2023

Local Hazard Mitigation Plan

Hazard Mitigation Plan Update

Date of Districts Board Approval: XX-XX-XXXX

FEMA Approval Date: XX-XX-XXXX

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Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

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SECTION 1. INTRODUCTION

The HMP update is a "living document" that should be reviewed, monitored, and updated to reflect changing conditions and new information. As required, the HMP must be updated every five (5) years to remain in compliance with regulations and Federal mitigation grant conditions. In that spirit, this Hazard Mitigation Plan (HMP) is an update of the Inland Empire Utilities Agency's Hazard Mitigation Plan under review by FEMA.

1.1 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 Hazard Mitigation Plan (HMP) is to demonstrate the plan for reducing and/or eliminating risk in Inland Empire Utilities Agency's service area. The HMP process encourages communities to develop goals and projects that will reduce risk and build a more disaster resilient community by analyzing potential hazards.

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 IEUA infrastructure 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.

Also, with an approved (and adopted) HMP, Inland Empire Utilities Agency is 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.

1.2 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 Hazard Mitigation Plan (HMP) 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.

Senate Bill No. 379 will, upon the next revision of a local hazard mitigation plan on or after January 1, 2023, or, if the local jurisdiction has not adopted a local hazard mitigation plan, beginning on or before January 1, 2028, require the safety element to be reviewed and updated as necessary to address climate adaptation and resiliency strategies applicable to that city or county.

IEUA legal jurisdiction encompasses serving wholesale water to seven different cities within Southern California. The water agency has legal authority for infrastructure, pipelines, wells, and water storage to serve this purpose. IEUA does not have legal authority for zoning, land use, new construction, planning, building inspections, or codes.

1.3 WHAT'S NEW

The 2018 Inland Empire Utilities Agency Hazard Mitigation Plan contained a detailed description of the planning process, a risk assessment of identified hazards for the IEUA Service Area, and an overall mitigation strategy for reducing the risk and vulnerability from these hazards. Since the approval of the plan by FEMA, progress has been made by IEUA on the mitigation strategy. As part of this 2023 LHMP update, a thorough review and update of the 2018 plan was conducted to ensure that this update reflects current conditions and priorities 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 service area conditions. This includes a summary of new hazard and risk assessment data as it relates to the IEUA Service Area as well as information on current and future development trends affecting infrastructure vulnerability and related issues. The actual updated data and analyses are contained in their respected sections within this 2023 LHMP 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.

2018 Mitigation Strategy Status and Successes. This section provides a description of the status of mitigation actions from the 2018 plan and indicates whether a project is no longer relevant or is recommended for inclusion in the updated 2023 mitigation strategy.

This What's New section provides documentation of IEUA Service Area's progress or changes in their risk and vulnerability to hazards and their overall hazard mitigation program. Completion of this 2023 LHMP Update further provides documentation of the IEUA's continued commitment and engagement in the mitigation planning process.

1.4 NEW RISK ASSESSMENT

As part of its comprehensive review and update of each section of the plan, IEUA 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 IEUA Area was completed resulting in additional hazards added to planning documents the new hazards include climate change, drought and terrorism.
- 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.
- 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.
- An enhanced vulnerability assessment.

Incorporation and analysis of the new 2020 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.

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.

1.5 SUCCESSFUL MITIGATION IMPLEMENTATION

IEUA has completed review of past seismic retrofit studies and has applied studies to current and future projects. IEUA is also participating annually with Great California Shakeout to prepare and train employees for earthquakes.

- RP-1 and TP-1 Stormwater Drainage Upgrades to repair the old discharge line and tie in a permanent pump. This project was completed in 2022.
- Flood mitigation project at the Prado Lift Station Clean-out and overflow. This project will remove the existing manhole at Prado lift station with a sealed clean-out which can contain pressurized flows during pump station outages. This project was completed in 2021.

- Flood Mitigation project for the Victoria Basin Improvements. The basin improvement is to modify the existing mid-level outlet at the west side of the basin to allow for more basin storage. The project was completed in 202.
- Flood Mitigation project at the Montclair Basin. Montclair Basin will construct two new diversion structures from the San Antonio Creek into the Montclair Basins 2 and 3. Anticipated completion in 1-5 years.
- Flood Mitigation for RP-3 Basin. The project will create an additional recharge basin at the northern area which is occupied by abandon structures from a decommissioned wastewater treatment facility. Anticipated completion in 1-5 years.
- Earthquake Mitigation at the TCE Plume Cleanup. The project will include three new groundwater monitoring wells, one new groundwater production well and approximately 30000 feet of raw water pipeline to distribute up to 6000 acre-feet per year of groundwater supply to the Chino II Desalter. Anticipated completion in 1-5 years.
- Flood Mitigation project at RP-5 Biosolids Facility. The Project is for construction of a new solids handling facility at RP-5 to decommission RP-2 which is currently located below the 566' flood elevation. Anticipated completion in 1-5 years.
- Flood Mitigation project at the Prado De-Chlorination Station Inundation Projection. Engineering to investigate whether it is more cost effective to protect in place the Prado De-Chlorination chemical storage facility metering building and injection and monitoring buildings or to relocated them above 566' of elevation. Anticipated completion in 1-5 years.

  Flood Mitigation project at the Preserve Lift Station. IEUA will be completing upgrades to electrical and mechanical equipment. Lift station design includes elevated platform for flood control. Anticipated completion in 1-5 years.

1.6 COMMUNITY PROFILE

PHYSICAL SETTING

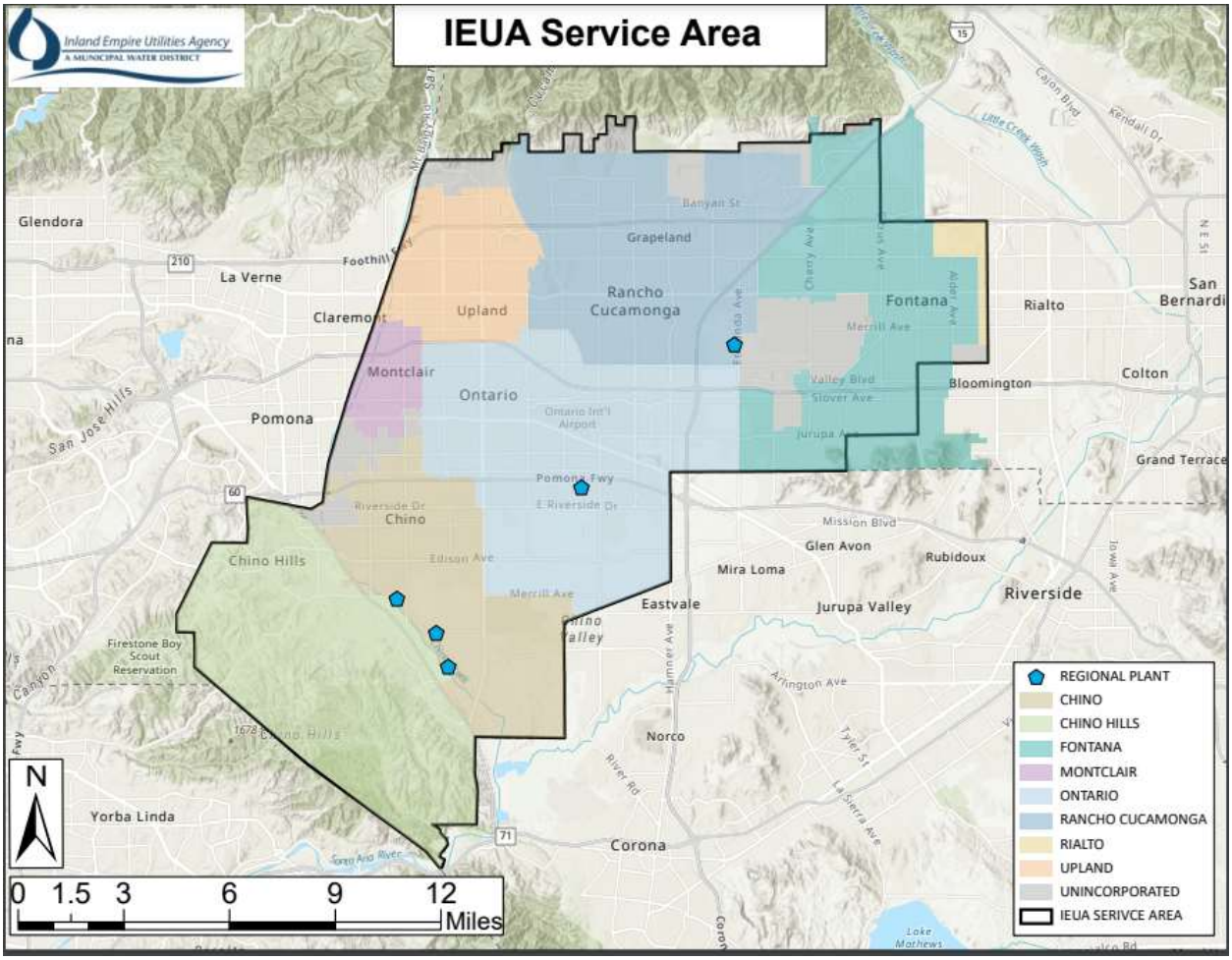
Inland Empire Utilities Agency (IEUA) encompasses approximately 242 square miles in the west end of the San Bernardino County, and generally overlies the Chino Groundwater Basin in the upper Santa Ana River (SAR) watershed. Specifically, IEUA provides services to 7 cities: Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland.

The Basin consists of an alluvial valley that is relatively flat from east to west and slopes from north to south at a one to two percent grade forming a tilted basin. Elevation ranges from about two thousand (2,000) feet in the foothills below the San Gabriel Mountains to about five hundred (500) feet near Prado Dam. From the west, the Agency extends from the Los Angeles County line to a point near the eastern boundary of the City of Fontana, and from the north it extends from the base of the San Gabriel Mountains and extends south to the Riverside County line and then southwest to the Orange County line.

According to FEMA, approximately one quarter (1/4) of the alluvial plain is subject to one hundred (100) year or five hundred (500) year flooding.

Several small creeks flowing from the San Gabriel Mountains traverse the area. The creeks flowing out of the San Gabriel Mountains have created steep alluvial fans in the northern part of the Basin. These fans represent one of several major topographic features in the area. Other major topographic features include the Chino and Puente Hills, located along the southwest boundary of the area. These hills, which turn more rugged to the south, divide the Basin from the Pacific Ocean to the west and exert an important influence on air quality, climate, and water movement. The hills are cut by the Santa Ana and Carbon canyons, which provide major airflow corridors into the area. The final significant topographic feature in the area is the Jurupa Hills, which are surrounded by plains on the eastern boundary of the area.

Figure 1. IEUA Service Map



HISTORY

The IEUA, formerly known as the Chino Basin Municipal Water District (CBMWD), was formed by popular vote of its residents to become a member agency of the Metropolitan Water District of Southern California (MWD) in 1950 for the purpose of importing supplemental water from the MWD to augment local stream and groundwater supplies.

The boundaries at first encompassed ninety-two point zero three (92.03) square miles of land, divided into two separate parcels. One of these included the City of Fontana and the other, the Cities of Ontario and Upland. At that time, the population was approximately eighty thousand (80,000) people, and the assessed valuation was eighty-two million dollars ($82,000,000).

In 1954, the land lying between the Fontana and the Ontario-Upland areas annexed to the District adding one hundred thirty-two point five (132.5) square miles of land to the service area. This brought the total land area to two hundred twenty-four point fifty-three (224.53) square miles. The population increased to one hundred thousand (100,000), and the assessed value went to one hundred four point six million dollars ($104,600,000).

In 1958, the land lying south of the District followed suit and extended the service area to two hundred forty-one point thirteen (241.13) square miles. The population rose to one hundred forty-seven thousand (147,000), and the assessed value increased to two hundred four point four million dollars ($204,400,000).

The last annexation took place in 1969 and brought an additional one point eleven (1.11) square miles into the Agency along the Northerly boundary. The total area now served is two hundred forty-two point two (242.2) square miles. Entities providing water within IEUA's service area include the cities of Ontario, Chino, Chino Hills and Upland; Cucamonga Valley Water District and Monte Vista Water District; San Antonio Water Company; and a portion of Fontana Water Company.

The Agency has one representative on MWD's Board of Directors and one representative on the Santa Ana Watershed Project Authority (SAWPA) Commission. Additionally, the Agency has one member that sits on the Chino Basin Watermaster (CBWM) Board.

In 1972, the Agency completed negotiations with its member agencies for the purchase of three existing domestic wastewater treatment plants. Those negotiations were the beginning of the Regional Sewerage Program.

The Agency owns and operates five (5) regional water recycling plants all of which are prone and at risk from the effects of each identified hazard in **Section 4.3**; several domestic/industrial trunk and interceptor sewer lines; and an indoor Co-Composting Facility. IEUA does not own the wastewater system. IEUA only operates the wastewater system.

The Agency currently owns and operates two separate recycled water systems. A northern system which consists of a recycled water outfall line designated the RWRP-4 Outfall Line, which extends

from Regional Water Recycling Plant Number 1 (RWRP-1), and the RWRP-1 Outfall Line from RWRP-1 to the Prado Basin. The southern recycled water system, located within the cities of Chino and Chino Hills, consists of a seven hundred fifty thousand (750,000) gallon reservoir, a booster station, and approximately four (4) miles of distribution mains.

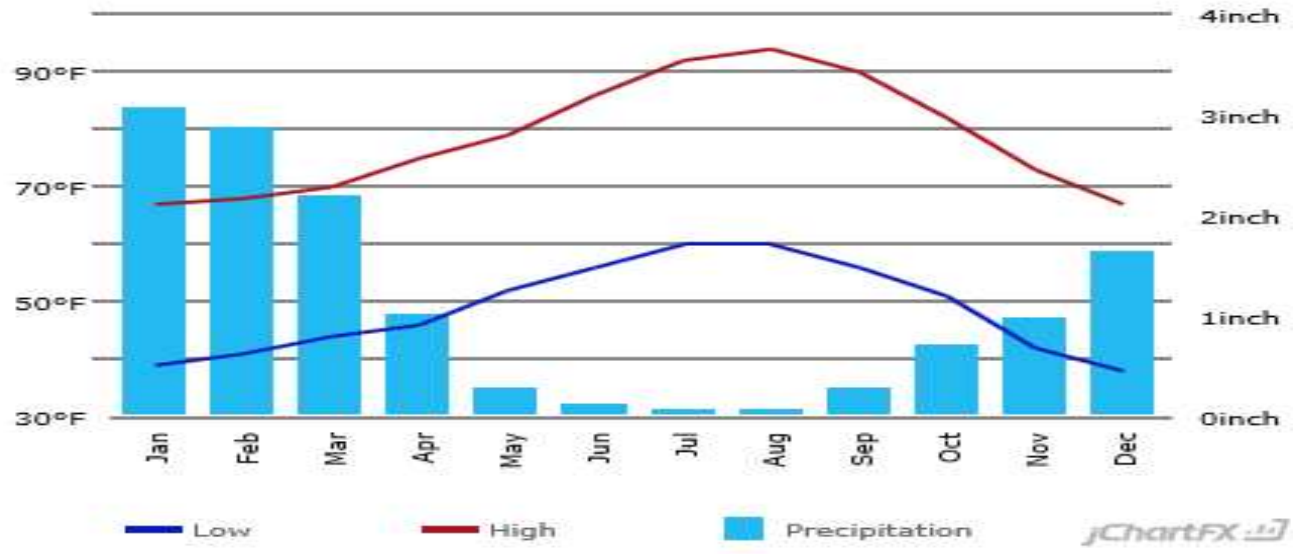
The Agency's plans under the new Regional Recycled Water Distribution System are to tie the two existing systems together, which will improve operations and reliability, plus provide recycled water over the entire service area.

1.7 CLIMATE

The average rainfall[1] for the City of Chino, where our Main Headquarters is located, is 13 inches with average temperatures ranging from 48 – 78 degrees Fahrenheit. The regions temperate, Mediterranean climate fosters moderate winters, warm summers, and generally low humidity.

Table 1. Average Max and Min Temp and Total Precipitation for the City of Chino

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg. Max. Temp (F)	67	68	70	75	79	86	92	94	90	82	73	67	78.6 F
Avg. Min. Temp (F)	39	41	44	46	52	56	60	60	56	51	42	38	48.8 F
Avg. Total Precipitation	3.07	2.87	2.2	1.02	0.28	0.12	0.08	0.08	0.28	0.71	0.98	1.65	13.34in.



[1] Average weather Chino 1981-2010 normal US Climate Data https://www.usclimatedata.com/

1.8 DEMOGRAPHICS

Demographics for our service area cities are based on Census 2020[2]. IEUA serves seven (7) cities with a population of approximately 825,000. See our service area cities' plans for details:

- City of Chino Hills
- City of Chino
- City of Fontana
- City of Rancho Cucamonga
- City of Ontario
- City of Upland
- City of Montclair

Table 2. Population within Service Area

	Chino Hills	Chino	Fontana	Rancho Cucamonga	Ontario	Upland	Montclair	Population Total
Population	82,800	89,170	212,704	178,060	178,194	77,348	40,041	858,317

Table 3. Percentage of the Population at Risk from Identified Hazards within IEUA

% of Population at Risk from Identified Hazards	Chino Hills	Chino	Fontana	Rancho Cucamonga	Ontario	Upland	Montclair	Population Total
Population within Service Area	82,800	89,170	212,704	178,060	178,194	77,348	40,041	858,317
Earthquake	70%	70%	70%	70%	70%	70%	70%	-
Climate Change Induced Drought	30%	30%	30%	30%	30%	30%	30%	-
Flooding	15%	15%	15%	15%	15%	15%	15%	-
Windstorms	10%	10%	10%	10%	10%	10%	10%	-
Cyber Security	0%	0%	0%	0%	0%	0%	0%	-

[2] Service area population from http://datausa.io

Inland Empire Utilities Agency has no direct customers and does not sell potable water to the cities they serve, they only sell raw water to which the cities are responsible for treating and distributing to the City's customers. IEUA collects sewer and treats raw sewage from several of the cities within the service area. IEUA treats sewage to make recycled water that is recharged back into the underground aquifer. Underserved communities and socially vulnerable populations in emergencies are handled by the County of San Bernardino and the Cities served by IEUA. There is no population served directly by IEUA.

1.9 EXISTING LAND USE

IEUA does not regulate Land Use within its service area. However, the Agency's Planning and Engineering departments work together with city staff on decisions that will have an effect on Agency treatment facilities and its sewer/utility lines.

1.10 DEVELOPMENT TRENDS

IEUA's service area is experiencing a tremendous amount of growth in business, industry and real estate. With the fast-paced growth, the Agency has developed a Wastewater Facilities Master Plan[3] to build the necessary infrastructure to ensure a reliable, clean water supply. Projects include increasing the daily processing capacity of several wastewater treatment plants and expanding the Regional Recycled Water Distribution System throughout the Agency's service area. Additionally, several of the cities have future plans for master planned communities that include both residential and retail development, while other cities are fully developed and do not anticipate additional growth. 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 2023 LHMP. Additionally, all development will be in compliance with all Fire, Flood, and Seismic codes of the County and State at the time of development. No development changes since the 2018 LHMP affected the jurisdiction's overall vulnerability. Along with no changes to the community's priorities since the 2018 LHMP.

In 2015, during Urban Water Management Planning[4] efforts a comprehensive evaluation of land use trends was prepared for the region. The planning effort resulted in following projection of land use trends:

[3] Prepared by ESA 2016. IEUA-Facilities-Master-Plan-DEIR-PRINT.pdf

[4] Planned prepared by Kennedy Jenks 2020 Final-IEUA-2020-UWMP.pdf

Table 4. Land Use Trends

	Acreage Inventory by Year					
Land Use (du/ac)	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**
Residential Very Low (<1 - 2)	9,089	9,504	10,155	10,282	10,115	11,522
Residential Low (3 - 7)	26,329	27,090	28,463	29,691	30,804	32,593
Residential Medium (8 - 14)	3,067	3,500	3,959	4,425	4,663	5,915
Residential High (15 - 24)	2,349	2,678	3,131	3,263	3,300	3,427
Residential Very High (25+)	231	256	283	408	466	646
Commercial	6,838	6,925	7,180	7,994	8,456	9,221
Industrial	16,974	18,587	19,856	20,141	20,306	20,420
Public/Institutional	2,979	2,990	3,066	3,095	3,289	3,334
Parks, Schools, Irrigation	5,629	5,687	5,657	5,890	5,963	6,154
Agriculture	2,026	1,534	1,175	630	376	68
Unique Water Users	863	863	852	852	852	852
Non-Irrigated	34,438	34,410	35,668	35,833	35,904	36,085
Vacant	19,724	16,512	11,090	8,032	6,042	298
Total	**130,537**	**130,537**	**130,537**	**130,537**	**130,537**	**130,537**

In 2014, IEUA undertook an extensive effort to develop a long-range plan to address infrastructure needs of the region, the result of that effort was the 2014 Wastewater Facilities Master Plan (WFMP). In coordination with local cities and municipalities, IEUA was able to determine current land use and project future land uses for the region. In addition, the project also elaborated further to project wastewater flows generation from the planned development trends, these projects were ultimately used as the basis for design for the facilities expansions at Regional Water Reclamation Facility No. 1 (RP-1) and RP-5.

SECTION 2. PLAN ADOPTION

2.1 ADOPTION BY LOCAL GOVERNING BODY

Pursuant to the mitigation planning regulations, Inland Empire Utilities Agency LHMP will be submitted to the California Office of Emergency Services (Cal EOS) for review and approval. Cal OES will conduct a review of the Plan in accordance with the Code of Federal Regulations; once this review is complete and any revisions are made, CalOES will forward the plan to FEMA for another review and revisions, as FEMA requires. CalOES will notify IEUA when FEMA has approved the final LHMP. The final approval letter of approval will be pending adoption by the Agency's Board of Directors. The Board of Directors Resolution will be sent to CalOES and FEMA. SEMC will send a copy of the LHMP and Resolution to the San Bernardino Office of Emergency Management.

2.2 PROMULGATION AUTHORITY

The Promulgator Authority for the adoption of the Hazard Mitigation Plan Inland Empire Utilities Agency and for the Board of Directors and incorporation of the LHMP into the San Bernardino County Operational Area Multi-Jurisdictional General Plan is:

MARCO TULE – President

Representing Division 1 – Cities of Upland and Montclair, the unincorporated area of San Antonio Heights, and portions of Ontario and Rancho Cucamonga

STEVEN J. ELIE – Vice President
Representing Division 3 – Cities of Chino and Chino Hills.

JASMIN A. HALL – Secretary/Treasurer
Representing Division 4 – City of Fontana, and portions of Rialto and Bloomington.

MICHAEL CAMACHO – Director
Representing Division 5 – City of Rancho Cucamonga, a small portion of Fontana and a portion of the unincorporated territories in Fontana's sphere of influence.

PAUL HOFER – Director
Representing Division 2 – City of Ontario, the unincorporated Agricultural Preserve, and a portion of the unincorporated territories in the city of Fontana's sphere of influence.

2.3 PRIMARY POINT OF CONTACT

The Point of Contact for information regarding this LHMP is:
Tony Arellano, Safety Officer
Inland Empire Utilities Agency
6075 Kimball Avenue, Chino, CA 91708
(909) 993-1919 (Office)
aarellano@ieua.org

Consultant Primary Contact
Gary Sturdivan
Project Lead
Sturdivan Emergency Management Consulting, LLC.
(909) 658-5974
GSturdivan@semcllc.com

SECTION 3. PLANNING PROCESS

3.1 PREPARING FOR THE PLAN

IEUA developed a broad approach in preparation for the update to our hazard mitigation plan. As an active participant with the County of San Bernardino's Multi-Hazard Multi-Jurisdictional Mitigation Plan, IEUA used the County provided resources to assist in the development and evaluation of data to start the update of plan.

Internally IEUA has a wealth of experienced and resourceful employees that provided benefit to the program. The IEUA team participated in regular discussions, staff meetings, and in health and safety committee meetings in support of the plan update. The IEUA team were invited to the meeting through emails and Microsoft Outlook calendar. Members of this team also participated in community outreach events such as fairs and local city functions.

In addition to participating at the County level, IEUA staff participated in plan updates with local agencies that were also undergoing plan updates. This included staff from the City of Chino, Chino Hills, Chino Valley Unified School District, Chino Valley Independent Fire District, Chino Valley Medical Center, and the Chino Valley Chamber of Commerce. This team also participated in the community outreach with local businesses, including community-based organizations, that work directly with and/or provide support to underserved communities and socially vulnerable populations and members of the public through fairs and events.

The Agency's approach in updating the plan consisted of:

- Establishing the internal planning team
- Coordination with outside agencies, organizations, jurisdictions, and the public
- Documenting past events
- Posting the meeting agendas, meeting minutes, and draft LHMP onto IEUA website and asking for public input and comments on the planning process
- Conducting public outreach
- Reviewing and updating the hazards
- Reviewing and updating mitigation measures
- Plan Adoption

During the planning process, the Planning Team utilized the following plans to gain information on the hazards facing the area and mitigation goals of IEUA. Relevant information from each of the following plans, including local City and County Governments priorities, were included when aligned with IEUA strategies and projects and were incorporated into the IEUA LHMP.

IEUA Water Master Plan is a basin plan that deals with community water systems, water storage, water shortage, and climate change to ensure all the water agencies that take water from the local

basin are all in agreement to water shortages, water replenishment, and effects of climate change to our water. The following plans were used:

Table 5. plans used

Study Plan	Key Information
Urban Water Management Plan	Land Use Trends
2018 IEUA LHMP	Hazard Identification, Mitigation Measures
San Bernardino County HMP	Mitigation Measures and Goals, Hazards,
USGS Golden Guardian 2008	Earthquakes, Affects, Planning
2020 San Bernardino County LHMP	Land Use For Area, Future Projects
2018 California HMP	Goals For The State Of California
San Bernardino County Flood Control	Gain Information On Future Flood Control Projects
FEMA Flood Insurance Study for S.B. County	Flood History

The planning process consisted of:

3.2 PLANNING TEAM

As identified in **Section 3.1**, there were several planning teams associated with the preparation of the update. The Hazard Mitigation Plan was compiled and authored by members of the following Agency Planning Team:

Tony Arellano
Safety Officer, Inland Empire Utilities Agency
Description of Involvement: Member of Planning Team

Erik Cortez
Safety Analyst, Inland Empire Utilities Agency
Description of Involvement: Member of Planning Team

Warren T. Green
Manager of Contracts and Procurement, Inland Empire Utilities Agency
Description of Involvement: Member of Planning Team

Ryan Love
Deputy Manager of Operations, Inland Empire Utilities Agency
Description of Involvement: Member of Planning Team

Nolan King
Manager of Information Technology, Inland Empire Utilities Agency
Description of Involvement: Member of Planning Team

Austin Perkins
GIS Specialist, Inland Empire Utilities Agency
Description of Involvement: Member of Planning Team

Victoria Salazar
Associate Engineer, Inland Empire Utilities Agency
Description of Involvement: Member of Planning Team

Bonita Fan
Senior Environmental Resource Planner, Inland Empire Utilities Agency
Description of Involvement: Member of Planning Team

Anne Pandey
Grants Administrator, Inland Empire Utilities Agency
Description of Involvement: Member of Planning Team

Nicole Slavin
External Affairs Specialist, Inland Empire Utilities Agency
Description of Involvement: Member of Planning Team

3.3 COORDINATION WITH OTHER EXTERNAL JURISDICTIONS, AGENCIES, AND ORGANIZATIONS

The Internal and External Planning Teams include 12 people from Inland Empire Utilities Agency, and three people from local water agencies. The County of San Bernardino OES was invited to be on the Planning Team, but they were unable to attend, however, they reviewed that plans content. In Appendix A is the meeting matrix outlining the subjects covered and the attendees.

The Planning Team participated in monthly meetings to coordinate efforts, provide input, and receive support for the LHMP. The support included receiving technical expertise, resource materials, and tools. The Agency facilitated the LHMP process and provided information which follows FEMA requirements for the program. The tools, resource materials, and other project related information are maintained on a project portal on the Agency's website https://www.ieua.org/ which allowed access to the information by all participants and the public, screenshots are located under Appendix B. Mr. Gary Sturdivan's contact information was on each document for questions and concerns. The Planning Team reviewed the document and made corrections or voiced concerns to the consultant. These comments were discussed at the next Team meeting, and corrections were then made to the document, these meetings were not publicly held.

Accomplishing a shared goal for emergency preparedness and hazard mitigation requires the coordinated efforts of various jurisdictions, agencies, and organizations.

This team's objective consisted of:

- Assisting all participating jurisdictions with the Hazard Mitigation Plan planning process
- Providing guidance for the CalOES and FEMA requirements
- Assisting in the development of regional maps and support information regarding hazards

- Providing a forum to all jurisdictions participating in the update for questions and issues to be discussed

IEUA staff participated in each of the scheduled stakeholder meetings and conference calls facilitated by SEMC related to the update project. See **Appendix A** for meeting agendas discussing LHMP update.

3.4 PUBLIC INVOLVEMENT/OUTREACH

In support of the Inland Empire Utilities Agency's LHMP update, the Agency solicited information from members of the public through various methods. IEUA conducted their outreach through various social media including Facebook and Instagram in order to distribute a questionnaire, along with posting sections of the draft LHMP onto IEUA website. Outreach to nonprofit organizations, including community-based organizations was conducted to be given an opportunity to be involved with the planning process and represent the underserved and/or vulnerable communities within the IEUA service area. This outreach included: American Red Cross – American Red Cross Chapter Greater San Gabriel and Pomona Valleys, American Legion – Post 112 and 299, Washington Park Community Center. Gary Sturdivan called each agency twice and left a voice message each time. The calls were not returned.

These methods consist of:

- Community Outreach events
- Local Emergency Coordination meetings
- Plan/Project inclusion in the Agency's Programs which includes mitigation actions that require public involvement and are open for public comment. (10 Year Capital Improvement Plan, Annual Budget Report, etc.)

Any information and public feedback that was collected from the public outreach phase, public events and meetings would be documented in **Appendix B**, including outreach to representatives of the underserved and vulnerable populations that were provided the opportunity to be involved. There were no comments made.

October 2021, The Great ShakeOut

Inland Empire Utilities agency participated in The Great ShakeOut. Through this plan, we provide information on disaster response related to the Agency's business and water. This information includes steps the Agency has taken to respond to earthquake emergencies that impact the Agency and the surrounding community.

3.5 ASSESS THE HAZARD

A critical component of the LHMP process is to assess the likely hazards that may impact the District's facilities and operations. It is important to have a thorough understanding of these hazards without over-analyzing remote or highly unlikely hazards.

This LHMP has been developed through an extensive review of available information on hazards HDWD has faced in the past and most likely will face in the future. The Planning Team reviewed and discussed items that have happened in the State of California as well as disasters that have happened in the District's service area and in Southern California. The Team reviewed documents such as engineering drawings, photographs, and available geotechnical and geologic data both from the Internet and outside sources such as FEMA Hazard Mapping, San Bernardino County hazard maps, and documents.

Additionally, for each of the profiled hazards, the IEUA 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.

3.6 SET GOALS

The goal setting process for the 2023 Hazard Mitigation Plan update consisted of the Planning Team reviewing the hazard exposure and scenario impacts developed during the Risk Assessment portion of the process. With understanding of the risk, the community is potentially facing, the Planning Team then re-evaluated the 2018 Hazard Mitigation Plan Goals and Objectives; assessed their status and effectiveness in meeting the 2018 Mitigation Measures and identified new Goals and Objectives.

3.7 REVIEW AND PROPOSE MITIGATION MEASURES

The process of identifying mitigation measures began with a review and validation of the previous mitigation measures in the Agency's 2018 Hazard Mitigation Plan. Using the existing plan as a starting point, the planning team completed an assessment of whether the measures were still valid. Through this discussion, the development of new mitigation measures was determined.

The planning team identified and analyzed mitigation measures relative to each of the hazards that influence the Agency. This analysis assisted the Agency in developing an implementation strategy for the prioritization of mitigation measures. Meetings (both in-person and virtual) were held with the planning team, both as a group, and through meetings within their own departments to solicit input on the plan updates.

A wide variety of mitigation measures that can be identified to help reduce the impact of the hazards or the severity of damage from hazards was examined. The projects were identified to help

ensure the implementation of the Planning Team's goals and objectives. The following categories were used in the review of possible mitigation measures:

1. Public Information and Education - Outreach projects and technical assistance.
2. Preventive Activities - Zoning, building codes, stormwater ordinances
3. Structural Projects - Detention basins, reservoirs, road, and bridge improvements
4. Property Protection - Acquisition, retrofitting
5. Emergency Services - Warning, sandbagging, road signs/closures, evacuation
6. Natural Resource Protection - Wetlands, protection, best management practices.

In addition to the STAPLEE methodology, each Stakeholder Planning Team incorporated other criteria/factor questions into the process to help engage and solicit input from members. The STAPLEE method was applied to prioritizing the chosen mitigation actions.

Based on STAPLEE, the Planning Team addressed the following questions to determine mitigation options:

Does the Action:

1. Solve the problem
2. Address Vulnerability Assessment?
3. Reduce the exposure or vulnerability to the highest priority hazard
4. Address multiple hazards?
5. Address more than one (1) Goal/Objective?
6. Benefits equal or exceed costs?

Can the Action:

1. Be implemented with existing funds?
2. Be implemented by existing state or federal grant programs?
3. Be completed within the 5-year life cycle of the LHMP?
4. Be implemented with currently available technologies?

Will the Action:

1. Be accepted by the community?
2. Be supported by community leaders?
3. Adversely impact segments of the population or neighborhoods?
4. Result in legal action such as a lawsuit?
5. Positively or negatively impact the environment?

Is there:

1. Sufficient staffing to undertake the project?
2. Sufficient funds to complete the project?
3. Existing authority to undertake the project?

After going through this process for each project, the Stakeholder Planning Team had the ability to identify the higher priority projects.

3.8 DRAFT THE HAZARD MITIGATION PLAN

The IEUA 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 2011 and 2018 LHMP as a starting point but revised it to reflect updated information.

The Agency's consultant-led the Planning Team and prepared the draft LHMP with input from the Planning Team, outside water district in the area, and the public. The Planning Team reviewed and commented on the draft LHMP, and subsequent changes were made before the LHMP was finalized and adopted by the Board of Directors. All draft documents were posted on the Agency's website. Notices were sent to all water customers in the service area, via. Public Updates, Public social media that IEUA has at its disposal. Stating all LHMP documents were posted on the website and asked for comments.

The LHMP was reviewed in comparison to the FEMA-designed Review Tool. The Review Tool links the federal requirements and identifies the sections in the LHMP where the information can be found and provides a rating as to the level of compliance with the federal regulations.

Once the LHMP update was drafted the Planning Team finalized the plan and forwarded it to Cal/OES and FEMA for approval.

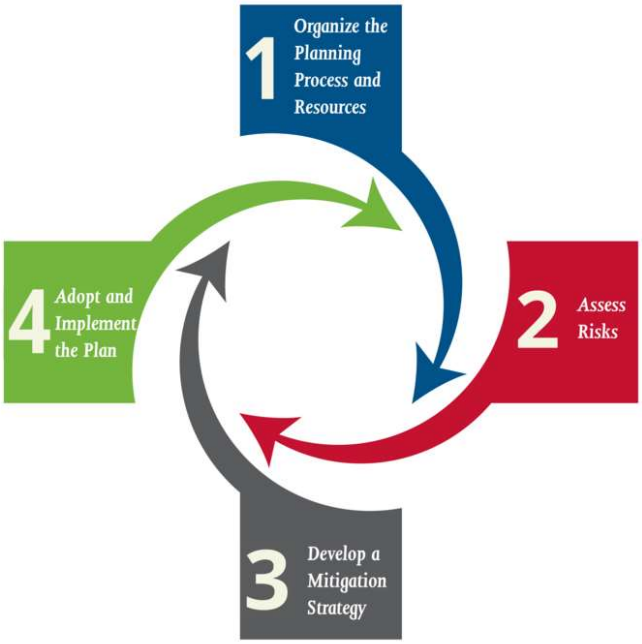
3.9 ADOPT THE PLAN

After the public review, the draft plan will be submitted to the State of California OES for review. Once the State has approved the LHMP, the document will be sent to FEMA by the State. FEMA will provide the Agency with an "Approval Pending Adoption" letter when the Hazard Mitigation Plan update meets all federal requirements. Upon receipt of this letter, the final plan will be posted on the Agency's Website for a 30-day public comment period and then submitted to Water Agency's Board of Directors for consideration and adoption. Once adopted, the final resolution will be submitted to FEMA for incorporation into the Local Hazard Mitigation Plan, and a copy of the resolution will be sent to CalOES and FEMA. A copy of the final LHMP will be delivered to San Bernardino County office of Emergency Management.

SECTION 4. RISK ASSESSMENT

The goal of mitigation is to reduce the future impacts of a hazard including property damage, disruption to local and regional economies, and the amount of public and private funds spent for recovery. Mitigation decisions are based on risk assessments where the probability of an event is evaluated with respect to the anticipated damages caused by such an event.

The purpose of this section is to understand the hazards and their risks in Inland Empire Utilities Agency service area. There are generally four steps in this process: 1) Hazard Identification 2) Vulnerability Analysis 3) Risk Analysis and 4) Vulnerability Assessment, including an estimation of potential losses. These are four different items; however, the terms can be used interchangeably.



4.1 HAZARD IDENTIFICATION

The Planning Team discussed potential hazards and evaluated their probability of occurrence. The following sections describe this process and the results.

4.2 HAZARD SCREENING CRITERIA

The intent of screening the hazards is to help prioritize which hazards create the greatest concern to IEUA. A list of natural hazards to consider was obtained from Federal Emergency Management Agency's (FEMA) State and Local Mitigation Planning How-to Guide: Understanding Your Risks (FEMA 386-1). The team used the Stafford Act, the California Emergency Service Act and STEPLEE (Social, Technical, Administrative, Political, Legal, Economic, and Environmental feasibility) criteria to help rank each risk. The risks were ranked with from 1 – 4: with (1) being a "Highly Likely" event, (2) being a "Likely" event (3) being a "Somewhat Likely" event, and (4) being a "Least Likely" event. The Planning Team reviewed each hazard on the list using their

experience and historical data pertaining to each hazard and developed the following ranked list in table 4.

Table 5. Hazard Risk Rankings

Hazard	Risk Ranking (1-4)
Earthquake/ Liquification	1
Flooding	2
Climate Change Induced Drought	2
Windstorm	3
Cyber Security	3
Dam Inundation	4
Wildfire	4
Freezing events	4
Volcanoes	4
Tsunami	4
Landslides	4

The natural hazards that were considered not to affect or be a risk to IEUA were given a ranking of 4 "Least Likely" and are not considered applicable to IEUA for mitigation.

Hazard Assessment Matrix

IEUA used a qualitative ranking system for the hazard screening process consisting of generating a high/medium/low style of rating for the probability and impact of each screened hazard.

Probability Ratings: Highly Likely, Likely, or Somewhat Likely

Impact Ratings: Catastrophic, Critical, or Limited

SCREENING ASSESSMENT MATRIX

The screening assessment matrix was used for IEUA's hazards. The hazards have been placed in the appropriate cell of the corresponding "Screening Assessment Matrix" based on the Planning Team's collective experience. The hazard screening assessment is shown in Table 5.

Prioritization of the hazards is discussed in the following section. The Probability/Impact rating is based on a 5-year occurrence. The percentages represent the likelihood within the 5-year occurrence.

Table 6. Screening Assessmment Matrix

	Impact			
	Probability/Impact Rating	***Catastrophic***	***Critical***	***Limited***
Probability	***Highly Likely (1)*** ***(75 – 100%)***	Earthquake (1)	Climate Change Induced Drought (2)	
	Likely (2) ***(50-75%)***		Flooding (2)	
	Somewhat Likely (3) ***(25 – 50%)***		Cyber Security (3)	Windstorm (3)

4.3 HAZARD PROFILES

This section looks at all the hazards identified by the Planning Team that may impact IEUA within its boundaries. This section gives an overview of each hazard, the definition of each hazard, and a description of how each hazard is expected to affect IEUA's service and/or service area using observed hazards in IEUA's service area, the hazards identified on the FEMA website, and the FEMA software program known as HAZUS (Hazards United States). HAZUS contains models of natural disasters and the effects the disasters can have on a region.

4.3.1 EARTHQUAKES

Probability: (75-100%)

Impact: Catastrophic

Priority: Highly Likely

* This section looks at all the hazards affecting the Agency within its boundaries and identified by the Planning Team.

General Definition: An earthquake is defined as 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's surface. As the plates move slowly over,

under, and past each other to create mountains, valleys, and all other geological formations. Usually, the movement is gradual; however, increased movement occurs when the plates become 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 plates meet; however, some earthquakes occur in the middle of plates.

Ground shaking from earthquakes can collapse buildings and bridges, disrupt gas, electric, water utilities, and phone service; Additionally, earthquakes can trigger landslides, avalanches, fires, and destructive ocean waves such as tsunamis. Buildings with foundations resting on unconsolidated fill material and other unstable soil, as well as homes not tied to their foundations, are at risk because they can be shaken off their mountings even during a mild earthquake. When an earthquake occurs in a populated area, it may cause deaths, injuries, and/or extensive property damage.

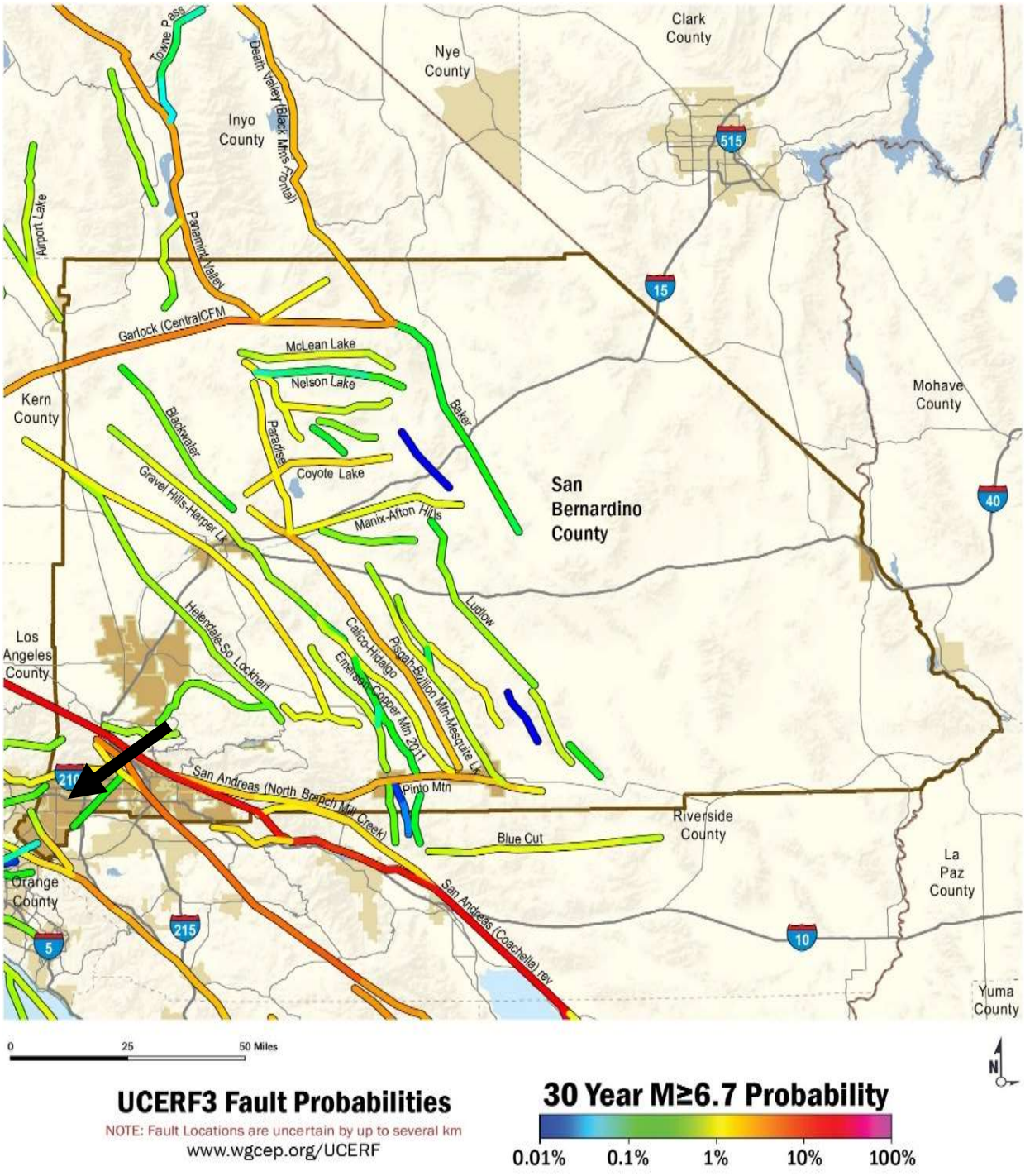
Earthquakes strike suddenly at any given time of year and without warning. On a yearly basis, 70 to 75 damaging earthquakes occur throughout the world. Estimates of losses from a 7.8 magnitude earthquake in the southern section of the San Andreas Fault System (located in the regional area near Los Angeles County) could easily reach $200 billion in damages. This information was pulled from the California Great ShakeOut© USGS scenario.

Earthquakes pose a moderate to very high risk for 45 states and territories in the United States of America, and earthquakes occur in every region of the Country. California experiences the most frequent damaging earthquakes of the 45 states and territories of the United States; however, Alaska experiences the greatest number of large earthquakes, most located in uninhabited areas. The nearby southern section of the San Andreas Fault is ranked in the top five (5) most likely faults to cause major damage in the United States by United States Geological Survey (USGS).

The source for the earthquake profile is a report that describes a new earthquake rupture forecast for California developed by the 2007 Working Group on California Earthquake Probabilities (WGCEP 2007). The Earthquake Working Group was organized in September 2005 by the USGS, the California Geological Survey (CGS), and the Southern California Earthquake Center (SCEC) to better understand the locations of faults in California. The group produced a revised, time-independent forecast for California for the National Seismic Hazard Map.

Description: The area around IEUA Facilities is seismically active since it is situated on the boundary between two tectonic plates. While there have been many earthquakes in and around the Agency's service area, none have had a large impact on IEUA. A source for the earthquake profile was a report that describes a new earthquake rupture forecast for California developed by the 2020 Working Group on California Earthquake Probabilities (WGCEP 2020). The Earthquake Working Group was organized in September 2005, by the U.S. Geological Survey (USGS), the California Geological Survey (CGS), and the Southern California Earthquake Center (SCEC) too better- understand the locations of faults in California. The group produced a revised, time independent forecast for California for the National Seismic Hazard Map.

Figure 2. Fault Probability within San Bernardino County



Arrow dictates where IEUA is located within the County of San Bernardino. Each fault line probability is identified using the color scale above. Colored line dictates the intensity that each fault can deliver by the colors indicated on the color-coded scale above.

Figure 3. Inland Empire Utilities Agency, USGS ShakeOut Map

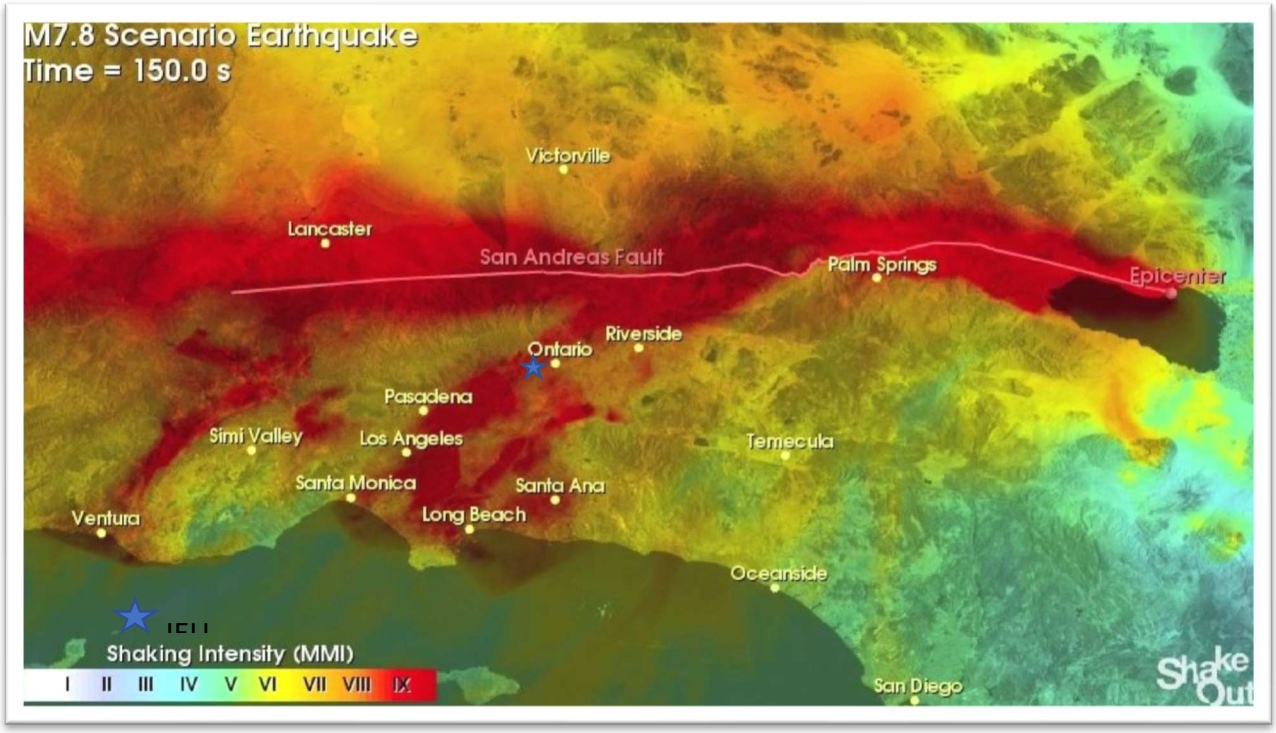


Figure 4. USGS Modified Mercalli Intensity Scale

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest,especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

The greatest earthquake threat in the United States is along tectonic plate boundaries and seismic fault lines located in the central and western states; however, the Eastern United State does face moderate risk to less frequent, less intense earthquake events.

Figure 5. United States Earthquake Hazard Map

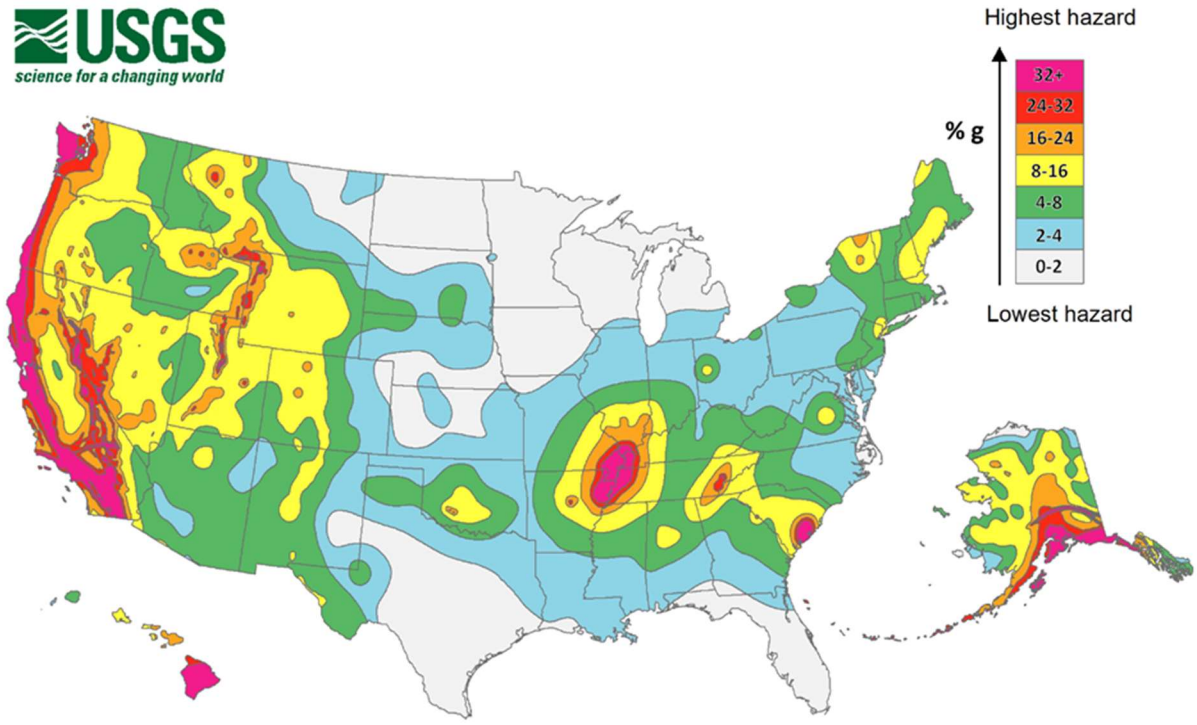


Table 7. Significant Earthquakes within San Bernardino County

Date	Area	Mag (M_w)	Total damage / notes
7/29/2008	Chino Hills	5.4	**No damage to IEUA**
1/15/2014	La Habra	5.1	**No damage to IEUA**
3/29/2014	La Verne	4.4	**No damage to IEUA**
7/5/2014	Borrego Springs	5.4	**No damage to IEUA**
1/25/2018	Trabuco Canyon	4.0	**No damage to IEUA**
7/4/2019	Ridgecrest	6.4	**No damage to IEUA**
7/6/2019	Ridgecrest/Trona	7.1	**No damage to IEUA**
9/10/2019	Wildomar	4.0	**No damage to IEUA**

Within the 2018-2023 timeframe, there was a federal and/or state declaration declared for earthquake within the IEUA service area. On July 8, 2019, The President issues an emergency declaration (EM-3415-CA) under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5207 (The Stafford Act), as follows:

"I have determined that the emergency conditions in certain areas of the State of California resulting from earthquakes beginning on July 4, 2019, and continuing, are of sufficient severity and magnitude to warrant an emergency declaration under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121 ET SEQ. ("the Stafford Act"). Therefore, I declare that such an emergency exists in the State of California…"

Impact Statement: A significant earthquake could have devastating impacts on IEUA and its assets. Shaking during earthquakes can cause structural failures, while ground displacement and liquefaction can cause infrastructure to sink, sag, float, rupture, or sever completely. Access to all assets may be impeded if the roads needed to access them are damaged and impassable. An extended loss of power or widespread damage to a system could impair the Agency's ability to provide service, especially if generators are compromised. This could in turn lead to not only a loss service but also a loss of revenue during a time while costly repairs are being made. Fires following earthquakes are also a significant concern and could impact operations. Direct impacts to employees are possible, including injury, death, and an impeded ability of essential personnel to report for duty may also hinder operations.

Figure 6. How Ground Displacement Can Severe Pipes

Liquefaction may cause buried domestic water pipes to sink, impacting gravity-fed systems. Once liquefied soils re-solidify after a quake, they will have to be dug up and repaired. Lateral spreading may damage wells and percolation ponds. IEUA could experience a loss of water from damaged systems.

State Water Project assets similar to water pipelines, ground shaking, displacement, and liquefaction may cause canals and laterals to crack, sever and otherwise fail.

Building Facilities: Shaking, ground displacement, and liquefaction have the potential to cause structural failure to buildings, including the office buildings at the Agency's administrative buildings. Less catastrophic events may cause unanchored furniture and items on shelves to fall. If an event was to occur during working hours, failure may result in employee and customer deaths and injuries. Further, crews out in the field may also be injured or killed.

Energy Storage and Power Failure: An adequate supply of energy is critical for IEUA to maintain its daily processes and functions. Power failures occur when the reliable, uninterrupted supply of energy to all or part of service area is disrupted, causing detriment to IEUA's ability to provide service. In summary, the entire Agency, inclusive of all current and future assets (infrastructure, buildings, critical facilities, and population), are considered at-risk to earthquake events.

4.3.2 CLIMATE CHANGE INDUCED DROUGHT

Probability: (75-100%)

Impact: Critical

Priority: Highly Likely

* This section looks at all the hazards affecting the Agency within its boundaries that were identified by the Planning Team.

General Definition: A drought is a period of below-average precipitation in a given region resulting in prolonged shortages in its water supply, surface water, or ground water. Climatic factors such as high temperatures, high wind, and low relative humidity are often associated with drought. Drought occurs in virtually all climatic zones, varying significantly from one region to another. Droughts occur when there are long periods of inadequate rainfall. The cycle of droughts and wet periods are often part of El Niño and La Niña weather cycles.

The severity of a drought depends on the degree of moisture deficiency, the duration, and the size and location of the affected area. It is generally difficult to pinpoint the beginning and the end of a drought. In California, a few dry months do not typically constitute a drought. Because the impacts of a drought accumulate slowly at first, a drought may not be recognized until it has become well established. Even during a drought there may be one or two months with above average precipitation totals. These wet months do not necessarily signal the end of a drought and generally do not have a major impact on moisture deficits. Droughts can persist for several years before regional climate conditions return to normal. While drought conditions can occur at any time throughout the year, the most apparent time is during the summer months.

Probability: The probability of damage to IEUA caused by climate change will increase. Drought's probability will increase in the southwestern United States creating longer and hotter days with less rain fall leading to long periods of drought. Research supports that climate change will have significant impacts on drought frequency and intensity, which will vary by region. Higher temperatures lead to increased evaporation rates, including more loss of moisture through plant leaves. Even in regions where precipitation does not decrease, increases in surface evaporation will lead to more rapid drying of soil if not offset by other changing factors, such as reduced wind speed or humidity. As soil dries out, a larger proportion of the sun's incoming heat will go toward heating soil and adjacent air rather than evaporating moisture, resulting in hotter temperatures and drier conditions.

Measuring Droughts: There are several quantitative methods for measuring drought in the United States. The U.S. Drought Monitor is a relatively new index that combines quantitative measures with input from experts in the field.

In March 2022, California's Governor Newson implemented an executive order (Executive Order N-7-22) to address the impacts of the drought in California. This order required urban water suppliers, such as IEUA, to adopt more stringent water conservation efforts that included but not limited to ban irrigating "non-functional turf" and voluntarily activate a water shortage contingency planning Level 2.

Along with this executive order, and in accordance with the State Water Resources Control Board (SWRCB) and California Water Code (CWC) requirements as outlined in Sections 10632 and 10644, urban water supplies in California would have to prepare Annual Water Supply and Demand Assessments (AWSDA) for the next seven years and submit these assessments annually to the state to remain in compliance with water conservation efforts. IEUA submitted their 2022 AWSDA and in the process of submitting their 2023 AWSDA prior to the July 1st deadline. IEUA promotes its water conservation efforts to its customers by actively making public

notifications on its website and sending reminders. Current water schedule for all IEUA customers is posted online as well its permanent water conservation requirements to continue its efforts to conserve water to prepare for California's drought conditions.

U.S. Drought Monitor: The U.S. Drought Monitor is designed to provide the general public, media, government officials, and others with an easily understandable overview of weekly drought conditions across a county throughout the United States. The U.S. Drought Monitor is unique because it assesses multiple numeric measures of drought, including the PDSI and three other indices, as well as the interpretations of experts to create a weekly map depicting drought conditions across the United States. The U.S. Drought Monitor uses five drought intensity categories, D0 through D4, to identify areas of drought.

The maps below are taken from https://droughtmonitor.unl.edu/Maps/MapArchive.aspx and show the drought differences in the period between January 2023 and May 2023. Note the drastic difference between the two drought maps.

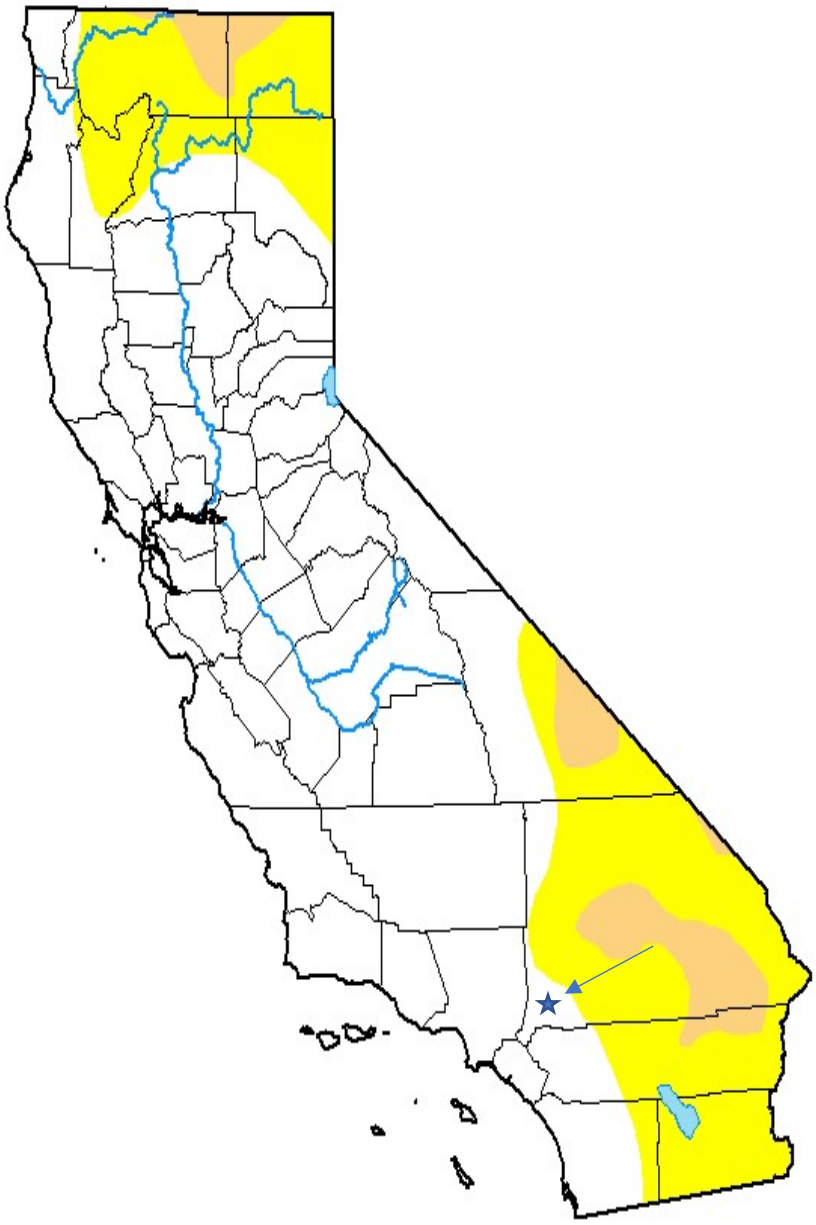
Figure 7. Drought Monitor May 2023

U.S. Drought Monitor
California

May 16, 2023

(Released Thursday, May. 18, 2023)

Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	68.02	31.98	5.95	0.00	0.00	0.00
Last Week 05-09-2023	68.02	31.98	5.95	0.00	0.00	0.00
3 Months Ago 02-14-2023	0.64	99.36	84.60	32.62	0.00	0.00
Start of Calendar Year 01-03-2023	0.00	100.00	97.93	71.14	27.10	0.00
Start of Water Year 09-27-2022	0.00	100.00	99.76	94.01	40.91	16.57
One Year Ago 05-17-2022	0.00	100.00	99.86	95.14	59.81	0.18

★ IEUA Facility

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:

Brad Rippey
U.S. Department of Agriculture

droughtmonitor.unl.edu

Figure 8. Drought Monitor January 2023

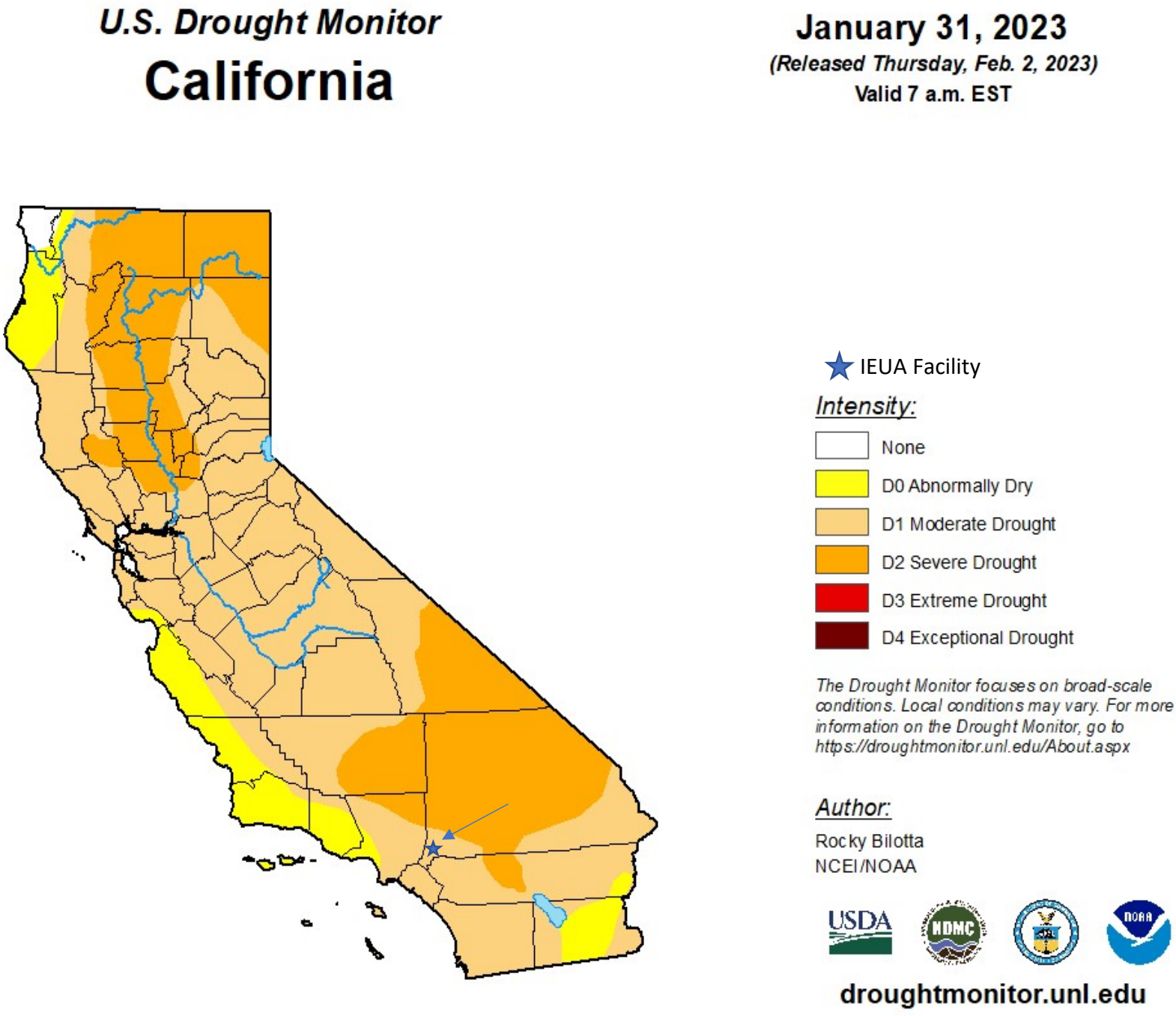


Table 8. U.S. Drought Monitor

D0	**Abnormally Dry**	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered
D1	**Moderate Drought**	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested
D2	**Severe Drought**	Crop or pasture losses likely; water shortages common; water restrictions imposed
D3	**Extreme Drought**	Major crop/pasture losses; widespread water shortages or restrictions
D4	**Exceptional Drought**	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies

A drought is a regional event that is not confined to geographic or political boundaries; it can affect several areas at once. It can also range in severity across those areas. Drought is now one of the main concerns in California, as the State has been in a drought period for the last eight years. Northern California experienced some relief in the winter of 2016; however, the El Niño effect that was expected to relieve the statewide drought did not materialize in Southern California. The lack of rain and, most importantly, the lack of snowfall in the Sierra Nevada Mountain range severely impacted most residents of California. IEUA's service area is at risk to drought occurrence and impacts.

Description: Climate change can be expected to increase drought frequency and severity in the service area. Warmer temperatures cause drought conditions by reducing soil moisture. Increased evapotranspiration and reduced snowpack projected with warmer temperatures is expected to result is reduced flows.

Table 9. Drought History

Year	Drought History
1841	The drought was so bad that "a dry Sonoma was declared entirely unsuitable for agriculture"
1864	This drought was preceded by the torrential floods of 1861-1862, showing the fluctuation in climate back in the 1800s.
1924	This drought encouraged farmers to start using irrigation more regularly because of the fluctuation in California weather the need for consistent water availability was crucial for farmers.
1929–1934	This drought was during the infamous Dust Bowl period that ripped across the plains of the United States in the 1920s and 1930s. The Central Valley Project was started in the 1930s in response to drought.
1950s	The 1950s drought contributed to the creation of the State Water Project.
1976–1977	1977 had been the driest year in state history to date. According to the *Los Angeles Times*, "Drought in the 1970s spurred efforts at urban conservation and the state's Drought Emergency Water Bank came out of drought in the 1980s."
1986–1992	California endured one of its longest droughts ever observed from late 1986 through early 1992. Drought worsened in 1988 as much of the United States also suffered from severe drought. In California, the six-year drought ended in late 1992 as a significant El Niño event in the Pacific Ocean (and the eruption of Mount Pinatubo in June 1991) most likely caused unusual persistent heavy rains.
2007–2009	2007–2009 saw three years of drought conditions, the 12th worst drought period in the state's history, and the first drought for which a statewide proclamation of emergency was issued. The drought of 2007–2009 also saw greatly reduced water diversions from the State Water Project. The summer of 2007 saw some of the worst wildfires in Southern California history.
2011-2017	From December 2011 to March 2017, the state of California experienced one of the worst droughts to occur in the region on record. The period between late 2011 and 2014 was the driest in California history since record keeping began.
2020 - 2022	January and February 2020 were dry to record dry in several areas (central CA and Northern CA-NV). The past three water years combined- was California's driest such period on record.

The period between late 2011 and 2021 was the driest in California history since record keeping began. In May 2015, a state resident poll conducted by Field Poll found that two out of three respondents agreed that it should be mandated for water agencies to reduce water consumption by 25%.

The 2015 prediction of El Niño to bring rains to California raised hopes of ending the drought. In the spring of 2015, the National Oceanic and Atmospheric Administration (NOAA) named the probability of the presence of El Niño conditions until the end of 2015 at 80%. Historically, sixteen winters between 1951 and 2015 had created El Niño. Six of those had below-average rainfall, five had average rainfall, and five had above-average rainfall. However, as of May 2015, drought conditions had worsened, and above average ocean temperatures had not resulted in large storms. The drought led to Governor Jerry Brown's instituting mandatory 25% water restrictions in June 2015.

Approximately 102 million trees in California died from the 2011 – 2016 drought of which 62 million died in 2016 alone. By the end of 2016, 30% of California had emerged from the drought, mainly in the northern half of the state, while 40% of the state remained in the extreme or exceptional drought levels. Heavy rains in January 2017 were expected to have a significant benefit to the State's northern water reserves, despite widespread power outages and erosional damage in the wake of the deluge.

The winter of 2022/2023 turned out to be the wettest on record in California, surpassing the previous record set in 1982–83. Governor Newsom declared an official end to the drought in April 2023. All 58 counties are listed in the Governors severe drought impact. The winter of 2022 has had more rainfall and snow in California than the last 20 years alone.

Impact Statement: Water is also needed to manage structural and wildfires. A lack of, or limited, water supply presents wildfire management vulnerability. Substantial water is needed to fight wildfires, which are also more frequent in dry conditions. While water for firefighting is a priority and no restrictions are in place, a lack of availability could slow this capability.

The entire planning area is equally at risk of this hazard. The majority of drought impacts, however, are not structural but societal in nature. A drought's impacts on society, and thus the IEUA's service area, result from the interplay between a natural event and the demand people place on water supply. IEUA is the entity in charge of supplying potable and non-potable water within its service area; therefore, it would be greatly impacted, both fiscally and politically, if it was unable to provide a reliable water supply due to drought conditions. Economically, water restrictions imposed during drought periods could result in lost revenue for IEUA.

4.3.3 FLOOD

Probability: (50-75%)

Impact: Critical

Priority: Likely

* This section looks at all the hazards affecting the Agency within its boundaries and identified by the Planning Team.

General Definition: An unusually heavy rain in a concentrated area, over a short or long period of time that collects on the ground in low areas of the land. Flooding occurs when there are large amounts of rainfall in areas where the water runs off to lower elevations. Flooding is a very frequent, dangerous, and costly hazard. Globally, it accounts for 40 percent of all natural disasters and results in an average of over 6,500 deaths annually. In the U.S., flooding results in an average of 86 deaths annually. Nearly 90 percent of all presidential disaster declarations result from natural events where flooding was a major component. On average, flooding causes more than $2 billion in property damage each year in the United States. Floods cause utility damage and outages, infrastructure damage, structural damage to buildings, crop loss, decreased land values and impede travel.

Flooding is the most common environmental hazard, due to the widespread geographical distribution of valleys and coastal areas, and the population density in these areas. The severity of a flooding event is typically determined by a combination of several major factors, including stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and the degree of vegetative clearing and impervious surface. Flooding events can be brought on by severe (heavy) rain.

IEUA is not a member of NFIP because they are a water wholesaler. NFIP members are Cities and County Governments that enforce building codes and permits, and has authority over construction, planning, zoning, and land use, where IEUA does not have authority over any of these.

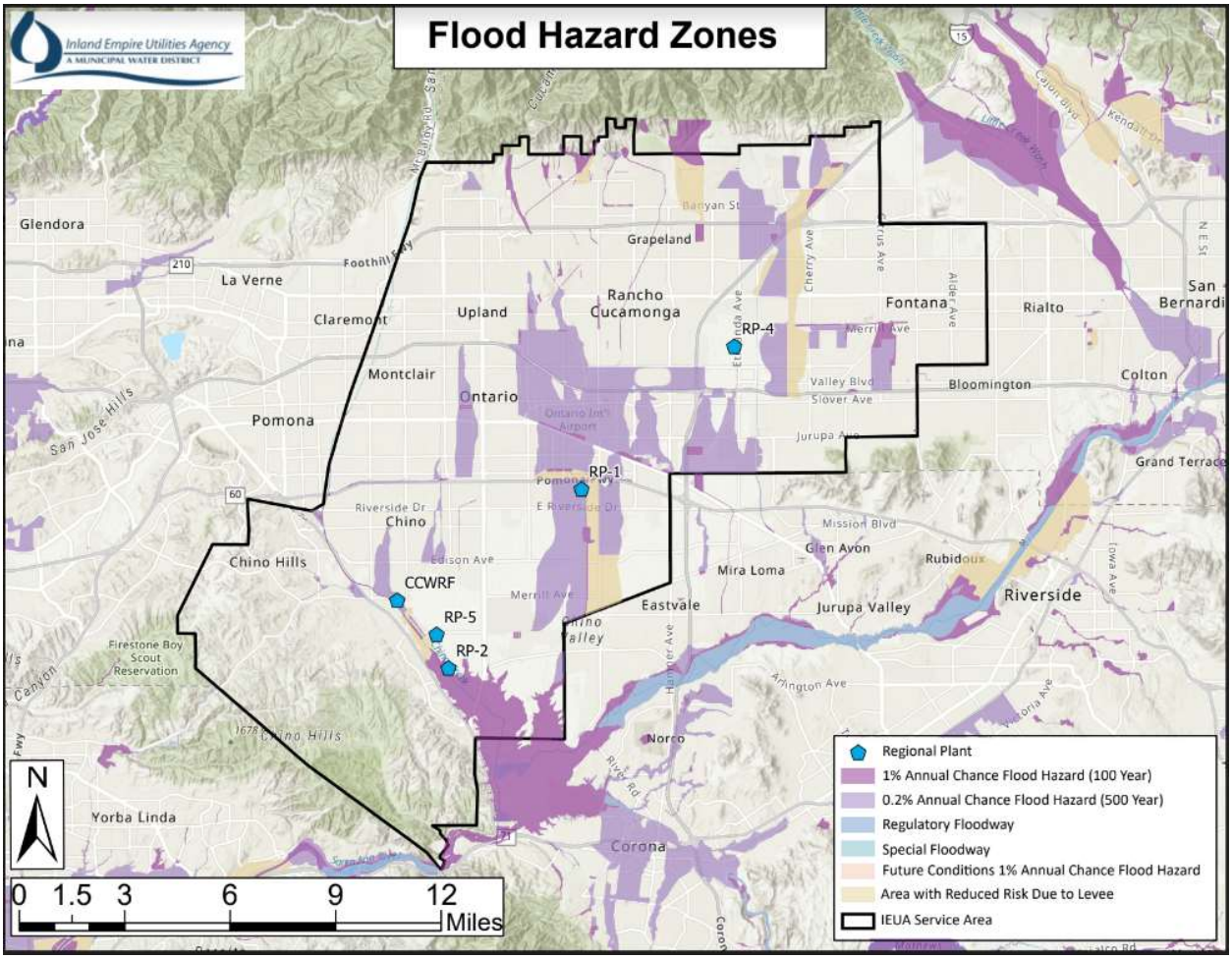
Probability: The probability of increased flooding is high due to wildfires exacerbating flooding conditions. Wildfires can exacerbate flooding conditions, when infiltration is affected, and limited vegetation is in place. As wildfires probability increases so will flooding, this is due to dry conditions and dried foliage. Major wildfires are known to contribute to major flooding, as the vegetation is burned away, allowing the rainwater to run off the hills onto the valleys below. While the recent drought conditions have resulted in a lack of rain events, the potential for future flooding still exists.

Flash Flooding: Flash floods occur within a few minutes or hours of heavy amounts of rainfall and can destroy buildings, uproot trees, and scour out new drainage channels. Heavy rains that produce flash floods can also trigger mudslides and landslides. Most flash flooding is caused by slow-moving thunderstorms or repeated thunderstorms in a local area, or by heavy rains from

hurricanes and tropical storms. Although flash flooding often occurs in mountainous areas, it is also common in urban centers where much of the ground is covered by impervious surfaces.

Description: Flooding is common in the Agency's service area; severe rainstorms have been known to flood Chino, Chino Hills, Norco, Rancho Cucamonga, Upland and other surrounding areas within the service area. This has not affected operations; 100-year and 500-year flood maps show potential inundation in the area. There has been no recorded damage caused by flooding within the service area that has affected IEUA infrastructure.

Figure 9. Flood Hazard Zones within IEUA



Within the 2018-2023 timeframe, there was two federal and/or state declarations declared for flood within the IEUA service area. Notice is hereby given that, in a letter dated January 9, 2023 (EM-3591-CA) and March 16, 2023 (EM-3592-CA), the President issued an emergency declaration under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5207 (the Stafford Act), as follows:

"I have determined that the emergency conditions in certain areas of the State of California resulting from severe winter storms, flooding, and mudslides beginning on January 8, 2023, and continuing, are of sufficient severity and magnitude to warrant an emergency declaration under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121 et seq. ("the Stafford Act"). Therefore, I declare that such an emergency exists in the State of California…"

Impact Statement:

Flooding can result in a variety of impacts, such as death and injury, asset damage, inability to access facilities or assets and road closures. Normal operations may be interrupted due to flooding. Some impacts from flooding include:

- Floodwater often contains bacteria and chemicals. Flooding of wells or reservoirs may result in water contamination, resulting in boil water advisories or reduced service.
- Floodwater can prevent normal access to assets and facilities. This presents a danger when motorists and pedestrians attempt to traverse floodwaters. Motor vehicles and pedestrians can get swept up in flood currents, increasing the risk of drowning. Even in shallow waters, fast-moving currents can carry individuals or vehicles into deeper waters, where pressure from flowing water can prevent drivers from escaping submerged vehicles. As little as six inches of floodwater can move a vehicle, and as little as two inches can move a person.
- Replenishment facilities, including percolation ponds, may be washed out by flooding, resulting in damage.
- Assets with electrical parts or motors may be damaged by flooding if these parts are submerged.
- Structures exposed to flooding, including critical facilities, can be severely damaged. Building contents can be lost, damaged, or destroyed, and structures themselves can be compromised by floodwaters. Pressure from floodwater, especially as seepage through soil, can damage foundations.
- Buildings exposed to floodwaters may develop mold or wood rot.

4.3.4 WINDSTORMS

Probability: (25-50%)

Impact: Limited

Priority: Somewhat Likely

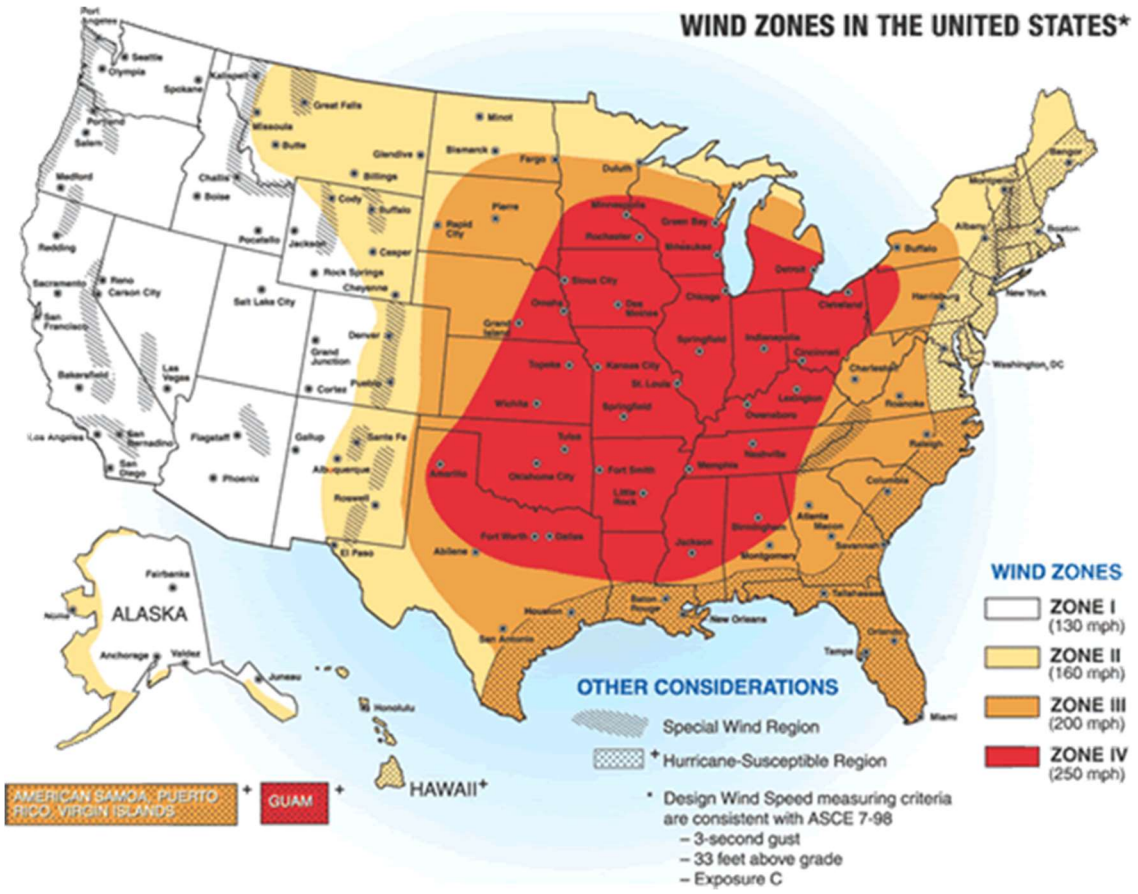
* This section looks at all the hazards affecting the Agency within its boundaries and were identified by the Planning Team.

General Definition: There are several types of wind hazards that affect the planning area. These include high or strong wind events, typically associated with Santa Ana winds, and thunderstorm wind events (including straight line winds and microbursts). High Wind definitions can vary by region. In general, high wind events are those events greater than normal averages and have damage potential. Wind events are common throughout the United States. However, the severity

varies depending on location. Santa Ana Winds occur thought-out September through November of each year. Historically, IEUA has not had any negative effects from the Santa Ana Winds that occur year-round.

Probability: If winds increase due to climate change, the probability of affecting IEUA is low due to mitigation actions that are implemented such as generators and automatic transfer stations that can power the water distribution system and wastewater treatment.

Figure 10. Wind Zones in the United States



Description: Santa Ana Winds are a regional wind hazard specific to southern California. Santa Ana Winds are known to cause large amounts of damage and increase the spread of wild and structural fires. Santa Ana winds are generally defined as warm, dry winds that blow from the east. The complex topography of Southern California combined with various atmospheric conditions creates numerous scenarios that may cause widespread or isolated Santa Ana events. Santa Ana windstorms are common during the late summer and fall months in Southern California. Winds are caused by a low-pressure system over the southern coastline and a high pressure over the Great Basin in Nevada. When the high pressure turns counterclockwise the warm, dry air is pulled to the low-pressure zone and out to the Pacific Ocean. Santa Ana Winds are quick and effective at spreading wildfires. Combination of windstorm activity with the major

fires that occur every few years creates the greatest danger to urban/wild land interface. Santa Ana winds spread the flames in even greater speed than in times of calm wind conditions.

The National Weather Service Center normally issues a high wind advisory or warning depending on the following criteria: A wind advisory is issued when conditions are favorable for the development of high winds over all or part of the forecast area, but the occurrence is still uncertain. The criteria of a wind advisory are sustained winds of 31 to 39 mph and/or gusts 46 to 57 mph for any duration. A high wind warning is issued when sustained winds from 40 or higher are expected for at least one hour or any wind gusts are expected to reach 58 mph or more. Forecasters at the National Weather Service 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 (approximately 29 miles per hour). Table 9 is a Beaufort wind scale that shows the appearance of wind effects based on the knots of wind and its classification.

Table 10. Beaufort Wind Scale

Beaufort grade	Kind of wind	Knots		km/h		Effects		Height of waves (metre)
		Min	Max	Min	Max	Earth	Sea	
0	Calm	<1		<1		Smoke rises vertical	Flat sea	-
1	Very light	1	3	1	5	The wind bends smoke	Small ripples with no white foamy crests.	0.1
2	Light breeze	4	6	6	11	It can be felt on face	Small wavelets, with unbroken crests.	0.2 - 0.3
3	Gentle breeze	7	10	12	19	It shakes leaves	Very small crests; crests begin to break.	0.6 - 1
4	Moderate breeze	11	16	20	28	It lifts dust and papers	Small waves that begin to grow longer; spuma più frequente e più evidente.	1 - 1.5
5	Fresh breeze	17	21	29	38	It shakes branches	Moderate waves that grow longer in shape; possible spray.	2 - 2.5
6	Strong breeze	22	27	39	49	It shakes big branches	Bigger waves; white foamy crests are longer everywhere.	3 - 4
7	Near gale	28	33	50	61	It impedes walking	The sea swells up; white foam forms when waves break up.	4 - 5.5
8	Gale	34	40	62	74	It shakes big trees	Medium-high, longer waves; crests start to break up in sprays.	5.5 - 7.5
9	Strong gale	41	47	75	88	Chimney pots and slated removed	High waves; tight strips of foam form in the direction of the wind.	7 - 10
10	Storm	48	55	89	102	It uproots trees	Very high waves with long crests; the sea looks completely white; waves fall down violently, visibility is reduced.	9 - 12.5
11	Violent storm	56	63	103	117	Serious devastation	Exceptionally high waves (small and medium tonnage ships disappear for a few seconds); visibility is still more reduced.	11.5 - 16
12	Hurricane	>64		>118		Very serious catastrophes	Air is filled with foam and sprays; sea is completely white because of foam; visibility is greatly reduced.	>14

Table 11. History From NOAA 2018-2023

Location Within San Bernardino County	Begin Date	Begin time	Event Type	Magnitude	Damage Property Num	Magnitude Type	End Date	End Time
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/9/2018	600	Strong Wind	43	1000	EG	1/9/2018	800
APPLE AND LUCERNE VALLEYS (ZONE)	4/12/2018	0	Strong Wind	45	500	MG	4/12/2018	1200
SAN BERNARDINO COUNTY MOUNTAINS (ZONE)	4/16/2018	1000	Strong Wind	42	0	MG	4/16/2018	1600
APPLE AND LUCERNE VALLEYS (ZONE)	4/16/2018	1000	Strong Wind	46	10000	MG	4/16/2018	2000
APPLE AND LUCERNE VALLEYS (ZONE)	4/16/2018	1500	Strong Wind	42	0	MG	4/16/2018	1600
APPLE AND LUCERNE VALLEYS (ZONE)	5/12/2018	1300	Strong Wind	31	0	MG	5/12/2018	1600
APPLE AND LUCERNE VALLEYS (ZONE)	5/21/2019	1200	Strong Wind	48	5000	EG	5/21/2019	1500
EASTERN MOJAVE DESERT (ZONE)	11/25/2019	1324	Strong Wind	43	10000	EG	11/25/2019	1324
SAN BERNARDINO COUNTY MOUNTAINS (ZONE)	12/30/2019	0	Strong Wind	43	10000	EG	12/31/2019	2359
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/29/2020	1000	Strong Wind	35	10000	EG	1/29/2020	1100
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/29/2020	1500	Strong Wind	35	10000	EG	1/29/2020	1600

SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/29/2020	1800	Strong Wind	39	10000	EG	1/29/2020	1900
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	2/10/2020	500	Strong Wind	43	15000	EG	2/10/2020	1200
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	2/11/2020	200	Strong Wind	47	15000	EG	2/11/2020	400
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	2/11/2020	600	Strong Wind	40	15000	EG	2/11/2020	700
EASTERN MOJAVE DESERT (ZONE)	10/25/2020	1901	Strong Wind	39	15000	EG	10/25/2020	1901
APPLE AND LUCERNE VALLEYS (ZONE)	1/25/2021	2000	Strong Wind	22	0	EG	1/26/2021	600
EASTERN MOJAVE DESERT (ZONE)	2/24/2021	2039	Strong Wind	43	40000	EG	2/25/2021	155
APPLE AND LUCERNE VALLEYS (ZONE)	10/11/2021	1700	Strong Wind	30	0	EG	10/11/2021	2200
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/21/2022	2242	Strong Wind	35	0	EG	1/21/2022	2242
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/22/2022	24	Strong Wind	35	0	EG	1/22/2022	24
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/22/2022	158	Strong Wind	48	0	EG	1/22/2022	158
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/22/2022	213	Strong Wind	30	0	EG	1/22/2022	213

SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/22/2022	925	Strong Wind	43	0	EG	1/22/2022	925
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/22/2022	1816	Strong Wind	43	0	EG	1/22/2022	1816
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	2/2/2022	1100	Strong Wind	39	5000	EG	2/2/2022	1300
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	2/2/2022	1200	Strong Wind	39	1000	EG	2/2/2022	1500
WESTERN MOJAVE DESERT (ZONE)	2/22/2022	1400	Strong Wind	43	100	EG	2/22/2022	1405
APPLE AND LUCERNE VALLEYS (ZONE)	3/19/2022	1400	Strong Wind	49	0	MG	3/19/2022	1400
SAN BERNARDINO COUNTY MOUNTAINS (ZONE)	3/19/2022	1500	Strong Wind	48	0	MG	3/19/2022	1500
APPLE AND LUCERNE VALLEYS (ZONE)	3/19/2022	1500	Strong Wind	43	0	MG	3/19/2022	1500
SAN BERNARDINO COUNTY MOUNTAINS (ZONE)	3/19/2022	1500	Strong Wind	46	0	MG	3/19/2022	1500
SAN BERNARDINO COUNTY MOUNTAINS (ZONE)	3/20/2022	151	Strong Wind	43	0	MG	3/20/2022	151
SAN BERNARDINO COUNTY MOUNTAINS (ZONE)	3/21/2022	230	Strong Wind	46	0	MG	3/21/2022	230
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	3/28/2022	853	Strong Wind	40	1000	EG	3/28/2022	853
SAN BERNARDINO AND RIVERSIDE COUNTY	10/24/2022	446	Strong Wind	37	1000	MG	10/24/2022	446

VALLEYS - THE INLAND EMPIRE (ZONE)								
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	10/24/2022	536	Strong Wind	33	1000	MG	10/24/2022	536
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	11/15/2022	0	Strong Wind	48	5000	MG	11/16/2022	2359
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/14/2023	2106	Strong Wind	38	0	MG	1/14/2023	2106
APPLE AND LUCERNE VALLEYS (ZONE)	1/16/2023	618	Strong Wind	26	0	EG	1/16/2023	618
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/23/2023	1	Strong Wind	36	0	MG	1/23/2023	1
SAN BERNARDINO COUNTY MOUNTAINS (ZONE)	1/23/2023	229	Strong Wind	38	0	MG	1/23/2023	229
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/23/2023	732	Strong Wind	48	0	EG	1/23/2023	732
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS - THE INLAND EMPIRE (ZONE)	1/31/2023	1400	Strong Wind	35	1000	MG	1/31/2023	1500

Within the 2018-2023 timeframe, there was one federal and/or state declarations declared for California Severe Winter Storms, Straight -line Winds, flooding, landslides, and Mudslides (DR-4699-CA) within the IEUA service area. Notice is hereby given that, in a letter dated April 3, 2023, the President issued a major disaster declaration under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121 et seq. (the "Stafford Act"), as follows:

"I have determined that the damage in certain areas of the State of California resulting from severe winter storms, straight-line winds, flooding, landslides, and mudslides beginning on February 21, 2023, and continuing, is of sufficient severity and magnitude to warrant a major disaster declaration under the Robert T. Stafford Disaster Relief and Emergency Assistance Act,

42 U.S.C. 5121 et seq. (the "Stafford Act"). Therefore, I declare that such a major disaster exists in the State of California.…"

Impact Statement: All the service area within IEUA has windstorm events, the entire planning area is equally at risk to this hazard. Severe wind has the potential to damage reservoirs, treatment plant facilities, and wells. Structures can also be damaged including blown off shingles, siding, awnings, and other features off buildings and overturning of trees. Objects picked up by wind, including palm fronds and litter, can be hurled through the air, damaging assets and structures when contact is made. In some cases, structures may be blown off foundations or infrastructure, such as reservoirs, may be blown off their base. In addition, mobile or modular units (such as those installed for temporary uses) are considered at a higher risk to severe wind. Severe winds can cause damage to communications infrastructure, utility poles, and above ground power lines, resulting in loss of power. Falling trees also contribute to power line disruptions. When strong winds reach a force great enough to threaten above ground facilities, power pole lines and power outages may be experienced. These events are known as Public Safety Power Shutoffs (PSPS). PSPS are temporary and are meant to keep the community safe. PSPS events only happen during periods of high winds. There have not been any PSPS events in the last 5 years that have had a negative affect or loss of water in the IEUA service area.

The entire service area, including all current and future assets (infrastructure, buildings, critical facilities, and population), is vulnerable to annual severe wind due to the topography and movement of weather fronts through the area. Exposed (e.g., above-ground) assets are considered most at risk for severe winds.

4.3.5 CYBER SECURITY

Probability: (50-75%)

Impact: Critical

Priority: Likely

* This section looks at all the hazards affecting the Agency within its boundaries and were identified by the Planning Team.

General Definition: An attack, via cyberspace, targeting an enterprise's use of cyberspace for the purpose of disrupting, disabling, destroying, or maliciously controlling a computing environment/infrastructure; or destroying the integrity of the data or stealing controlled information.

Description: Outside sources gaining access to electronic controls and processes to take over all electronic devices. To control, gain access to critical records, information and confidential data.

Impact Statement: There are several types of cyber-attacks that can occur to the Agency and water and wastewater control systems. Listed below are a few threats that the Agency is susceptible to:

- Malware

- Denial-of-Service (DoS) Attacks
- Phishing
- Spoofing
- Identity-Based Attacks
- Code Injection Attacks
- Supply Chain Attacks
- Insider Threats

SECTION 5. COMMUNITY CAPABILITY ASSESSMENT

5.1 INTRODUCTIONS

The purpose of conducting the capability assessment is to determine the ability of IEUA to implement a comprehensive mitigation strategy and to identify potential opportunities for establishing or enhancing specific mitigation policies, programs, or projects.

The capability assessment has two components:

1) an inventory of the existing relevant plans, ordinances, or programs already in place and

2) an analysis of IEUA's capacity to bring them to fruition. A capability assessment highlights the positive mitigation activities already in place within IEUA and will detect the potential gaps.

5.2 EMERGENCY MANAGEMENT

IEUA is in the Inland Empire Utilities Agency (IEUA/Agency) is a regional wastewater treatment agency and wholesale distributor of imported water. Today, the Agency is responsible for serving approximately 935,000 people over 242 square miles in western San Bernardino County.

To help mitigate the potential impacts of disasters, IEUA joined CalWARN. The Agency has a mutual aid agreement with CalWARN that covers most water and wastewater agencies in California. As a government entity (Special District, within California Law), the Agency can access the Emergency Managers Mutual Aid (EMMA) and the Emergency Management Assistance Compact (EMAC) for national mutual aid. In addition, the National WARN System through the American Water Works Association can be accessed.

CalWARN holds workshops twice a year for water agency members. CalWARN has been planning public outreach, so the public has a better understanding of hazard mitigation planning in their communities. These workshops promote mitigation and how to prevent the impacts of hazards on the utility's infrastructure. CalWARN has access to utility leaders and their past experiences during emergencies and lessons learned on what they should have done differently. Sharing ideas and experiences is key to understanding mitigation in the future.

The Agency currently employs 284 full-time employees, 14 limited time and 44 interns and by joining CalWARN, the Agency has the potential to have hundreds of mutual aid workers at its disposal within hours of an emergency. The treatment plants, pump lift stations and remote chemical stations are all operated by certified operators and maintained by a variety of certified technical disciplines. Plant design for both new and expansion projects is completed by either the Agency's Engineering Department or by an outside design engineer while construction of all projects is inspected by the Agency's Construction Management Department. In addition, the Agency is in agreement with several cities within its service area to support each other during an emergency by offering both labor and equipment to the incident.

The General Manager has over 19 years of experience in water. He has been with IEUA for 4 years. Throughout his career, he has been mitigating fire, earthquake, flood, and drought impacts that face water utilities.

Emergency Response Plan: An emergency response plan outlines responsibility and how resources are deployed during and following an emergency or disaster. The primary objective of the plan is to guide the identification of potential emergencies, a timely and effective response, and the protection of the health and safety of the community. The ERP guides the process when an emergency occurs, including being a blueprint for the general operations during a disaster, distributing and managing responsibilities among authorities, and identifying liability.

IEUA Emergency Response Plan (ERP) was last revised in December 2021 and details how the Agency will respond to various emergencies and disasters. IEUA must be prepared to respond to a variety of threats that require emergency actions, including:

- Operational incidents, such as power failure or bacteriological contamination of water
- Outside or inside malevolent acts, such as threatened or intentional contamination of water, intentional damage/destruction of facilities, detection of an intruder or intruder alarm, bomb threat, cyber security, or suspicious mail.
- Natural disasters, such as earthquakes or floods and power failures.
- Communications with critical users, media outreach, and public notification process

IEUA is also required to follow the Standard Emergency Management System (SEMS) and the National Incident Management System (NIMS) and the Incident Command System (ICS) when responding to emergencies.

Emergency Operations Center (EOC): An EOC provides a location, on or off-site, from which an agency coordinates a disaster response operation. In times of non-disasters, EOCs typically provide a centralized hub for communication and security oversight. IEUA main campus has a potential for two EOCs, one being the primary event center and secondary would be the board room.

Emergency Management Training and Staff: Dedicated emergency management staff and regular training help prepare an agency for events and guide effective response and recovery.

IEUA conducts regular emergency exercises, following their emergency training plan. Through this training, the staff is trained across divisions within each department to assist with emergency response operations. Additionally, IEUA has a well-developed emergency notification process for critical staff.

5.3 PLANNING AND REGULATORY CAPABILITY

Planning and regulatory capability is based on the implementation of plans, policies, and programs that demonstrate IEUA's commitment to guiding and managing growth while maintaining the general welfare of the community. It includes emergency response and mitigation planning, master planning, capital planning, and enforcement of design and

construction standards. Although conflicts can arise, these planning initiatives present significant opportunities to integrate hazard mitigation principles into IEUA's decision-making process.

The Urban Water Management and Planning Act requires water suppliers to estimate water demands and available water supplies. IEUA updated Urban Water Management Plan (UWMP) was completed in August 2023. UWMPs are required to evaluate the adequacy of water supplies, including projections of 5, 10, and 20 years. These plans are also required to include impacts of climate change and water shortage contingency planning for dealing with shortages, including a catastrophic supply interruption.

The Water Supply Reliability Assessment is a section of the plan that aims to understand the ability to satisfy the water demand during different types of years (e.g., years with average rainfall versus drier years).

Water Shortage Contingency Plan (WSCP)

Certain elements of the WSCP are required by California Water Code (Water Code), including five specific response actions that align with six standard water shortage levels based on IEUA's water supply conditions and shortages resulting from catastrophic supply interruptions. The WSCP also contains IEUA procedures for conducting an annual water supply and demand assessment, which is the written decision-making process for determining supply reliability each year, along with the data and methods used to evaluate reliability.

The WSCP is implemented through a series of ordinances of water use restriction in different stages. For instance, stage 1 requires a 10% water use restriction, and stage 5 requires a 50% water use restriction. The main method to reduce water use is by using water budget-based tiered rate structures and penalties for overuse.

UWMPs are intended to be integrated with other urban planning requirements and management plans. Some of these plans include Water Master Plans, Recycled Water Master Plans, Integrated Resource Plans, Integrated Regional Water Management Plans, Groundwater Management Plans, Emergency Response Plans, and others.

5.4 EXISTING PLANS

The following emergency-related plans apply as appropriate:

- CalWARN Emergency Operations Plan – Updated every 10 years
- The Agency's Illness Injury Prevention Plan (IIPP) – Updated annually
- The Agency's Urban Water Master Plan – Updated every 10 years
- Water Shortage Contingency Plan (WSCP)– Updated every 5 years
- San Bernardino County Fire Master Plan- Updated annually
- San Bernardino County Flood Master Plan- Updated annually
- USEPA PSPS SOP for Public Water Systems

5.5 MITIGATION PROGRAMS

The Agency has completed some mitigation programs. The California Department of Water Resources required the Agency to raise pump motors and other wellhead assemblies above the 500-year flood plain elevation. The Agency is still installing motors and wellheads on elevated concrete foundations.

IEUA employees have experience with past hazard mitigation and hazard planning and can enhance their hazard mitigation skills by participating in training offered by other agencies or regional governments.

The Agency offers financial and other incentives to improve landscape and toilet water use efficiency. These incentives include a commercial and residential rebate program for ultra-low-flush toilets and high efficiency hose nozzles. To promote voluntary conservation, the Agency has initiated a public awareness and education plan consisting of the following:

- The Agency sponsors an annual poster coloring contest at local elementary schools where the students are required to draw a poster with a water conservation theme.
- A comprehensive community outreach program is conducted to inform and educate constituents about water issues, including water supply conditions and water use efficiency.
- The Agency stores disaster supply storage sheds at each of its treatment plants and headquarters for employees during an emergency. The supply shed is complete with cots, chairs, food bars, MREs, first aid kits, light sticks, batteries, blankets, personal sanitation kits, water, flashlights, etc.
- The Agency's Safety develops and maintains a safety manual and an emergency response manual that is specific to the facility where each department works.
- The Agency's Business Emergency Plan is updated annually for both local and county fire hazardous materials departments.
- The Agency plans on starting mitigation outreach via social media (Facebook, Twitter, Instagram).

5.6 FISCAL RESOURCES

The ability of IEUA to act is closely associated with the number of fiscal resources available to implement mitigation policies and projects. This may take the form of outside grant funding awards or Agency-based revenue and financing. The cost of mitigation policy and project implementation vary widely. In some cases, mitigation actions are tied primarily to staff time or administrative costs associated with creation and monitoring of a given program. In other cases, direct expenses are linked to an actual project, such as installing backup power generators and sustainable energy resources, which can require a substantial commitment from IEUA, state, and federal funding sources. IEUA has made fiscal commitments to the mitigation of hazards through its Capital Improvement Program (CIP).

The following is a summary of the Agency's fiscal capabilities. There are a number of governmental funds and revenue raising activities that can be allocated for hazard mitigation

activities. Included below are potential sources of discretionary general funding from local, state and federal resources.

- Local tax revenue
- Regional wastewater revenues
- Recycle water revenues
- New connection fees from industrial users
- Federal bond measures
- State and Federal grants

Through the California Department of Water Resources, local grants and/or loans are available for water conservation, groundwater management, studies, and activities to enhance local water supply quality and reliability. Project eligibility depends on the type of organization(s) applying and participating in the project, as well as the specific type of project. More than one grant or loan may be appropriate for a proposed activity. Completing the LHMP will facilitate and obtain grant funding in the future. For instance, BRIC, HMGP, or FMA grants. Grant opportunities will be reviewed each year to ensure there will be funding available for specific mitigation items.

5.7 CAPABILITIES ASSESSMENT

A Capability Assessment examines IEUA's capabilities to detect any existing gaps or weaknesses within ongoing activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. The conclusions of the Risk Assessment and Capability Assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. The list below outlines key capabilities IEUA will consider in the Mitigation Strategy.

1. **Coordinate** with the San Bernardino County Emergency Management and the City of Chino to achieve interoperability of Web EOC software and representations in appropriate EOCs;
2. **Provide** necessary staffing and software for GIS department for ongoing maintenance of asset management program data;
3. **Add funding** for hazard mitigation actions to the Agency's Capital Improvement Program planning efforts
4. **Incorporate** projects from the capital improvement program into the mitigation strategy (and vice versa).
5. **Expand** Public outreach and education on emergency management. This allows IEUA to form a plan to continually educate their customers regarding natural hazards and the effects these hazards have on drinking water systems. They educate the residents on the importance of mitigation of these hazards to build a more resilient community.
6. **Broaden** staff training: IEUA employees have experience with past hazard mitigation and hazard planning and can improve their hazard mitigation skills by participating in training offered by other agencies or other regional governments. This plan should begin with educating grade K-12 in the local schools and on IEUA Website.

SECTION 6: MITIGATION STRATEGIES

6.1 OVERVIEW

IEUA derived its mitigation strategy from the in-depth review of the existing vulnerabilities and capabilities outlined in previous sections of this plan, combined with a vision for creating a disaster resistant and sustainable system for the future. This vision is based on informed assumptions that recognize both mitigation challenges and opportunities and is demonstrated by the goals and objectives outlined below. Additionally, the mitigation measures identified under each objective include an implementation plan for each measure. The measures were individually evaluated during discussions of mitigation alternatives and the conclusions were used as inputs when priorities were decided. All priorities are based on the consensus of the Planning Team.

Mitigation measures are categorized generally for all hazards and specifically for the six high-risk hazards facing cities that were extensively examined in the risk assessment section. These hazards include earthquakes, climate change induced drought, flooding, and windstorms.

6.2 MITIGATION GOALS, OBJECTIVES, AND PROJECTS

The process of identifying goals began with a review and validation of the FEMA Hazard Maps for IEUA and surrounding cities in San Bernardino County. The team completed an assessment and discussion of whether each of the goals was valid. These discussions led to the opportunity to identify Goals and Objectives. In reviewing the mitigation objectives and actions, it was the Planning Team's consensus that the following goals should be included in the LHMP.

Overall, the primary objective is to protect lives and prevent damage to infrastructure that disrupts water services. Global measures that apply across all hazards include:

- Continually improve the community's understanding of potential impacts due to hazards and the measures needed to protect lives and critical infrastructure.
- IEUA communications should provide public outreach to inform the public of the hazards identified to the drinking water system in emergencies - how to conserve water in the event of a disaster and how to obtain drinking water when water may not be available.
- Continually provide State and Local Agencies with updated information about hazards, vulnerabilities, and mitigation measures at IEUA.
- Review and verify that the Agency's owned and operated infrastructure meets the minimum standards for safety.
- Review the Agency's facilities and developments in high-risk areas to verify that these areas are appropriately protected from potential hazards.
- Identify and mitigate imminent threats to life safety and facility damage.
- The four high profile hazards for IEUA are earthquakes, climate change induced drought, windstorms and flooding. While other hazards were profiled in previous sections, IEUA

priority and focus for the mitigation projects will be for the six high profile hazards.

From 2018 LHMP, the table below are statuses of completed mitigation actions.

Table 11 Completed Mitigation Actions from 2018 LHMP

Title/Mitigation Action	Completed
Magnolia Channel Monitoring & Maintenance	Jun 2017
San Sevaine Basin Improvements	Mar 2019
Septic Conversion Pre-Design Report	Jun 2019
Lower Day Basin Improvements	Sep 2021
Security Cameras	Dec 2022
1158 Reservoir Site Cleanup	Mar 2024 (Expected)

Earthquake Mitigation Projects:

- Protect critical facilities and infrastructures (*Continuing*)
- Conduct annual employee training for responding to an earthquake. (*Continuing*)

Flooding Mitigation Projects:

- Agency-wide retrofit evaluation (*Continuing*)
- Improve existing facilities and construct new facilities to mitigate flooding (*Continuing*)

6.3 EARTHQUAKE

Goal: To protect life and property in Inland Empire Utilities Agency in the event of an earthquake.

Description: *The goal is to avoid injury, loss of life, and damage to property*. Southern California is susceptible to earthquakes due to the fact there are numerous earthquake faults dissecting the state.

Mitigation Projects:

Below you will find the priority of the project, the department that will be responsible for this action, and the source of funding. Further analysis will be required for each mitigation project to provide a more accurate cost estimate when ready to implement. The identified projects and current costs estimate include:

- TCE Plume Cleanup. The project scope will include three new groundwater monitoring wells, one new groundwater production well and approximately 30000 feet of raw water pipeline to distribute up to 6000 acre-feet per year of groundwater supply to the Chino II Desalter. In addition, the project will modify the existing decarbonates systems at

Desalter II to treat TCE in the influent water. $600,000 (5 Years). Operations Department. HMGP and BRIC. Medium Priority.

- Protect critical facilities and infrastructures (*Continuing from 2018 LHMP*) $2.5 Million. Engineering Department (5 Years). HMGP, BRIC and CIP. High Priority.
- Conduct annual employee training for responding to an earthquake. $50,000(*Continuing from 2018 LHMP*) Safety and HR Department. CIP. High Priority.

6.4 CLIMATE CHANGE INDUCED DROUGHT

Goal: To protect life and property in Inland Empire Utilities Agency in the event of a drought.

Description: *The goal is to avoid injury, loss of life, and damage to property*. Due to Global Warming, there are more extremes in the weather, which means the summers can be hotter, the winters colder, periods of rain can become less wet or wetter, which causes flooding. It is expected that there will be greater fluctuations in weather patterns, including prolonged dry periods and the drought hazard, which can be mitigated over the long-term.

Mitigation Projects:

Below you will find the priority of the project, the department that will be responsible for this action, and the source of funding. Further analysis will be required for each mitigation project to provide a more accurate cost estimate when ready to implement. The identified projects and current costs estimates include:

- Improve operational efficiency system leaks $1 Million (5 Years) Operations Department HMGP, BRIC, CIP. High Priority. Looking for water loss in the system etc.
- Increase water pumping capabilities $1.5 Million (2 Years) Operations Department. BRIC, HMGP. Medium Priority.

6.5 FLOODING

Goal: To protect life and property in Inland Empire Utilities Agency in the event of flooding.

IEUA is **not** a participant under the National Flood Insurance Program (NFIP).

Description: *The goal is to avoid injury, loss of life, and damage to property*. A localized flood of great volume and short duration, typically caused by unusually heavy rain in a semiarid area. Floods can reach its peak volume in a matter of a few minutes and often carry large loads of mud and rock fragments.

Mitigation Projects:

Below you will find the priority of the project, the department that will be responsible for this action, and the source of funding. Further analysis will be required for each mitigation project to provide a more accurate cost estimate when ready to implement. The identified projects and current costs estimates include:

- Agency-wide retrofit evaluation (*Continuing from 2018 LHMP*). $2.5 Million. Engineering Department. CIP and HMGP.
- Improve existing facilities and construct new facilities to mitigate flooding (*Continuing from 2018 LHMP*) $10 Million. Engineering Department. BRIC
- RP-1 TP-1 Stormwater Drainage Upgrades. Assessment to Repair the old discharge line and tie in a permanent pump or if unable to repair line will need to be replaced. A permanent pump and pipeline installation needs to be constructed to minimize potential flooding and potential permit violation of spillover into the creek. (Completed 2022). $131,000. CIP. Operations Department.
- Prado Lift Station Clean-out and overflow Design and Construction. This project will remove the existing manhole at Prado Lift Station with a sealed clean-out which can contain pressurized flows during pump station outages. (Completed 2021). $110,000. CIP. Operations Department.
- Victoria Basin Improvements. The Victoria Basin is an "off-channel" or off-line basin that receives local runoff plus stormwater flows from both the Etiwanda and San Severine Channels through drop inlet structures. The proposed basin improvement is to modify the existing mid-level outlet at the west side of the basin to allow for more basin storage. This will raise the water level no higher than the existing spillway structure. The raising of the water levels will require the relocation of the existing lysimeter sampling station because it will be submerged with proposed improvement. The proposed improvement within the existing basin is estimated to add 75 AFY of storm water and 120 AFY of recycled water for groundwater recharge. The scope for Victoria Basin is to implement the following project phases: preliminary-design environmental review permitting final design construction bid/award cost and schedule on the project are agreed to and authorized under an IEUA/CBWM Task Order No.10 agreement which was Board approved and executed in May 2017. The initial preliminary design efforts were authorized under Task Order No. 1 in August 2014. (Completed 2020). $180,000. CIP. Operations Department.
- Montclair Basin Improvements. The San Antonio Creek channel provides 100-year flood protection to the communities that it passes through. It also provides a source of stormwater for multiple conservation basins. The proposed improvement at Montclair Basin will construct two new diversion structures from the San Antonio Creek into the Montclair Basins 2 and 3. A diversion structure is already in place in the northern area, Basin 1 just south of Arrow Highway. The proposed new diversion structures will be of a similar design with the existing. This project is a part of the Recharge Master Plan Update (RMPU) with the Chino Basin Watermaster who is providing full funding for the project while IEUA is the lead agency in permitting, environmental, design, construction, and project management. The goal of the project is to increase stormwater recharge for the facility by 96 acre-feet per year. The scope for Montclair Basin is to implement the following project phases: preliminary-design environmental review permitting final design construction bid/award cost and schedule on the project are agreed to and

authorized under an IEUA/CBWM Task Order No.11 agreement which was Board approved and executed on May 2017. The initial preliminary design efforts were authorized under Task Order No. 1 in August 2014. (5 Years). $380,000. CIP. Operations Department. Medium Priority.

- RP-3 Basin Improvements. The project will create an additional recharge basin at the northern area which is occupied by abandon structures from a decommissioned wastewater treatment facility. The new basin will be north of cell 2. It will include new inlets with control gates and conveyance piping. The task will require demolishing and removing the abandon structure and excavating and hauling soil material off-site at a minimum volume of 60,000 cubic yards. This project is a part of the Project 23a which consists of several other groundwater recharge improvement elements which provide the combined regional benefits in terms of acre-feet per year (AFY) of water for the groundwater recharge program: 3,166 AFY of Stormwater and 2,905 AFY of Recycled Water. The scope for RP-3 Basin Improvement (a part of PID 23a) is to implement the following project phases: preliminary-design environmental review permitting final design construction bid/award cost and schedule on the project are agreed to and authorized under an IEUA/CBWM Task Order No.9 agreement which was Board approved and executed on May 2017. The initial preliminary design efforts were authorized under Task Order No. 1 in August 2014. (5 Years). $2,000,000. CIP. Operations Department. Medium Priority.
- RP-5 Biosolids Facility. This project is for the construction of a new solids handling facility at RP-5 to decommission RP-2 which is currently located below the 566' flood elevation. (5 Years). $120,000,000. CIP. Operations Department. High Priority.
- Recharge Basin Clean-up of Illegally Dumped Materials. The scope of work includes planning permitting designing and constructing the new assets to effectively collect and dispose all solids waste debris that enter or exit the following recharge basins: Turner Basin Ely Basin and RP-3 Basin. (5 Years). $56,000. CIP. Operations Department. Medium Priority.
- Prado De-Chlorination Station Inundation Protection. Engineering will need to investigate whether it is more cost effective to protect in place the Prado De-Chlorination chemical storage facility metering building and the injection& monitoring buildings or to relocate them above 566' of elevation. Once a decision is made on protecting in place or relocating Engineering will then need to move forward with design and construction. (5 Years). $185,000. CIP. Operations Department. Medium Priority.
- Preserve Lift Station Improvements. The City of Chino through Lewis Operating Corp. constructed a sewer lift station to convey sewer flows in the Preserve development and commercial properties south of Kimball Avenue to the Kimball Interceptor in Kimball Avenue east of Euclid Avenue. IEUA will be completing upgrades to electrical and mechanical equipment. Lift station design includes elevated platform for flood control. (5 Years). $62,000. CIP. Operations Department. Medium Priority.

6.6 WINDSTORM

Goal: To protect life and property in Inland Empire Utilities Agency in the event of windstorms.

Description: *The goal is to avoid injury, loss of life, and damage to property*. The Santa Ana winds are notorious in Southern California for wreaking havoc during the fall and winter months each year. The winds are known for their hot, dry weather and bring the lowest relative humidity of the year. The Santa Ana winds easily reach speeds of over 40 miles per hour with a gust of over 60 miles per hour. These winds topple trees, power lines, start wildfires, and generally cause havoc throughout the region. This has caused Southern California Edison and other power providers in California to cut power in regions during these wind events; which are called Public Safety Shutoff events.

Mitigation Projects:

Below you will find the priority of the project department that will be responsible for this action, and the source of funding. Further analysis will be required for each mitigation project to provide a more accurate cost estimate when ready to implement. The identified projects and current costs estimate include:

- Generator hook ups and automatic transfer panels. Mitigation of loss of power allows welsl, boostesr and pumps to keep water in the system. $500,000. (2 years) General Manager. High priority. BRIC, HMGP.

6.7 CYBER SECURITY

Goal: To protect life and property in Inland Empire Utilities Agency in the event of a cyber security attack.

Description: *The goal is to avoid injury, loss of life, and damage to property*. A cyber-attack can be in many forms such as malware, phishing and insider threats. It is up to the Agency to train and protect from external or internal infiltration. As an added security measure, the Agency will not share its cyber security planning within this LHMP.

Mitigation Projects:

Below you will find the priority of the project department that will be responsible for this action, and the source of funding. Further analysis will be required for each mitigation project to provide a more accurate cost estimate when ready to implement. The identified projects and current costs estimate include:

- SCADA Standards Revision. $25,000(2 Years). High Priority. Operations Department. HMGP and BRIC.
- Wastewater Cybersecurity Assessment and Incident Response Planning. $70,000 (2 Years). High Priority. IT Department. HMGP and BRIC.
- Agency-wide Video Surveillance Improvement. $500,000. High Priority. (2Years). IT

Department. HMGP and BRIC.

6.8 MITIGATION PRIORITIES

During the development of the risk assessment for IEUA, the Planning Team proposed and discussed alternative mitigation goals, objectives, and specific mitigation measures that IEUA should undertake to reduce the risk from the five high risk hazards facing the Agency. Priorities from the 2018 LHMP have not changed for the 2023 plan.

The team considered multiple factors to establish the mitigation priorities included in this plan. It assigned the highest priority rankings to those mitigation measures that met three primary criteria:

- Greatest potential for protecting life and safety
- Greatest potential for maintaining critical Agency functions and operability following a disaster
- Achievability in terms of residents' support and cost effectiveness

All rankings were determined by the consensus of the Planning Team. As described in the previous section on hazard and risk assessment, it is clear that earthquakes have the potential to affect the largest number of people, damage critical facilities and buildings, and to cause the greatest economic losses. This fact, combined with the relatively high probability of an earthquake occurrence in the next several decades, makes increasing disaster resistance and readiness to earthquakes a high priority. Given the extreme importance of maintaining critical functions in times of disaster and the large number of customers who depend and rely on IEUA services and infrastructure, those mitigation measures that improve disaster resistance, readiness, or recovery capacity are generally given higher priority.

Earthquakes, climate change induced drought, flooding, and windstorms mitigation actions are identified and assigned a priority according to their importance, cost, funding availability, degree that project planning has been completed, and the anticipated time to implement the measures.

Using the above rationale for establishing mitigation priorities, each mitigation measure is assigned a priority ranking as follows:

- High – Projects that will be the primary focus of implementation over the next five years
- Medium – Projects that may be implemented over the next five years
- Low – Projects that will not be implemented over the next five years unless conditions change (new program and funding source)

6.9 IMPLEMENTATION STRATEGY

The implementation strategy is intended to successfully mitigate the hazards identified in this plan within a reasonable amount of time. IEUA is currently operating within its annual budget and has been fortunate that the recession of the past ten years didn't cause major issues with the budget or revenue. IEUA revenues have remained strong throughout the recession, and capital

improvement projects have remained a priority. IEUA staff will review the Mitigation Plan each year before developing the next year's fiscal budget. The plan will also be reviewed by the Board of Directors for items to be included in the new fiscal budget. IEUA staff will also look for ways to obtain Hazard Mitigation Grants each year to off-set the impacts on the fiscal budget and to show some relief for the residents. The following equations below is the cost benefit analysis equation that is used for ensuring that the cost benefit to the Agency is within FEMA guidelines. When completing a cost benefit analysis with FEMA the formula is all in electronic form but resembles the formula below.

$$B/C = \left[\frac{B_0}{(1+i)^0} + \ldots + \frac{B_T}{(1+i)^T}\right] \div \left[\frac{C_0}{(1+i)^0} + \ldots + \frac{C_T}{(1+i)^T}\right]$$

Mitigation Projects Funding Source

There is currently no mitigation money in the Agency's budget. The Agency will include mitigation into the budgeting process when funding becomes available and look at what mitigation projects could be funded in future budget cycles.

Timeframe

Over the next five years, the Agency will incorporate mitigation into all capital improvement projects that the Agency undertakes. The previous 2018 LHMP was not incorporated in the CIP or into any other planning mechanisms. The Agency is replacing a large amount of potable water mains, to mitigate damage to the pipelines when the sewer mains are installed. The pipelines that have been replaced will help mitigate damage to the pipelines in the event of an earthquake, as the new pipelines meet new and improved building standards.

The Agency will apply for mitigation grants as the opportunities become available in the State of California, County of San Bernardino each year. The Agency will consider all mitigation items during the review of the Ten-Year Capital Improvement Plan and during the annual budget workshops.

SECTION 7: PLAN MAINTENANCE

7.1 MONITORING, EVALUATING AND UPDATING THE PLAN

The General Manager or his/her assignee will evaluate the plan on an annual basis and consider whether new hazards have emerged, community vulnerability has changed, and goals and objectives are still relevant to current conditions. This will be done by evaluating and removing completed mitigation actions and adding mitigation projects to the current LHMP. The LHMP will be reviewed as part of the Annual Budget Planning in the spring of each year and whenever there are new infrastructure updates within IEUA. The General Manager or his/her assignee will ensure the LHMP is reviewed annually, and any items that have been mitigated will be removed from the plan. At that time, staff and elected Board of Directors will review funding and capital improvement projects in the next fiscal year's budget. Annually, the General Manager or his/her assignee and the Chief Financial Officer will review funding and determine the projects to be included in the next fiscal year's Capital Improvement Plan (CIP) budget. The General Manager or his/her assignee will include the LHMP in all budget planning and grant planning meetings. This will allow open discussion, evaluation, and assessment of the LHMP to achieve goals, allowing the addition and removal of mitigated items.

The General Manager or his/her assignee leads a full review of the LHMP at a three and a half-year interval in the same manner as the initial LHMP. At this time, progress in reaching mitigation goals, assessment of new and existing hazards, using the new revised FEMA review tool, cross referencing hazards from the cities within the service area and development of new mitigation strategies and goals will be addressed by the Planning Team headed by the Safety Department that will include the General Manager or his/her assignee.

The consumers within the boundaries of Inland Empire Utilities Agency and the Agency's personnel will be asked to participate in the LHMP update process. There has been little development within the service area in the last 5 years. In the 2018 LHMP the plan was incorporated into planning documents for the sewer system and updates on water mains.

7.2 IMPLEMENTATION THROUGH EXISTING PROGRAMS

Once the State of California OES and FEMA approve the LHMP, IEUA will incorporate the LHMP into capital improvement projects, capital replacement program, building design, and any updates or repairs to the water distribution system. IEUA will submit a Notice of Intent to the State of California to help facilitate opportunities in obtaining FEMA and State funding to mitigate hazards within the service area. The General Manager or his/her assignee will be responsible for implementing the LHMP and ensuring the LHMP recommended goals and objectives are met. The General Manager or his/her assignee will be responsible for placing the LHMP on the District's website and incorporating the LHMP into the annual budget planning meetings. The General Manager or his/her assignee will verify that the LHMP is updated and

rewritten over a 5-year cycle. IEUA will start the update process one and a half years before the expiration date on this document.

7.3 CONTINUED PUBLIC INVOLVEMENT

The approved LHMP will be posted on the IEUA's Website with contact information in the spring of each year at the internal budget planning meetings. The General Manager or his/her assignee are responsible for ensuring the LHMP is brought before the Board of Directors each year. Public comments will be taken regarding the LHMP, when the plan is updated in 2028, and projects that could be included in next year's budget will be considered. As new facilities are incorporated into IEUA, the LHMP will be updated to include new facilities and new hazards, if warranted. When the LHMP is rewritten and updated, the public will be utilized to review and coincide with the document's changes. It is the General Manager or his/her assignee's responsibility to ensure the LHMP is updated throughout the year, as well as ensuring the LHMP is updated every 5 years.

The plan is reviewed annually, IEUA will conduct outreach with the seven cities that are supplied with raw water, along with the nonprofit organizations, including community-based organizations to represent the community's input into the updates. IEUA can also learn how priorities in the communities are changing or have changed since the last update.

Appendix A

Planning Team Meeting Matrix

Table 12. Meeting Matrix

Meeting Matrix/ Attendees	1/11/2023 Introduction Meeting (Zoom)	1/24/23 Working Session (Zoom)	3/09/23 Working Session (In-Person)	5/1/23 Working Session /Review (Zoom)	6/12/22 Final Planning Meeting (Zoom)
Nicole Slavin		x			
Warren T. Green		x			
Victoria Salazar		x			
Erik Cortez	x	x	x	x	x
*Tony Arellano	x	x	x	x	x
Ryan Love					
Nolan King					
Bonita Fan					
Anne Pandey					
Gary Sturdivan	x	x	x	x	x

Appendix B

Public Outreach

American Red Cross Chapter

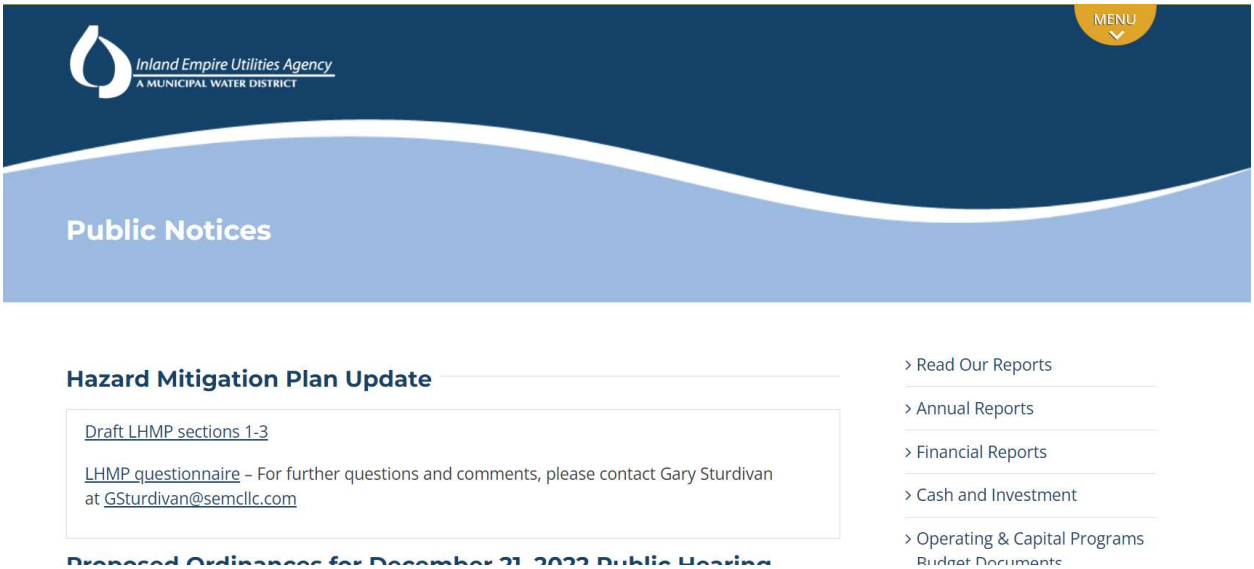
San Gabriel Pomona Valleys

626-447-2193

American Legion Post 112, 299

909-620-2305

Figure 11. Public Outreach for LHMP on IEUA website



No public comments or feedback were given.

Appendix C
Public Comments

No public comments from the IEUA Web-Posting or other forms of outreach