the type, location and effects of hazards and vulnerabilities, as well as measures needed to protect life.

Goal 2: Reduce Hazard Related Property Losses

Objective 2.1: Encourage new development to occur in locations that avoid or minimize exposure to hazards. Continue to utilize County Ordinance 458, in concerns to NFIP and flood hazard areas and County Ordinance 460, in concerns to land use.

Objective 2.2: Reduce hazard related property losses by enforcing strong building codes.

Objective 2.3: Reduce repetitive losses for fire, flood, and earthquakes by encouraging protective measures and by anticipating future events.

Objective 2.4: Reduce hazard impacts to critical facilities, utilities and services through the implementation of low cost mitigation strategies.

Objective 2.5: Continue to strengthen land use regulations in high hazard areas.

Goal 3: Protect the Environment

Objective 3.1: Mitigate the impact of recurring drought conditions that impact both ground water supply and the agricultural industry.

Objective 3.2: Reduce hazards that adversely impact habitats, especially in regions with endangered species.

Goal 4: Maintain Coordination of Disaster Planning and Integrated Public Policy

Objective 4.1: Incorporate changes within Cal OES and FEMA that may affect public policy and planning.

Objective 4.2: Incorporate mitigation related activities into other disaster planning mechanisms, such as the Riverside County General Plan and Capital Improvement Plan.

Goal 5: Improve Community and Agency Awareness

Objective 5.1: Increase public threat awareness in concerns to the nature and extent of hazards they may be exposed to and where they can occur.

Objective 5.2: Improve mitigation and hazard related outreach to businesses, county departments, and stakeholders to increase their understanding of the threats within the county and actions they can take to reduce those hazard impacts.

8.2 Prioritizing Strategies

For the 2017 LHMP, the County assessed each strategy based on the goals and objectives in the LHMP and the General Plan. The process used by the County to prioritize goals and their respective objectives consisted of an evaluation of the hazards and their threat from the 2012 LHMP reviewing any events that occurred 2012 to 2017, and evaluating these against potential impacts. The participating Cities and Special Districts have identified their mitigation strategies in their stand-alone Annexes that are specific to their area of authority or jurisdiction.

8.3 Future and Current Mitigation Strategies

The Riverside County General Plan, adopted in December 2015, includes the following policies and recommendations for new construction and proposals in Safety Element 4:

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Earthquake Hazards:

S 1.1 Mitigate hazard impacts through adoption and strict enforcement of current building codes, which will be amended as necessary when local deficiencies are identified.

S 1.2 Enforce state laws aimed at identification, inventory, and retrofit of existing vulnerable structures.

S 2.1 Minimize fault rupture hazards through enforcement of Alquist-Priolo Earthquake Fault Zoning Act provisions and the following policies: (AI 80, 91)

a. Require geologic studies or analyses for critical structures, lifeline, high-occupancy, schools, and high-risk structures within 0.5 miles of all Quaternary historic faults shown on the Earthquake Fault Studies Zones map.
b. Require geologic trenching studies within all designated Earthquake Fault Studies Zones, unless adequate evidence, as determined and accepted by the Riverside County Engineering Geologist, is presented. The County of Riverside may require geologic trenching of non-zoned faults for especially critical or vulnerable structures or lifelines.
c. Require that lifelines be designed to resist, without failure, their crossing of a fault, should fault rupture occur.
d. Support efforts by the California Department of Conservation, California Geological Survey to develop geologic and engineering solutions in areas of ground deformation due to faulting and seismic activity, in those areas where a through-going fault cannot be reliably located.

S 2.2 Require geological and geotechnical investigations in areas with potential for earthquake-induced liquefaction, landsliding or settlement, for any building proposed for human occupancy and any structure whose damage would cause harm, except for accessory buildings.

S 2.5 Require that engineered slopes be designed to resist seismically- induced failure. For lower-risk projects, slope design could be based on pseudo-static stability analyses using soil engineering parameters that are established on a site-specific basis. For higher-risk projects, the stability analyses should factor in the intensity of expected ground shaking, using a Newmark-type deformation analysis.

S 2.6 Require that cut and fill transition lots be over-excavated to mitigate the potential of seismically-induced differential settlement.

S 2.7 Require a 100% maximum variation of fill depths beneath structures to mitigate the potential of seismically-induced differential settlement.

Flood Hazards:

S 4.1 For new construction and proposals for substantial improvements to residential and nonresidential development within 100-year floodplains as mapped by FEMA or as determined by site specific hydrologic studies for areas not mapped by FEMA, Riverside County shall apply a minimum level of acceptable risk; and disapprove projects that cannot mitigate the hazard to the satisfaction of the Building Official or other responsible agency.

S 4.2 The County shall enforce provisions of the Building Code in conjunction with the following guidelines: (AI 25)

a. All residential, commercial and industrial structures shall be flood-proofed from the mapped 100-year storm flow. This may require that the finished floor elevation be constructed at such a height as to meet this requirement. Non-residential (commercial or industrial) structures may be allowed with a "flood-proofed" finished floor below the Base Flood Elevation (i.e., 100-year flood surface) to the extent permitted by state, federal and local regulations. New critical facilities shall be constructed above grade to the satisfaction of the Building Official, based on federal, state, or other reliable hydrologic studies. To the extent that residential, commercial, or industrial structures cannot meet these standards, they shall not be approved.
b. Critical facilities shall not be permitted in floodplains unless the project design ensures that there are two routes for emergency egress and regress, and minimizes the potential for debris or flooding to block emergency routes, either through the construction of dikes, bridges, or large-diameter storm drains under roads used for primary access.
c. Development using, storing, or otherwise involved with substantial quantities of onsite hazardous materials shall not be permitted within a 100-year floodplain or dam inundation zone, unless all standards for evaluation, anchoring, and flood-proofing have been satisfied; and hazardous materials are stored in watertight containers, not capable of floating, to the extent required by state and federal laws and regulations.
d. Specific flood-proofing measures may require: use of paints, membranes, or mortar to reduce water seepage through walls; installation of water tight doors, bulkheads, and shutters; installation of flood water pumps in structures; and proper modification and protection of all electrical equipment, circuits, and

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appliances so that the risk of electrocution or fire is eliminated. However, fully enclosed areas that are below finished floors shall require openings to equalize the forces on both sides of the walls.

S 4.3 Prohibit construction of permanent structures for human housing or employment to the extent necessary to convey floodwaters without property damage or risk to public safety. Agricultural, recreational, or other low intensity uses are allowable if flood control and groundwater recharge functions are maintained.

S 4.4 Prohibit alteration of floodways and channelization unless alternative methods of flood control are not technically feasible or unless alternative methods are utilized to the maximum extent practicable. The intent is to balance the need for protection with prudent land use solutions, recreation needs, and habitat requirements, and as applicable to provide incentives for natural watercourse preservation, including density transfer programs as may be adopted. (AI 25, 60) a. Prohibit the construction, location, or substantial improvement of structures in areas designated as floodways, except upon approval of a plan which provides that the proposed development will not result in any significant increase in flood levels during the occurrence of a 100-year flood discharge. b. Prohibit the filling or grading of land for nonagricultural purposes and for non-authorized flood control purposes in areas designated as floodways, except upon approval of a plan which provides that the proposed development will not result in any significant increase in flood levels during the occurrence of a 100-year flood discharge.

S 4.5 Prohibit substantial modification to watercourses, unless modification does not increase erosion or adjacent sedimentation, or increase water velocities, so as to be detrimental to adjacent property, nor adversely affect adjacent wetlands or riparian habitat.

S 4.6 Direct flood control improvement measures toward the protection of existing and planned development.

S 4.7 Any substantial modification to a watercourse shall be done in the least environmentally damaging manner practicable in order to maintain adequate wildlife corridors and linkages and maximize groundwater recharge.

S 4.8 Allow development within the floodway fringe, if the proposed structures can be adequately flood-proofed and will not contribute to property damage or risks to public safety.

S 4.9 Within the floodway fringe of a floodplain as mapped by FEMA or as determined by site specific hydrologic studies for areas not mapped by FEMA, require development to be capable of withstanding flooding and to minimize use of fill. However, some development may be compatible within flood plains and floodways, as may some other land uses. In such cases, flood proofing would not be required. Compatible uses shall not, however, obstruct flows or adversely affect upstream or downstream properties with increased velocities, erosion backwater effects, or concentrations of flows.

S 4.10 Require all proposed projects anywhere in the county to address and mitigate any adverse impacts that it may have on the carrying capacity of local and regional storm drain systems.

S 4.11 Encourage neighboring jurisdictions to require development occurring adjacent to the County to consider the impact of flooding and flood control measures on properties within unincorporated Riverside County.

Fire Hazards:

S 5.1 Develop and enforce construction and design standards that ensure that proposed development incorporates fire prevention features through the following:

a. All proposed development and construction within Fire Hazard Severity Zones shall be reviewed by the Riverside County Fire and Building and Safety departments.
b. All proposed development and construction shall meet minimum standards for fire safety as defined in the Riverside County Building or County Fire Codes, or by County zoning, or as dictated by the Building Official or the Transportation Land Management Agency based on building type, design, occupancy, and use.
c. In addition to the standards and guidelines of the California Building Code and California Fire Code fire safety provisions, continue to implement additional standards for high-risk, high occupancy, dependent, and essential facilities where appropriate under the Riverside County Fire Code (Ordinance No. 787) Protection Ordinance. These shall include assurance that structural and nonstructural architectural elements of the building will not impede emergency egress for fire safety staffing/personnel, equipment, and apparatus; nor hinder evacuation from fire, including potential blockage of stairways or fire doors
d. Proposed development and construction in Fire Hazard Severity Zones shall provide secondary public access, in accordance with Riverside County Ordinances.

e. Proposed development and construction in Fire Hazard Severity Zones shall use single loaded roads to enhance fuel modification areas, unless otherwise determined by the Riverside County Fire Chief.
f. Proposed development and construction in Fire Hazard Severity Zones shall provide a defensible space or fuel modification zones to be located, designed, and constructed that provide adequate defensibility from wildfires.

S 5.2 Encourage continued operation of programs for fuel breaks, brush management, controlled burning, revegetation and fire roads.

S 5.3 Monitor fire-prevention measures (such as fuel reduction) through a site specific fire-prevention plan to reduce long-term fire risks in the Fire Hazard Severity Zones.

S 5.4 Limit or prohibit development or activities in areas lacking water and access roads.

S 5.5 Encourage proposed development in Fire Hazard Severity Zones to develop where fire and emergency services are available or planned.

S 5.6 Demonstrate that the proposed development can provide fire services that meet the minimum travel times identified in Riverside County Fire Department Fire Protection and EMS Strategic Master Plan.

S 5.7 Minimize pockets of flammable vegetation that increase likelihood of fire spread through conceptual landscaping plans to be reviewed by Planning and Fire Departments in the Fire Hazard Severity Zones. The conceptual landscaping plan of the proposed development shall at a minimum include:

a. Plant palette suitable for high fire hazard areas to reduce the risk of fire hazards.
b. Retention of existing natural vegetation to the maximum extent feasible.
c. Removal of onsite combustible plants.

S 5.8 Design to account for topography of a site and reduce the increased risk from fires in the Fire Hazard Severity Zones located near ridgelines, plateau escarpments, saddles, hillsides, peaks, or other areas where the terrain or topography affect its susceptibility to wildfires by:

a. Providing fuel modification zones with removal of combustible vegetation, but minimizing visual impacts and limiting soil erosion.
b. Replacing combustible vegetation with fire resistant vegetation to stabilize slopes.
c. Submitting topographic map with site specific slope analysis.

d. Submitting erosion and sedimentation control plans.
e. Providing a minimum 30 foot of setback from the edge of the fuel modification zones.
f. Minimizing disturbance of 25% or greater natural slopes.

S 5.9 Reduce fire threat and strengthen fire-fighting capability so that the County could successfully respond to multiple fires. (AI 88)

S 5.10 Require automatic natural gas shutoff earthquake sensors in high-occupancy industrial and commercial facilities, and encourage them for all residences.

S 5.11 Utilize ongoing brush clearance fire inspections to educate homeowners on fire prevention tips by implementing annual countywide weed abatement program

S 5.12 Conduct and implement long-range fire safety planning, including stringent building, fire, subdivision, and municipal code standards, improved infrastructure, and improved mutual aid agreements with the private and public sector.

S 5.13 Develop a program to utilize existing reservoirs, tanks, and water wells in the county for emergency fire suppression water sources.

S 5.14 Periodically review inter-jurisdictional fire response agreements, and improve firefighting resources as recommended in the Riverside County Fire Department Fire Protection Plan and EMS Strategic Master Plan to keep pace with development, including construction of additional high-rises, mid-rise business parks, increasing numbers of facilities housing immobile populations, and the risk posed by multiple ignitions, to ensure that (AI 4, AI 88):

- Fire reporting and response times do not exceed the goals listed in the Riverside County Fire Department Fire Protection Plan and EMS Strategic Master Plan identified for each of the development densities described.
- Fire flow requirements (water for fire protection) are consistent with Riverside County Ordinance 787.
- The planned deployment and height of aerial ladders and other specialized equipment and apparatus are sufficient for the intensity of development desired.

S 5.15 Continue to utilize the Riverside County Fire Department Fire Protection Plan and EMS Strategic Master Plan as the base document to implement the goals and objectives of the Safety Element.

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S 5.16 Encourage property owners to utilize clustering and Transfer of Development Rights (TDR) program when developing lands within Fire Hazard Severity Zones by:

- Restricting the development of a property through placement of conservation easement.
- Acquiring the conservation easements similar to that of MSHCP Program.

S 5.17 Identify, map, and update on an as-needed continual basis, the Fire Hazard Severity Zone maps.

S 5.18 Ensure that the Fire Department has appropriate municipal staffing and fire protection planning staff that meet the needs of development pressure and adequately respond to long range fire safety planning.

S 5.19 Implement a coordination program with fire protection and emergency service providers to reassess fire hazards after wildfire events and to adjust fire prevention and suppression needs, as necessary.

S 5.20 Implement a regional coordination program to increase support for coordination among fire protection and emergency service providers.

S 5.21 Implement a long-term training and education program among government agencies and communities about fire protection.

Wind Hazards:

S 3.11 Require studies that address the potential of this hazard on proposed development within “High” and “Very High” wind erosion hazard zones as shown on Figure S-8, Wind Erosion Susceptibility Map.

S 3.12 Include a disclosure about wind erosion susceptibility on property title for those properties located within “High” and “Very High” wind erosion hazard zones as shown on Figure S-8, Wind Erosion Susceptibility Map.

S 3.13 Require buildings to be designed to resist wind loads.

S 3.14 Educate builders about the wind environment and encourage them to design projects accordingly

8.4 Ongoing Mitigation Strategies

8.4.1 Earthquake Strategies

Retrofitting Against Earthquake:

Earthquake retrofitting measures include removing masonry overhangs that will fall onto the street during shaking. Bracing the building provides structural stability, but can be very expensive. Less expensive approaches may be more cost effective for an area like that faces a relatively low earthquake threat. These include tying down appliances, water heaters, bookcases and fragile furniture so they won't fall over during a quake and installing flexible utility connections that will not break when shaken.

8.4.2 Flood Strategies

Generally, natural, man-made, and technological hazards impact people and improved property the most. Vacant space may incur damages as well, but the threat to life and property is greatly decreased. In some cases, properties can be modified so the hazard does not reach the damage-prone improvements. Flooding is the one of those hazards that can be kept away from a structure. There are five common methods to do this:

- Retrofit the building
- Create a barrier between the building and the source of flooding
- Move the building out of the flood-prone area
- Elevate the building above the flood level
- Demolish the building.

Retrofitting Against Flooding:

Flood retrofitting measures include dry flood proofing where all areas below the flood protection level are made watertight. Walls are coated with waterproofing compounds or plastic sheeting. Openings (doors, windows, and vents) are closed, either permanently, with removable shields, or with sandbags. Dry flood proofing of new and existing nonresidential buildings in the regulatory floodplain is permitted under State, FEMA and local regulations. Dry flood proofing of existing residential buildings in the floodplain is also permitted as long as the building is not substantially damaged or being substantially improved. Owners of buildings located outside the regulatory floodplain can always use dry flood proofing techniques.

The alternative to dry flood proofing is wet flood proofing: water is let in and everything that could be damaged by a flood is removed or elevated above the flood level. Structural components below the flood level are replaced with materials that are not subject to water

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damage. This is the approach used for the first floor of the elevated homes. For example, concrete block walls are used instead of wooden studs and gypsum wallboard. The furnace, water heater, and laundry facilities are permanently relocated to a higher floor. Where the flooding is not deep, these appliances can be raised on blocks or platforms.

Barriers:

An effective way of keeping flood water away from a structure is to construct a barrier. This barrier can be built of dirt or soil, berms, concrete, steel, a floodwall or through a simple sand-bagging operation. In areas subject to flash flooding, deep waters, or other high hazard, relocation and evacuation is often the only safe and responsible approach.

Careful design is needed so as not to create flooding or drainage problems on neighboring properties. Depending on how porous the ground is, if floodwaters will stay up for more than an hour or two, the design needs to account for leaks, seepage of water underneath, and rainwater that falls inside the perimeter. This is usually done with a sump and/or drain to collect the internal groundwater and surface water and a pump and pipe to pump the internal drainage over the barrier.

Barriers can only be built so high. They can be overtopped by higher than expected flood waters. Barriers made of earth are susceptible to erosion from rain and floodwaters if not properly sloped, covered with grass, and maintained. A berm can settle over time, lowering its protection level. A floodwall can crack, weaken, and lose its watertight seal. Therefore, barriers need careful design and maintenance (and insurance on the building, in case of failure).

Relocation:

Moving a structure to higher ground is the surest and safest way to protect it from flooding. While almost any building can be moved, the cost goes up for heavier structures, such as those with exterior brick and stone walls, and for large or irregularly shaped buildings. However, experienced building movers can handle most job.

In areas subject to flash flooding, deep waters, or other high hazard, relocation is often the only safe approach. Relocation is also preferred for large lots that include buildable areas outside the floodplain or where the owner has a new flood-free lot (or portion of the existing lot) available.

Elevation:

Raising a building above the flood level can be almost as effective as moving it out of the floodplain. Water flows under the building, causing little or no damage to the structure or its contents.

Raising a building above the flood level is cheaper than moving it and can be less disruptive to a neighborhood. Elevation has proven to be an acceptable and reasonable means of complying with floodplain regulations that require new, substantially improved, and substantially damaged buildings to be elevated above the base flood elevation.

One concern with elevation is that it may expose the structure to greater impacts from other hazards. If not braced and anchored properly, an elevated building may have less resistance to the shaking of an earthquake and the pressures of high winds.

Demolition:

Some buildings, especially heavily damaged or repetitively flooded ones, are not worth the expense to protect them from future damage. It is cheaper to demolish them and either replace them with new, flood protected structures ("pilot reconstruction"), or relocate the occupants to a safer site. Demolition is also appropriate for buildings that are difficult to move—such as larger, slab foundation, or masonry structures—and for dilapidated structures that are not worth protecting. Generally, demolition projects are undertaken by a government agency, so the cost is not borne by the property owner, and the land is converted to public open space use, such as a park.

One potential problem is sometimes an acquisition and demolition project is a "checkerboard" pattern in which nonadjacent properties are acquired. This can occur when some owners, especially those who have and prefer a waterfront location, prove reluctant to leave. Creating such an acquisition pattern in a community simply adds to the maintenance costs that taxpayers must support.

8.4.3 Fire Strategies

Wildfire:

One way to lessen the threat of a fire is by keeping fuel away from buildings. This is called the concept of "defensible space." Defensible space involves providing sufficient space between the structure and flammable vegetation.

Within this space, the fire service has room to battle the wildfire before it reaches the structure or to stop a structural fire before it ignites the wildland vegetation. With sufficient

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defensible space, the structure even has a chance to survive on its own when fire service personnel and equipment are not available, as often happens during a significant wildfire.

The 2003 Fire Siege was perhaps the worst fire disaster in Southern California history. The firestorm that raged through the region consisted of 14 major fires that quickly exhausted resources and lasted for multiple weeks. The lessons from that fire season served as a warning for everyone living in areas prone to fire danger and resulted in stronger fire prevention and mitigation efforts.

In January 2005 a new state law became effective that extended the defensible space clearance around homes and structures from 30 feet to 100 feet. Proper clearance to 100 feet dramatically increases the chance of your house surviving a wildfire. This defensible space also provides for firefighter safety when protecting homes during a wildland fire. Riverside County Ordinance No. 859 Water Efficient Landscape Requirements mentions the use of defensible space and avoiding the use of fire-prone plant materials. Ordinance No. 695 Abatement of Hazardous Vegetation effective July 16, 2009 states "a one hundred (100) foot wide strip of land around structure(s) located on an adjacent improved parcel"

Riverside County has a Fire Protection contract with Cal Fire and utilizes many of their materials to educate individuals on why they should maintain a proper defensible space.

Public Fire Education:

Family Escape Plan:

In a County as fire prone as Riverside, you can never be too fire safe. Throughout Southern California, wildfire danger is a year-around threat. Our goal is to make each and every home more fire safe. We ask residents to make sure they have a fire escape plan, and that they practice what to do in an emergency.

Smoke Alarms:

Over ninety-three percent of all homes in the United States have at least one smoke alarm. The bad news is that one third of them are not working. The County encourages residents to make sure their smoke alarms are operating correctly by testing them regularly.

8.4.4 All Hazard Strategies

Facility Audits:

One of the first things we can do to reduce loss of structures within the County of Riverside is to evaluate all critical facilities' that are exposed to potential damage from the hazards. We should include a review of insurance coverage and identify where more information can be found on the property protection measure(s) recommended by the audit. Typically property protection measures are used to modify buildings or property that has a greater potential to damage. Property protection measures fall under three approaches:

- Modify the site to keep the hazard from reaching the building
- Modify the building so it can withstand the impacts of the hazard
- Insure the property owner receives the opportunity for financial relief after the damage has occurred, This is usually received under the owners insurance policies or technical and financial assistance can be provided by a government agency

Other measures:

- Burying utility lines is a retrofitting measure that addresses earthquakes, winds from tornadoes, thunderstorms, and the ice that accompanies winter storms.
- Installing or incorporating backup power supplies minimizes the effects of power losses caused by downed lines.
- Roofs can be replaced with materials less susceptible to damage by hazards, such as modified asphalt or formed steel shingles and other fireproof materials
- Wildfire mitigation in residential properties can include installing spark arrestors on chimneys.
- Winter storm retrofitting measures include improving insulation on older buildings, relocating water lines from outside walls to interior spaces, and insulating water lines in crawlspaces and under elevated buildings.
- Windows can be sealed or covered with an extra layer of glass (storm windows) or plastic sheeting.

8.5 Mitigation Actions

County Hazard Mitigation Goals and Actions:

The Agency Inventory Document and Mitigation Strategies and Goals, were used by the county and each participating city and special district to review the possible mitigation

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actions that would be appropriate for that agency to work on. This is based on how the Riverside County planning area can reduce the vulnerability of people, property, infrastructure, and natural and cultural resources to future disaster losses. Only those actions where the County is the lead jurisdiction are detailed further in Section 4.3. Actions specific to other participating jurisdictions are detailed in the jurisdictional annexes.

It is important to note that Riverside County and the participating jurisdictions have numerous existing, detailed action descriptions, which include benefit-cost estimates, in other planning documents, such as the General Plan, community wildfire protection plans and capital improvement budgets and reports. These actions are considered to be part of this plan, and the details, to avoid duplication, should be referenced in their original source document. The Riverside County planning area also realizes that new needs and priorities may arise as a result of a disaster or other circumstances and reserves the right to support new actions, as necessary, as long as they conform to the overall goals of this plan.

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Section 9.0 Plan Implementation and Maintenance Process

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. This section provides an overview of the overall strategy for plan implementation and maintenance. It also outlines the method and proposed schedule for monitoring, updating, and evaluating the plan. The chapter will discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement.

9.1 Implementation

The Riverside County Operational Area Multi-Jurisdiction Local Hazard Mitigation Plan is a partnership between the jurisdictions involved. Implementation prioritization is determined during the planning process and after taking funding into consideration. Economic constraints make low or no-cost actions most easily accomplished in plan implementation.

A highly effective and low cost implementation mechanism is the incorporation of our hazard mitigation plan recommendations into Operational Area and other planning efforts discussed in more detail below. Another strategy is for participating jurisdictions to assimilate mitigation strategies into their day-to-day functions and priorities. This effort will be achieved by monitoring agenda, attending stakeholder meetings, and review of programs and policies for coordination and opportunities to implement mitigation strategies. Riverside County Operational Area will also monitor funding opportunities to facilitate the implementation of more costly recommended actions. The County will assist in the identification of specialized pre- and post- disaster funds, state and federal earmarked funds, and other grant programs for opportunities to implement mitigation actions and identified projects.

The primary duty of the participating jurisdictions is to participate in reporting to their community governing boards and the public on the status of their plan implantation and mitigation opportunities and keep the County of Riverside EMD updated of changes to the status of their recommended actions or priorities. The primary duty of the County will be to promote mitigation action funding opportunities, organize Steering Committee meetings for plan evaluation and potential updates on a yearly basis and post any relevant information on the County website and others as appropriate.

9.2 Role of Hazard Mitigation Steering Committee

With the adoption of this plan, the participating jurisdictions will be responsible for the plan implementation and maintenance. The participating jurisdictions, led by County of Riverside Emergency Management Department will work to maintain a Hazard Mitigation Steering Committee to:

- Disseminate hazard mitigation activities and opportunities to all participants;
- Pursue the implementation of high-priority, low-cost mitigation actions;
- Monitor and identify cost-share and funding opportunities to support the community and recommended actions;
- Monitor and assist in implementation and evaluate updates of this plan;
- Support and assist ALL jurisdictions not included in the Multi-Jurisdictional Plan to develop their own stand-alone local hazard mitigation plans;
- Report on plan progress and changes to participating jurisdictions

9.3 Incorporation into Existing Planning Mechanisms

Incorporation of the hazard mitigation plan recommendations into other County and jurisdictional plans and policies is part of our implementation plan.

Plans include:

- County and City General Plans
- County and City Emergency Operations Plans
- County and City Ordinances
- Flood and Storm-water Management Master Plans
- Wildfire Protection Plans
- Capital Improvement Plans and Budgets

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- Other plans and policies outlined in the capability assessments in the jurisdictional annexes
- Other plans, regulation, and practices with a mitigation focus.

9.4 Maintenance

Plan maintenance will be an annual process by both the County and participating jurisdictions to monitor and evaluate the plans' implementation and to update the plan as progress, changes in actions or priorities, or changing circumstances are recognized. The County will notify Cal OES and FEMA with plan updates to ensure they have the most current version of a participating jurisdiction's plan.

County of Riverside Emergency Management Department, Preparedness Division, is responsible for initiating plan reviews, consulting and organizing a Hazard Mitigation Steering Committee Meeting and facilitating coordination with participating jurisdictions. In order to evaluate progress and update mitigation strategies identified in the plan, the County of Riverside EMD and the participating jurisdictions will review the plan annually and following a large scale event. County of Riverside EMD and participating jurisdictions will submit a five-year written update to Cal OES and FEMA Region IX, unless disaster or other circumstance (e.g., changing regulations) require a change to this schedule.

Maintenance Evaluation Process

The yearly review of the plan will be presented and discussed at our annual Operational Area Planning Committee, Disaster Council Meeting held in January. The assessment will address whether:

- The goals and objectives address current and expected conditions.
- The nature, magnitude, and/or type of risks have changed.
- The current resources are appropriate for implementing the plan.
- There are implementation problems, such as technical, political, legal, or coordination issues with other agencies.
- The outcomes have occurred as expected (a demonstration of progress).
- The agencies and other partners participated as originally proposed.

Updates to this plan will:

- Consider changes in vulnerability due to action implementation;
- Document and highlight instances where mitigation efforts have proven effective;
- Document new hazards and identify any hazards that were previously overlooked;
- Incorporate any new data or studies on identified hazards and risks;
- Incorporate growth and development-related changes to infrastructure inventories; and
- Incorporate any new action recommendations or changes in action or risk prioritization.

County of Riverside Emergency Management Department, Preparedness Division, will conduct a plan update 18 months prior to plan expiration. In addition, Riverside County EMD will seek grant funding to support the coordination and development of the plan update. Upon notice of the HMPG funding opportunity, Riverside will apply for any available HMGP funding. After plan adoption, the LHMP Steering Committee in coordination with the EMD Planning team will conduct an annual review of the plan, flagging any sections in the plan that will require further updates. The sections flagged for revision will be included in the next LHMP update. Additional meetings will occur annually throughout the five-year cycle. Changes will be made to the plan to accommodate for actions that are no longer relevant due to shifting agendas, funding or no longer considered feasible.

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10.0 Continued Public Involvement

The Riverside County Operational Area Multi-Jurisdiction Hazard Mitigation Plan update process has provided an opportunity to solicit participation from new and existing stakeholders, publicize successful mitigation strategies and actions, and seek public comments.

The County will continue its efforts to involve the public during the annual maintenance process and after any major events that lead to revisions in the plan.

The Riverside County Emergency Management Department and participating jurisdictions will be responsible for facilitating continued public and stakeholder involvement for their plan updates. They will do this through: input from the Hazard Mitigation Steering Committee, public outreach meetings, web and social media postings, press releases and public hearings for the plan's maintenance.

There are also opportunities for participating jurisdictions to obtain and share information with their stakeholders by participating in the Operational Area Planning Committee and the Disaster Council meetings.



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APPENDIX A – Resolution

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APPENDIX B – Participating Jurisdictions and Letters of Commitment

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LHMP Participant Database

Agency Title	In, Out, or New	Agency Type	Agency Discipline
Agua Caliente Band of Cahuilla Indians	DROPPED	Tribe	Tribe
Beaumont Unified	IN	School District	Education
City of Banning	IN	City	N/A
City of Beaumont	IN	City	N/A
City of Blythe	IN	City	N/A
City of Calimesa	IN	City	N/A
City of Canyon Lake	IN	City	N/A
City of Cathedral	IN	City	N/A
City of Coachella	IN	City	N/A
City of Corona	IN	City	N/A
City of Desert Hot Springs	IN	City	N/A
City of Eastvale	IN	City	N/A
City of Hemet	IN	City	N/A
City of Indian Wells	IN	City	N/A
City of Indio	IN	City	N/A
City of Jurupa Valley	IN	City	N/A
City of La Quinta	IN	City	N/A
City of Lake Elsinore	IN	City	N/A

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City of Murrieta	IN	City	N/A
City of Norco	IN	City	N/A
City of Palm Desert	IN	City	N/A
City of Palm Spring	IN	City	N/A
City of Perris	IN	City	N/A
City of Rancho Mirage	IN	City	N/A
City of Riverside	IN	City	N/A
City of San Jacinto	IN	City	N/A
City of Temecula	IN	City	N/A
City of Wildomar	IN	City	N/A
Desert Sands USD	NEW	School District	Education
Eastern Municipal Water	IN	Utilities	Water
Fern Valley Water	OUT	Utilities	Water
Hemet Unified School District	IN	School District	Education
High Valley Water	IN	Utilities	Water
Home Gardens County Water	OUT	Utilities	Water
Idyllwild Fire Protection	IN	Special District	Fire Protection
Idyllwild Water	OUT	Utilities	Water
Imperial Irrigation District	IN	Utilities	Water
Kaiser Hospital - Riverside	NEW	Hospital	Health Care

Lake Elsinore USD	IN	School District	Education
March Air Force Base	DROPPED	Military	Airforce
Menifee Union	OUT	School District	Education
Moreno Valley USD	NEW	School District	Education
Morongo Band of Mission Indians	NEW	Tribe	Tribe
Nuview Union	OUT	School District	Education
Palm Springs Unified	OUT	School District	Education
Perris Elementary	OUT	School District	Education
Perris Union HSD	IN	School District	Education
Pine Cove Water	OUT	Utilities	Water
Ramona Band of Indians	DROPPED	Tribe	Tribe
Rancho California Water	IN	Utilities	Water
Riverside Community Colleges	IN	School District	Education
Riverside County Office of Education	IN	County	Education
Riverside Unified School District	IN	School District	Education
San Gorgonio Memorial Healthcare	OUT	Special District	Healthcare
San Jacinto USD	IN	School District	Education
Santa Ana Watershed	IN	Utilities	Water
Val Verde Unified	OUT	School District	Education
Western Municipal Water	IN	Utilities	Water

Participant Contact Information

Local Hazard Mitigation Plan Contacts

Company	Last Name	First Name	Email Address	Job Title	Business Phone	Mobile Phone	Fax Number	Address	City	ZIP
Agua Caliente Band of Cahuilla Indians	Canales	Victoria	vcanales@aguacaliente.net	Emergency Services Coordinator	760.285.9271	760.699.6852		5401 Dinal Shore Dr.	Palm Springs	92264
Beaumont Unified	Evens	Mareesa	mevans@beaumontusd.k12.ca.us	Director of Risk Management	951.797.5366		951.797.6521			
City of Banning	Diaz	Alex	adiaz@ci.banning.ca.us	Chief of Police	951-849-1194	951-840-8563		125 E. Ramsey Street, P.O. Box 998	Banning	92220
City of Beaumont	Keyser	Mark	mkeyser@beaumontpd.org	Lieutenant	951-769-8500	951-529-7878	951.769.8506	660 Orange Avenue	Beaumont	92223
City of Blythe	Thomas	Kelly	KThomas@cityofblythe.ca.gov	Community Service Officer	760-922-6111.2241		760-922-3652	240 N Spring Street	Blythe	92225
City of Calimesa	Monson	Margaret	pworks@cityofcalimesa.net	Interim Public Works Director	(909) 795-9801 ext.235	(951) 538-4748		908 Park Avenue	Calimesa	92320
	Johnson	Bonnie	BJohnson@cityofcalimesa.net	City Manager	909.795.9801 ext.239		909.795.4399	908 Park Avenue	Calimesa	92320

City of Canyon Lake	A. Borja	Mark	mborja@cityofcanyonlake.com	Administrative Services Manager	(951)246-2024			31516 Railroad Canyon Road	Canyon Lake	92587
City of Cathedral	Hauser	Eric	ehauser@cathedralcity.gov	Chief	(760) 770-8200			32100 Desert Vista Rd.	Cathedral City	92234
	Wilson	Paul	pwilson@cathedralcity.gov	Fire Chief	760-770-8200			32100 Desert Vista Rd.	Cathedral	92234
City of Coachella	R. Torres	George	gtorres@coachella.org	Emergency Services Coordinator		(760) 501-8122	(760) 398-1630	53462 Enterprise Way	Coachella	92236
City of Corona	Moran-McGough	Gina	Gina.Moran-McGough@ci.corona.ca.us	Emergency Services Coordinator	(951) 736-2458	951-415-8071	(951) 270-2737	400 South Vicentia Avenue	Corona	92882
City of Desert Hot Springs	Brooks	Mark	mark.brooks@fire.ca.gov	Battalion Chief	760-343-3510	951-366-9295				
	Wilms	Doria	dwilms@cityofdhs.org	Deputy City Clerk	(760) 329-6411 ext. 260					
City of Eastvale	A. Rodriguez	Alia	Arodriguez@eastvaleca.gov	Senior Admin Analyst	951.703.4412		9517034760	12363 Limonite Ave., Suite 910	Eastvale	91752
City of Hemet	Mills	Jennifer	Jmills@cityofhemet.org	Emergency Services Coordinator	9517652451		9517652328	510 East Florida Avenue	Hemet	92543
City of Indian Wells and	Cadden	Eric	Eric.Cadden@rivco.org	Emergency Services Coordinator		760.578.2088	760.863.8882	4210 Riverwalk	Riverside	92505

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Palm Desert								Pkwy, Suite 300		
City of Indio	Kelly	Michelle	mkelly@indio.org	Emergency Services Coordinator						
			Michelle.Caldwell@rivco.org			760.766.5802				
City of Jurupa Valley	Rollings	Terri	trollings@jurupavalley.org	Assistant to the City Manager	951.332.6464	951.332.6995		8930 Limonite Ave.	Jurupa Valley	92509
City of La Quinta	Johnston	Zander	zjohnston@la-quinta.org	ESC	760.777.7044	7605016221		78495 Calle Tampico	La Quinta	92253
City of Lake Elsinore	DeSantiago	Rick	rdsantiago@lake-elsinore.org	Emergency Services Coordinator	951.674.3124		951.471.1251	130 S. Main Street	lake Elsinore	92530
	George Eakins	Catherine	ceakins@lake-elsinore.org	Administrative Assistant	951.674.5170 ext.241		951.471.1251	521 North Langstaff St.	Lake Elsinore	92530
City of Menifee	Glynn	Steven	sglynn@cityofmenifee.us	PW Manager	(951) 723-3719	(951) 775-6691	951.679.3843	29714 Haun Road	Menifee	92586
City of Moreno Valley	Wilkinson	Steve	stevew@moval.org	Management Analyst	951.486.6788			22870 Calle San Juan De Los Lagos - PO Box 88005	Moreno Valley	92552
	Bricker	Zuzzette	zuzzetteb@moval.org	City OEM	951.413.3809	951.337.0485		22870 Calle San Juan De Los Lagos - PO Box 88005	Moreno Valley	92552

City of Murrieta	Shuck	Ken	kshuck@MurrietaCA.gov.	Fire Marshal	951.461.6158		951.677.6799	41825 Juniper Street	Murrieta	92562
	Aylward	Terri	Taylward@MurrietaCA.gov	Fire Prevention Coordinator	951.461.6158		951.677.6799	41825 Juniper Street	Murrieta	92562
City of Norco	Lane	Scott	scott.lane@fire.ca.gov	Battalion Chief	(951) 737-8097				Norco	
	Schuchard	Gina	gschuchard@ci.norco.ca.us	Finance Officer	951.270.5650				Norco	
	Okoro	Andy	aokoro@ci.norco.ca.us	City Manager	951.570.5611	951.545.2017		3902 Hillside Avenue	Norco	92860
City of Palm Spring	Lebsock	Anjila	Anjila.lebsock@palmspringsca.gov	Emergency Service Coordinator	760-323-8185		760-778-8430	300 N. El Cielo Road	Palm Springs	92262
City of Perris	Martinez	David	dmartinez@cityofperris.org	Interim Building Official/Fire Marshal	951.443.1029 ext.228		951.943.3293	135 N. D Street	Perris	92570
City of Rancho Mirage	Kopp	Bud	budk@ranchomirageca.gov	Planning Manager	760.328.2266					
	Wilson	Britt	brittw@RanchoMirageCA.gov	Management Analyst	760.324.4511-230		(760) 324-9851	69825 Highway 111	Rancho Mirage	92270
City of Riverside	Annas	Mark	mannas@riversideca.gov	Emergency Operations Coordinator	951-320-8103	951-320-5321	951-320-8102	3085 St. Lawrence Street	Riverside	92504

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

City of Temecula	Cardenas	Roberto	roberto.cardenas@cityoftemecula.org	Fiscal Services Manager	951-693-3944		951-302-4159	41000 Main Street	Temecula	92590
City of Wildomar	Morales	Janet	jmorales@cityofwildomar.org	Senior Admin Analyst	951-677-7751.210		951.698.1463	23873 Clinton Keith Rd Ste. 201	Wildomar	92595
	Chapman	Les	lchapman@cityofwildomar.org	Public Works Superintendent	9 51-677-7751.205		951.698.1463	23873 Clinton Keith Rd Ste. 201	Wildomar	92595
Desert Sands USD	Nacua	Edward	edward.nacua@desertsands.us	Director of Security & Safety Services	760.771.8646	760.644.2269	760.771-8713	47950 Dune Palms Dr.	La Quinta	92253
Eastern Munic. Water	Hefley	Doug	hefleyd@emwd.org	Director of Safety, Risk and Emergency Management	951.928.377.4218	951.287.8627		P.O. Box 8300 2270 Trumble Road	Perris	92572
	Bray	Ryan	ryan.bray@rmpcorp.com	Technical Insulant, Risk and Emergency Management	949.282.0123 ext. 238			P.O. Box 8300 2270 Trumble Road	Perris	92572
Hemet Unified School District	Radford	Lyle	lradford@hemetusd.org	Safety and Security Technician	(951)765-5100 -2301			1791 West Acacia Ave	Hemet	92545
High Valley Water	Thornton	Nera	nthornton@highvalleywater.com	Office Administrator	951.849.2612		951.922.9667	47781 Twin Pines Rd.	Banning	92220

Idyllwild Fire Protection	Reitz	Patrick	chief@idyllwildfire.com	Chief	951-659-2153					
Imperial Irrigation District	Contreras	Jose	jscontreras@iid.com	Emergency Services Coordinator		760.604.5242		333 E Barioni Blvd	Imperial	92251
Kaiser Hospital - Riverside	Sankey	Corrie	Corrie.L.Sankey@KP.Org	Dir. Of EH&S	951.353.5513	951.595.3825	951.353.5159	10800 Magnolia Ave.	Riverside	92505
Lake Elsinore USD	Scranton	Julie	julie.scranton@leusd.k12.ca.us	Safety & Risk Services Supervisor	951.253.7181		951.245.6609	545 Chaney St.	Riverside	92530
March Air Force Base	Tucker	Marvin	marvin.tucker@us.af.mil	Chief, Emergency Management	951.655.4766			2991 Graeber St Bldg 1214	Riverside	92518
Moreno Valley USD	Evangelista	Tracy	tevangelista@mvusd.net		951.571.7500.17565					
Morongo Band of Mission Indians	Ellsworth	David	dellsworth@morongo-nsn.gov	EOC Deputy	951.755.5277	951.768.3311	951.572.6017	11581 Portrero Road	Banning	92220
	Velasquez Sr.	Floyd W.	fvelasquez@morongo-nsn.gov	Emergency Services Manager	951.572.6141	951.392.9828		12700 Pumarra Road	Banning	92220
	Johnson	Jesse	jjohnson@morongo-nsn.gov	Emergency Service Analyst	951-572-6071	951-392-4129				
Perris Union HSD	Miller	Judy	judy.miller@puhsd.org	Director of Risk Management	951.529.4691		951.943.5356	155 E. 4th St.	Perris	92570

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

	Smiderly	Christine	christine.smiderly@puhsd.org	Risk Management Secretary	(951) 943-6369 ext. 80282			155 E. 4th St.	Perris	92570
Ramona	Gomez	John	jgomez@ramona-nsn.gov	Project Manager	951.763.4105	951.941.4943		5610 Hwy 371, Ste. B P.O. Box 391670	Anza	92539
Rancho California Water	Morrison	Dave	morrisond@ranchowater.com	Safety Officer	951.296.6949	951.538.4398				
Riverside Community Colleges	W. Simmons	Michael	michael.simmons@rccd.edu	Director, Risk Management, Safety & Police	(951) 222-8128	(951) 206-8605	(951) 328-3502	3801 Market Street, 3rd Floor	Riverside	92501
Riverside County Office of Education	D'Amico	Michael	MDAMICO@rcoe.us	Safety, Emergency Preparedness Coordinator	951-826-6530	951-609-5537		3939 Thirteenth Street	Riverside	92501
Riverside Unified School District	Mueller	Ken	kmueller@rusd.k12.ca.us	Director of Maintenance and Operations	(951)788-7496 ext. 84001			3070 Washington Street	Riverside	92504
San Jacinto USD	Lawrence	Dawn	dlawrence@SanJacinto.k12.ca.us	Prep Coordinator	951.929.7700.4411	253.249.6282		2045 S. San Jacinto Ave.	San Jacinto	92583
Santa Ana Watershed	Quintero	Carlos	cquintero@sawpa.org	Senior Project Manager	951.354.4234	951.941.7611		11615 Sterling Avenue	Riverside	92503
Western Municipal	McMillien	Tom	tmcmillen@wmwd.com	Safety Officer	951.571.7252			14205 Meridian Parkway	Riverside	92518

Water District										

LETTERS OF COMMITMENT

Cities

City of Banning
City of Beaumont
City of Blythe
City of Calimesa
City of Canyon Lake
City of Cathedral
City of Coachella
City of Corona
City of Desert Hot Springs
City of Eastvale
City of Hemet
City of Indian Wells
City of Indio
City of Jurupa Valley
City of La Quinta
City of Lake Elsinore
City of Murrieta
City of Norco
City of Palm Desert
City of Palm Spring
City of Perris
City of Rancho Mirage
City of Riverside
City of San Jacinto
City of Temecula
City of Wildomar

Tribes

Agua Caliente Band of Cahuilla Indians – DROPPED
Morongo Band of Mission Indians
Ramona Band of Indians

Special Districts

Beaumont Unified
Desert Sands USD
Eastern Municipal Water
Hemet Unified School District
High Valley Water
Idyllwild Fire Protection
Imperial Irrigation District
Kaiser Hospital - Riverside
Lake Elsinore USD
March Air Force Base – DROPPED OUT
Moreno Valley USD
Perris Union HSD
Rancho California Water
Riverside Community Colleges
Riverside County Office of Education
Riverside Unified School District
San Jacinto USD
Santa Ana Watershed
Western Municipal Water

City of Banning
Office of the City Manager

September 27, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Banning is submitting this letter of commitment to confirm that the City of Banning has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City of Banning agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Banning understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and

99 E. Ramsey St. • P.O. Box 998 • Banning, CA 92220-0998 • (951) 922-3101 • Fax (951) 922-3128

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

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- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Michael Rock, City Manager, commit the City of Banning to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 27th day of September, 2016

Michael Rock, City Manager

CITY OF BEAUMONT

August 2, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Beaumont is submitting this letter of commitment to confirm that the City of Beaumont has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City of Beaumont agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Beaumont understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

550 E. 6th Street • Beaumont • CA • 92223 • Phone: (951) 769-8520 • Fax: (951) 769-8526
www.ci.beaumont.ca.us

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

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Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Richard Warne, commit the City of Beaumont to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 2nd day of August

Interim City Manager

CITY OF BLYTHE

235 North Broadway • Blythe, California 92225
Phone (760) 922-6161 • Fax (760) 922-4938

October 19, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Blythe is submitting this letter of commitment to confirm that The City of Blythe has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; The City of Blythe agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Blythe understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

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- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Peter Cosentini, City Manager, commit the City of Blythe to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 19th Day of October, 2016

Peter Cosentini, City Manager

CITY OF CALIMESA

908 Park Avenue, Calimesa, California 92320
Telephone 909.795.9801 Facsimile 909.795.4399
www.cityofcalimesa.net

May 1, 2017

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Calimesa is submitting this letter of commitment to confirm that the City of Calimesa has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City of Calimesa agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Calimesa understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement

Riverside Operational Area
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in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I ***Bonnie Johnson, City Manager*** commit the City of Calimesa to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 1st day of May, 2017

Bonnie Johnson, City Manager
City of Calimesa

908 Park Avenue • Calimesa, California 92320 • (909) 795-9801

CITY OF CANYON LAKE

June 24, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Canyon Lake is submitting this letter of commitment to confirm that the City of Canyon Lake has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City of Canyon Lake agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Canyon Lake understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process,

31516 Railroad Canyon Road, Canyon Lake, CA 92587 · 951/244-2955 · FAX 951/246-2022
admin@cityofcanyonlake.com · www.cityofcanyonlake.com

Riverside Operational Area
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CITY OF CANYON LAKE

attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Aaron Palmer, City Manager, commit the City of Canyon Lake to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 24 day of June, 2016

Aaron D Palmer

31516 Railroad Canyon Road, Canyon Lake, CA 92587 · 951/244-2955 · FAX 951/246-2022
admin@cityofcanyonlake.com · www.cityofcanyonlake.com

Cathedral City
Office of the City Manager

June 1, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Cathedral City is submitting this letter of commitment to confirm that the City of Cathedral City has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City of Cathedral City agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Cathedral City understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction;
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.);
- Documentation of an effective process to maintain and implement the plan; and

68-700 Avenida Lalo Guerrero • Cathedral City • California • 92234
www.cathedralcity.gov

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

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- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process and as a participant in a multi-jurisdictional plan; I, Charles P. McClendon, City Manager commit the City of Cathedral City to the County of Riverside's Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 1st day of June, 2016

Charles P. McClendon, City Manager

68-700 Avenida Lalo Guerrero • Cathedral City • California • 92234
www.cathedralcity.gov

CITY OF COACHELLA
1515 SIXTH STREET, COACHELLA, CALIFORNIA 92236
PHONE (760) 398-3502 • FAX (760) 398-8117 • WWW.COACHELLA.ORG

June 13, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, City of Coachella is submitting this letter of commitment to confirm that City of Coachella has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; City of Coachella agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

City of Coachella understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,

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CITY OF COACHELLA
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PHONE (760) 398-3502 • FAX (760) 398-8117 • WWW.COACHELLA.ORG

- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I George R. Torres Emergency Services Coordinator, commit City of Coachella to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 13th day of June 2016

An Affirmative Action/Equal Opportunity Employer

CITY OF CORONA FIRE DEPARTMENT
735 PUBLIC SAFETY WAY • CORONA, CA 92880 • (951) 736-2220 • FAX (951) 736-2497
WWW.DISCOVERCORONA.COM

June 13, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Corona is submitting this letter of commitment to confirm that the City of Corona has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City of Corona agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Corona understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;

"SERVING OUR CITY WITH PRIDE"

- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I David Duffy, Fire Chief commit the City of Corona to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 13th day of June 2016.

David P. Duffy

David Duffy, Fire Chief

"SERVING OUR CITY WITH PRIDE"

City of Desert Hot Springs
65-950 Pierson Blvd.• Desert Hot Springs • CA • 92240
(760) 329-6411
www.cityofdhs.org

June 8, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Desert Hot Springs is submitting this letter of commitment to confirm that Desert Hot Springs has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Desert Hot Springs agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

Desert Hot Springs understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Martín Magaña, City Manager, commit the City of Desert Hot Springs to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 8th day of June, 2016.

City of Eastvale
12363 Limonite Avenue, Suite #910 • Eastvale, CA 91752
(951) 361-0900 • Fax: (951) 361-0888 • www.EastvaleCA.gov

May 31, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department:

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Eastvale is submitting this letter of commitment to confirm that the City of Eastvale has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning, the City of Eastvale agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Eastvale understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.);
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

City of Eastvale
12363 Limonite Avenue, Suite #910 • Eastvale, CA 91752
(951) 361-0900 • Fax: (951) 361-0888 • www.EastvaleCA.gov

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, *Michele Nissen*, commit the *City of Eastvale* to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 31st day of May, 2016

Michele Nissen
City Manager

City of Hemet

445 E. FLORIDA AVE • HEMET, CALIFORNIA 92543 • (951) 765-2301

CITY MANAGER
Alexander P. Meyerhoff

June 13, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department:

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Hemet is submitting this letter of commitment to confirm that City of Hemet has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City of Hemet agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Hemet understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process; attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and

Riverside County Emergency Management Department
Kim Saruwatari, Director
Page 2
June 13, 2016

- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Alexander P. Meyerhoff, commit the City of Hemet to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 13th day of June, 2016

Alexander P. Meyerhoff
City Manager

INDIAN WELLS
CALIFORNIA

April 1, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, Indian Wells submitting this letter of commitment to confirm that Indian Wells has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Indian Wells agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

Indian Wells understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Eric W. Cadden commit Indian Wells the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this June day of 3rd, 2016.

Eric W. Cadden

44-950 Eldorado Drive – Indian Wells, California 92210-7497- (V) 760.2489 (F) 346.0407
www.IndianWells.com

June 1, 2016

Attn: Kim Saruwatari, Director
Riverside County Emergency Management Department
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment of Participating Jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Director Saruwatari:

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Indio is submitting this letter of commitment to confirm that the City of Indio has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City of Indio agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department to complete the plan in conformance with FEMA requirements.

The City of Indio understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.

p: 760.391.4000 f: 760.391.4008 100 Civic Center Mall Indio, CA 92201 www.INDIO.org

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I *Dan Martinez*, commit the City of Indio to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Sincerely,

DAN MARTINEZ
City Manager, City of Indio

Executed this 1st day of June, 2016

p: 760.391.4000 f: 760.391.4008 100 Civic Center Mall Indio, CA 92201 www.INDIO.org

City of Jurupa Valley

Laura Roughton, Mayor . Verne Lauritzen, Mayor Pro Tem .
Brian Berkson, Council Member . Frank Johnston, Council Member . Brad Hancock, Council Member

June 8, 2016

City of Jurupa Valley

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Jurupa Valley is submitting this letter of commitment to confirm that Jurupa Valley has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning, the City of Jurupa Valley agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Jurupa Valley understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

8930 Limonite Ave., Jurupa Valley, CA 92509-5183, (951) 332-6464
www.jurupavalley.org

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Gary Thompson, City Manager, commit the City of Jurupa Valley to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 8th day of June, 2016

Gary S. Thompson, City Manager

8304 Limonite Avenue, Suite M, Jurupa Valley, CA 92509-5183, (951) 332-6464
www.jurupavalley.org

City of La Quinta

June 9, 2016

Ms. Kim Saruwatari, Director
Riverside County Emergency Management Department
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Ms. Saruwatari:

Per the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements for multi-jurisdictional mitigation plans, the City of La Quinta is submitting this letter of commitment to confirm that the City has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning, the City agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County to complete the plan in conformance with FEMA requirements.

The City understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identify hazards unique to the jurisdiction and not addressed in the master planning document;
- Conduct a vulnerability analysis and identify of risks, where they differ from the general planning area;
- Formulate mitigation goals responsive to public input and develop mitigation actions complementary to those goals. A range of actions will be identified specific for each jurisdiction;
- Demonstrate that there has been proactive participation in the planning process by all community stakeholders.
- Document an effective process to maintain and implement the plan;
- Adopt the Multi-Jurisdictional Hazard Mitigation Plan.

Please do not hesitate to contact me with questions or concerns.

Sincerely,

Frank J. Spevacek
City Manager

78-495 Calle Tampico | La Quinta | California 92253 | 760.777.7000 | www.La-Quinta.org

CITY OF LAKE ELSINORE
DREAM EXTREME

June 8, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Lake Elsinore is submitting this letter of commitment to confirm that City of Lake Elsinore has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; City of Lake Elsinore agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

City of Lake Elsinore understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.

951.674.3124
[illegible]
[illegible]
www.lake[illegible]

- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Grant Yates, City Manager, commit City of Lake Elsinore to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 8th day of June, 2016

Grant Yates, City Manager

CITY OF MURRIETA

June 16, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Murrieta Fire Department is submitting this letter of commitment to confirm that Murrieta Fire Department has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Murrieta Fire Department agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

Murrieta Fire Department understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and

FIRE DEPARTMENT • 41825 Juniper Street • Murrieta, California 92562
phone: 951.304.FIRE (3473) • fax: 951.677.6799 • web: murrieta.org

- Documentation of an effective process to maintain and implement the plan; and.
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Jason Briley commit the Murrieta Fire Department to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed June 16, 2016

Jason Briley, Fire Marshal
City of Murrieta Fire Department

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

CITY of NORCO

CITY HALL • 2870 CLARK AVENUE • NORCO CA 92860 • (951) 735-3900 • www.norco.ca.us •

June 13, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Director Saruwatari,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Norco is submitting this letter of commitment to confirm that the city has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Norco understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document.
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area.
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.).
- Documentation of an effective process to maintain and implement the plan.
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

CITY COUNCIL

KEVIN BASH	GREG NEWTON	ROBIN GRUNDMEYER	BERWIN HANNA	TED HOFFMAN
Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

Riverside County Operational Area Multi-Jurisdictional
Hazard Mitigation Planning
Page 2
June 13, 2016

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Andy Okoro commit the City of Norco to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 13th day of June 2016

Andy Okoro, City Manager
City of Norco

Attest:

Cheryl L. Link, City Clerk
City of Norco

City of Palm Springs
David H. Ready, Esq., Ph.D.
City Manager
3200 E. Tahquitz Canyon Way, Palm Springs, CA 92262
Tel 760.322.8350 • Fax 760.323.8207 • TDD 760.864.9527
David.Ready@palmspringsca.gov • www.palmspringsca.gov

June 1, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department:

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Palm Springs is submitting this letter of commitment to confirm that the City of Palm Springs has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning, the City of Palm Springs agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department to complete the plan in conformance with FEMA requirements.

The City of Palm Springs understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction;
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.);
- Documentation of an effective process to maintain and implement the plan; and,

PO Box 2743, Palm Springs, California 92263

Page Two
June 1, 2016
Riverside County Emergency Management

- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan, I, David H. Ready, Esq., Ph.D., commit the City of Palm Springs to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 13 day of JUNE 2016

David H. Ready, Esq., Ph.D.

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

CITY OF PERRIS

DEPARTMENT OF DEVELOPMENT SERVICES
Building and Safety Division
135 N. 'D' STREET, PERRIS, CA 92570-2200
TEL.: (951) 943-1029 FAX: (951) 657-9685

June 13, 2016

RE: City of Perris letter of commitment

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Perris is submitting this letter of commitment to confirm that the City of Perris has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City of Perris agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Perris understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any

planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Clara Miramontes, commit the City of Perris to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 13th day of June 2016

Sincerely

Clara Miramontes
Development Services Director
City of Perris

CITY OF RANCHO MIRAGE

July 14, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Rancho Mirage is submitting this letter of commitment to confirm that the City of Rancho Mirage has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City of Rancho Mirage agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Rancho Mirage understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Britt W. Wilson commit the City of Rancho Mirage to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 14th day of July 2016

Britt W. Wilson
Emergency Services Coordinator, City of Rancho Mirage
Brittw@ranchomirageca.gov
760-324-4511

c. Bud Kopp, City of Rancho Mirage Planning Manager

Fire Department

City of Arts & Innovation

June 15, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Riverside Fire Department – Office of Emergency Management is submitting this letter of commitment to confirm that the Riverside Fire Department – Office of Emergency Management has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the Riverside Fire Department – Office of Emergency Management agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

City of Riverside understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,

Office of Emergency Management
3085 St Lawrence Street, Riverside, CA 92504 | **Phone:** (951) 320-8100 | **RiversideCA.gov/Fire**

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Mark Annas, Emergency Operations Coordinator, commit Riverside Fire Department – Office of Emergency Management to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 15 day of June, 2016

Mark D. Annas
Emergency Operations Coordinator
Riverside Fire Department
Office of Emergency Management

SAN JACINTO

Scott Miller
Mayor

Alonso Ledezma
Mayor Pro Tem

Crystal Ruiz
Councilmember

Andrew Kotyuk
Councilmember

Russ Utz
Councilmember

May 16, 2017

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of San Jacinto is submitting this letter of commitment to confirm that the City of San Jacinto has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; The City of San Jacinto agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of San Jacinto understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Robert Johnson, commit the City of San Jacinto to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 5/16 day of 2017

Robert A. Johnson
City Manager

595 S. San Jacinto Ave. | San Jacinto, CA 92583 | Ph 951-487-7330 | Fax 951-654-3728 | www.ci.san-jacinto.ca.us

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

City of Temecula

City Manager's Office
41000 Main Street • Temecula, CA 92590
Phone (951) 506-5100 • Fax (951) 694-6499 • www.cityoftemecula.org

June 9, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Temecula is submitting this letter of commitment to confirm that the City of Temecula has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the City of Temecula agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The City of Temecula understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and

- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I *Aaron Adams*, commit the City of Temecula to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 9 day of June 2016.

X _____
Aaron Adams, City Manager

Bridgette Moore, Mayor
Timothy Walker, Mayor Pro Tem
Ben Benoit, Council Member
Bob Cashman, Council Member
Marsha Swanson, Council Member

23873 Clinton Keith Rd, Ste 201
Wildomar, CA 92595
951/677-7751 Phone
951/698-1463 Fax
www.CityofWildomar.org

June 13, 2016

CITY OF WILDOMAR

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level. The City of Wildomar is submitting this letter of commitment to confirm that City of Wildomar has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; City of Wildomar agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

City of Wildomar understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Dan York, Assist City Manager, commits City of Wildomar to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 13th day of June 2016

Dan York
Assistant City Manager
City of Wildomar

Page 2 of 2

DROPPED OUT

AGUA CALIENTE BAND OF CAHUILLA INDIANS

EMERGENCY SERVICES & RISK MANAGEMENT

June 13, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Agua Caliente Band of Cahuilla Indians is submitting this letter of commitment to confirm that the Agua Caliente Band of Cahuilla Indians has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning, the Agua Caliente Band of Cahuilla Indians agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The Agua Caliente Band of Cahuilla Indians understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
WWW.AGUACALIENTE-NSN.GOV

AGUA CALIENTE BAND OF CAHUILLA INDIANS

EMERGENCY SERVICES & RISK MANAGEMENT

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I *John Lavallee* commit *Agua Caliente Band of Cahuilla Indians* to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 13 day of June

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
WWW.AGUACALIENTE-NSN.GOV

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

MORONGO BAND OF MISSION INDIANS
A SOVEREIGN NATION

Morongo Band of Mission Indians

June 2, 2016
Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Morongo Band of Mission Indians is submitting this letter of commitment to confirm that Morongo Band Of Mission Indians has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; [Morongo Band Of Mission Indians agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

[Morongo Band of Mission Indians] understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (Examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and

- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I G. Michael Milhiser, commit Morongo Band of Mission Indians to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 3 day of 2016.

DROPPED OUT

RAMONA BAND OF CAHUILLA

56310 Highway 371, Suite B
Post Office Box 391670
Anza, California 92539

Tel: (951) 763-4105
Fax: (951) 763-4325
Website: www.ramona-nsn.gov
Email: admin@ramona-nsn.gov

"A SOVEREIGN NATION"

August 23, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

The Ramona Band of Cahuilla ("Band"), a federally recognized tribe, is submitting this letter of commitment to confirm that the Band has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

The Federal Emergency Management Agency's ("FEMA") Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans, and the Band's participation will allow for a more comprehensive evaluation of hazards and proposed mitigation measures through the coordination at the county, regional, or watershed level.

The Band agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The Band understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and

- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Band's Multi-Jurisdictional Hazard Mitigation Plan by the Band's governing body.

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Joseph D. Hamilton, Chairman, commit the Ramona Band of Cahuilla to participation in the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Please feel free to contact the Band's administrative offices at (951)763-4105 if you have any questions or wish to discuss this matter further.

Respectfully,

Joseph D. Hamilton
Chairman, Ramona Band of Cahuilla

QUALITY EDUCATION
A Shared Commitment

BEAUMONT UNIFIED SCHOOL DISTRICT

BOARD OF TRUSTEES

ADMINISTRATION

June 15, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, Beaumont Unified School District is submitting this letter of commitment to confirm that Beaumont Unified School District has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Beaumont Unified School District agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

Beaumont Unified School District understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

350 W. Brookside Avenue • PO Box 187 • Beaumont • California • 92223-0187 • Tele: (951) 845-1631

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan, I *Terrence Davis*, commit *Beaumont Unified School District* to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 13th day of July, 2016

(Jurisdiction official's signature)

350 W. Brookside Avenue • P.O Box 187 • Beaumont • California • 92223-0187 • Tele: (951) 845-1631

Desert Sands Unified School District
47-950 Dune Palms Road • La Quinta, California 92253 • (760) 777-8567 • FAX: (760) 771-8574
BOARD OF EDUCATION: Michael Duran, Donald B. Griffith, Wendy Jonathan, Matteo Monica III, Gary Tomak
SUPERINTENDENT: Dr. Gary Rutherford
Security Services • (760) 771-8646 • FAX: (760) 771-8713
Jeff Kaye, Director of Security & Safety Services

June 14, 2016

Desert Sands Unified School District

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Desert Sands Unified School District is submitting this letter of commitment to confirm that The Desert Sands Unified School District has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; The Desert Sands Unified School District agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The Desert Sands Unified School District understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.

- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Jeff Kaye, Director of Security and Safety, commit the Desert Sands Unified School District to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 14 day of June 2016

Jeff Kaye

Director of Security and Safety Services
Desert Sands Unified School District

June 13, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Subject: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department:

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Eastern Municipal Water District is submitting this letter of commitment to confirm that Eastern Municipal Water District has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Eastern Municipal Water District agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

Eastern Municipal Water District understands that it must engage in the following planning process, as described in FEMA's Local Multi-Hazard Mitigation Planning Guidance dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;

2270 Trumble Road • P.O. Box 8300 • Perris, CA 92572-8300
T 951.928.3777 • F 951.928.6177 emwd.org

Kim Saruwatari
June 13, 2016
Page 2

- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Douglas Hefley, commit Eastern Municipal Water District to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 13th day of June, 2016.

Sincerely,

Douglas Hefley
Director of Safety, Risk and Emergency Management

DH:sr

EASTERN MUNICIPAL WATER DISTRICT

HEMET UNIFIED SCHOOL DISTRICT

Dr. Barry L. Kayrell
Superintendent

Dr. LaFaye Platter
Deputy Superintendent
Dr. David Horton
Assistant Superintendent
Vince Christakos
Assistant Superintendent

Professional Development Service Center
1791 W. Acacia Avenue
Hemet, CA 92545
(951) 765-5100
Fax: (951) 765-5115

Professional Development Academy
2085 W. Acacia Avenue
Hemet, CA 92545
(951) 765-5100
Fax: (951) 765-6421

www.hemetusd.org

Governing Board
Marilyn Forst
Megan Haley
Vic Scavarda
Patrick Scarl
James Smith
Ross Valenzuela
Joe Wojcik

Hemet Unified School District
Lucy M. Dressel, Director of Safety/Risk Management/Benefits
1791 West Acacia Avenue
Hemet, CA 92545

May 26th, 2016

Hemet Unified School District

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, Hemet Unified School District is submitting this letter of commitment to confirm that Hemet Unified School District has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Hemet Unified School District agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

Hemet Unified School District understands that it must engage in the following planning process, as described in FEMA's Local Multi-Hazard Mitigation Planning Guidance dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant

involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and

- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Lucy M. Dressel, commit Hemet Unified School District to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 26th day of May 2016

Lucy M. Dressel, Director of Safety/Risk Management/Benefits

HEMET UNIFIED SCHOOL DISTRICT

Dr. Barry L. Kayrell
Superintendent

Dr. LaFaye Platter
Deputy Superintendent
Dr. David Horton
Assistant Superintendent
Vince Christakos
Assistant Superintendent

Professional Development Service Center
1791 W. Acacia Avenue
Hemet, CA 92545
(951) 765-5100
Fax (951) 765-5115

Professional Development Academy
2085 W. Acacia Avenue
Hemet, CA 92545
(951) 765-5100
Fax (951) 765-6421

www.hemetusd.org

Governing Board
Marilyn Forst
Megan Haley
Vic Scavarda
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Joe Wojcik

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

High Valleys Water District

June 8, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the High Valleys Water District is submitting this letter of commitment to confirm that the High Valleys Water District has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the High Valleys Water District agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The High Valleys Water District understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Ernest B. Wright, commit the High Valleys Water District to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 8th day of June, 2016

Ernest B Wright

Ernest B. Wright

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

Idyllwild Fire Protection District
PO Box 656
Idyllwild, CA 92549
(951) 659-2153

Thursday, June 09, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Idyllwild Fire Protection District (IFPD) is submitting this letter of commitment to confirm that the IFPD has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the IFPD agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The IFPD understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings,

Page **1** of **2**

contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Patrick Reitz, Fire Chief, commit the Idyllwild Fire Protection District to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 9th day of June, 2016.

Patrick Reitz
Fire Chief

Page 2 of 2

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

IID
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June 8, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Imperial Irrigation District is submitting this letter of commitment to confirm that Imperial Irrigation District has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Imperial Irrigation District agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

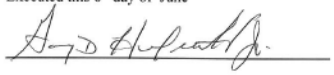
Imperial Irrigation District understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,

- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Gary D. Hatfield, Jr , commit Imperial Irrigation District to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 8th day of June



Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

KAISER PERMANENTE
Riverside Service Area
10800 Magnolia Ave.
Riverside, CA. 92505

August 3, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, Kaiser Permanente Riverside Service Area is submitting this letter of commitment to confirm that Kaiser Permanente Riverside Service Area has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Kaiser Permanente Riverside Service Area agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

Kaiser Permanente Riverside Service Area understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

KAISER PERMANENTE
Riverside Service Area
10800 Magnolia Ave.
Riverside, CA. 92505

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Corrie Sankey, commit Kaiser Permanente Riverside Service Area to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 2 day of August 2016

Corrie Sankey
Director, Environmental Health and Safety
Emergency Management

Lake Elsinore Unified School District

Governing Board

Stan Crippen
Trustee Area 1

Susan E. Scott
Trustee Area 2

Heidi Matthies Dodd
Trustee Area 3

Juan Saucedo
Trustee Area 4

Harold E. Stryker
Trustee Area 5

Administration

Dr. Doug Kimberly
Superintendent

Dr. George Landon
Deputy Superintendent Administrative & Fiscal Support Services

Dr. Gregory J. Bowers
Assistant Superintendent Facilities & Operations Support Services

Dr. Albin Guevara
Assistant Superintendent Administrative & Educational Support Services

Dr. Kip Meyer
Assistant Superintendent Personnel Support Services

Sam Wensel
Executive Director Personnel Support Services

(951) 253-7000

545 Chaney Street
Lake Elsinore, CA 92530

www.leusd.k12.ca.us

June 8, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Lake Elsinore Unified School District (LEUSD) is submitting this letter of commitment to confirm that LEUSD has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; LEUSD agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

LEUSD understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and

- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Dr. Gregory J. Bowers, commit Lake Elsinore Unified School District to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 8th day of June 2016

Dr, Gregory J. Bowers, Assistant Superintendent
Facilities & Operations Division

DROPPED OUT

DEPARTMENT OF THE AIR FORCE

AIR FORCE RESERVE COMMAND

13 June 2016

Riverside County Emergency Management Department

Kim Saruwatari, Director

4210 Riverwalk Pkwy, Ste. 300

Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, March ARB is submitting this letter of commitment to confirm that March ARB has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; March ARB agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

March ARB understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;

- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Marvin J. Tucker, commit March ARB to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

MARVIN J. TUCKER, GS-11, DAF

Chief, Emergency Management

Board of Education
Jesse M. Holguin, President
Desire Fleming, Ed.D., Vice President
Cleveland Johnson, Clerk
Gary S. Baugh, Ed.D.
Patrick N. Kelleher

Superintendent of Schools
Judy D. White, Ed.D.

Moreno Valley Unified School District
25634 Alessandro Boulevard
Moreno Valley, California 92553
951-571-7500
www.mvusd.net

The mission of Moreno Valley Unified School District is to ensure all students graduate high school prepared to successfully enter into higher education and/or pursue a viable career path.

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Moreno Valley Unified School District is submitting this letter of commitment to confirm that Moreno Valley Unified School District has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Moreno Valley Unified School District agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

Moreno Valley Unified School District understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I *Darryl Scott*, commit *Moreno Valley Unified School District* to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 14 day of June

Signature of Director of Safety and Security, Darryl Scott

PERRIS UNION
HIGH SCHOOL DISTRICT
155 E. Fourth Street, Perris, CA 92570
951-943-6369
puhsd.org @puhsd PerrisUnionHSD

Superintendent: Jonathan L. Greenberg, Ed.D.

Grant Bennett
Assistant Superintendent
Educational Services

Candace Reines
Assistant Superintendent
Business Services

Tonya Davis
Chief Human
Resources Officer

Joseph Williams
Executive Director
Technology

April 1, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, Perris Union High School District is submitting this letter of commitment to confirm that Perris Union High School District has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Perris Union High School District agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

Perris Union High School District understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.

Board of Trustees: Edward Agundez · Dr. Jose Luis Araux · Joan D. Cooley · David C. Nelissen · Carolyn A. Twyman

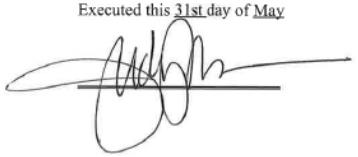
Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I *Judy Miller, Director of Risk Management and Environmental Safety* , commit Perris Union High School District to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 31st day of May



Board of Trustees: Edward Agundez · Dr. Jose Luis Araux · Joan D. Cooley · David C. Nelissen · Carolyn A. Twyman

Rancho Water

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Interim Director of Operations
& Maintenance
Andrew L. Webster, P.E.
Chief Engineer
Kelli E. Garcia
District Secretary
James B. Gilpin
Best Best & Krieger LLP
General Counsel

June 30, 2016

RIVERSIDE COUNTY EMERGENCY MANAGEMENT DEPARTMENT
Ms. Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

SUBJECT: LETTER OF COMMITMENT AS PARTICIPATING JURISDICTION IN RIVERSIDE COUNTY OPERATIONAL AREA MULTI-JURISDICTIONAL HAZARD MITIGATION PLANNING

Dear Ms. Saruwatari:

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Rancho California Water District (RCWD/District) is submitting this letter of commitment to confirm that RCWD has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; RCWD agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The District understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and

Rancho California Water District
42135 Winchester Road • Post Office Box 9017 • Temecula, California 92589-9017 • (951) 296-6900 • FAX (951) 296-6860 • www.ranchowater.com

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I *Dave Morrison Safety Officer*, commit *Rancho California Water District* to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 30th day of June

Should you have any questions regarding this matter, please contact me at the District office at (951) 296-6900.

Sincerely,

RANCHO CALIFORNIA WATER DISTRICT

Dave Morrison
Safety Officer

090\DT

Rancho California Water District
42135 Winchester Road • Post Office Box 9017 • Temecula, California 92589-9017 • (951) 296-6900 • FAX (951) 296-6860 • www.ranchowater.com

RCCD RIVERSIDE COMMUNITY COLLEGE DISTRICT
OFFICE OF THE CHANCELLOR
MORENO VALLEY COLLEGE | NORCO COLLEGE | RIVERSIDE CITY COLLEGE

June 1, 2016

PARTICIPATING JURISDICTION

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Riverside Community College District is submitting this letter of commitment to confirm that Riverside Community College District has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; The Riverside Community College District agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The Riverside Community College District understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.

3801 Market Street
Riverside, CA 92501
(951) 222-8800
Fax (951) 682-5339
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Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I *Michael L Burke, Ph.D.*, commit *Riverside Community College District* to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 1st day of June

Michael L. Burke

Michael L. Burke, Ph.D.

RIVERSIDE COUNTY OFFICE OF EDUCATION
KENNETH M. YOUNG
Riverside County Superintendent of Schools

3939 Thirteenth Street
P.O. Box 868
Riverside, California
92502-0868
(951) 826-6530

47-110 Calhoun Street
Indio, California
92201-4779
(760) 863-3000

24980 Las Brisas Road
Murrieta, California
92562-4008
(951) 600-5651

Riverside County Board of Education

Jeanie B. Corral
Bruce N. Dennis
Jay N. Hoffman, Ed.D.
Susan J. Rainey, Ed.D.
Elizabeth F. Romero
Wendel W. Tucker, Ph.D.
Ralph R. Villani, Ed.D.

May 26, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy., Ste. 300
Riverside, CA 92505

Re: **Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning**

Dear Riverside County Emergency Management Department:

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level. The Riverside County Office of Education is submitting this letter of commitment to confirm that Riverside County Office of Education has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Riverside County Office of Education agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

Riverside County Office of Education understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;

- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and,
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Teresa Hyden, Chief Business Official, commit Riverside County Office of Education to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 1st day of June, 2016

Teresa Hyden
Chief Business Official
Division of Administration and Business Services
(951) 826-6790 / FAX [951] 826-6974

MD:amn
c: Michael D'Amico, Coordinator, Safety and Emergency Preparedness

BOARD OF EDUCATION
Mr. Tom Hung
President
Mr. Brent Lee
Vice President
Pamela Lock-Dawson
Clerk
Mrs. Kathy Allavie
Dr. I. Angelov Farooq

Riverside Unified School District

ADMINISTRATION BUILDING
3380 14TH STREET - P. O. BOX 2800
RIVERSIDE, CALIFORNIA 92516

OFFICE OF THE ASSISTANT SUPERINTENDENT
Operations Division
951-788-7135, Extension 80413
FAX: 951-778-5668

David C. Hansen
District Superintendent

RUSD
Innovation in Education

Riverside County Emergency Management Department
Kim Saruwatari
Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Ms. Saruwatari,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Riverside Unified School District is submitting this letter of commitment to confirm that the Riverside Unified School District has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; the Riverside Unified School District agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

The Riverside Unified School District understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction;

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and,
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Kirk R. Lewis, commit the Riverside Unified School District to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 8th day of June, 2016.

Kirk R. Lewis
Assistant Superintendent, Operations

August 10, 2016

Riverside County Emergency Management Department

Kim Saruwatari, Director

4210 Riverwalk Pkwy, Ste. 300

Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department:

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the San Jacinto Unified School District (SJUSD) is submitting this letter of commitment to confirm that SJUSD has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; SJUSD agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department to complete the plan in conformance with FEMA requirements.

SJUSD understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area

Riverside Operational Area
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July 2018

- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.)
- Documentation of an effective process to maintain and implement the plan
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan and by adoption of resolution from the Board of Trustees (attached), I commit San Jacinto Unified School District to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Sincerely,

Diane Perez

Superintendent

Santa Ana Watershed Project Authority

Over 45 Years of Innovation, Vision, and Watershed Leadership

One Water One Watershed
AWRA Integrated Water Resources Management Award
Harvard Kennedy School's Top 25 Innovations in American Government

June 14, 2016

Thomas P. Evans
Commission
Chair

Celeste Cantú
General
Manager

Orange
County
Water
District

Western
Municipal
Water District

Eastern
Municipal
Water
District

San
Bernardino
Valley
Municipal
Water
District

Inland
Empire
Utilities
Agency

Kim Saruwatari, Director
Riverside County Emergency Management Department
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as Participating Jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Ms. Saruwatari:

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the Santa Ana Watershed Project Authority (SAWPA) is submitting this letter of commitment to confirm that SAWPA has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; SAWPA agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

SAWPA understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction;
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.);
- Documentation of an effective process to maintain and implement the plan; and
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

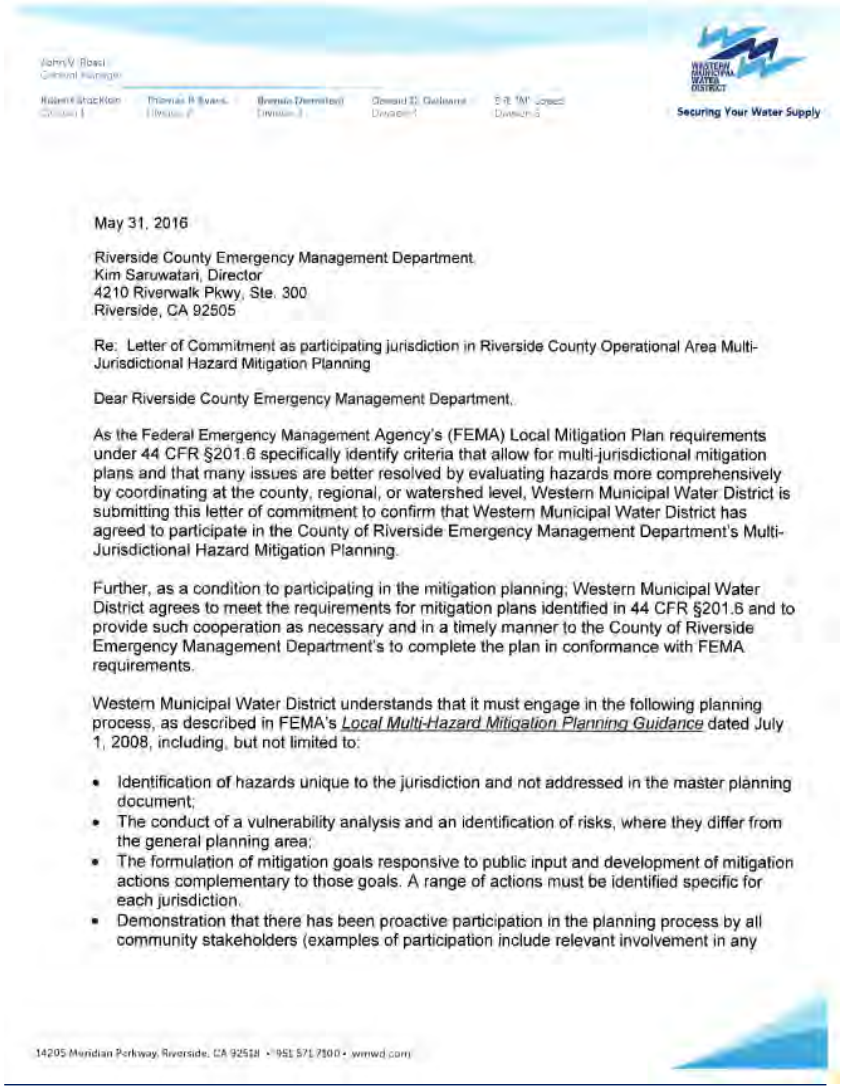
11615 Sterling Avenue, Riverside, CA 92503 • 951.354.4220
www.sawpa.org • www.sawpa.org/OWOW

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Celeste Cantú, General Manager, commit SAWPA to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

You may contact Richard Haller at 951.354.4240 or rhaller@sawpa.org with any questions.

Sincerely,

Celeste Cantú
General Manager



John V. Rossi
General Manager

Robert Stockton, Division 1 | Thomas R. Evans, Division 2 | Brenda Dennstedt, Division 3 | Gerard D. Delahaut, Division 4 | [illegible], Division 5

Western Municipal Water District

Securing Your Water Supply

May 31, 2016

Riverside County Emergency Management Department
Kim Saruwatari, Director
4210 Riverwalk Pkwy, Ste. 300
Riverside, CA 92505

Re: Letter of Commitment as participating jurisdiction in Riverside County Operational Area Multi-Jurisdictional Hazard Mitigation Planning

Dear Riverside County Emergency Management Department,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, Western Municipal Water District is submitting this letter of commitment to confirm that Western Municipal Water District has agreed to participate in the County of Riverside Emergency Management Department's Multi-Jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Western Municipal Water District agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as necessary and in a timely manner to the County of Riverside Emergency Management Department's to complete the plan in conformance with FEMA requirements.

Western Municipal Water District understands that it must engage in the following planning process, as described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction.
- Demonstration that there has been proactive participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any

14205 Meridian Parkway, Riverside, CA 92518 • (951) 571-7100 • wmwd.com

planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I John V. Rossi, commit Western Municipal Water District to the County of Riverside Emergency Management Department Multi-Jurisdictional Hazard Mitigation Planning effort.

Executed this 4th day of June 2016,

John V. Rossi, General Manager

JVR:tm

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APPENDIX C – Mitigation Action Table

2012 Plan Strategies Updated Status

Mitigation Actions Table

Type of Hazard	Mitigation Actions	Departments/ Jurisdictions	Status Update
ALL	Incorporate Updated Local Hazard Mitigation Plan into Riverside County General Plan	Transportation, Land Management Agency and Riverside Office of Emergency Services	Recently updated and approved on December 2015 by Board of Supervisors. Adopted 2015, which includes a new reference to implement the Local Hazard Mitigation Plan within the Safety Element.
DROUGHT	Construct reservoirs and water tanks to increase water storage	Water Conservation, Agriculture and County Fire	On-going, no update has been made
EARTHQUAKE	CREWS Earthquake Mitigation Project	County-wide	Ongoing process of recruiting non-participating cities in the Coachella Valley area into the early earthquake warning program.
FIRE	Purchase Masticator to remove vegetation and brush in heavily populated areas prone to fires.	Riverside County Fire	No change. Project still on hold due to lack of funding during budget cuts. Potential future purchase
FIRE	Shake Shingle Roof Replacement Project	Idyllwild	In 2013 Mountain Communities Fire Safe Council was awarded a FEMA grant to replace hazardous shake/wood shingle roofs in the San Jacinto WUI (Wildland Urban Interface) One hundred homes were reroofed with Class A roofing material. The grant was completed in October 2016.

FIRE	Single Tree Removal – removed dying and dead trees.	Idyllwild	Ongoing - Nearing Closeout: dead and dying trees are continuously monitored and removed as needed.
FIRE	Hazard Abatement- Fuel treatment program to remove 1120 acres of natural fuel	Mountain Communities Fire Safe Council Program - Idyllwild	Reducing fuels on private property in the San Jacinto WUI is an on-going activity of Mountain Fire Safe Council. To date, more than 1,600 acres have been treated with the financial help of grant funds awarded to MCFSC
FLOOD	Norco Storm Drain This project is an underground storm drain which will address flooding along Pedley Avenue/Sixth Street.	Riverside County Flood Control	Project completed on 04/05/2011.
FLOOD	Santa Ana River, Norco Bluffs [Corps Project] – Stabilization Project is a Corps of Engineers project that consists of a soil cement to protection structure constructed to the 100-year flood level at the base of the bluff.	Riverside County Flood, Transportation Land Management Agency and Riverside County Fire	The bluff stabilization work was completed in 2004. The District is continuing to work with the Corps on wrapping up the project, including completion of a Project Operation and Maintenance Manual. Once the Corps approves the O&M Manual, the project can be transferred to the District for ownership, operation and maintenance.
FLOOD	Temescal Creek-Foster Road Storm Drain (2-8-00493-01) - This project is an underground storm drain in Foster Road extending from Interstate 15 to Temescal Creek.	Riverside-Corona Resource Conservation District Riverside County Flood Control	Project completed on 09/01/2015
FLOOD	Dillon Road – State Hwy 62 Road Project to clear debris. Road has 25 dips that cause flooding during storms.	Transportation, Land, Management Agency Riverside County Fire	Ongoing; The current action plan is to barricade the low dip sections when they are flooded and remove the storm debris when the water recedes.
FLOOD	Underground storm drain which will extend	Flood Control and City of Norco	Finished approximately in Spring 2011

	approximately 1,300 feet south in Pedley Avenue from Norco MDP Line NA in Sixth Street. This project will address localized flooding along Pedley Avenue.		
FLOOD	Restore 100 yr level flood protection to the three million residents within the floodplain downstream, the Corps proposes to increase both the storage capacity of Prado Dam, and its outlet discharge capacity. The embankment will be raised 30 feet, while the spillway sill will be raised 20 feet and the gated discharge capacity will be tripled.	Flood Control	**Part 1** of this project involving Riverside County Flood Control and TLMA was completed **Part 2** of this project involving only Riverside County Flood Control is still pending approval
FLOOD	Ultimate channel improvements for the existing interim channel from 6th Street to the terminus near Rose Court.	City of Norco	Project has not started. No estimation on start date. The District is currently working on 60% design plans and anticipates 90% design plans will be completed by next year (2017). FEMA processing will be necessary to revise the currently mapped floodplain once the construction is completed.
FLOOD	Ultimate improvements to the existing channel between Parkridge Avenue and River Road. The channel is planned as a concrete lined open channel	City of Norco and Riverside County Transportation Land Management Agency	Project began Circa 7/2013 and was finished Circa 2/2014. Lead Agency was RCFC & WCD
FLOOD	Underground storm drain extending from the existing Stage 1 near Pedley Avenue, east in 7th Street to California Avenue then south in California approximately 800 feet to a sump.	Transportation, Land, & Management Agency and Flood Control	Project completed on 04/05/2011

FLOOD	Collection of "mitigation" charges from builders in Mockingbird Canyon with the intention of providing relief to flood prone properties in the lower canyon	Mockingbird Canyon	In process of collecting funds. Charging investors $500 per lot. Talks about whether to keep this project or abandon it. Considered a “mini” ADP (Area Drainage Project)
FLOOD	Storm Drain Last portion will be constructed as part of the same contract as the Ontario Avenue Storm Drain project	City of Corona	Project completed on 04/24/2012, Project revised on 04/25/2012.
FLOOD	A 1,050-foot drain to de-water a sump in Frank Avenue in the south Mira Loma area	Riverside County Flood Control and City of Eastvale	Project completed on 01/31/2012
FLOOD	The original project consisted of a 54 acre-foot debris basin at the southerly end of Smith Road and a concrete rectangular channel extending northerly to Cajalco Road. Mitigation required for the basin project includes removal of non-native vegetation, debris and remnants of abandoned structures as well as re-grading and establishment of native vegetation.	Riverside County Flood Control	Project completed on 01/10/2006
FLOOD	Underground storm drain in the City of Corona extending from East Grand Boulevard north in Joy Street to Temescal Creek Channel. Design began on this project in 2003 at which time it was discovered during a field check of the preliminary drawings that a recently installed Edison conduit in Joy Street overlapped the only viable alignment for the storm drain. The street is so heavily laden with utilities here is no longer room to install a drain.	City of Corona	Designed Phase Schedule for advertisement in March 2017

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

FLOOD	Underground storm drain in Ontario Avenue extending upstream from the District's existing El Cerrito Channel at El Cerrito Road about 3,000 feet to State Street just west of Interstate 15.	Riverside County Flood Control and Transportation Land & Management Agency	Project revised on 04/25/2012
FLOOD	Underground storm drain in Foster Road extending from Interstate 15 to Temescal Creek	Temescal Creek-Foster Road Storm Drain	Construction began in January 2015 and was completed in September 2015.
FLOOD	Multi-year plan to construct the ultimate levee system (approximately 1,200 feet river bottom width) between the existing Corps of Engineers' levee 9,500 feet upstream of State Street, and a point about 8,200 feet downstream of Sanderson Avenue, a distance of about 5 miles. Floodwalls on piles are required to be constructed over the Metropolitan Water District facilities just east of State Street.	San Jacinto and Transportation and Land Management	Funding was received in November 2015 - the levee was included in a suite of projects that received Proposition 84 grant funding from the California Department of Water Resources. The Prop 84 contribution is anticipated to be about $3.5 million.
FLOOD	Project to build MDP extending from South W. Esplanade to east Midway Street to South San Jacinto Street to collect flows from the larger Park Hill basin watershed	City of San Jacinto	Construction for the project began on April 25, 2014 and was completed on July 2, 2015.
FLOOD	Construction of an underground storm drain that extends from a proposed detention basin at the intersection of Potter Road and De Anza Drive then southwest in De Anza to Young Street. The City of San Jacinto is administering the project.	City of San Jacinto and Transportation and Land Management	Project still pending

FLOOD	Underground storm drain from an outlet north of Holland Road southerly in Hawthorne Avenue to a collection system south of Craig Avenue	City of Menifee and Transportation and Land Management	Project Completed 3/01/2011
FLOOD	Project is an underground storm drain that extends from near Yale Street east on Stetson Avenue approximately 1 mile to Dartmouth Street	City of Hemet	Project completed on 09/04/2007
FLOOD	Project is an underground storm drain on Whittier Boulevard extending from the existing storm drain at Palm Avenue east to San Jacinto Street	Riverside County Flood Control and City of Hemet	Project completed on 08/23/2016
FLOOD	Underground storm drain extending from an existing storm drain in Meridian Street near Berkeley venue south in Meridian Street to Whittier Avenue.	Riverside County Flood Control and City of Hemet	Stage 1 completed on 06/21/2016. Stage 2 still pending approval.
FLOOD	Project is for major flood control project to extend from the San Jacinto River near Goetz Road east approximately 6 miles to Juniper Flats Road and incorporates both lined and unlined open channel, underground storm drains and two major detention basins.	City of Menifee and Transportation, Land and Management Agency	Project built in 4 stages. Some stages have been completed, but others still not finished.
FLOOD	Open channel along Nuevo Road from Dunlap Drive to Perris Valley Channel	City of Perris, Riverside County Transportation and Flood Control	Under new contract: Starting Jan. 2017 and will range about 2.5 yrs. for this entire project to be completed; first part will take about 180 days to complete, but time frame will be extended.

FLOOD	East Ironwood Avenue to Petit Street. Part of the work the City of Moreno Valley is doing in association with improvements to the Moreno Beach Drive & 60 freeway interchange.	City of Moreno Valley and Transportation and Land Management	Storm Drain Line K-1 – City completed design in 2014. Currently seeing construction funding of approximately $2.5m.
FLOOD	Project is an open channel extending from Nason Basin northeasterly approximately 2,500 feet to Ironwood Avenue	City of Moreno Valley and Transportation and Land Management Agency	Storm Drain Line K from Ironwood to the Nason Basin – RCFC&WCD secured an easement in 2014 to receive flows from Line K-1 noted above. Action completed in 2014.
FLOOD **EARTHQUAKE**	Norco Streambank Stabilization. Project consists of a soil cement toe protection structure constructed to the 100-year flood level at the base of the bluff, and a stable earthen buttress fill constructed to the top of the bluff from I-15 Bridge to Center Avenue	Riverside County Flood Control and Transportation Land & Management Agency	Project Completed
FLOOD **EARTHQUAKE**	Stabilization of Interstate 15 near Alhambra Street, as a part of the Prado Dam enlargement feature of the Santa Ana River Mainstream Project at no cost to the District. The project involves the construction of a toe-protection-only structure from Hamner Avenue downstream to approximately 5th Street	Transportation Land Management Agency	Project still pending
LANDSLIDE **EARTHQUAKE** **FLOOD**	Proposed improvements include installation of slope protection along the Green River Mobile Home Park, as well as the exposed slopes adjacent to the Green River Homeowners Association and Highway 91 just downstream of Highway 71.	Transportation and Land Management Agency	**Phase 2A-The** District has completed its acquisition of the necessary easements and fee interests from Riverside County and private lands. Acquisition of the necessary easements and fee interests from Caltrans is ongoing. Construction of Phase 2A was completed in Fiscal Year

			2015/2016.**Phase 2B-Construction** of this segment was completed in Fiscal Year 2014/2015.

2017 New Mitigation Strategies

2017 Mitigation Actions Table

Type of Hazard	Mitigation Actions	Departments/ Jurisdictions	Status Update/Timeframe	Potential Funding Source
All Hazards	CERT Training and retention	Riverside County Emergency Management Department	July 2018 – Ongoing On-going for the life of the current plan (yrs. 2018-2023). There will be one training in each of the county districts per year to ensure community members throughout the county get the opportunity to refresh and reinforce their CERT skills. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Homeland Security Program (SHSP)
All Hazards	Continue to utilize the Safety Element of the Riverside County General Plan and the Riverside County FD Master Plan as base documents to implement goals, objectives, and mitigation actions	All Riverside County Departments	On-going for the life of the current plan (yrs. 2018-2023). The Safety Element in the General Plan is continuously updated as new information and changes arise. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Earthquake	Working with CalOES & FEMA to revise the Southern California Catastrophic Earthquake Response Plan	All Cities in Riverside County	On-going for the life of the current plan (yrs. 2018-2023). Riverside County will continue to collaborate with Cal OES/ FEMA to improve and update this plan as needed. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund

Earthquake	Reviewed Office of Statewide Health Planning and Development (OSHPD), Structural Performance Categories and Nonstructural Performance Categories (SPC/NPC) Ratings of Acute Care Hospital Buildings and reported the findings at EM Healthcare Coalition	Riverside County Emergency Management Department & Riverside County Hospitals	On-going for the life of the current plan (yrs. 2018-2023).These reports will continuously be reviewed to make sure they are up to date and consistent with any changes. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	Hospital Preparedness Program (HPP) Grant
Earthquake	Worked with local City Emergency Manager (EM) to address '08 Golden Guardian Riverside County Shake Out Scenario/Assumptions	Riverside County Emergency Management Department	On-going for the life of the current plan (yrs. 2018-2023). County will continuously work with City EM to update and inform of changes or thoughts to improve the annual Shake Out Scenario and help the community increase their preparedness skills. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Earthquake	Mitigate potential seismic hazards through adoption and strict enforcement of current building codes	Riverside County Transportation, Land, Management Agency	On-going for the life of the current plan (yrs. 2018-2023). The codes will be revised and updated to be consistent with emergency measures that can help prevent earthquake impacts in county buildings. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Pandemic Flu	Provide training on immunization techniques	Riverside University Health System-Public Health	On-going for the life of the current plan (yrs. 2018-2023). Continue training to teach any new techniques, strategies, and to ensure all staff are proficient. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	Public Health Emergency Preparedness Grant (PHEP)

Pandemic Flu	Participated and conducted a Non-Medical Intervention Tabletop Exercise	Riverside County Emergency Management Department & Riverside University Health System-Public Health	Completed on 09/28/2015	Pan Flu Grant PHEP Grant
Pandemic Flu	Participated and conducted a Flu vaccination exercise	Riverside County Emergency Management Department & Riverside University Health System-Public Health	Completed on 11/10/2016	Pan Flu Grant PHEP Grant
Pandemic Flu	Generate a draft Crisis Care Plan	Riverside County Emergency Management Department & Riverside University Health System-Public Health	Completed 08/30/2016	Pan Flu Grant PHEP Grant HPP Grant
Pandemic Flu	Training Medical Reserve Corp (MRC) in hospital surge exercises	Riverside County Emergency Management Department	Started in 2011 and is on-going for the life of the current plan (yrs. 2018-2023). Continue training to keep updating and informing volunteers to increase their skills. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	HPP Grant State Homeland Security Program (SHSP)
Pandemic Flu	Training Medical Reserve Corp. (MRC) volunteers in Alternate Care Site	Riverside County Emergency Management Department	Completed in 2014	HPP Grant State Homeland Security Program (SHSP)Pan Flu Grant
Wildland Fire	Create wildfire protection zones that reduce the risks to citizens and firefighters from fire dangers	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continuously update and develop protection zones that can help decrease wildfire risks in the community. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Strengthen defensible space inspections in fire prone areas	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continue inspections in locations that are susceptible to fires. This action will be reassessed during	State Mission and/or Grant funding

			the monitoring and update phase of the County's 2017 LHMP.	
Wildland Fire	Continue maintenance of existing fire roads throughout the county to provide fire department access	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continue keeping the roads well paved and easy to have fire trucks be able to drive on. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Fuel reduction projects throughout the county to reduce fire potential	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continuously improve and develop projects to lower the impact of fires in the county. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Develop and enforce construction and design standards that ensure the development incorporates fire prevention features	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continuously enforce and update measures to prevent fire hazards. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Conduct and implement long range fire safe planning through code adoption/policies consistent with the Safety Element of the General Plan	Riverside County Fire Department & CAL Fire & Riverside County Transportation, Land, Management Agency (Planning Division)	On-going for the life of the current plan (yrs. 2018-2023). Continuously implement code policies to integrate them into the Safety Element as they are developed/updated and approved. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Ben Clark Training Center to provide wildland fire protection related classes to fire personnel	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continuously make sure that this center is available to provide wildland fire protection classes to fire staff to improve their skills on fire mitigation and preparedness. This action will be reassessed during the monitoring	State Mission and/or Grant funding

			and update phase of the County's 2017 LHMP.	
Wildland Fire	Continue wildland fire suppression/preparedness to maintain a state of readiness throughout the year	Riverside County Fire Department & CAL Fire	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide skills training to the community to be prepared for disasters. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Rapid intervention, identification and mitigation of Goldspot Oak Bore Beetle (GSOB) trees at various infestation levels on State Responsibility Area (SRA) lands throughout the county. Herbicide or tree removal if necessary	CAL Fire Unit Forester	On-going for the life of the current plan (yrs. 2018-2023).Continuously monitor infestation levels of GSOB trees to continue removing infested trees if necessary. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Rapid intervention, identification and mitigation of Pine Bark Beetle infestation, epidemic during times of drought. Removal of trees that are symptomatic or the use of pesticide when applicable	CAL Fire Unit Forester	On-Going for the life of the current plan (yrs. 2018-2023).Continuously monitor infestation levels of Pine Bark Beetle to continue removing infested trees or to continue using pesticides if necessary. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Wildland Fire	Continue Truck Trail and road maintenance to provide access for fire suppression vehicles and personnel.	CAL Fire Unit Forester	On-Going for the life of the current plan (yrs. 2018-2023). Continuously preserve and improve Truck Trail and roads, if needed, for rapid available access to fire suppression vehicles. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding

Wildland Fire	Continue Fire Road maintenance of culverts and road prisms in open space areas on SRA land to allow for adequate drainage.	CAL Fire Unit Forester	On-Going for the life of the current plan (yrs. 2018-2023). Continuously preserve and improve culverts and road prisms, if needed, for sufficient drainage. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	State Mission and/or Grant funding
Electrical Failure	Coordinated with Southern California Edison to be included in their power outage notifications	Riverside County Emergency Management Department	On-going for the life of the current plan (yrs. 2018-2023). EMD joined SoCal Edison's recipient list as of Dec. 2016 to continuously be informed of any emergency notifications to help prevent electrical failure impacts. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Emergent Disease/ Contamination	Drafted a Region VI Highly Contagious Disease Transportation Plan	Riverside County Emergency Management Department	Completed on 12/08/2016	HPP Grant Ebola Grant
Emergent Disease/ Contamination	Facilitated a Region VI Highly Contagious Disease Transportation Tabletop Exercise	Riverside County Emergency Management Department	Completed on 09/29/2016 The situation manual for this was completed on 11/14/2016	HPP Grant Ebola Grant
Emergent Disease/ Contamination	Drafted a Riverside County Viral Hemorrhagic Fever Preparedness and Response Plan (VHF Plan)	Riverside County Emergency Management Department & Riverside University Health System-Public Health	Completed on 11/2016	HPP Grant Ebola Grant
Cyber Attack	**Enterprise Intrusion Prevention System (IPS)** Protects the county network from Internet-based threats and attacks (~140,000 attacks/day on average)	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continue to update and maintain the IPS network to protect the county from any form of cyber-attacks or threats. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund

Riverside Operational Area
Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)

July 2018

Cyber Attack	**Enterprise Breach Detection System** Inspects all internal/lateral county network traffic for indicators of compromise (IOCs) enabling the ISO to rapidly detect, respond to, contain, and prevent cyber-attacks, malware outbreaks, network reconnaissance, data exfiltration, and C2 (command & control) and botnet activities	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continuously inspect the county network to detect forms of threats or attacks. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Cyber Attack	**Albert Sensor** Monitors and reports to the Center for Internet Security (CIS) Multi-State Information Sharing and Analysis Center (MS-ISAC) all Domain Name System (DNS) and NetFlow traffic for correlation with the Department of Homeland Security's threat intelligence database for real-time alerting of malicious network connections to blacklisted IP address on the Internet	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continuously maintain the Albert Sensor in order keep having the association with the Department of Homeland Security's database on alerting network threats for the county. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund

Cyber Attack	**Countywide Security Awareness Training** SANS Securing The Human information security and privacy training modules deployed on county learning management system (LMS) Educates our workforce on how to be extra vigilant and things to look out for to avoid falling victim to a targeted attack	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide training to the county's workforce on signs of cyber-attacks and prevent them from being a victim of these attacks. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Cyber Attack	**Enterprise Security Information Event Management (SIEM)** Serves as the county's centralized security event log management repository and correlation engine	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continue to maintain the SIEM to monitor and prevent security threats. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Cyber Attack	**Enterprise Internet Proxy (Web Filter)** Prevents county employees and malware from accessing compromised/malicious websites and C2 (command & control) servers, in addition to non-county authorized websites based on category/content filtration policies/rules	Riverside County Technology Information	May 2017 – December 2018 Product (Blue Coat Proxy Advance Secure Gateway (ASG)) has been procured and is in the process of being deployed.	County General Fund

Cyber Attack	**Governance, Risk, & Compliance (GRC) Software Suite** Platform on which our security operations (active network monitoring, breach detection, incident response, business impact analysis, threat containment/eradication, alerting/reporting, process workflow automation, security audits, risk assessments/register, regulatory compliance checks) will be carried out	Riverside County Technology Information	Implementation estimated to begin in June 2017 – July 2018. Product (RSA Archer GRC) has been procured and is in the process of being deployed.	County General Fund
Cyber Attack	**Security Operations Center (SOC)** Planning phase completed, construction estimated to begin in September 2017	Riverside County Information Technology	September 2017 – September 2018. The County's Cyber Security Operations Center (SOC) is under construction.	County General Fund
Cyber Attack	**Information Security Forum (ISF)** Convene on a quarterly basis with department information security officers/liaisons to discuss key security topics, risk trends, and other related matters, including: Formation of a Critical Security Incident Response Team (CSIRT)	Riverside County Information Technology	October 2018 – ongoing This forum will be on-going for the life of the current plan (yrs. 2018-2023). Will continue to conduct constant security incident/breach simulations and tabletop exercises that can help prevent cyber-attacks in the future. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP. The ISO is in the process of identifying members to serve on the Critical Security Incident	County General Fund

	Conducting security incident/breach simulations and tabletop exercises		Response Team (CSIRT). Estimated timeline for formation and initial kickoff meeting is October 2018.	
Terrorist Event	SWAT team trained to respond to terrorism events	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide training to reflect personnel attrition and train on new tactics. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Terrorist Event	Hazard Device Team trained to respond to terrorism events	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide training to reflect personnel attrition and train on new tactics and trends. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Terrorist Event	Sheriff Emergency Response Team trained to respond to terrorism events	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide training to reflect personnel attrition and train on new trends. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Terrorist Event	Sheriff personnel are assigned to the Joint Terrorism Task Force	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Continuously integrate new sheriff personnel to improve this group's structure and capabilities. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Terrorist Event	Ben Clark Training Center provides terrorism related classes for Law	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Classes are funded each year through the State Homeland Security Program (SHSP) to	County General Fund

	Enforcement and First Responders.		continuously educate and train personnel on new skills and improve their abilities. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	
Terrorist Event	Tactical response training	Riverside County Sheriff & Riverside County Fire Department	On-going for the life of the current plan (yrs. 2018-2023). Continuously train and improve on tactical response. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Communications Failure	**County of Riverside Network (CORNET)** Redundant Internet connections Backbone links are configured with a mesh topology to provide full redundancy	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continuously configure links to prevent the termination of internet connections. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund
Communications Failure	**Enterprise Voice Network (VoIP)** Centralized SIP trunking for ingress/egress PSTN access via 8 geographically separated locations Carrier failover protection for inbound voice traffic Enterprise call processing for VoIP Endpoints are logically and physically separated into 3 datacenters ensuring a High-	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide accessibility to phone carrier connection and call processing. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund

	Availability solution Remote site routers configured for SRST; in times of WAN outages, local IP Phones will re-register to local equipment, providing inter-site calling and access to the PSAP via carrier provided analog circuits			
Communications Failure	**Enterprise Best Practices** Internal escalation contact list for all essential personal readily available 24x7 On-Call staffing availability for both Voice and Data Networks Vendor support available at 24x7x4 for all critical Network and Voice equipment Regular professional staff training on emerging technologies Frequent equipment configuration backups to SAN Critical Enterprise level equipment is located at facilities with full battery and generator backup power	Riverside County Technology Information	On-going for the life of the current plan (yrs. 2018-2023). Continue to update contact list when staff support is needed in case of emergencies. Continue to train staff on technologies that arise and equip facilities with power backup supplies. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund

Communications Failure	**Enterprise Emergency Notification System** InformaCast Advanced on-premise notification solution for immediate reach to the County's 20,000+ VoIP endpoints InformaCast Mobile cloud-based notification solution to extend the County's reach off-network to mobile devices such as cellular phones and tablets	Riverside County Technology Information	On-Premise solution has been rolled out to all County VoIP endpoints. Mobile Solution has been rolled out to EMD. Mobile solution is ready to be rolled out to other departments as requested. On-going for the life of the current plan (yrs. 2018-2023). Continue to have a notification system to be able to have the ability to connect with off-network devices in case of a communications failure, including Wi-Fi. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund Department Funds; departments who wish to take advantage of this service will be billed back to the departments based on how many users
Communications Failure	**Network Connectivity** Use of Cellular based redundant WAN links for critical county locations. Introduction of MPLS technologies to provide alternate network paths for County locations	Riverside County Technology Information	Several locations have purchased a Cellular based redundant WAN link . Solution can be purchased by other departments. Installation can take up to 6 weeks to install, based on equipment availability. On-going for the life of the current plan (yrs. 2018-2023). Continue to provide alternate network paths for County locations in the case of a communication failure. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund Department Funds; billable by the cellular carrier to requesting departments

Flood	**University Wash Channel, Stage 3 Project No. 221-1-8-00120-03-12** This project will increase public safety and improve local economics by retrofitting an older, built-out commercial/industrial area with drainage infrastructure to alleviate repeated flood damage to existing businesses. The project will also address street and intersection flooding	Riverside County Flood Control and Water Conservation District	Notice To Proceed 2/21/17 Completed 11/14/17	Riverside County Flood Control funds Cost: $3,044,500
Flood	**Monroe MDP – Monroe Channel Project No. 1-8-00071 Stage 4** At request of the City of Riverside, replacement of City's existing open channel with underground reinforced concrete box with 10-year storm capacity. Project limits are from California Avenue upstream to Magnolia Avenue	Riverside County Flood Control and Water Conservation District	Expected to be advertise in 4th Quarter 2016 Notice to Proceed 8/30/17 Completed 5/01/18	Riverside County Flood Control funds Cost:$2,489,067
Flood	**Jurupa – Pyrite MDP Line A-2 Project No. 1-8-00234 Stage 1** Master planned lateral stormdrain to Jurupa Channel. Project is east-west drain crossing	Riverside County Flood Control and Water Conservation District	30% Plans & R/W Acquisition as of 1/10/17 Projected Start: 9/2018 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $338,332

	Agate Street about 1,000 feet south of Jurupa Road. Outlet point at Jurupa Channel is unimproved and likely to remain so			
Flood	**University MDP Line 3 Project No. 1-8-09020 Stage 1** The MDP proposes Line 3 as approximately 2,900 feet of 30" RCP east in Blaine Street then northeast to Blaine Street Retention Basin. The Blaine Street Retention Basin is located 600 feet north of Blaine Street between Valencia Hill Drive and Mt. Vernon Avenue. Budgeted for scoping study and evaluation of FEMA map floodplain limits only	Riverside County Flood Control and Water Conservation District	Pending approval Projected Start: 12/2020 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $2,926,028
Flood	**Santa Ana River Stabilization Project No. 1-8-00010 Stg. 90** The USACE is expected to initiate restoration of the federally constructed reach of the Santa Ana River Levee system downstream of San Bernardino County line to Tequesquite. Exact form of	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $10,685,000

	project not set. Work will likely include repair of groins and toe protection			
Flood	**Box Springs Dam – Outlet Modification Project No. 1-8-00041** Reconstruct outlet structure to prevent blockage from sediment accumulation	Riverside County Flood Control and Water Conservation District	Pending until Woodcrest Dam is complete 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $981,842
Flood	**Sycamore Dam – Outlet Structure Modifications Project No. 1-8-00042** This project will upgrade the level of safety and serviceability. Initial project components include the repair/reinforcement of the existing outlet channel; construction of a new debris rack structure; erosion controls on the embankment of the dam; construction of a safer access road into the facility; design for a safer routing of flood waters from the emergency spillway to Central Avenue; and the installation of a control section to measure outflow from the outlet pipe	Riverside County Flood Control and Water Conservation District	Pending until Woodcrest Dam is complete 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $1,854,991

	of the dam. Completion of this project is planned to follow the Woodcrest Dam Outlet Modification project.			
Flood	**Alessandro Dam Outlet Modification Project No. 1-8-00043** Reconstruct outlet structure to prevent blockage from sediment accumulation	Riverside County Flood Control and Water Conservation District	Pending until Woodcrest Dam is complete 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $907,682
Flood	**Prenda Dam Outlet Modification Project No. 1-8-00044** Reconstruct outlet structure to prevent blockage from sediment accumulation	Riverside County Flood Control and Water Conservation District	Pending until Woodcrest Dam is complete 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $1,238,312
Flood	**Woodcrest Dam Outlet Modification Project No. 1-8-00045** This project will upgrade the level of safety and serviceability. The approved Project Charter identifies the primary scope of work for the project as follows: design and construction of a new inlet structure to reduce potential for clogging of the outlet works;	Riverside County Flood Control and Water Conservation District	Development of design plans and specifications on hold until latest Geotechnical investigation is complete Projected Start: March 2019 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $2,216,529

	rehabilitation of the existing outlet gate assembly and control stem; implementation of an automated gate control system; rehabilitation of the outlet pipe; restoration of the outlet channel; and installation of surficial erosion controls on the surface of the dam embankment. Once completed, this project will serve as an example for performing similar upgrades to the remaining Riverside Reservoirs			
Flood	**North Norco Channel Stage 10 Project No. 222-2-8-00140-10-12** The project is located just upstream of River Road within the city of Norco in Riverside County, California. This project consists of approximately 550 lineal feet of triple cell reinforced concrete box and 125 lineal feet of open concrete channel transition, will replace the existing interim dirt channel. The project remedies ongoing flooding	Riverside County Flood Control and Water Conservation District	Completed 9/9/14	Riverside County Flood Control funds

	problems in the area thus resulting in positive impacts to residents and businesses			
Flood	**Corona MDP Line 5 Stage 1 Project No. 2-8-00280** This project includes the construction of an underground storm drain beginning in Sherman Avenue south of Railroad Street and extending down Railroad Street westerly to Smith Street. The City is willing to undertake the design and construction of this project using District funding.	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $1,397,201
Flood	**Corona MDP Line 52 Stage 1 Project No. 2-8-00350** An underground storm drain extending north from Third Street along E. Grand Boulevard then under the 91 Freeway to Temescal Creek Channel	City Of Corona	Notice to Proceed 7/29/17 Expected Completion: Summer 2018	Riverside County Flood Control funds City of Corona Funds Cost: $4,522,000
Flood	**Coldwater Canyon Structural Improvements Project 2-8-00505** Proposed conceptual improvements include 1) reducing	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $6,005,806

	flood risk and nuisance to traveling public on Temescal Canyon Road at the intersection of Glen Ivy Road; and 2) an armored berm along the east bank of Coldwater Wash downstream of the intersection of Temescal Canyon Road and Glen Ivy Road. The armored berm would prevent the migration of the active Coldwater Wash Channel, thereby protecting the west side of the Mountain Cove Development. Conceptual improvements are pending friendly acquisition of the underlying parcels needed for the project			
Flood	**Coldwater Canyon Floodplain Acquisition Project No. 2-8-00505** Funded portion of project includes a hydrologic and geomorphologic assessment of Coldwater Canyon Wash from Glen Ivy Road to Temescal Wash. Study will evaluate the stability of Coldwater Canyon	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: included in the $6,005,806 amount for Coldwater Canyon Structural Improvement project listed above

	Wash and recommend potential minimalist interventions, if necessary, to protect Squaw Mountain Bridge and prevent erosion of Painted Hills development canyon slopes along Coldwater Canyon Wash. Balance of funds would support potential interventions recommended by the report including floodplain buyout			
Flood	**Southeast Compton Wash At Corona Sanitary landfill Project No. 2-8-09054** Riverside County Waste Management District has requested assistance solving ongoing flooding and erosion problems along the southeast side of the landfill	Riverside County Waste Management District**	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $500,000

Flood	**Lake Mathews Estates Water Quality Pond Project No. 2-8-09058** Proposed in the "Drainage Water Quality Management Plan for the Lake Matthews Watershed", this roughly 10-acre project is to be located on the south side of Cajalco Road about ¾-mile west of Wood Road. The project will capture first flush runoff from Cajalco Creek and carry it to an off-channel pond to be treated and/or infiltrated	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $2,794,983
Flood	**Temescal Wash Floodplain Project No. 2-8-00052** Acquisition of floodplain area for flood protection, water conservation and habitat mitigation banking	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $23,534,000
Flood	**Arroyo Del Toro Channel Stage 1 Project No. 223-3-8-00170-01-12** This project collects flows that pass under Interstate 15, flow through the cemetery and flood the intersection of Riverside Drive	Riverside County Flood Control and Water Conservation District	Completed 6/16/15	Riverside County Flood Control funds

	and Collier Avenue. The flows will now be collected in a channel and conveyed via an underground storm drain system to the Collier Marsh area			
Flood	**Ortega Channel Retrofit Project No. 3-8-00070** Project will replace a portion of the clog-prone storm drain with a more easily accessible and maintainable open channel	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $1,628,761
Flood	**LITTLE LAKE MDP LINE B, STG 1 STETSON AVENUE CHANNEL, STG 7 aka HEMET MDP LINE D Project Nos. 224-4-8-00265-01-12 224-4-8-00211-07-12** The District constructed a segment of the District's Little Lake MOP Line B. This infrastructure will diminish neighborhood flooding and damage to private property and businesses and improve the safety of the traveling public during storm events. This new drain will also permanently reduce	Riverside County Flood Control and Water Conservation District	Stage 1 Completed 06/21/16 Stage 2 Pending approval Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $6,398,777

	flood-related street maintenance and repair costs for the City of Hemet. Little Lake MDP Line B Stage 1 is located primarily within the City of Hemet, with small portions extending into the City of San Jacinto and unincorporated Riverside County beginning approximate 300 feet north of Berkley Ave and terminating approximately 200 feet south of Florida			
Flood	**Homeland MDP Line 2, Stage 2 Project No. 224-4-8-00337-02-12** The District constructed a segment of drainage infrastructure described in the District's Romoland Master Drainage Plan as Romoland MOP Line A, Stages 4, 5 and 6, Romoland MOP Lines A-2 and A-3, Stage 1, and Briggs Basin. In conjunction with the District's Homeland MDP Line 1, Stage 1, completion of this drainage infrastructure will reduce the	Riverside County Flood Control and Water Conservation District	Completed 6/5/12	Riverside County Flood Control funds

	floodplain by approximately 1, 762 acres and enable revisions to the FEMA Flood Insurance Rate Maps that result in a significant reduction in flood insurance premiums. The District's Homeland MDP Line 1, Stage 1 project is currently ongoing with an anticipated completion in February 2017			
Flood	**Sunnymead MDP Line P-6 Stage 2 Project No. 224-4-8-00716-02-12** The District constructed a segment of drainage infrastructure described in the District's Sunnymead Master Drainage Plan which remedies ongoing flooding problems in the area thus resulting in positive impacts toresidents and businesses.	Riverside County Flood Control and Water Conservation District	Completed 3/25/2014	Riverside County Flood Control funds
Flood	**San Jacinto MDP Line C, Stage 2, Lines C-4, C-5 & B Project No. 224-4-8-00124-02-12** The District constructed a segment of drainage	Riverside County Flood Control and Water Conservation District	Completed 6/30/15	Riverside County Flood Control funds

	infrastructure described in the District's San Jacinto Master Drainage Plan, which remedies the ongoing flooding problems at the intersections of San Jacinto Avenue and Menlo Avenue, San Jacinto Avenue and Midway Street, and Santa Fe Street and Midway Street. Consequently, the removal of ponding water at these intersections during storm events improves traffic and pedestrian safety and public access to the businesses along San Jacinto and Menlo Avenues. The District partnered with the City of San Jacinto to further improve normal residential traffic safety by replacing and reconstructing Midway Street between San Jacinto Avenue and Santa Fe Street			
Flood	**West End Moreno MDP Line LL Project No. 224-4-8-00783-01-12** The District constructed a segment of drainage infrastructure described in the	Riverside County Flood Control and Water Conservation District	Completed 5/12/15	Riverside County Flood Control funds

	District's West End Moreno MDP which remedies ongoing flooding problems in the area, thus resulting in positive impacts to residents and businesses			
Flood	**Romoland MDP Line A, STGS 4,5,6, Homeland MDP Line 1 Briggs Basin, Romoland MDP Lines A-2 and A-3 Project No. 224-4-8-00310-04-12** The District constructed a segment of drainage infrastructure described in the District's Romoland Master Drainage Plan as Romoland MOP Line A, Stages 4, 5 and 6, Romoland MOP Lines A-2 and A-3, Stage 1, and Briggs Basin. In conjunction with the District's Homeland MDP Line 1, Stage 1, completion of this drainage infrastructure will reduce the floodplain by approximately 1, 762 acres and enable revisions to the FEMA Flood Insurance Rate Maps that result in a significant	Riverside County Flood Control and Water Conservation District	Completed 8/23/16	Riverside County Flood Control funds

	reduction in flood insurance premiums. The District's Homeland MDP Line 1, Stage 1 project is currently ongoing with an anticipated completion in February 2017			
Flood	**Little Lake MDP Line B Stage 2 Project No. 4-8-00265** An underground storm drain from just south of Florida Avenue, southerly in Meridian Street to Whittier Avenue.	Riverside County Flood Control and Water Conservation District	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $6,804,257
Flood	**San Jacinto River Stage 3 Project No. 4-8-00020** "Stage 3" covers the nearly 10-mile river reach beginning at the entrance to Railroad Canyon and ending upstream at the Ramona Expressway crossing near the Bernasconi Hills. This environmentally and fiscally challenged project has been through several evolutions and has been essentially dormant for nearly a decade. Funding shown is for intensive planning/engineering study of options for managing future development. Goal is to develop a viable project for the San Jacinto River from Ramona Expressway to Railroad Canyon considering flood management, transportation, environmental and other opportunities and constraints	Riverside County Flood Control and Water Conservation District	Pending approval Projected Start: 11/2019 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds ADP (Area Drainage Plan) Funds Cost: $70,000,000

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Flood	**Gilman Home Channel Lateral A Stage 3 Gilman Home Channel Stage 90 Project No. 225-5-8-00171-03-12** The District constructed a segment of drainage infrastructure described in the District's Banning Master Drainage Plan which remedies ongoing flooding problems in the area, thus resulting in positive impacts to residents and businesses. Moreover, this project will enable revision of the FEMA Flood Insurance Rate Maps in the impacted area resulting in a significant reduction in flood insurance premiums. Many	Riverside County Flood Control and Water Conservation District	Completed 9/22/15	Riverside County Flood Control funds

	owners with federally insured home loans will realize savings of several thousands of dollars per year			
Flood	**Beaumont MDP Line 16 Stage 1 Project No. 5-8-00201** Project would build MDP Line 16 in Grand Avenue from Beaumont Cherry Valley Water District (BCVWD) infiltration ponds easterly to Bellflower Avenue as an element of a cooperative project with the BCVWD to provide both flood control and storm water capture to recharge groundwater	Riverside County Flood Control and Water Conservation District	Pending approval Projected Start: 12/2020 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $5,353,074
Flood	**Eagle Canyon Dam Stage 1 Project No. 6-8-00190** The District constructed a segment of drainage infrastructure described in the District's Palm Springs Master Drainage Plan. Construction of this project also includes remediation of potentially hazardous and nonhazardous illegally dumped	Riverside County Flood Control and Water Conservation District	Completed 11/17/15	Riverside County Flood Control funds

	materials and remedies ongoing flooding problems in the area, thus resulting in positive impacts to residents and businesses. Additionally, Palm Springs MDP Line 43 and Lateral 43A, the underground dam outlet, is currently under construction and completion is anticipated for February 2016. Completion of the underground infrastructure will enable revisions to the FEMA Flood Insurance Rate Maps in the impacted area immediately downstream of Eagle Canyon and will result in a significant reduction in flood insurance premiums			
Flood	**Palm Springs MDP Line 43 and Lateral 43A Project No. 226-6-8-00163-01-12** The District constructed a segment of drainage infrastructure described in the District's Palm Springs Master Drainage Plan as Palm Springs MOP Line 43 and Lateral	Riverside County Flood Control and Water Conservation District	Completed 3/15/16	Riverside County Flood Control funds

	43A. Construction of this project serves as the underground outlet to the District's Eagle Canyon Dam facility that was completed on September 21, 2015 with the Notice of Completion accepted by the Board as Agenda Item Number 11-1 on November 17, 2015. Completion of both District facilities will enable revisions to the FEMA Flood Insurance Rate Maps in the impacted area immediately downstream of Eagle Canyon Dam and will result in a significant reduction in flood insurance premiums			
Flood	**Murrieta Creek Channel (Phase II & III) Project No. 7-8-00021** Murrieta Creek Flood Control Project from Old Town Temecula to Elm Street in Murrieta	Riverside County Flood Control and Water Conservation District/United States Army Corps of Engineers*	Pending approval 5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $82,000,000
Flood	**Whitewater River Levee Restoration Project No. 6-8-00250** Restoration work to increase freeboard and bring levee	Riverside County Flood Control and Water Conservation District	Pending – Full scope of restoration work not yet established but funding figure shown is based on preliminary engineer's estimate	Riverside County Flood Control funds Cost:1,260,000

	adjacent to Cimarron Golf Resort into compliance with FEMA certification guidelines		5 year CIP (Capital Improvement Plan) Projected start and end: during the life of the plan (2018-2023)	
Flood	**Palm Canyon Wash – Cherley Creek Levee Restoration Stage 90 Project No. 6-8-00040** Major construction to bring levee serving small tributary upstream of South Palm Canyon Wash into compliance with FEMA certification guidelines. Project will be combination of RSP and soil-cement lined channel and levee	Riverside County Flood Control and Water Conservation District	Expected Advertise Date: 2nd Quarter 2018 Projected Start: 08/2019 Projected End: during the life of the plan (2018-2023)	Riverside County Flood Control funds Cost: $6,187,021
Flood	**Banning MDP Line D-2 Stage 1 Project No. 5-8-00169** This project is over one mile of underground storm drain that connects to the existing Ramsey Street Storm Drain at the intersection of Hargrave Street and Ramsey Street. It includes Line D-2, Stage 1 which will continue northerly along Hargrave Street for approximately 5,250 feet before terminating at Indian School	RCFC/City of Banning	Notice to Proceed: 5/15/17 Completed: 2/27/18	Riverside County Flood Control funds

	Lane. Line D-2A, Stage 1 will tie into Line D-2 at the intersection of Hargrave Street and Theodore Street. Line D-2A will continue westerly along Theodore Street for approximately 600 feet before terminating at Florida Street.			
Civil Disorder	Trained and equipped Mobile Field Force Teams throughout the county	Riverside County Sheriff	On-going for the life of the current plan (yrs. 2018-2023). Continuously provide training to reflect personnel attrition; Less-lethal equipment acquired. This action will be reassessed during the monitoring and update phase of the County's 2017 LHMP.	County General Fund

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APPENDIX D – Public Outreach Presentations and Meetings

Please see Attachment D: Agendas and Sign-ins for supporting documentation.

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Public Outreach Presentations and Updates

Date	Name of Meeting, Location	Type of Presentation	Number Attending	Hours
6/22/2016	Western Riverside Emergency Council (WREC) Meeting, Riverside	Informed Council of upcoming Plan update and encouraged participation	19	20 mins.
7/14/2016	Operational Area Planning Committee (OAPC) Meeting, Beaumont	Informed OA on upcoming Plan to update	163	15 mins
9/19/2016	Palo Verde COMM. Meeting, Blythe, CA.	LHMP discussion, Local Hazard Mitigation Plan update process, encouraged East County participation and Public Outreach	16	1
9/29/2016	Email Distribution #1	Email blast, Distributed contact verification emails for partnering jurisdictions and agencies. Provided LHMP informational guides and resources.	–	–
10/6/2016	Local Hazard Mitigation Plan Steering Committee Kick-Off for County Departments	Overview of Hazard Mitigation FEMA 2011 LHMP Review Guide Update Process County Inventory Checklist County Risk Assessment Participants, New, Returning, and Not Participating	19	2
10/11/2016	Emergency Management Project Committee	Project Overview, LHMP introduction, planning process	34	10 mins.
10/13/2016	Operational Area Planning Committee (OAPC) Meeting, Beaumont	Updated OA on progress of update, offered participants opportunity to reach out to county for technical support, offered public opportunity to ask questions and provide comment (no comments made)	64	2

10/19/2016	Steering Committee Email Distribution #1	Informed the members of the google drive that contains LHMP documentation for additional support Informed about the next steps and what about the next meeting date Provided contact information for EMD LHMP staff	–	–
12/1/2016	Email Distribution #2	Invitation to LHMP Template workshop, update on county hazard identification/ranking, and general information on where they should be in the update process	–	–
12/6/2016	Tribal Workshop, Riverside	Overview of Hazard Mitigation FEMA 2011 LHMP Review Guide County Update Process and Progress Mitigation Websites and Resources Technical Support	7	1
12/8/2016	City Workshop, Riverside	Overview of Hazard Mitigation FEMA 2011 LHMP Review Guide County Update Process and Progress Mitigation Websites and Resources Technical Support	15	2
12/8/2016	Mountain Emergency Communications COMM. Meeting, Idyllwild, CA	LHMP discussion, Local Hazard Mitigation Plan update process	7	2
12/13/2016	Special District Workshop, Riverside	Overview of Hazard Mitigation FEMA 2011 LHMP Review Guide County Update Process and Progress Mitigation Websites and Resources Technical Support	8	1
12/15/2016	School District Workshop, Riverside	Overview of Hazard Mitigation FEMA 2011 LHMP Review Guide County Update Process and Progress Mitigation Websites and Resources Technical Support	7	2.5
12/15/2016	Northwest COMM. Meeting, Jurupa Valley, CA	LHMP discussion, Local Hazard Mitigation Plan update process	12	2

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12/20/2016	Southwest COMM. Meeting, Murrieta, CA	LHMP discussion, Local Hazard Mitigation Plan update process	6	2
12/29/2016	Steering Committee Email Distribution #2	Sent each member questions about specific hazards that pertained to the department they work for	–	–
1/4/2017	Email Distribution #3	Informed LHMP participants of additional LHMP workshops that will be hosted to provide further assistance	–	–
1/11/2017	Local Hazard Mitigation Plan Steering Committee, Riverside	Group Discussion, Hazard Identification/Ranking Final Review, Mitigation Actions and Strategies Brainstorm	16	2
1/12/2017	Operational Area Planning Committee (OAPC) Meeting, Beaumont	Updated OA on progress of update, offered participants opportunity to reach out to county for technical support, offered public opportunity to ask questions and provide comment (no comments made)	74	2
1/19/2016	Steering Committee Email Distribution #3	Thanked all members for participating in the previous meeting Provided the risk scores of the hazards that were discussed at the previous meeting Provided the most current updates for the mitigation actions from 2012 & asked for each of them to provide new actions for current county hazards Informed about the next meeting date	–	–
2/7/2017	City Workshop, Riverside	Answered LHMP questions & concerns Provided additional assistance if needed Reviewed LHMP drafts if needed	10	1
2/8/2017	School District Workshop, Riverside	Answered LHMP questions & concerns Provided additional assistance if needed Reviewed LHMP drafts if needed	2	1
2/9/2017	Special District Workshop, Riverside	Answered LHMP questions & concerns Provided additional assistance if needed Reviewed LHMP drafts if needed	4	1

2/14/2017	Email Distribution #4	Informed LHMP participants about the final 2017 LHMP County Hazard Ranking. Talked about a possible LHMP Training that EMD is deciding on hosting. Informed about the Senate Bills 1000 & 379. Provided a link to help participants obtain maps for their jurisdiction if they are having trouble with Hazus	–	–
2/23/2017	Email Distribution #5	Informed LHMP participants about the cancellation of the April workshops due to the substation of having the LHMP FEMA Training Informed about the confirmation of the FEMA G-318 Training that will be hosted April 3-4 and provided the sign-up link Informed that the June workshops are still going to be held to provide any additional assistance on the plan	–	–
3/1/2017	Steering Committee Reminder Email	Reminded members that the date for submitting new mitigation actions for the current top 10 county hazards was approaching	–	–
3/15/2017	Palo Verde COMM. Meeting, Blythe, CA	LHMP discussion, Local Hazard Mitigation Plan update process	18	1.5
4/21/2017	Steering Committee Email Blast #4	Provided minutes from previous meeting, informed about reviewing LHMP mitigation actions and goals/objectives, sent calendar invite for next meeting	–	–
4/24/2017	Steering Committee Email	Sent selected committee members to provide input on LHMP hazard profiles depending on the hazard that corresponds to the department they represent	–	–
6/5/2017	Tribal Workshop, Riverside	Answered LHMP questions & concerns Provided additional assistance if needed Reviewed LHMP drafts if needed	4	1

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6/6/2017	City Workshop, Riverside	Answered LHMP questions & concerns Provided additional assistance if needed Reviewed LHMP drafts if needed	8	1
6/7/2017	School District Workshop, Riverside	Answered LHMP questions & concerns Provided additional assistance if needed Reviewed LHMP drafts if needed	6	1
6/8/2017	Special District Workshop, Riverside	Answered LHMP questions & concerns Provided additional assistance if needed Reviewed LHMP drafts if needed	6	1
7/13/2017	Operational Area Planning Committee (OAPC) Meeting, Beaumont	Updated OA on progress of update, offered participants opportunity to reach out to county for technical support, offered public opportunity to ask questions and provide comment (no comments made)		2
8/17/2017	Local Hazard Mitigation Plan Steering Committee, Riverside	Review completed sections for finalization	10	1
9/2/2017	Indio Preparedness Month Booth, Home Depot, at 42100 Jackson Street from 9 a.m. - 12 p.m.	Personal preparedness and mitigation information		3
9/5/2017	Twitter Post	LHMP and NFIP information		
9/9/2017	Riverside Preparedness Month Booth, Galleria at Tyler, 1299 Galleria at Tyler from 11 a.m. - 3 p.m.	Personal preparedness and mitigation information		4
9/9/2017	Farm Barn, Wildomar Preparedness and Mitigation Presentation	Personal preparedness and mitigation information		1
9/12/2017	County Preparedness Month Booth, County of Riverside Administration Center, 4080 Lemon	Personal preparedness and mitigation information		5

	Street, from 10:30 a.m. - 1:30 p.m.			
9/16/2017	Lake Elsinore Preparedness Month Booth, 710 W. Graham Ave., Lake Elsinore, CA	Personal preparedness and mitigation information		4
9/16/2017	Perris Preparedness Month Booth, Walmart, 1800 N. Perris Blvd from 8 a.m. - 12 p.m.	Personal preparedness and mitigation information		4
9/23/2017	Jurupa Valley Preparedness Month Booth, K-Mart, 7840 Limonite Avenue from 8 a.m. - 12 p.m.	Personal preparedness and mitigation information		4
9/30/2017	Hemet Preparedness Month Booth, Hemet Valley Mall, 2200 W. Florida Ave. from 8 a.m. - 12 p.m.	Personal preparedness and mitigation information		4

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LHMP Private Meetings Attended

Date	Location	Type of Meeting	Number Attending	Hours
8/24/2016	City Emergency Operations Center, Riverside	One to One Assistance LHMP Process Familiarity and HAZUS/GIS information	3	1
11/10/2016	Hemet Fire Administration Building, Hemet	Plan review, update process and clarification assistance	3	2.5
11/15/2016	Riverside EMD	Plan review, update process and clarification assistance	2	1
12/13/2016	Conference call to Mather	CA SHMPT Quarterly Meeting	N/A	4.5
12/14/2016	Hemet	Plan review, update process and clarification assistance	3	2
12/15/2016	Moreno Valley	Plan review, update process and clarification assistance	6	1
2/7/2017	Riverside EMD	Plan review, update process and clarification assistance	2	1
3/14/2017	Perris	Participation with Eastern Municipal Water Districts Planning Committee	10	2.5
3/15/2017	Riverside EMD	Plan review, update process and clarification assistance	3	5
3/28/2017	Riverside EMD	Plan review, update process and clarification assistance	3	2
3/29/2017	Beaumont Police Department	Plan review, update process and clarification assistance	4	2
4/11/2017	Mather	CA SHMPT Quarterly Meeting	N/A	4.5
4/11/2017	Murrieta Fire Administration	Plan review, update process and clarification assistance	4	1.15
4/13/2017	Cathedral City Fire Station	Plan review, update process and clarification assistance	2	2
4/20/2017	Banning City Hall	Plan review, update process and clarification assistance	3	1.5
4/20/2017	Desert Sands USD	Plan review, update process and clarification assistance	4	2
4/25/2017	Calimesa City Hall	Plan review, update process and clarification assistance		

4/25/2017	Temecula City Hall	Plan review, update process and clarification assistance	4	1.15
4/26/2017	Perris	Participation with Eastern Municipal Water Districts Planning Committee	6	2
4/27/2017	San Jacinto City Hall	Meeting with City Manager and staff to discuss joining the County LHMP	5	
5/1/2017	Moreno Valley USD	Plan review, update process and clarification assistance	3	1.5
5/1/2017	Lake Elsinore USD	Plan review, update process and clarification assistance	2	1.15
5/2/2017	Banning - High Valley Water District	Plan review, update process and clarification assistance	3	2
5/3/2017	Indian Wells & Palm Desert	Plan review, update process and clarification assistance	2	7
5/9/2017	La Quinta City Hall	Plan review, update process and clarification assistance	2	1.5
5/17/2017	Beaumont Police Department	Plan review, update process and clarification assistance	5	1.5
5/18/2017	Desert Hot Springs	Plan review, update process and clarification assistance	3	3
5/24/2017	Riverside EOC	Participation in Riversides LHMP planning meeting	6	1
5/25/2017	Wildomar City Hall	Plan review, update process and clarification assistance	3	2
5/25/2017	San Jacinto City Hall	Plan review, update process and clarification assistance	2	2.5
5/31/2017	Murrieta Fire Administration	Plan review, update process and clarification assistance	3	3
6/19/2017	Riverside EMD	LHMP and HMGP assistance for La Quinta	2	1
9/18/2017	Riverside Flood Control	LHMP and HMGP information presentation/meeting with Riverside County Flood Control Staff for potential Mitigation Action Project	5	2

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APPENDIX E – Inventory Template

RIVERSIDE COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION AGENCY 2016 INVENTORY WORKSHEETS

Insert Jurisdiction/Agency Name
Insert Date

TABLE OF CONTENTS

Introduction: These documents are meant to be discussed, used and reviewed by a multi-disciplinary team. The Participation by a wide range of stakeholders who play a role in identifying and implementing mitigation actions is required.

SPECIAL CONCERNS:

1. *Has the completed Letter of Commitment been returned to EMD? EMD must forward this completed Letter of Commitment to CAL OES.*
2. *Has the completed Letter of Participation been returned to EMD?*

1. Local Jurisdiction Contact Information	Page 3
2. Hazard Identification Questionnaire	Pages 4-6
3. Specific Hazards Summary	Page 7
4. Jurisdiction Vulnerability Worksheet	Pages 8-9
5. Jurisdiction Mitigation Strategies and Goals	Pages 10-14
6. Local Jurisdiction Proposed Mitigation Action and Strategy Proposal	Pages 14-16
7. Local Jurisdiction Development Trends	Pages 17-18
8. Appendix A-Plan Review Tool	Pages A1-10

Appendix A the Plan Review Tool for your reference. This is the document Cal OES and FEMA will utilize to verify that all of the required information is in the submitted documents. Please refer to the document for information.

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1. LOCAL JURISDICTION CONTACT INFORMATION

The information on this page identifies:

- Jurisdiction and the contact person
- Jurisdiction's service area size and population
- EOP Plan and a Safety Element of their General Plan

PLEASE PROVIDE THE FOLLOWING INFORMATION:

Agency/Jurisdiction:				
Type Agency/Jurisdiction:				
Contact Person:	Title:			
First Name:		Last Name:		
Agency Address:	Street:			
	City:			
	State:			
	Zip:			
Contact Phone			FAX	
E-mail				
Population Served		Square Miles Served		
Does your organization have a general plan?				
Does your organization have a safety component to the general plan?				
What year was your plan last updated?				
Does your organization have a disaster/emergency operations plan?				
What year was your plan last updated?				
Do you have a recovery annex or section in your plan?				
Do you have a terrorism/WMD annex or section in your plan?				

2. Hazard Identification Questionnaire

The purpose of the questionnaire is to help identify the hazards within your service area. The list was developed from the first round of meetings with the various working groups in the 2012 plan creation, and from the hazards listed in the County's General Plan. Each hazard is discussed in detail in the 2012 LHMP. The information will be used as the basis for each jurisdiction to evaluate its capabilities, determine its needs, and to assist in developing goals and strategies. The information identifies:

a) What hazards can be identified within or adjacent to the service area of the jurisdiction.
b) Which of those hazards have had reoccurring events
c) What specific hazards and risks are considered by the jurisdiction to be a threat specifically to the jurisdiction? (These locations should be identified by name and location for inclusion in the Specific Hazard Summary Table).
    a. Specific types of facilities owned and operated by the jurisdiction.
    b. Locations damaged from prior disasters or hazard causing events.
d) Information about the jurisdiction's EOC

With your Multi-Disciplinary Planning Team:

a. Instructions for Updating Jurisdictions, with your planning team: Review your old Questionnaire for accuracy and relevance, mark changes.

b. Instructions for New Jurisdictions and Special Districts, with your planning team, meet and go over the questionnaire. Fill in YES, NO or NA on the Questionnaire.

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HAZARD IDENTIFICATION QUESTIONNAIRE

DOES YOUR ORGANIZATION HAVE:	
AIRPORT IN JURISDICTION	
AIRPORT NEXT TO JURISDICTION	
DAIRY INDUSTRY	
POULTRY INDUSTRY	
CROPS/ORCHARDS	
DAMS IN JURISDICTION	
DAMS NEXT TO JURISDICTION	
LAKE/RESERVOIR IN JURISDICTION	
LAKE/RESERVOIR NEAR JURISDICTION	
JURISDICTION IN FLOOD PLAIN	
CONTROLLED FLOOD CONTROL CHANNEL	
UNCONTROLLED FLOOD CONTROL CHANNEL	
EARTHQUAKE FAULTS IN JURISDICTION	
EARTHQUAKE FAULTS NEXT TO JURISDICTION	
MOBILE HOME PARKS	
NON-REINFORCED FREEWAY BRIDGES	
NON-REINFORCED BRIDGES	
BRIDGES IN FLOOD PLAIN	
BRIDGES OVER OR ACROSS RIVER/STREAM	
ROADWAY CROSSING RIVER/STREAM	
NON REINFORCED BUILDINGS	
FREEWAY/MAJOR HIGHWAY IN JURISDICTION	
FREEWAY/MAJOR HIGHWAY NEXT TO JURISDICTION	
FOREST AREA IN JURISDICTION	
FOREST AREA NEXT TO JURISDICTION	
WITHIN THE 50 MILES SAN ONOFRE EVACUATION ZONE	
MAJOR GAS/OIL PIPELINES IN JURISDICTION	
MAJOR GAS/OIL PIPELINES NEXT TO JURISDICTION	
RAILROAD TRACKS IN JURISDICTION	
RAILROAD TRACKS NEXT TO JURISDICTION	
HAZARDOUS WASTE FACILITIES IN JURISDICTION	
HAZARDOUS WASTE FACILITIES NEXT TO JURISDICTION	
HAZARDOUS STORAGE FACILITIES IN JURISDICTION	
HAZARDOUS STORAGE FACILITIES NEXT TO JURISDICTION	
DOES YOUR ORGANIZATION OWN OR OPERATE A FACILITY	
IN A FLOOD PLAIN	
NEAR FLOOD PLAIN	
NEAR RAILROAD TRACKS	
NEAR A DAM	
UPSTREAM FROM A DAM	
DOWNSTREAM FROM A DAM	
DOWNSTREAM OF A LAKE	
DOWNSTREAM FROM A RESERVOIR	
NEAR A CONTROLLED FLOOD CONTROL CHANNEL	
NEAR UNCONTROLLED FLOOD CONTROL CHANNEL	
ON AN EARTHQUAKE FAULT	
NEAR AN EARTHQUAKE FAULT	
WITHIN THE 50 MILE SAN ONOFRE EVACUATION ZONE	
IN A FOREST AREA	
NEAR A FOREST AREA	
NEAR A MAJOR HIGHWAY	

A HAZARDOUS WASTE FACILITY	
NEAR A HAZARDOUS WASTE FACILITY	
A HAZARDOUS STORAGE FACILITY	
NEAR A HAZARDOUS STORAGE FACILITY	
NON REINFORCED BUILDINGS	
A MAJOR GAS/OIL PIPELINE	
NEAR A MAJOR GAS/OIL PIPELINE	
DOES YOUR ORGANIZATION HAVE ANY LOCATIONS THAT:	
HAVE BEEN DAMAGED BY EARTHQUAKE AND NOT REPAIRED	
HAVE BEEN DAMAGED BY FLOOD	
HAVE BEEN DAMAGED BY FLOOD MORE THAN ONCE	
HAVE BEEN DAMAGED BY FOREST FIRE	
HAVE BEEN DAMAGED BY FOREST FIRE MORE THAN ONCE	
HAVE BEEN IMPACTED BY A TRANSPORTATION ACCIDENT	
HAVE BEEN IMPACTED BY A PIPELINE EVENT	
EMERGENCY OPERATIONS INFORMATION	
DOES YOUR ORGANIZATION HAVE AN EOC	
IS YOUR EOC LOCATED IN A FLOOD PLAIN	
NEAR FLOOD PLAIN	
NEAR RAILROAD TRACKS	
NEAR A DAM	
UPSTREAM FROM A DAM	
DOWNSTREAM FROM A DAM	
DOWNSTREAM OF A LAKE	
DOWNSTREAM FROM A RESERVOIR	
NEAR A CONTROLLED FLOOD CONTROL CHANNEL	
NEAR UNCONTROLLED FLOOD CONTROL CHANNEL	
ON AN EARTHQUAKE FAULT	
NEAR AN EARTHQUAKE FAULT	
WITHIN THE 50 MILE SAN ONOFRE EVACUATION ZONE	
IN A FOREST AREA	
NEAR A FOREST AREA	
NEAR A MAJOR HIGHWAY	
A HAZARDOUS WASTE FACILITY	
NEAR A HAZARDOUS WASTE FACILITY	
A HAZARDOUS STORAGE FACILITY	
NEAR A HAZARDOUS STORAGE FACILITY	
NON REINFORCED BUILDINGS	
A MAJOR GAS/OIL PIPELINE	
NEAR A MAJOR GAS/OIL PIPELINE	
OTHER FACILITY INFORMATION ARE THERE LOCATIONS WITHIN YOUR JURISDICTION THAT:	
COULD BE CONSIDERED A TERRORIST TARGET	
COULD BE CONSIDERED A BIO-HAZARD RISK	

With your planning team, list the “Yes” answers and discuss. Use the information as a group to summarize your jurisdiction's hazards and vulnerabilities.

3. SPECIFIC HAZARDS SUMMARY

This table helps to identify the information (name, owner, location, etc.) about the specific hazards identified in the Hazard Questionnaire.

In the Summary Table, list the basic information of the hazards identified by the jurisdiction in the Hazard Identification Questionnaire as a potential threat. These specific hazards were used in the development of response plans, maps, and other analysis data.

a. Instructions for Updating Jurisdictions and Special Districts: With your planning team, review the "Yes" answers and see if there were any changes, if so summarize why there is a difference from the 2012.

b. Instructions for New Jurisdictions and Special Districts: With your planning team, review the "Yes" answers and discuss. Use the information as a group to summarize your jurisdiction's hazards and vulnerabilities.

SPECIFIC HAZARDS SUMMARY

Jurisdiction	Hazard Type	Hazard Name	In Jurisdiction?	Adjacent to Jurisdiction?

4. JURISDICTION VULNERABILITY WORKSHEET

This table is a listing of the primary hazards identified by the 2012 LHMP working groups. Each jurisdiction was asked to evaluate the potential for an event to occur in their jurisdiction by hazard. They were also asked to evaluate the potential impact of that event by hazard on their jurisdiction. The impact potential was determined based on:

1. Economic loss and recovery
2. Physical loss to structures (residential, commercial, and critical facilities)
3. The loss or damage to the jurisdictions infrastructure
4. Their ability to continue with normal daily governmental activities
5. Their ability to quickly recover from the event and return to normal daily activities
6. The loss of life and potential injuries from the event.

The jurisdictions were asked to rate the potential and severity using a scale of between 0 and 4 (4 being the most severe). The jurisdictions were also asked to rank the listed hazards as they relate to their jurisdiction from 1 to 20 (1 being the highest overall threat to their jurisdiction).

With the assistance of the RCIP Plan and County Departments, Riverside County OES conducted an extensive evaluation of the severity and probability potential for the county as a whole. The hazards were also ranked for the County. These numbers and rankings were provided to the jurisdictions as a comparison guide.

A separate table was created to address the hazards relating to agriculture and was assessed by the agriculture working group.

a. Instructions for Updating Jurisdictions and Special Districts: Please review the table, determine if your ranking from the 2012 LHMP remains the same.
b. Instructions for New Jurisdictions and Special Districts: Please evaluate the potential for an event to occur in your jurisdiction by hazard. Then, evaluate the potential impact of that event by hazard on your jurisdiction according to #1-6 from the potential impact list above.

NOTE: Under Medical, Pandemic was added. This was a result of the H1N1 and other incidents.

NAME:	AGENCY:	DATE :

	COUNTY		LOCAL JURISDICTION		
HAZARD	**SEVERITY 0 - 4**	**PROBABILITY 0 - 4**	**SEVERITY 0 - 4**	**PROBABILITY 0 - 4**	**RANKING 1 - 20**
1. EARTHQUAKE					
2. WILDLAND FIRE					
3. FLOOD					
OTHER NATURAL HAZARDS					
4. DROUGHT					
5. LANDSLIDES					
6. INSECT INFESTATION					
7. EXTREME SUMMER/WINTER WEATHER					
8. SEVERE WIND EVENT					
AGRICULTURAL					
9. DISEASE/CONTAMINATION					
10. TERRORISM					
OTHER MAN-MADE					
11. PIPELINE					
12. AQUEDUCT					
13. TRANSPORTATION					
14. POWER OUTAGE					
15. HAZMAT ACCIDENTS					
16. NUCLEAR ACCIDENT					
17. TERRORISM					
18. CIVIL UNREST					
19. JAIL/PRISON EVENT					
MEDICAL					
20. PANDEMIC					

5. JURISDICTION MITIGATION STRATEGIES AND GOALS

This comprehensive table is a listing of the various mitigation strategies, goals, and objectives developed by the 2012 LHMP working groups. The jurisdictions were also given the opportunity to list additional strategies, goals, and objectives specific to either their jurisdiction or their workgroup (i.e. the hospitals, agriculture, etc.).

LOCAL JURISDICTION MITIGATION STRATEGIES AND GOALS

With your Planning Team

a. Instructions for Updating Jurisdictions and Special Districts: please review the table; determine if your ranking from the 2012 LHMP remains the same.

b. Instructions for New Jurisdictions and Special Districts: please follow below:

Please evaluate the priority level for each listed mitigation goal identified below as it relates to your jurisdiction or facility. If you have any additional mitigation goals or recommendations, please list them at the end of this document.

Place an H (High), M (Medium), L (Low), or N/A (Not Applicable) for your priority level for each mitigation goal in the box next to the activity.

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	EARTHQUAKE
	Aggressive public education campaign in light of predictions
	Generate new literature for dissemination to:
	◊ Government employees
	◊ Businesses
	◊ Hotel/motel literature
	◊ Local radio stations for education
	◊ Public education via utilities
	◊ Identify/create television documentary content
	Improve the Emergency Alert System (EAS)
	◊ Consider integration with radio notification systems
	◊ Upgrade alerting and warning systems for hearing impaired
	◊ Training and maintenance
	Procure earthquake-warning devices for critical facilities
	Reinforce emergency response facilities
	Provide training to hospital staffs
	Require earthquake gas shutoffs on remodels/new construction
	Evaluate re-enforcing reservoir concrete bases
	Evaluate EOCs for seismic stability
	Install earthquake cutoffs at reservoirs
	Install earthquake-warning devices at critical facilities
	Develop a dam inundation plan for new Diamond Valley Reservoir
	Earthquake retrofitting
	◊ Bridges/dams/pipelines
	◊ Government buildings/schools
	◊ Mobile home parks
	Develop educational materials on structural reinforcement and home inspections **(ALREADY DEVELOPED)**
	Ensure Uniform Building Code compliance
	◊ Update to current compliance when retrofitting
	Insurance coverage on public facilities
	Funding for non-structural abatement (Earthquake kits, etc.)
	Pre - identify empty commercial space for seismic re-location
	Electrical co-generation facilities need retrofitting/reinforcement (Palm Springs, others?)
	Mapping of liquefaction zones
	Incorporate County geologist data into planning
	Backup water supplies for hospitals
	Evaluate pipeline seismic resiliency
	Pre-positioning of temporary response structures
	Fire sprinkler ordinance for all structures

	Evaluate adequacy of reservoir capacity for sprinkler systems
	Training/standardization for contractors performing retrofitting
	Website with mitigation/contractor/retrofitting information
	◊ Links to jurisdictions
	◊ Alerting information
	◊ Volunteer information
	Evaluate depths of aquifers/wells for adequacy during quakes
	Evaluate hazmat storage regulations near faults
	COMMUNICATIONS IN DISASTER ISSUES
	Communications Interoperability
	Harden repeater sites
	Continue existing interoperability project
	Strengthen/harden
	Relocate
	Redundancy
	Mobile repeaters
	FLOODS
	Update development policies for flood plains
	Public education on locations of flood plains
	Develop multi-jurisdictional working group on floodplain management
	Develop greenbelt requirements in new developments
	Update weather pattern/flood plain maps
	Conduct countywide study of flood barriers/channels/gates/water dispersal systems
	Required water flow/runoff plans for new development
	Perform GIS mapping of flood channels, etc.
	Install vehicular crossing gates/physical barriers for road closure
	Maintenance of storm sewers/flood channels
	Create map of flood channels/diversions/water systems etc.
	Require digital floor plans on new non-residential construction
	Upgrade dirt embankments to concrete
	Conduct countywide needs study on drainage capabilities
	Increase number of pumping stations
	Increase sandbag distribution capacities
	Develop pre-planned response plan for floods
	◊ Evacuation documentation
	◊ Re-examine historical flooding data for potential street re-design
	Training for city/county PIOs about flood issues
	Warning systems - ensure accurate information provided
	◊ Publicize flood plain information (website?)
	◊ Install warning/water level signage

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	◊ Enhanced public information
	◊ Road closure compliance
	◊ Shelter locations
	◊ Pre-event communications
	Look at County requirements for neighborhood access
	◊ Secondary means of ingress/egress
	Vegetation restoration programs
	Ensure critical facilities are hardened/backed up
	Hardening water towers
	Terrorism Surveillance - cameras at reservoirs/dams
	Riverbed maintenance
	Evaluate existing lift stations for adequacy
	Acquisition of property for on-site retention
	Evaluate regulations on roof drainage mechanism
	Erosion-resistant plants
	Traffic light protection
	Upkeep of diversionary devices
	Install more turn-off valves on pipelines
	Backup generation facilities
	Identify swift water rescue capabilities across County
	WILDFIRES
	Aggressive weed abatement program
	◊ Networking of agencies for weed abatement
	Develop strategic plan for forest management
	Public education on wildfire defense
	Encourage citizen surveillance and reporting
	Identify hydrants with equipment ownership information
	Enhanced firefighting equipment
	Fire spotter program/red flag program
	◊ Expand to other utilities
	Research on insect/pest mitigation technologies
	Volunteer home inspection program
	Public education program
	◊ Weather reporting/alerting
	◊ Building protection
	◊ Respiration
	Pre-identify shelters/recovery centers/other resources
	Roofing materials/defensive spacing regulations
	Community task forces for planning and education
	Fuel/dead tree removal

	Strategic pre-placement of firefighting equipment
	Establish FEMA coordination processes based on ICS
	Brush clearings around repeaters
	Research new technologies for identifying/tracking fires
	Procure/deploy backup communications equipment
	"Red Tag" homes in advance of event
	Provide fire-resistant gel to homeowners
	Involve insurance agencies in mitigation programs
	Clear out abandoned vehicles from oases
	Code enforcement
	Codes prohibiting fireworks
	Fuel modification/removal
	Evaluate building codes
	Maintaining catch basins
OTHER HAZARDS	
	Improve pipeline maintenance
	Wetlands mosquito mitigation (West Nile Virus)
	Insect control study
	Increase County Vector Control capacities
	General public drought awareness
	◊ Lawn watering rotation
	Develop County drought plan
	Mitigation of landslide-prone areas
	Develop winter storm sheltering plan
	Ease permitting process for building transmission lines
	Evaluate restrictions on dust/dirt/generating activities during wind seasons
	Rotational crop planning/soil stabilization
	Enhance agricultural checkpoint enforcement
	Agriculture - funding of detection programs
	Communications of pipeline maps (based on need to know)
	Improved notification plan on runaway trains
	Improve/maintain blackout notification plan.
	Support business continuity planning for utility outages
	Terrorism training/equipment for first responders
	◊ Terrorism planning/coordination
	◊ Staffing for terrorism mitigation
	Create a SONGS regional planning group
	◊ Include dirty bomb planning
	Cooling stations - MOUs in place
	Fire Ant eradication program

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	White Fly infestation abatement/eradication program
	Develop plan for supplemental water sources
	Public education on low water landscaping
	Salton Sea desalinization
	Establish agriculture security standards (focus on water supply)
	ID mutual aid agreements
	Vulnerability assessment on fiber-optic cable
	Upgrade valves on California aqueduct
	Public education
	◊ Bi-lingual signs
	◊ Power Outage information
	Notification system for rail traffic - container contents
	Control and release of terrorism intelligence
	Develop prison evacuation plan (shelter in place?)

Use the list and rankings to narrow down or identify "your" strategies. The mitigation strategy serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The mitigation strategy includes the development of goals, objectives, and prioritized mitigation actions.

Goals are general guidelines that explain what you want to achieve. They are broad policy statements and are usually long-term and represent global visions, such as "Protect Existing Property."

Objectives define strategies or implementation steps to attain the identified goals. Unlike goals, objectives are specific, measurable, and may have a defined completion date. Objectives are more specific, such as "Increase the number of buildings protected from flooding."
The development of effective goals and objectives enables the planning team to evaluate the merits of alternative mitigation actions and the local conditions in which these activities would be pursued. A potential mitigation action that would support the goal and objective goal example above is "Acquire repetitive flood loss properties in the Acadia Woods Subdivision."

In the 2012 LHMP, each jurisdiction was required to develop a Mitigation Strategy Proposal based on one of the following:

1. The strategy, goal, or objective rating "High Priority" on the Local Jurisdiction Mitigation Strategies and Goals (WORKSHEET ABOVE)
2. A specifically identified strategy, goal, or objective that was developed as part of one of the working groups planning sessions such as the hospitals or agriculture
3. A specifically identified strategy, goal, or objective that was developed as part of one of the jurisdiction's internal working group planning sessions

6. LOCAL JURISDICTION PROPOSED MITIGATION ACTION AND STRATEGY PROPOSAL

a. Instructions for Updating Jurisdictions and Special Districts: With your planning team, please review the table from # 5, and determine if your ranking from the 2012 LHMP remains the same.

Review the chosen Mitigation Strategy that your jurisdiction submitted. The updated plan **must** identify the completed, deleted, or deferred actions or activities from the previously approved plan as a benchmark for progress.

If the mitigation actions or activities remain unchanged from the previously approved plan, the updated plan **must** indicate why changes are not necessary. Further, the updated plan **shall** include in its prioritization any new mitigation actions identified since the previous plan was approved or through the plan update process.

b. Instructions for New Jurisdictions and Special Districts: With your planning team, Use the "High Priority" rated strategy, goal or objective as a starting point to determine your Mitigation Strategy Proposal.

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LOCAL JURISDICTION PROPOSED MITIGATION ACTION AND STRATEGY PROPOSAL

Jurisdiction:
Contact:
Phone:

MITIGATION STRATEGY INFORMATION

Proposal Name:

Proposal Location:

Proposal Type

Place an "X" by the type of mitigation strategy (one or more may apply)

- [ ] Flood and mud flow mitigation
- [ ] Fire mitigation
- [ ] Elevation or acquisition of repetitively damaged structures or structures in high hazard areas
- [ ] Mitigation Planning (i.e. update building codes, planning develop guidelines, etc.)
- [ ] Development and implementation of mitigation education programs
- [ ] Development or improvement of warning systems
- [ ] Additional Hazard identification and analysis in support of the local hazard mitigation plan
- [ ] Drinking and/or irrigation water mitigation
- [ ] Earthquake mitigation
- [ ] Agriculture - crop related mitigation
- [ ] Agriculture - animal related mitigation
- [ ] Flood inundation/Dam failure
- [ ] Weather/Temperature event mitigation

DESCRIPTION OF THE PROPOSED MITIGATION STRATEGY

Proposal/Event History	List any previous disaster related events (dates, costs, etc.)
Description of Mitigation Goal Narrative:	Give a detailed description of the need for the proposal, any history related to the proposal. List the activities necessary for its completion in the narrative section below, including estimated timeline. (how long will it take)

Does your jurisdiction have primary responsibility for the proposal? If not, what agency does?

Yes	X	No		Responsible Agency:

FUNDING INFORMATION

Place an "X" by the proposed source of funding for this proposal

- [ ] Unfunded proposal - funds are not available for the proposal at this time
- [ ] Local jurisdiction General Fund
- [ ] Local jurisdiction Special Fund (road tax, assessment fees, etc.)
- [ ] Non-FEMA Hazard Mitigation Funds
- [ ] Local Hazard Mitigation Grant Funds - Future Request
- [ ] Hazard Mitigation Funds

- [ ] Has your jurisdiction evaluated this mitigation strategy to determine its cost benefits?
(i.e. has the cost of the mitigation proposal been determined to be beneficial in relationship to the potential damage or loss using the attached Cost/Benefit Analysis Sheet or another internal method)

As part of this process, each Submitting Jurisdiction is required to perform a cost-benefit analysis. They were required to answer the question at the bottom of the Proposal page that asks if they had conducted a Cost-Benefit Analysis of some type. This analysis was conducted either by completing a Cost Benefit form or by some other approved method. Many of the jurisdictions used the cost-effective analysis approach outlined in the FEMA publication, *Cost and Benefits of Natural Hazards Mitigation.* This cost-benefit analysis was not restricted to natural hazards.

In some cases, the jurisdiction or working group identified a proposal that highlighted a life- safety issue over a standard hazard proposal. This was done when there was either historical data or other sources of information indicating that the life-safety issue needed to be emphasized or brought to the public's attention.

7. LOCAL JURISDICTION DEVELOPMENT TRENDS QUESTIONNAIRE

LAND USE ISSUES - COMPLETE THE INFORMATION BELOW

This questionnaire identifies a comparison of specific land use issues between 2012, 2017 and 2022. The questionnaire also identifies the specific threat potential to the jurisdiction in relationship to residential and commercial structures along with critical facilities. This threat potential is focused on structural loss rather than dollar-value loss as it relates to the three main natural hazards – earthquakes, floods, and wildland fires. The determination of dollar-value loss relating to commercial and critical facilities was found to be very limited and a difficult task to establish. This issue will be addressed in future updates of the Plan.

The questionnaire also requires the jurisdiction to identify the process it will use to maintain their portion of the Plan.

LOCAL JURISDICTION DEVELOPMENT TRENDS QUESTIONNAIRE 2011

LAND USE ISSUES - COMPLETE THE INFORMATION BELOW

JURISDICTION:	DOES YOUR AGENCY HAVE RESPONSIBILITY FOR LAND USE AND/OR DEVELOPMENT ISSUES WITHIN YOUR JURISDICTIONAL BOUNDARIES? YES NO			
	2012 DATA	2017 DATA		2022
Current Population in Jurisdiction or Served			Projected Population in Jurisdiction or Served - in 2022	
Current Sq Miles in Jurisdiction or Served			Projected Sq Miles in Jurisdiction or Served - in 2022	
Does Your Jurisdiction have any ordinances or regulations dealing with disaster mitigation, disaster preparation, or disaster response?			If yes, please list ordinance or regulation number.	
What is the number one land issue your agency will face in the next five years				
Approximate Number of Homes/Apts/etc.			Projected Number of Homes/Apts/etc. - in 2022	
Approximate Total Residential Value			Projected Residential Total Value - in 2022	
Approximate Number of Commercial Businesses			Projected Number of Commercial Businesses - in 2022	
Approximate Percentage of Homes/Apts/etc in flood hazard zones			Approximate Percentage of Homes/Apts/etc in flood hazard zones - in 2022	
Approximate Percentage of Homes/Apts/etc in earthquake hazard zones			Approximate Percentage of Homes/Apts/etc in earthquake hazard zones - in 2022	
Approximate Percentage of Homes/Apts/etc in wildland fire hazard zones			Approximate Percentage of Homes/Apts/etc in wildland fire hazard zones - in 2022	
Approximate Percentage of Commercial Businesses in flood hazard zones			Approximate Percentage of Commercial Businesses in flood hazard zones - in 2022	
Approximate Percentage of Commercial Businesses in earthquake hazard zones			Approximate Percentage of Commercial Businesses in earthquake hazard zones - in 2022	
Approximate Percentage of Commercial Businesses in wildland fire hazard zones			Approximate Percentage of Commercial Businesses in wildland fire hazard zones - in 2022	
Number of Critical Facilities in your Jurisdiction that are in flood hazard zones			Projected Number of Critical Facilities in your Jurisdiction that are in flood hazard zones - in 2022	
Number of Critical Facilities in your Jurisdiction that are in earthquake hazard zones			Number of Critical Facilities in your Jurisdiction that are in earthquake hazard zones - in 2022	
Number of Critical Facilities in your Jurisdiction that are in wildland fire hazard zones.			Number of Critical Facilities in your Jurisdiction that are in wildland fire hazard zones - in 2022	
Does your jurisdiction plan on participating in the County's on-going plan maintenance program every two years as described in Part I of the plan?			If not, how will your jurisdiction do plan maintenance?	
Will a copy of this plan be available for the various planning groups within your jurisdiction for use in future planning and budgeting purposes?				Yes or No

APPENDIX A:
LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

Jurisdiction:	**Title of Plan:** **Local Hazard Mitigation Plan**	**Date of Plan:**
Local Point of Contact:		**Address:**
Title:		
Agency:		
Phone Number:		**E-Mail:**

State Reviewer:	**Title:**	**Date:**

FEMA Reviewer:	**Title:**	**Date:**
Date Received in FEMA Region ***(insert #)***		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

SECTION 1: REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or	**Met**	**Not Met**
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))			
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))			
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))			
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))			
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))			

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1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or	**Met**	**Not Met**
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))			
ELEMENT A: REQUIRED REVISIONS			
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))			
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))			
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))			
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))			
ELEMENT B: REQUIRED REVISIONS			
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))			
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))			
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or	Met	Not Met
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))			
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))			
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))			
ELEMENT C: REQUIRED REVISIONS			
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))			
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))			
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))			
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	Plan Adoption/ Resolution Page 4 all plans		
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Plan Adoption/ Resolution Page 4 all plans		
ELEMENT E: REQUIRED REVISIONS			
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)			
F1.			

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1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or	Met	Not Met
F2.			
ELEMENT F: REQUIRED REVISIONS			

SECTION 2:
PLAN ASSESSMENT

INSTRUCTIONS: The purpose of the Plan Assessment is to offer the local community more comprehensive feedback to the community on the quality and utility of the plan in a narrative format. The audience for the Plan Assessment is not only the plan developer/local community planner, but also elected officials, local departments and agencies, and others involved in implementing the Local Mitigation Plan. The Plan Assessment must be completed by FEMA. The Assessment is an opportunity for FEMA to provide feedback and information to the community on: 1) suggested improvements to the Plan; 2) specific sections in the Plan where the community has gone above and beyond minimum requirements; 3) recommendations for plan implementation; and 4) ongoing partnership(s) and information on other FEMA programs, specifically RiskMAP and Hazard Mitigation Assistance programs. The Plan Assessment is divided into two sections:

1. Plan Strengths and Opportunities for Improvement
2. Resources for Implementing Your Approved Plan

Plan Strengths and Opportunities for Improvement is organized according to the plan Elements listed in the Regulation Checklist. Each Element includes a series of italicized bulleted items that are suggested topics for consideration while evaluating plans, but it is not intended to be a comprehensive list. FEMA Mitigation Planners are not required to answer each bullet item, and should use them as a guide to paraphrase their own written assessment (2-3 sentences) of each Element.

The Plan Assessment must not reiterate the required revisions from the Regulation Checklist or be regulatory in nature, and should be open-ended and to provide the community with suggestions for improvements or recommended revisions. The recommended revisions are suggestions for improvement and are not required to be made for the Plan to meet Federal regulatory requirements. The italicized text should be deleted once FEMA has added comments regarding strengths of the plan and potential improvements for future plan revisions. It is recommended that the Plan Assessment be a short synopsis of the overall strengths and weaknesses of the Plan (no longer than two pages), rather than a complete recap section by section.

Resources for Implementing Your Approved Plan provides a place for FEMA to offer information, data sources and general suggestions on the overall plan implementation and maintenance process. Information on other possible sources of assistance including, but not limited to, existing publications, grant funding or training opportunities, can be provided. States may add state and local resources, if available.

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A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

Element A: Planning Process

How does the Plan go above and beyond minimum requirements to document the planning process with respect to:

- *Involvement of stakeholders (elected officials/decision makers, plan implementers, business owners, academic institutions, utility companies, water/sanitation districts, etc.);*
- *Involvement of Planning, Emergency Management, Public Works Departments or other planning agencies (i.e., regional planning councils);*
- *Diverse methods of participation (meetings, surveys, online, etc.); and*
- *Reflective of an open and inclusive public involvement process.*

Element B: Hazard Identification and Risk Assessment

In addition to the requirements listed in the Regulation Checklist, 44 CFR 201.6 Local Mitigation Plans identifies additional elements that should be included as part of a plan's risk assessment. The plan should describe vulnerability in terms of:

1) *A general description of land uses and future development trends within the community so that mitigation options can be considered in future land use decisions;*
2) *The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; and*
3) *A description of potential dollar losses to vulnerable structures, and a description of the methodology used to prepare the estimate.*

How does the Plan go above and beyond minimum requirements to document the Hazard Identification and Risk Assessment with respect to:

- *Use of best available data (flood maps, HAZUS, flood studies) to describe significant hazards;*
- *Communication of risk on people, property, and infrastructure to the public (through tables, charts, maps, photos, etc.);*
- *Incorporation of techniques and methodologies to estimate dollar losses to vulnerable structures;*
- *Incorporation of Risk MAP products (i.e., depth grids, Flood Risk Report, Changes Since Last FIRM, Areas of Mitigation Interest, etc.); and*
- *Identification of any data gaps that can be filled as new data became available.*

Element C: Mitigation Strategy

How does the Plan go above and beyond minimum requirements to document the Mitigation Strategy with respect to:

- *Key problems identified in, and linkages to, the vulnerability assessment;*
- *Serving as a blueprint for reducing potential losses identified in the Hazard Identification and Risk Assessment;*
- *Plan content flow from the risk assessment (problem identification) to goal setting to mitigation action development;*
- *An understanding of mitigation principles (diversity of actions that include structural projects, preventative measures, outreach activities, property protection measures, post-disaster actions, etc);*
- *Specific mitigation actions for each participating jurisdictions that reflects their unique risks and capabilities;*
- *Integration of mitigation actions with existing local authorities, policies, programs, and resources; and*
- *Discussion of existing programs (including the NFIP), plans, and policies that could be used to implement mitigation, as well as document past projects.*

Element D: Plan Update, Evaluation, and Implementation (*Plan Updates Only*)

How does the Plan go above and beyond minimum requirements to document the 5-year Evaluation and Implementation measures with respect to:

- *Status of previously recommended mitigation actions;*
- *Identification of barriers or obstacles to successful implementation or completion of mitigation actions, along with possible solutions for overcoming risk;*
- *Documentation of annual reviews and committee involvement;*
- *Identification of a lead person to take ownership of, and champion the Plan;*
- *Reducing risks from natural hazards and serving as a guide for decisions makers as they commit resources to reducing the effects of natural hazards;*
- *An approach to evaluating future conditions (i.e. socio-economic, environmental, demographic, change in built environment etc.);*
- *Discussion of how changing conditions and opportunities could impact community resilience in the long term; and*
- *Discussion of how the mitigation goals and actions support the long-term community vision for increased resilience.*

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B. Resources for Implementing Your Approved Plan

Ideas may be offered on moving the mitigation plan forward and continuing the relationship with key mitigation stakeholders such as the following:

- *What FEMA assistance (funding) programs are available (for example, Hazard Mitigation Assistance (HMA)) to the jurisdiction(s) to assist with implementing the mitigation actions?*
- *What other Federal programs (National Flood Insurance Program (NFIP), Community Rating System (CRS), Risk MAP, etc.) may provide assistance for mitigation activities?*
- *What publications, technical guidance or other resources are available to the jurisdiction(s) relevant to the identified mitigation actions?*
- *Are there upcoming trainings/workshops (Benefit-Cost Analysis (BCA), HMA, etc.) to assist the jurisdictions(s)?*
- *What mitigation actions can be funded by other Federal agencies (for example, U.S. Forest Service, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA) Smart Growth, Housing and Urban Development (HUD) Sustainable Communities, etc.) and/or state and local agencies?*

SECTION 3:
MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)

INSTRUCTIONS: For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were 'Met' or 'Not Met,' and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to

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ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Requirements
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MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Requirements
20												

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APPENDIX F – Historical Landmarks

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Name (Landmark Plaque Number)	National Register	California State Historical Landmar	California Register of	Point of Interest	Date Listed	City (County)
ADMINISTRATION BUILDING, SHERMAN INSTITUTE (N851)	Yes				1/9/1980	Riverside (Riverside)
AGENTS HOME (P231)				Yes	10/5/1971	Thermal (Riverside)
ALL SOULS UNIVERSALIST CHURCH (N666)	Yes				9/18/1978	Riverside (Riverside)
ANDREAS CANYON (N201)	Yes				1/8/1973	Palm Springs (Riverside)
ARCHEOLOGICAL SITES CA-RIV-504 AND CA-RIV 773 (N2195)	Yes				3/12/2003	Blythe (Riverside)
ARLINGTON BRANCH LIBRARY AND FIRE HALL (N1839)	Yes				7/22/1993	Riverside (Riverside)
ARMORY HALL (N1748)	Yes				1/29/1992	Lake Elsinore (Riverside)
ARMORY HALL, GRAND ARMY OF THE REPUBLIC BUILDING (P822)				Yes	5/15/1996	Lake Elsinore (Riverside)
ATCHISON, TOPEKA, AND SANTA FE RAILWAY DEPOT AT BLYTHE (P735)				Yes	2/11/1991	Blythe (Riverside)
BANDINI ADOBE SITE (P120)				Yes	6/6/1969	Norco (Riverside)
BANDINI-COTA ADOBE SITE (P122)				Yes	6/6/1969	Corona (Riverside)
BANNING WOMEN'S CLUB (P725)				Yes	11/20/1989	Banning (Riverside)
BARKER DAM (N394)	Yes				10/29/1975	Twentynine Palms (Riverside)
BEAUMONT CARNEGIE LIBRARY (P807)				Yes	12/4/1994	Beaumont (Riverside)
BLYTHE FERRY CROSSING (P195)				Yes	5/19/1971	Blythe (Riverside)
BLYTHE INTAGLIOS (N384)	Yes				8/22/1975	Blythe (Riverside)
BOGART HOUSE (P808)				Yes	12/4/1994	Beaumont (Riverside)
BUTTERCUP FARMS PICTOGRAPH (N411)	Yes				5/3/1976	Perris (Riverside)
BUTTERFIELD STAGE STATION (188)		Yes			6/20/1935	Corona (Riverside)
CAMP EMERSON (P147)				Yes	11/3/1969	Idyllwild (Riverside)
CAMP YOUNG--DESERT TRAINING CENTER, CAMA (P87)				Yes	6/2/1968	Desert Center (Riverside)
CANTU RANCH/GALLEANO WINERY (P773)				Yes	8/21/1992	Mira Loma (Riverside)
CARNEGIE, ANDREW, LIBRARY (N502)	Yes				6/29/1977	Corona (Riverside)
CARVED ROCK (187)		Yes			6/20/1935	Corona (Riverside)
CHILDS, WILLIAM, HOUSE (N2063)	Yes				7/28/1999	Riverside (Riverside)

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CHINATOWN (P74)	Yes			Yes	1/24/1968	Riverside (Riverside)
CITRUS EXPERIMENT STATION (P121)				Yes	6/6/1969	Riverside (Riverside)
CITRUS MACHINERY PIONEERING (P123)				Yes	6/6/1969	Riverside (Riverside)
COACHELLA VALLEY COUNTY WATER DISTRICT (P141)				Yes	8/29/1969	Coachella (Riverside)
COACHELLA VALLEY FISH TRAPS (N175)	Yes				6/13/1972	Valerie (Riverside)
COPLIN HOUSE SPOKANE HOTEL PLUEGER REALTY (P759)				Yes	11/8/1991	Banning (Riverside)
CORN SPRINGS (N2038)	Yes				10/30/1998	Desert Center (Riverside)
CORN SPRINGS (P80)				Yes	1/24/1968	Desert Center (Riverside)
CORNELIUS AND MERCEDES JENSON RANCH (943)		Yes			6/12/1981	Rubidoux (Riverside)
CORONA FOUNDERS MONUMENT (738)		Yes			6/6/1960	Corona (Riverside)
CORONA HIGH SCHOOL (N2297)	Yes				8/3/2005	Corona (Riverside)
COTTONWOOD SCHOOL (P520)				Yes	2/1/1978	Sage (Riverside)
CRESCENT BATHHOUSE (N380)	Yes				7/30/1975	Lake Elsinore (Riverside)
DE ANZA CROSSING OF THE SANTA ANA RIVER, 1775 AND 1776 (787)		Yes			9/18/1963	Riverside (Riverside)
DESERT INN (P307)				Yes	7/13/1973	Palm Springs (Riverside)
DESERT QUEEN MINE (N402)	Yes				1/17/1976	Twentynine Palms (Riverside)
DOS PALMAS (P78)				Yes	1/24/1968	Mecca (Riverside)
EAGLE MOUNTAIN IRON (P229)				Yes	10/5/1971	Desert Center (Riverside)
EL MIRADOR HOTEL AND TOWER (P570)				Yes	6/12/1981	Palm Springs (Riverside)
ELSINORE WOMEN'S CLUB (P832)				Yes	2/5/1998	Lake Elsinore (Riverside)
ELSINORE'S HOTTEST SULPHUR SPRINGS (P97)				Yes	6/7/1968	Lake Elsinore (Riverside)
ESTUDILLO MANSION (N2146)	Yes				10/25/2001	San Jacinto (Riverside)
FEDERAL POST OFFICE (N705)	Yes				11/20/1978	Riverside (Riverside)
FIRST CHURCH OF CHRIST, SCIENTIST (N1794)	Yes				9/22/1992	Riverside (Riverside)
FIRST CONGREGATIONAL CHURCH OF RIVERSIDE (N1975)	Yes				4/3/1997	Riverside (Riverside)
FIRST POST OFFICE (P174)				Yes	3/19/1970	Temecula (Riverside)
FRINK RANCH (P94)				Yes	6/7/1968	Beaumont (Riverside)
GALLEANO WINERY (N2207)	Yes				6/22/2003	Mira Loma (Riverside)
GARBANI, ROCCO, HOMESTEAD (N2079)	Yes				12/22/1999	Winchester (Riverside)

GIANT DESERT FIGURES (101)		Yes			3/29/1933	Blythe (Riverside)
GILMAN RANCH (P41)	Yes			Yes	6/2/1967	Banning (Riverside)
HALL CITY AND HALL'S GRADE (P124)				Yes	6/6/1969	Cabazon (Riverside)
HAMILTON SCHOOL (#1), LITTLE RED SCHOOL HOUSE (P746)				Yes	8/2/1991	Anza (Riverside)
HARADA HOUSE (N517)	Yes				9/15/1977	Riverside (Riverside)
HEMET DAM AND LAKE HEMET (P95)				Yes	6/7/1968	Hemet (Riverside)
HEMET MAZE STONE (557)		Yes			8/24/1956	Hemet (Riverside)
HENDERSON/REID BUILDING (P774)				Yes	8/21/1992	Banning (Riverside)
HERITAGE HOUSE (N205)	Yes				2/28/1973	Riverside (Riverside)
HIGHGROVE HYDROELECTRIC PLANT (P108)				Yes	12/11/1968	Riverside (Riverside)
HIGHLAND SPRINGS (P38)				Yes	6/2/1967	Banning (Riverside)
IDYLLWILD (P335)				Yes	7/12/1974	Idyllwild (Riverside)
INDIAN SCHOOL AGENCY OFFICE, INDIAN SCHOOL AGENCY (P233)				Yes	10/5/1971	Thermal (Riverside)
INDIAN WELLS (P83)				Yes	1/24/1968	Palm Desert (Riverside)
JENSEN, CORNELIUS, RANCH (N815)	Yes				9/6/1979	Rubidoux (Riverside)
JOHN W. NORTH PARK / SEVENTH STREET HISTORIC DISTRICT (P308)				Yes	7/13/1973	Riverside (Riverside)
LAKE NORCONIAN CLUB (N2083)	Yes				2/4/2000	Norco (Riverside)
LEDERER, GUS, SITE (N2196)	Yes				3/12/2003	Desert Center (Riverside)
LORING OPERA HOUSE, GOLDEN STATE THEATER (P64)				Yes	9/22/1967	Riverside (Riverside)
MARCH FIELD HISTORIC DISTRICT (P93)				Yes	6/7/1968	Moreno Valley (Riverside)
MARCH FIELD HISTORIC DISTRICT (N1893)	Yes				12/6/1994	Riverside (Riverside)
MARTINEZ CANYON ROCKHOUSE (N2074)	Yes				12/14/1999	North Palm Springs (Riverside)
MARTINEZ HISTORICAL DISTRICT (N236)	Yes				5/17/1973	Torres-Martinez Indian Reservation (Riverside)
MARTINEZ HISTORICAL DISTRICT/MARTINEZ INDIAN AGENCY (P232)				Yes	10/5/1971	Thermal (Riverside)
MASONIC TEMPLE (N872)	Yes				6/6/1980	Riverside (Riverside)
MCCOY SPRING ARCHEOLOGICAL SITE (N1103)	Yes				5/10/1982	Blythe (Riverside)
MISSION COURT BUNGALOWS (N1835)	Yes				7/8/1993	Riverside (Riverside)

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MISSION INN (761)	Yes	Yes			4/28/1961	Riverside (Riverside)
MOROVIAN CHURCH AND INDIAN SCHOOL, INDIAN SCHOOL (P230)				Yes	10/5/1971	Thermal (Riverside)
MOUNT RUBIDOUX (P65)				Yes	9/22/1967	Riverside (Riverside)
MURRIETA CREEK ARCHEOLOGICAL AREA (N229)	Yes				4/24/1973	Temecula (Riverside)
NOBLE'S RANCH (P82)				Yes	1/24/1968	Beaumont (Riverside)
NORTH CHUCKWALLA MOUNTAIN QUARRY DISTRICT (N966)	Yes				8/24/1981	Desert Center (Riverside)
NORTH CHUCKWALLA MOUNTAINS PETROGLYPH DISTRICT CA-RIV 1383 (N969)	Yes				9/3/1981	Desert Center (Riverside)
OLD MORENO SCHOOL (P702)				Yes	8/23/1988	Moreno Valley (Riverside)
OLD TEMESCAL ROAD (638)		Yes			3/31/1958	Corona (Riverside)
OLD YWCA BUILDING (N1009)	Yes				1/28/1982	Riverside (Riverside)
ORIGINAL PALM SPRINGS, THE (P118)				Yes	6/6/1969	Palm Springs (Riverside)
PAINTED ROCK (190)		Yes			6/20/1935	Corona (Riverside)
PALM CANYON THEATER / STEVENS, FRANCES S., SCHOOL (C21)			Yes		11/7/2003	Palm Springs (Riverside)
PALMDALE RAILROAD SITE / RAILROAD THAT FAILED (P146)				Yes	11/3/1969	Palm Springs (Riverside)
PARENT WASHINGTON NAVEL ORANGE TREE (20)		Yes			6/1/1932	Riverside (Riverside)
PEDLEY-TYPE DAM (P337)				Yes	7/12/1974	Banning (Riverside)
PERRIS DEPOT (N1871)	Yes				8/5/1994	Perris (Riverside)
PINACATE MINING DISTRICT (P553)				Yes	6/6/1980	Good Hope (Riverside)
PINACATE, PINACATE MINING DISTRICT (P554)				Yes	6/6/1980	Perris (Riverside)
RAMONA BOWL, SITE OF THE RAMONA PAGEANT (1009)		Yes			2/16/1993	Hemet (Riverside)
RANCHO SANTA ROSA (P719)				Yes	11/3/1989	Murrieta (Riverside)
RIVERSIDE CEMENT COMPANY (P336)				Yes	7/12/1974	Riverside (Riverside)
RIVERSIDE COUNTY COURTHOUSE (P96)				Yes	6/7/1968	Riverside (Riverside)
RIVERSIDE FIRST CONGREGATIONAL CHURCH (P76)				Yes	1/24/1968	Riverside (Riverside)

RIVERSIDE MUNICIPAL AUDITORIUM AND SOLDIER'S MEMORIAL BUILDING (N576)	Yes				3/31/1978	Riverside (Riverside)
RIVERSIDE-ARLINGTON HEIGHTS FRUIT EXCHANGE (N877)	Yes				6/9/1980	Riverside (Riverside)
RUINS OF THIRD SERRANO ADOBE (224)		Yes			6/20/1935	Corona (Riverside)
RYAN HOUSE AND LOST HORSE WELL (N368)	Yes				6/5/1975	Twentynine Palms (Riverside)
SAAHATPA (749)		Yes			8/17/1960	(Riverside)
SAN PEDRO, LOS ANGELES, & SALT LAKE RR DEPOT (N491)	Yes				4/18/1977	Riverside (Riverside)
SAN TIMOTEO CANYON SCHOOLHOUSE (P125)	Yes			Yes	6/6/1969	Calimesa (Riverside)
SANTA FE RAILWAY DEPOT (P711)				Yes	11/22/1988	Hemet (Riverside)
SANTA ROSA RANCHO (1005)		Yes			2/18/1992	Murrieta (Riverside)
SERRANO BOULDER (185)		Yes			6/20/1935	Corona (Riverside)
SERRANO TANNING VATS (186)		Yes			6/20/1935	Corona (Riverside)
SHAVER'S WELL (P148)				Yes	11/3/1969	Mecca (Riverside)
SIMON'S, M. H., UNDERTAKING CHAPEL (N878)	Yes				6/9/1980	Riverside (Riverside)
SITE OF BLYTHE INTAKE (948)		Yes			3/1/1982	Blythe (Riverside)
SITE OF BLYTHE INTAKE (P63)				Yes	9/22/1967	Blythe (Riverside)
SITE OF CONTRACTOR'S GENERAL HOSPITAL (992)		Yes			8/17/1990	(Riverside)
SITE OF DE ANZA CAMP, MARCH 1774 (103)		Yes			3/29/1933	Anza (Riverside)
SITE OF INDIAN VILLAGE OF POCHEA (104)		Yes			3/29/1933	Hemet, (Riverside)
SITE OF LOUIS RUBIDOUX HOUSE (102)		Yes			3/29/1933	Rubidoux (Riverside)
SITE OF OLD RUBIDOUX GRIST MILL (303)		Yes			7/12/1939	Rubidoux (Riverside)
SMILEY PLACE (P760)				Yes	11/8/1991	Indio (Riverside)
SOUTHERN HOTEL (N1803)	Yes				10/15/1992	Perris (Riverside)
SPEED OF LIGHT EXPERIMENT SITE (P119)				Yes	6/6/1969	Idyllwild (Riverside)
ST. BONIFACE SCHOOL (P415)				Yes	8/7/1975	Beaumont (Riverside)
SUTHERLAND FRUIT COMPANY (N1439)	Yes				4/11/1986	Riverside (Riverside)
TAHQUITZ CANYON (N189)	Yes				10/31/1972	Palm Springs (Riverside)
TEMECULA QUARRIES (P175)				Yes	3/19/1970	Temecula (Riverside)
TEMESCAL TIN MINES (P79)				Yes	1/24/1968	Corona (Riverside)
THOMAS-GARNER RANCH (P176)				Yes	3/19/1970	Idyllwild (Riverside)
TORO VILLAGE (P81)				Yes	1/24/1968	Indio (Riverside)

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TRUJILLO ADOBE (P75)				Yes	1/24/1968	Riverside (Riverside)
U.S. EXPERIMENTAL DATE STATION, DATE INDUSTRY BIRTHPLACE (P306)				Yes	7/13/1973	Mecca (Riverside)
UNIVERSITY HEIGHTS JUNIOR HIGH SCHOOL (N1832)	Yes				6/24/1993	Riverside (Riverside)
VALERIE JEAN'S DATE SHOP,RUSSELL NICOLL HOME/OL KING SOLO (P736)				Yes	2/11/1991	Thermal (Riverside)
VICTORIA AVENUE (N2108)	Yes				10/26/2000	Riverside (Riverside)
WEAVER ADOBE (P39)				Yes	6/2/1967	Banning (Riverside)
WHITEWATER (P40)				Yes	6/2/1967	Banning (Riverside)
WILEY'S WELL (P77)				Yes	1/24/1968	Blythe (Riverside)
WOMAN'S IMPROVEMENT CLUB CLUBHOUSE (N1579)	Yes				11/3/1988	Corona (Riverside)
YERXA'S DISCOVERY (P560)				Yes	12/19/1980	Desert Hot Springs (Riverside)

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APPENDIX G – Trends Questionnaire

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JURISDICTION:	DOES YOUR AGENCY HAVE RESPONSIBILITY FOR LAND USE AND/OR DEVELOPMENT ISSUES WITHIN YOUR JURISDICTIONAL BOUNDARIES? YES			
	2012 DATA	2017 DATA		2022
Current Population in Jurisdiction or Served	2,196,137	2,329,256	Projected Population in Jurisdiction or Served - in 2022	2,506,739
Current Sq Miles in Jurisdiction or Served	6,375	7,295.6	Projected Sq Miles in Jurisdiction or Served - in 2022	7,295.6
Does Your Jurisdiction have any ordinances or regulations dealing with disaster mitigation, disaster preparation, or disaster response?	Yes	Yes	If yes, please list ordinance or regulation number.	
What is the number one land issue your agency will face in the next five years	N/A			
Approximate Number of Homes/Apts/etc.	696,290	700,413	Projected Number of Homes/Apts/etc.- in 2022	955,853
Approximate Total Residential Value	N/A	362,066	Projected Residential Total Value - in 2022	
Approximate Number of Commercial Businesses	N/A	N/A	Projected Number of Commercial Businesses - in 2022	N/A
Approximate Percentage of Homes/Apts/etc. in flood hazard zones	12%		Approximate Percentage of Homes/Apts/etc. in flood hazard zones - in 2022	N/A
Approximate Percentage of Homes/Apts/etc. in earthquake hazard zones	5%		Approximate Percentage of Homes/Apts/etc. in earthquake hazard zones - in 2022	N/A
Approximate Percentage of Homes/Apts/etc. in wildland fire hazard zones	34%		Approximate Percentage of Homes/Apts/etc. in wildland fire hazard zones - in 2022	N/A
Approximate Percentage of Commercial Businesses in flood hazard zones	N/A	N/A	Approximate Percentage of Commercial Businesses in flood hazard zones - in 2022	N/A
Approximate Percentage of Commercial Businesses in earthquake hazard zones	N/A	N/A	Approximate Percentage of Commercial Businesses in earthquake hazard zones - in 2022	N/A
Approximate Percentage of Commercial Businesses in wildland fire hazard zones	N/A	N/A	Approximate Percentage of Commercial Businesses in wildland fire hazard zones - in 2022	N/A
Number of Critical Facilities in your Jurisdiction that are in flood hazard zones	41	1,298	Projected Number of Critical Facilities in your Jurisdiction that are in flood hazard zones - in 2022	N/A
Number of Critical Facilities in your Jurisdiction that are in earthquake hazard zones	21		Number of Critical Facilities in your Jurisdiction that are in earthquake hazard zones - in 2022	N/A
Number of Critical Facilities in your Jurisdiction that are in wildland fire hazard zones.	69		Number of Critical Facilities in your Jurisdiction that are in wildland fire hazard zones - in 2022	N/A
Does your jurisdiction plan on participating in the County's on-going plan maintenance program every year as described in Part I of the plan?	N/A	N/A	If not, how will your jurisdiction do plan maintenance.	
Will a copy of this plan be available for the various planning groups within your jurisdiction for use in future planning and budgeting purposes?				Yes

APPENDIX H – Mitigation Cost Analysis Guidelines

Continue to next page.

COUNTY OF RIVERSIDE
OFFICE OF THE
AUDITOR-CONTROLLER

County Administrative Center
4080 Lemon Street, 11th Floor
P.O. Box 1326
Riverside, CA 92502-1326
(951) 955-3800
Fax (951) 955-3802

Paul Angulo, CPA
Auditor-Controller

Auditor-Controller Review of Rates/Fees

Pursuant to Board of Supervisors Policy B-4 and B-28, County departments wishing to establish a rate/fee, or revise an existing rate/fee for service provided to other County departments, other public agencies, organizations, or individuals, are required to obtain approval by the County Executive Office and be reviewed by the (ACO) Auditor-Controller's Office prior to submitting their rate/fee request to the Board of Supervisors.

Federal (OMB) Office of Management and Budget Circular A-87 provides guidance for determining costs that may be recovered in rates/fees.

Rate/Fee packages submitted for review to the ACO must include the following:

1. A narrative fully explaining the methodology used (i.e., the purpose of the rate/fee, how it was developed, how each rate/fee was calculated, and who will be charged the rate/fee).

2. Electronic copies of spreadsheets created to calculate the rate/fee. Please provide notes to explain where the information was derived and clearly identify if changes have been made to the original data. Ensure multiple tabs are correctly linked and pertinent data is highlighted.

3. Supporting documentation validating all expenditure and revenue amounts used, full disclosure of all calculations, and clear identification of overhead calculations and application of the overhead to all the department's divisions/functions.

ACO Documentation Requirements

1. Direct salary/benefits costs by classification; including hourly rate of pay & benefits rate;
2. Direct costs by line item included in the rate/fee (non-salary/benefit);
3. Departmental administrative overhead costs included in rate/fee, as well as the total administrative cost applied to all divisions/functions;
4. Departmental indirect costs by line item included in rate;
5. Countywide overhead costs;
6. Schedule of fixed asset amortization;
7. Copy of (ICRP) Indirect Cost Rate Proposal, if applicable;
8. Copy of last year's budget for the function;

9. Time studies, if applicable;
10. Methodology for Productive hourly rate computations, if applicable;
11. Government Code reference for statutorily set rates/fees;
12. Related off-setting revenues;
13. County Ordinance reference, if applicable;
14. ISF retained earnings information;
15. Summary showing current rates/fees and revised rates/fees;
16. Completed Form 11; and
17. Copy of the annual productivity and efficiency report.

The above list is not all inclusive and additional documentation may be required in support of submitted rates/fees.

If you have any questions in regards to the rate/fee review process or the required documentation, please contact Principal Accountant, Russell Dominski at 955-8136.

Thank you in advance for your cooperation.

Cc: Jay Orr, County Executive Officer
Ivan Chand, Deputy County Executive Officer
Karen Johnson, Senior Management Analyst

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APPENDIX I – Acronyms

This list contains acronyms commonly used in Emergency Management and those specific to Riverside County.

AC	Area Command
ADA	Americans with Disabilities Act
ALS	Advanced Life Support
ARC	American Red Cross
ARES	Amateur Radio Emergency Services
CALDAP	California Disaster Assistance Program
CAL FIRE	California Department of Forestry and Fire Protection
CAL-TRANS	California Department of Transportation
CALWAS	California Warning System
CAR	Corrective Action Report
CBO	Community Based Organization
CBRNE	Chemical, Biological, Radiological, Nuclear or High-Yield Explosive
CCC	California Conservation Corps
CDC	Centers for Disease Control, U.S. Public Health Service
CDF	California Department of Forestry
CEPEC	California Earthquake Prediction Evaluation Council
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CERT	Community Emergency Response Team
CESFRS	California Emergency Service Fire Radio System
CESRS	California Emergency Services Radio System
CFR	Code of Federal Regulations
CHP	California Highway Patrol
CLEMARS	California Law Enforcement Mutual Aid Radio System
CLERS	California Law Enforcement Radio System

CLETS	California Law Enforcement Telecommunications System
COG	Continuity of Government
DA	Damage Assessment
DAP	Disaster Assistance Programs
DCS	Disaster Communications Service
DFCO	Deputy Federal Coordinating Officer
DFO	Disaster Field Office
DHA	Disaster Housing Assistance
DHS	Department of Homeland Security
DMAT	Disaster Medical Assistance Team
DMORT	Disaster Mortuary Operational Response Team
DOC	Department Operations Center
DOD	Department of Defense
DOI	Department of Interior
DOJ	Department of Justice
DOL	Department of Labor
DOS	Department of State
DOT	Department of Transportation
DRC	Disaster Recovery Center
DRC	Disaster Resource Center
DSA	Division of the State Architect (California)
DWR	California Department of Water Resources
EAS	Emergency Alert System
EDD	Employment Development Department
EDIS	Emergency Digital Information System
EMAC	Emergency Management Assistance Compact
EMD	Emergency Management Department
EMI	Emergency Management Institute
EMIS	Emergency Management Information System (Los Angeles County)

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EMMA	Emergency Managers Mutual Aid
EMP	Electromagnetic Pulse
EMPG	Emergency Management Performance Grant
EMS	Emergency Medical Services
EMSA	Emergency Medical Services Authority
EMT	Emergency Medical Technician
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
EPI	Emergency Public Information
EPIC	Emergency Public Information Center
ERT	Emergency Response Team
ESA	California Emergency Services Act
ESC	Emergency Services Coordinator
ESF	Emergency Support Functions
EST	Emergency Support Team
FAA	Federal Aviation Administration
FBI	Federal Bureau of Investigation
FCC	Federal Communications Commission
FCO	Federal Coordinating Officer
FEMA	Federal Emergency Management Agency
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
FIA	Federal Insurance Administration
FIRESCOPE	Firefighting Resources of Calif. Organized for Potential Emergencies
FOG	Field Operations Guide
FTS	Field Treatment Sites
GAR	Governor's Authorized Representative
GSA	General Services Administration

HAZMAT	Hazardous Materials
HEW	U.S. Department of Health, Education and Welfare
HHS	Department of Health and Human Services
HMC	Hazard Mitigation Coordinator
HMDA	Hazard Mitigation and Disaster Assistance
HMGP	Hazard Mitigation Grant Program
HMO	Hazard Mitigation Officer
HMT	Hazard Mitigation Team
HSAS	Homeland Security Advisory System
HSC	Homeland Security Council
HSEEP	Homeland Security Exercise Evaluation Program
HSOC	Homeland Security Operations Center
HSPD	Homeland Security Presidential Directive
HSPD-5	Homeland Security Presidential Directive-5
HUD	Housing and Urban Development Program
IA	Individual Assistance
IAC	Incident Advisory Council
IAP	Incident Action Plan
IC	Incident Commander
IC	Incident Command
ICP	Incident Command Post
ICS	Incident Command System
IDE	Initial Damage Estimate
IID	Imperial Irrigation District
IMT	Incident Management Team
IRS	U.S. Internal Revenue Service
JDIC	Justice Data Interface Controller
JFO	Joint Field Office
JIC	Joint Information Center

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JIS	Joint Information System
JOC	Joint Operations Center
JPA	Joint Powers Agreement
JTTF	Joint Terrorism Task Force
LNO	Liaison Officer
MACS	Multi-Agency Coordination System
MARAC	Mutual Aid Regional Advisory Committee
MMRS	Metropolitan Medical Response Team
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MTA	Metropolitan Transit Authority
NAWAS	National Warning System
NDAA	California Natural Disaster Assistance Act
NDMS	National Disaster Medical System
NEP	National Exercise Program
NFA	National Fire Academy
NFIP	National Flood Insurance Program
NGO	Nongovernmental Organization (See PNP, NVOAD, VOAD)
NHC	National Hurricane Center
NHPA	National Historic Preservation Act
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration
NOC	National Operations Center
NOI	Notice of Interest
NRC	Nuclear Regulatory Commission
NRF	National Response Framework
NSC	National Security Council
NVOAD	National Voluntary Organizations Active in Disaster (See NGO, PNP, VOAD)
NWS	National Weather Service

OA	Operational Area
OASIS	Operational Area Satellite Information System
OEM	Office of Emergency Management
OES	Office of Emergency Services
OSA	California Office of the State Architect
OSHA	Occupational Safety and Health Administration
PA	Public Assistance
PA/O	Public Assistance Officer
PDD	Presidential Decision Directive
PFO	Principal Federal Officer
PFO	Principal Federal Official
PIO	Public Information Officer
PIS	Public Information System
PNP	Private Nonprofit Organization (see NGO, NVOAD, VOAD)
POC	Point of Contact
POLREP	Pollution Report
PUC	California Public Utilities Commission
PVO	Private Voluntary Organizations
PW	Project Worksheet
R&D	Research and Development
RACES	Radio Amateur Civil Emergency Services
RCOE	Riverside County Office of Education
RCSD	Riverside County Sheriff's Department
REOC	Regional Emergency Operations Center (State OES Region)
RESTAT	Resources Status
RIMS	Response Information Management System (State OES)
RIMS	Resources Inventory Management System (federal)
ROSS	Resource Ordering and Status System
RRCC	Regional Response Coordination Center

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RRCC	Regional Response Coordinating Center
SAP	State Assistance Program
SAR	Search and Rescue
SARA	Superfund Amendment Reauthorization Act (Title III)
SBA	Small Business Administration
SCAQMD	South Coast Air Quality Management District
SCC	Sheriff's Communications Center (Los Angeles County)
SCO	State Coordinating Officer
SDO	Standards Development Organizations
SEMS	Standardized Emergency Management System
SFLEO	Senior Federal Law Enforcement Official
SFO	Senior Federal Official
SHMO	State Hazard Mitigation Officer
SIOC	Strategic Information and Operations Center
SITREP	Situation Report
SO	Safety Officer
SOC	State Operations Center
SOP	Standard Operating Procedure
STO	State Training Officer
TEW	Terrorism Early Warning group
TLMA	Transportation and Land Management Agency
UC	Unified Command
USACE	United States Army Corps of Engineers
USAR	Urban Search and Rescue
USDA	U.S. Department of Agriculture
USFA	United States Fire Administration
USGS	United States Geological Survey
VOAD	Volunteer Organizations Active in Disaster (See NGO, PNP, NVOAD)
WMD	Weapons of Mass Destruction

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APPENDIX J – References

References for the Updated LHMP included information from many websites, FEMA and Cal EMA guidance documents and resources from the County of Riverside Departments.

Guidance and other Documents:
2012 Riverside County Operational Area Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP)
FEMA Local Mitigation Plan Review Guide
2010 State of California Hazard Mitigation Plan (SHMP)
Disaster Mitigation Act of 2000
County of Riverside General Plan, multiple Elements
Riverside County Operational Area Emergency Operations Plan
FEMA Hazard Mitigation Planning
FEMA How To Guide #1, Getting Started: Building Support for Mitigation Planning
FEMA How To Guide #2, Understanding Your Risks: Identifying Hazards and Estimating Losses
FEMA How To Guide #3, Developing the Mitigation Plan: Identifying Mitigation Actions and Implementation Strategies
FEMA How To Guide #4, Bringing the Plan to Life: Implementing the Hazard Mitigation Plan
FEMA How To Guide #5, Using Benefit-Cost Review in Mitigation Planning
FEMA How To Guide #6, Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning
FEMA How To Guide #7, Integrating Manmade Hazards into Mitigation Planning
FEMA How To Guide #8, Multi-Jurisdictional Mitigation Planning
FEMA How To Guide #9, Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects
Freeway Closure Plan
Joint Information System (JIS) Plan
Mass Care & Shelter Guidance and Standard Operating Procedures
Natural Hazard Mapping, Analysis, and Mitigation: a Technical Background Report in Support of the Safety Element of the New Riverside County 2000 General Plan
Riverside County Essential Facilities Risk Assessment (RCEFRA) Project Report June 2009
2015 Riverside County SCAG Repot – Profile of Riverside County
Southern California Catastrophic Earthquake Response Plan

Website Links:	
Cal OES Hazard Mitigation Portal	http://hazardmitigation.calema.ca.gov/
Cal OES Local Mitigation Planning	http://www.caloes.ca.gov/for-individuals-families/hazard-mitigation-planning/local-hazard-mitigation-program
My Hazards Mapping Website	http://myhazards.calema.ca.gov/
My Plan Mapping Site	http://myplan.calema.ca.gov/
Distressed and Abandoned Properties	http://www.foreclosureregistration.org/
Query for fires, used to find details on 63 large fires for Riverside County	http://cdfdata.fire.ca.gov/incidents/incidents_search_results?search=riverside
Data query to find heat data, health related stats	http://epicenter.cdph.ca.gov/ReportMenus/InjuryDataByTopic.aspx
Seismic landslide zones	http://gmw.consrv.ca.gov/shmp/html/pdf_maps_so.html
Landslide Alerts	http://www.usgs.gov/hazard_alert/alerts/landslides.rss
Kinder Morgan Public Information	http://www.kindermorgan.com/public_awareness/
	http://www.kindermorgan.com/public_awareness/AdditionalInformation/KMSafetyBrochures.cfm
Riverside County Ordinances Link	http://www.rctlma.org/admin/content/ordinance_
Riverside County Building and Safety Link	http://www.rctlma.org/building/default.aspx
Riverside County Auditor Controller	http://www.auditorcontroller.org/ReportsPublications.aspx
Riverside Flood Control	http://www.floodcontrol.co.riverside.ca.us/AnnualReports.aspx
Riverside County Transportation & Land Management Agency	http://planning.rctlma.org/Portals/0/genplan/general_Plan_2017/elements/OCT17/Ch01_Intro_120815.pdf?ver=2017-10-11-102103-380
	http://planning.rctlma.org/ZoningInformation/GeneralPlan/RiversideCountyGeneralPlan2015.aspx
	http://planning.rctlma.org/
Ready.Gov Website	http://www.ready.gov/pandemic
	http://www.ready.gov/terrorism
Disability Planning Data for Planners From Pooled 2005-2007 ACS PUMS Data.	www.DisabilityPlanningData.com
The Spatial Hazard Events and Losses Database for the United States. Version 7.0 Database.	http://www.sheldus.org.

Columbia, SC: University of South Carolina. 2009.	
Water Plan information	http://www.water.ca.gov/publications/forms/
Flood Risk Maps	http://www.water.ca.gov/myfloodrisk/
Dam Safety Website	www.water.ca.gov/damsafety/index.cfm
Source: California Energy Commission, Natural Gas Pipelines	http://www.energy.ca.gov/maps/Natural_Gas_Pipelines.pdf
75 Gas Transmission Pipeline Long Range Planning	http://www.pge.com/myhome/customerservice/response/pipelineplanning/
Source: U.S. Department of Transportation's Office of Pipeline Safety	http://osfm.fire.ca.gov/pipelineregulation.html
Recent Earthquakes in California and Nevada	http://scedc.caltech.edu/recent/Quakes/quakes0.html
Data: Explore 15 Years of Power Outages	http://insideenergy.org/2014/08/18/data-explore-15-years-of-power-outages/
Thousands without power in unincorporated Riverside County	http://abc7.com/news/thousands-without-power-in-unincorporated-riverside-county/1315149/
Power and phone outages reported across Riverside/San Bernardino counties	http://www.kesq.com/news/power-and-phone-outages-reported-across-riverside_san-bernardino-counties/62501575
Arizona-Southern California Outages on September 8, 2011	cascading outages and leaving approximately 2.7 million customers without power
A Study of Active Shooter Incidents in the United States Between 2000 and 2013	file:///C:/Users/sbruns/Downloads/(U)_ActiveShooter021317_17B_WEB%20(1).PDF
Active Shooter Incidents in the United States in 2014 and 2015	file:///C:/Users/sbruns/Downloads/ActiveShooterIncidentsUS_2014-2015.pdf
U.S. Drought Monitor – California	http://droughtmonitor.unl.edu/data/jpg/20170718/20170718_CA_trd.jpg
Riverside County Flood Control and Water Conservation District ANNUAL REPORT FY 2015/2016	http://www.floodcontrol.co.riverside.ca.us/Downloads/AnnualReports/DistrictAnnualReport15-16.pdf
San Onofre - Units 2 and 3	https://www.nrc.gov/info-finder/decommissioning/power-reactor/san-onofre-units-2-3.html
Cal OES - San Onofre Nuclear Generating Station	http://www.caloes.ca.gov/cal-oes-divisions/planning-preparedness/nuclear-power-plant-program
Colorado River Aqueduct	http://www.asce.org/project/colorado-river-aqueduct/
California State Water Project Overview	http://www.water.ca.gov/swp/

Addressing Emerging Infectious Disease Threats: A Prevention Strategy for the United States Executive Summary	https://www.cdc.gov/mmwr/preview/mmwrhtml/00031393.htm
National Center for Emerging and Zoonotic Infectious Diseases (NCEZID)	https://www.cdc.gov/ncezid/who-we-are/index.html
Botulism from Drinking Pruno	https://wwwnc.cdc.gov/eid/article/15/1/08-1024_article
West Nile Virus in California	https://wwwnc.cdc.gov/eid/article/10/8/04-0077_article
Risk of Local Zika Virus Transmission by County	https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/LocalZikaRiskMap.pdf
Ebola (Ebola Virus Disease)	https://www.cdc.gov/vhf/ebola/transmission/index.html
Mapping Site Links:	
Cal OES Hazard Mapping	http://www.caloes.ca.gov/cal-oes-divisions/geographic-information-systems
Cal OES My Plan	http://myplan.calema.ca.gov/
Faults Mapping	http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html
California Department of Water Resources	http://gis.bam.water.ca.gov/bam/
Handouts and Documents Distributed to Participants:	
FEMA Local Mitigation Planning Handbook	
FEMA How To Guide #1, Getting Started: Building Support for Mitigation Planning	
FEMA How To Guide #2, Understanding Your Risks: Identifying Hazards and Estimating Losses	
FEMA How To Guide #3, Developing the Mitigation Plan: Identifying Mitigation Actions and Implementation Strategies	
FEMA How To Guide #4, Bringing the Plan to Life: Implementing the Hazard Mitigation Plan	
FEMA How To Guide #5, Using Benefit-Cost Review in Mitigation Planning	
FEMA How To Guide #6, Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning	
FEMA How To Guide #7, Integrating Manmade Hazards into Mitigation Planning	
FEMA How To Guide #8, Multi-Jurisdictional Mitigation Planning	

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FEMA How To Guide #9, Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects
FEMA Mitigation Ideas
2016 Riverside County SCAG Repot – Profile of Riverside County
Community Rating System
FEMA Local Mitigation Plan Review Guide
2016 Inventory Worksheet
2017 LHMP Template
Senate Bill 1000
Senate Bill 379
FEMA Mitigation Grant Information

APPENDIX G

RESOLUTION ADOPTING 2020 UWMP AND WSCP

RESOLUTION NO. 2021-04

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CHINO BASIN DESALTER AUTHORITY ADOPTING THE CHINO BASIN DESALTER AUTHORITY URBAN WATER MANAGEMENT PLAN 2020

WHEREAS, the Chino Basin Desalter Authority ("CDA") prepared that certain draft Chino Basin Desalter Authority Urban Water Management Plan 2020, dated June 2021 ("2020 UWMP"), in accordance with the requirements of the Urban Water Management Planning Act, California Water Code Section 10610, *et seq.*; and

WHEREAS, in accordance with California Water Code Section 10642, CDA encouraged public participation with respect to the preparation of the 2020 UWMP by making the 2020 UWMP available for review by the public online, at *www.chinodesalter.org*, on May 20, 2021; and

WHEREAS, on June 3, 2021, the CDA Board of Directors held a public hearing to receive public testimony and comments regarding the 2020 UWMP; and

WHEREAS, notice of the time and place of the June 3, 2021 public hearing was published on May 11, 2021 and May 18, 2021 in the Inland Valley Daily Bulletin and May 12, 2021 and May 19, 2021 in the Riverside Press Enterprise, in accordance with California Government Code Section 6066; and

WHEREAS, the CDA Board of Directors considered all public comments and testimony presented at the public hearing relating to the 2020 UWMP; and

WHEREAS, the CDA Board of Directors now desires to adopt the 2020 UWMP.

NOW, THEREFORE, BE IT RESOLVED, the Board of Directors of the Chino Basin Desalter Authority hereby declares, finds, and determines as follows:

1. The recitals set forth above are true and correct.

2. The 2020 UWMP is hereby approved and adopted.

3. The Chairperson or the Chairperson's designee, the General Manager or the General Manager's designee, and any other proper officer of CDA, are each hereby authorized and directed to execute and deliver any and all documents and instruments and to do and cause to be done any and all acts and things necessary or proper to implement the 2020 UWMP.

4. The 2020 UWMP shall be placed on file with the General Manager or another officer of CDA, as directed from time to time by the General Manager. The General Manager is hereby directed to transmit copies of the 2020 UWMP to the California Department of Water Resources, the California State Library, and each city and county within which CDA provides water supplies, all within thirty (30) days following the date of adoption of this Resolution.

5. The CDA Board of Directors hereby finds and determines that, pursuant to California Water Code Section 10652, the adoption of the 2020 UWMP does not constitute a "project" within the meaning of the California Environmental Quality Act, Public Resources Code Section 21000, *et seq.*

6. This Resolution shall take effect immediately upon adoption.

PASSED AND ADOPTED this 3rd day of June, 2021.

Kenneth McLaughlin
Chairperson

ATTEST:

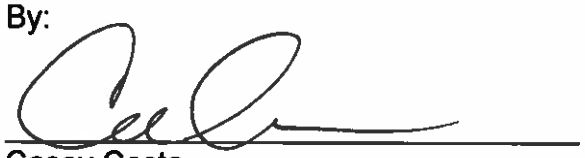
Casey Costa
Secretary

STATE OF CALIFORNIA)
) ss
COUNTY OF SAN BERNARDINO)

I, Casey Costa, Secretary of the Chino Basin Desalter Authority, do hereby certify that the foregoing Resolution, being No. 2021-04, was duly adopted by the Board of Directors of the Chino Basin Desalter Authority on the 3rd day of June, 2021, by the following vote:

AYES:	Ken McLaughlin, Jurupa Community Services District Jim Bowman, City of Ontario Eunice Ulloa, City of Chino Peter Rogers, City of Chino Hills Greg Newton, City of Norco Vicki Rupe, Santa Ana River Water Company Gracie Torres, Western Municipal Water District
NOES:	None
ABSENT:	None
ABSTAIN:	None

By:



Casey Costa
Secretary

RESOLUTION NO. 2021-05

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CHINO BASIN DESALTER AUTHORITY ADOPTING THE CHINO BASIN DESALTER AUTHORITY WATER SHORTAGE CONTINGENCY PLAN 2020

WHEREAS, the Chino Basin Desalter Authority ("CDA") is an urban water supplier that is required to adopt an Urban Water Management Plan pursuant to Water Code Sections 10620 et seq.; and

WHEREAS, CDA adopted the Chino Basin Desalter Authority Urban Water Management Plan 2020 ("2020 UWMP") on June 3, 2021 in accordance with the requirements of the Urban Water Management Planning Act, California Water Code Section 10610, *et seq.*; and

WHEREAS, CDA is also required to prepare and adopt a Water Shortage Contingency Plan (2020 WSCP) that consists of certain elements prescribed by Water Code Section 10632, and to make the Plan available to the California State Library, the California Department of Water Resources, and to any city or county within which CDA supplies water no later than 30 days after adoption of the Plan and no later than July 1, 2021, as a required component of the Urban Water Management Plan; and

NOW, THEREFORE, BE IT RESOLVED, the Board of Directors of the Chino Basin Desalter Authority hereby declares, finds, and determines as follows:

1. The recitals set forth above are true and correct.

2. The 2020 Water Shortage Contingency Plan for the Chino Basin Desalter Authority is hereby approved and adopted.

3. This Resolution shall take effect immediately upon adoption.

PASSED AND ADOPTED this 1st day of July 2021.

Kenneth McLaughlin
Chairperson

ATTEST:

Casey Costa
Secretary

STATE OF CALIFORNIA)
) ss
COUNTY OF SAN BERNARDINO)

I, Casey Costa, Secretary of the Chino Basin Desalter Authority, do hereby certify that the foregoing Resolution, being No. 2021-05, was duly adopted by the Board of Directors of the Chino Basin Desalter Authority on the 1st day of July 2021, by the following vote:

AYES: Ken McLaughlin, Jurupa Community Services District
Jim Bowman, City of Ontario
Eunice Ulloa, City of Chino
Peter Rogers, City of Chino Hills
Greg Newton, City of Norco,
Vicki Rupe, Santa Ana River Water Company
Gracie Torres, Western Municpal Water District

NOES: None

ABSENT: None

ABSTAIN: None

By:



Casey Costa
Secretary