



City of Claremont

Local Hazard Mitigation Plan

March 7, 2022

PREPARED UNDER CONTRACT WITH
QUINNWILLIAMS



Table of Contents

INDEX OF TABLES AND FIGURES.....	2
SECTION 1: INTRODUCTION	3
SECTION 2: PLANNING PROCESS	7
SECTION 3: COMMUNITY PROFILE	14
SECTION 4: RISK ASSESSMENT	21
HAZARD: CYBER DISRUPTION	30
HAZARD: DROUGHT	33
HAZARD: EARTHQUAKE.....	38
HAZARD: FLOOD.....	48
HAZARD: LANDSLIDE.....	59
HAZARD: WILDFIRE.....	66
HAZARD: WINDSTORM	74
SECTION 5: MITIGATION STRATEGY.....	79
SECTION 6: PLAN UPDATE	102
SECTION 7: PLAN MAINTENANCE	111

APPENDICES

- Appendix 1: City Council Resolution**
- Appendix 2: FEMA Virtual Meetings**
- Appendix 3: Public Outreach Documentation**



Index of Tables and Figures

Tables

Table 1: Planning Team and Subcommittee Meetings	8
Table 2: Participating Organizations	10
Table 3: City of Claremont Demographics.....	18
Table 4: City of Claremont Housing	19
Table 5: Calculated Priority Risk Index.....	22
Table 6: Calculated Priority Risk Ranking for City of Claremont	23
Table 7: Comparison of 2015 CPRI with 2020 CPRI	23
Table 8: Vulnerability Analysis for City of Claremont	24
Table 9: Critical and Essential Facilities Vulnerable to Hazards.....	26
Table 10: Impacts to Existing and Future Types of Structures in the City.....	27
Table 11: U.S. Drought Monitor Classification Scheme	33
Table 12: Recent Wildfires in California Costs	70
Table 13: Fujita and Enhanced F-Scale	75
Table 14: Existing Processes and Programs.....	80
Table 15: General Plan Policies.....	82
Table 16: Mitigation Actions Matrix.....	94
Table 17: Deferred Mitigation Action Projects	103
Table 18: Removed Mitigation Action Projects.....	104
Table 19: Status of 2015 Mitigation Action Projects.....	105

Figures

Figure 1: Regional Map of Claremont.....	6
Figure 2: Map of Critical and Essential Facilities.....	25
Figure 3: Land Use Plan Map	28
Figure 4: California Drought Conditions June 2021	35
Figure 5: Map of Fault Lines in the Vicinity of Claremont	40
Figure 6: Landslide Zones in Claremont.....	42
Figure 7: Liquefaction Zones in Claremont.....	43
Figure 8: Liquefaction Zones in Claremont.....	43
Figure 9: Map of 500 Year Floodplain	49
Figure 10: Dam Inundation Areas	51
Figure 11: Flood Insurance Rate Map 1	53
Figure 12: Flood Insurance Rate Map 2	54
Figure 13: Claremont Landslide Hazard Map.....	62
Figure 14: Fire Hazard Severity Zones.....	68



Section 1: Introduction

Overview

The City of Claremont prepared this Local Hazard Mitigation Plan (LHMP) to guide hazard mitigation planning to better protect the people and property of the City from the effects of natural disasters and hazard events. This LHMP demonstrates the community's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. With this LHMP, the City may be eligible for certain federal disaster assistance, specifically, the FEMA Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program, and the Flood Mitigation Assistance (FMA) program.

The LHMP is a living document that should be reviewed, monitored, and updated to reflect changing conditions and new information. As required, the Plan must be updated every five years to remain in compliance with regulations and Federal mitigation grant conditions.

This LHMP is an update of the City of Claremont's 2015 Hazard Mitigation Plan approved by FEMA, March 17, 2015. This LHMP presents updated information regarding hazards being faced by Claremont as determined by the Planning Team and presents mitigation measures introduced and/or continued since 2015 to help reduce consequences from hazards, and outreach/education efforts within the community. Additionally, the Plan considers the impact of climate change.

The following FEMA definitions¹ are used throughout this plan:

Hazard Mitigation – Any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.

Planning – The act or process of making or carrying out plans; specifically, the establishment of goals, policies, and procedures for a social or economic unit.

Purpose of Local Hazard Mitigation Plan

The City of Claremont is one of 88 cities within Los Angeles County. Claremont is located in the foothills of the San Gabriel Mountains. The City is characterized by the unique and attractive landscape that makes the area so popular. However, the potential impacts of natural hazards associated with the terrain make the environment and population vulnerable to natural disaster situations.

The City is subject to drought, earthquakes, flooding, wildfires, landslides, and windstorms, and with the events of recent years the City could also be subject to cyber

¹ FEMA, 2002, *Getting Started, Building Support for Mitigation Planning*, FEMA 386-1



attacks. It is impossible to predict exactly when these disasters will occur, or the extent to which they will affect the City. However, with careful planning and collaboration among public agencies, private sector organizations, and citizens within the community, it is possible to minimize the losses that can result from these natural disasters.

The inevitability of hazards, and the growing population and activity within the City create an urgent need to develop strategies, coordinate resources, and increase public awareness to reduce risk and prevent loss from future hazard events. Identifying the risks posed by hazards and developing strategies to reduce the impact of a hazard event can assist in protecting life and property of citizens and communities. Local residents and businesses can work together with the City to create a Mitigation Plan that addresses the potential impacts of hazard events.

As the costs of damage from disasters continue to increase, the City realizes the importance of identifying effective ways to reduce vulnerability to disasters. Mitigation plans assist communities in reducing risk from hazards by identifying resources, information, and strategies for risk reduction, while helping to guide and coordinate mitigation activities throughout the City.

The plan provides a set of action items to reduce risks from hazards through education and outreach programs and to foster the development of partnerships, and implementation of preventative activities such as land use programs that restrict and control development in areas subject to damage from hazards.

The resources and information within the Mitigation Plan:

- ✓ Establish a basis for coordination and collaboration among agencies and the public of City of Claremont;
- ✓ Identify and prioritize future mitigation projects; and
- ✓ Assist in meeting the requirements of federal assistance programs.

The Mitigation Plan works in conjunction with other City plans, including the City General Plan, Emergency Operations Plan, and Capital Improvement Plan.

Mitigation Planning Process

The process for creating the 2021 Local Hazard Mitigation Plan started with identifying members for the Planning Team. Each team member represented different City department and specific divisions within those departments with a role in mitigation efforts. The Planning Team met and identified characteristics and consequences of natural hazards with significant potential to affect the City.

Hazard mitigation strategy and goals were developed by understanding the risk posed by the identified hazards. The group also determined hazard mitigation activities and priorities to include scenarios for both present and future conditions. The final Mitigation



Plan will be implemented through various projects, changes in day-to-day city operations, and through continued hazard mitigation development.

Authority

The LHMP was prepared in response to Disaster Mitigation Act of 2000 (DMA 2000). DMA 2000 (also known as Public Law 106-390) requires state and local governments to prepare Mitigation Plans to document their Mitigation Planning process, and identify hazards, potential losses, mitigation needs, goals, and strategies. This type of planning supplements the City's comprehensive emergency management program. Under DMA 2000, each state and local government must have a federally approved Mitigation Plan to be eligible for hazard mitigation grant funding.

California Senate Bill (SB) 379 passed in 2016 requires all cities and counties to include climate adaptation and resiliency strategies in the safety elements of their general plans upon the next revision beginning January 1, 2017. The bill requires the climate adaptation update to include a set of goals, policies, and objectives for their communities based on the vulnerability assessment, as well as implementation measures, including the conservation and implementation of natural infrastructure that may be used in adaptation projects. Specifically, the bill requires that upon the next revision of a general plan or local hazard mitigation plan, the safety element is to be updated as necessary to address climate adaptation and resiliency strategies applicable to the city or county.

Scope

The City's LHMP is a single jurisdictional plan that geographically covers the entire area within the City's jurisdictional boundaries and City owned facilities and land. This plan provides a framework for planning for natural hazards as well as cyber threats. The resources and background information in the plan are applicable Citywide and to City-owned facilities outside of the City boundaries, and the goals and recommendations provide groundwork for local mitigation plans and partnerships. The Regional Map of Claremont shows the regional proximity of the City to its adjoining communities.

Plan Adoption

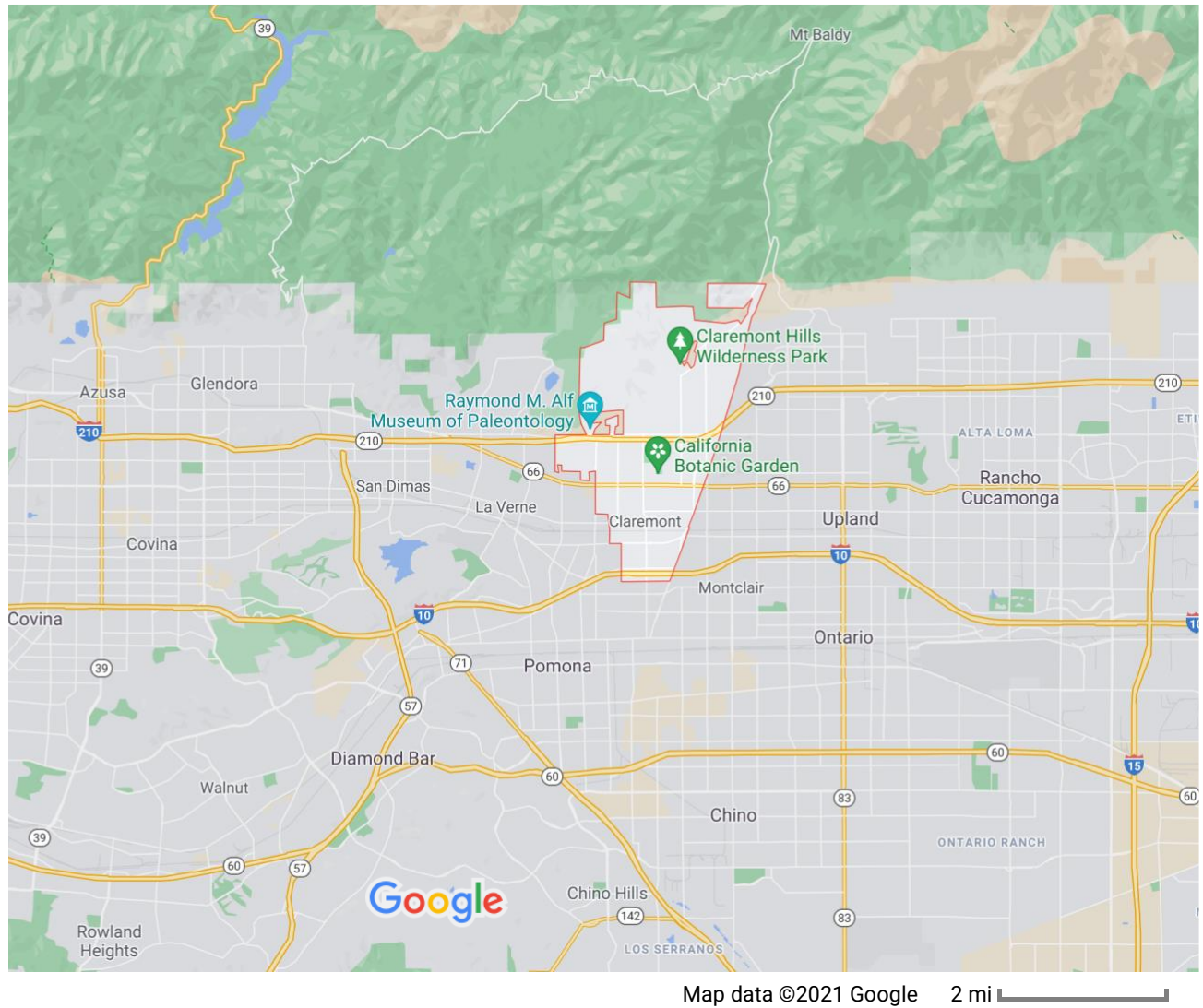
The 2021 Mitigation Plan was presented to City Council for adoption on September 14, 2021. A copy of the City Council Resolution is located in **Appendix 1**.

Plan Approval

Following incorporation of input from the City Council, the Final Draft Plan was forwarded to CalOES for review and approval and then to FEMA for final approval. FEMA issued an approval on _____.



Figure 1: Regional Map of Claremont



Source: Google Maps



Section 2: Planning Process

The process for updating the Local Hazard Mitigation Plan started with identifying members for the Planning Team, which was assembled to oversee the development of the Plan. Each team member represented different City department and specific divisions within those departments with a role in mitigation efforts. A subcommittee consisting of the Chair of the Planning Team and the Assistant City Manager was assembled, as well.

Hazard Mitigation Planning Team

Agency	Name	Department	Position
Claremont	Karlan Bennett, Chair	Police Department	Lieutenant
Claremont	Jamie Earl	City Manager's Office	Assistant City Manager
Claremont	Melissa Vollaro	Human Services	Director
Claremont	Robert Ewing	Police Department	Sergeant
Claremont	Kristin Mikula	Community Services	Manager
Claremont	Vince Ramos	Community Development	Associate Engineer
QuinnWilliams	Julie Quinn	Consultant	Partner
QuinnWilliams	Katherine Williams	Consultant	Partner

Throughout the process the Planning Team's efforts were supported by the City of Claremont and its Council members.

City of Claremont City Council

- ✓ Jennifer Stark, Mayor
- ✓ Jed Leano, Mayor Pro Tem
- ✓ Corey Calaycay, Council Member
- ✓ Sal Medina, Council Member
- ✓ Ed Reece, Council Member

Consulting Services

The update to the Plan was facilitated by the consulting group, QuinnWilliams, LLC, a woman-owned business based in Los Angeles that specializes in emergency and security preparedness.

QuinnWilliams, LLC

- ✓ Project Manager: Katherine Williams
- ✓ Senior Analyst: Julie Quinn



The Planning Team met monthly to provide guidance, review progress, identify issues, and to coordinate stakeholder meetings. The Planning Team also provided background documents and facilitated data collection.

Importantly, the Planning Team discussed whether to include any non-natural hazards such as civil unrest, cyber disruption, and epidemic/pandemic. Because of the frequency and severity of cyber disruptions in and around the Southern California region during 2020-2021, the Planning Team decided to include cyber disruption in the Plan.

Additionally, the Planning Team discussed how to best incorporate climate change into the Plan. The Planning Team made the decision to address climate change as an element of each hazard, rather than a separate hazard.

Hazard mitigation strategies and goals were developed by understanding the risk posed by the identified hazards. The Planning Team also determined hazard mitigation activities and priorities to include scenarios for both present and future conditions. The final Mitigation Plan will be implemented through various projects, changes in day-to-day city operations, and through continued hazard mitigation development.

Planning Team and Subcommittee Meetings

Table 1: Planning Team and Subcommittee Meetings

Date	Item
October 15, 2020	Planning Team kick-off meeting
November 10, 2020	Planning Team subcommittee meeting to discuss Risk Assessment Survey
November 15, 2020	Risk Assessment survey sent to Planning Team
December 3, 2020	Planning Team subcommittee meeting to discuss Risk Assessment Survey findings
December 10, 2020	Planning Team meeting to discuss Risk Assessment Survey findings
January 27, 2021	Planning Team meeting to discuss hazards for inclusion in Plan
February 10, 2021	Planning Team subcommittee meeting to discuss Hazard Vulnerability Analysis
February 24, 2021	Planning Team meeting to review draft Risk Assessment



Date	Item
March 8, 2021	Planning Team subcommittee meeting to discuss Public Outreach Meeting
March 24, 2021	Planning Team subcommittee meeting to review prior Plan's mitigation strategies and projects
April 14, 2021	Planning Team meeting to discuss current and planned mitigation strategies
April 26, 2021	Second Planning Team Meeting to discuss current and planned mitigation strategies
April 28, 2021	Planning Team subcommittee meeting to review mitigation strategies
May 12, 2021	External Stakeholder Meeting with Planning Team Subcommittee
July 30, 2021	Planning Team review of public comment on Plan

Participating Organizations

Successful mitigation planning efforts require collaboration with, and support from, federal, state, local, and regional governments; citizens; the private sector; universities; and non-profit organizations. In its process, the Planning Team consulted a variety of sources to ensure that the updated LHMP results in practicable actions tailored to meet Claremont's local needs and circumstances.

In April 2021, the Assistant City Manager sent an email inviting external stakeholders to participate in a virtual LHMP meeting. The list of potential participants included neighboring communities, local and regional agencies involved in hazard mitigation activities, representatives from agencies with the authority to regulate development, and others who had expressed interest to be involved in the planning process.

The meeting was held on May 12, 2021. The Chair of the Planning Committee and the Assistant City Manager attended on behalf of the Planning Team, as did the consultants. Following a presentation and review of the proposed updates to the Plan, the consultants facilitated a "round robin" discussion during which each stakeholder provided insight and feedback on mitigation projects impacting their area of expertise or interest.

At the conclusion of the meeting, the Assistant City Manager reviewed next steps and invited everyone to attend the next public meeting. Following the meeting, the Assistant City Manager sent a reminder email about the public meeting. The working final draft of



the LHMP was also circulated to the stakeholders via email with a request asking for their input and any suggested revisions.

Table 2: Participating Organizations

Organization/Agency	Name
Claremont Chamber of Commerce	Randy Lopez, Executive Director
Claremont InterFaith Council	Thom Johnson, President
Claremont Unified School District	Lisa Shoemaker, Assistant Superintendent
The Claremont Colleges Services	Stan Skipworth, Assistant Vice President and Director of Campus Safety
Claremont Wildlands Conservancy	Muriel Poston, Board Member
Community Emergency Response Team (CERT)	Larry Horowitz, Claremont CERT Coordinator
Disaster Management Area D	Diana Manzano-Garcia, Disaster Management Area Coordinator
Golden State Water Company	Ethan Leano, Claremont Distribution Superintendent
Los Angeles County Fire Department	Mike Inman, Assistant Fire Chief
Pomona Valley Protective Association	William McDonald, President
SoCal Edison	Marissa Castro-Salvati, Local Public Affairs Region Manager
SoCal Gas	Robert Cruz, Public Affairs Manager
Three Valleys Municipal Water District	Richard Hansen, General Manager
Tri-City Mental Health Authority	Toni Navarro, Executive Director
The Webb Schools	Theresa Smith, Head of Schools

Public Engagement

Under FEMA guidelines, local hazard mitigation planning processes should create opportunities for members of the public to be involved in plan development—at a



minimum, during the initial drafting stage and during plan approval. The Planning Team chose to go beyond minimum standards and conduct more extensive community outreach to help ensure that the LHMP reflects community values, concerns, and priorities.

Public Meetings

The LHMP update occurred in the midst of the COVID-19 pandemic. As such, in-person meetings were not an option and all community outreach was conducted virtually. To facilitate and host effective and engaging meetings, the Planning Team utilized FEMA's resource, *Virtual Meetings: Guide to Virtual Hazard Mitigation Planning Meetings*. **Appendix 2** contains a copy of the guidance.

The LHMP update also occurred in concurrence with the City's update of the safety element of its General Plan. Because with each project necessitated public outreach and engagement, City officials decided it would be most respectful of residents' time to coordinate these meetings whenever possible. The LHMP briefings were held in conjunction with the General Plan update meetings. This also allowed residents to understand more fully how the two plans interact. This was specifically important regarding climate change and its impacts in the years to come. While the LHMP has a five year timeframe, the General Plan projections look 20 to 40 years ahead, and in many cases are better suited to addressing climate-exacerbated hazards and climate change impacts.

The City held three public meetings, and notices of each meeting were widely distributed in advance in accordance with City notification requirements, the engagement strategy, legal requirements, and best practices per the FEMA guidance on virtual meetings. **Appendix 3** contains photos of the virtual meetings and power point slides that were shared.

- **Public Meeting #1 (December 17, 2020)**

This meeting was the kick-off for public engagement. Members of the public learned about the importance of an LHMP, what the Plan would include, and the timeline for developing it.

- **Public Meeting #2 (March 10, 2021)**

members of the public learned about the hazard profiles developed for the plan and Claremont's vulnerabilities to individual hazard types. Activities at this meeting included opportunities to suggest hazard mitigation actions and to comment on others.

- **Public Meeting #3 (July 14, 2021)**

This meeting marked the beginning of the public review period. It included a discussion about how the Plan was prepared, the results of the analyses, and the chosen hazard mitigation strategies. Members of the public were also invited to comment on the Plan.



Online Engagement

The Planning Team set up a project website as a simple, one-stop location for community members to learn about the LHMP. The website included information about what an LHMP is and why the City prepared one. It had links to materials and plan documents as they became available and allowed members of the public to receive notifications about upcoming events. The Team also used social media accounts, such as Facebook, Twitter, and Instagram, to send quick notifications or bursts of information about the Plan and the development process.

Review of LHMP

On July 15, 2021, the City of Claremont released a draft copy of the LHMP for public review and comment. The document was posted electronically on the City's website, and hard copies were made available upon request. The City distributed notifications about the public review period through social media accounts and other online sources. The City received minor feedback during the public review process which was addressed and incorporated into the LHMP document.

On September 14, the LHMP was presented to the City Council for review and adoption. The LHMP was then submitted to CalOES for review and approval. Following approval by CalOES, the plan was submitted to FEMA for final approval. See **Appendix 1** for the City Council Resolution adopting the plan.

Use of Existing Data

The Planning Team gathered and reviewed existing data and plans during plan development. Numerous electronic and hard copy documents were used to support the planning process, including:

- ✓ California Department of Water Resources Inundation Maps
- ✓ California Department of Water Resources Dams Within Jurisdiction of the State of California (2020)
- ✓ Claremont General Plan
- ✓ Claremont Hills Wilderness Park Implementation Plan (2016)
- ✓ Claremont Sustainable City Plan (2021)
- ✓ County of Los Angeles All Hazards Mitigation Plan (2019 Public Draft)
- ✓ County of Los Angeles General Plan (2015)
- ✓ County of Los Angeles GIS Viewer
- ✓ HAZUS reports
- ✓ Historic GIS maps and local inventory data
- ✓ Local Flood Insurance Rate Maps
- ✓ United States Army Core of Engineers National Inventory of Dams

These documents were used as resources throughout the Plan.



Plan Maintenance

Mitigation Planning is an ongoing process involving changes as new hazards occur, as the area develops, and as more is learned about hazards and their impacts. The Planning Team will monitor changing conditions, help implement mitigation activities, annually review the plan to determine if City goals are being met, and provide an update to CalOES and FEMA every five years. In addition, the Planning Team will continue public participation in the plan maintenance process, review After-Action Reports generated after any disaster that impacts the City, and revise the mitigation plan, as needed. (See **Section 7: Plan Maintenance** for additional Information)



Section 3: Community Profile

Geography and the Environment

Claremont is located at the foothills of the San Gabriel Mountains, bounded by the Angeles National Forest to the north, City of La Verne to the west, City of Pomona to the south and the City of Montclair and City of Upland to the east. The City has an area of 13.3 square miles and elevations range from a high of about 1800' to 1100', north to south. The City's terrain is steeply sloping alluvial fan (4% grade NW to SE). The native vegetation consists of chaparral, coastal sage scrub, oak woodland, grasses, and riparian vegetation types.

The City owns 21 parks and sports fields with 2,534 acres of public parkland, of which 2,378 is wilderness. This includes the Thompson Creek Trail, a linear park following a 2.8-mile paved trail.

The City is served by the 10 and 210 freeways. The main arterial highways traveling North and South are Towne Avenue, Indian Hill Boulevard, Mills Avenue and College Avenue. The main arterial highways traveling West and East are Baseline Road, Foothill Boulevard, and Arrow Highway.

History

The area comprising the City of Claremont was a part of the San Gabriel Mission established in 1771. A claim to land was filed in 1871, and Claremont became a community when the Santa Fe Railroad connection between Los Angeles and Chicago was completed in 1887. The City of Claremont was eventually incorporated in 1907.

Below is the History of Claremont as noted by City historians and documented on the City's official website²:

Much of what Claremont is today is the direct result of actions taken by the community's founders more than 100 years ago. Trees planted at the turn of the century now compete with nearby mountain peaks for dominance of the local skyline. The Claremont Colleges have become some of the nation's most highly respected educational and cultural institutions. The historic central core remains a vital residential and retail district, one of the last true "downtowns" in the region. And the spirit of Claremont's original "town meeting" form of self-governance lives on in today's active and involved citizenry—citizens who continue to build on the successes of the past in order to ensure an even brighter future.

² <https://www.ci.claremont.ca.us/about-us/city-profile/history-of-claremont>



The first known inhabitants of the Claremont region were the Tongva-Gabrielino tribe as evidenced by the discovery of a village on a mesa a few hundred yards northeast of the intersection of Foothill and Indian Hill Boulevards. In 1771, as the Spanish period in California began, Mission San Gabriel was founded, stretching from the San Bernardino Mountains to San Pedro Bay. Claremont was part of this vast tract, and many of the indigenous people (Tongva-Gabrielinos) were employed as shepherds for the padres.

After the missions were secularized by the Mexican government in 1834, most of the land within the present city limits became part of the Rancho San Jose owned by Ricardo Vejar and Don Ygnacio Palomares. Ygnacio's sister, Maria Barbara, lived with her husband and family in an adobe house in the area now known as Memorial Park. The Tongva-Gabrielinos continued to work for the Spanish settlers until smallpox took a heavy toll on the indigenous population in 1862 and 1873. By 1883, the few remaining Tongva-Gabrielinos had left the area.

Jedediah Smith, the first European man to enter California overland, passed through the Claremont region in 1826. W. T. "Tooch" Martin, the first anglo-European resident of Claremont, filed a claim on 156 acres near Indian Hill Boulevard in 1871. Martin lived by hunting game and keeping bees but eventually moved on as the population grew around him.

The Santa Fe Railroad provided the impetus for the creation of a community named Claremont in January 1887. It was one of about 30 town sites laid out between San Bernardino and Los Angeles in anticipation of a population explosion resulting from the arrival of the railroad. However, the real estate boom was short-lived. Claremont would have become one of a long list of local railroad "ghost towns" if not for the decision of the local land company to transfer its Hotel Claremont and 260 vacant lots to the recently-founded Pomona College in 1888.

The founders of Pomona College wanted to establish a school of "the New England style," and the community that grew up around it also reflected the founders' New England heritage. Even the form of local government they used, the Town Meeting, was brought with them from their hometowns in the East. Both the citizen involvement and the volunteerism on which the town meeting form of government is based continue to be hallmarks of Claremont today.

Beginning in 1904, there was talk of incorporating as a city. Proponents didn't want to rely on Los Angeles County for services, while opponents warned the community's weak tax base would result in bankruptcy in less than a year. Finally, after much debate, an election on the incorporation question was held on September 23, 1907. Nearly 95 percent of



Claremont's 131 eligible voters went to the polls. Incorporation was approved by a vote of 73 to 49, and the City of Claremont was officially incorporated on October 3, 1907.

At the same time the colleges were growing and expanding, so was the local citrus industry. Citrus ranches spread out across all the foothill communities. Claremont growers established one of the earliest citrus cooperatives for marketing and shipping citrus fruit, a model that led to the organization of the Sunkist cooperative. At its height, the industry supported four citrus packing houses, an ice house, and a precooling plant along the railroad tracks in Claremont.

Labor for the citrus industry was predominately provided by Mexican-Americans, often new arrivals from Mexico. Men served as pickers while women worked in the packing houses. By 1920, two Mexican-American neighborhoods had developed in Claremont: one in the area of El Barrio Park and the other near the packing houses west of Indian Hill Boulevard and north of the railroad. In addition to supporting the thriving citrus industry, Mexican labor contributed greatly to the early construction of the Claremont Colleges, including skilled crafting of many stone structures and ornamental features.

Citrus continued to flourish in the area until after the Second World War. That's when the pressure for residential development caused many growers to sell their land for housing tracts. The opening of the San Bernardino Freeway in 1954 also made it much easier for people not associated with citrus or the Colleges to live in Claremont. The city, which covered about 3.5 square miles at its incorporation in 1907, now covers more than 13 square miles with a population of over 34,000 residents.

The early Spanish, college, and citrus industry influences can still be seen in the community today. There are lush remnants of citrus and oak groves and a physical character reminiscent of Claremont's Spanish heritage and college-town influence. Claremont has many fine representatives of various architectural periods, particularly Victorian, neo-Classical Revival, Craftsman, and Spanish Colonial Revival. This diversity, sense of scale, and continuity singles it out as a unique community in Southern California.

Climate

The City benefits from a mild, temperate climate, with average monthly temperatures ranging from the high 40s and upper 80s. However, the temperatures can vary over a wide range, particularly when the Santa Ana winds blow, bringing higher temperatures and very low humidity. Temperatures rarely exceed 90 degrees Fahrenheit in the summer months (June-September), and rarely drop below 44 degrees Fahrenheit in the winter months (November-March).



However, according to the 2021 City of Claremont Sustainable City Plan:

The latest research indicates that Claremont is in a “hot zone” where temperatures are increasing rapidly. These hot zones are the scenes of a critical acceleration, places where geophysical processes are amplifying the general warming trend. They suggest which parts of the Earth will suffer the largest changes. If we continue on our current path, Claremont can expect to experience an increase in its mean temperature of at least 4 degrees F by 2050.

Rainfall in the city averages 21.4 inches of rain per year.³ It is important to note that the term “average rainfall” can be misleading because over the recorded history of rainfall in the City amounts have ranged from no rain in some years to over 40 inches of rain in very wet years.

Minerals and Soils

Claremont is largely built on old alluvial soil and the presence of rocks interspersed in the soil is very common. Due to the artesian wells in the Pilgrim Place region (in the Central liquefaction zone), that soil is softer sand. The northern mountainous area of Claraboya is largely granite, while the northwestern Piedmont Mesa area is clay. The northeast area of Padua Hills is also clay. Understanding the geologic characteristics of City of Claremont is an important step in hazard mitigation and avoiding at-risk development. Rock hardness and soil characteristics can determine whether or not an area will be prone to geologic hazards such as earthquakes, liquefaction and landslides.

Population and Demographics

According to the 2019 Census from the U.S. Census Bureau, the City of Claremont has a residential population of about 36,266. The City continues to experience an increase in density through in-fill building, which is increasing the service loads on the built infrastructure, including roads, water supply, sewer services and storm drains.

Ethnically, Claremont is a very diverse City. According the 2019 Census figures, 49% of the population identifies as White Non-Hispanic; 25% as Hispanic; 14% as Asian; 5% as Black or African American Population; 1% as American Indian/Alaska Native; and 7% of the population identifies with two or more racial groups.

³ <https://cal-adapt.org/tools/local-climate-change-snapshot/>



Table 3: City of Claremont Demographics

Racial/Ethnic Group	Population (%)*
White Non-Hispanic	49
Hispanic	25
Asian	14
Black or African American	5
American Indian/Alaska Native	1
Two or More Races	7

Source: 2019 U.S. Census Population Estimates

*Total can be greater than 100% because individuals may identify as more than one race

Housing and Community Development

The City participates in the Community Development Block Grant (CDBG) program, which is the primary resource available to address non-housing community development needs is the CDBG. The U.S. Department of Housing and Urban Development (HUD) provides funding for City of Claremont’s Community Program. Annually, the City receives approximately \$150,000 in CDBG funds.

The City of Claremont’s Community Development Department (CDD) is a multi-functional Department responsible for promoting economic development of existing business retention; orderly planning; enforcement of life safety codes; and proper grading and street improvement activities. The CDD's mission is to ensure appropriate development consistent with the City’s aesthetic standards.

There has been an increasing per capita personal income in the region since the 1970's. Per capita income is an estimate of total personal income divided by the total population. According to the 2019 U.S. Census estimate, the had a per capita income of \$44,546, a 27% increase from the 2010 per capita income of \$35,160. This estimate can be used to compare economic areas as a whole, but it does not reflect how the income is distributed among residents of the area being examined.

The City offers a variety of housing options. While the majority of residents live in one unit detached houses, there are many living in one unit attached and multi-residential units.



Table 4: City of Claremont Housing

	Number	Percent %
Housing Type:		
1-unit, detached	8,739	69.9%
1-unit, attached	1,034	8.3%
Multi-Residential (2-19 units)	1,802	14.3%
Multi-Residential (20+ units)	913	7.3%
Mobile homes	23	0.2%
Housing Statistics:		
Total Available Housing Units	12,511	100%
Owner-Occupied Housing	7,416	66.7%
Renter-Occupied	3,705	33.3%
Vacant Housing units	595	5.1%
Average Household Size:	2.69 persons	

Source: 2019 U.S. Census Data

Employment and Industry

The City of Claremont has over 16,000 residents who are employed. Nearly 60% of those employed are in the Management, Business, Science and Arts Occupation. Nearly 20% are employed in Sales and Office occupation, and 13% in Service occupations. The City business climate has been strong and growing with concentrations in educational, health and social services, as well as management/administrative services and manufacturing. The City also has employment in production, transportation and material moving, and natural resources, construction, and maintenance.

Mitigation activities are needed at the business level to ensure the safety and welfare of workers and limit damage to industrial infrastructure. Employees are highly mobile, commuting from surrounding areas to industrial and business centers. This creates a greater dependency on roads, communications, accessibility and emergency plans to reunite people with their families. Before a natural hazard event, large and small businesses can develop strategies to prepare for natural hazards, respond efficiently, and prevent loss of life and property.

Transportation and Commuting Patterns

The City meets its public transportation needs through a mixture of a regional transit system (MTA), and various city contracted bus systems. MTA provides both bus service to the City of Claremont and to the Los Angeles County metropolitan area. In addition to this service, the City promotes alternative transportation activities. The City also promotes



the Pomona Valley Transit system, which includes the Dial-a-Ride and taxi services for residents. Amtrak buses serve the Claremont community, as does the Metrolink Rail.

Many residents in the City of Claremont work outside of the City. This may suggest that population growth is a more suburban phenomenon, where residents work in the City of Claremont but live in other communities. However, the educational establishments within the community (especially the Claremont Colleges) draw a large portion of this employment.



Section 4: Risk Assessment

Risk Assessment Overview

Risk assessment is the process of measuring the potential loss of life resulting from hazards, as well as personal injury, economic injury and property damage, in order to determine the vulnerability of people, buildings, and infrastructure to hazard events.

The four components of a risk assessment are:

- Hazard Identification;
- Profiling Hazard Events;
- Impact Assessment; and
- Assessing Vulnerability.

Hazard Identification

The Claremont Hazard Mitigation Planning Team reviewed the hazards in the 2015 LHMP (earthquake, flood, landslide, wildfire, windstorm) and identified additional hazards based on recent events (drought, civil unrest, climate change, cyber disruption and epidemic/pandemic) to be included in the Risk Assessment. The Planning Team also reviewed existing documentation to determine which of these hazards posed the most significant threat to the City. The geographic extent of each of the identified hazards was identified by the Planning Team utilizing maps and data contained in the City's General Plan and City's Emergency Operations Plan. The County of Los Angeles Hazard Mitigation Plan served as a valuable resource.

The members of the Planning Team each completed a survey to rank the hazards according to probability, magnitude/severity, warning time and duration. The results of the survey were used to determine the hazards ranking according to the Calculated Priority Risk Index (CPRI). Utilizing the Calculated Priority Risk Index (CPRI) ranking technique, the Planning Team concluded that six of the identified natural hazards posed a significant threat to the City: earthquake, flood, wildfire, landslide, drought and windstorm. The hazard ranking system is described in Table 5: Calculated Priority Risk Index, while the actual ranking is shown in Table 6: Calculated Priority Risk Index Ranking for City of Claremont. Climate Change has significant impact on many of the natural hazards identified. The Planning Team made the decision to address climate change as an element of each hazard, rather than a separate hazard. The frequency and severity of cyber disruptions in and around the Southern California region during 2020-2021 also led the Planning Team to conclude that cyber disruption is a hazard that needed to be profiled and included in the City's mitigation strategies. Table 7: Comparison of 2015 CPRI with 2020 CPRI highlights how the CPRI ranking increased for each natural hazard included in the 2015 LHMP.



Table 5: Calculated Priority Risk Index

CPRI Category	Degree of Risk			Assigned Weighting Factor
	Level ID	Description	Index Value	
Probability	Unlikely	Extremely rare with no documented history of occurrences or events. Annual probability of less than 1 in 1,000 years.	1	45%
	Possibly	Rare occurrences. Annual probability of between 1 in 100 years and 1 in 1,000 years.	2	
	Likely	Occasional occurrences with at least 2 or more documented historic events. Annual probability of between 1 in 10 years and 1 in 100 years.	3	
	Highly Likely	Frequent events with a well-documented history of occurrence. Annual probability of greater than 1 every year.	4	
Magnitude/Severity	Negligible	Negligible property damages (less than 5% of critical and non-critical facilities and infrastructure. Injuries or illnesses are treatable with first aid and there are no deaths. Negligible loss of quality of life. Shut down of critical public facilities for less than 24 hours.	1	30%
	Limited	Slight property damage (greater than 5% and less than 25% of critical and non-critical facilities and infrastructure). Injuries or illnesses do not result in permanent disability, and there are no deaths. Moderate loss of quality of life. Shut down of critical public facilities for more than 1 day and less than 1 week.	2	
	Critical	Moderate property damage (greater than 25% and less than 50% of critical and non-critical facilities and infrastructure). Injuries or illnesses result in permanent disability and at least 1 death. Shut down of critical public facilities for more than 1 week and less than 1 month.	3	
	Catastrophic	Severe property damage (greater than 50% of critical and non-critical facilities and infrastructure). Injuries and illnesses result in permanent disability and multiple deaths. Shut down of critical public facilities for more than 1 month.	4	
Warning Time	> 24 hours	Population will receive greater than 24 hours of warning.	1	15%
	12–24 hours	Population will receive between 12-24 hours of warning.	2	
	6-12 hours	Population will receive between 6-12 hours of warning.	3	
	< 6 hours	Population will receive less than 6 hours of warning.	4	
Duration	< 6 hours	Disaster event will last less than 6 hours	1	10%
	< 24 hours	Disaster event will last less than 6-24 hours	2	
	< 1 week	Disaster event will last between 24 hours and 1 week.	3	
	> 1 week	Disaster event will last more than 1 week	4	

Source: Federal Emergency Management Agency



Table 6: Calculated Priority Risk Ranking for City of Claremont

Hazard	Probability	Weighted 45% (x.45)	Magnitude Severity	Weighted 30% (x.3)	Warning Time	Weighted 15% (x.15)	Duration	Weighted 10% (x.1)	CPRI Ranking
Cyber Disruption	2.7	1.2	2.2	0.7	3.3	0.5	3.3	0.3	2.68
Drought	2.7	1.2	1.3	0.4	1.0	0.2	4.0	0.4	2.15
Earthquake	3.3	1.5	3.8	1.2	4.0	0.6	3.8	0.4	3.63
Flood	2.2	1.0	2.3	0.7	3.5	0.5	3.5	0.4	2.55
Landslide	2.5	1.1	2.0	0.6	3.8	0.6	3.3	0.3	2.63
Wildfire	3.3	1.5	3.3	1.0	3.9	0.6	3.8	0.4	3.47
Windstorm	3.5	1.6	2.3	0.7	3.1	0.5	3.2	0.3	3.05

Comparison of Prior CPRI

The CPRI ranking increased for each natural hazard included in the 2015 LHMP.

Table 7: Comparison of 2015 CPRI with 2020 CPRI

Hazard	2015 CPRI Ranking	2020 CPRI Ranking
Earthquake	2.95	3.63
Flood	2.05	2.55
Landslide	2.20	2.63
Wildfire	3.15	3.47
Windstorm	2.00	3.05

Profiling Hazard Events

Identifying the causes and characteristics of each hazard increases the understanding of which of the City's facilities, infrastructure, and environment may be vulnerable. A profile of each hazard is provided in the Hazard-Specific Analysis in the following sections.



Table 8: Vulnerability Analysis for City of Claremont

Vulnerability: Location, Extent, and Probability for City of Claremont			
Hazard	Location (Where)	Extent (How Big an Event)	Probability (How Often)*
Cyber Disruption	Throughout Project Area	Anywhere within the City but will generally be targeted towards government organizations or larger corporations	Moderate - High
Drought	Entire Project Area	Moderate to Severe Drought	High
Earthquake	Entire Project Area	The Southern California Earthquake Center (SCEC) in 2007 concluded that there is a 99.7 % probability that an earthquake of M6.7 or greater will hit California within 30 years. ¹	Moderate
Flood	Throughout Project Area	Urban Flooding from Severe Weather or Dam Inundation	Moderate
Landslide	Throughout the Project Area	Earthquake-induced and rain-induced landslide events possibly impacting dozens of structures.	Moderate
Wildfire	Northern quadrants of the City	Severe FRAP Ratings	High
Windstorm	Entire Project Area	50 miles per hour or greater	Moderate

* Probability is defined as: Low = 1:1,000 years, Moderate = 1:100 years, High = 1:10 years

¹ Uniform California Earthquake Rupture Forecast

Impact Assessment/Assessing Vulnerability

The impact assessment determines the exposure to each hazard by overlaying hazard maps with an inventory of the existing (or planned) property development(s) and population(s). Critical facilities are of particular concern because these locations provide essential equipment or provide services to the general public that are necessary to preserve important public safety, emergency response, and/or disaster recovery functions.

Risk analysis involves estimating potential losses involves assessing the damage, injuries, and financial costs likely to be sustained in a geographic area over a given period of time. The two measurable components of risk analysis are magnitude of the harm that may result and the likelihood of the harm occurring. Describing vulnerability in terms of dollar losses provides the community and the state with a common framework in which



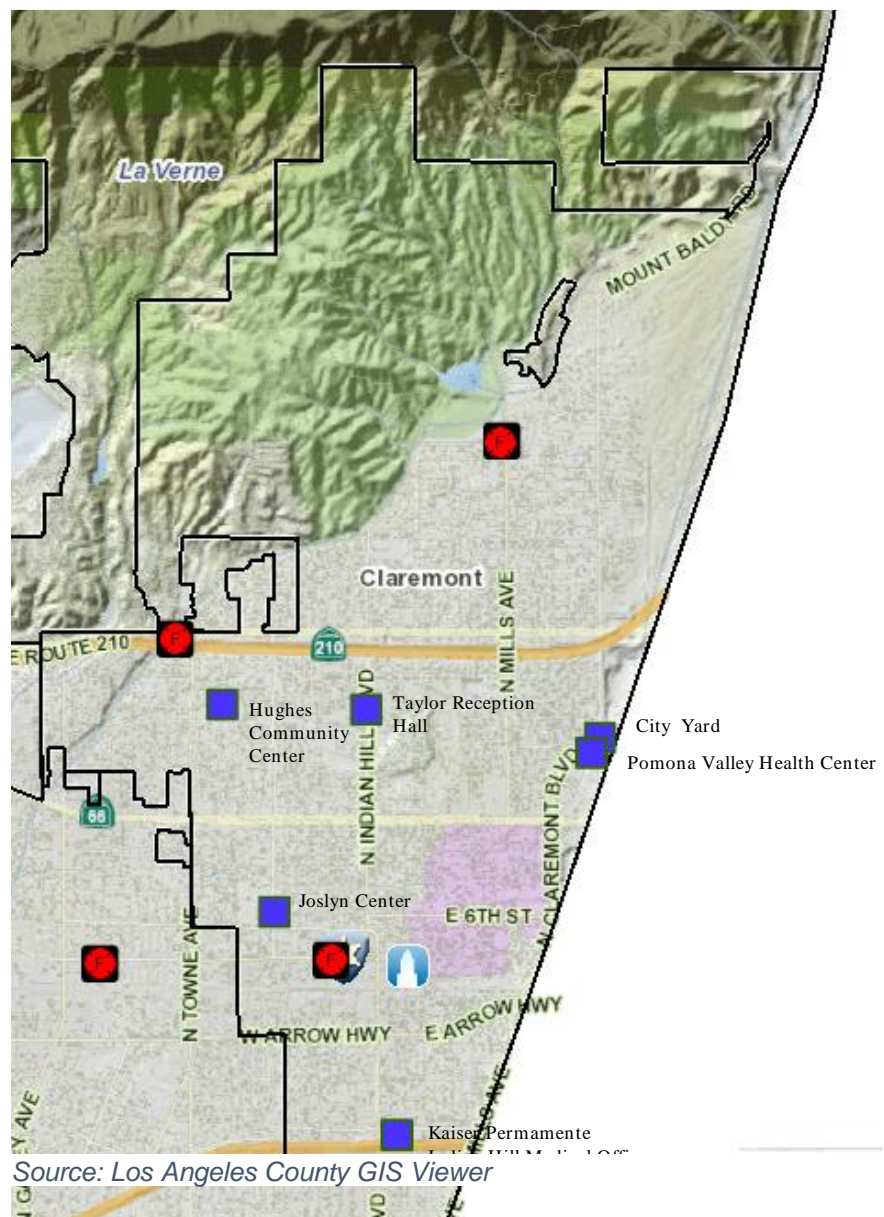
to measure the effects of hazards on assets. For each hazard where data was available, quantitative estimates for potential losses have been included in the hazard assessment. Data was not available to make vulnerability determinations in terms of dollar losses for all the identified hazards.

Critical and Essential Facilities

Facilities critical to government response activities (i.e., life safety and property and environmental protection) include: local government 9-1-1 dispatch centers, local government emergency operations centers, local police and fire stations, local public works facilities, local communications centers, schools, and hospitals.

Essential facilities are those **Figure 2: Map of Critical and Essential Facilities**

facilities that are vital to the continued delivery of key City services or that may significantly impact the City's ability to recover from the disaster. These facilities include but are not limited to: schools, jails, law enforcement center, public services building, community corrections center, the courthouse, juvenile services building and other public facilities.



Source: Los Angeles County GIS Viewer



Table 9: Critical and Essential Facilities Vulnerable to Hazards illustrates the critical and essential facilities within City of Claremont and the vulnerability of those facilities to the identified hazards.

Table 9: Critical and Essential Facilities Vulnerable to Hazards

Name of Facility	Cyber Disruption	Drought	Earthquake	Flood	Landslide	Wildfire	Windstorm
Critical Facilities							
City Hall 207 N. Harvard Avenue	X		X				X
Claremont Police Department 570 W. Bonita Avenue	X		X				X
County of Los Angeles Fire Station #101 660 W. Bonita Avenue	X		X				X
County of Los Angeles Fire Station #102 2040 N. Sumner Avenue	X		X			X	X
County of Los Angeles Fire Station #62 3701 N. Mills Avenue	X		X			X	X
City Yard 1615 Monte Vista Avenue	X		X				X
Essential Facilities							
Alexander Hughes Community Center 1700 Danbury Road	X		X				X
Taylor Reception Hall 1775 Indian Hill Blvd	X		X				X
Pomona Valley Health Center at Claremont 1601 Monte Vista Avenue	X		X				X
Kaiser Permanente Indian Hill Medical Offices 250 W San Jose Avenue	X		X				X
Joslyn Senior Center 660 N Mountain Avenue	X		X				X

Land and Development

The City of Claremont General Plan provides the framework for the growth and development of the City including the use and development of private land, including residential, industrial and commercial areas, as demonstrated in the Land Use Plan Map below. This Plan is one of the City's most important tools in addressing environmental challenges including transportation and air quality; growth management; conservation of natural resources; clean water and open spaces. The City is currently updating their General Plan and it will include a Climate Adaption section.



Impacts to Types of Structures

The City's General Plan identifies a broad range of land uses and the building code identifies several building types. In general terms, structures are categorized as residential, commercial, institutional, or public.

Table 10: Impacts to Existing and Future Types of Structures in the City

Category of Structure	Cyber Disruption	Drought	Earthquake	Flood	Landslide	Wildfire	Windstorm
Residential			X			X	X
Commercial			X		X	X	X
Institutional			X			X	X
Public			X		X	X	X

Source: Analysis Based on City of Claremont General Plan



Land Use Plan Map

Figure 3: Land Use Plan Map

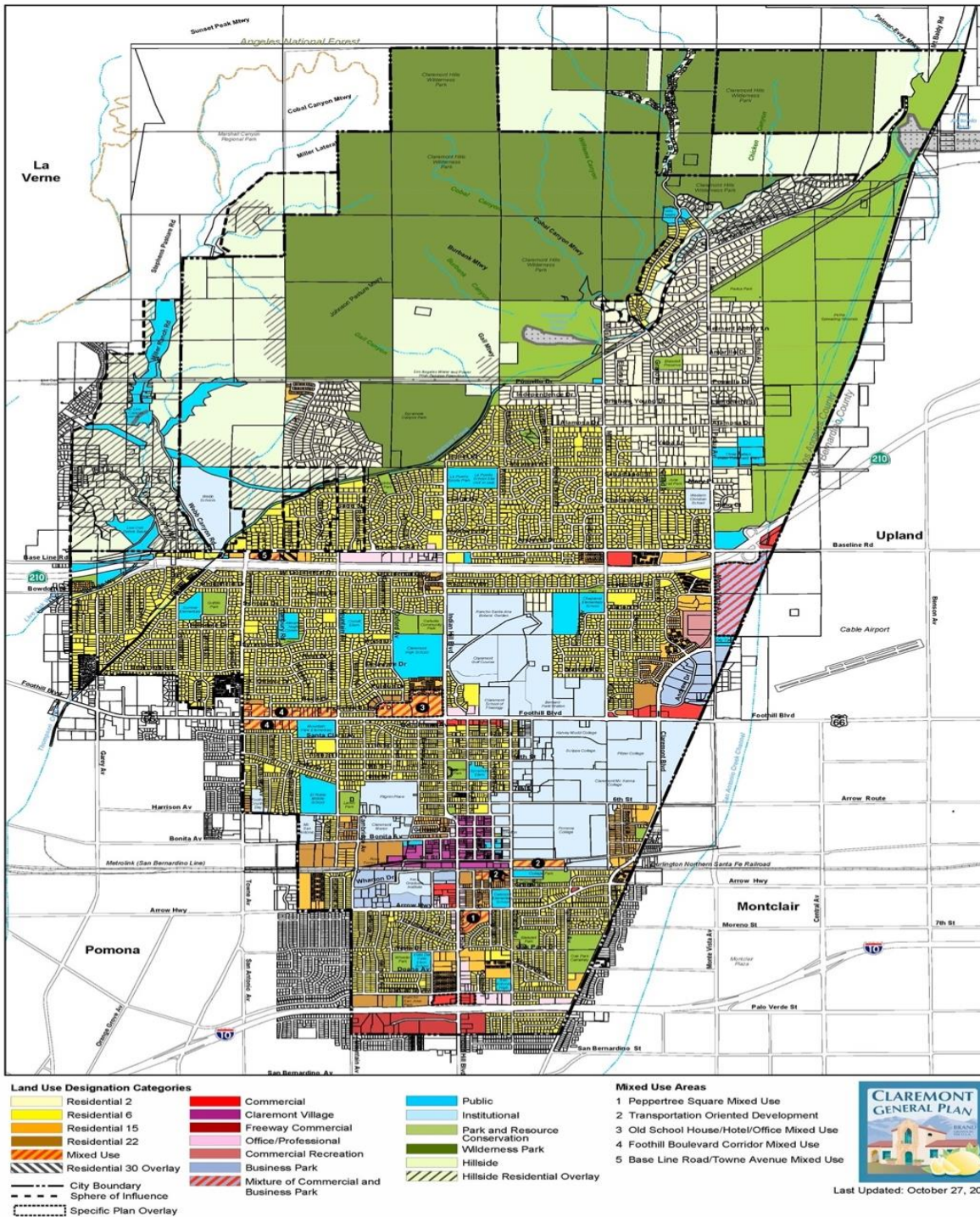


Figure 2-3
Land Use Plan
CLAREMONT GENERAL PLAN

Source: City of Claremont General Plan 2009 Summary



Claremont is vulnerable to the following natural hazards: earthquake, wildfire, windstorm, flood, drought, and landslide. Additionally, the City is vulnerable to other hazards of civil unrest, cyber disruption and pandemic/epidemic events. Because of the frequency and severity of cyber disruptions in and around the Southern California region during 2020-2021, cyber disruption is included in the hazard profiles and included in the City's mitigation strategies, along with the natural hazard. Climate change will have a significant impact on the severity, extent, frequency and length of duration for many hazards.

Hazard mitigation strategies can reduce the impacts concentrated at large employment and industrial centers, public infrastructure, and critical facilities. Hazard mitigation for industries and employers may include developing relationships with emergency management services and their employees before disaster strikes and establishing mitigation strategies together. Collaboration among the public and private sector to create mitigation plans and actions can reduce the impacts of hazards.



Hazard: Cyber Disruption

Hazard Description

A cyber disruption is a circumstance or event with the potential to exploit vulnerabilities and to adversely impact organizational operations, organizational assets (including information and information systems), individuals, other organizations, or society. A system compromise can impact one or more City agencies, a private utility, or specific critical infrastructure such as the power grid, public transportation systems, and wireless networks.

Cyber-attacks may be carried out by a variety of perpetrators, which may be external or internal to the organization. External threats originate outside of established networks and are perpetrated by groups such as organized crime, nation-state or state-affiliated entities, unaffiliated individuals, activists, former employees, acquaintances, competitors, or customers. Internal threats originate from users who have existing access to an internal network, such as employees and system administrators. Examples of cyber threats include malware and hacking, phishing, denial of service attacks, ransomware, and state-sponsored hacking. Any one of these threats, if successful, can produce a cyber-attack that has major implications throughout the organization.

Location and Extent

A cyber disruption can happen anywhere within the City but will generally be targeted towards government organizations or larger corporations. While the City has not experienced a severe incident related to a cyber-attack, the frequency of cyber-attacks on public and private sector organizations in general, continues to rise.

A cyber-attack has the potential to compromise the digital infrastructure and security of any individual or organization. Such attacks vary in nature and are perpetrated using digital mediums and social engineering. The impact of a cyber-attack may be felt for a few minutes, a few days or have longer term impacts.

Ransomware attacks may demand significant payments with monetary demands in the hundreds of thousands to millions. Even when ransoms go unpaid, cities can face significant costs. For example, the City of Baltimore experienced a ransomware attack in 2019 that cost the city more than \$18 million in damages and remediation.

Previous Occurrences

In November 2019, Claremont Unified School District was the target of a ransomware attack that affected their email and internet systems. As a precaution, CUSD shut-off its servers and on-campus internet to prevent the virus from spreading. Ultimately, the district engaged a cyber response team and did not pay the ransom. However, the “unplugging” impacted various components of academic life: teachers were forced to adjust their



lesson plans and lost all access to electronic gradebooks, with some grades even disappearing; and various student groups, including the yearbook committee and the newspaper, experienced severe disruptions and delays that led to the cancellation of issues and missed project deadlines.

Probability of Future Cyber Events

The probability of occurrence of cyber-attacks is rapidly increasing, especially with increased reliance on the internet and cloud-based computing. Local governments are increasingly being targeted by cyber criminals. For example, in March 2021, the Azusa Police Department was infiltrated by a hacking group that gained access to critical data before demanding that a ransom be paid. When the Azusa Police Department declined to pay, hundreds of sensitive documents, including criminal case files and payroll data were released online. However, the probability of a cyber-attack affecting the City is difficult to calculate given that human behavior is unpredictable.

Climate Change Considerations

While there is little evidence to link climate change to an increase in occurrences of cyber-attacks, the target could be related to persons/groups with issues with individuals or companies they perceive to have effect on the climate (i.e., greenhouse gas producers).

Impact

Many aspects of life in the City – from the delivery of water and electricity, to transportation, life safety, and emergency response – have become deeply reliant on technology. For infrastructure if industries related to utilities, health care, transportation, social services, and telecommunications are targeted.

Impacts that are not quantified, but can be anticipated in future events, include:

- ✓ Disruption of and damage to public infrastructure
- ✓ Significant economic impact (jobs, sales, tax revenue) upon the community

this reason, the impact of a cyber-attack could take many forms.

A cyber incident could affect a system's:

- Confidentiality: protecting a user's private information.
- Integrity: ensuring that data is protected and cannot be altered by unauthorized parties.
- Availability: keeping services running and giving administration access to key networks and controls

Cyber incidents can damage public trust in the institutions that were once considered stable and secure. A cyber incident can have wide-ranging effects on public and private



Summary of Claremont's Vulnerability to Cyber-attack

Cyber-attacks represent a growing threat to cities across America. There is potential for significant losses caused by a cyber disruption or ransomware attack to Claremont.



Hazard: Drought

Hazard Description

Drought is the result of a decline in precipitation over an extended period, typically one or more seasons in length. The primary impact of a drought is the reduction of available water supplies. Droughts can cause harm to natural environments as plants do not get the water that they need to survive. In severe cases, droughts may lead to a human health risk if available water supplies are not sufficient to meet basic needs. Indirectly, drought causes soils to dry out; as a result, the soil is less able to absorb water. When precipitation returns the amount of runoff increases, which can lead to flooding. Dry soil is more susceptible to erosion and landslides because it does not bind together as well. Drought causes many plants in natural areas to dry out, making them more susceptible to pest/diseases and increasing the risk of wildfires.

Location and Extent

All areas of Claremont face the same risk of drought, as droughts are regional events,. It is also possible for communities to experience a “long-distance drought,” since many urban areas in California receive water supplies from great distances. If these distant areas experience drought, it may cause water shortages in the urban areas that rely on them. The most common scale for measuring drought conditions is the U.S. Drought Monitor Classification Scheme. This rating system is a synthesis of multiple different scales into a descriptive index, shown in [Table 11: U.S. Drought Monitor Classification Scheme](#).

Table 11: U.S. Drought Monitor Classification Scheme

Category	Description	Relevant California-specific possible impacts
D0	Abnormally Dry	<ul style="list-style-type: none"> • Soil is dry; irrigation delivery begins early • Active fire season begins
D1	Moderate Drought	<ul style="list-style-type: none"> • Landscaping and gardens need irrigation earlier; wildlife patterns begin to change • Stock ponds and creeks are lower than usual
D2	Severe Drought	<ul style="list-style-type: none"> • Fire season is longer, with high burn intensity, dry fuels, and large fire spatial extent; more fire crews are on staff • Trees are stressed; plants increase reproductive mechanisms; wildlife diseases increase • River flows decrease; reservoir levels are low and banks are exposed
D3	Extreme Drought	<ul style="list-style-type: none"> • Fire season lasts year-round; fires occur in typically wet parts of state; burn bans are implemented • Wildlife encroach on developed areas; little native food and water is available for bears, which hibernate less

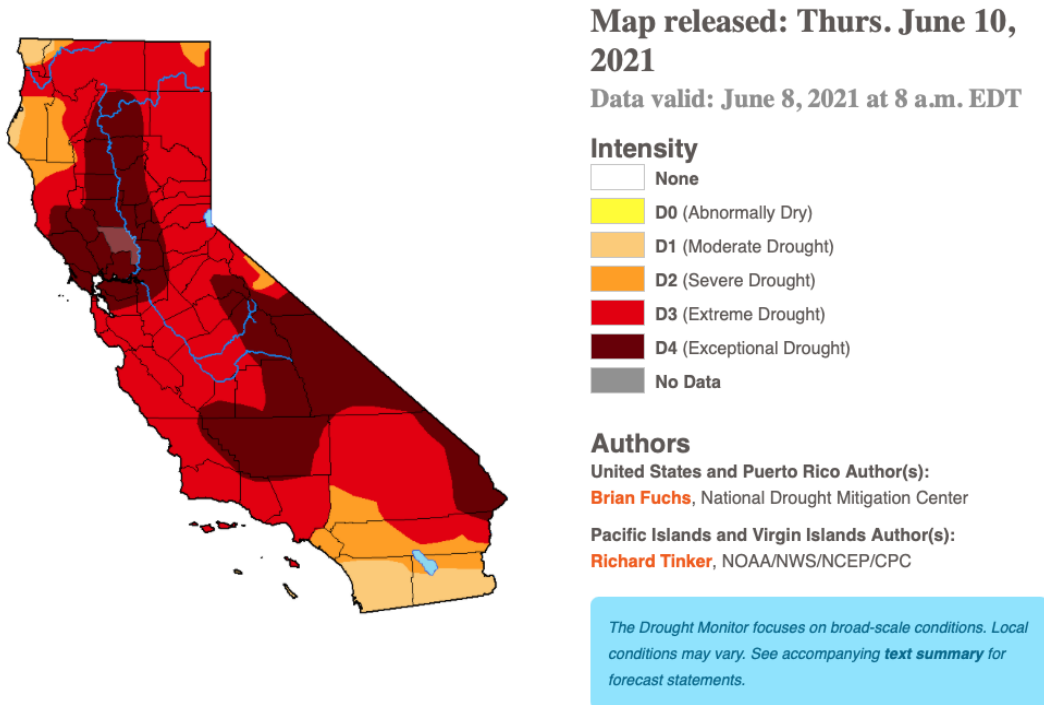


		<ul style="list-style-type: none">• Water sanitation is a concern, reservoir levels drop significantly, surface water is nearly dry, flows are very low; water theft occurs• Water conservation rebate programs increase; water use restrictions are implemented; water transfers increase• Water is inadequate for agriculture, wildlife, and urban needs; reservoirs are extremely low; hydropower is restricted
D4	Exceptional Drought	<ul style="list-style-type: none">• Fire season is very costly; number of fires and area burned are extensive• Many recreational activities are affected• Fish rescue and relocation begins; pine beetle infestation occurs; forest mortality is high; wetlands dry up; survival of native plants and animals is low; fewer wildflowers bloom; wildlife death is widespread; algae blooms appear• Poor air quality affects health; greenhouse gas emissions increase as hydropower production decreases; West Nile Virus outbreaks rise• Water shortages are widespread; surface water is depleted; federal irrigation water deliveries are extremely low; junior water rights are curtailed; water prices are extremely high; wells are dry, more and deeper wells are drilled; water quality is poor

Los Angeles County, including Claremont, experienced a drought for 376 consecutive weeks from December 20, 2011, until March 14, 2019. As of June 2021, 85% of the state of California was experiencing an extreme (D3) or exceptional drought (D4) (exceptional drought). Claremont was in a state of D3 (extreme drought).



Figure 4: California Drought Conditions June 2021



Source: U.S. Drought Monitor

Previous Occurrences

Drought is a cyclic part of the climate of California, occurring in both summer and winter, with an average recurrence interval between three and ten years. The National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI)⁴ estimates that the droughts that California experienced since 2000 have cost between \$10-20 billion.

The list below details the droughts California has experienced over the past 50 years.

- 1975-1977, Statewide - California experienced a serious drought due to low precipitation. The drought dramatically lowered reservoir levels across California, leading to widespread water shortages.
- 1987-1992, Statewide - California experienced another serious drought due to low participation and runoff levels.
- 2007-2009, Statewide - In February 2009, the state proclaimed a statewide drought for the first time.
- 2012-2017, Significant - Prolonged Statewide drought.

⁴ NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2021). <https://www.ncdc.noaa.gov/billions/>, DOI: [10.25921/stkw-7w73](https://doi.org/10.25921/stkw-7w73)



The 2012-2017 drought was one of the most significant droughts in California's history. Governor Brown declared a statewide drought emergency in January 2014 and Californians were asked to voluntarily reduce their water consumption by 20 percent. Drought conditions worsened and in April 2015 the governor announced actions to save water, increase enforcement to prevent wasteful water use, streamline the state's drought response, and invest in new technologies to make California more drought-resilient. The governor directed the State Water Resources Control Board to implement mandatory water reductions in cities and towns across California to reduce water usage by 25 percent on average.

Probability of Future Events

Researchers for California's Fourth Climate Change Assessment have noted that California has a "highly variable climate" with wet or dry periods that can span years and that are "heavily affected by extreme precipitation events." Furthermore, climate scientists also suggest the possibility of longer and more destructive droughts with climate change. As such, California is likely to experience long-term droughts at least every decade.

The Golden State Water Company receives a mixture of local groundwater and imported water from the State Water Project and the Colorado River via the Three Valleys Municipal Water District (part of Metropolitan Water District of Southern California). Groundwater is also resilient to drought because groundwater basins can hold large volumes of water that have built up over an extended time. Groundwater basins are refilled by local precipitation that filters through the ground (a process called recharge).

In most droughts in California, surface water sources can typically supply only a reduced amount of water, and in some cases supply may be depleted entirely. The risk that future drought conditions would substantially affect Claremont is to some degree lessened by the large volume of groundwater in local water supplies. However, a substantial portion of the community's water is imported, and these supplies are more vulnerable to drought. Overall, Claremont may be relatively unaffected by short-term droughts, but longer-term droughts that affect groundwater supplies will have more significant effects.

Climate Change Considerations

Overall, climate change is likely to decrease precipitation levels throughout the state, though there will likely be significant variation in year-to-year rainfall. Although changes to precipitation levels may be unclear, climate change is projected to result in more frequent and severe droughts, partly due to the greater variability in precipitation levels. Warmer temperatures mean that less precipitation will fall as snow, and that any snow that does fall will melt faster. The accumulated snow of the winter (known as snowpack) is a major source of water in California's dry season, but climate change is expected to reduce the water available from this source, particularly at the end of the dry season. Additionally, according to Cal-Adapt, recent research suggests that a mega drought



(extended drought conditions that could persist as long as 20 years) could become more pervasive in future decades.

Impact of Drought on Claremont

Severe droughts can impact the region’s agriculture, forests, hydropower, groundwater supply, recreation, aquatic ecosystems, as well as isolated communities that have limited water supply.

Lifelines and Critical Facilities

No structures will be directly affected by drought conditions, though some structures may become vulnerable to wildfires, which are more likely following years of drought.

Natural Environment

The ecosystems in and around Claremont are well adapted to drought conditions, but much more frequent and/or intense drought events may harm these natural environments. In addition to the direct damage to the local ecosystems, this may have economic impacts on the community.

Economic Impact

A prolonged drought can affect a community’s economy significantly. Increased demand for water and electricity may result in shortages and higher costs of these resources. Although most businesses will still be operational, they may be affected aesthetically—especially the recreation and tourism industry. Significant economic impact will be largely associated with industries that use water or depend on water for their business. Moreover, droughts within another area could affect food supply and price for City residents.

Non-Quantifiable Impacts

Drought will continue to have potentially negative economic impacts to the City. Impacts that are not quantified, but can be anticipated in future events, include:

- ✓ Economic Impact
- ✓ Water Reduction Policies
- ✓ Secondary Impacts of wildfire

Summary of Claremont’s Vulnerability to Drought

Climate scientists predict that Los Angeles County and the rest of Southern California will get drier and northern California will get hotter. The resulting loss of snowpack in the Sierra Nevada will mean less water for all Californians – farmers, residents, utilities, and even hatchery fish. However, while drought cannot be controlled, according to the USGS, drought can be managed in two ways: through drought planning and in helping communities make the best day-to-day management decisions while the drought is taking place.



Hazard: Earthquake

Hazard Description

An earthquake is a sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of the Earth's tectonic plates. Earthquakes usually occur without warning and in certain instances can cause massive damage and extensive casualties. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure. The severity of the vibration increases with the amount of energy released and decreases with distance from the causative fault or epicenter. Soft soils can further amplify ground motions. The severity of these effects is dependent on the amount of energy released from the fault or epicenter.

Earthquakes are classified by the amount of energy released, measured as magnitude, and the impact on people and structures, measured as intensity. Magnitude is commonly expressed by ratings on the Richter scale and the Moment Magnitude (Mw) scale; the Mw scale is currently the most commonly used magnitude scale. Earthquake intensity is measured with the Modified Mercalli Intensity Scale, which measures felt intensity, and peak ground acceleration (PGA), which expresses the severity of an earthquake and is a measure of how hard the earth shakes, or accelerates, in a given geographic area.

Earthquake Related Hazards

In addition to ground shaking, secondary hazards associated with earthquakes are landslides and liquefaction. The severity of these hazards depend on several factors, including soil and slope conditions, proximity to the fault and earthquake magnitude.

Landslides

Earthquake-induced landslides occur as a result of the ground shaking. Generally, these consist of rock falls, disrupted soil slides, rock slides, soil lateral spreads, soil slumps, soil block slides, and soil avalanches. Areas having the potential for earthquake-induced landslides generally occur in areas of previous landslide movement.

Liquefaction

Liquefaction is a phenomenon in which loose, wet soil is suddenly shaken, causing the soil to behave more like a fluid and lose its stability. Liquefaction occurs in saturated soils – soils in which the space between individual soil particles is completely filled with water. The water exerts a pressure on the soil particles which influences how tightly the particles themselves are pressed together. Prior to an earthquake, water pressure may be relatively low but earthquake shaking can cause the water pressure to increase to the point where the soil particles can readily move with respect to each other. Because liquefaction only occurs in saturated soil, its effects are most commonly observed in low lying areas. Typically, liquefaction is associated with shallow groundwater, water less than 50 feet beneath the earth's surface.



Liquefied soil loses much or all of its stability, which results in the loss of soil strength and the soil's ability to support weight. Buildings and their occupants are at risk when the ground can no longer support these structures. Structures located on soils such as silt or sand may experience significant damage during an earthquake due to the instability of structural foundations and the moving earth.

Location and Extent

The City of Claremont lies within a metropolitan area that has historically been seismically active. Faults are prevalent throughout California and are commonly classified as either “active” or “potentially active.” An active fault is a break that has moved in recent geologic time (the last 11,000 years) and that is likely to move within the next approximately 100 years. Active faults are the primary focus of concern in attempting to prevent earthquake hazards.

Several active faults have been identified within or adjacent to the boundaries of the Claremont Planning Area, which indicates that the community falls under the Alquist-Priolo Earthquake Fault Zoning Act of 1972 and the Seismic Hazards Mapping Act of 1990. These acts require that during the General Plan update process local governments must adopt policies and criteria to ensure the structural adequacy of buildings erected across active faults for human occupancy and identify areas prone to liquefaction and amplified ground shaking. In some cases, the development of structures is prohibited. Verification that the above acts pertain to Claremont was obtained through correspondence with the State Department of Conservation and is on file with the City Planning Division.

Historic patterns show that any of the minor or major faults traversing the Southern California region are capable of causing significant disruption. Despite the fact that Claremont faces limited threats from interior seismicity, there are a number of active faults in Southern California that could potentially move and thus result in hazards to the community.

Earthquakes that could affect the City would most likely originate from the Sierra Madre, Whittier, San Jose or San Andreas Fault Zones. These faults are close enough in proximity or expected to generate strong enough shaking that could affect the City. The level of seismicity in Claremont, both as to maximum credible earthquake intensity and likely earthquake occurrences, is considered to be approximately the same as for the Los Angeles Basin.

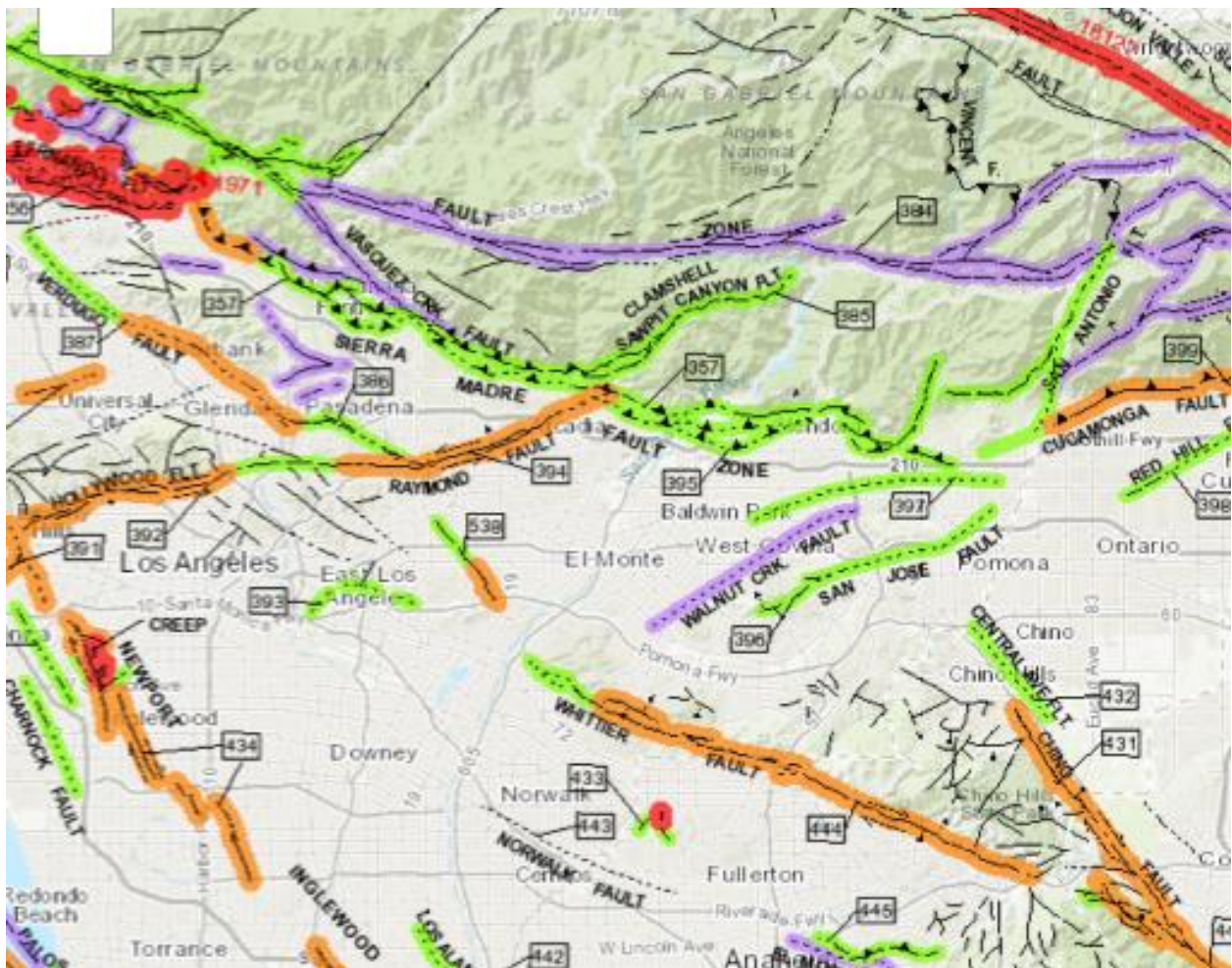
- **Sierra Madre:** The Sierra Madre fault runs along the southern margin of the San Gabriel Mountains and is related to the Cucamonga Fault to the east and San Fernando Fault Zone to the west.
- **Whittier:** The Whittier fault runs approximately 40 kilometers between the cities of Chino Hills and Whittier and is one of the two upper branches of the Elsinore Fault Zone. An earthquake with a magnitude M 5.44 was recorded in 2008.



- **San Jose:** The San Jose fault runs for approximately 18 kilometers in the areas of Claremont and Pomona. Two earthquakes each of magnitude greater than 5.0 were recorded in 1988 and 1990.
- **San Andreas:** The San Andreas Fault is the longest and most significant fault in California. Because of clearly established historical earthquake activity, this fault has been designated as active by the State of California. The last major earthquake on this fault in the region was the Fort Tejon earthquake of 1857, which was estimated at M 8.0 and would have caused considerable damage if there had been structures in the southern part of the county.

Although there are several faults within the vicinity of the City, Claremont has never been severely impacted by an earthquake.

Figure 5: Map of Fault Lines in the Vicinity of Claremont



Source: Los Angeles County GIS Viewer



Landslides

Landslides can destroy the roads, buildings, utilities, and other critical facilities necessary to respond and recover from an earthquake. Many communities in Southern California have a high likelihood of encountering such risks, especially in areas with steep slopes.

As a hillside community, Claremont is at-risk for landslides along the foothills of the San Gabriel Mountains. Areas considered for earthquake-induced landslides are generally found in the Hill and Canyon area of the City and are shown on the Maps depicting Landslide and Liquefaction Zones in Claremont (Figures 6 and 7). The landslide potential zones were compiled from USGS. Mapped earthquake-induced landslide potential zones are intended to prompt more detailed, site specific geotechnical studies as required by the Seismic Hazard Mapping Act.

Liquefaction

Many communities in Southern California are built on ancient river bottoms and have sandy soil. In some cases, this ground may be subject to liquefaction, depending on the depth of the water table.

Liquefaction has been a major cause of earthquake damage in Southern California. During the 1971 San Fernando and 1994 Northridge earthquakes, significant damage to roads, utility pipelines, buildings, and other structures in the Los Angeles area were caused by liquefaction. Research and historical data indicate that loose, granular materials situated at depths of less than 50 feet with fines (silt and clay) contents of less than 30 percent, which are saturated by a relatively shallow groundwater table are most susceptible to liquefaction. These geological and groundwater conditions exist in parts of Southern California and Claremont, typically in valley regions and alleviated floodplains.

For liquefaction to occur, three general conditions must be met. The first condition – strong ground shaking of relatively long duration – can be expected to occur in the Claremont area as a result of an earthquake on any of the several active faults in the region. The second condition – loose, or unconsolidated, recently deposited sediments consisting primarily of silt and sand – occurs in a large portion of the valley floors, and in the larger canyon bottoms prevalent throughout Los Angeles County. The third condition is water saturated sediments within approximately 50 feet of the surface.

In the City of Claremont, the groundwater table (used to determine the risk of liquefaction) is generally more than 100 feet below the surface, except in a few areas where clay lenses exist. This results in a lack of groundwater near the surface, leaving much of the City in a low liquefaction-risk area. Additionally, the alluvial soils upon which Claremont is built facilitate liquefaction prevention.

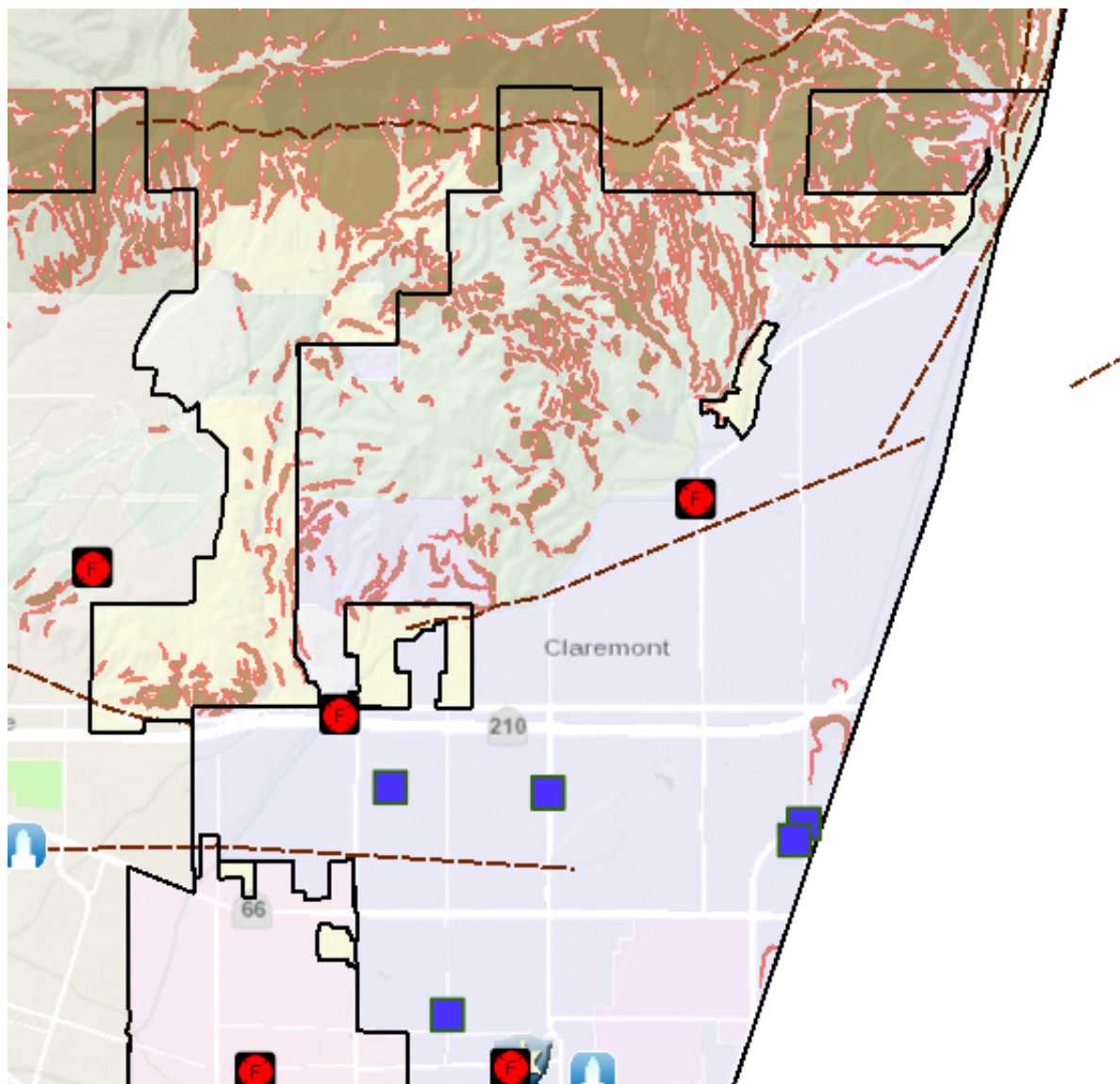
However, there are two areas within Claremont that are identified as Liquefaction Zones. Area 1 starts just north of Foothill Boulevard, going down to just south of Harrison Avenue, and lies east of Baughman Drive and west of College Avenue. There are two parks, Sycamore Elementary School, Claremont School of Theology, Pilgrim Place, approximately 300 homes and two business/shopping centers within or bordering Area 1.



Area 2 starts just North of Scripps Drive, sloping northwest across Thompson Creek into County-run areas. On the east side it is bordered by Thompson Creek and is a half block west of Mountain Avenue on the southwest side. Fire Station #101, Webb School, Sunrise Assisted Living Center, a Water Reservoir, a Power Station, the 210 Freeway, Thompson Creek, and approximately 200 homes are within or border Area 2.

In accordance with the Seismic Hazard Mapping Act, the California Division of Mines and Geology has evaluated liquefaction susceptibility for most of the Claremont area. Figure 6: Landslide Zones in Claremont and Figure 7: Liquefaction Zones in Claremont show the results of these studies.

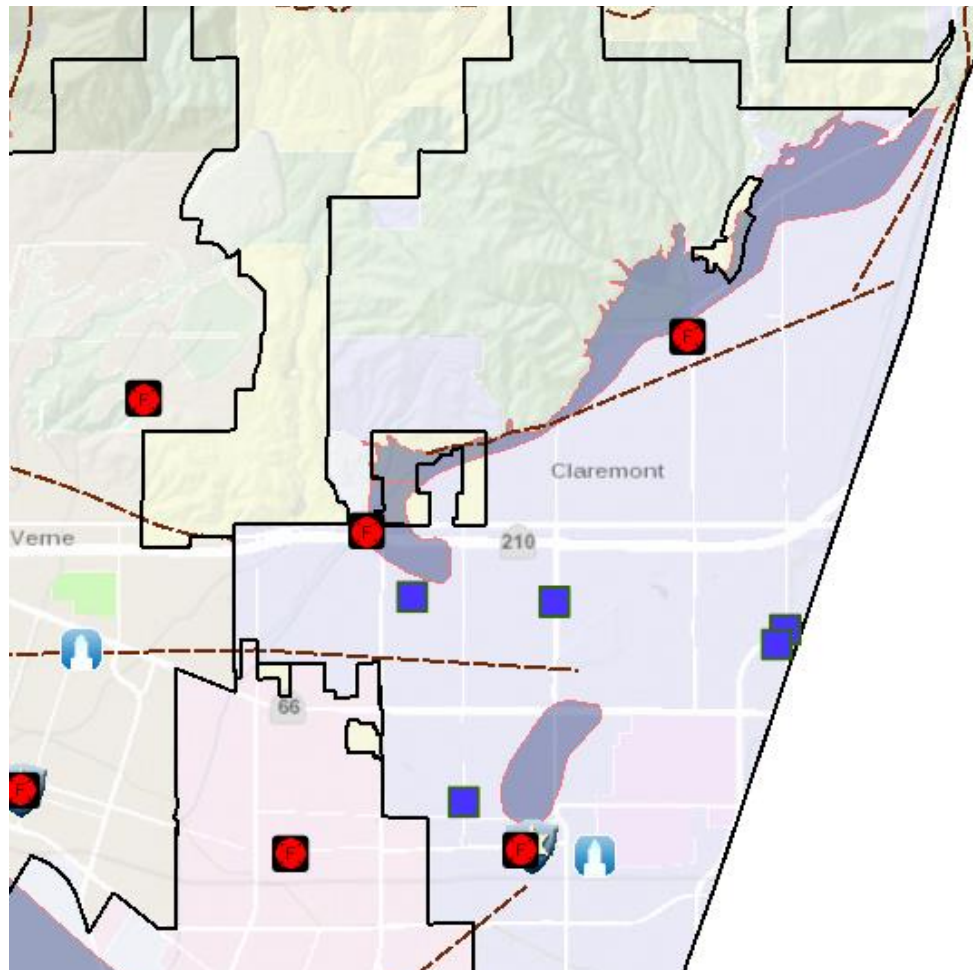
Figure 6: Landslide Zones in Claremont



Source: Los Angeles County GIS Viewer



Figure 7: Liquefaction Zones in Claremont



Source: Los Angeles County GIS Viewer

Previous Occurrences

Southern California has a history of powerful and relatively frequent earthquakes, dating back to the powerful magnitude 8.0+ 1857 San Andreas Earthquake which did substantial damage to the relatively few buildings that existed at the time. During the twentieth century, many earthquakes have shaken Claremont. Notable events that affected wide areas of Southern California include the 1933 Long Beach, 1971 Sylmar, and 1987 Whittier earthquakes. In 1992, Claremont was shaken by two events: a M 7.3 earthquake originating from the desert community of Landers and a M 6.4 in Big Bear. The Northridge tremor of 1994 rattled windows and nerves throughout the City, but Claremont was spared the widespread destruction experienced in the San Fernando Valley. In 1988 and 1990, earthquakes with a magnitude of 5.5 centered in Claremont caused minor structural damages. In 1994, the region experienced the M 6.7 Northridge earthquake. In 2019, Ridgecrest, approximately 100 miles north of Claremont, experienced a M 6.4 earthquake followed two days later by a M 7.1 earthquake, the largest experienced in the region since 1952.



Historically, the City of Claremont has generally been spared a major destructive earthquake. However, based on a search of earthquake databases of the United States Geological Survey (USGS) - National Earthquake Information Center (NEIC), several major earthquakes (Magnitude 6.0 or more) have been recorded within approximately 100 kilometers of the project area since 1769.

Probability of Future Events

The 2007 Working Group on California Earthquake Probabilities (WGCEP 2007), a multi-disciplinary collaboration of scientists and engineers, released the Uniform California Earthquake Rupture Forecast (UCERF), the first comprehensive framework for comparing earthquake possibilities throughout all of California, in 2007. In developing the UCERF, the 2007 Working Group revised earlier forecasts for Southern California (WGCEP 1995) and the San Francisco Bay Area (WGCEP 2003) by incorporating new data on active faults and an improved scientific understanding of how faults rupture to produce large earthquakes. It extended the forecast across the entire state using a uniform methodology, allowing for the first time, meaningful comparisons of earthquake probabilities in urbanized areas such as Los Angeles and San Francisco Bay Area, as well as comparisons among the large faults in different parts of the State. The study was organized by the Southern California Earthquake Center, the U.S. Geological Survey, and the California Geological Survey, and it received major support from the California Earthquake Authority, which is responsible for setting earthquake insurance rates statewide. In 2015, the latest version, the forecast was updated and according to the UCERF (Version 3)⁵, the probability of an earthquake of magnitude 6.7 or larger in the Los Angeles area over the next 25 years is 60%.

Climate Change Considerations

There is no evidence of any link between climate change and seismic activity that could affect conditions in Claremont. Climate change is not expected to cause any changes to the frequency or severity of earthquake events.

Impact of Earthquake on Claremont

A significant earthquake along one of the major faults could result in substantial casualties, extensive damage to buildings, roads and bridges, fires, dam failure and other threats to life and property. A major earthquake could be catastrophic in its effect on the population. Such an earthquake could exceed the response capabilities of the individual cities, Los Angeles County Operational Area, and the State of California Emergency Management Agency. Support of damage control and disaster relief could be required from other local governments and private organizations, as well as the state and federal governments.

⁵ <https://pubs.usgs.gov/fs/2015/3009/pdf/fs2015-3009.pdf>



Emergency operations could be seriously hampered by the loss of communications and damage to transportation routes within, and to and from, the disaster area and by the disruption of public utilities and services. Extensive search and rescue operations could be required to assist trapped persons. Mass evacuation could be essential to save lives, particularly in areas downwind from hazardous material releases. Emergency medical care, food, and temporary shelter could be required by injured or displaced persons.

Many families could be separated, particularly if the earthquake occurs during working hours. A personal inquiry or locator system could be essential to maintain morale. Emergency operations could be seriously hampered by a loss of communications, damage to transportation routes, and/or disruption of public utilities and services.

The economic impact on the City from a major earthquake would be considerable in terms of loss of employment and loss of tax base. Also, a major earthquake could cause serious damage and/or outage to critical infrastructure. The loss of such facilities could curtail or seriously disrupt the operations of banks, insurance companies, and other elements of the financial community. In turn, this could affect the ability of local government, business and the population to make payments and purchases.

Extensive federal assistance could be required and could continue for an extended period. Efforts would be required to remove debris and clear roadways, demolish unsafe structures, assist in reestablishing public services and utilities, and provide continuing care and welfare for the affected population, including temporary housing for displaced persons.

The time of day and season of the year would have a profound impact on the number of dead and injured. In general, the population is less at risk during non-work hours (if at home) as wood-frame structures are relatively less vulnerable to major structural damage than are typical commercial and industrial buildings. Transportation problems are intensified if an earthquake occurs during work hours, as significant numbers of employees would be stranded in the City. An earthquake occurring during work hours would clearly create major transportation problems for those displaced workers.



Historical Impact: Northridge Earthquake

The most recent significant earthquake event affecting Southern California was the January 17, 1994 Northridge Earthquake. At 4:31 A.M. on Monday, January 17, a moderate but very damaging earthquake with a magnitude of 6.7 struck the San Fernando Valley. In the following days and weeks, thousands of aftershocks occurred, causing additional damage to affected structures.

Fifty-seven people were killed and more than 1,500 people seriously injured. For days afterward, thousands of homes and businesses were without electricity; tens of thousands had no gas; and nearly 50,000 had little or no water. Approximately 15,000 structures were moderately to severely damaged, which left thousands of people temporarily homeless; 66,500 buildings were inspected. Nearly 4,000 were severely damaged and over 11,000 were moderately damaged. Several collapsed bridges and overpasses created commuter havoc on the freeway system. Extensive damage was caused by ground shaking, but earthquake triggered liquefaction and dozens of fires also caused additional severe damage. This extremely strong ground motion in large portions of Los Angeles County resulted in record economic losses.

Structure Failure

A substantial amount of construction has occurred in Claremont under design standards that take into account some of the lessons learned from the 1971 Sylmar earthquake. Because most of the structures and infrastructure in Claremont have recently been built under modern building codes, it is possible to survive the maximum expected earthquake with relatively moderate losses. Possible geologic effects of a likely major earthquake in Claremont include:

- Rupture of the ground surface associated directly with movement on geologic faults. The likelihood of an event such as this is prevalent; however it would be focused in the foothill portions of the City, which are not as densely populated as the alluvial portions.
- Ground failure due to liquefaction (a momentary quick condition, similar to quicksand) could occur in Claremont wherever the right combination of perched water and low density, sandy material exists. Liquefaction conditions may occur in areas along the canyon and wash areas located at the base of the foothills and in isolated areas.
- Ground shaking with moderate to high lateral accelerations would be the primary seismic effect in the City.
- In general, complete collapse of buildings is not likely to occur and building damage is likely to be only moderate. However, partial to total collapse could occur among the very few pre-1933 buildings still existing, and partial collapse of some tilt-up and concrete block buildings built prior to March 1972 must be counted as a possibility, based on the evidence of the Sylmar earthquake. The majority of



construction has been under modern building codes. Where current state-of-the-art seismic evaluations can enter into all future development, and where disaster preparedness is being maintained, it is possible to survive the maximum expected earthquake with relatively moderate losses.

Nonquantifiable Impacts

It is evident that earthquakes will continue to have potentially devastating impacts to certain areas of the City. Impacts that are not quantified, but can be anticipated in future events, include:

- ✓ Injury and loss of life;
- ✓ Commercial and residential structural damage;
- ✓ Disruption of and damage to public infrastructure;
- ✓ Damage to roads/bridges resulting in loss of mobility;
- ✓ Significant economic impact (jobs, sales, tax revenue) upon the community;
- ✓ Negative impact on commercial and residential property values; and
- ✓ Significant disruption to students and teachers as temporary facilities and relocations would likely be needed.

Summary of Claremont's Vulnerability to Earthquakes

The impacts of a high magnitude earthquake can span a large area; a large earthquake occurring in Southern California region could possibly be felt throughout the region. However, the degree to which the earthquakes are felt, and the damages associated with them, may vary. At risk from earthquake damage are large stocks of old buildings and bridges; many high tech and hazardous materials facilities; extensive sewer, water, and natural gas pipelines; earth dams; petroleum pipelines; and other critical facilities and private property located in the county. The relative or secondary earthquake hazards, which are liquefaction, ground shaking, and earthquake-induced landslides, can be just as devastating as the earthquake.



Hazard: Flood

Hazard Description

A flood occurs when the existing channel of a stream, river, canyon, or other watercourse cannot contain excess runoff from rainfall or snowmelt, resulting in overflow onto adjacent lands.

Floods usually occur during the season of highest precipitation or during heavy rainfalls after prolonged dry periods. The City is dry during the late spring, summer, and early fall, and receives most of its rain during the winter months. The rainfall season extends from November through April, with approximately 95% of the annual rainfall occurring during this period. The City averages 17 inches of precipitation per year.

Over the last 140 years, the average annual rainfall in Los Angeles County has been approximately 15 inches, though the annual rainfall during this time period has varied widely. For example, the 2006-2007 season recorded only 3.21 inches of rainfall, and the 2004-2005 recorded 37.25 inches. The City of Claremont is in the eastern section of the Los Angeles Basin (or San Gabriel Valley), against the San Gabriel Mountains, which increases the collection of rainwater.

Floods are dangerous for a number of reasons. Moving water is very strong; it can damage buildings and/or carry large debris that damages objects in its path. Moving water can wash away soil, weakening structures and potentially leading to partial or complete collapse. There is no single type of flood or one area most prone to flooding.

Urban Flooding

As land is converted from fields or woodlands to roads and parking lots, it loses its ability to absorb rainfall. Urbanization of a watershed changes the hydrologic systems of the basin. Heavy rainfall collects and flows faster on impervious concrete and asphalt surfaces. The water moves from the clouds, to the ground, and into streams at a much faster rate in urban areas. Adding these elements to the hydrological systems can result in flood waters that rise very rapidly and peak with violent force.

Riverine Flooding

Riverine flooding is the overbank flooding of rivers and streams. The natural processes of riverine flooding add sediment and nutrients to fertile floodplain areas. Flooding in large river systems typically results from large-scale weather systems that generate prolonged rainfall over a wide geographic area, causing flooding in hundreds of smaller streams, which then drain into the major rivers. Shallow area flooding is a special type of riverine flooding. FEMA defines shallow flood hazards as areas that are inundated by the 100-year flood with flood depths of only one to three feet. These areas are generally flooded by low velocity sheet flows of water.



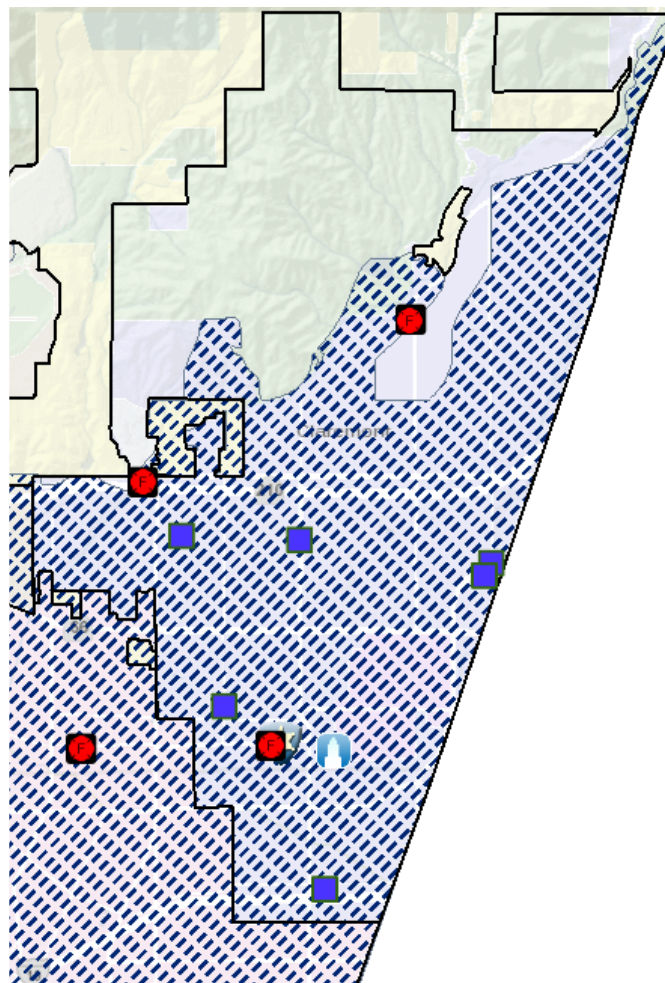
Location and Extent

The size and frequency of a flood in a particular area, depends on a complex combination of conditions, including the amount, intensity, and distribution of rainfall previous moisture condition and drainage patterns.

The magnitude of a flood is measured in terms of its peak discharge, which is the maximum volume of water passing a point along a channel in a given amount of time, usually expressed in cubic feet per second (cfs). Floods are usually referred to in terms of their chance of occurrence. For example, a 100-year flood has a 1% chance of occurring in any given year.

FEMA establishes base flood heights and inundation areas for 100-year and 500-year flood zones. The 100-year flood is defined as a flood which has a one percent probability of occurring in any given year (one in 100). The 500-year flood is defined as a flood which has a 0.2 percent probability of occurring in any given year (one in 500). The 100-year zone is the area that is vulnerable to that designated flood.

Figure 9: Map of 500 Year Floodplain



Source: Los Angeles County GIS Viewer



The City of Claremont is vulnerable to both slow-rise and flash flooding. Slow-rise floods in Claremont may be preceded by a warning period of hours or days. Evacuation and sandbagging for slow-rise floods have often effectively lessened flood related damage. Conversely, flash floods are most difficult to prepare for, due to extremely limited, if any, advance warning and preparation time. Slow-rise flooding in Claremont is usually the result of one or a combination of the following factors: extremely heavy rainfall, saturated soil, area recently burned in wildfires with inadequate new ground cover growth, or heavy rainfall with runoff from melting mountain snow.

The City of Claremont is adjacent to three rivers that make the City susceptible to flooding events: San Antonio River, Thompson Creek Channel, and Chicken Creek. The largest threat to flooding in Claremont comes from dam inundation. There is also the risk of urban flooding resulting from heavy rainfall.

Dam Inundation

According to the City of Claremont SEMS Multi-Hazard Functional Plan, there are three dams or reservoirs in or near the City of Claremont with a total capacity of 9922 acre-feet of water or 3.2 billion gallons of water (1 acre-foot=325,851 gallons).

There are two dams that are owned by the Los Angeles County Department of Public Works, both are in satisfactory condition:

- Thompson Creek Dam, built in 1928
- Live Oak Dam, built in 1922

Both dams have a classified “high” downstream hazard, meaning the potential downstream impact to life and property would be “expected to cause loss of at least one human life.” However, as they have been classified in satisfactory condition, as defined by the National Inventory of Dams, the definition used by the California Division of Safety of Dams, they are not eligible for FEMA’s Rehabilitation of High Hazard Potential Dams (HHPD) program. Satisfactory condition means that there is “no existing or potential dam safety deficiencies are recognized. Acceptable performance is expected under all loading conditions (static, hydrologic, seismic) in accordance with the applicable regulatory criteria or tolerable risk guidelines.”

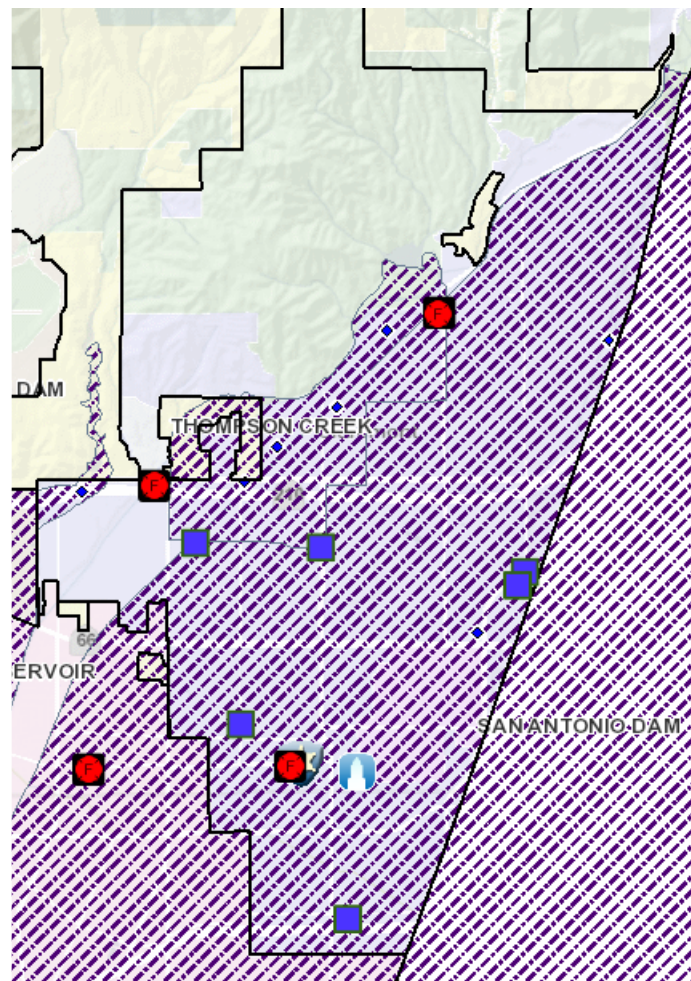
The San Antonio Dam is federally owned and was built in 1956. Based on a 2014 risk assessment conducted by the Army Core of Engineers, the incremental risk of the San Antonio Dam is considered to be low. As a federally owned dam, the San Antonio Dam is also ineligible for the FEMA HHPD program.

Because dam failure can have severe consequences, FEMA requires that all dam owners develop Emergency Action Plans (EAP) for warning, evacuation, and post-flood actions. Although there may be coordination with county officials in the development of the EAP, the responsibility for developing potential flood inundation maps and facilitation of emergency response is the responsibility of the dam owner.



In the case of dam inundation, the areas affected would extend over a large area (south to the I-10 and west to White Avenue in La Verne in the case of the San Antonio Dam), or a smaller area (Foothills area of the City and south of just south of Base Line Road in the case of the Thompson Creek Dam and a small area in Western Claremont in the case of the Live Oak Dam). For more detailed information regarding dam failure flooding, and potential flood inundation zones for a particular dam in the county, refer to the City of Claremont SEMS Multi-Hazard Functional Plan.

Figure 10: Dam Inundation Areas



Source: Los Angeles County GIS Viewer

Urban Flooding

Almost 25% of the area in the City has a high concentration of impermeable surfaces that either collect water or concentrate the flow of water in unnatural channels. During periods of urban flooding, streets can become swift moving rivers and basements can fill with water. Storm drains often back up with vegetative debris causing additional, localized flooding. Drainage systems within the City of Claremont have been updated and it is



anticipated that they would be fully functional in an emergency. (Source: Claremont General Plan)

Participation in the National Flood Insurance Program

Claremont participates in the National Flood Insurance Program (NFIP). Created by Congress in 1968, the NFIP makes flood insurance available in communities that enact minimum floodplain management rules consistent with the Code of Federal Regulations §60.3. The NFIP also reduces flood losses through regulations that focus on building codes and sound floodplain management. NFIP regulations require that all new construction in floodplains must be elevated at or above base flood level.

According to FEMA, the built areas of the City are in Flood Zone X, meaning that the area is not located within a 100-year flood plain. FEMA maps showing areas that require flood insurance are maintained at City Hall.

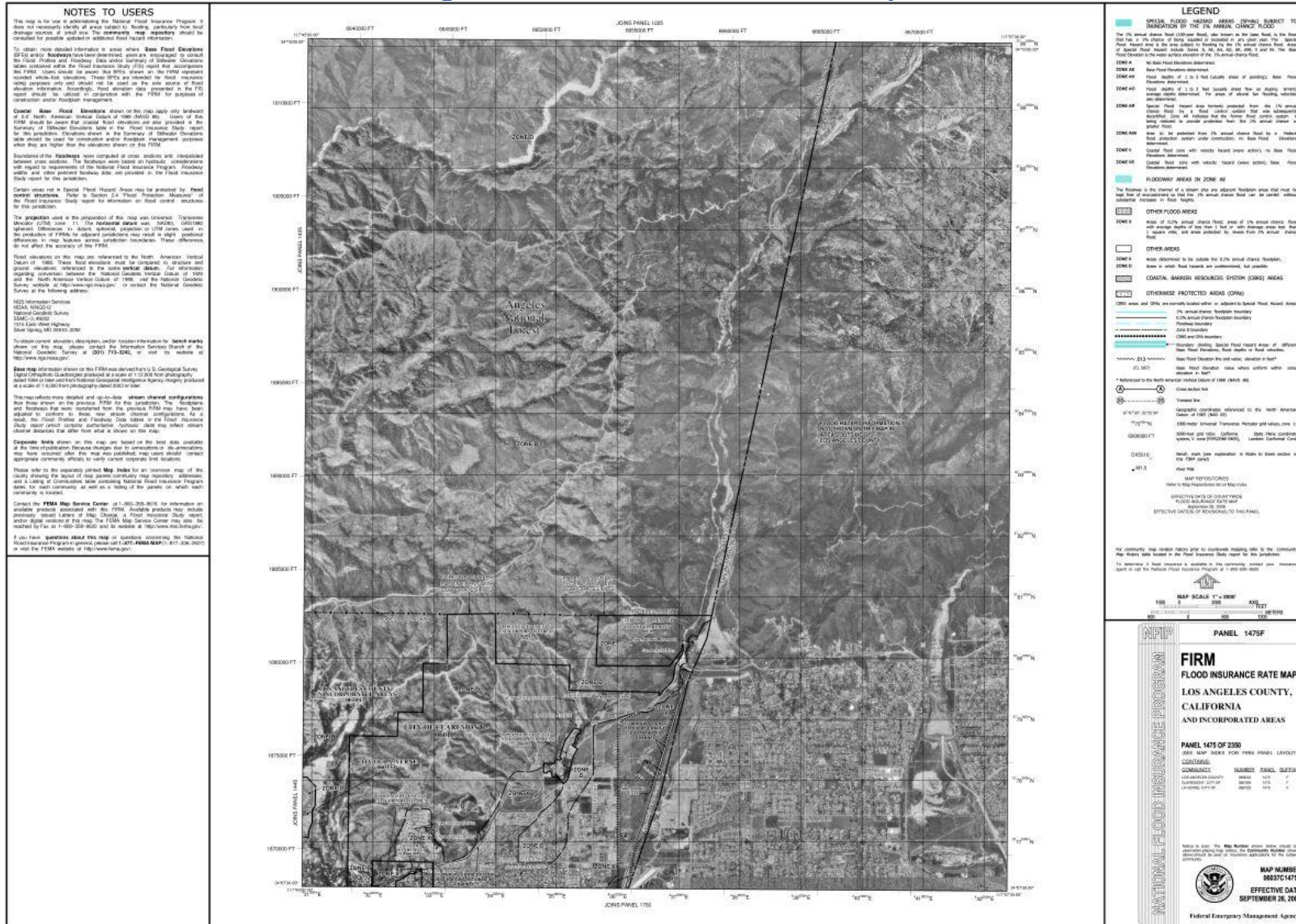
Mapping Floods in Claremont

A Flood Insurance Rate Map (FIRM) is the official map produced by FEMA which delineates Special Flood Hazard Area (SFHA) in communities where NFIP regulations apply. FIRMs are also used by insurance agents and mortgage lenders to determine if flood insurance is required and what insurance rates should apply. Water surface elevations are combined with topographic data to develop FIRMs. FIRMs illustrate areas that would be inundated during a 100-year flood, floodway areas, and elevations marking the 100-year-flood level.

SFHAs are areas at or below a flood elevation that has a one percent or greater probability of being equaled or exceeded during any given year (this is also known as a 100-year flood event). This flood, which is referred to as the base flood, is the national standard on which the floodplain management and insurance requirements of the NFIP are based.



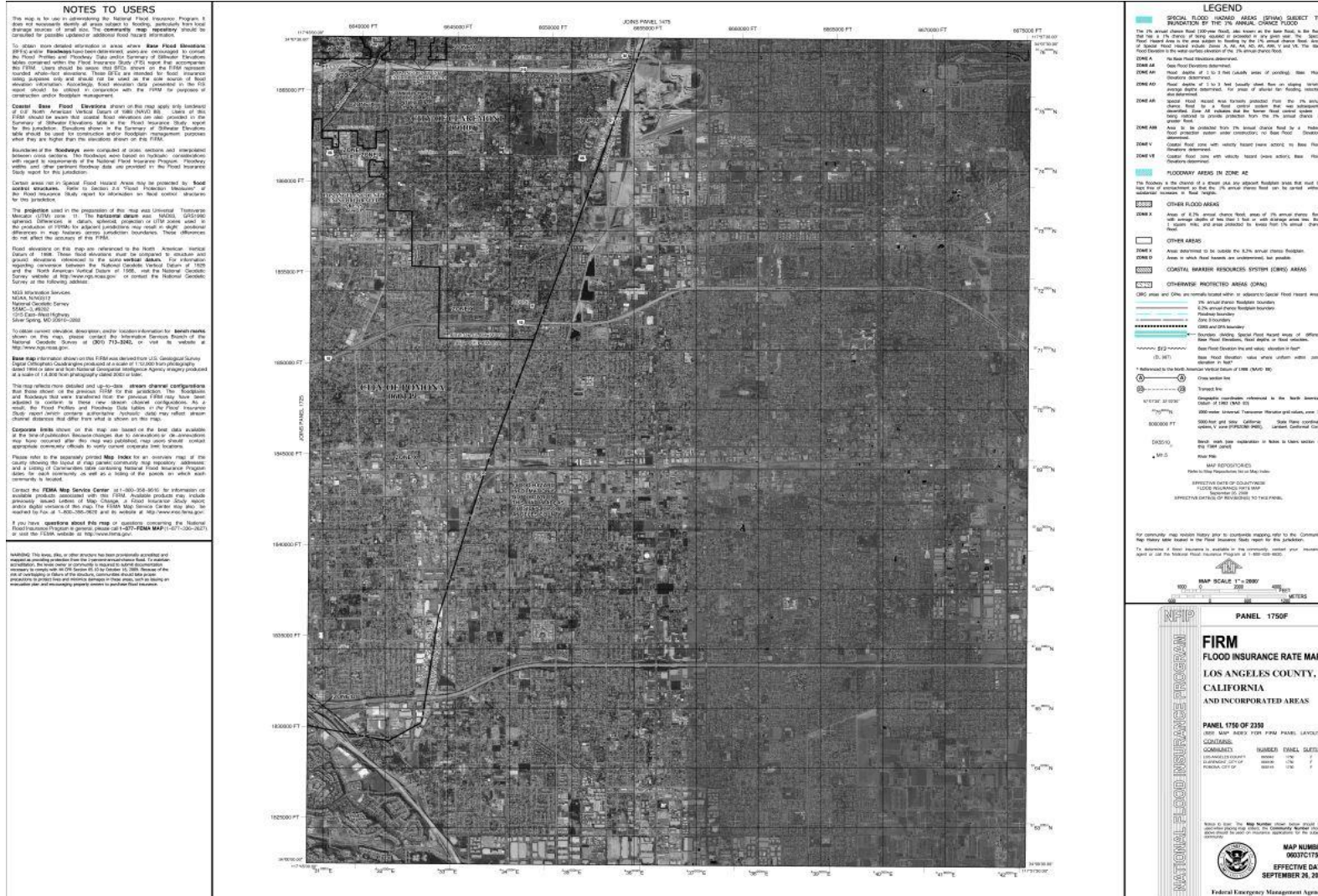
Figure 11: Flood Insurance Rate Map 1



Source: FEMA, NFIP



Figure 12: Flood Insurance Rate Map 2



Source: FEMA, NFIP



Previous Occurrences

Historically, flooding has been an issue in Claremont, as storm runoff from Mount Baldy rushes rapidly down the many canyons that outlet onto the Claremont alluvial plain. In 1938, a tremendous flood hit Claremont, damaging many properties and destroying most City streets. Over \$350,000 in damage was done (calculated in 1938 dollars), and there were eight fatalities. There was severe damage was to the roadways as well as to many homes and the Claremont Colleges. Floods also occurred in 1941 and 1943.

However, since completion of the San Antonio Dam in 1956, the structure has served important flood control and water supply functions for Claremont. Localized flooding is still an issue during heavy rainfall, but the dam has halted most of the severe floods. (Source: City of Claremont General Plan). Since construction of the Dam, only two flooding incidents have affected Claremont both occurring in 1969. During the month of January 1969, Mount Baldy recorded a record 50.85" of rainfall over ten days. Because of the San Antonio Dam, Claremont received little damage as compared to surrounding communities. This decrease in damage was likely due to the protection provided by preventative efforts, such as flood channels and the dam.

Probability of Future Events

Flooding is a recurring event in Los Angeles County. Claremont will continue to be at risk for flood events.

Climate Change Considerations

Climate change is expected to increase the average intensity of atmospheric river storms that affect Southern California. The increase in intensity could increase the number of flood events, because there may be storms severe enough to overwhelm existing flood control and drainage infrastructure. Climate change may also increase the severity of the most intense flooding, because the severe atmospheric river storms that often cause such events are projected to become 10 to 20 percent more intense. It is unclear whether any changes to the climate may affect the frequency or intensity of flooding in Claremont. It is possible that droughts, which are expected to occur with greater frequency and to be more intense as a result of climate change, may exacerbate flooding. Dry soil cannot absorb water as easily, which can lead to ponding and increased runoff when rains do return.



Impact of Flooding on Claremont

Floods and their impacts vary by location and severity of any given flood event, and likely only affect certain areas of the county during specific times.

Property Loss Resulting from Flooding Events

The type of property damage caused by flood events depends on the depth and velocity of the flood waters. Faster moving flood waters can wash buildings off their foundations and sweep cars downstream. Pipelines, bridges, and other infrastructure can be damaged when high waters combine with flood debris. Extensive damage can be caused by basement flooding and landslide damage related to soil saturation from flood events. Most flood damage is caused by water saturating materials susceptible to loss (i.e., wood, insulation, wallboard, fabric, furnishings, floor coverings, and appliances). In many cases, flood damage to homes renders them unlivable.

Business/Industry

Flood events impact businesses by damaging property and by interrupting business. Flood events can cut off customer access to a business as well as close a business for repairs. A quick response to the needs of businesses affected by flood events can help a community maintain economic vitality in the face of flood damage. Responses to business damages can include funding to assist owners in elevating or relocating flood-prone business structures.

Public Infrastructure

Publicly owned facilities are a key component of daily life for all citizens of the county. Damage to public water and sewer systems, transportation networks, flood control facilities, emergency facilities, and offices can hinder the ability of the government to deliver services. Government can take action to reduce risk to public infrastructure from flood events, as well as craft public policy that reduces risk to private property from flood events.

Roads

During hazard events, or any type of emergency or disaster, dependable road connections are critical for providing emergency services. Road systems in the City of Claremont are maintained by multiple jurisdictions. Federal, state, county, and city governments all have a stake in protecting roads from flood damage. Road networks often traverse floodplain and floodway areas. Transportation agencies responsible for road maintenance are typically aware of roads at risk from flooding.

Bridges

Bridges are key points of concern during flood events because they are important links in road networks and they can be obstructions in watercourses, inhibiting the flow of water during flood events. The bridges in the City of Claremont are state, county, city, or privately owned. A state-designated inspector must inspect all state, county, and city bridges every two years; but private bridges are not inspected and can be very dangerous.



The inspections are rigorous, looking at everything from seismic capability to erosion and scour.

The five highest priority bridges in the City of Claremont are currently mitigated to more fully withstand potential natural disasters. The highest priority bridge is located on Mountain Avenue at the base of Claraboya residential area. This is high priority because if this bridge is destroyed, there is no other exit route for those living north of it in the Claraboya/Johnson's Pasture area. Other priority bridges include the Freeway Bridges (3 on the I-10 and approximately 11 on the I-210).

Storm Water Systems

Local drainage problems are common throughout the City. The City of Claremont Community Services staff is aware of local drainage threats. The problems are often present where storm water runoff enters culverts or goes underground into storm sewers. Inadequate maintenance can also contribute to the flood hazard in urban areas.

Debris in the Storm Drains

Storm water pollution is urban runoff water that picks up pollutants as it flows through the storm drain system – a network of channels, gutters and pipes that collect runoff from city streets, neighborhoods, farms, construction sites and parking lots – and empties directly into local waterways.

Unlike sewage, which goes to treatment plants, urban runoff flows untreated through the storm drain system. Anything thrown, swept or poured into the street, gutter or a catch basin – the curbside openings that lead into the storm drain system – can flow directly into our channels, creeks, bays and ocean. This includes pollutants like trash, pet waste, cigarette butts, motor oil, anti-freeze, runoff from pesticides and fertilizers, paint from brushes and containers rinsed in the gutter, and toxic household chemicals.

Contaminated urban runoff is an uncontrolled nonpoint source of pollution into local waters, and contributes to beach closures. Litter, leaves and other debris can clog catch basins causing flooding when it rains. Storm water pollution may contribute to beach closures, which hurt local businesses, tourism and Los Angeles County's image as a desirable place to live and work. It is illegal for businesses without a permit to discharge wastewater or other materials into the storm drain system.

Water/Wastewater Treatment Facilities

The City of Claremont lies within Sanitary District #21 in the City of Claremont, and operates sewage treatment facilities. There is one major water service company in the City of Claremont, although there are multiple water sources. These sources include the Three Valley Municipal Water District and various groundwater sources from the Inland Valley.



Water Quality

Environmental quality problems include bacteria, toxins, and pollution. The City of Claremont has high levels of nitrates within the water system. General pollution problems are not as evident within the City.

Nonquantifiable Impacts

Impact that is not quantified, but anticipated in future events includes:

- ✓ Injury and loss of life
- ✓ Commercial and residential structural damage
- ✓ Disruption of and damage to public infrastructure
- ✓ Secondary health hazards (e.g., mold and mildew)
- ✓ Damage to roads/bridges resulting in loss of mobility
- ✓ Significant economic impact (jobs, sales, tax revenue) upon the community
- ✓ Negative impact on commercial and residential property values
- ✓ Significant disruption to students and teachers as temporary facilities and relocations would likely be needed

Summary of Claremont's Vulnerability to Flood

Claremont has a long history of moderate to severe flooding during major storms. The establishment of the San Antonio Dam has mitigated much of the problem. However, flooding remains a potential problem, particularly as climate change can bring more frequent and severe storms.



Hazard: Landslide

Hazard Description

A landslide is defined as the movement of a mass of rock, debris, or earth down a slope. The term “landslide” encompasses events such as rock falls, topples, slides, spreads, and flows. Landslides can be initiated by rainfall, earthquakes, volcanic activity, changes in groundwater, and/or a change of a slope caused by construction activities.

Landslides can be broken into two categories: rapidly moving (generally known as debris flows) and slow moving. Rapidly moving landslides or debris flows present the greatest risk to human life, and people living in or traveling through areas prone to rapidly moving landslides are at increased risk of serious injury. Slow moving landslides can cause significant property damage but are less likely to result in serious human injuries.

Landslides vary greatly in their volume of rock and soil, the length, width, and depth of the area affected, frequency of occurrence, and speed of movement. Some characteristics that determine the type of landslide are slope of the hillside, moisture content, and the nature of the underlying materials. Landslides are given different names, depending on the type of failure, and their composition and characteristics.

A debris or mud flow is a river of rock, earth and other materials, including vegetation that is saturated with water. This high percentage of water gives the debris flow a very rapid rate of movement down a slope. Debris flows often with speeds greater than 20 mile per hour, and often move much faster. This high rate of speed makes debris flows extremely dangerous to people and property in its path.

Wildland fires in hills covered with chaparral are often a precursor to debris flows in burned out canyons. The extreme heat of a wildfire creates a soil condition in which the earth becomes impervious to water by creating a waxy-like layer just below the ground surface. Since the water cannot be absorbed into the soil, it rapidly accumulates on slopes, often gathering loose particles of soil into a sheet of mud and debris. Debris flows often originate miles away from unsuspecting persons and approaches at a high rate of speed with little warning.

Natural processes can cause landslides or re-activate historical landslide sites. The removal or undercutting of shoreline-supporting material along bodies of water by currents and waves produces countless small slides each year. Seismic tremors can trigger landslides on slopes historically known to have landslide movement. Earthquakes also cause additional failure (lateral spreading) that occurs on gentle slopes above steep streams and riverbanks.



Location and Extent

Landslides are a common hazard in California. Weathering and the decomposition of geologic materials produces conditions conducive to landslides, and human activity further exacerbates many landslide problems.

Debris flows travel down a hillside with speeds up to 200 miles per hour (more commonly, 30 – 50 miles per hour), depending on the slope angle, water content, and type of earth and debris in the flow. These flows are initiated by heavy, usually sustained, periods of rainfall, but sometimes happen as a result of short bursts of concentrated rainfall in susceptible areas. Burned areas charred by wildfires are particularly susceptible to debris flows, given certain soil characteristics and slope conditions.

Although landslides are a natural geologic process, the incidence of landslides and the impact on people are exacerbated by human activities. Grading for road construction and development increases slope steepness and decreases the stability of a hill slope by adding weight to the top of the slope, removing support at the base of the slope, and increasing water content. Other human activity affecting landslides include: excavation, drainage and groundwater alterations, and changes in vegetation.

Excavation and Grading

Slope excavation is common in the development of home sites or roads on sloping terrain. Grading these slopes results in slopes that are steeper than the pre-existing natural slopes. Since slope steepness is a major factor in landslides, these steeper slopes are at an increased risk for landslides.

The added weight of fill placed on slopes also results in an increased landslide hazard. Small landslides are fairly common along roads, in either the road cut or the road fill. Landslides occurring below new construction sites are indicators of the potential impacts stemming from excavation.

Drainage and Groundwater Alterations

Water flowing through or above ground is often the trigger for landslides. Any activity that increases the amount of water flowing into landslide-prone slopes increases landslide hazards. Broken or leaking water and sewer lines can be especially problematic. However, even lawn irrigation in landslide prone locations can result in damaging landslides. Ineffective storm water management and excess runoff also cause erosion and increase the risk of landslide hazards. Drainage is affected naturally by the geology and topography of an area. Development that results in an increase in impervious surface impairs the ability of the land to absorb water and redirects water to other areas. Channels, streams, ponding, and erosion on slopes indicate potential slope problems.

Road and driveway drains, gutters, downspouts, and other constructed drainage facilities concentrates and accelerates flow. Ground saturation and concentrated velocity flow are major causes of slope problems and triggers landslides.



Changes in Vegetation

Removing vegetation from very steep slopes increases landslide hazards. Areas that experience wildfire and land clearing for development may have long periods of increased landslide hazard. Changing from native ground cover plants to ground cover that require constant watering to remain green can increase the risk of landslide.

Areas Particularly Susceptible to Landslides

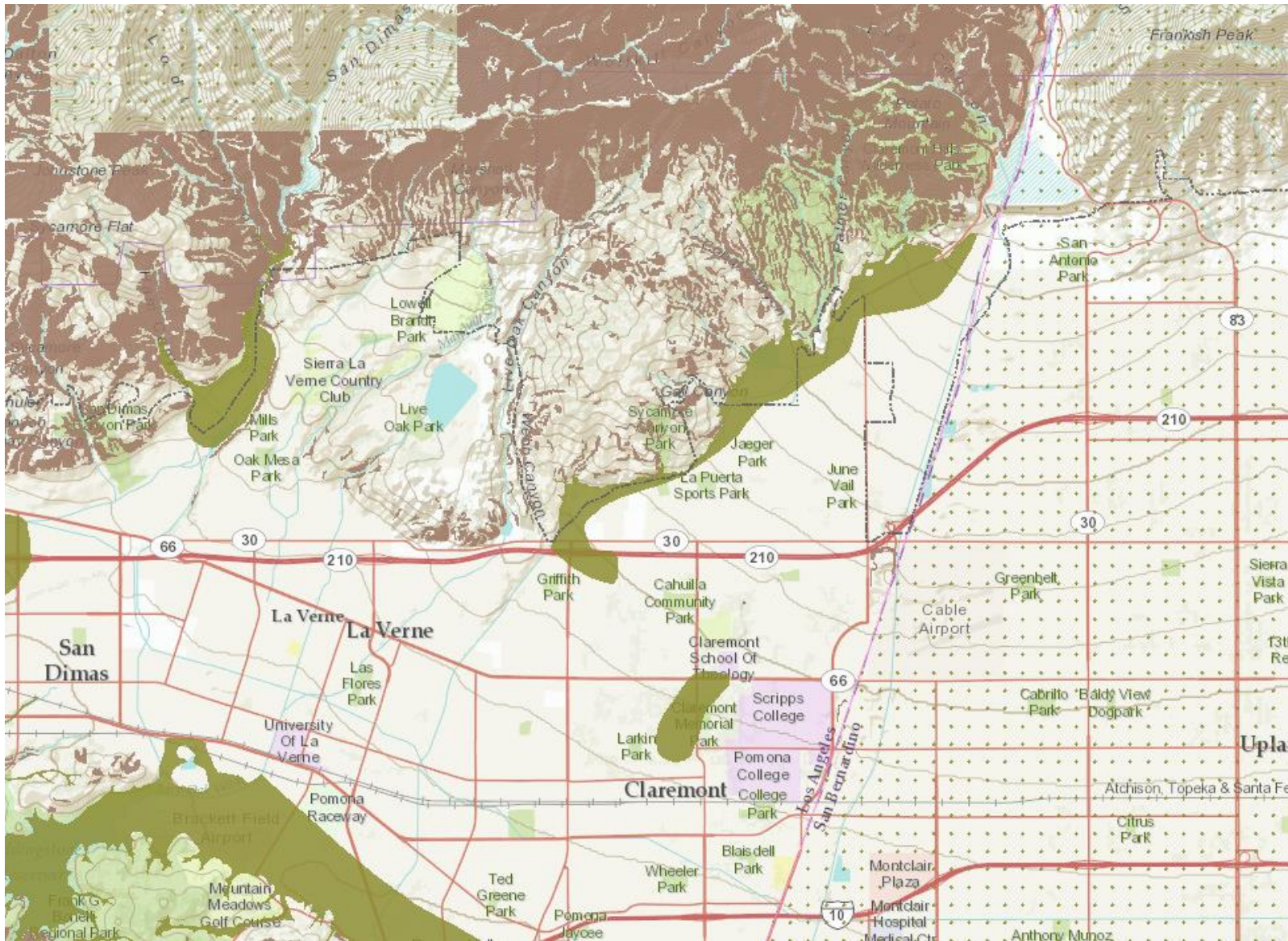
Locations at risk from landslides or debris flows include areas with one or more of the following conditions:

- On or close to steep hills
- Steep road-cuts or excavations
- Existing landslides or places of known historic landslides (such sites often have tilted power lines, trees tilted in various directions, cracks in the ground, and irregular-surfaced ground)
- Steep areas where surface runoff is channeled, such as below culverts, V-shaped valleys, canyon bottoms, and steep stream channels
- Fan-shaped areas of sediment and boulder accumulation at the outlets of canyons
- Canyon areas below hillside and mountains that recently (within 1-6 years) were subjected to a wildland fire

Figure 13: Claremont Landslide Hazard Map shows deep seated landslide susceptibility areas in Claremont.



Figure 13: Claremont Landslide Hazard Map



Source: CalOES



Previous Occurrences

In 1969, the Glendora landslip significantly impacted Claremont causing \$26.9 million in damages. Over 175 houses were damaged, mainly by debris flows. More recently, in January and February of 2019, heavy rains caused a landslide in the Angeles National Forest north of Claremont and generated over 3,500 tons of debris that had to be removed by Los Angeles County Public Works.

Other significant landslides in the region over the past 30 years include:

- **1994 Northridge Earthquake Landslides** As a result of the Magnitude 6.7 Northridge Earthquake, more than 11,000 landslides occurred over an area of 10,000 km². Most were in the Santa Susana Mountains and in mountains north of the Santa Clara River Valley. The landslides destroyed dozens of homes, blocked roads, and damaged oil-field infrastructure.
- **March 1995, Los Angeles and Ventura Counties** Above normal rainfall triggered damaging debris flows, deep-seated landslides, and flooding. Several deep-seated landslides were triggered by the storms, the most notable was the La Conchita landslide, which in combination with a local debris flow, destroyed or badly damaged 11 to 12 homes in the small town of La Conchita, about 20 km west of Ventura. There also was widespread debris-flow and flood damage to homes, commercial buildings, and roads and highways in areas along the Malibu coast that had been devastated by wildfire two years before.
- **January 2005, Ventura County** A landslide struck the community of La Conchita, killing ten people and destroying or seriously damaging 36 houses.
- **January 2018, Santa Barbara County** In December 2017 the Thomas Fire ravaged areas in Santa Barbara county, burning large amounts of vegetation whose roots had helped stabilize topsoil in hillsides and other vulnerable areas. On January 8, 2018 a storm brought heavy rains; the mudflows began the next day. There were 23 deaths and 163 people hospitalized. Over 100 homes were destroyed and another 300 damaged.
- **December 2018, Malibu** Heavy rain on the Woolsey Fire burned hillsides created debris flows and mudslides in and around Malibu causing several road closures.

Probability of Future Events

Claremont will continue to be at risk for landslides due to the hilly terrain, risk of wildfire and potential for earthquake-induced landslides. Moisture-induced landslides may occur as a consequence of intense storms or winters with heavy rainfall.



Climate Change Considerations

There is no known link between climate change and seismic activity, therefore climate change is not expected to have any effect on earthquake-induced landslides. However, climate change may increase the frequency and/or intensity of moisture-induced landslides. Atmospheric river storms may become more intense as a result of climate change. This causes more precipitation to be absorbed by the soil which may help destabilize hillsides and cause an increase in the frequency of landslide events.

Impact of Landslide on Claremont

Landslides are a serious geologic hazard in almost every state in America. Nationally, landslides cause 25 to 50 deaths each year. The best estimate of direct and indirect costs of landslide damage in the United States range between \$1 and \$2 billion annually.

Landslides affect utility services, transportation systems, and critical lifelines. The City may suffer immediate damages and loss of service. Disruptions of infrastructure, roads, and critical facilities could also have long-term effects. Utilities -- including potable water, wastewater, telecommunications, natural gas, and electric power -- are all essential to service City needs. Loss of electricity has the most widespread impact on other utilities and on the whole city. Natural gas pipes are also at risk of breakage from landslide movements as small as an inch or two.

Roads and Bridges

Losses incurred from landslide hazards in the City of Claremont are often associated with roads. The City of Claremont and County of Los Angeles are responsible for maintenance of public roads. They are tasked with responding to slides that inhibit the flow of traffic or are damaging a road or a bridge. The road departments do their best to communicate with residents and businesses impacted by landslides.

It is not cost-effective to mitigate all slides because of limited funds, and because some historical slides are likely to become active again even with mitigation measures. The City and County alleviate problem areas by grading slides, and by installing new drainage systems on the slopes to divert water from the landslides. This type of response activity is often the most cost-effective but is only temporary. Unfortunately, many property owners are unaware of slides and the dangers associated with them.

Lifelines and Critical Facilities

Lifelines and critical facilities should remain accessible, if possible, during a natural hazard event. The impact of closed transportation arteries are increased if the closed road or bridge is critical for hospitals and other emergency facilities. Losses of power and phone service are also potential consequences of landslide events. Due to heavy rains, soil erosion in hillside areas can be accelerated, resulting in loss of soil support beneath high voltage transmission towers in hillsides and remote areas. Flood events can also



cause landslides, which have serious impact on gas lines that are located in vulnerable soils.

Nonquantifiable Impacts

While a quantitative vulnerability assessment (an assessment that describes number of lives or amount of property exposed to the hazard) has not yet been conducted for landslide events impacting the City, there are many qualitative factors that point to potential vulnerability. Impacts that are not quantified, but can be anticipated in future events, include:

- ✓ Injury and loss of life
- ✓ Commercial and residential structural damage
- ✓ Disruption of and damage to public infrastructure
- ✓ Damage to roads/bridges resulting in loss of mobility
- ✓ Significant economic impact (jobs, sales, tax revenue) upon the community
- ✓ Negative impact on commercial and residential property values
- ✓ Significant disruption to students and teachers as temporary facilities and relocations would likely be needed

Summary of Claremont's Vulnerability to Earthquakes

Landslides and their impacts will vary by location and severity of any given landslide event and will likely only affect certain areas of the county during specific times. Landslides can impact major transportation arteries, blocking residents from essential services.

Factors included in assessing landslide risk include population and property distribution in the hazard area, the frequency of landslide or debris flow occurrences, slope steepness, soil characteristics, and precipitation intensity. Many landslides are difficult to mitigate, particularly in areas of large historic movement with weak underlying geologic materials. As communities continue to modify the terrain and influence natural processes, it is important to be aware of the physical properties of the underlying soils as they, along with climate, create landslide hazards. Even with proper planning, landslides continue to threaten the safety of people, property, and infrastructure, but without proper planning, landslide hazards are even more common and more destructive.

Although landslides are a natural occurrence, human impact can substantially affect the potential for landslide failures in the City of Claremont. Proper planning and geotechnical engineering will reduce the threat of safety of people, property, and infrastructure.



Hazard: Wildfire

Hazard Description

A wildfire is a fire that burns in largely undeveloped and natural areas. Wildfires spread by consuming flammable vegetation. This fire type often begins unnoticed, spreads quickly, and is usually signaled by dense smoke that may be visible from miles around. Wildfires can be caused by human activities (e.g., unattended burns, campfires, or off-road vehicles without spark arresting muffles) or by natural events such as lightning. Naturally occurring and non-native species of grasses, brush, and trees fuel wildfires. Because of their distance from firefighting resources, they can be difficult to contain and can cause a great deal of destruction.

The potential for significant damage to life and property exists in areas designated as “wildland-urban interface areas,” where development is adjacent to densely vegetated areas. Certain conditions must be present for significant interface fires to occur. The most common conditions include: hot, dry and windy weather; the inability of fire protection forces to contain or suppress the fire; the occurrence of multiple fires that overwhelm committed resources; and a large fuel load (dense vegetation). Once a fire has started, several conditions influence its behavior, including fuel, topography, weather, drought, and development.

Fuel

Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel is classified by volume and by type. Volume is described in terms of “fuel loading,” or the amount of available vegetative fuel. Chaparral, a general term used to describe brushland, is a primary fuel of Southern California wildfires. Although chaparral is often considered as a single species, there are two distinct types: hard chaparral and soft chaparral. Within these two types are dozens of different plants, each with its own particular characteristics. The City of Claremont is composed of chaparral land, especially in the foothills.

An important element in understanding the danger of wildfire is the availability of diverse fuels in the landscape, such as natural vegetation, manmade structures and combustible materials. A house surrounded by brushy growth rather than cleared space allows for greater continuity of fuel and increases the fire’s ability to spread. After decades of fire suppression “dog-hair” thickets have accumulated, which enable high intensity fires to flare and spread rapidly.

Topography

Topography influences the movement of air, thereby directing a fire course. Gulches and canyons can funnel air and act as chimneys, which intensify fire behavior and cause the fire to spread faster. Solar heating of dry, south-facing slopes produces up slope drafts that can complicate fire behavior.



Weather

Weather patterns combined with certain geographic locations can create a favorable climate for wildfire activity. Areas where annual precipitation is less than 30 inches per year are extremely fire susceptible. High-risk areas in Southern California share a hot, dry season in late summer and early fall when high temperatures and low humidity favor fire activity. Santa Ana winds, which are heated by compression as they flow down to Southern California from Utah, create a particularly high risk, as they can rapidly spread what might otherwise be a small fire.

Drought

Recent concerns about the effects of climate change, particularly drought, are contributing to concerns about wildfire vulnerability. Unusually dry winters, or significantly less rainfall than normal, can lead to relatively drier conditions and leave reservoirs and water tables lower. Drought leads to problems with irrigation and contributes to additional fires, or increased difficulty in fighting fires.

Development

Growth and development in scrubland and forested areas is increasing the number of structures in Southern California interface areas. Wildfire affects development, yet development can also influence wildfire. Owners often prefer homes that are private with scenic views, nestled in vegetation, and use natural materials. A private setting is usually far from public roads, or hidden behind a narrow, curving driveway. These conditions, however, make evacuation and firefighting difficult.

Location and Extent

California experiences large, destructive wildland fires almost every year, and Los Angeles County is no exception. However, in recent years, the City of Claremont has lost neither structures nor life to wildfires.

Southern California has two distinct areas of risk for wildland fire. The foothills and lower mountain areas are most often covered with scrub brush or chaparral. The higher elevations of mountains also have heavily forested terrain. The lower elevations covered with chaparral create one type of exposure.

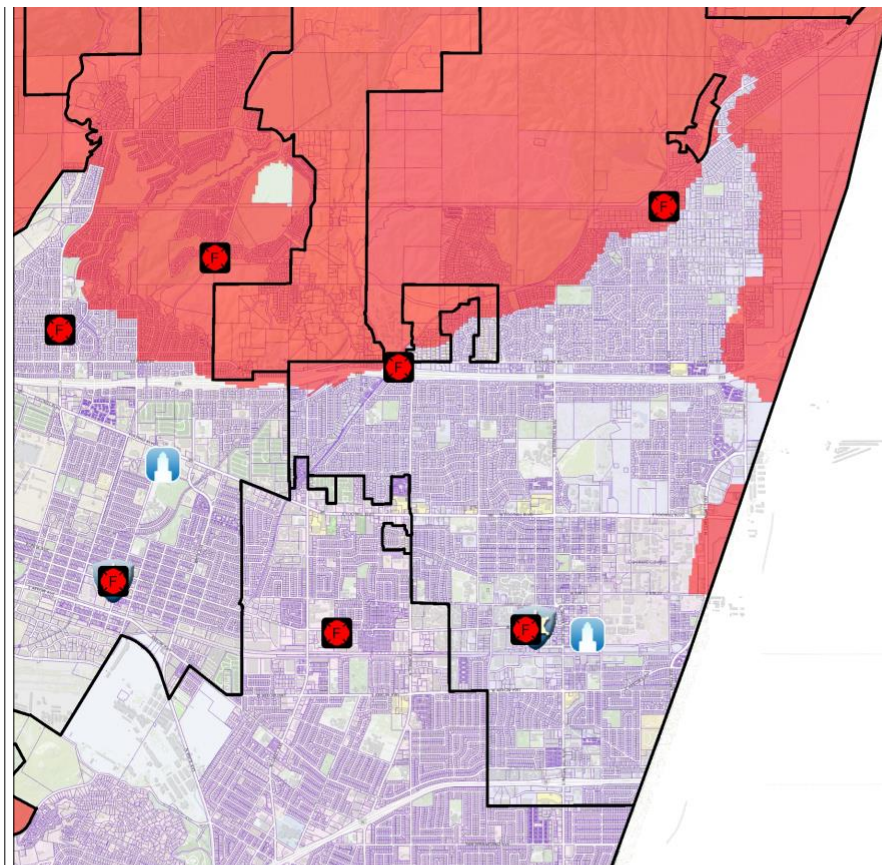
One challenge Southern California faces regarding the wildfire hazard is from the increasing number of houses being built on the urban/wildland interface. Every year the growing population expands further into the hills and mountains, including forest lands. The increased "interface" between urban/suburban areas, and the open spaces created by this expansion, produces a significant increase in threats to life and property from fires, and pushes existing fire protection systems beyond original or current design and capability. Property owners in the interface are not aware of the problems and fire hazards or risks on their own property. Furthermore, human activities increase the incidence of fire ignition and potential damage.



Wildfires are not measured on a specific scale and are usually classified by size (e.g., acres burned) or impact (buildings destroyed or damaged, injuries or deaths, cost of damage, etc.). The risk of wildfire is classified on a three-tier scale of fire hazard severity zones (FHSZs): very high, high, and moderate. These classes do not correspond to a specific risk or intensity of fire but are qualitative terms that consider many factors. Fire-prone areas are also classified by the agency responsible for fire protection. Federal Responsibility Areas (FRAs) fall to federal agencies such as the US Forest Service, the Bureau of Land Management, and the National Park Service. State Responsibilities Areas (SRAs) fall to the California Department of Forestry and Fire Protection (CAL FIRE), and Local Responsibility Areas (LRAs) fall to local governments.

The combination of population density, terrain, weather, and residential and commercial development in the foothill area of Claremont presents a year-round threat of wildfires encroaching upon developed areas. Portions of the Claremont foothills are classic examples of the “chaparral-urban interface” where steadily increasing development meets or are incorporated into wild land areas, many of these bordering homes are in areas classified as Very High Fire Hazard Severity Zones (VHFHSZs). Additionally, parts of the Claremont Colleges community borders an area classified as VHFHSZ. Figure 14: Fire Hazard Severity Zones depicts the VHFHSZs mapped throughout Claremont.

Figure 14: Fire Hazard Severity Zones



Source: Los Angeles County GIS Viewer



Previous Occurrences

Previous Fires in Claremont

In 2002, the Williams Fire made its way from Azusa to La Verne burning 37,240 acres and destroying 76 structures. While it continued to burn from La Verne and cross into Claremont, it threatened the northern neighborhoods of Claremont such as Claraboya, Thompson Creek, and Padua Hills. Fortunately, the winds dissipated before causing property damage and threatening lives in Claremont.

In 2003, the massive Grand Prix fire, which ultimately combined with the Old Fire to form a 40-mile front across the San Gabriel Mountains, consumed almost 60,000 acres, and destroyed and/or damaged 71 homes in and around Claremont. Thousands of Claremont residents were forced to evacuate and seek temporary shelter elsewhere. The damage caused by the fire in the City of Claremont was estimated at \$20 million.

The Station Fire impacted the City in 2009. Although there was no damage or impact to the City, costs included personnel responses in the form of mutual aid.

Historic Fires in Southern California

Large fires have been part of the Southern California landscape for decades.

- **2003 Southern California Fires**

During the 2003 fire season, more than 6.9 million acres of public and private lands burned in the U.S., resulting in loss of property, damage to resources, and disruption of community services. Taxpayers spent more than \$1.6 billion to combat more than 88,400 fires nationwide. Many of these fires burned in wildland/urban interface areas and exceeded the fire suppression capabilities of those areas.

The fall of 2003 was a very destructive wildfire season in California. In a ten day period, 12 separate fires raged across Southern California in Los Angeles, Riverside, San Bernardino, San Diego and Ventura counties. The Grand Prix Fire started on October 21, 2003 and burned a total of 50,618 acres between Claremont and Lytle Creek. The fire destroyed 136 homes and was ruled “accidental but human-initiated.” The Simi Fire started on October 25, 2003 and burned a total of 107,570 acres between Simi Hills and southeastern Simi Valley, in eastern Ventura County and western Los Angeles County, California. It destroyed 37 homes and 278 buildings. The cause of the fire remains unknown.

- **2007 Southern California Fires**

In late October 2007, Southern California experienced an unusually severe fire weather event characterized by intense, dry, gusty Santa Ana winds. This weather event drove a series of destructive wildfires that took a devastating toll on people, property, natural resources, and infrastructure. Although some fires burned into early November, the heaviest damage occurred during the first three days of the siege when the winds were the strongest.



During this siege, 17 people lost their lives, ten were killed by the fires outright, three were killed while evacuating, four died from other fire siege related causes, and 140 firefighters, and an unknown number of civilians were injured. A total of 3,069 homes and other buildings were destroyed, and hundreds more were damaged. Hundreds of thousands of people were evacuated at the height of the siege. The fires burned over half a million acres, including populated areas, wildlife habitat and watershed. Portions of the electrical power distribution network, telecommunications systems, and even some community water sources were destroyed. Transportation was disrupted over a large area for several days, including numerous road closures. Both the Governor of California and the President of the United States personally toured the ongoing fires. Governor Schwarzenegger proclaimed a state of emergency in seven counties before the end of the first day. President Bush quickly declared a major disaster. While the total impact of the 2007 fire siege was less than the disastrous fires of 2003, it was unquestionably one of the most devastating wildfire events in the history of California.

Recent Wildfires in California

The last five years have seen destructive and deadly fires across California. According to California Fire, seven⁶ of the ten largest California wildfires have occurred over the past five years. The largest was the August Complex Fire (2020) that burned over one million acres across seven Northern California counties, destroyed 935 structures and resulted in one death. The Camp Fire (2018) in Butte destroyed over 18,000 structures and resulted in 85 deaths. The Woolsey Fire (2018) destroyed over 1,600 structures and resulted in three deaths in Ventura County.

Table 12: Recent Wildfires in California Costs

Year	2016	2017	2018	2019	2020
Number of Fires	6,959	9,270	7,948	7,148	7,335
Acres Burned	669,534	1,548,429	1,975,086	259,823	1,666,286
Fire Suppression Costs (\$ million)	\$534	\$773	\$890	\$691 (EST)	\$372 (EST)

Probability of Future Wildfire Events

The climate in Los Angeles County is characterized by warm, dry-summers and cool, sometimes wet winters. High moisture levels during the winter rainy season significantly increase the growth of plants. However, the vegetation is dried during the long, hot summers, decreasing plant moisture content and increasing the ratio of dead fuel to living

⁶ https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf



fuel. As a result, fire susceptibility increases dramatically, particularly in late summer and early autumn.

Additionally, the Santa Ana winds contribute to the high incidence of wildfires in Los Angeles County. These winds originate during the autumn months in the hot, dry interior deserts to the north and east of Los Angeles County. They often sweep west into the county, bringing extremely dry air and high wind speeds that further desiccate plant communities during the period of the year when the constituent species have very low moisture content. The effect of these winds on existing fires is particularly dangerous; the winds can greatly increase the rate at which fires spread. Based on the conditions described above and the history of occurrence in the past, future events are very likely to occur. extent of future events will depend on specific conditions at the time of the fire.

Climate Change Considerations

Climate change is expected to cause an increase in temperatures, as well as more frequent and intense drought conditions. This will likely increase the amount of dry plant chaparral available for fuel, increasing the risk of wildfire statewide. Increases in fuel supplies could cause wildfires to move faster or spread into more-developed areas, which could increase the threat to Claremont.

Impact of Wildfire on Claremont

The primary effects of fire, such as loss of life, injury, destruction of buildings and wildlife, are well known. Fire also has a number of secondary effects, such as strained public utilities, depleted water supplies, downed power lines, disrupted telephone systems, and closed roads. In addition, flood control facilities are overtaxed by the increased flow from bare hillsides, and the resulting debris that washes down. Affected recreation areas may have to close or restrict operations. Moreover, buildings destroyed by fire are usually eligible for property tax reassessment, which reduces revenue to local government.

Fire destroys surface vegetation, leaving the soil bare and subject to erosion, when the rains begin in the fall and winter. Raindrops hit the surface with undiminished impact, splashing particles of soil loose that move downhill and are carried away by running water. Fire also destroys most of the roots that hold the soil in place, allowing running water to wash the soil away. Mudslides and mudflows can result from these processes.

In the event of a wildfire, vegetation, structures and other flammables can merge into unwieldy and unpredictable events. Factors important to the fighting of such fires include access, firebreaks, proximity of water sources, and proximity to a fire station, available firefighting personnel and equipment. Reviewing past wildland/urban interface fires shows that many structures are destroyed or damaged for one or more of the following reasons:

- Combustible roofing material
- Wood construction
- Structures with no defensible space



- Fire department has poor access to structures
- Subdivisions located in heavy natural fuel types
- Structures located on steep slopes covered with flammable vegetation
- Limited water supply
- Winds over 30 miles per hour

Road Access

Road access is a major issue for all emergency service providers. As development encroaches into the rural areas of the county, the number of houses without adequate turn-around space is increasing. In many areas, there is not adequate space for emergency vehicle turnarounds in single-family residential neighborhoods, obstructing emergency workers because they cannot access houses.

Large facilities (particularly schools and other facilities with vulnerable populations) located near the Wildland/Urban Interface must incorporate adequate evacuation planning into their Site Emergency Plans. Fire drills and fire evacuation routes should be pre-planned and practiced with transportation vehicles and shelter locations pre-planned.

Water Supply

Fire fighters in remote and rural areas are faced with limited water supply and lack of hydrant taps. Rural areas are characteristically outfitted with small diameter pipe water systems, inadequate for providing sustained fire fighting flows.

Interface Fire Education Programs and Enforcement

Fire protection in urban/wildland interface areas may rely heavily on the landowner's personal initiative to take measures to protect his or her own property. Therefore, public education and awareness plays a greater role in interface areas. In those areas with strict fire codes, property owners who resist maintaining the minimum brush clearances can be cited for failure to clear brush.

Need for Mitigation Programs

Continued development into the interface areas has growing impact on the wildland/urban interface. Wildfires will continue to present a substantial hazard to life and property in Southern California because many of its communities are built within or adjacent to hillsides and mountainous areas. The continued growth and development increases the public need for mitigation planning in Southern California.

Nonquantifiable Impacts

Impact that is not quantified, but can be anticipated in future events, includes:

- ✓ Injury and loss of life
- ✓ Commercial and residential structural damage
- ✓ Disruption of and damage to public infrastructure
- ✓ Damage to roads/bridges resulting in loss of mobility
- ✓ Significant economic impact (jobs, sales, tax revenue) upon the community



- ✓ Negative impact on commercial and residential property values
- ✓ Significant disruption to students and teachers as temporary facilities and relocations would likely be needed

Homeowner Risk Mitigation: Wildfire Hazard

The City has identified properties within Very High Fire Hazard Severity Zones as shown in Map: City of Claremont Fire Hazard Severity Zones. Defensible space can be created around structures by taking precautionary measures such as thinning trees and brush within a minimum of 30 feet of a home. Beyond 30 feet, remove dead wood, debris and low tree branches. Keep lawns trimmed, leaves raked, and the roof and rain-gutters free from debris such as dead limbs and leaves. Stack firewood at least 30 feet away from a home. Store flammable materials, liquids and solvents in metal containers outside the home at least 30 feet away from structures and wooden fences.

In Claremont, this scenario highlights the need for fire mitigation activity in all sectors of the region, wildland/urban interface or not. Examples of actions homeowners can take to mitigate fires include:

- Define a defensible space of a 30-foot non-combustible buffer area around the house
- Reduce flammable vegetation, trees and brush around the house
- Remove or prune trees
- Cut grass and weeds regularly
- Relocate wood piles and leftover materials
- Keep it clean
- Install fire resistant roofing materials and spark arrestors on chimneys

Summary of Claremont's Vulnerability to Wildfire

Wildfires are a natural part of the ecosystem in Southern California and present a substantial hazard to life and property in communities built within or adjacent to hillsides and mountainous areas. Fire potential is typically greatest in the months of August, September, and October, when dry vegetation, combined with offshore dry Santa Ana winds, create a high potential for spontaneous fires. The hillsides and steep slopes facilitate rapid fire spread. There is a huge potential for losses due to wildland/urban interface fires in Claremont.

In urban areas, the effectiveness of fire protection efforts is based upon several factors, including the age of structures, efficiency of circulation routes that ultimately affect response times and availability of water resources to combat fires. In wildland areas, taking the proper precautions, such as the use of fire resistant building materials, a proactive Fire Prevention inspection program, and the development of defensible space around structures where combustible vegetation is controlled, can protect developed lands from fires and, therefore, reduce the potential loss of life and property.



Hazard: Windstorm

Hazard Description

A windstorm event in the region can range from short term microburst activity lasting only minutes to a long duration Santa Ana wind condition that lasts for several days. Tornadoes, like those that occur every year in the Midwest and Southeast parts of the United States, are a rare phenomenon in most of California, with most tornado-like activity coming from microbursts. Windstorms in the region can cause extensive damage to road and highway infrastructure and critical utility facilities.

Santa Ana Winds

Santa Ana winds are generally defined as warm, dry winds that blow from the east or northeast (offshore). Santa Ana Winds travel from the stable, high-pressure weather system called the Great Basin through the canyons and towards the low-pressure system off the Pacific. The City of Claremont is in the direct path of the ocean-bound Santa Ana winds.

Microbursts and Thunderstorm Wind Events

Microbursts are strong, damaging winds which strike the ground and often give the impression a tornado has struck. They frequently occur during intense thunderstorms. The origin of a microburst is downward moving air from a thunderstorm's core. But unlike a tornado, they affect only a rather small area.

Tornadoes

A tornado is a violently rotating column of air extending between, and in contact with, a cloud and the surface of the earth. Tornadoes are often (but not always) visible as a funnel cloud. On a local-scale, tornadoes are the most intense of all atmospheric circulations and wind can reach destructive speeds of more than 300 mph. A tornado's vortex is typically a few hundred meters in diameter, and damage paths can be up to 1 mile wide and 50 miles long

Location and Extent

The entire City is equally at risk for windstorm events.

Santa Ana Winds

Santa Ana winds commonly occur between October and February, with December having the highest frequency of events. Summer events are rare. Wind speeds are typically north to east at 35 knots through and below passes, and canyons with gusts to 50 knots. Stronger Santa Ana winds has gusts greater than 60 knots over widespread areas, and gusts greater than 100 knots in favored areas. Frequently, the strongest winds in the basin occur during the night and morning hours due to the absence of a sea breeze. The sea breeze which typically blows onshore daily, can moderate the Santa Ana winds during the late morning and afternoon hours. Santa Ana winds are an important forecast challenge because of the high fire danger associated with them.



These winds occur below the passes and canyons of the coastal ranges of Southern California and in the Los Angeles and Orange County basins. Santa Ana winds often blow with exceptional speed in the Santa Ana Canyon (the canyon from which it derives its name). Forecasters at the National Weather Service offices 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. These winds accelerate to speeds of 35 knots as they move through canyons and passes, with gusts to 50 or even 60 knots.

Microbursts

A microburst is a type of surface wind in excess of 39 mph caused by a small-scale, strong downdraft from the base of convective thundershowers and thunderstorms. Microbursts are confined to less than 2.5 miles in diameter from the initial point of downdraft impact. An intense microburst can result in damaging winds near 170 mph and often last for less than five minutes.

Tornados

In order to measure the intensity and wind strength of a tornado, Dr. T. Theodore Fujita developed the Fujita Tornado Damage Scale (F-scale). This scale compares the estimated wind velocity with the corresponding amount of suspected damage. The scale measures six classifications of tornados with increasing magnitude from an "F0" tornado to a "F6+" tornado. An updated F-scale was implemented by the NOAA in 2007 and is called the Enhanced F-scale (EF-scale). In Los Angeles County, tornados are extremely rare with 44 Tornado events since 1950, five of which were F2 events and 9 of which were F1.

Table 13: Fujita and Enhanced F-Scale

F SCALE			Operational EF-SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85
1	73-112	79-117	1	86-110
2	113-157	118-161	2	111-135
3	158-207	162-209	3	136-165
4	208-260	210-261	4	166-200
5	261-318	262-317	5	Over 200

Source: NOAA <https://www.spc.noaa.gov/efscale/ef-scale.html>



Previous Occurrences

Los Angeles County has experienced both high wind and thunderstorm wind events. The strongest winds are Santa Ana winds in winter. As an example of the impacts from high winds, a windstorm on November 30, 2011, left 300,000 residents without power, some for over one week. The NOAA National Centers for Environmental Information (NCEI) storm events database lists the following wind events from 1990 to 2020:

- 208 high wind events, with one death reported.
- 30 thunderstorm wind events, with one death and two injuries reported.
- 18 tornados from 1990 through 2020, with one reported injury. The recorded tornado events are rated as F0 (13 events), EF0 (two events), F1 (three events).

Following is an overview of major wind events to hit the City and surrounding areas over the past 30 years:

Date	Location and Damage
March 3, 1992	A small tornado with winds to 100 mph, struck a one block strip of the El Sereno district of Los Angeles. Shredding roofs, shattering windows, downing an oak tree and toppling a billboard onto a car. About 10 houses were damaged.
June 16, 1995	A severe thunderstorm spawned a tornado that briefly touched down on the 14800 block of Dalman Street in Whittier. Witnesses said it tore through a chain link gate, swirled rubbish cans in the air, and snapped off ten-foot long tree branches. A rain gutter was also torn from a house.
February 16, 2000	A cold and unstable airmass generated heavy showers and thunderstorms across Central and Southern California. Numerous reports of heavy showers and small hail were received from the area. In Covina, a weak tornado developed, damaging four mobile homes. Fortunately, no one was injured. With the heavy showers, street flooding was reported in Monrovia.
December 12, 2001	In the community of Walnut, a weak tornado touched down in the early morning hours. Several homes sustained minor roof damage and about 30 trees were knocked down. No injuries were reported.
November 27, 2004	In the Antelope Valley, strong winds gusting to 50 mph knocked down a tree onto a vehicle traveling along Avenue K in the city of Lancaster. A six foot branch smashed through the windshield, instantly killing the female driver. A 16 year-old passenger sustained moderate injuries.
October 26, 2020	Claremont experienced a significant windstorm which resulted in power outages, downed branches and limbs, and the loss of 20 full-size City trees.



Probability of Future Events

While high impact wind incidents are not frequent in the area, significant wind events and sporadic tornado activity have been known to negatively impact the region. Based on the history of the region, windstorm events can be expected, perhaps annually, across widespread areas of the region which can be adversely impacted during a windstorm event.

Climate Change Considerations

According to the Fourth National Climate Assessment published in 2018⁷, it is uncertain as to whether climate change has an impact on the frequency or severity of severe weather such as tornadoes or windstorms.

Impact of Windstorm on Claremont

Windstorms and tornadoes can significantly impact life and property, utilities, infrastructure, transportation and result in an increased fire threat.

Santa Ana wind conditions can lead to fire fanned by the high winds. Wind driven flames caused the destruction of more than 3,000 homes in Southern California in October 2003. Other forms of disaster include direct building damage, damage to utilities and infrastructure as a result of the high winds. This has occurred in the past few years in many Southland communities including Los Angeles County.

Life and Property

City of Claremont emergency response personnel would be involved if there is a wide-ranging windstorm or microburst tornadic activity. Both residential and commercial structures with weak reinforcement are susceptible to damage. Wind pressure creates a direct and frontal assault on a structure, pushing walls, doors, and windows inward. Conversely, passing currents creates lift suction forces that pull building components and surfaces outward. With extreme wind forces, the roof or entire building can fail causing considerable damage.

Debris carried along by extreme winds can directly contribute to loss of life and indirectly to the failure of protective building envelopes, siding, or walls. When severe windstorms strike a city, downed trees, power lines, and damaged property can be major hindrances to emergency response and disaster recovery.

Utilities

Historically, falling trees are the major cause of power outages in the region. Windstorms such as strong microbursts and Santa Ana wind conditions cause flying debris and downed utility lines. For example, tree limbs breaking in winds of only 45 mph can be thrown over 75 feet, overhead power lines are damaged, even in relatively minor

⁷ <https://nca2018.globalchange.gov/chapter/2/>



windstorm events. Falling trees bring electric power lines down to the pavement, creating the possibility of lethal electric shock.

Infrastructure

Windstorms damage buildings, power lines, and other property, and infrastructure, due to falling trees and branches. During wet winters, saturated soils cause trees to become less stable and more vulnerable to uprooting from high winds.

Transportation

Windstorm activity impacts local transportation in addition to the problems caused by downed trees and electrical wires blocking streets and highways. During periods of extremely strong Santa Ana winds, major highways can be temporarily closed to truck and recreational vehicle traffic. However, typically these disruptions are not long lasting, nor do they carry a severe long term economic impact on the region.

Increased Fire Threat

Perhaps the greatest danger from windstorm activity in Southern California comes from the combination of the Santa Ana winds with the major fires that occur every few years in the urban/wildland interface. With the Santa Ana winds driving the flames, the speed and reach of the flames is even greater than in times of calm wind conditions.

Nonquantifiable Impacts

Impact that is not quantified, but can be anticipated in future events, include:

- ✓ Injury and loss of life
- ✓ Commercial and residential structural damage
- ✓ Disruption of and damage to public infrastructure
- ✓ Damage to roads/bridges resulting in loss of mobility
- ✓ Significant disruption to students and teachers as temporary facilities and relocations would likely be needed.

Summary of Claremont's Vulnerability to Windstorms

Severe windstorms pose a significant risk to life and property in Claremont by creating conditions that disrupt essential systems such as public utilities, telecommunications, and transportation routes. High winds can and do occasionally cause tornado-like damage to local homes and businesses in and near Claremont. High winds have the potential for a destructive impact, especially to trees, power lines, and utility services.



Section 5: Mitigation Strategy

Overview of Mitigation Strategy

The City of Claremont's Mitigation Strategy is derived from an in-depth review of the revised hazards, vulnerabilities and capabilities sections of this Plan, coupled with the Planning Team's vision for creating a disaster resilient and sustainable community.

The City of Claremont recognizes the importance of identifying effective ways to reduce vulnerability to disasters. Mitigation Plans assist communities in reducing risk from natural hazards and certain human caused hazards by identifying resources, information and strategies for risk reduction, while helping to guide and coordinate mitigation activities throughout the City. The Plan provides a set of action items to reduce risk from hazards.

The resources and information within the Mitigation Plan:

- Establish a basis for coordination and collaboration among agencies and the public in the City of Claremont
- Identify and prioritize future mitigation projects
- Assist in meeting the requirements of federal assistance programs

Current Mitigation Programs

The City intends to incorporate mitigation planning into many aspects of its daily operations. The Planning Team will work to integrate mitigation strategies into the general operations of the City and partner organizations.

This Plan works in concert with the City of Claremont General Plan, particularly the Safety Element, which is being updated concurrently (2021) to the development of this plan. The Safety Element creates a framework for mitigation and preparation activities and integrates with the goals of this Plan. The LHMP is an opportunity for the City to expand on the goals and policies in the General Plan, identifying specific mitigation actions to achieve the general plan's high-level objectives. The General Plan and the LHMP collectively help to reduce the threat from hazardous conditions to Claremont residents, businesses, visitors, buildings and facilities, infrastructure, key services, ecosystems, and other assets. This plan is also integrated with other City plans including the City of Claremont Emergency Operations Plan and the Capital Improvement Plan, as well as department specific standard operating procedures.

Table 14: Existing Processes and Programs identifies existing planning and regulatory, administrative and technical, financial, and education and outreach capabilities through which the plan could be implemented. While at this time there is limited money and resources to expand on these capabilities, several opportunities to expand the existing capabilities have been identified.



Table 14: Existing Processes and Programs

Process	Action	Implementation of Plan
Administrative and Technical	Departmental or organizational work plans, policies, and procedural changes	<ul style="list-style-type: none"> • City Manager’s Office • Planning Department • Community Development Department • Public Works Department • Other departments as appropriate
Administrative and Technical	Other plans	<ul style="list-style-type: none"> • Reference plan in Emergency Operations Plan • Address plan findings and incorporate mitigation activities in General Plan <p>Opportunity for Expansion:</p> <ul style="list-style-type: none"> • Consider expanding cyber security expertise, including possibly bringing in a consultant
Education and Outreach	Creative funding and initiatives	<ul style="list-style-type: none"> • Community volunteers • In-kind resources • Public-private partnerships • State support <p>Opportunities for Expansion:</p> <ul style="list-style-type: none"> • Integrate further with Sustainability Committee • Expand emergency preparedness awareness and knowledge through neighborhood education and CERT classes.
Education and Outreach	Advisory bodies and committees	<ul style="list-style-type: none"> • Disaster Council (city and county) • Emergency Management Ad Hoc Committee • Inter-Agency Coordination Group • Safety Committee
Financial	Capital and operational budgets	<ul style="list-style-type: none"> • Include line-item mitigation measures in budget as appropriate
Financial	Traditional and nontraditional sources	<ul style="list-style-type: none"> • Once plan is approved, seek authority to use bonds, fees, loans, and taxes to finance projects • Seek assistance from federal and state government, foundation, nonprofit, and private sources, such as Hazard Mitigation Grant Program



Process	Action	Implementation of Plan
		Opportunities for Expansion: <ul style="list-style-type: none"> • Research new grant opportunities through U.S. Department of Housing and Urban Development, Community Development Block Grant. • Pursue state surplus funding opportunities
Planning and Regulatory	Executive orders, ordinances, and other directives	<ul style="list-style-type: none"> • Building Code • Comprehensive Planning (Institutionalize hazard mitigation in land use and new construction) • National Flood Insurance Program • Storm Water Management Plan • Zoning Ordinance Opportunity for Expansion <ul style="list-style-type: none"> • Require hazard mitigation in design of new construction in the Capital Improvement Plan • Review and update Zoning Ordinance • Implement new plans that are developed and shared by other state, local and federal agencies

City of Claremont General Plan

The Planning Team went to great lengths to examine the various regulatory documents influencing the City’s ability to mitigate against the identified hazards. Perhaps, the most important of those documents was the City’s General Plan, last updated in 2009 and currently being updated by the City. It is the intention of the Planning Team to link the Mitigation Plan actions items as closely as possible to the City’s General Plan. The purpose of this association is that many development projects require a determination of “General Plan conformity” prior to approval. If the Mitigation Plan and General Plan are aligned, this will better ensure both the sustainability and implementation of the Mitigation Plan. Since the establishment of the DMA 2000 regulations, FEMA and other regulators have been frustrated by the ineffectiveness of mitigation plan implementation – in other words, the failure of plans to actually affect the built environment and cause a reduction in risk. The Planning Team believes that changing the circle of build-damage-rebuild can most effectively be broken by linking the Mitigation Plan to the regulations and policy guidelines that allow for construction and land use.

Following is a list of mitigation policies drawn from the 2009 General Plan.



Table 15: General Plan Policies

GENERAL PLAN POLICIES (Note: Each of the policies includes a brief explanation as to applicability to the Local Hazard Mitigation Plan)	MITIGATION PLAN GOALS				
	Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
SAFETY ELEMENT					
<p>Goal: 6-2 Minimize the risk of injury, loss of life, and damage to property resulting from natural and human-caused disasters and conditions.</p> <p>Policies:</p> <p>6-2.1 Practice proactive planning and development approaches that require developers to identify potential hazards that might affect a development and mitigate the potential hazards as needed to the satisfaction of the City.</p> <p>6-2.2 Enforce Uniform Building Code standards for grading.</p> <p>6-2.3 Review and explore disaster preparedness and emergency response capabilities on a regular basis.</p> <p>6-2.4 Cooperate with and coordinate emergency preparedness and response programs with jurisdictions, agencies, and organizations such as surrounding cities, The Claremont Colleges, the Claremont School District, and the Los Angeles County Fire Department.</p> <p>6-2.5 Continue and expand public educational programs to include all aspects of public safety.</p> <p>6-2.6 Maintain a list of public buildings that could support emergency functions in the event of a disaster.</p> <p>6-2.7 Require that development of major facilities and high-occupancy buildings in the hazardous zone submit design analysis, soils, geologic, and seismic reports to the City to indicate that an undue hazard does not exist or would not result from construction on the property.</p> <p>6-2.8 Continually review the City’s disaster communication system, and update/modify as needed.</p> <p>6-2.9 Continue to implement the City’s hillside plan to reduce harm to future residents at the urban interface.</p>	X	X	X	X	X



GENERAL PLAN POLICIES (Note: Each of the policies includes a brief explanation as to applicability to the Local Hazard Mitigation Plan)	MITIGATION PLAN GOALS				
	Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
6-2.10 Restrict vehicular and recreational use of the undeveloped foothill areas during critically hazardous periods.					
<p>Goal: 6-4 Minimize risks to public safety from seismic events.</p> <p>Policies:</p> <p>6-4.1 Enforce the most recent building codes governing seismic safety and structural design to minimize damage from earthquakes.</p> <p>6-4.2 Continue to support efforts to identify location, potential activity, and dangers associated with faults under investigation, and implement recommendations (setbacks, foundation/building design methods, etc.) contained in geotechnical reports.</p>	X	X	X	X	X
<p>Goal: 6-5 Minimize risks to public safety from geologic events.</p> <p>Policies:</p> <p>6-5.1 Require geotechnical evaluation and recommendations prior to new development, as appropriate. Such geotechnical evaluation shall analyze the potential hazards from: Landslides, Liquefaction, Expansive soils, Mud and debris flow Recommendations shall include mitigation to avoid or minimize the identified hazards.</p>	X	X	X	X	X
<p>Goal: 6-6 Minimize the risks associated with storm flooding and dam inundation.</p> <p>Policies:</p> <p>6-6.1 Work with the U.S. Army Corps of Engineers and Los Angeles County to ensure dam structures are upgraded as</p>	X	X	X	X	X



GENERAL PLAN POLICIES (Note: Each of the policies includes a brief explanation as to applicability to the Local Hazard Mitigation Plan)	MITIGATION PLAN GOALS				
	Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
<p>needed to withstand earthquakes and prevent inundation of downstream areas.</p> <p>6-6.2 Work with the U.S. Army Corps of Engineers and Los Angeles County to encourage regular maintenance and monitoring of flood-control facilities.</p> <p>6-6.3 Complete the Chicken Creek flood control measures, and transfer operations and management to Los Angeles County.</p>					
<p>Goal: 6-7 Minimize the risks associated with urban and wildland fires.</p> <p>Policies:</p> <p>6-7.1 Work with the Fire Department to establish minimum standards for water supply and access for fire-fighting equipment.</p> <p>6-7-2 Work with Fire Department to enforce restrictions on vehicular and recreational use of foothill areas during critically hazardous periods.</p> <p>6-7.3 Enforce building fire codes and ordinances, and continue to research and adopt best practices pertaining to fire management and fire hazards.</p> <p>6-7.4 Work with the Fire Department to establish an aggressive fire inspection and code enforcement program.</p> <p>6-7.5 Continue to disseminate information relating to fire prevention measures and resident response to emergency situations, with the understanding that an informed public can greatly aid in the reduction of fire loss.</p> <p>6-7.6 Continue to work with Los Angeles County Weed Abatement Division to implement and enforce the county's systematic weed abatement program.</p>	X	X	X	X	X



GENERAL PLAN POLICIES (Note: Each of the policies includes a brief explanation as to applicability to the Local Hazard Mitigation Plan)	MITIGATION PLAN GOALS				
	Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
<p>Goal: 6-8 Minimize the improper storage and dumping of hazardous waste materials.</p> <p>Policies:</p> <p>6-8.1 Educate residents regarding the types of household hazardous waste and proper manners of disposal, and continue to have yearly hazardous waste round-ups.</p> <p>6-8.2 Utilize the Los Angeles County Hazardous Waste Management Plan as a guide to future hazardous waste management planning efforts.</p> <p>6-8.3 Continue to require that all proposals for businesses involved in hazardous materials use, storage, or transport areas submit a hazards safety plan to appropriate City agencies, and the County Fire Department for review of potential hazards.</p> <p>6-8.4 Inform residents about the dangers of improper disposal of hazardous materials.</p>	X	X	X	X	X
<p>Goal: 6-9 Provide effective and comprehensive policing services and enforce laws in an equitable way.</p> <p>Policies:</p> <p>6-9.1 Provide a state-of-the-art Police Station and up-to-date emergency communications technology for the Claremont Police Department.</p> <p>6-9.2 Continue to encourage design concepts that inhibit criminal behaviors.</p> <p>6-9.3 Provide timely responses to emergency and non-emergency calls for service 24 hours a day.</p> <p>6-9.4 Strive for the smooth and efficient movement of traffic throughout the community.</p> <p>6-9.5 Recruit, hire, and train personnel to provide public service in an unbiased manner.</p> <p>6-9.6 Continue to develop and implement community oriented Policing Project to foster accountability, mutual</p>	X	X	X	X	X



GENERAL PLAN POLICIES (Note: Each of the policies includes a brief explanation as to applicability to the Local Hazard Mitigation Plan)	MITIGATION PLAN GOALS				
	Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
<p>trust, and respect between the community and the Police Department.</p> <p>6-9.7 Assign personnel and resources, such that each police patrol unit can maintain 30 to 35 percent “free patrol” time to provide preventative crime patrol, proactive traffic enforcement and regulation, and community-oriented public safety service.</p> <p>6-9.8 Initiate proactive crime suppression and prevention strategies throughout the community.</p> <p>6-9.9 Provide additional, cost-effective public safety services through the utilization of volunteers in our Police Reserve Officer, Community Patrol Volunteer Program, Explorer Program, Traumatic Intervention Service, Chaplain Volunteer Program, and Community Emergency Response Team (CERT).</p> <p>6-9.10 Participate in school liaison activities such as Healthy Start Collaborative Program (School Resource Officer), on-campus probation officer, Drug Abuse Resistance Education (D.A.R.E.), Adopt-a-Cop, Red Ribbon Week, School Attendance Review Board (SARB), and other joint police/school district projects that may be developed in the future.</p> <p>6-9.11 Participate in community outreach activities such as Neighborhood Watch, Business Crime Watch, security surveys, crime prevention presentations, Cubs for Kids, Designated Driver, Bike Safety Rodeos, CERT, Citizen’s Academy, and other activities that may be developed in the future.</p> <p>6-9.12 Continue to monitor gang activities in the community, and work with surrounding jurisdictions and outside groups and organizations to prevent criminal activities and gang violence.</p>					
<p>Goal: 6-10 Strive to maintain the highest level of emergency preparedness for natural and human-caused disasters and threats.</p>	X	X	X	X	X



GENERAL PLAN POLICIES (Note: Each of the policies includes a brief explanation as to applicability to the Local Hazard Mitigation Plan)	MITIGATION PLAN GOALS				
	Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
<p>Policies:</p> <p>6-10.1 Educate residents of hazards and threats addressed in the Claremont Emergency Plan/SEMS Multi-hazard Functional Plan and the Natural Hazard Mitigation Basic Plan, and use these plans as a guide to prevention and mitigation of natural and human-caused hazards.</p> <p>6-10.2 Educate City staff to follow established procedures and responsibilities stated in the Emergency Plan/SEMS Multi-hazard Functional Plan and the Natural Hazard Mitigation Basic Plan in the event of an emergency.</p> <p>6-10.3 Complete implementation of a reverse 911 system to facilitate evacuation in case of an emergency.</p> <p>6-10.4 Respond to emergency calls for service within an average of less than four minutes.</p> <p>6-10.5 Work to ensure the adequacy of disaster response and coordination of all segments and populations in the community.</p> <p>6-10.6 Continue to have a paramedic squad assigned within Claremont boundaries.</p>					

National Flood Insurance Program

The City of Claremont participates in the National Flood Insurance Program (NFIP). Established by Congress in 1968, the NFIP provides federally-backed flood insurance to homeowners, renters, and businesses in communities that adopt and enforce floodplain management ordinances to reduce future flood damage. The City of Claremont adopted a floodplain management ordinance and has Flood Insurance Rate Maps (FIRM) that show floodways, 100-year flood zones, and 500-year flood zones. The FEMA FIRM maps for the City of Claremont were last updated September 26, 2008 (See *Flooding Hazard Analysis*).



The City has been designated as NSFHA (No Special Flood Hazard Area). As of the end of April 2021⁸, there were 38 properties in Claremont insured under NFIP, with a total insured value of approximately \$11.4 million. Since the start of the program, there have been 5 claims reported within Claremont with a total amount of payments issued totally \$6,485.

Goals

The Planning Team reviewed and validated the mitigation goals established in the prior plan. Based on current hazard profiles and knowledge of existing vulnerabilities and capabilities, appropriate revisions were made to the goals and relevant action items. The goals are based on the risk assessment and represent a long-term vision for hazard reduction or enhanced mitigation capabilities. They are compatible with community needs and goals expressed in other planning documents prepared by the City.

Each goal is supported by mitigation action items. The Planning Team developed these action items through its knowledge of the local area, risk assessment, review of past efforts, identification of mitigation activities, and qualitative analysis.

The five mitigation goals are as follows:

1. Protect Life and Property

- Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural, human-caused, and technological hazards.
- Improve hazard assessment information to make recommendations for avoiding new development in high hazard areas and encouraging preventative measures for existing development in areas vulnerable to natural, human-caused, and technological hazards.

2. Enhance Public Awareness

- Develop and implement education and outreach programs to increase public awareness of the risks associated with natural, human-caused, and technological hazards.
- Provide information on tools; partnership opportunities, and funding resources to assist in implementing mitigation activities.

3. Preserve Natural Systems

- Support management and land use planning practices with hazard mitigation to protect life.

⁸ NFIP Policy and Loss Data by Geography (HUDEX) as of 4/30/21 Accessed: <https://nfipservices.floodsmart.gov/reports-flood-insurance-data>



- Preserve, rehabilitate, and enhance natural systems to serve hazard mitigation functions.

4. Encourage Partnerships and Implementation

- Strengthen communication and coordinate participation with public agencies, citizens, non-profit organizations, business, and industry to support implementation.
- Encourage leadership within the City and public organizations to prioritize and implement local and regional hazard mitigation activities.

5. Strengthen Emergency Services

- Establish policy to ensure mitigation projects for critical facilities, services, and infrastructure.
- Strengthen emergency operations by increasing collaboration and coordination among public agencies, non-profit organizations, business, and industry.
- Coordinate and integrate hazard mitigation activities where appropriate, with emergency operations plans and procedures.

Mitigation Action Items

The action items are a listing of activities in which City agencies and citizens can be engaged to reduce risk. Each action item includes an estimate of the timeline for implementation.

The action items are organized within the following Mitigation Actions Matrix, which lists all of the multi-hazard (actions that reduce risks for more than one specific hazard) and hazard-specific action items included in the mitigation plan. Data collection and research and the public participation process resulted in the development of these action items (**Section 3: Planning Process**).

To address these hazards, the Planning Team identified 30 mitigation projects across the following categories:

- Multi-Hazard (MH)
- Fire (FR)
- Earthquake (EQ)
- Severe Weather – includes Windstorm (SW)
- Flood (FLD)
- Landslide (LND)
- Cyber (CYB)

While the Planning Team identified drought as a hazard, there were no specific mitigation action items were identified as it was the lowest priority hazard and resources are limited.



The City will continue to evaluate this hazard during the annual review of the LHMP and will consider adding mitigation action items as they are identified.

The Mitigation Actions Matrix includes the following information for each action item:

Funding Source

The action items can be funded through a variety of sources, possibly including operating budget/general fund, development fees, Community Development Block Grant (CDBG), other Grants, private funding, Capital Improvement Plan, and other funding opportunities.

Potential FEMA Grant Funding Sources include:

Hazard Mitigation Grant Program (HMGP): FEMA’s Hazard Mitigation Grant Program provides funding to state, local, tribal and territorial governments so they can rebuild in a way that reduces, or mitigates, future disaster losses in their communities. This grant funding is available after a presidentially declared disaster.

Flood Mitigation Assistance (FMA): The Flood Mitigation Assistance Program is a competitive grant program that provides funding to states, local communities, federally recognized tribes and territories. Funds can be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program.

Building Resilient Infrastructure and Communities (BRIC): Building Resilient Infrastructure and Communities will support states, local communities, tribes and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards.

Coordinating Organization

The Mitigation Actions Matrix assigns primary responsibility for each of the action items. The hierarchies of the assignments vary – some are positions, others departments, and other committees. The primary responsibility for implementing the action items falls to the entity shown as the “Coordinating Organization.” The coordinating organization is the agency with regulatory responsibility to address hazards, or that is willing and able to organize resources, find appropriate funding, or oversee activity implementation, monitoring, and evaluation. Coordinating organizations may include local, county, or regional agencies that are capable of or responsible for implementing activities and programs.

Plan Goals Addressed

The Plan goals addressed by each action item are included to monitor and evaluate how well the mitigation plan is achieving its goals once implementation begins.

The Plan goals are organized into the following five areas:

- ✓ Protect Life and Property



- ✓ Enhance Public Awareness
- ✓ Preserve Natural Systems
- ✓ Encourage Partnerships and Implementation
- ✓ Strengthen Emergency Services

Economic Analysis of Mitigation Projects

FEMA's approach to identify the costs and benefits associated with hazard mitigation strategies, measures, or projects fall into two general categories: benefit/cost analysis and cost-effectiveness analysis.

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

For federal funded projects, the Planning Team will use a FEMA-approved benefit/cost analysis approach to identify and prioritize mitigation action items. For other projects and funding sources, the Planning Team will use other approaches to understand the costs and benefits of each action item and develop a prioritized list.



Ranking Priorities

To assist with implementing the Hazard Mitigation Plan the Planning Team adopted the following process for ranking mitigation action items. Designations of “High”, “Medium”, and “Low” priority have been assigned to each action item using the following criteria:

Does the Action:

- solve the problem?
- address Vulnerability Assessment?
- reduce the exposure or vulnerability to the highest priority hazard?
- address multiple hazards?
- benefits equal or exceed costs?
- implement a goal, policy, or project identified in the General Plan or Capital Improvement Plan?

Can the Action:

- be implemented with existing funds?
- be implemented by existing state or federal grant programs?
- be completed within the 5-year life cycle of the LHMP?
- be implemented with currently available technologies?

Will the Action:

- be accepted by the community?
- be supported by community leaders?
- adversely impact segments of the population or neighborhoods?
- require a change in local ordinances or zoning laws?
- positive or neutral impact on the environment?
- comply with all local, state and federal environmental laws and regulations?

Is there:

- sufficient staffing to undertake the project?
- existing authority to undertake the project?

Answers to the criteria above determined the priority according to the following scale:

Priority Ranking	Scale
Low Priority	1-6
Medium Priority	7-12
High Priority	13-18

The Planning Team met to review the prioritization of current projects as well as the prioritization of new mitigation projects that were added. The Planning Team reviewed the criteria and affirmed the prioritization of ongoing or delayed projects and ranked new projects accordingly.



Mitigation Actions Matrix

Following is Table 16: Mitigation Actions Matrix which identifies the existing and future mitigation activities developed by the Planning Team.



Table 16: Mitigation Actions Matrix

Action Item	Accomplishments (+) and Ideas for Implementation (-)	Responsible Entity	Timeframe	Funding Source (GF=General Fund, GR=Grant, Other as Noted)	Ranking (H=High, M=Medium, L=Low)
Multi-Hazard Action Items					
MH-1 Emergency Training	+ Continue to conduct training and coordinate mock emergency exercises so that emergency responders are prepared.	Police Department - Emergency Services Coordinator	Ongoing	GF	H
MH-2 Community Outreach	+ Provide information regarding local hazards and steps residents can take to be prepared: <ul style="list-style-type: none"> • Claremont CERT • City Website • Social Media and other publications 	Police Department- Emergency Services Coordinator, Local Chapter American Red Cross, Fire Department	Ongoing	GF	H
MH-3 Alerts and Warning	+ Continue to use Everbridge for emergency notifications. + Continue to use social media to disseminate hazards and information regarding emergency situations.	Police Department	Ongoing	GF, GR	H
MH-4 Zoning and General Plan	- Review land use designations for identified hazard areas in order to minimize development density in disaster-prone areas while recognizing the private	Community Development Department - Planning Division through the	Ongoing	GF	H



	property owner's rights. The only mapped areas presently are for liquefaction.	General Plan update process			
MH-5 Backup Power	+ Continue to maintain emergency electrical backup for City facilities.	Community Services Department	Ongoing	GF	H
MH-6 New Backup Power	- Provide emergency electrical backup to Joslyn Center.	Police Department	5 years	GR, FEMA BRIC	H
MH-7 Amend Building and Fire Codes	+ Amend building and fire codes for commercial and residential buildings to align with revisions from the California Building Codes or other mandatory guidance.	Community Development Department - Building Division	Ongoing	GF	H
MH-8 Development Review	+ Design roads with sufficient width and number of access points to facilitate the safe egress from disaster-prone areas in an expeditious fashion while allowing emergency personnel clear access into the disaster area	Community Development Department - Engineering and Planning Divisions, County of Los Angeles Public Works, Los Angeles County Fire, other Partnering Agencies	Ongoing	GF, GR FEMA BRIC	H
MH-9 Capital Improvement Plan	+ Continue to consider means to minimize the impacts from hazards when updating the CIP, including:	Community Services Department, Community	Ongoing	GF	H



	<ul style="list-style-type: none"> • Development/extension of roads and other critical infrastructure into disaster-prone areas in a manner that reduces vulnerability. • Upgrading the sizes of culverts or installation of new drainage structures to eliminate the ponding of water on roads • Other means of minimizing impacts of hazards 	Development Department			
MH-10 American Red Cross Shelter Readiness Program	<p>+ Participate in the American Red Cross Shelter Readiness Program</p> <ul style="list-style-type: none"> • Establish a Facility Use Agreement 	Police Department	1 Year	GF	H
MH-11 Resiliency Project	- Implement solar power with battery backup to help with resiliency at several City facilities including Hughes Center, City Yard, Police Department and Taylor Hall (Part of Trane Energy Improvement Project).	Community Services Department	2 Years	Other: Cash flow neutral project funded by repayable loans that will be offset and paid for by energy, operations, and maintenance savings	H

Fire Action Items



FR-1 Fire Mitigation and Community Preparedness Outreach	<p>+ Continue to update the Community about fire mitigation efforts on the City website, social media, weekly updates, and a quarterly newsletter in order to:</p> <ul style="list-style-type: none">• Encourage property owners in the Urban Interface area to conduct brush clearance in accordance with Los Angeles County Fire Department Standards. The Los Angeles County Fire Department will conduct brush inspections during the fire season in addition to inspecting hydrants and helicopter spots.• Encourage homeowners to have their chimneys inspected and cleaned.• Encourage property owners in the Urban Interface areas to remove cumulative debris that could contribute to the spread of wildfires.• Encourage residents to change the batteries regularly in their smoke detectors. In addition, have an operable fire home fire extinguisher.	Administrative Services/ Public Information Officer, Los Angeles County Fire Department	Ongoing	GF	H
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	<ul style="list-style-type: none"> Educate residents regarding the proper evacuation procedures by encouraging them to develop an evacuation plans and practice emergency drills. 				
FR-2 Fire Extinguisher Training	+ Offer fire extinguisher training for City personnel; training is scheduled annually with fire equipment recharging.	Police Department-Emergency Services Coordinator, CERT	Ongoing	GF	H
FR-3 General Water Infrastructure	- Install water infrastructure improvements in support of fire flows in the Claraboya area	Golden State Water	3 years	Private Enterprise Funds	H
FR-4 Tree Removal	- As a fire prevention measure, remove the Eucalyptus trees in Sycamore Canyon.	Community Services Department	5 years	GR	M
FR-5 Brush Clearance	+ Every May the Fire Department notifies brush clearance directives to private property owners.	Los Angeles County Fire Department	Annually	GF	L
FR-6 Brush Clearance	- Fund brush clearing project for City-owned properties.	Community Services	Annually	GF, GR	H
Earthquake Action Items					
EQ-1 Hillside Ordinance	+ Continue to implement existing hillside ordinance that clusters development and creates open space. When homes are developed in accordance with the City's hillside ordinance, care will be taken in the siting of the home to	Community Development Department - Planning Division	Ongoing	GF	L



	be setback from the slopes outside of the “convection cone” of intense heat. The City will work with the local Fire authority in determining the appropriate placement of homes.				
EQ-2 Grading Plans	+ Continue to require grading plans and geotechnical reports for development	Community Development Department - Engineering Division	Ongoing	GF	L
EQ-3 Police Station	- Identify funding to perform seismic and safety retrofits to the Police Station and/or identify funding to replace the existing facility.	Police Department	5 years	GF	H
Severe Weather Action Items					
SW-1 Street Tree Management	+ Continue to regularly prune trees and inspect for disease in accordance with the City’s established tree maintenance policies	Community Services Department	Ongoing	GF, Landscape and Lighting District (LLD) for Tree Maintenance	H
SW-2 Underground Utilities	+ Continue to require the undergrounding of utilities with new construction. Also, explore funding programs/methods to underground existing overhead utility lines throughout the City	Community Development Department	Ongoing	GF, GR FEMA BRIC	H
SW-3 Retrofit A/C Units	- Retrofit air conditioning units in City facilities to be compatible with emergency backup generators.	Community Services Department	3 years	Repayable loans that would be offset and	H



				paid for by energy, operations and maintenance savings	
Flood Action Items					
FLD-1 Drainage System maintenance	+ Review and maintain local drainage facilities to ensure adequate carrying capacity during times of storms	Community Services Department, Community Development Department – Engineering, Los Angeles County Department of Public Works	Ongoing	GF, GR FEMA FMA	H
FLD-2 Flood insurance	+ Encourage local homeowners to purchase flood insurance as needed + Inform FEMA as modifications/upgrades are made to our municipal storm drain system	Community Development Department - Engineering Division	Ongoing	GF	H
FLD-3 On-site Drainage facilities	+ Continue to implement the requirements of the National Pollutant Discharge Elimination System municipal permit for new development, including retention of the first 3/4" rainfall as required (1 acre and above)	Community Development Department - Engineering Division	Ongoing	GF	H
Landslide Action Items					



LND-1 Debris clearance	+ Continue to clear debris to ensure efficient functioning of drainage system.	Community Services	Ongoing	GF	H
Cyber Action Items					
CYB-1 Cyber Security Training	- Ensure training protocols reflect current and industry best practices in the fields of cyber, information, and critical infrastructure security. Where necessary or applicable, integrate cyber-security training in staff's professional annual training/development goals and/or performance reviews.	Administrative Services	1-2 years	GF	H
CYB-2 Employee Training	- Establish and conduct annual employee training on privacy and security policies and incident response procedures	Administrative Services/ Information Technology	1-2 years	GF	H
CYB-3 Back up System	- Purchase cloud-based back-up system to simplify disaster recovery efforts.	Administrative Services/ Information Technology	3 years	GF	H



Section 6: Plan Update

Planning Update

When conducting the update, the Planning Team reviewed the entire plan to ensure the information is current. There have been no changes in development that impacted Claremont's vulnerability to hazards since 2015. The Planning Team also reviewed the priorities and validated the priorities in the previously approved plan. Additionally, as detailed in **Section 2: Planning Process**, the Planning Team updated the hazards to include Cyber Disruption and Drought, and also evaluated Climate Change in the Risk Assessment for all hazards. This updated plan reflects the progress in local mitigation efforts, as outlined in the Mitigation Progress Report below.

Mitigation Progress Report

In the prior plan, the Hazard Mitigation Planning Team identified five natural hazards on which to focus their mitigation efforts. The hazards identified were earthquakes, flooding, wildfires, landslides, and windstorms. To address these hazards, the prior Planning Team identified 29 mitigation projects across the following categories:

- Multi-Hazard (MH)
- Fire (FR)
- Earthquake (EQ)
- Severe Weather (SW)
- Flood (FLD)
- Landslide (LND)

The City's mitigation strategy is derived from an 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 community for the future. This vision is based on informed assumptions, recognition of both mitigation challenges and opportunities and demonstrated by the goals and objectives outlined below. The mitigation measures identified under each objective include an implementation plan for each measure.

During the 2021 update, the Planning Team met to review the existing mitigation strategy and determine if the Plan needed to be revised. During the meeting, the Planning Team determined whether projects were completed, deferred, ongoing or no longer relevant. (See Table 20: Status of 2015 Mitigation Actions Matrix).

Eighteen mitigation action projects were designated as ongoing with relevant priorities. Several of ongoing projects were updated to reflect current efforts.



Three projects were completed and therefore were removed from the 2021 Mitigation Actions Matrix.

Five projects were deferred due to scheduling or funding delays and were included in the 2021 Mitigation Actions Matrix.

Table 17: Deferred Mitigation Action Projects

Project	Reason for Deferral
<p>MH-4 Zoning and General Plan Review land use designations for identified hazard areas in order to minimize development density in disaster-prone areas while recognizing the private property owner's rights. The only mapped areas presently are for liquefaction.</p>	<p>This item will be addressed during the revision to the General Plan Safety Element. Expected completion of this item is by 2022.</p>
<p>MH-6 New Backup Power Provide emergency electrical backup to Joslyn Center.</p>	<p>This item has been delayed due to lack of funding. Staff has applied for two grants that have not been successful. Claremont will continue to seek grant funding for this item and has set a 5-year timeline for completion.</p>
<p>FR-3 General Water Infrastructure Install water infrastructure for use during wildfires including water tank and access road above Claraboya area.</p>	<p>Golden State Water is currently designing water system infrastructure improvements in support of fire flows in the Claraboya area. The goal is to bid and construct these improvements in the fall of 2021 thru the spring of 2022. This item was updated accordingly.</p>
<p>FR-4 Tree Removal - As a fire prevention measure, remove the Eucalyptus trees in Sycamore Canyon.</p>	<p>This item is being addressed with the Sycamore Canyon Trail Project. Phase One was completed and Claremont is still working on funding and plans for Phase Two. Utilizing Proposition A funding, Phase One of the Sycamore Canyon trail repair project was completed. This primarily consisted of relocating the trail head and the installation of dozens of new steps. This work consisted of approximately 400 ft. of trail work. Of the 139 Eucalyptus trees in the canyon, 35 were removed as part of Phase One.</p> <p>Phase Two of this project will consist of additional trail work along the remaining 3,785.57ft. of trail. This work will ensure the</p>



	trail is safe and accessible for all visitors for years to come.
SW-3 Retrofit A/C Units Retrofit air conditioning units in City facilities to be compatible with emergency backup generators.	This project has been delayed due to funding restraints. The City recently completed an energy audit and is exploring a comprehensive project to replace A/C units, solar, and battery backup at multiple City facilities. The feasibility of having A/C units to run on battery backup or generators will be evaluated as part of this project development. Pending financing, this project will proceed in 2021-22.

Three projects were deleted as the Planning Team deemed they were no longer relevant.

Table 18: Removed Mitigation Action Projects

Project	Reason for Deletion
EQ-3 Retrofit Interchange - Seismic retrofit of interchange at Indian Hill Boulevard and Interstate 10	This bridge is rated good for seismic vulnerability and therefore is not on the priority list for CalTrans to retrofit.
LND-1 Landslide Prevention - Mitigate against landslide danger at Mt. Baldy Road and Fergus Falls	This item is no longer relevant as there is no planned work.
LND-3 Thompson Creek - Improvements to Thompson Creek Trail to eliminate debris accumulation and overflow (Mt. Avenue and Pomello)	This item is no longer relevant. The trail does not need improvements to eliminate debris accumulation though as it is a walking trail that is not highly susceptible to overflow.



Table 19: Status of 2015 Mitigation Action Projects

Mitigation Project	Completed	Removed	Deferred	Ongoing	Funding Source	Timeframe	Priority Ranking
Multi-Hazard Projects							
MH-1 Emergency Training +The City will continue to conduct training and coordinate mock emergency exercises so that emergency responders are prepared.				X	GF	Ongoing	High
MH-2 Community Outreach + Partner with outside agencies to provide information regarding local hazards and steps residents can take to be prepared. <ul style="list-style-type: none"> • Claremont CERT • Brochures on Website 				X	GF	Ongoing	High
MH-3 Review of Technology + Purchased an electronic early warning system in order to notify residents of impending emergencies or to distribute critical information. + Purchased a reverse 9-1-1 type system to warn residents of any potential hazards (Everbridge). + Neighborhood eWatch	X				GF, GR	Ongoing	High
MH-4 Zoning and General Plan - Review land use designations for identified hazard areas in order to minimize development density in disaster-prone areas while recognizing the private property owner’s rights. The only mapped areas presently are for liquefaction.			X		GF	Ongoing	High
MH-5 Backup Power + Continue to maintain emergency electrical backup for City facilities.				X	GF	Ongoing	High
MH-6 New Backup Power			X		GR	1 Year	High



Mitigation Project	Completed	Removed	Deferred	Ongoing	Funding Source	Timeframe	Priority Ranking
- Provide emergency electrical backup to Joslyn Center.							
MH-7 Amend Building and Fire Codes + Amended Codes for commercial buildings. Now required to be sprinklered if building is greater than 10,000 square feet.				X	GF	Ongoing	High
MH-8 Additional Amendments to existing local Building and Fire Codes - Explore the possibility of amending the local Building Codes to include the following provisions: <ul style="list-style-type: none"> • Dry Flood-proofing • Wet Flood-proofing • Pad Elevations above flood levels • Strapping foundations • Tying down manufactured homes • Use of post tensioned slabs in liquefaction areas. 	X				GF/GR	Ongoing	Medium
MH-9 Capital Improvement Program (CIP) + Continue to biennially update the following items: <ul style="list-style-type: none"> • Development/extension of roads and other critical infrastructure into disaster-prone areas in a manner that reduces vulnerability. • Upgrading the sizes of culverts or installation of new drainage structures to eliminate the ponding of water on roads • Repair and maintain drainage swales when damaged from extensive rainfall • Other means of minimizing impacts of hazards 				X	GF	Biannually	High



Mitigation Project	Completed	Removed	Deferred	Ongoing	Funding Source	Timeframe	Priority Ranking
MH-10 Development Review + Roads should be designed of sufficient width and number of access points to facilitate the safe egress from disaster-prone areas in an expeditious fashion while allowing emergency personnel clear access into the disaster area				X	GF	Ongoing	High
MH-11 Road Improvement - Seek funding and improve infrastructure at Webb Canyon and Mt. Baldy including road widening, culverts, and drainage improvements	X				GR	5 Years	High
Fire Projects							
FR-1 Property Maintenance The City will include yearly reminder in the City newsletter and on the City website to: <ul style="list-style-type: none"> • Encourage property owners in the Urban Interface area to conduct brush clearance in accordance with Los Angeles County Fire Department Standards. The Los Angeles County Fire Department will conduct brush inspections during the fire season in addition to inspecting hydrants and helicopter spots. • Encourage homeowners to have their chimneys inspected and cleaned. • Encourage property owners in the Urban Interface areas to remove cumulative debris that could contribute to the spread of wildfires. 				X	GF	Ongoing	High



Mitigation Project	Completed	Removed	Deferred	Ongoing	Funding Source	Timeframe	Priority Ranking
<ul style="list-style-type: none"> Encourage residents to change the batteries regularly in their smoke detectors. In addition, have an operable fire home fire extinguisher. Encourage residents regarding the proper evacuation procedures by creating an evacuation education and drill program for residents 							
FR-2 Fire Extinguisher Training + The City offers fire extinguisher training for its residents and City personnel. Schedule annually with fire equipment recharging.				X	GF	Ongoing	High
FR-3 General Water Infrastructure - Install water infrastructure for use during wildfires including water tank and access road above Claraboya area.			X		Private Enterprise Funds, GR	5 years	High
FR-4 Tree Removal - As a fire prevention measure, remove the Eucalyptus trees in Sycamore Canyon.			X		GR	5 years	Medium
FR-5 Brush Clearance + Every May the Fire Department notifies brush clearance directives to private property owners.				X	GF	Annual	Low
FR-6 Brush Clearance - Fund brush clearing project for City-owned properties.				X	GF, GR	Annual	High
Earthquake Projects							



Mitigation Project	Completed	Removed	Deferred	Ongoing	Funding Source	Timeframe	Priority Ranking
EQ-1 Hillside Ordinance + Continue to implement existing hillside ordinance that clusters development and creates open space. When homes are developed in accordance with the City’s hillside ordinance, care will be taken in the siting of the home to be setback from the slopes outside of the “convection cone” of intense heat. The City will work with the local Fire authority in determining the appropriate placement of homes.				X	GF	Ongoing	Low
EQ-2 Grading Plans + Continue to require grading plans and geotechnical reports for development.				X	GF	Ongoing	Low
EQ-3 Retrofit Interchange - Seismic retrofit of interchange at Indian Hill Boulevard and Interstate 10.		X			GR	5 years	High
Severe Weather Projects							
SW-1 Street Tree Management + Continue to regularly prune trees and inspect for disease in accordance with the City’s established tree maintenance policies.				X	GF, GR	Ongoing	High
SW-2 Underground Utilities + Continue to require the undergrounding of utilities with new construction. Also, explore funding programs/methods to underground existing overhead utility lines throughout the City				X	GF	Ongoing	High
SW-3 Retrofit A/C Units - Retrofit air conditioning units in City facilities to be compatible with emergency backup generators.			X		GR	1 Year	High



Mitigation Project	Completed	Removed	Deferred	Ongoing	Funding Source	Timeframe	Priority Ranking
Flood Projects							
FLD-1 Drainage System Maintenance + Review and maintain local drainage facilities to ensure adequate carrying capacity during times of storms				X	GF	Ongoing	High
FLD-2 Flood Insurance + Encourage local homeowners to purchase flood insurance as needed. + Inform FEMA as modifications/ upgrades are made to our municipal storm drain system and to remap portion of Flood Zone D areas.				X	GF	Ongoing	High
FLD-3 On-site Drainage Facilities + Continue to implement the requirements of the National Pollutant Discharge Elimination System municipal permit for new development, including retention of the first ¾” rainfall as required (1 acre and above).				X			
Landslide Projects							
LND-1 Landslide Prevention - Mitigate against landslide danger at Mt. Baldy Road and Fergus Falls.		X			GR	5 years	High
LND-2 Debris clearance - Mitigate issues related to debris clearance to ensure efficient functioning of drainage system.				X	GF	5 years	High
LND-3 Thompson Creek - Improvements to Thompson Creek Trail to eliminate debris accumulation and overflow (Mt. Avenue and Pomello).		X			GR	5 years	High



Section 7: Plan Maintenance

The Plan Maintenance section of this document details the formal process that will ensure that the Mitigation Plan remains an active and relevant document. The plan maintenance process includes a schedule for monitoring and evaluating the Plan annually and producing a plan revision every five years. This section describes how the City will integrate public participation throughout the plan maintenance process.

Method and Scheduling of Plan Implementation

The Planning Team that was involved in research and writing of the Plan will also be responsible for implementation. The Committee will be led by a Planning Department Senior Planner. Please refer to **Section 2: Planning Process** of the Plan for a full list of Planning Team members.

	Year 1	Year 2	Year 3	Year 4	Year 5
Monitoring	X	X	X	X	X
Evaluating					X
Updating					X

Monitoring and Implementing the Plan

Plan Adoption

Adoption of the Mitigation Plan by the City’s governing body is one of the prime requirements for approval of the plan. Once the plan is completed, the City Council will be responsible for adopting the Mitigation Plan. The governing body has the responsibility and authority to promote sound public policy regarding hazards. The local agency governing body will have the authority to periodically update the plan as it is revised to meet changes in the hazard risks and exposures in the City. The approved Mitigation Plan will be significant in the future growth and development of the City.

The City Council will be responsible for adopting the Mitigation Plan. This governing body has the authority to promote sound public policy regarding hazards. Once the plan has been adopted, the Assistant City Manager will be responsible for submitting it to the State Hazard Mitigation Officer at California Office of Emergency Services (CalOES). CalOES will then submit the plan to the Federal Emergency Management Agency (FEMA) for review and approval. This review will address the requirements set forth in 44 C.F.R. Section 201.6 (Local Mitigation Plans). Upon acceptance by FEMA, City of Claremont will gain eligibility for Hazard Mitigation Grant Program funds.



Convener

The City Council will adopt the Mitigation Plan and the Planning Team will take responsibility for plan maintenance and implementation. The Assistant City Manager will serve as a convener to facilitate the Planning Team meetings, and will assign tasks such as updating and presenting the Plan to the members of the Planning Team. Plan implementation and evaluation will be a shared responsibility among all of the Planning Team members. The Assistant City Manager will have authority to prepare and approve future amendments to the Mitigation Plan.

Planning Team

The Planning Team will be responsible for coordinating implementation of plan action items and undertaking the formal review process. The convener will assign representatives from City departments, divisions, and agencies, including, but not limited to, the current Planning Team.

In order to make the Planning Team as broad and useful as possible, the City Manager may choose to involve other relevant organizations and agencies in hazard mitigation. These additional appointments could include:

- ✓ A representative from the American Red Cross
- ✓ A representative from Los Angeles County Office of Emergency Services

The Planning Team will meet no less than semi-annually. Meeting dates will be scheduled once the final Planning Team has been established. These meetings will provide an opportunity to discuss the progress of the action items and maintain the partnerships that are essential for the sustainability of the mitigation plan.

Implementation through Existing Programs

The City of Claremont addresses statewide planning goals and legislative requirements through its General Plan, its Capital Improvement Plan, and City Building and Safety Codes. The Mitigation Plan provides a series of recommendations - many of which are closely related to the goals and objectives of existing planning programs. The City of Claremont will implement recommended mitigation action items through existing programs and procedures.

The City of Claremont Building and Safety Division is responsible for adhering to the State of California's Building and Safety Codes. In addition, the Planning Team will work with other agencies at the state level to review, develop and ensure Building and Safety Codes are adequate to mitigate or prevent damage by hazards. This is to ensure that life-safety criteria are met for new construction.

Some of the goals and action items in the Mitigation Plan will be achieved through activities recommended in the CIP. Various City departments develop the CIP and review it on an annual basis. Upon annual review of the CIP, the Planning Team will work with



the City departments to identify areas that the Mitigation Plan action items are consistent with CIP goals and integrate them where appropriate.

Within six months of formal adoption of the Mitigation Plan, the recommendations listed above will be incorporated into the process of existing planning mechanisms at the City level. The meetings of the Planning Team will provide an opportunity for Planning Team members to report back on the progress made on the integration of mitigation planning elements into City planning documents and procedures.

Evaluating and Updating the Plan

Formal Review Process

The Mitigation Plan will be evaluated on an annual basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities. The evaluation process includes a firm schedule and timeline, and identifies the agencies and organizations participating in plan evaluation. The Convener or designee will be responsible for contacting the Planning Team members and organizing the annual meeting. Planning Team members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan.

The Planning Team will review the goals and action items to determine their relevance to changing situations in the City, as well as changes in State or Federal policy, and to ensure they are addressing current and expected conditions. The Planning Team will also review **Section 4: Risk Assessment** portion of the Plan to determine if this information should be updated or modified, given any new available data. The coordinating organizations responsible for the various action items will report on the status of their projects, the success of various implementation processes, difficulties encountered, success of coordination efforts, and which strategies should be revised.

The Convener will assign the duty of updating the Plan to one or more of the Planning Team members. The designated Planning Team members will have three months to make appropriate changes to the Plan before submitting it to the Planning Team members. The Planning Team will also notify all holders of the City plan when changes have been made. Every five years the updated plan will be submitted to the State Hazard Mitigation Officer at the California Emergency Management Agency and the Federal Emergency Management Agency for review. The Assistant City Manager is authorized to approve future updates and amendments to the Mitigation Plan.

Continued Public Involvement

The City of Claremont is dedicated to involving the public directly in the continual review and updates to the Mitigation Plan. Copies of the plan will be catalogued and made available at City Hall and at all City operated public libraries. The existence and location of these copies will be publicized in City newsletters and on the City website. This site will also contain an email address and phone number where people can direct their comments and concerns. A public meeting will also be held after each evaluation or when



deemed necessary by the Planning Team. The meetings will provide the public a forum in which they can express their concerns, opinions, or ideas about the Plan.

The Public Information Officer will be responsible for using City resources to publicize the annual public meetings and maintain public involvement through the public access channel, web page, and newspapers.



Appendix 1: City Council Resolution

RESOLUTION NO. 2021-50

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CLAREMONT, CALIFORNIA, ADOPTING THE LOCAL HAZARD MITIGATION PLAN (LHMP) UPDATE

WHEREAS, the preservation of life and property is an inherent responsibility of local, state, and federal government; and

WHEREAS, the City of Claremont developed, adopted, and maintains a Local Hazard Mitigation Plan; and

WHEREAS, the goal of a Local Hazard Mitigation Plan is to minimize, reduce, or eliminate loss of life and/or property; and

WHEREAS, this Local Hazard Mitigation Plan represents a comprehensive description of the City's commitment to reducing, preventing, or eliminating potential impacts of disasters caused by natural and man-made hazards; and

WHEREAS, the City of Claremont must adopt an updated Local Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the City has undertaken a comprehensive planning effort in developing the Local Hazard Mitigation Plan update by organizing resources, assessing risks, and developing and implementing a mitigation plan and monitoring process; and

WHEREAS, the Local Hazard Mitigation Plan establishes a coordinated effort to support mitigation activities, and identifies measures to combat natural and man-made hazards within our City; and

WHEREAS, the City of Claremont agrees to adopt this Local Hazard Mitigation Plan and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the goals and objectives of hazard mitigation within the City of Claremont.

NOW, THEREFORE, BE IT RESOLVED by the Claremont City Council:

SECTION 1. The City Council adopts the updated Local Hazard Mitigation Plan included as an Exhibit to this resolution.

SECTION 2. The City Council directs staff to submit the City's adopted Local Hazard Mitigation to the California Office of Emergency Services (CalOES) and to the Federal Emergency Management Agency (FEMA) for final approval.

SECTION 3. The Mayor shall sign this Resolution and the City Clerk shall attest and certify to the passage and adoption thereof.

PASSED, APPROVED AND ADOPTED this 14th day of September, 2021.



Mayor, City of Claremont

ATTEST:



City Clerk, City of Claremont

APPROVED AS TO FORM:



City Attorney, City of Claremont

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES)ss.
CITY OF CLAREMONT)

I, Shelley Desautels, City Clerk of the City of Claremont, County of Los Angeles, State of California, hereby certify that the foregoing Resolution No. 2021-50 was regularly adopted by the City Council of said City of Claremont at a regular meeting of said Council held on the 14th day of September, 2021, by the following vote:

AYES: COUNCILMEMBERS: CALAYCAY, LEANO, MEDINA, REECE, STARK
NOES: COUNCILMEMBERS: NONE
ABSTENSIONS: COUNCILMEMBERS: NONE
ABSENT: COUNCILMEMBERS: NONE



City Clerk of the City of Claremont



Appendix 2: FEMA Virtual Meetings



VIRTUAL MEETINGS:

Guide to Virtual Hazard Mitigation Planning Meetings

This document details tips, resources, and potential platforms to facilitate and host effective virtual hazard mitigation planning meetings.

In any community, many stakeholders or planning partners can provide valuable input into the mitigation planning process, from local officials to regional planning authorities, local businesses, non-profits, and the public. Engaging these stakeholders throughout the hazard mitigation planning process ensures its success—but how can you do so successfully through virtual engagement?

Communities have different approaches to engaging partners, including meetings, open houses, conference calls, or webinars. As virtual strategies become more common, it's important to consider tips that make these as dynamic and interactive as face-to-face meetings. Collecting and recording feedback, which happens throughout the hazard mitigation planning process, can be done remotely using tips and tools that are readily available. In this guide, you'll find scalable ideas for making your virtual hazard mitigation planning process a success.

There are many ways to meet engagement requirements in the plan process: webinars, conference calls, direct phone calls, email exchanges, and forms or surveys. Webinars and conference calls are the most common alternatives to meeting in-person with jurisdictions. Direct phone calls and emails are useful to share important updates and reminders. Forms and surveys can help you solicit specific feedback on plan components. A multi-faceted approach can also help ensure you have received feedback from as many stakeholders as possible. No matter what method you use, be sure to consider simple ways you can improve the message.

SIMPLE TIPS FOR BETTER VIRTUAL ENGAGEMENT

- **Get Ready** – prepare for your meeting by sending out an agenda in advance and, when you can, allow participants to co-create the agenda to ensure there is more buy-in and interest in participating.
- **Start Strong** – when you start your meeting, consider sharing your video and encouraging participants to do the same to make your discussion feel more connected. Remind participants to mute their phones. Try including an icebreaker, along with introductions, when engaging new groups. Remember, when you are on a video conference, people can hear and see how you are feeling, so project your positive side when delivering information.
- **Respect Time** – start and end your meeting on time. Create a clear structure that follows your agenda and share it early in the presentation. You can even add a progress bar to your slides. Finally, make sure that your virtual meeting does not exceed 2 hours.
- **Mix It Up** – plan for two or three people to speak on a call, so people hear a variety of voices. Don't make your meetings solely a report out; that's what emails or print media are for. Use your meetings to discuss and problem solve.
- **Be Visual** – use smart design principles in your presentation that are not too text-heavy. Where possible, turn text into graphics and images that support your talking points. The presentation should be designed with the experience of the audience in mind.
- **Be Interactive** – call out names to engage your audience and provide time for additional questions or feedback at the end of the call. Explore the capabilities of your meeting platform beforehand to see whether you can use polls, breakout rooms, and whiteboards for real-time collaboration.
- **Plan Ahead** – anticipate technical issues by sending slides to participants in advance and ensuring participants have access to your platform. Provide a separate dial-in option for participants unable to join a webinar. Test all equipment and embedded video and audio by doing a practice run.



VIRTUAL STRATEGIES THROUGHOUT THE PLANNING PROCESS

The Federal Emergency Management Agency (FEMA) requires participation from each community seeking plan approval during plan development. Stakeholders and the public must also be given the opportunity to be involved in the planning process. However, there is no requirement for how this happens. You have the freedom to define a planning process that works for your community, and that includes using digital tools and alternative methods of outreach.

Whether you are organizing a virtual meeting or passing along guidance to another organizer, there are different approaches that you can consider and discuss to ensure you're designing the meeting with the audience in mind.

Initial Stakeholder Engagement

Use social media channels to meet stakeholders where they are and inform them about the upcoming planning process. Messages or short recorded videos shared on social media can help you get the word out about the importance of stakeholder involvement. While virtual engagement is ideal for maintaining face-to-face connections, remember that getting the word out is also effective through more traditional methods like radio, newspaper, mailers, and television. You can use your own networks if they can share information in newsletters or other communication channels. All these methods can help you share why stakeholder input is important, and how people can get involved. Whatever your approach, keep your message simple and direct.

Example: Region II is working with the U.S. Virgin Islands to record a short video message that encourages new stakeholders to participate in the hazard mitigation planning process.

Connect communities with existing webinars for online training or consider hosting one via a webinar platform that works best for you. (A summary of the features available on different webinar platforms and others is available in a table at the end of this guide.) Training provides an opportunity for communities and contractors alike to learn about the mitigation planning process and all the elements that FEMA requires for the plan, as well as how to make sure plans are usable and implementable by the community.

Example: IS-318, Mitigation Planning for Local and Tribal Communities, is a course offered by FEMA's Emergency Management Institute. It is a 12-hour interactive web-based course for plan writers and reviewers.

Kickoff Meetings

Host the project goals and documents on a website and share with stakeholders in advance of the first meeting. During the kickoff, share an engaging presentation that visually depicts the overall timeline, important considerations and requirements, and expectations for input. Punctuate the presentation with poll questions to learn where there are gaps in understanding or interest in specific issues.

Risk Assessment

When developing the Risk Assessment, it is important to understand the issues of greatest concern to participating communities. Think about creating an online poll, either sent by email or integrated into a presentation, to find out which hazards have the most impact on the community, as well as what assets are most vulnerable. Provide a section for additional comments to help get a more detailed local perspective.



Mitigation Strategy Meetings

Some communities hold meetings with FEMA and the State or Territory to review mitigation strategies in detail. Webinar platforms include tools for making these virtual sessions more collaborative. For example, virtual breakout rooms in some online platforms allow smaller groups to meet in a focused discussion. Real-time brainstorming and notetaking are also possible using screensharing or virtual whiteboards.

Individual Community Meetings

Coordinate with each community to decide which virtual engagement method works best for them. Conference calls or video conferences with a small group can be a suitable low-cost alternative for in-person meetings. These types of meetings provide an excellent opportunity for communities to discuss the direct impacts of hazards on their vulnerable populations and assets. They can then address these vulnerabilities by developing mitigation actions while they have access to an expert to guide them through the process. Consider creating simple, easy-to-use forms that can help guide your discussion and help you stay organized when taking notes.

Providing hard copies of forms and surveys is a good way to engage in areas where there are technological limitations. In each packet, include a cover letter that explains what each form is used for and why it's important, along with contact information for questions. Forms can include a risk evaluation on how hazards have either increased or decreased in their community or a request for a description of development trends since the previous plan, status updates for previous mitigation actions, or new mitigation actions.

Draft Hazard Mitigation Plan Feedback Session

As an alternative to holding public open houses, advertise the draft plan in newspapers and across social media platforms. Design a webpage where people can easily review different plan sections and comment on the plan. After distributing the plan, host and record a webinar or a live social media session where you address suggestions received. Use the chat box for participant questions during the session. If using a webinar platform, consider virtual breakout rooms to have more intimate discussions on different plan components.

Example: Some communities in Region X use Facebook Live to review draft HMPs.

Host the recorded session online along with a feedback form so those who missed your session can still review and provide additional comments.

OTHER CONSIDERATIONS

When exploring options for virtual engagement, consider inclusive and low-barrier options for those with limited access to technology. Some technologies do not require installation or are easy to set up. Some platforms are available on mobile phones, which may be preferable if individuals are working from home without a computer. Don't forget traditional ways of sharing and getting information out: radio announcements, mail, utility bills, newsletters, television interviews, local newspapers, door hangers, and windshield surveys.

Virtual engagements must also be accessible: consider whether translation is needed when designing your approach and make use of recording, live captions, and transcription capabilities. While recording is an option, it should be done carefully.

Know your local laws when it comes to open meetings and possible recordings. Laws are determined by the State or Territory, and most require consent before recording. Some virtual meeting platforms have optional recording consent functions built in.

Before selecting a virtual meeting tool, confirm that they meet security standards for everyone involved. You can prevent your meeting from being hijacked by unidentified individuals by making the meeting private, not sharing the meeting link on public online forums, using passwords or waiting rooms on certain meeting platforms, and limiting screensharing to the host only.

When choosing a virtual platform, if FEMA will be hosting the call or participating, make sure that you are using their approved methods, as there are security requirements that need to be vetted beforehand.

ADDITIONAL RESOURCES ON VIRTUAL MEETINGS TIPS AND TOOLS

- [What It Takes to Run a Great Virtual Meeting](#)
Harvard Business Review
- [Techniques for Facilitating Virtual Meetings](#)
Office for Coastal Management, DIGITALCOAST, National Oceanic and Atmospheric Administration (NOAA)





Appendix 3: Public Outreach Documentation

- 1. City LHMP Update Website**
- 2. Community Meeting #1 Invitations and Materials**
- 3. Community Meeting #2 Invitations and Materials**
- 4. Stakeholder Meeting Materials**
- 5. Community Meeting #3 Invitations and Materials**



1. City LHMP Update Website

Contact Us | E-Notification | News | Calendar | Online Services | Translate

City of CLAREMONT CALIFORNIA

69° Part Accessibility

HOME ABOUT US LIVING DOING BUSINESS VISITING GOVERNMENT HOW DO I... Search... GO

Want To Know More?
 City of Claremont 2015 Natural Hazards Mitigation Plan (PDF)
 Hazard Mitigation Planning | FEMA.gov

Government » Departments & Divisions » Police Department » Emergency Preparedness

LOCAL HAZARD MITIGATION PLAN UPDATE

Font Size: + - + Share & Bookmark Feedback Print

Local Hazard Mitigation Plan Update – Community Meeting
 Wednesday, July 14, 2020
 6:00 PM – 7:00 PM

The community is invited to participate in a meeting with staff and the City's consultant to review the draft Local Hazard Mitigation Plan Update. The meeting will be held via Zoom Webinar on Wednesday, July 14 at 6 PM. The City's Local Hazard Mitigation Plan must be updated every five years to ensure that the City properly assesses the probability of various types of natural and man-made hazards and their impacts to the community in order to maintain eligibility for State and Federal grant funding. With a plan in place, City staff can continue to prioritize projects and the City will continue to be eligible to obtain FEMA pre- and post- disaster grant funding.

[Click Here for Meeting Calendar Link](#)

Purpose

The City of Claremont is beginning the process of updating our Local Hazard Mitigation Plan (LHMP). The purpose of the update and the LHMP is to:

- Be compliant with FEMA requirements.
- Identify the City's natural, environmental, and man-made hazards.
- Develop a risk assessment and mitigation plan for those hazards.
- Improve emergency management during an event.
- Identify projects that could potentially reduce risks in the community.

The City's Hazard Mitigation Plan must be updated every five years to ensure that the City properly assesses the probability of various types of natural and man-made hazards and their impacts to the community in order to maintain eligibility for State and Federal Grant funding. With a plan in place, City staff can continue to prioritize projects and the City will continue to be eligible to obtain FEMA Mitigation Grant Funds if a disaster is declared.

How is our LHMP being prepared?

The City has assembled a Hazard Mitigation Planning Committee (HMPC), which includes representatives from public safety officials and City departments, and will guide the overall development of our LHMP. The HMPC is supported by engaged private citizens, key stakeholders, and technical consultants. Together, these participants form the project team responsible for preparing our plan.

What can I do now to be better prepared for disasters?

- Know the hazards that may affect you at your home, work, or school. You can find out more at <http://myhazards.caloes.ca.gov>
- Assemble an emergency kit for your home. In a disaster, you may have to rely on supplies in your emergency kit for at least three days. Be sure to include supplies for any pets and anyone in your home with special needs. Learn more at [Emergency Preparedness | City of Claremont](#).
- Have a disaster plan for your household, including how people should contact each other if a disaster occurs and where you should meet.
- Learn about your neighbors and how to help them. In a disaster, emergency responders may not be able to reach your neighborhood for a while. Know if your neighbors have any special needs, and be sure to check on them as soon as you can.
- Make sure your homeowner's or renter's insurance covers you from disasters such as earthquakes and floods. If these disasters occur, having good insurance coverage will help you recover easier.
- Volunteer with an emergency response or community service organization that does work on disaster education and preparation.
- Join Claremont's Community Emergency Response Team (CERT), a group of volunteers trained by the Claremont Police Department to assist emergency responders during disasters. Training is free and offered at times throughout the year. Learn more at [Community Emergency Response Team \(CERT\) | City of Claremont](#).

Police Department

- Proposed Police Facility
- About Us
- Annual Reports
- Community Meeting Videos
- Community Programs
- Crime Prevention
- Department Services
- Department Training and Policies
- Emergency Preparedness
 - Local Hazard Mitigation Plan
 - Local Hazard Mitigation Plan Update
 - Emergency Preparedness Forms
 - Employment Opportunities
- Inquiries & Information
 - Overnight Parking
 - Police Commission Updates
 - Police Press Releases
 - Police News
 - Reporting Neighborhood Concerns
- Vehicle & Traffic Safety
- Volunteer Opportunities
 - AB 109 Prop 47 Prop 57 Information
 - Contact Us



How Can You Get Involved?

We are seeking the community's help and input during the local LHMP process. If you have disaster-related stories and/or photographs that you would like to share, or you have comments or other information pertaining to natural hazard mitigation and the planning process please email us at contact@ci.claremont.ca.us. Any information or feedback that you can provide is both helpful and appreciated!

Local Hazard Mitigation Plan

Updated on 03/03/2021 2:07 PM



San Andreas Fault
Local Hazard Mitigation Plan

4 / 7

Start | Stop (3)



[Home](#) | [About Us](#) | [Living](#) | [Doing Business](#) | [Visiting](#) | [Government](#) | [How Do I...](#) | [Contact Us](#) | [Site Map](#)

City of Claremont | 207 Harvard Ave., Claremont, CA 91711 | Phone: 909-399-5460

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2. Community Meeting #1

Social Media Invitations

City Of Claremont
 ★ Favorites · Yesterday at 6:55 PM · 🌐

Join City staff and consultants for a presentation on the Housing Element update community input process, and an introduction to the City's Local Hazard Mit... See More

Claremont Housing Element Update

Virtual Community Meeting
Thursday, December 17
6:30 p.m. - 8:30 p.m.

Join City staff and consultants for a presentation on the Housing Element update community input process, and an introduction to the City's Local Hazard Mitigation Plan update. The Housing Element will identify potential sites in Claremont to meet the States requirement of 1707 new housing units. Find out more about the Housing Element Update www.claremontca.org/housingelement.
 Zoom Meeting Link: <https://zoom.us/j/92974038805>

8 7 Shares

Like Comment Share

[Learn More](#)

www.ci.claremont.ca.us

7:32

Instagram

cityofclaremont

Claremont Housing Element Update

Virtual Community Meeting
Thursday, December 17
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Liked by mommiemell and others

cityofclaremont Join City staff and consultants for a presentation on the Housing Element update community input process, and an introduction to the City's Local Hazard Mitigation Plan update. The Housing Element will identify potential sites in Claremont to meet the States requirement of 1707 new housing units. Find out more about the Housing Element Update www.claremontca.org/housingelement.
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LOCAL HAZARD MITIGATION PLAN



QUINNWILLIAMS



Julie Quinn
Partner



Katherine Williams
Partner

QuinnWilliams is Los Angeles-based public policy firm specializing in homeland security, emergency planning and crisis management

WHAT IS HAZARD MITIGATION?

Hazard mitigation is any action taken to reduce or eliminate the long-term risk to human life and property from hazards

- The goal is to reduce potential losses from future disasters

A **Local Hazard Mitigation Plan** identifies policies and actions that can be implemented over the long term to reduce risk and future losses

WHY ARE WE HERE?

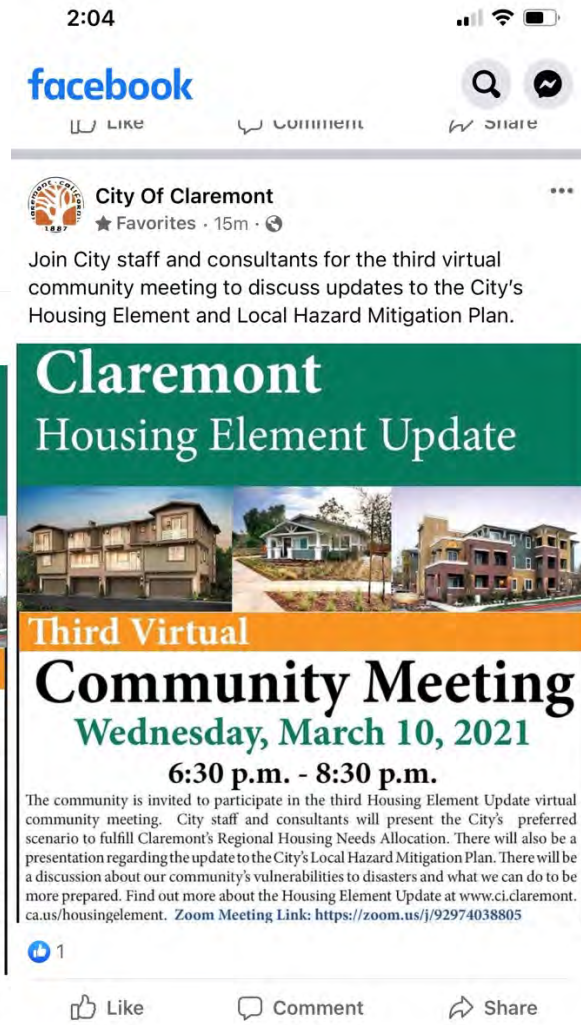
A community must review and revise their existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities and resubmit it for approval within five years

The goal of this project is to update Claremont's 2015 LHMP and submit it to FEMA for review



3. Community Meeting #2

Social Media Invitations



CITY OF
CLAREMONT

LOCAL HAZARD
MITIGATION PLAN

COMMUNITY
MEETING



RPC 2(b)(1)(c)

Julie Quinn
Katherine Williams



QuinnWilliams is Los Angeles-based public policy firm specializing in homeland security, emergency planning and crisis management

WHY ARE WE HERE?

Claremont is currently updating its **Local Hazard Mitigation Plan (LHMP)**, which will provide information about the community's vulnerabilities to disasters and what we can do to be more prepared

LHMP PROCESS

Major components of **LHMP** process:

- Determine the natural and human-caused hazards that pose a threat to our community
- Review which buildings and infrastructure are vulnerable to these hazards
- Outline a Hazard Mitigation Strategy with specific recommendations to help reduce the threat from these hazards
- Maintain and update the plan, keeping it current in the face of changing conditions
- Climate Change Adaptation Requirement

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- Climate Change Adaptation Requirement

RISK ASSESSMENT

Natural Hazards

- Drought
- Earthquake
- Flood
- Landslide
- Wildfire
- Windstorm



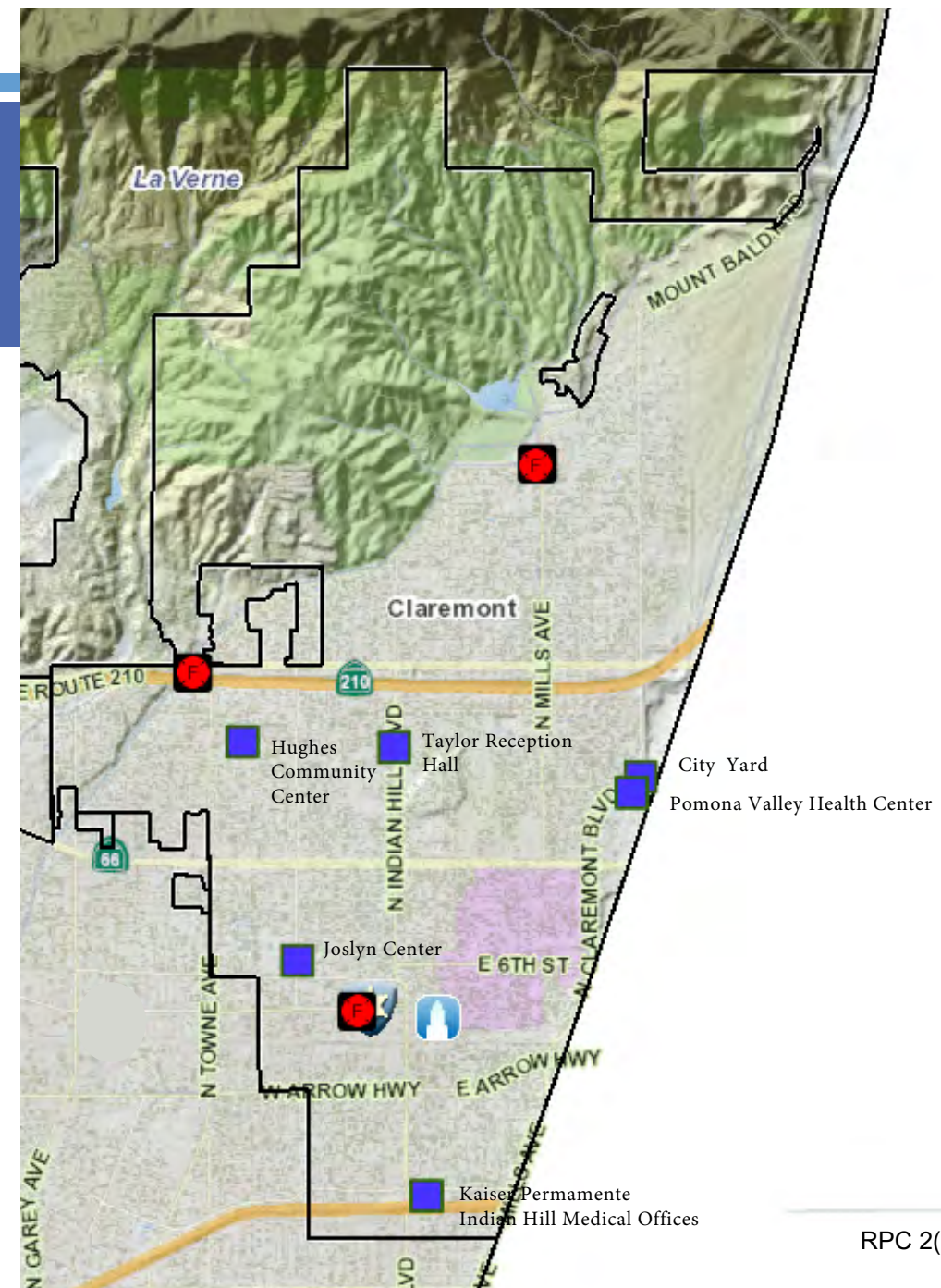
CRITICAL AND ESSENTIAL FACILITIES

Critical Facilities

- City Hall
- Claremont Police Station
- LA County Fire Stations
- City Yard

Essential Facilities

- Hughes Community Center
- Taylor Reception Hall
- Joslyn Center
- Medical Centers

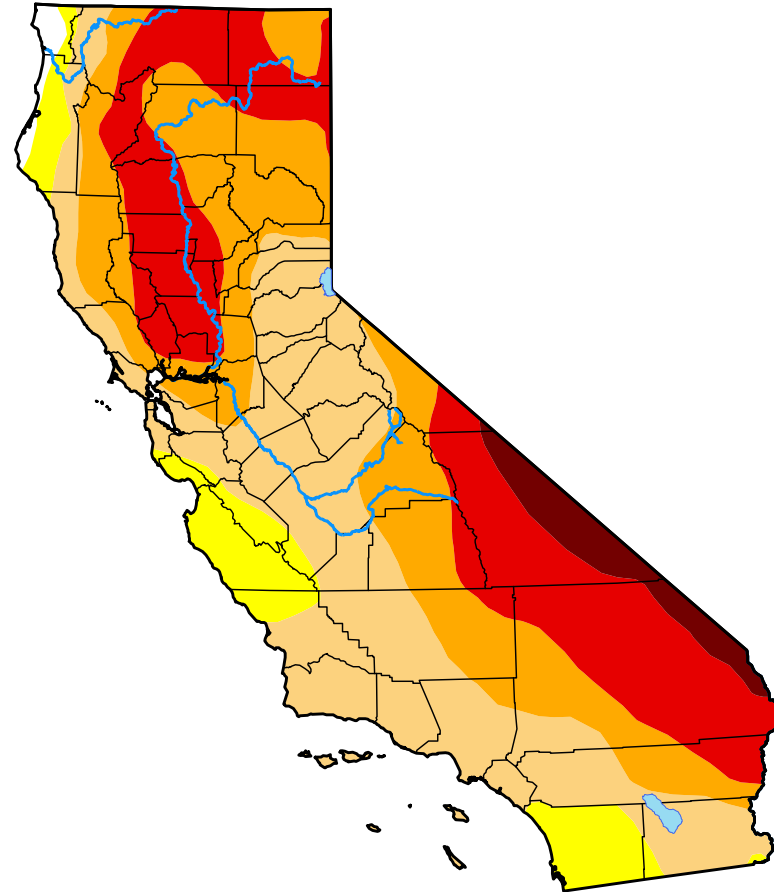


DROUGHT

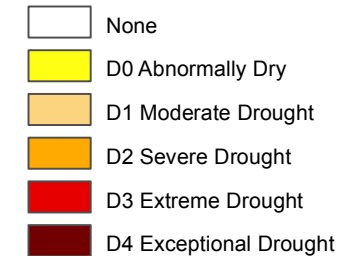
- City-wide impacts
- Currently Claremont is at level D1 Moderate Drought
- Buildings and critical infrastructure are not directly impacted by drought
- Droughts predicted to get more frequent and severe with climate change

U.S. Drought Monitor California

March 2, 2021
(Released Thursday, Mar. 4, 2021)
Valid 7 a.m. EST



Intensity:



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:

Brian Fuchs
National Drought Mitigation Center



droughtmonitor.unl.edu

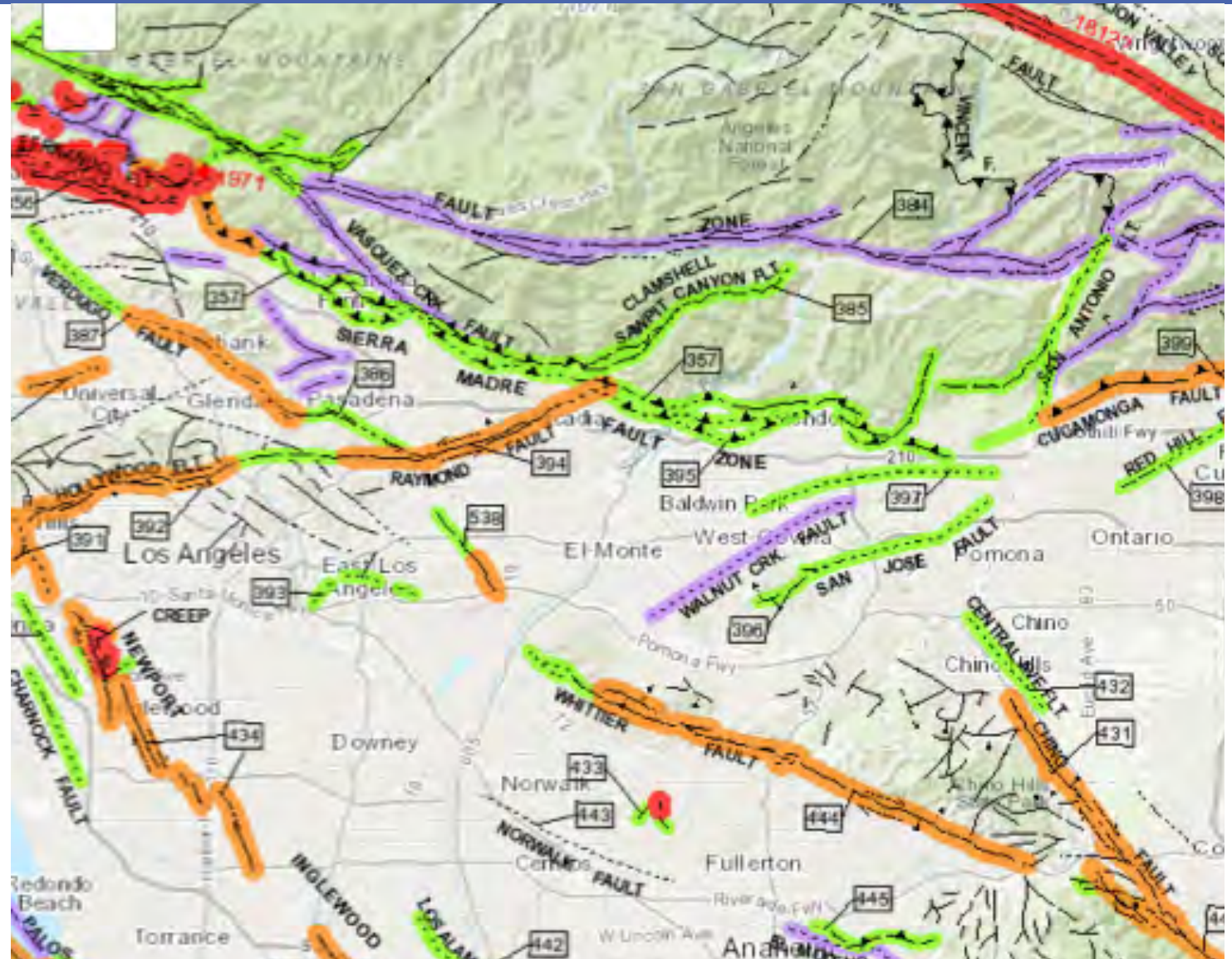
RPC 2(b)(iv)(c)

EARTHQUAKE



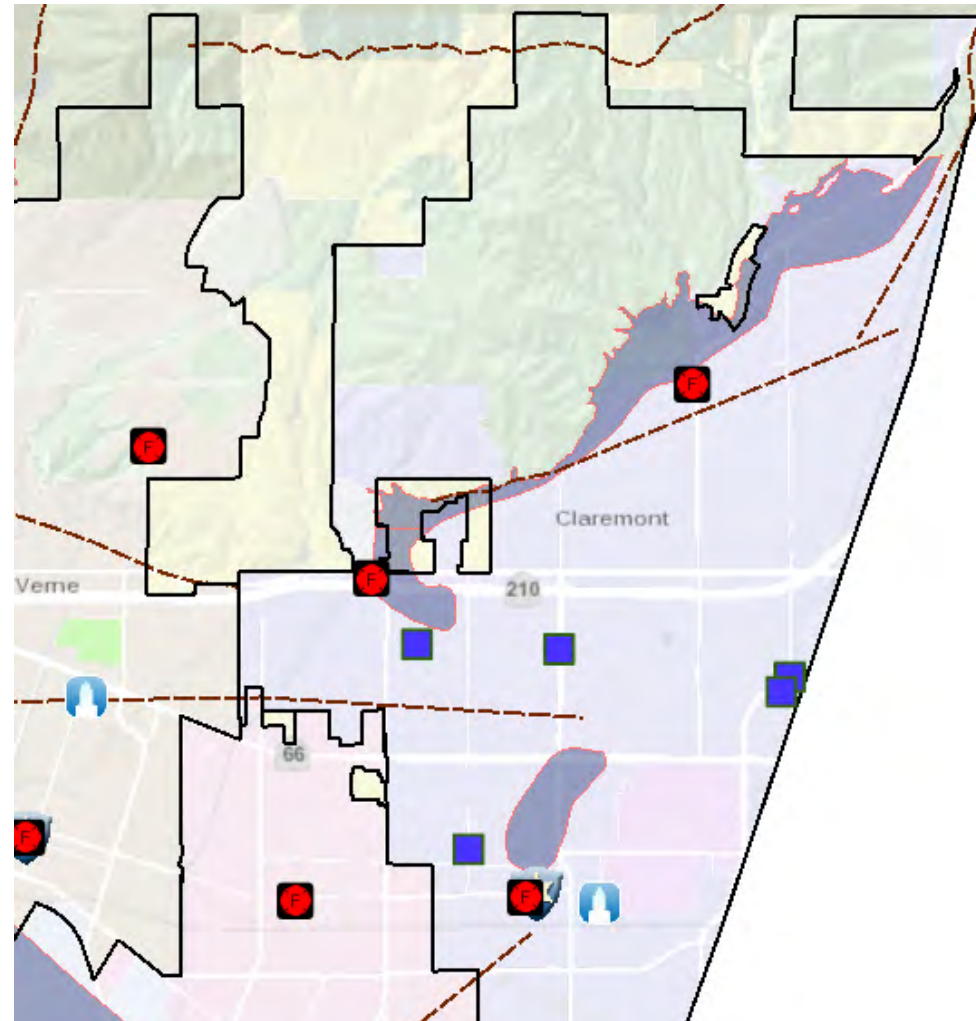
EARTHQUAKE

- Entire region is vulnerable to a significant earthquake
- There are no known climate impacts to earthquake's frequency or severity
- Can also cause landslides and liquefaction



EARTHQUAKE - LIQUEFACTION

- Liquefaction occurs when loose, wet soil loses stability due to sudden shaking
- Major cause of earthquake damage
- Two areas in Claremont are in Liquefaction Zones (Gray Areas)



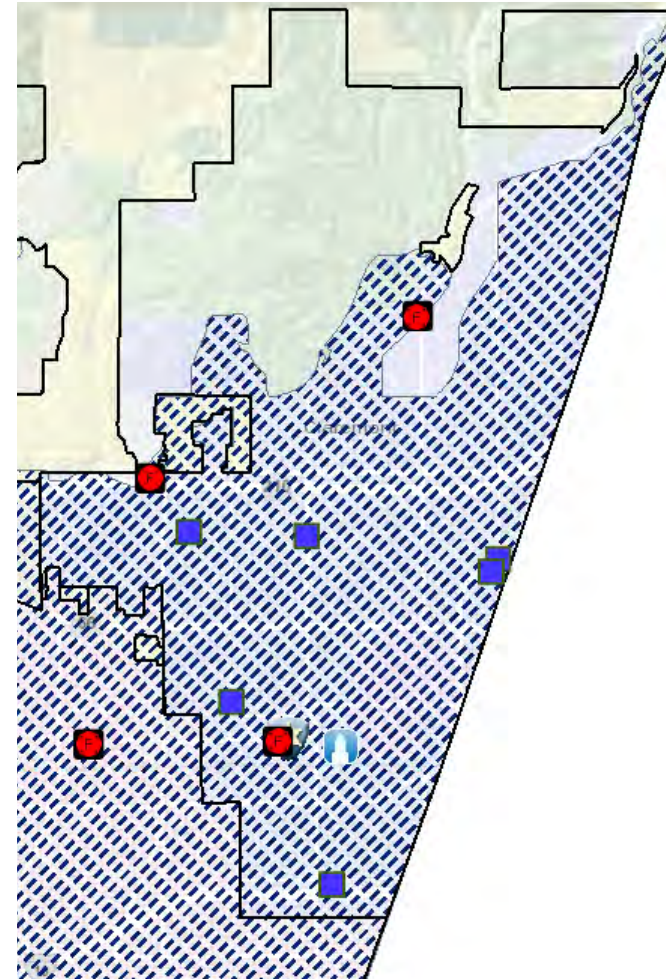
FLOOD



FLOOD - URBAN FLOODING

- Claremont is not in a 100-year floodplain
- Most of Claremont is in a 500-year floodplain
- Climate change predicted to increase intensity of storms and severity of flooding

500 Year Floodplain

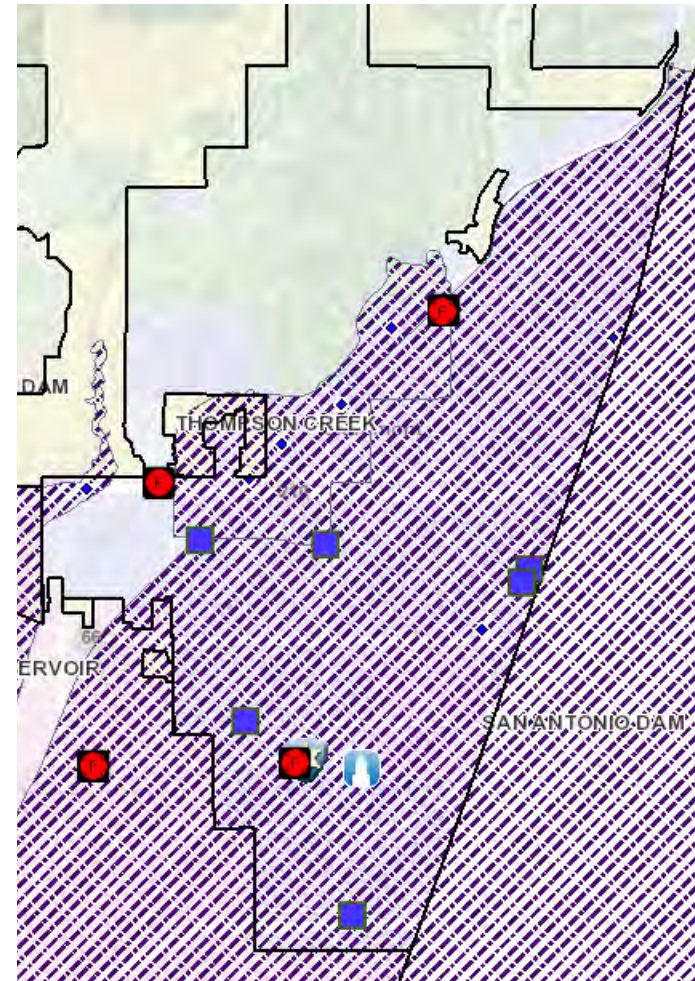


FLOOD - DAM INUNDATION

Claremont is vulnerable to flooding due to dam inundation from three dams:

- San Antonio Dam
- Thompson Creek Dam
- Live Oak Dam

Dam Inundation Areas



LANDSLIDE

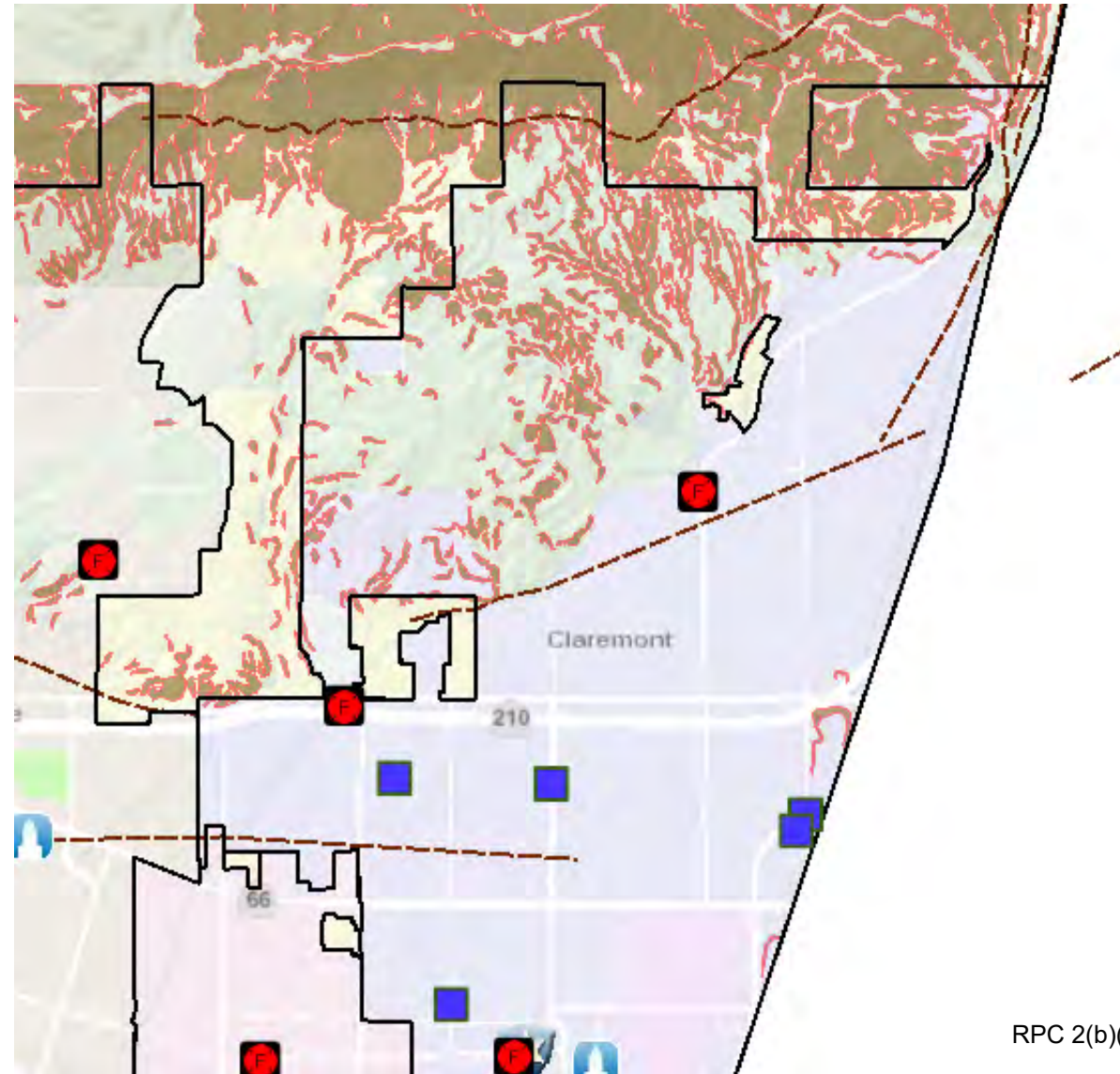


The Montecito city sign along the 101 Freeway. (Katie Falkenberg / Los Angeles Times)

LANDSLIDE

- Common in California - caused by earthquakes, rains
- Can damage roads, buildings and critical infrastructure
- Claremont is primarily at risk in hill and canyon areas
- Areas below hillside and mountains that recently were subjected to wildland fire

Map of Earthquake Induced Landslide Zones



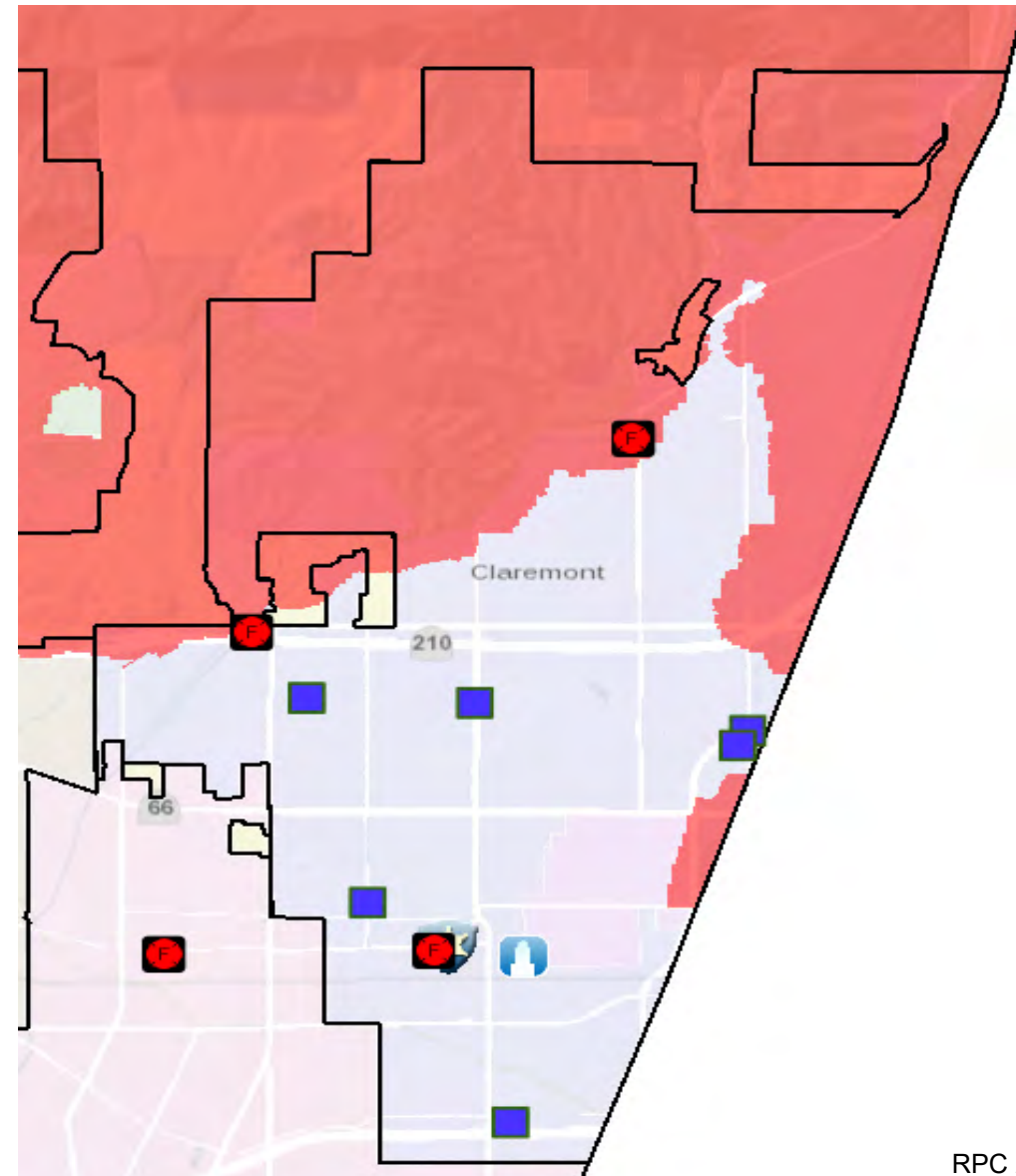
WILDFIRE



WILDFIRE

- California experiences large, destructive wildland fires almost every year
- Foothills and lower mountain areas covered with scrub brush or chaparral fuel fires
- Potential for significant damage to life and property in areas where development is adjacent to densely vegetated areas
- Climate change will likely increase the risk of wildfire

Fire Hazard Severity Zone



WINDSTORM



WINDSTORM

- Entire City is at risk, but particularly canyon areas
- High winds can damage trees, powerlines and utility services
- Fallen trees can damage buildings
- Uncertain if climate change will have an impact on windstorms





HAZARDS RANKED BY RISK

1. Earthquake
2. Wildfire
3. Windstorm
4. Landslide
5. Flood
6. Drought

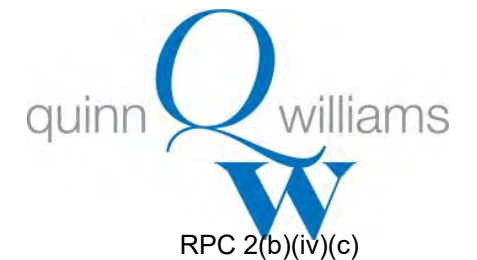
NEXT STEPS

- Project Team will review and update mitigation strategies
- Updated Draft Plan will be made available for Public Comment
- Project Updates will be provided on City's LHMP webpage on site:
<https://www.ci.claremont.ca.us>

QUESTIONS

If you have additional questions, please contact:

contact@ci.claremont.ca.us





4. Stakeholder Meeting

CITY OF
CLAREMONT

LOCAL HAZARD
MITIGATION PLAN

STAKEHOLDER
MEETING



RPC 2(b)(1)(c)

AGENDA

1. Project Overview
2. Key Dates
3. Hazard Review
4. Mitigation Strategy Overview
5. Stakeholder Updates

LHMP PROCESS

1. Risk Assessment
2. Mitigation Strategy
3. Stakeholder Engagement
4. Community Engagement
5. Updated Mitigation Strategy
6. Public Review of Plan
7. Final Plan
8. Submit for Approval

ESTIMATED DATES

May 12: Stakeholder Outreach Meeting

June 30: Draft Plan Update

****Community Meeting and 2-week comment period****

August 30: Submit to CalOES

LHMP PROCESS

Major components of **LHMP** process:

- Determine the natural and human-caused hazards that pose a threat to our community
- Review which buildings and infrastructure are vulnerable to these hazards
- Outline a Hazard Mitigation Strategy with specific recommendations to help reduce the threat from these hazards
- Maintain and update the plan, keeping it current in the face of changing conditions
- Climate Change Adaptation Requirement

CLIMATE IMPACT REQUIREMENT

New requirement:

- California Government Code § 65302(G)(4) requires local jurisdictions to review and update their safety elements upon the next revision of an LHMP on or after January 1, 2017, or if a local jurisdiction has not adopted an LHMP, beginning on or before January 1, 2022, as necessary to address climate adaptation and resiliency strategies.



HAZARDS

1. Earthquake
2. Flood
3. Landslide
4. Wildfire
5. Windstorm
6. Drought

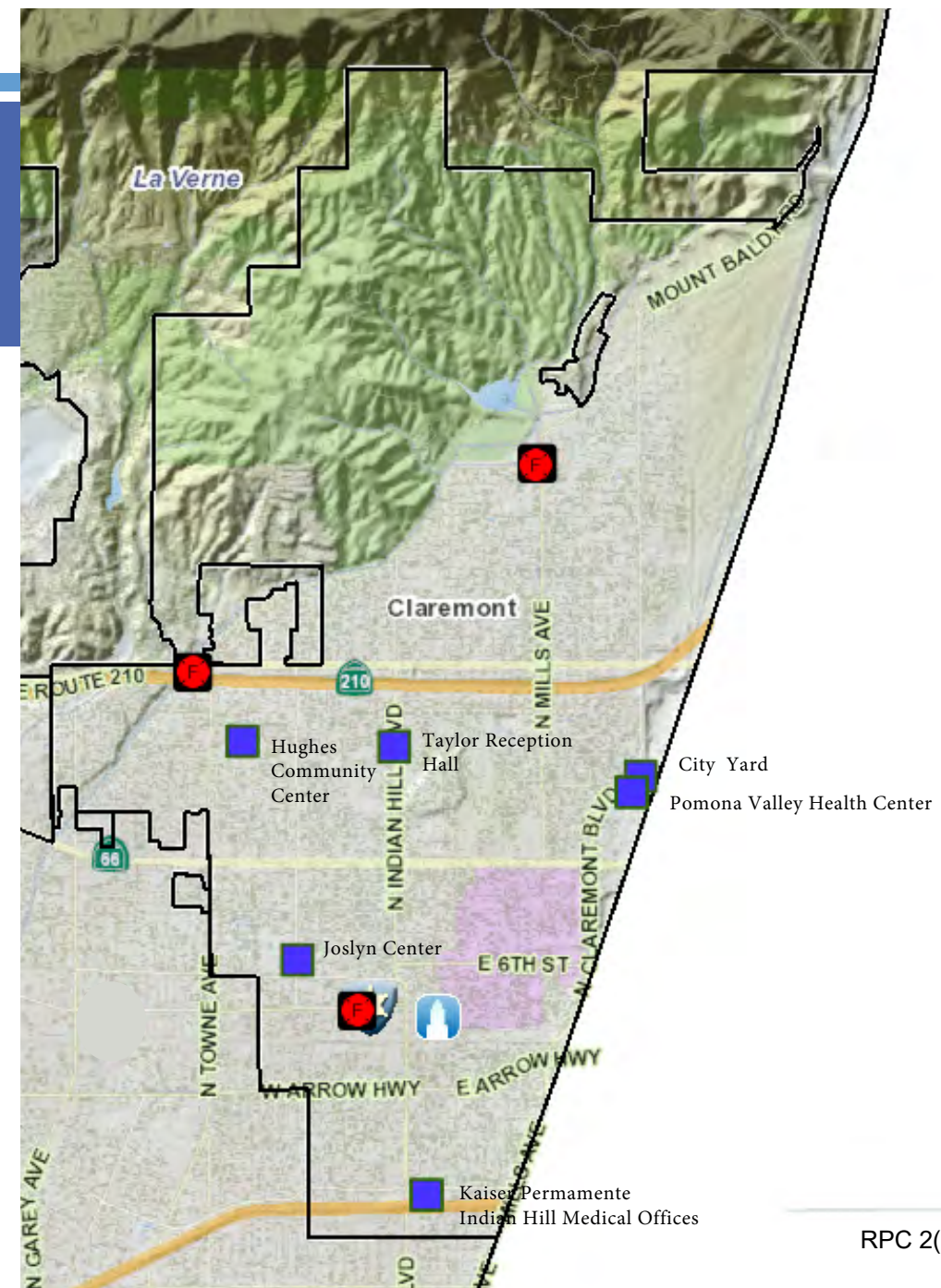
CRITICAL AND ESSENTIAL FACILITIES

Critical Facilities

- City Hall
- Claremont Police Station
- LA County Fire Stations
- City Yard

Essential Facilities

- Hughes Community Center
- Joslyn Center
- Medical Centers
- Taylor Reception Hall



RISK ASSESSMENT





Earthquake



Wildfire



Windstorm



Landslide



Flood



Drought

MITIGATION STRATEGY

A mitigation strategy provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources

TYPES OF MITIGATION ACTIONS

- Local Plans and Regulations
- Structure and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness

MITIGATION PLAN ITEMS

Multi-Hazard

- Emergency Training
- Community Outreach
- Alerts and Warning
- Zoning and General Plan
- Back Up Power
- Building and Fire Codes
- Capital Improvement Program
- Development Review

Highlight Resiliency Project: Solar Power

The City is conducting an energy audit to explore installing solar with battery backup at several City facilities including Hughes Center, Police Department, City Yard, and Taylor Hall.

This is part of the Trane Energy Improvement Project.

Timeframe: End of 2022

Funding: This will be a cashflow neutral project funded by repayable loans that will be offset and paid for by energy savings.



MITIGATION PLAN ITEMS

Fire

- Fire Mitigation and Community Preparedness Outreach
- Fire Extinguisher Training
- General Water Infrastructure Improvements
- Tree Removal
- Brush Clearance

Earthquake

- Hillside Ordinance
- Grading Plans

Severe Weather

- Street Tree Maintenance
- Underground Utilities
- Retrofit A/C Units

Flood

- Drainage System Maintenance
- Flood Insurance
- Drainage Facilities

Landslide

- Debris Clearance

STAKEHOLDER INPUT

Stakeholder updates?

NEXT STEPS

- Project Team will review and update mitigation strategies
- Updated Draft Plan will be made available for Public Comment
- Project Updates will be provided to the LHMP webpage on the City's website: <https://www.ci.claremont.ca.us>



4. Stakeholder Meeting



5. Community Meeting #3



City Manager Weekly July 1, 2021 **NEWS BRIEFS**

Local Hazard Mitigation Plan Update

Community Meeting – July 14 @ 6pm

The community is invited to participate in a meeting with staff and the City's consultant to review the draft Local Hazard Mitigation Plan Update. The meeting will be held via Zoom Webinar on Wednesday, July 14 at 6pm. The City's Local Hazard Mitigation Plan must be updated every five years to ensure that the City properly assesses the probability of various types of natural and man-made hazards and their impacts to the community in order to maintain eligibility for State and Federal grant funding.

[More...](#)



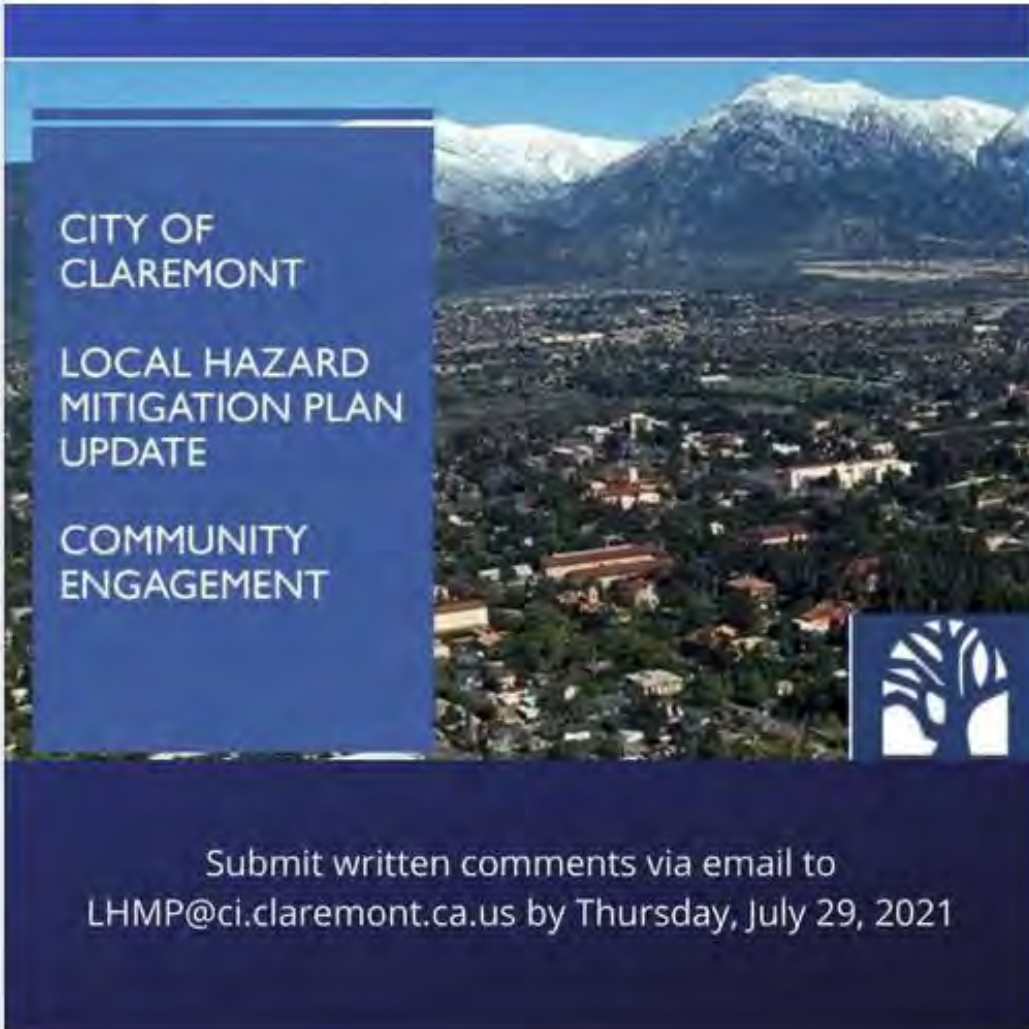
City Of Claremont

July 22 · 🌐



There is one more week to comment on the City's Local Hazard Mitigation Plan Update. A public review draft is available for review on the City website. Questions and comments regarding the draft must be submitted via email to LHMP@ci.claremont.ca.us by Thursday, July 29.

The City's Local Hazard Mitigation Plan must be updated every five years to ensure that the City properly assesses the probability of various types of natural and man-made hazards and their impacts to the c... **See More**



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💬 Comment

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CITY OF
CLAREMONT

LOCAL HAZARD
MITIGATION PLAN
UPDATE

COMMUNITY
ENGAGEMENT



AGENDA

1. Welcome
2. Project Overview
3. Hazard Review
4. Mitigation Strategy Overview
5. Questions



PLANNING TEAM

City of Claremont:

- Karlan Bennett, Claremont Police Department
- Jamie Earl, City Manager's Office
- Melissa Vollaro, Human Services Department
- Robert Ewing, Police Department
- Kristin Mikula, Community Services Department
- Vince Ramos, Community Development

Consultant Services:

- Julie Quinn, QuinnWilliams
- Katherine Williams, QuinnWilliams



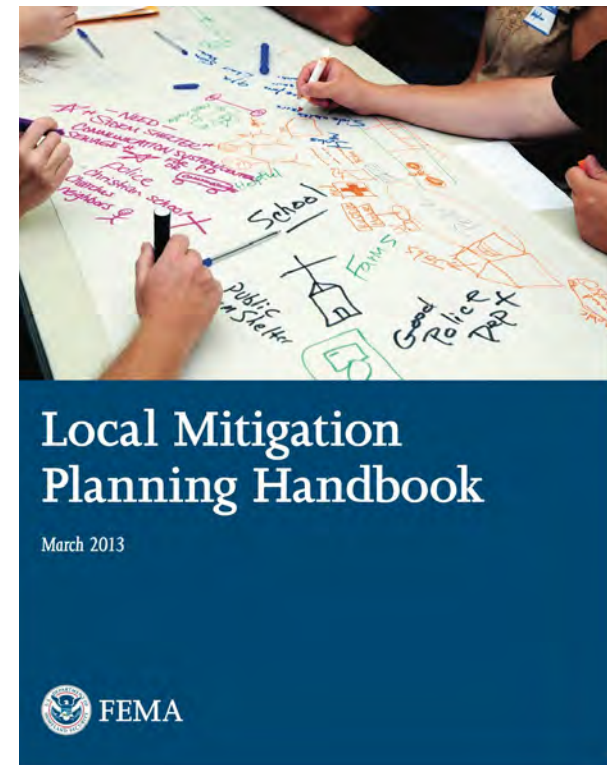
WHAT IS A HAZARD MITIGATION PLAN?

Mitigation plans help states, tribes and local jurisdictions understand their risk from hazards and reduce losses based on those risks.



THE DISASTER MITIGATION ACT OF 2000 (DMA 2000)

- Before 2000, under the Stafford Act, emphasis was on post-disaster mitigation
- DMA 2000 shifted emphasis to mitigation before, rather than after, disasters
- Requires LHMPs to be prepared before local government can receive federal mitigation project grants
- LHMPs are on a 5-year update cycle



LHMP UPDATE PROCESS

1. Risk Assessment
2. Mitigation Strategy
3. Stakeholder Engagement
4. Community Engagement
5. Updated Mitigation Strategy
6. Public Review of Plan
7. Final Plan
8. Submit for Approval



PROJECT SCHEDULE



MAJOR COMPONENTS OF LHMP PROCESS

- Determine the natural and human-caused hazards that pose a threat to the community
- Review which buildings and infrastructure are vulnerable to these hazards
- Outline a Hazard Mitigation Strategy with specific recommendations to help reduce the threat from these hazards
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CLIMATE IMPACT REQUIREMENT

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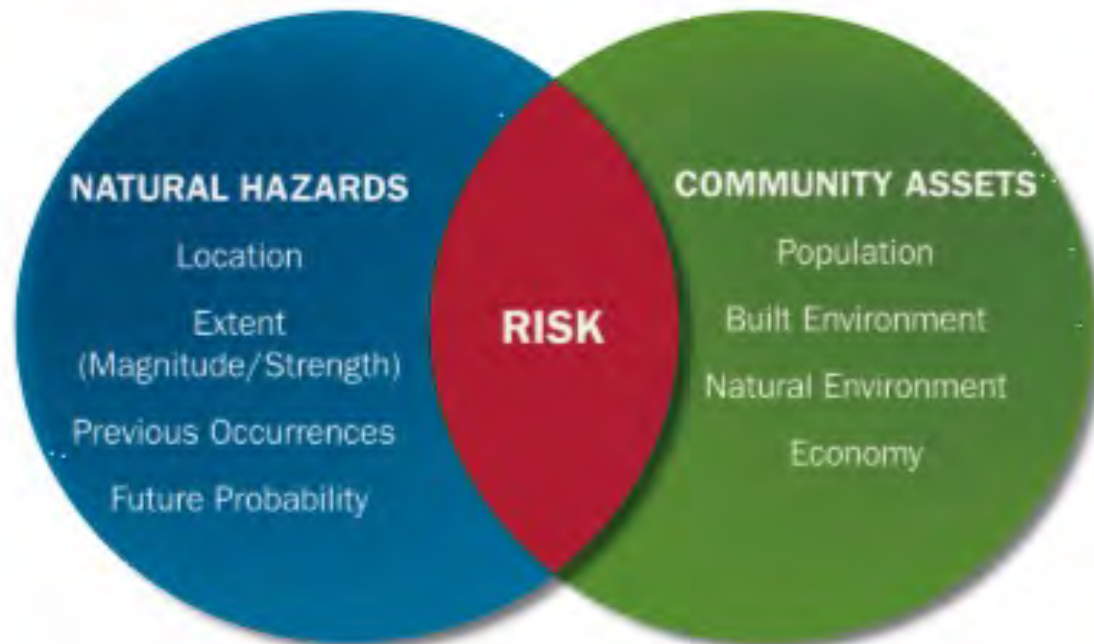




RISK ASSESSMENT: SURVEY RESULTS

Hazard	Probability	Weighted 45% (x.45)	Magnitude Severity	Weighted 30% (x.3)	Warning Time	Weighted 15% (x.15)	Duration	Weighted 10% (x.1)	CPRI Ranking
Drought	2.7	1.2	1.3	0.4	1.0	0.2	4.0	0.4	2.15
Climate Change	2.8	1.3	1.5	0.5	1.0	0.2	3.3	0.3	2.21
Flood	2.2	1.0	2.3	0.7	3.5	0.5	3.5	0.4	2.55
Epidemic/ Pandemic	2.8	1.3	2.5	0.8	1.0	0.2	4.0	0.4	2.58
Landslide	2.5	1.1	2.0	0.6	3.8	0.6	3.3	0.3	2.63
Cyber Disruption	2.7	1.2	2.2	0.7	3.3	0.5	3.3	0.3	2.68
Civil Unrest	2.8	1.3	2.2	0.7	3.7	0.6	3.2	0.3	2.79
Windstorm	3.5	1.6	2.3	0.7	3.1	0.5	3.2	0.3	3.05
Wildfire	3.3	1.5	3.3	1.0	3.9	0.6	3.8	0.4	3.47
Earthquake	3.3	1.5	3.8	1.2	4.0	0.6	3.8	0.4	3.63

RISK ASSESSMENT



Note: Modified from U.S. Geological Survey and Oregon Partnership for Disaster Resilience Models.

Source: FEMA LHMP Guide 2013

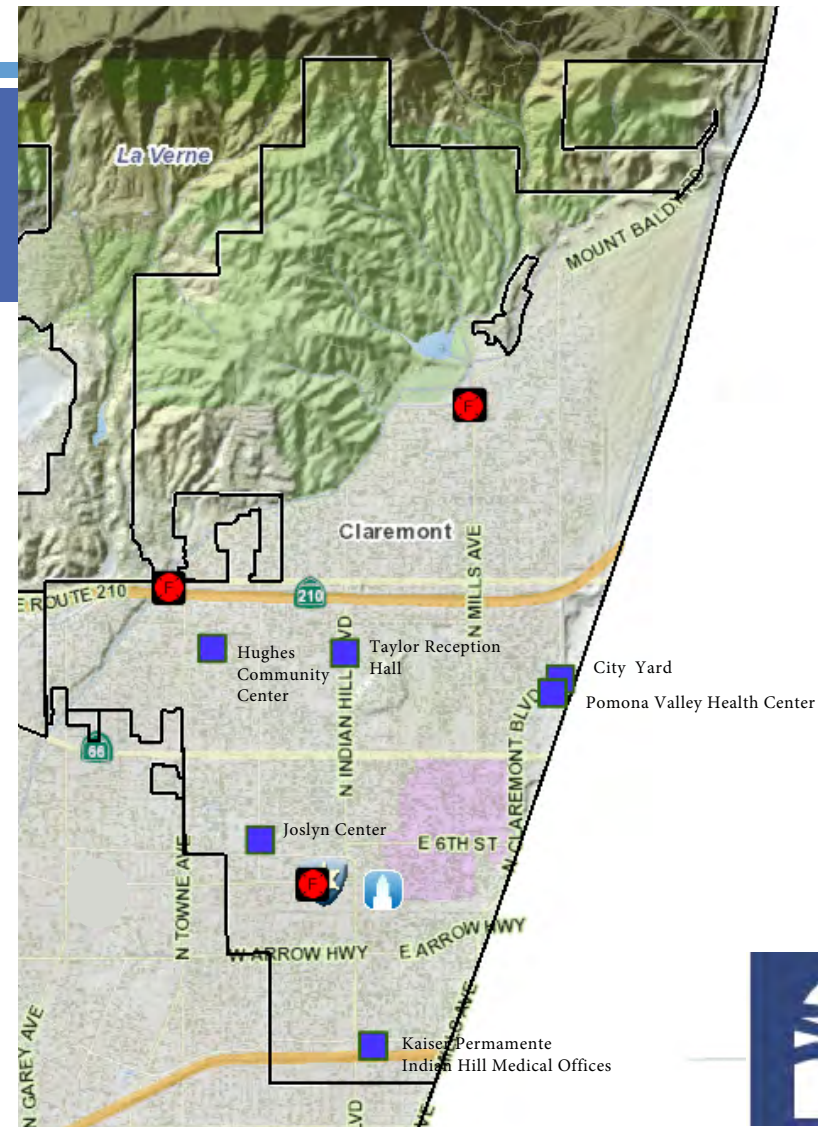
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MITIGATION STRATEGY

A mitigation strategy provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources



CLAREMONT MITIGATION GOALS



Protect	Protect Life and Property
Enhance	Enhance Public Awareness
Preserve	Preserve Natural Systems
Encourage	Encourage Partnerships and Implementation
Strengthen	Strengthen Emergency Services

TYPES OF MITIGATION ACTIONS



LOCAL PLANS AND
REGULATIONS



STRUCTURE AND
INFRASTRUCTURE
PROJECTS



NATURAL SYSTEMS
PROTECTION



EDUCATION AND
AWARENESS



TYPES OF MITIGATION PLAN PROJECTS



MITIGATION PROGRESS REPORT

Planning Team reviewed 29 mitigation projects from 2015 LHMP:

- Completed: 3
- Ongoing: 18
- Deferred: 5
- Removed: 3

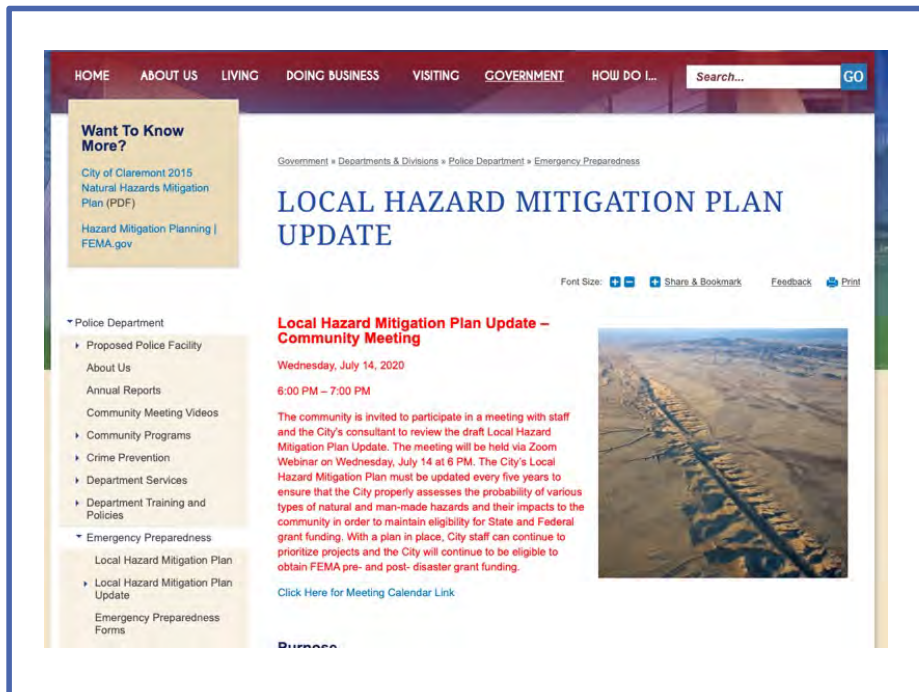
MITIGATION PLAN EXAMPLE PROJECT

Multi-Hazard Resiliency Project: Solar Power

- The City is conducting an energy audit to explore installing solar with battery backup at several City facilities including Hughes Center, City Yard, and Taylor Hall
- This is part of the Trane Energy Improvement Project
- Timeframe: End of 2022, pending funding
- Funding: This would be a cashflow neutral project funded by repayable loans that will be offset and paid for by energy savings



REVIEWING THE PLAN



- Go to the City's website:
<https://www.ci.claremont.ca.us>
- In the "Search bar" type **LHMP Update**
- The LHMP Plan Update document will be posted on Thursday morning, 7/15
- Comments are due by 7/29
- Email: LHMP@ci.claremont.ca.us



QUESTIONS?

LHMP Update webpage on City's website:

<https://www.ci.claremont.ca.us>

Comments due by 7/29

LHMP@ci.claremont.ca.us

