City of San Marino

2024 Local Hazard Mitigation Plan

City Council Adoption Draft, February 2025

TABLE OF CONTENTS

CHAPTER 1 – INTRODUCTION

Plan Purpose and Authority

Hazard events are emergencies due to a natural or human-caused event that has the potential to cause harm. These events can lead to injuries or death, affect the overall health and safety of a community, damage or destroy public and private property, harm ecosystems, and disrupt key services. Although the hazard event often gets the most attention, it is only part of a larger emergency management cycle.

Emergency planners and responders can take steps during the cycle's response, recovery, mitigation, and preparedness phases to minimize the harm caused by a disaster. The City of San Marino 2024 Local Hazard Mitigation Plan (LHMP) focuses on optimizing the mitigation phase of the process.

Hazard mitigation is "any sustained action taken to reduce or eliminate long-term risk to people and property from natural or human-caused hazards and their effects."[1] This mitigation involves making a community more resilient so that when hazard events do ultimately occur, the community suffers minor damage and can recover quickly and effectively. Mitigation differs from preparedness, which involves advanced planning for how best to respond when a disaster occurs or is imminent. For example, a policy to make homes structurally stronger so they suffer minor damage during an earthquake is a mitigation action, while fully equipping emergency shelters to accommodate people who lose their homes in an earthquake is a preparedness action. Some activities may qualify as both.

The Emergency Management Cycle

Resiliency is the "capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience."[2]

Like other communities, the City of San Marino (City) could suffer severe harm from hazard events. Although large disasters may cause widespread devastation, minor disasters can have more substantial effects. The City cannot make itself completely immune to hazard events, but this LHMP can help make the community a safer place to live, work, and play. This LHMP provides a comprehensive assessment of the city's threats from natural and human-caused hazard events and a coordinated strategy to reduce these threats. It identifies resources and information to help community members, City staff, and local officials understand local threats and make informed decisions. The LHMP can also support increased coordination and

[1] California Governor's Office of Emergency Services. 2017. State of California Emergency Plan. https://www.caloes.ca.gov/wp-content/uploads/Preparedness/Documents/California_State_Emergency_Plan_2017.pdf

[2] Rodin, J. 2014. The Resilience Dividend: Managing Disruption, Avoiding Disaster, and Growing Stronger in an Unpredictable World. New York: Public Affairs.

collaboration between the City, other public agencies, local employers, service providers, community members, and other key stakeholders.

FEDERAL AUTHORITY

The City is not required to prepare an LHMP, but state and federal regulations encourage it. The federal Robert T. Stafford Disaster Relief and Emergency Act, amended by the Disaster Management Act of 2000, creates a federal framework for local hazard mitigation planning. It states that jurisdictions that wish to be eligible for federal hazard mitigation grant funding must prepare a hazard mitigation plan that meets a particular set of guidelines and submit this plan to the Federal Emergency Management Agency (FEMA) for review and approval. The following regulations and guidelines apply to this plan:

Federal Laws

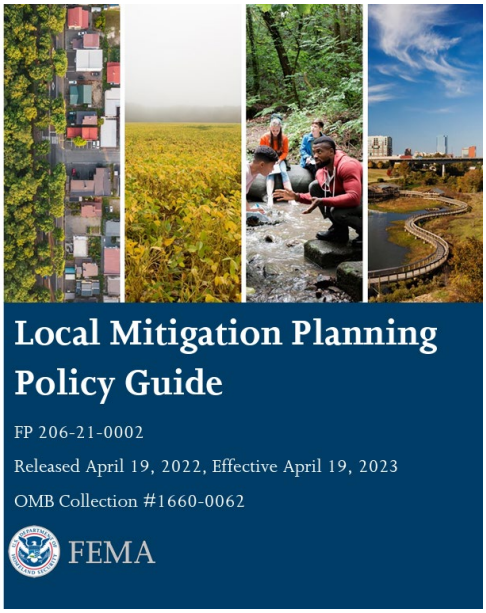
- Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended.

Federal Regulations

- 44 CFR Part 201 Mitigation Planning.
- 44 CFR, Part 60, Subpart A, including § 60.3 Floodplain management criteria for flood-prone areas.
- 44 CFR Part 77 Flood Mitigation Grants.
- 44 CFR Part 206 Subpart N. Hazard Mitigation Grant Program.

Federal Guidance

- FEMA Local Mitigation Planning Policy Guide (FP 206-21-0002), effective April 19, 2023



FEMA's Local Mitigation Planning Policy Guide

This guide provides the official policy and interpretation of the applicable statutes and mitigation planning regulation in 44 Code of Federal Regulations.

STATE AUTHORITY

California Government Code Sections 8685.9 and 65302.6

California Government Code Section 8685.9 (also known as Assembly Bill 2140) limits the State of California's share of disaster relief funds paid out to local governments to 75 percent of the funds not paid for by federal disaster relief efforts unless the jurisdiction has adopted a valid hazard mitigation plan consistent with the Disaster Management Act of 2000 and has incorporated the hazard mitigation plan into the jurisdiction's general plan. The State may cover over 75 percent of the remaining disaster relief costs in these cases.

All cities and counties in California must prepare a general plan, including a safety element that addresses various hazard conditions and other public safety issues. The safety element may be a stand-alone chapter or incorporated into another section, as the community wishes. California Government Code Section 65302.6 indicates that a community may adopt an LHMP

into its safety element if the LHMP meets applicable state requirements. This allows communities to use the LHMP to satisfy state requirements for safety elements. As the General Plan is an overarching long-term plan for community growth and development, incorporating the LHMP into it creates a stronger mechanism for implementing the LHMP.

California Government Code Section 65302 (g)(4)

California Government Code Section 65302 (g)(4), also known as Senate Bill (SB) 379, requires that the safety element of a community's general plan address the hazards created or exacerbated by climate change. The safety element must identify how climate change is expected to affect hazard conditions in the community and include measures to adapt and be more resilient to these anticipated changes.

Because the LHMP can be incorporated into the safety element, including these items in the LHMP can satisfy the state requirement. SB 379 requires that climate change be addressed in the safety element when the LHMP is updated after January 1, 2017, for communities that already have an LHMP or by January 1, 2022, for communities without an LHMP.

This LHMP is consistent with current standards and regulations, as outlined by the California Office of Emergency Services (Cal OES) and FEMA. It uses the best available science, and its mitigation actions/strategies reflect best practices and community values. It meets the requirements of current state and federal guidelines and makes the City eligible for all appropriate benefits under state and federal law and practices. Note that while FEMA is responsible for reviewing and certifying this LHMP, and Cal OES is responsible for conducting a preliminary review, it does not grant FEMA or Cal OES an increased role in the governance of the city or authorize either agency to take any specific action in the community.

Plan Organization and Use

The San Marino LHMP is both a reference document and an action plan. It has information and resources to educate readers and decision-makers about hazard events and related issues, as well as a comprehensive strategy that the City and community members can follow to improve resilience in the city. It is divided into the following chapters:

- **Chapter 1: Introduction.** This chapter describes the Plan's background, goals and objectives, and the process used in its development.
- **Chapter 2: Community Profile.** This chapter discusses San Marino's history, physical setting, land use, demographics, and other important community characteristics.
- **Chapter 3: Hazard Assessment.** This chapter identifies and describes the hazards that threaten San Marino and discusses past and future events and the effects of climate change.
- **Chapter 4: Vulnerability Assessment.** This chapter describes each hazard's threat to San Marino’s key facilities and community members, including socially vulnerable individuals.
- **Chapter 5: Mitigation Strategy.** This chapter lists the mitigation actions to reduce San Marino’s vulnerability to hazard events and provides an overview of the community's existing capabilities to improve hazard resilience.

- **Chapter 6: Plan Maintenance.** This chapter summarizes implementing, monitoring, and updating the LHMP and opportunities for continued public involvement.

PREVIOUS SAN MARINO LHMP

This is an update to the City of San Marino's 2019 LHMP, which will reinstate the City's eligibility, once approved and adopted by the City Council, to apply for FEMA grants for hazard mitigation projects and monetary relief during emergency situations. The content from the previous plan has been included in this document and updated accordingly. Key modifications in this plan focus on expanding the risk assessment (understanding potential losses and vulnerable populations) within **Chapter 4** and revised and modified mitigation strategies and actions within **Chapter 5**.

Key updated elements from the previous San Marino LHMP include the following:

- Updated Plan Goals, which now better reflect current City priorities.
- Integration of the General Plan, Housing Element, Safety Element, and Climate Adaptation Vulnerability Assessment into the Community Profile, Hazards Assessment, and Vulnerability Assessment chapters of the plan
- Expanded historic events discussions within the plan
- Enhanced understanding of changing vulnerabilities to the community, which primarily focus on addressing vulnerable population needs and code compliance issues.
- Updated Capabilities Assessment
- Updated Mitigation Actions and Strategies, which include progress on previous actions

PREVIOUS PLAN INTEGRATION

As this is an update to San Marino's LHMP, the City will be looking to integrate this document into other planning documents and processes. To ensure this future integration occurs, **Chapter 6** of this plan includes additional guidance on how to best integrate the LHMP into the General Plan Safety Element, Emergency Operations Plan, and other planning mechanisms used by the City.

PLAN GOALS

This plan was developed to broadly increase resilience in San Marino, relying on the following revised goals.

Mitigation

1) Ensure the completion of mitigation projects for critical facilities, services, educational facilities, and infrastructure by establishing a supportive policy.

2) Protect lives by implementing activities that make homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural and human-caused hazards.

3) Preserve property and the environment by balancing land use planning with natural hazard mitigation.

Collaboration

1) Gain a vested interest in mitigation implementation by strengthening communication among and within public agencies, the school district, citizens, non-profit organizations, businesses, and industry.
2) Fortify emergency operations by increasing coordination among public agencies, the school district, residents, non-profit organizations, businesses, and industry.
3) Create precedence for local and regional hazard mitigation activities by promoting involved leadership within public and private sector organizations.

Education

1) Increase public awareness of risks associated with natural and human-caused hazards through education and outreach programs.
2) Promote new development outside of high-hazard areas and encourage preventative measures for existing development in hazard prone locations.
3) Reduce exposure to loss and damage from chronic hazard events by advocating adequate insurance coverage on city facilities.

These revised goals were modified from the prior plan to better reflect the changing priorities within the community. Key concerns now addressed in these goals include incorporation of educational facilities into the planning process and advocacy for adequate insurance coverage for city facilities. These new goals shall serve as the foundation for all subsequent versions of this plan as it is updated every five years to maintain FEMA grant eligibility and maintain alignment with the City and its communities' focus. With these newly revised goals, these new priorities are anticipated to help inform and ensure greater consistency with the City's General Plan Safety Element over the next five years.

Planning Process

State and federal guidance for LHMPs does not require that jurisdictions follow a standardized planning process. FEMA encourages communities to create a planning process that reflects local values, goals, and characteristics. FEMA does suggest a general planning process that follows the steps identified below:

The planning process used to create this plan for the City of San Marino is described as follows:

HAZARD MITIGATION PLANNING COMMITTEE

The City established a Hazard Mitigation Planning Committee (hereafter referred to as the HMPC). The HMPC comprises representatives from key city departments and stakeholders from local and regional agencies and companies that are key to hazard mitigation activities. **Table 1-1** identifies the members who were invited and/or attended HMPC meetings.

TABLE 1-1: SAN MARINO HAZARD MITIGATION PLANNING COMMITTEE (HMPC)

Name	Title	Department
Jennifer McGee	Management Analyst	San Marino Fire Department
Mario Rueda	Fire Chief	San Marino Fire Department
Jason Sutliff	Captain	San Marino Fire Department
Mark Dondanville	Division Chief	San Marino Fire Department
John Incontro	Chief of Police	San Marino Police Department
Jeremy Bespitch	Sergeant	San Marino Police Department
Nicole Tibbet	Community Engagement Manager	City Manager's Office
Amber Shah	Parks & Public Works Director/ City Engineer	Parks & Public Works
Isidro Figueroa	Community Development Director	Community Development
Michael Lin	Chief Business Official	San Marino Unified School District
Jennifer Wheeler	Executive Administrative Assistant	San Marino Unified School District
Aaron Pfannenstiel	LHMP Project Manager	Atlas Planning Solutions
Crystal Stueve	LHMP Planner	Atlas Planning Solutions
Robert Jackson	LHMP Planner	Atlas Planning Solutions

The HMPC held two meetings throughout the plan development process to lay out the methods and approach for the Plan, draft and review content, make revisions, and engage members of the public.

- **HMPC Meeting #1 (February 8, 2024):** The HMPC members confirmed the project goals and responsibilities. They revised the community engagement and outreach strategy, confirmed and prioritized the hazards included in the Plan, and identified critical threat assessment facilities.
- **HMPC Meeting #2 (April 10, 2024):** Members held a detailed discussion about hazard prioritization, results of the hazards assessment and mapping, and the risk assessment that showed the areas, populations, and assets facing elevated risk and vulnerability. They also reviewed mitigation actions and strategies, made revisions, and assigned priorities.

Invitations and materials for meetings were provided via email. **Appendix A** contains copies of invitations, meeting agendas, sign-in sheets, and other relevant materials distributed for these meetings.

Disaster Declaration Connections

Since 2018, the FEMA issued the following major disasters, emergency declarations, and fire management events. Past events identified in this plan have been identified in connection with these events in the “Past Events” sections within each Hazard Profile located in **Chapter 3** of this Plan.

TABLE 1-2: DISASTER DECLARATION – LOS ANGELES COUNTY (2018-2023)					
Year	**Declaration Number**	**Declaration Title**	**Incident Type**	**Affected the City**	**Emergency Response**
2023	2023-05 DR-4699	2023 February – April Storms	Storm	No	N/A
2023	EM-3592** (consolidated into DR-4699)	Late February-Early March 2023 Winter Storms	Storm	No	N/A
2022-2023	2023-01 DR-4683	2022-2023 Early Winter Storms	Storm	No	N/A
2022-2023	EM-3591** (consolidated into DR-4683)	2022-2023 Early Winter Storms	Storm	No	N/A
2020	2020-07 DR-4569	September 2020 Wildfires	Fire	No	N/A
2019	FM-5297	Getty Fire	Fire	No	N/A
2019	FM-5296	Tick Fire	Fire	No	N/A
2019	2020-02 FM-5293	Saddleridge Fire	Fire	No	N/A
2020	2020-01 DR-4482 EM-3428	Coronavirus Disease 2019 (COVID-19)	Pandemic (Statewide)	Yes (Local Proclamation)	Yes (Emergency Response by City Resources)
2019	2019-02 DR-4331	Mid-February 2019 Storms	Storm	No	N/A
2018	2018-09 DR-4407 EM-3409 FM-5280 FM-5279 FM-5278	November 2018 California Wildfires, Mud and Debris Flows	Storm, Mud, and Debris Flows	No	N/A
2017-2018	2017-12 DR-4353 FM-5224	December 2017 California Wildfires & Debris Flows	Fire and Debris Flow	No	N/A
DR = Major Disaster EM = Emergency Declaration FM = Fire Management					

Public Engagement

Under FEMA guidelines, local hazard mitigation planning processes should create opportunities for the public to be involved in plan development—at a minimum, during the initial drafting stage and plan approval. The HMPC chose to go beyond minimum standards and conduct more extensive community outreach to help ensure that the LHMP reflects community values, concerns, and priorities. The HMPC developed a community engagement and outreach strategy to guide all public engagement activities. To ensure all residents were aware of the project, San Marino staff conducted the following activities:

- City Managers Weekly Briefing – City of San Marino Mailing List
- Press releases in the San Marino Tribune
- City Social Media – posts via X (formerly Twitter), Instagram, and Facebook
- San Marino Police Services social media – Facebook
- City of San Marino LHMP webpage
- English and Mandarin flyers at city facilities
- Promotion at City Meetings/ Events (see below)
- Promotion at City Facilities (City Hall, etc.) with signage on plan review content and QR codes for the Hazard Mitigation Survey were posted at the front desk.
- Information included in community brochure mailed to every residence in the city; and
- Information shared with Schools

STAKEHOLDER ENGAGEMENT

As part of the plan update process, the City invited stakeholders to review and comment on the Public Review Draft of the LHMP. These stakeholders included neighboring jurisdictions, utility providers, the local school district, residents of San Marino, local water districts, and County agencies. Information regarding this engagement opportunity can also be located in Appendix B. All jurisdictions and stakeholders were invited via email and/or direct communication via telephone from the San Marino Fire Department Management Analyst. The following is a list of those stakeholders invited to participate in the plan development process and review.

- Los Angeles County
- City of Alhambra
- City of San Gabriel
- City of Pasadena
- City of South Pasadena
- San Marino Unified School District
- SoCalGas
- Southern California Edison
- Sunny Slope Water Company
- California American Water

Vulnerable Populations Outreach

The HMPC identified that the most vulnerable populations within San Marino are children during school hours and senior citizens, as they represent a large percentage of the calls for service from the fire department. It was important that the City didn't solely rely on online sources to publicize the LHMP process and plan. Signage was posted at city facilities and the Crowell Public Library with information on both the Public Review LHMP and the Hazard Mitigation Survey. These facilities are frequently attended by seniors, who frequently engage in city-sponsored activities and public meetings. For most that attend these events, the community bulletin boards and noticing boards are their conduit for new information and engagement.

In addition, the San Marino Unified School District was a key stakeholder that actively participated in the planning process. As part of the initial outreach effort, the District also shared information with parents, staff, and students regarding the planning process to better engage with that community.

Future Outreach Opportunities

Recognizing that other vulnerable populations may exist in the City, this plan relied on the populations identified by health equity studies conducted by the County of Los Angeles Department of Health, Center for Equity. The goal of these studies is to reduce the identified heath inequities based on where a person lives, their race or ethnicity, or other social status that unfairly influences health outcomes. Continued outreach that occurs during implementation and future updates will continue to refer to this resource to help identify vulnerable populations and key issues affecting their vulnerability.

Community Meetings and Events/Public Engagement Opportunities

The City regularly conducts community meetings and events intended to provide useful information to participants/ attendees. During the planning process, two outreach meetings and events were held, where City staff discussed the plan and process currently underway and provided opportunities for feedback. The following information provides dates for each meeting:

- Public Safety Commission Meeting, March 18, 2024
- Public Safety Commission Meeting, September 16 2024

Upon completion of the plan review process with Cal OES and FEMA the City conducted a final meeting for plan adoption:

- City Council Adoption Meeting, [Insert Date].

ONLINE ENGAGEMENT

The City conducted various online engagement activities supporting the hazard mitigation planning process. The following are key activities conducted:

LHMP Project Webpage

The City created a page on the City's website dedicated to the Local Hazard Mitigation Plan development to reach a broad audience and increase public engagement and participation. The webpage is a simple, one-stop location where community members can learn about the LHMP. The webpage explains what an LHMP is, why the City should have one, how it is developed, and how the public can participate in the planning process. It also includes a link to the LHMP survey described in the next section.

The webpage can be found at https://sanmarinoca.gov/government/departments/fire/(new)_local_hazard_mitigation_plan_update.php

Online Survey

The City released an online survey to community members to gather feedback on the planning process and hazards of concern. The survey was advertised via the City and the San Marino Police Department's social media channels, on the City website, via the City's online newsletter, in the City's printed newspaper that is available to every residence in the City, via local schools and churches, posted at City facilities in English and Mandarin, and at community events and meetings.

At the time of the Public Review Draft release, the City received 29 responses from community members and stakeholders during the survey period. Responses were received from all areas within San Marino, ensuring that the entire City was geographically represented. Based on these responses, the following information was shared with the City:

- Approximately 97% of respondents live in the City of San Marino, while approximately 3% of respondents live *and* work in the city.
- According to respondents, the top (3) hazards of concern for the City are Seismic Hazards (Seismic Shaking), Windstorm, and Human-caused Hazards (Gas Pipeline).
- Approximately 79% of respondents are concerned about how climate change may create new hazardous situations in the city or could make existing natural hazards worse.
- Approximately 31% of respondents believe climate change already threatens their health, property, livelihood, and overall well-being.

- Approximately 28% of respondents are familiar with the special needs of their neighbors in the event of a disaster situation (special needs may include limited mobility, severe medical conditions, or memory impairment)

The results from the survey were provided to the HMPC. The data was then analyzed, reviewed, and incorporated by the HMPC within the LHMP content. The data provided by the survey presented unique local insight into hazard concerns and assessed the public's overall opinion and perception of the hazards that affect San Marino. The full hazard mitigation survey results and copies of all materials used for public outreach are provided in **Appendix B** of the LHMP, including the survey questions and answers.

Social Media Outreach

The City promoted and provided information on both the Hazard Mitigation Survey and the LHMP Public Review Draft on multiple social media platforms.

- The City of San Marino mailing list subscribers (a total of 1,620 subscribers) were provided information through the City Manager's Weekly Briefings.
- The City of San Marino X (formerly known as Twitter) account has 1,290 followers.
- The City of San Marino's Instagram account with 2,162 followers.
- City of San Marino –Facebook account with 1,687 followers.

PUBLIC REVIEW DRAFT

On September 16, 2024, the City released a draft copy of the LHMP for public review and comment. The document was posted electronically on the City's LHMP Project website and social media accounts, and hard copies of the plan were provided at the Crowell Public Library and City Hall. The release also included flyers at City facilities and was released on San Marino Police Department social media accounts. The City also distributed notifications about the public review draft via local schools, churches, and the City Business License list. The Public Review Draft period extended from September 16, 2024 through October 18 2024.

PLAN REVISION AND ADOPTION

The City received 1 comment on the plan during the public review period (during the Public Safety Commission Meeting) requesting the insertion of contact information for the school district. In response the City included this updated information in Section 6 of the plan. Following public comment, the City submitted the plan for formal review by the following agencies:

- Submittal to Cal OES: October 28, 2024
- Comments received from Cal OES: December 17, 2024
- Submittal to FEMA: January 15 2025, the plan submitted to FEMA for review
- FEMA Plan Approval Pending Adoption (APA): February10, 2025.

Upon completing this review process, City staff transmitted the final plan to the City Council for final adoption. The San Marino City Council adopted the final LHMP on [Insert Date]. **Appendix C** contains a copy of the adoption resolution.

Plan Resources

The City referred to several plans, studies, technical reports, datasets, and other resources to prepare the Plan's hazard assessment, mapping, threat assessment, and other components. **Table 1-3** provides some of the HMPC's primary resources to prepare this Plan.

TABLE 1-3: KEY RESOURCES FOR PLAN DEVELOPMENT

Section	Key Resources Reviewed	Data Incorporated from Resource
Multiple	• Cal-Adapt • California Department of Conservation • California Geological Survey • California Office of Emergency Services • California State Hazard Mitigation Plan • City of San Marino General Plan • City of San Marino Zoning Ordinance • FEMA Local Hazard Mitigation Plan Guidance • National Oceanic and Atmospheric Administration • National Weather Service • US Geological Survey • US Census Bureau 2017-2021 American Community Survey • Los Angeles County Hazard Mitigation Plan	• Science and background information on different hazard conditions • Records of past disaster events in and around San Marino • Current and anticipated climate conditions in and around San Marino • Projections of future seismic conditions and events
Community Profile	• US Census Bureau 2017-2021 American Community Survey • California Energy Commission	• Demographic information for San Marino and Los Angeles County • History of the region • Economic trends in San Marino • Commute patterns in San Marino • Local land-use patterns • Background information on utilities serving San Marino • Current climate information in San Marino
Hazard Assessment Flood Hazards	• FEMA Map Service Center • Los Angeles County Flood Control District • Cal American Water District • Metropolitan Water District of Southern California • California Department of Water Resources	• Records of past flood events in and around San Marino • Locations of flood-prone areas in San Marino

Hazard Assessment (Hazardous Materials Release)	• Department of Toxic Substances and Control • Environmental Protection Agency	• Location and dates of past hazardous materials release • Effects of hazardous materials release
Hazard Assessment (Seismic Hazards)	• Southern California Earthquake Data Center • The Third California Earthquake Rupture Forecast (UCERF3) • California Geological Survey	• Location of fault zones • Records of past earthquakes
Hazard Assessment (Severe Weather Hazards)	• Cal Adapt • California Department of Water Resources • US Drought Monitor • Western Regional Climate Center	• Science and background information on extreme weather events • Historical record of extreme weather events in and around San Marino
Hazard Assessment (Wildfire Hazards)	• California Department of Forestry and Fire Prevention • Fire and Resource Assessment Program	• Records of past fire events • Location of fire hazard zones in and around San Marino
Note: Sections not individually identified in this table relied primarily on sources identified in multiple sections.		

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CHAPTER 2 – COMMUNITY PROFILE

The Community Profile section of the LHMP describes San Marino, including information about the community's physical setting, history, economy and demographics, current and future land uses, and key infrastructure. The Community Profile helps establish the baseline conditions in San Marino, which informs the development of the hazard mitigation strategies and actions in **Chapter 5**.

Setting and Location

The City of San Marino is located in the San Rafael Hills, approximately 12 miles northeast of downtown Los Angeles, in the San Gabriel Valley. The City has an average elevation of 564 feet above sea level. San Marino is the 73rd most populous city in Los Angeles County and offers the benefits of living in a Mediterranean climate. The city has a total area of 3.8 square miles, composed of almost entirely land. The City is characterized by the tree-lined streets and the rolling lawns of spacious estates. However, the potential impacts of natural hazards associated with the area make the environment and population possibly vulnerable to natural disaster situations.

Throughout history, the residents of the City of San Marino have dealt with various hazards affecting the area. The City is subject to earthquakes, landslides, flooding, wildfires, windstorms, and human-caused hazards. 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 hazards.

The city experiences an average of 286 sunny days per year, compared to a national average of 205 days. There is rarely any recorded snowfall in San Marino, ranking it as one of the least snowy places in California. San Marino experiences about 19 inches of rain annually, with an average of 37 days of precipitation annually, compared to the national average of 38 inches annually. The average temperature in San Marino ranges between 55-77°F for most of the year. Like most of Southern California, Summers in San Marino are hotter on average.

History

The site of San Marino was originally occupied by a village of Tongva (Gabrieleño) Indians located approximately where the Huntington School is today. The area was part of the lands of the San Gabriel Mission. Principal portions of San Marino were included in an 1838 Mexican land grant of 128 acres to Victoria Bartolmea Reid, a Gabrieleña Indian. After her husband died in 1836 of smallpox, she remarried Scotsman Hugo Reid in 1837. She called the property Rancho Huerta de Cuati. After Hugo Reid's death in 1852, Señora Reid sold her rancho in 1854 to Don Benito Wilson. In 1873, Don Benito conveyed to his son-in-law, James DeBarth Shorb, 500 acres, including Rancho Huerta de Cuati, which Shorb named "San Marino" after his

grandfather's plantation in Maryland, which, in turn, was named after the Republic of San Marino located on the Italian Peninsula in Europe.

In 1903, the Shorb rancho was purchased by Henry E. Huntington (1850–1927), who built a large mansion on the property. The Shorb/Huntington rancho site is occupied today by the Huntington Library, which houses a world-renowned art collection, research and rare-book library, and botanical gardens. In 1913, the three primary ranchos of Wilson, Patton, and Huntington, together with the subdivided areas from those and smaller ranchos, such as the Stoneman, White, and Rose ranchos, were incorporated as the city of San Marino. The city was incorporated on April 12, 1913, by George S. Patton (father of General George S. Patton Jr.).

Its founders designed the city to be uniquely residential, with expansive properties surrounded by beautiful gardens, wide streets, and well-maintained parkways. San Marino has very stringent zoning regulations to protect and control the growth and activities of the City with the assurance that property values will be protected. Over 90 percent of the city's developed land consists of single-family residential uses, generally on large lots (half an acre or more) with heavily landscaped streets. Local commercial uses are limited to Huntington Boulevard and Mission Street. San Marino has also fostered a sense of historic preservation. With minor exceptions, the city has strict design review and zoning laws. San Marino is restrictive of commercial operations in the city. It is one of the few cities that requires commercial vehicles to have permits to work within the city. The city contains no industry. Growth is limited to the reconstruction/construction of existing residential and commercial structures. There are no apartment buildings, condominiums, or townhouses in the city. No fast food or drive-through restaurants are allowed in San Marino, nor are most chain restaurants or businesses.

Minerals and Soils

The characteristics of the minerals and soils present in the City of San Marino indicate the potential types of hazards that may occur. Rock hardness and soil characteristics can determine whether an area will be prone to geologic hazards such as liquefaction and earthquake-induced landslides.

The soil composition of much of the terrain in San Marino consists of the Ramona loam, Ramona sandy loam, Placentia loam, and Hanford Fine Sandy (stony) loam series. The predominant soil is Ramona loam, followed by Ramona sandy loam. Ramona loam is light rich-brown or brown, has a granular structure, and generally has a medium or somewhat coarse gritty texture. The surface soils grade into redder subsoils than the surface horizons, are of heavier texture, and have an imperfectly developed cloddy structure. The lower parts of the subsoils are strongly reddish brown or brownish red, show distinct accumulations of clay, resulting in a heavier texture, and have an irregular cloddy structure. The subsoils grade into structure less light-brown substrata with a texture like that of the surface soil. The material throughout the entire profile is noncalcareous and is characterized by a high content of angular quartz grit. Except in the dense lower subsoil layers, these soils are permeable and readily penetrated by moisture and plant roots. The Ramona soils represent a moderately mature stage in the development of soil from unconsolidated alluvium derived chiefly from granitic sources. They occupy low ridges and hills and are subject to slight erosion.

Following heavy rainfalls, large amounts of debris and topsoil are washed down from moderately higher elevations in the community to the lower elevations. Although natural and

introduced vegetation has substantially reduced the extent of local erosion, steep slopes continue to erode significantly during periods of moderate to heavy rainfall.

Demographics

The data used in this section comes from the most comprehensive American Community Survey 2017 – 2022 (ACS), administered by the United States Census Bureau (U.S. Census) completed in 2022, and the California Department of Finance (DOF). This dataset shows San Marino's projected population is 12,442, with a median age of 45.5. This median age is approximately 7.3 years older than the average median age in Los Angeles County (38.2). The percentage of children under the age of 10 is slightly higher at 11% when compared to the rest of Los Angeles County, which is 10.5%. The percentage of senior residents (aged 65 and older) in the city is 6.1% higher than the rest of Los Angeles County. San Marino residents have a higher median income than the rest of Los Angeles County. In addition, a significantly lower proportion of San Marino's residents rent their homes (16.9%) than the rest of Los Angeles County residents (54.6%).

Table 2-1 identifies the basic demographics for San Marino and Los Angeles County according to the 2022 ACS 5-year projections. Note that these statistics may vary from the demographic information in **Chapter 4**, Threat Profiles, as that data set comes directly from ESRI's Business Analyst Tool.

TABLE 2-1: BASIC DEMOGRAPHICS—SAN MARINO & LOS ANGELES COUNTY

Demographic	San Marino	Los Angeles County
Total Population	12,442	9,721,138
Percent of children who are less than 10 years old	11.0%	10.5%
Percent of residents who are senior citizens (65+)	21.3%	15.2%
Median Age	45.5	38.2
Total households	3,916	3,415,726
Median household income	$174,253	$82,516
Percent of rental households	16.9%	54.6%

Sources: American Community Survey (2017-2022), ACS 2022 5-Year Projections
* 2022 Census projections identify an estimated population of 12,324, which is used in Chapter 4 of this plan.

In terms of its racial and ethnic composition, San Marino is an Asian-majority city, with 68.5% of all San Marino residents identifying as Asian. According to the ACS, this population makeup is not similar to that of Los Angeles County as a region, with some significant variations in the overall percentages. **Table 2-2** shows the racial and ethnic composition of all San Marino and Los Angeles County groups.

San Marino residents have attained higher education levels in comparison to Los Angeles County. For example, a higher percentage of the city's population has earned a bachelor's degree (80.1%) compared to the rest of Los Angeles County (35.6%). Similarly, a higher percentage of the city has attained a graduate or professional degree (38.2%) as compared to Los Angeles County (12.9%). Other categories also differ, such as a much lower percentage of people not having education past ninth grade and a lower percentage of people not having graduated high school. However, a lower percentage of the city's population has a higher High

school graduate or equivalent level of education than Los Angeles County. **Table 2-3** shows all levels of educational attainment of residents 25 years of age or older in both San Marino and Los Angeles County, according to the American Community Survey as of 2022.

TABLE 2-2: DETAILED DEMOGRAPHIC BREAKDOWN—SAN MARINO & LOS ANGELES COUNTY

Race or Ethnicity	San Marino		Los Angeles County	
	Population	Percentage	Population	Percentage
White	3,579	28.8%	4,722,263	48.6%
Black	99	0.8%	919,463	9.5%
American Indian and Alaskan Native	62	0.5%	294,810	3.0%
Asian	8,895	71.5%	1,663,191	17.1%
Native Hawaiian and Other Pacific Islander	116	0.9%	56,389	0.6%
Some Other Race Alone	383	3.1%	4,191,628	43.1%
Two or more races	627	5.0%	2,000,130	20.6%
Hispanic or Latino (of any race) *	791	6.4%	4,766,616	49.0%
Total	**12,442**	**100%**	**9,721,138**	**100%**

* The US Census Bureau does not currently count persons identifying as Latinx as a separate racial or ethnic category. Persons who identify as Hispanic or Latinx are already included in the other racial or ethnic categories

Note: Percentage values are rounded to the nearest tenth decimal.

Source: U.S. Census Bureau, 2022 American Community Survey (ACS) – San Marino and Los Angeles County

TABLE 2-3: EDUCATIONAL ATTAINMENT OF RESIDENTS 25+ YEARS OF AGE

Educational Attainment	San Marino		Los Angeles County	
	Number	Percentage	Number	Percentage
Less than 9th grade	229	2.6%	806,552	11.8%
9th grade to 12th grade (no diploma)	96	1.1%	52,1036	7.6%
High school graduate or equivalent	448	5.0%	1,404,943	20.5%
Some college (no degree)	721	8.0%	1,200,796	17.5%
Associate's degree	288	3.2%	472,296	6.9%
Bachelor's degree	3,756	41.9%	1,554,735	22.7%
Graduate or professional degree	3,419	38.2%	885,445	12.9%
Total	**8,957**	**100%**	**6,845,803**	**100%**

Note: Percentage values are rounded to the nearest tenth decimal.

Source: U.S. Census Bureau, 2022 American Community Survey (ACS) – San Marino and Los Angeles County

San Marino has a wide range of non-English languages spoken at home among its residents, with varying proficiency levels. English is the second most spoken language in San Marino. Generally, Asian and Pacific Islander are the most spoken languages in San Marino, with approximately 45.0% of the population speaking English less than "very well." Spanish is the third most spoken language in San Marino, with slightly over 36.9% of the population speaking English less than "very well." This is similar to populations in Los Angeles County, where slightly over 51.3% of Asian and Pacific Islander language speakers speak English less than "very well."

According to the ACS, **Table 2-4** shows the most spoken languages and the levels of fluency among speakers aged five years and older in San Marino and Los Angeles County.

TABLE 2-4: ENGLISH PROFICIENCY AND LANGUAGES SPOKEN AT HOME AMONG RESIDENTS AGED 5+ YEARS

Languages	San Marino		Los Angeles County	
	Number of Speakers	Percentage of speakers that speak English less than "Very Well"	Number of Speakers	Percentage of speakers that speak English less than "Very Well"
English only	450	-	4,169,105	-
Spanish	37	13 (35.1%)	3,480,588	1,468,305 (42.2%)
Indo-European*	68	2 (2.9%)	497,780	174,304 (35.0%)
Asian and Pacific Islander*	148	55 (37.2%)	975,054	500,122 (51.3%)
All other languages	36	0 (0.0%)	110,218	28,562 (25.9%)
Total	**739**	**70****	**9,232,745**	**2,171,293****

*Census data does not break down the specific languages for languages spoken in these regions

**Due to these figures only being a percentage of the overall number of speakers, they will not add up to 100%.

Note: Percentage values are rounded to the nearest tenth decimal.

Source: U.S. Census Bureau, 2021 American Community Survey (ACS) – San Marino and Los Angeles County

Economy and Commute Patterns

According to the American Community Survey 2022 ACS 5-Year Estimates, the City of San Marino has 5,484 residents (civilian employed population 16 years and over) in the workforce. This represents about a 4.4% decrease from the 5,726 residents reported to be in San Marino's workforce by the American Community Survey 2021 ACS 5-Year Estimates, consistent with the trend of the City's aging workforce and its decrease in population. The industries with the highest percentage of employees are education and social services, with 1,289 employees (23.5% of the total). Professional services and finance make up another large segment of occupations approximately (17.2%). **Table 2-5** illustrates the breakdown of employment by industry.

San Marino is primarily residential and has only two streets (Mission and Huntington) for commercial use, which could support local employment. These areas are primarily made up of small-scale retail and professional office spaces. According to the San Marino 2021-2029 Housing Element Draft, the City's largest employers are the San Marino Unified School District, with 315 employees, and the Huntington Library Art Collections and Botanical Gardens, with 459 employees.

According to the U.S Census application OnTheMap, as of 2021, of the working residents living in the City, approximately 93.8% of those residents work outside of the City, while the remaining 6.2% both live and work within the City. Approximately 91.7% of the San Marino workforce is composed of workers from outside of the City, while the remaining 8.3% is composed of local workers living and working in the City. **Table 2-6** shows the top five cities that contribute to San Marino's workforce, accounting for approximately 44.6% of those employed within the city.

TABLE 2-5: EMPLOYMENT BY INDUSTRY IN SAN MARINO		
Industry	**% of City Employment**	**% of Region Employment**
Civilian employed population 16 years and over	5484	-
Agriculture, forestry, fishing and hunting, and mining	20	0.4%
Construction	126	2.3%
Manufacturing	382	7.0%
Wholesale trade	340	6.2%
Retail trade	401	7.3%
Transportation and warehousing, and utilities	278	5.1%
Information	169	3.1%
Finance and insurance, and real estate and rental and leasing	944	17.2%
Professional, scientific, management and administrative, and waste management services	904	16.5%
Educational services, health care, and social assistance	1289	23.5%
Arts, entertainment and recreation, and accommodation and food services	279	5.1%
Other services, except public administration	220	4.0%
Public administration	132	2.4%

TABLE 2-6: TOP FIVE CITIES-OF-ORIGIN FOR SAN MARINO'S WORKFORCE (2021)		
City of Origin	**Number of Employees**	**Percentage**
Los Angeles	1,041	22.3%
Pasadena	435	9.3%
San Marino	287	6.2%
Alhambra	174	3.7%
Monterey Park	146	3.1%
Total	**Los Angeles**	1,041
Source: https://onthemap.ces.census.gov/		

While most of San Marino's residents commute outside the city for work, most commuting residents (58.6%) travel less than 10 miles to reach their place of employment. Approximately 6.1% of commuters traveled 50 miles or more, with most of those trips heading into the Inland Empire and Orange County areas. Private automobiles are the dominant means of transportation in Southern California and the City of San Marino. However, the City of San Marino meets its public transportation needs through a regional transit system. Metropolitan Transit Authority (MTA) provides bus lines that travel the main arteries in San Marino. There is also access to the MTA Rail-Gold Line in the adjacent cities of South Pasadena and Pasadena.

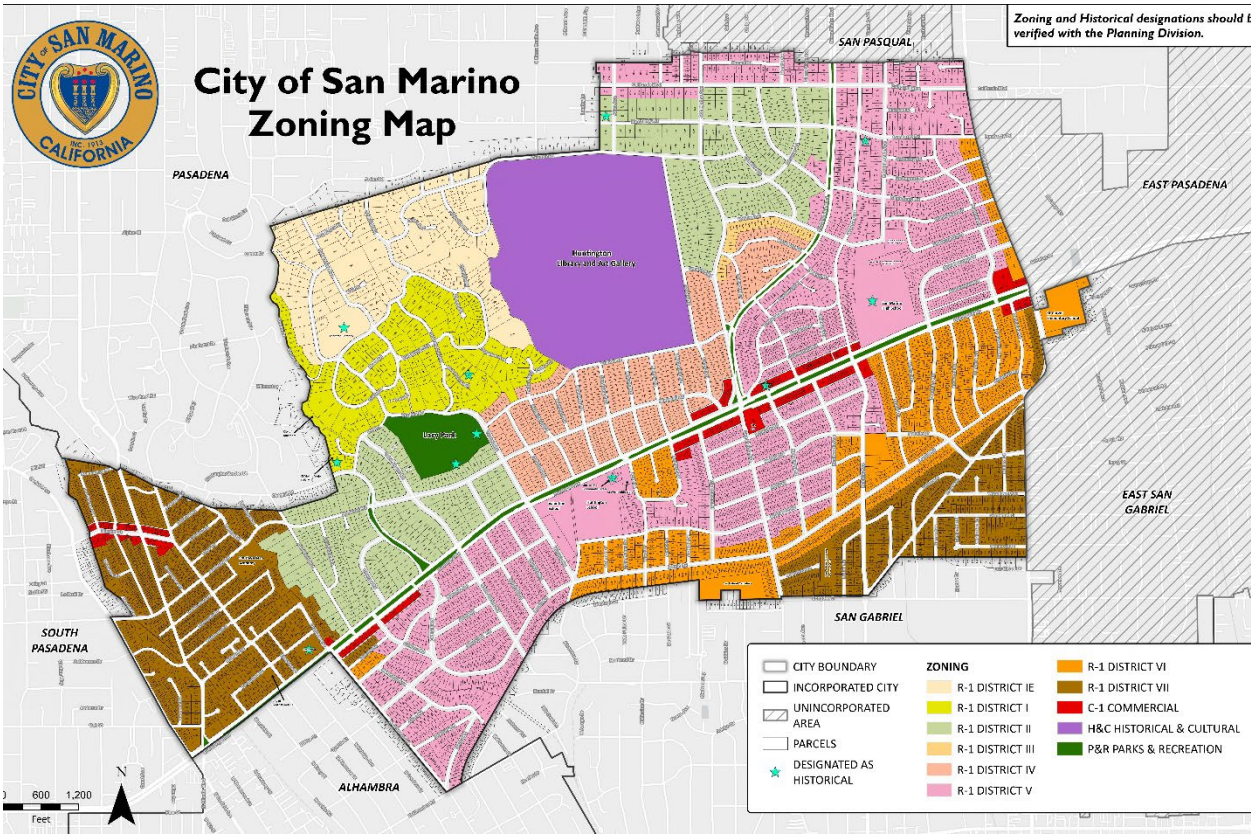
Development Trends

San Marino is located within a dense part of western Los Angeles County that has experienced significant growth and development over the past 50 years. San Marino was officially

incorporated in 1913. The city's population has declined over the past 50 years from approximately 14,177 residents in 1970 to approximately 12,442 residents in 2022, for a 13.9% decrease in the population of San Marino. According to the housing element, the city is also experiencing a decrease in the average size of a household. This decrease in household size, coupled with a decrease in population, is not unexpected in a community with both a growing number of seniors and a shrinking number of young families.

According to the 2021-2029 City of San Marino Housing Element, the city has a state-mandated regional housing needs allocation (RHNA) residential development requirement of 397 units. The RHNA process is the part of the Housing Element Law used to determine how many new residential units and the affordability of those residential units each local government must plan for in its Housing Element. The City has identified several development and redevelopment sites, some of which will need to be rezoned to accommodate all development strategies and plans to meet the City's RHNA requirement. The city development strategies are outlined in Section III: Housing Sites of the 2021-2029 Housing Element, which can be accessed here. **Figure 2-1** identifies the current zoning for properties within the City.

FIGURE 2-1: SAN MARINO LAND USE POLICY MAP



Vulnerability and Risk Reduction

All new development occurring in the amended zoning areas will provide the city with hazard vulnerability and risk reduction. This reduction will occur due to the anticipated improvements and investments implemented in the older parts of the City because of these amendments to the General Plan and zoning regulations. In addition, the new developments that will be built

will comply with the adopted building codes and use the latest techniques, further reducing vulnerabilities throughout the city.

Major Community Components

COMMUNITY ELEMENTS AND CITY PARKS

Crowell Public Library

The Library Division is part of the Community Services Department and aims to support literacy and lifelong learning at the Crowell Public Library. The Library fulfills its commitment to supporting literacy, lifelong learning, and knowledge acquisition by providing print and digital materials that meet the community's educational, professional, and recreational information needs. The Library also offers programs for all ages to apply research-based literacy practices, provides opportunities for cultural enrichment, and creates a sense of community through shared experiences. The Division also liaisons with the San Marino Public Library Foundation and the Friends of the Crowell Public Library; the role of both non-profit organizations is to support the mission of the Library.

San Marino Community Center

The newly renovated Community Center is home to several community events, meetings, and programs for all ages. In addition, the Community Center is available for private rentals and is the perfect venue for various special occasions. The facility is available seven days per week, including evenings and weekends. This 11,000-square-foot facility has 4 flexible room spaces and 2 outdoor patios to accommodate small or large gatherings, as well as 300 people for seated banquets and up to 500 people throughout the entire facility.

The Old Mill

El Molino Viejo, also known as The Old Mill, is a former grist mill in the San Rafael Hills of present-day San Marino, California, United States, and was built in 1816 by Father José María de Zalvidea from the Mission San Gabriel Arcángel (San Gabriel Mission). It is the oldest commercial building in Southern California and was one of the first ten sites in Los Angeles County to be listed on the National Register of Historic Places, receiving recognition in 1971. The Old Mill has also been designated as a California Historical Landmark. El Molino Viejo is an architectural landmark, a fascinating link to the past, and a notable California cultural center. Its beautiful gardens are an accredited arboretum and welcome visitors throughout the year. The California Art Club Gallery features paintings of California scenes that change multiple times a year.

Lacy Park

Lacy Park is a public park located in the city of San Marino, California. It is located in the San Rafael Hills, at 1485 Virginia Road. The park features large trees, open grass space, a rose garden, walking loops, tennis courts, and other amenities and areas. Consisting of over thirty acres of open space in the center of San Marino, Lacy Park was opened in 1925. It was formerly part of the 19th-century Rancho Huerta de Cuati Mexican land grant. Originally Wilson Lake in 1875, the land was purchased by the city in 1925 and dedicated as a park. The park is known

for its extensive arboretum of trees, immaculate rose garden, and monument to General George Patton, who once resided in San Marino.

Thurnher House

The historic Thurnher House is located at the front entrance of Lacy Park at 1475 Virginia Road. It features a beautiful tiled roof, graceful arches, and quaint patio areas. Built in 1929, the House is a great location for community meetings. The facility offers a large conference room featuring a working fireplace and is furnished with a conference table that can seat up to 16 people, but the House can accommodate gatherings of up to 20 people. An adjacent kitchen offers users a convenient place to heat and serve refreshments. The history of Lacy Park comes alive inside the Thurnher House, as depicted on the walls throughout the facility. Meeting rooms are available at no charge to all community groups.

Infrastructure Assessment

Infrastructure plays a vital role in mitigating the effects of hazard events. When infrastructure fails, it can exacerbate the effects of a hazard event or create complications for rescue workers trying to reach victims. For example, fallen utility poles resulting from strong winds or seismic activity can obstruct roadways and prevent emergency vehicles from reaching affected areas. The following are San Marino's electrical, gas, water and wastewater, and infrastructure transportation networks.

ELECTRICITY SERVICE

Southern California Edison (SCE) provides electricity service to the city. SCE sources electricity from power plants throughout California and neighboring states and delivers it through a network of large-scale power lines and substations. SCE is committed to delivering power reliably every day of the year, even during unusual events like heat waves. The threat of wildfires in California is real and growing. One critical tool used to prevent wildfires is the Public Safety Power Shutoff (PSPS) circuits, in which power providers may temporarily shut off power to circuits during dangerous weather conditions to prevent their electric system from becoming a source of ignition, resulting in a wildfire. These safety shutoffs are a measure of last resort for keeping residents and the community safe. San Marino does not have any PSPS circuits that directly affect the City or its electrical service. Although SCE provides electricity to the city, the City owns the majority of street light poles throughout the city. In the event of fallen street light poles, the City is responsible for replacing those poles.

NATURAL GAS

The Southern California Gas Company (SoCalGas) provides natural gas to San Marino and surrounding jurisdictions. SoCalGas owns and operates transmission lines throughout Los Angeles County to ensure sufficient natural gas throughout the region. If these lines are damaged, there is potential to interrupt the flow and delivery of natural gas throughout the region. Additionally, natural gas ignites easily. Any rupture in a transmission line could cause additional damage to properties in the vicinity of the leak due to fire from the escaped natural gas. The presence of this infrastructure creates unique challenges for the city from an emergency management perspective. The inclusion of hazards associated with damage to this

infrastructure is an important element of an effective response to future incidents involving natural gas use and transmission.

WATER SERVICE

Drinking water and wastewater collection and processing services are provided to the City by California American Water Company or the Sunnyslope Water Company, depending on the location. Cal-American and Sunnyslope Water provide all of the potable water in San Marino. During a disaster, water districts in the region work together to provide water for the City of San Marino citizens. For example, each water district has the capability to inter-tie with another district for emergencies.

WASTEWATER TREATMENT

The City of San Marino Park & Public Works Department operates and maintains its own sanitary collection system. The City's sanitary collection system consists of approximately 50 miles of gravity pipelines, serving the majority of parcels within the City's 3.8 square mile City limits. The City's wastewater collection system conveys untreated wastewater to Los Angeles County Sanitation District's (LACSD) trunk sewer system via 197 separate connections. This system has three City-owned and seven privately-owned lift stations. The City-owned lift stations include Avondale, Orlando, and Monterey.

STORMWATER DRAINAGE

There are a variety of surface water management providers in the county that manage water quality and stormwater runoff from new developments, the primary one being the Los Angeles County Department of Public Works. The City of San Marino Municipal Code, Chapter 14, article 12 addresses stormwater management and discharge.

TRANSPORTATION SYSTEM

Private automobiles are the dominant means of transportation in Southern California and the City of San Marino. However, the City of San Marino meets its public transportation needs through a regional transit system. Metropolitan Transit Authority (MTA) provides a bus line that travels the primary arterial road, Huntington Drive, in San Marino. There is also access to the MTA Rail-Gold Line in the adjacent cities of South Pasadena and Pasadena. To the north of the city is Interstate 210 (I-210), while to the south is Interstate 10 (I-10), allowing for regional transportation to surrounding counties.

Earthquakes and localized flooding can render local roads unusable. A severe winter storm can potentially disrupt the daily driving routine of thousands of people. Natural hazards can disrupt automobile traffic and shut down local and regional transit systems.

CHAPTER 3 – HAZARD ASSESSMENT

Hazard Profiles

This chapter discusses the hazards that might reasonably occur in San Marino. It describes these hazards and how they are measured, where they may occur, a history of these hazards in and around the city, and the future risks they pose. The discussion of future risks includes changes to the frequency, intensity, and/or location of these hazards due to climate change. This chapter also discusses how the HMPC selected and prioritized the hazards of this plan.

HAZARD IDENTIFICATION

FEMA guidance identifies several hazards that communities should evaluate for inclusion in a hazard mitigation plan. Communities may also consider additional hazards for their plans. The HMPC reviewed an extensive list of hazards and excluded those that do not pose a significant threat to San Marino. **Table 3-1** lists the hazards considered and explains the reasoning for inclusion/exclusion. For context, this table also shows if a hazard is recommended for consideration by FEMA if it is included in the 2018 California State Hazard Mitigation Plan (SHMP) and if it is included in the Los Angeles County Hazard Mitigation Plan (LAC HMP). This table does not include all potential impacts; the table is based on FEMA and State guidance and the most probable impacts within San Marino. As a result, some hazards like war or foreign invasion are better addressed at the Federal level.

TABLE 3-1: HAZARD EVALUATION FOR SAN MARINO LHMP

Hazard	Recommended for Consideration	Included in LHMP?	Reason for Inclusion or Exclusion
Agricultural Pests	SHMP	No	San Marino has minimal agricultural uses within the city that contribute to the economy. Concerns regarding agricultural pests are not a significant concern citywide.
Air Pollution	SHMP	No	Air pollution is a state and regional issue that is addressed through plans and regulations administered by the South Coast Air Quality Management District and/or California Air Resources Board. Since the City has little control over regulating air quality, this hazard was not included.
Aircraft Incident	SHMP	No	Given the distance to airports and lack of history associated with this hazard in the city, it was determined that this hazard should not be included in the plan.
Aquatic Invasive Species	SHMP	No	There are no lakes within the city that could be impacted by invasive aquatic species.
Avalanche	FEMA guidance SHMP	No	There is no potential for avalanches to occur within the city.

TABLE 3-1: HAZARD EVALUATION FOR SAN MARINO LHMP			
Hazard	**Recommended for Consideration**	**Included in LHMP?**	**Reason for Inclusion or Exclusion**
Civil Disturbance or Riot	SHMP	No	The city does not contain any major tourist destinations or facilities that allow large crowds of people to assemble or a history of civil disturbances.
Climate Change	SHMP LAC HMP	Yes	Climate change is a concern identified by the HMPC and has been included within each hazard profile where relevant.
Coastal Flooding and Storm	FEMA guidance SHMP	No	Based on its distance from the coast, coastal flooding and storms are not a concern for the city.
Cyber Threats	SHMP	No	Cyber security and cyber threats were not a concern of the HMPC.
Dam Failure	FEMA guidance SHMP LAC HMP	No	There are no dams or reservoirs that would affect the city in the event of failure. Given the lack of this potential, the HMPC did not identify dam failure as a hazard of concern.
Drought	SHMP LAC HMP	No	Droughts are a recurring hazard in San Marino and Southern California and can affect city water supplies. The city's water supply comes from multiple water districts that purchase water from other sources/purveyors. Drought is addressed in both water districts' Urban Water Management and Hazard Mitigation Plans and supported by the city. The San Marino City municipal code chapter 7.30 outlines the water-efficient landscape regulations put in place by the city to aid in drought mitigation. As the water supply for the city is out of their control, and current policies are in place by both the city and the water districts, drought was not identified as a hazard that should be addressed in the City's Hazard Mitigation Plan.
Energy Shortage	SHMP	No	San Marino's electrical power is provided by Southern California Edison, which has a long history of reliability. Therefore, the HMPC decided that this was not a concern for the city.
Epidemic, Pandemic, Vector-Borne Disease	SHMP	No	Although epidemic, pandemic, and vector-borne diseases can occur in the City, there are no major tourist attractions that could be point sources for major infection events or historic issues with this type of hazard.
Erosion	FEMA guidance SHMP	No	The city has not experienced major cases of erosion; therefore, the HMPC decided it was not a concern for the city.
Expansive Soil	FEMA guidance	No	The City does not experience a significant issue with expansive soils.

TABLE 3-1: HAZARD EVALUATION FOR SAN MARINO LHMP			
Hazard	**Recommended for Consideration**	**Included in LHMP?**	**Reason for Inclusion or Exclusion**
Extreme Cold	FEMA guidance SHMP	No	Temperatures in San Marino do not fall to a level that would be considered a danger to public safety.
Extreme Heat	FEMA guidance SHMP	Yes	Extreme heat conditions have occurred in the city and are expected to be a future recurring issue and has been added as a hazard of concern by the HMPC.
Fault Rupture	FEMA guidance SHMP LAC HMP	Yes	The City of San Marino is in close proximity to several major fault zones, notably the Sierra Madre Fault Zone, Raymond Fault, and the Puente Hills Fault. Due to this, the HMPC identified fault rupture as a hazard of concern.
Flooding	FEMA guidance SHMP LAC HMP	Yes	The city experiences periods of heavy rainfall between October and April, which, combined with the hillside topography within the community, could cause flooding in key areas of the city.
Fracking	SHMP	No	Fracking does not occur in San Marino.
Hail	FEMA guidance	No	Hail that is severe enough to pose a threat to people and property is not a concern identified by the HMPC.
Hazardous Materials release	SHMP	Yes	The threat posed by hazardous materials release incidents occurring is low; however, the potential does exist. This is a hazard of concern for the city.
Hurricane	FEMA guidance SHMP	No	Hurricanes do not occur with any frequency in San Marino and are not a concern for the City.
Infrastructure Failure	SHMP	Yes	Infrastructure failure poses a threat to people and property in San Marino. While not a stand-alone hazard of concern, it is recognized and is discussed as a function of other hazards.
Landslide	FEMA guidance SHMP LAC HMP	Yes	Areas of the city have varying degrees of landslide potential. As a result, the HMPC identified this as a hazard of concern within the plan.
Levee Failure	SHMP	No	The HMPC identified flooding as a hazard of concern; however, given the lack of levees within the city this was not identified as a hazard of concern.
Lightning	FEMA guidance	No	Although lightning occasionally occurs in San Marino, it does not pose a significant threat to people or property.
Liquefaction	FEMA guidance SHMP	Yes	According to the California Geological Survey, portions of the city are located within liquefaction-prone areas. Based on this mapping, the HMPC identified liquefaction as a hazard of concern.

TABLE 3-1: HAZARD EVALUATION FOR SAN MARINO LHMP			
Hazard	**Recommended for Consideration**	**Included in LHMP?**	**Reason for Inclusion or Exclusion**
Methane-containing Soils		No	The city does not have a history of incidents involving methane-containing soils and is not a hazard of concern identified by the HMPC.
Natural Gas Pipeline Hazards	SHMP	Yes	Natural gas transmission pipelines are located within the city and could pose a danger to people and property if they breach and release their contents into the community.
Oil Spills	SHMP	No	This is not a hazard of concern as there is no oil drilling occurring within the city.
Power Failure	SHMP	No	San Marino's electrical power is provided by Southern California Edison, which has a long history of reliability. Therefore, the HMPC decided that this was not a concern for the city. PSPS circuits are discussed in the wildfire section as a potential source of power interruption during wildfire and high wind conditions.
Radiological Accidents	SHMP	No	There are no known major radiation sources in San Marino or the immediate surrounding area that could seriously threaten the community.
Sea-level Rise	FEMA guidance SHMP	No	San Marino is not located within close proximity to the ocean.
Seiche	FEMA guidance SHMP	No	No major bodies of water in San Marino could be subjected to seiche; therefore, the HMPC did not deem this hazard a concern.
Seismic Shaking	FEMA guidance SHMP LAC HMP	Yes	San Marino is in a seismically active area where shaking can be severe enough to damage property or cause loss of life. For this reason, the HMPC determined it should be addressed in this plan.
Severe Wind	FEMA guidance	Yes	Windstorms are a common occurrence within the city and Southern California. The HMPC determined this as a hazard of concern for the city.
Severe Weather and Storms	FEMA guidance SHMP	No	Severe Weather includes discussions regarding severe storms and rain, which are weather-related hazards uncommon in San Marino.
Storm Surge	FEMA guidance	No	The HMPC did not identify this as a hazard of concern since the city is not located near the California coastline.
Subsidence	FEMA guidance	No	The HMPC did not identify subsidence as a hazard of concern.
Mass-Casualty Incident (Terrorism)	SHMP	No	The HMPC did not identify mass-casualty incidents and terrorism as potential hazards of concern.

TABLE 3-1: HAZARD EVALUATION FOR SAN MARINO LHMP			
Hazard	**Recommended for Consideration**	**Included in LHMP?**	**Reason for Inclusion or Exclusion**
Thunderstorm	SHMP	No	Thunderstorms that cause damage and endanger public safety are rare in this part of Southern California.
Tornadoes	FEMA guidance SHMP	No	Tornadoes were not considered a hazard that could impact the city regularly and were not included in this LHMP.
Transportation Accidents	SHMP	No	Given the lack of major transportation routes through the city, the HMPC did not identify this hazard as a concern for this plan.
Tree Mortality	SHMP	No	While the city's tree inventory is a significant asset at risk, it was not identified as a hazard of concern by the HMPC.
Tsunami	FEMA guidance SHMP LAC HMP	No	The HMPC did not identify tsunamis as a hazard of concern since the city is not located near the California coastline.
Urban Fire	SHMP	Yes	The HMPC identified urban fires as a risk to property and life in San Marino and, therefore, was included in this plan as a part of the wildfire hazard discussion.
Volcano	SHMP	No	There are no volcanoes near San Marino that pose a reasonable threat.
Wildfire	FEMA guidance SHMP LAC HMP	Yes	The HMPC identified wildfire as a major threat to the city, and, therefore, was included in this plan.

After hazard evaluation and the organizational changes were made by the HMPC, this Plan discusses eight broad hazard types with their respective sub-categories (**Table 3-2**), including climate change, which is discussed in each hazard profile:

TABLE 3-2: HAZARD CATEGORIES AND SUB-CATEGORIES	
Hazard Category	**Sub-Categories**
Earthquake	Fault Rupture Seismic Shaking Liquefaction
Windstorm	
Wildfire	Wildland Fire Urban Fire
Extreme Heat	
Human-Caused Hazards	Natural Gas Pipeline Hazardous Materials Release
Flood	
Landslide	
Climate Change	(*Discussed in all relevant Hazard Categories)*

Hazard Scoring And Prioritization

The HMPC followed FEMA guidance for hazard mitigation plans and prioritized each of the eight hazards and their respective subcategories. In the initial step, it assigned a score of 1 to 4 for each of the hazards for the following criteria:

- **Probability:** The likelihood that the hazard will occur in San Marino in the future.
- **Magnitude/Severity:** The severity of the direct damage caused by the hazard to San Marino.
- **Warning Time:** The time the city has before a disaster event/hazard impacts San Marino.
- **Duration:** The time that the disaster event will affect San Marino.

The HMPC assigned a weighting value to each criterion, giving a higher weight to the criteria deemed more important, and multiplied the score for each criterion by weighing the factors to determine the overall score for each criterion.

FEMA recommended the following weighting values:

- **Probability:** 45%
- **Magnitude/Severity:** 30%
- **Warning Time:** 15%
- **Duration:** 10%

Table 3-3 shows the Criterion Scoring used to assign a score for each criterion.

After calculating the total impact score for each hazard (sum of the probability, magnitude/severity, warning time, and duration). FEMA guidance recommends multiplying the total impact score by the overall probability to determine the final score for each hazard. A final score between 4.0 (High Threat) and 0.0 (No Threat) is calculated using the weighted scale provided in **Table 3-3** to determine each hazard's overall threat level to San Marino. Any hazard ranked from 4.0 to 3.0 is considered a high threat to the city, 2.9 to 2.0 is considered a medium threat, 1.9 to 1.0 is considered a low threat, and a score of 0.9 to 0.0 is considered an extremely low/negligible threat to the city.

Earthquake Hazards

Earthquakes are high priority hazards because they are likely to happen, affect a wide area, and can be very damaging.

Source: LA Times

In compliance with the Disaster Mitigation Act (and as further specified by Interim Final Rule 44 CFR Section 206.401(c)(2)(i)), this LHMP addresses, in substantial detail, the primary hazards facing the City. Lower-priority hazards are addressed in less detail due to their relatively reduced impacts, as identified in the hazard assessment discussion. **Table 3-4** shows each hazard's criterion scores, final score, and threat level based on the above prioritization process.

TABLE 3-3: CRITERION SCORING				
CPRI Category	Degree of Risk Chart			Assigned Weight Factor
	Level ID	Description	Index Value	
Probability	Unlikely	• Extremely rare with no documented history of occurrences or events. • Annual probability of less than 0.001	1	45%
	Possible	• Extremely rare with no documented history of occurrences or events. • Annual probability of between 0.01 and 0.001	2	
	Likely	• Occasional occurrence with at least two or more documented historic events. • Annual probability of between 0.1 and 0.01	3	
	Highly Likely	• Frequent events with a well-documented history of occurrence. • Annual probability of greater than 0.1	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 quality of life lost • Shut down of critical facilities for less than 24 hours	1	30%
	Limited	• Slight property damages (greater than 5% and less than 25% of critical and non-critical facilities and infrastructures) • Injuries and illnesses do not result in permanent disability and there are no deaths • Moderate quality of life lost • Shut down of critical facilities for more than 1 day and less than 1 week	2	
	Critical	• Moderate property damages (greater than 25% and less than 50% of critical and non-critical facilities and infrastructures) • Injuries or illnesses result in permanent disability and at least one death • Shut down of critical facilities for more than 1 week and less than 1 month	3	
	Catastrophic	• Severe property damages (greater than 50% of critical and non-critical facilities and infrastructure) • Injuries or illnesses result in permanent disability and multiple deaths • Shut down of critical facilities for more than 1 month	4	
Warning Time	Less than 6 hours	Population will receive less than 6 hours of warning	4	15%
	6 to 12 hours	Population will receive between 6-12 hours of warning	3	
	12 to 24 hours	Population will receive between 12-24 hours of warning	2	
	More than 24 hours	Population will receive greater than 24 hours of warning	1	
Duration	Less than 6 hours	Disaster event will last less than 6 hours	1	10%
	Less than 24 hours	Disaster event will last between 6-24 hours	2	
	Less than one week	Disaster event will last between 24 hours and 1 week	3	
	More than one week	Disaster event will last more than 1 week	4	

TABLE 3-4: HAZARD SCORES AND THREAT LEVEL					
Hazard Type	**Probability (1-4)**	**Severity (1-4)**	**Warning Time (1-4)**	**Duration (1-4)**	**Priority Ranking (1-4)**
Earthquake (Fault Rupture, Seismic Shaking, Liquefaction)	4	4	4	3	3.90 *(High)*
Windstorm	4	3	4	4	3.70 *(High)*
Wildfire	4	4	3	2	3.65 *(High)*
Extreme Heat	4	2	1	3	2.85 *(Medium)*
Human-caused hazards (Natural Gas Pipeline, Hazardous Materials Release)	3	3	2	2	2.75 *(Medium)*
Flood	2	2	2	2	2.00 *(Low)*
Landslide	1	2	2	2	1.55 *(Low)*

Earthquake Hazards (Fault Rupture, Seismic Shaking, Liquefaction)

DESCRIPTION

An earthquake is a sudden motion or trembling caused by a release of strain accumulated within or along the edge of the Earth's tectonic plates. The effects of an earthquake can be felt far beyond the site of its occurrence. They usually occur without warning and can cause massive damage and extensive casualties after just a few seconds. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure. Ground motion is the vibration or shaking of the ground during an earthquake. When a fault ruptures, seismic waves radiate, causing the ground to vibrate. The severity of the vibration increases with the amount of energy released and decreases with distance from the causative fault or epicenter. This sudden discharge of energy into the crust can lead to rupturing of land that sits on top of fault lines, liquefaction in areas with wet soil, or landslides in hilly or mountainous areas.

Fault Rupture

Fault Rupture occurs when the earth's surface shifts and cracks along a fault line during a seismic event. While this phenomenon is not especially dangerous in natural environments, issues arise when structures are built near or on top of an active fault. Per the California Geological Survey (CGS), an active fault has experienced surface movement in the past 11,700 years.

The shifting and movement of the earth's tectonic plates are responsible for seismic events. These tectonic plates can pull away from, move toward, or pass by each other. As they do, the plates sometimes lock together. This inability to move creates tension, which is eventually released like a springboard. The tension dissipates into the earth's crust. The location at which two tectonic plates join is called a fault line. Fault lines are sometimes visible on the earth's crust as sudden rifts or anomalies in the landscape's continuity. California's major north-south fault line is the San Andreas Fault, where the North American and Pacific Plates meet. However, constant friction between the two plates over the millennia has caused the areas where the two plates intersect to become fragmented, creating new, smaller faults.

The area near a fault line is at risk of damage due to the potential for a fault rupture—the deformation or displacement of land on either side of the fault—and may move a few inches to several feet in opposite directions. Buildings or infrastructure near a fault line could be severely damaged or destroyed. The fault rupture's direction depends on the fault type: dip-slip faults produce vertical shearing, strike-slip faults produce horizontal shearing, and oblique-slip faults produce both vertical and horizontal shearing. A fourth kind of fault, called a "blind" fault, produces virtually no visible land displacement.

Some faults have emerged recently in geologic history. Quaternary faults have developed between the Holocene Era and the present (within the last 1.8 million years). These faults are especially concerning since they are the most likely to be active and cause future earthquakes.

Seismic Shaking

Seismic shaking is the motion felt on the earth’s surface caused by an earthquake. In most cases, earthquakes are not powerful enough to feel the shaking. However, particularly powerful earthquakes can generate significant shaking, causing widespread destruction resulting in property damage.

Liquefaction

Occurs when seismic energy is released within an area with low-density, fine-grain soil, like sand or silt, which is saturated with water. Liquefaction occurs when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking.[3] During liquefaction events, the liquified soil can lose most of its stability, which can cause damage to buildings and infrastructure built upon it. In severe cases, some buildings may completely collapse. Pipelines or other utility lines running through a liquefaction zone can be breached during a liquefaction event, potentially leading to flooding or the release of hazardous materials.

LOCATION AND EXTENT

Fault Rupture

Earthquakes are considered a major threat to the City of San Marino due to the proximity of several major fault zones, notably the San Andreas Fault Zone, the San Joaquin Hills Fault Zone, the Newport-Inglewood Fault Zone, the Elsinore Fault, and the Puente Hills Fault. San Marino has two known faults that run through or near the city: the Raymond Fault and a portion of the San Rafael Fault. A significant earthquake along either one of the major faults could cause

[3] USGS Definition of Liquefaction - https://www.usgs.gov/faqs/what-liquefaction

substantial casualties, extensive damage, and other threats to life and property. The shaking of the ground can also damage or destroy underground utilities or pipelines, potentially leading to the release of hazardous materials and flooding if water lines are breached.

San Marino can expect varying degrees of damage citywide depending on the magnitude and duration of an earthquake along one of the faults in the region. The city's topography means there are areas of the community constructed on slopes, which may be subject to earthquake-induced landslides (reference the landslide hazard profile for further discussion).

Seismic Shaking

Southern California, including San Marino, is a highly seismic area due to the major faults that run through the region and is subject to seismic shaking. The intensity of seismic shaking is usually measured with the Modified Mercalli Intensity (MMI) scale, which is based on the amount of observed damage. The MMI scale has replaced the Richter scale, which is no longer used since it loses effectiveness when measuring larger earthquakes. Since the degree of shaking, and consequently damage, generally decreases as the seismic energy travels further away from the fault rupture's point of origin, different sections of a city or region can report different MMI measurements in different locations. The MMI scale uses Roman numerals on a 12-point scale to measure each degree of shaking intensity. **Table 3-5** shows the MMI scale, while **Table 3-6** lists the earthquake faults that can impact the City.

TABLE 3-5: MODIFIED MERCALLI INTENSITY SCALE[4]

Intensity	Description	Description
I	Instrumental	Felt only by very few people under especially favorable conditions.
II	Feeble	Felt only by a few people at rest, especially on the upper floors of buildings.
III	Slight	Noticeable by people indoors, especially on upper floors, but not always recognized as an earthquake.
IV	Moderate	Felt by many indoors and by some outdoors. Sleeping people may be awakened. Dishes, windows, and doors are disturbed.
V	Slightly strong	Felt by nearly everyone, and many sleeping people are awakened. Some dishes and windows broken, and unstable objects overturned.
VI	Strong	Felt by everyone. Some heavy furniture is moved, and there is slight damage.
VII	Very strong	Negligible damage in well-built buildings, slight to moderate damage in ordinary buildings, and considerable damage in poorly built buildings.
VIII	Destructive	Slight damage in well-built buildings, considerable damage and partial collapse in ordinary buildings, and great damage in poorly built buildings.
IX	Ruinous	Considerable damage in specially designed structures. Great damage and partial collapse in substantial buildings, and buildings are shifted off foundations.

[4] United States Geological Survey. 2019. The Modified Mercalli Intensity Scale. https://www.usgs.gov/programs/earthquake-hazards/modified-mercalli-intensity-scale

TABLE 3-5: MODIFIED MERCALLI INTENSITY SCALE[4]		
Intensity	**Description**	**Description**
X	Disastrous	Most foundations and buildings with masonry or frames are destroyed, along with some well-built wood structures. Rail lines are bent.
XI	Very disastrous	Most or all masonry structures are destroyed, along with bridges. Rail lines are greatly bent.
XII	Catastrophic	Damage is total. The lines of sight are distorted, and objects are thrown into the air.
Source: United States Geological Survey. 2019. The Modified Mercalli Intensity Scale. https://www.usgs.gov/media/images/modified-mercalli-intensity-mmi-scale-assigns-intensities		

Another scale for measuring seismic shaking is the moment magnitude scale (MMS, denoted Mw or simply M). The MMS measures the energy released by the fault rupture, which begins at 1.0 and increases as the earthquake's energy grows. The MMS is a logarithmic scale, meaning that the difference between numbers on the scale multiplies as they increase. An earthquake with 5.0 M is approximately 1.4 times greater than 4.9 M, 32 times greater than 4.0 M, and 1,000 times greater than 3.0 M.

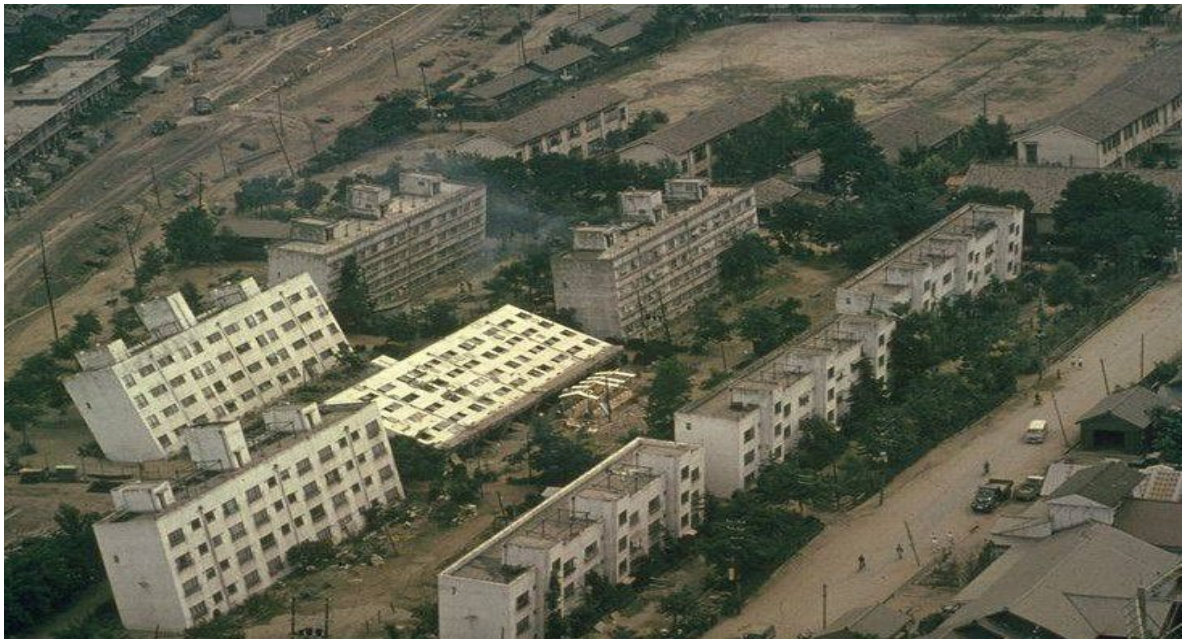
TABLE 3-6: EARTHQUAKE FAULTS IMPACTING THE CITY OF SAN MARINO					
Fault Name	Magnitude	Modified Mercalli Ranking	Perceived Shaking	Potential Damage	Threat Issues
San Andreas	7.8	VIII	Severe	Moderate to Heavy	**Major Threat**
Sierra Madre	7.16	VIII	Severe	Moderate	**Moderate Threat**
Newport-Inglewood	7.02	VII	Strong	Light	**Moderate Threat**
Raymond	6.71	VIII	Severe	Light	**Moderate Threat**
Elysian Park	6.65	VIII	Severe	Light	**Moderate Threat**
Puente Hills	6.95	VIII	Strong	Light	**Moderate Threat**
Verdugo	6.9	VIII	Strong	Light	**Moderate Threat**
Whittier	6.8	VI	Strong	Light	**Moderate Threat**
San Jacinto	6.7	V	Moderate	Very Light	**Minor Threat**

Seismic shaking can also be measured in relationship to the force of Earth's gravity (g) or percent g. This method is useful for geographically displaying areas of seismic shaking potential. Percent g is computed by determining the acceleration of the earthquake's motion relative to the force of gravity. The acceleration of gravity is 980 centimeters per second, so if, for example, an earthquake's acceleration is measured at 765 centimeters per second, the shaking is modeled as 765/980, or .781 g (78.1% g). **Figure 3-1** shows the seismic hazard zones and associated faults in and around San Marino, while **Figure 3-2** shows the seismic shaking potential in the City.

Liquefaction

Occurs when ground shaking causes wet granular soils to change from a solid state to a liquid state. This 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. Liquefaction generally occurs during significant earthquake activity, and 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. 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.

Historically, liquefaction has not presented a significant hazard in the City of San Marino because groundwater levels are low. The California Geological Survey, conducted by the California Department of Conservation, Division of Mines and Geology, has identified and mapped areas surrounding the City of San Marino as susceptible to seismically induced liquefaction. As seen in **Figure 3-3**, the liquefaction threat is located near the city's northeastern border, and the threat is ranked as having medium to high liquefaction potential in these areas. The rest of the city generally is classified as generally having a minimal liquefaction potential.



Liquefaction

Liquefaction caused by the 1964 Niigata, Japan earthquake caused these apartment blocks to experience severe leaning.

Source: The University of Washington

FIGURE 3-1: FAULT SYSTEMS IN AND AROUND SAN MARINO

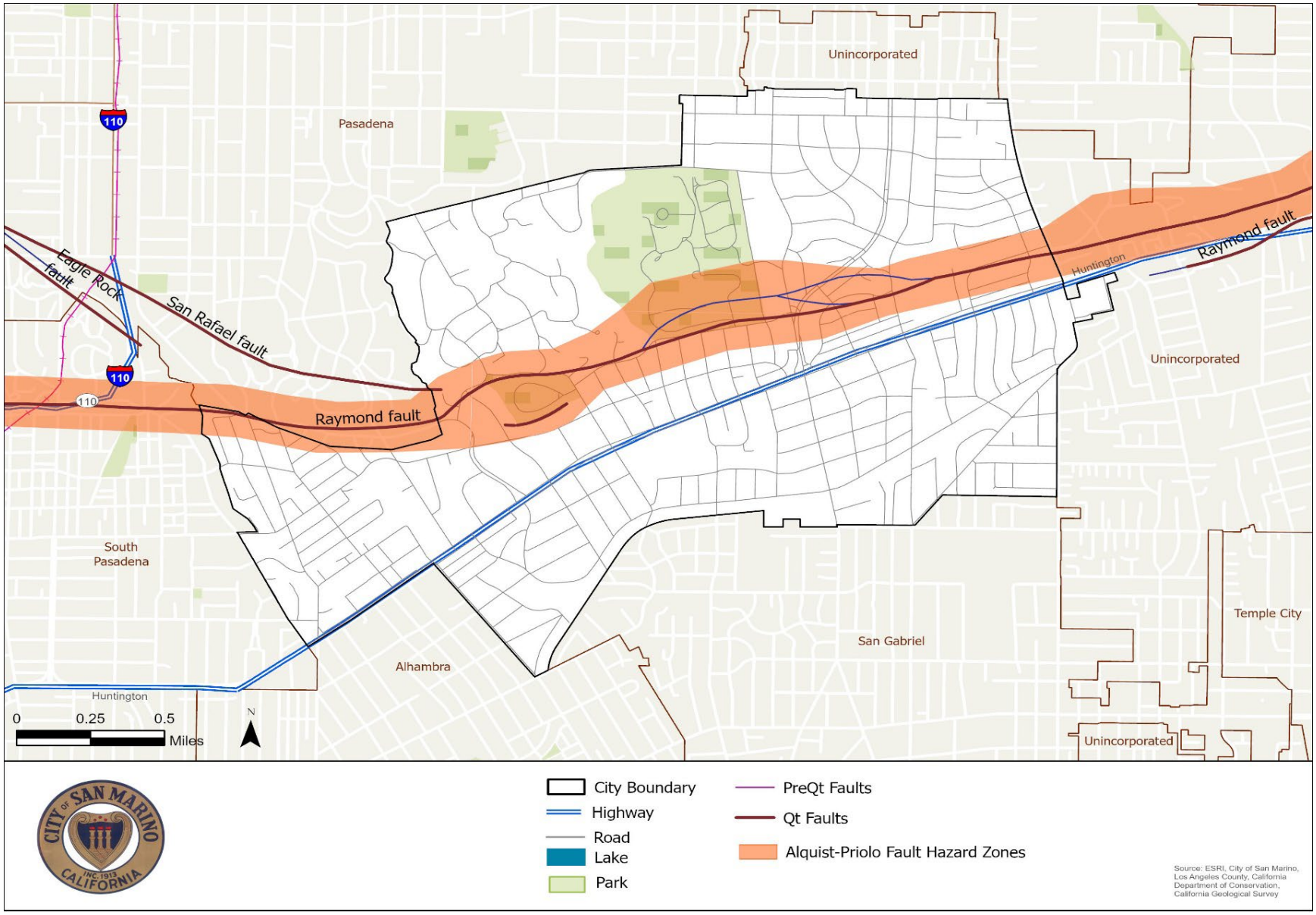


FIGURE 3-2: SEISMIC SHAKING POTENTIAL IN SAN MARINO

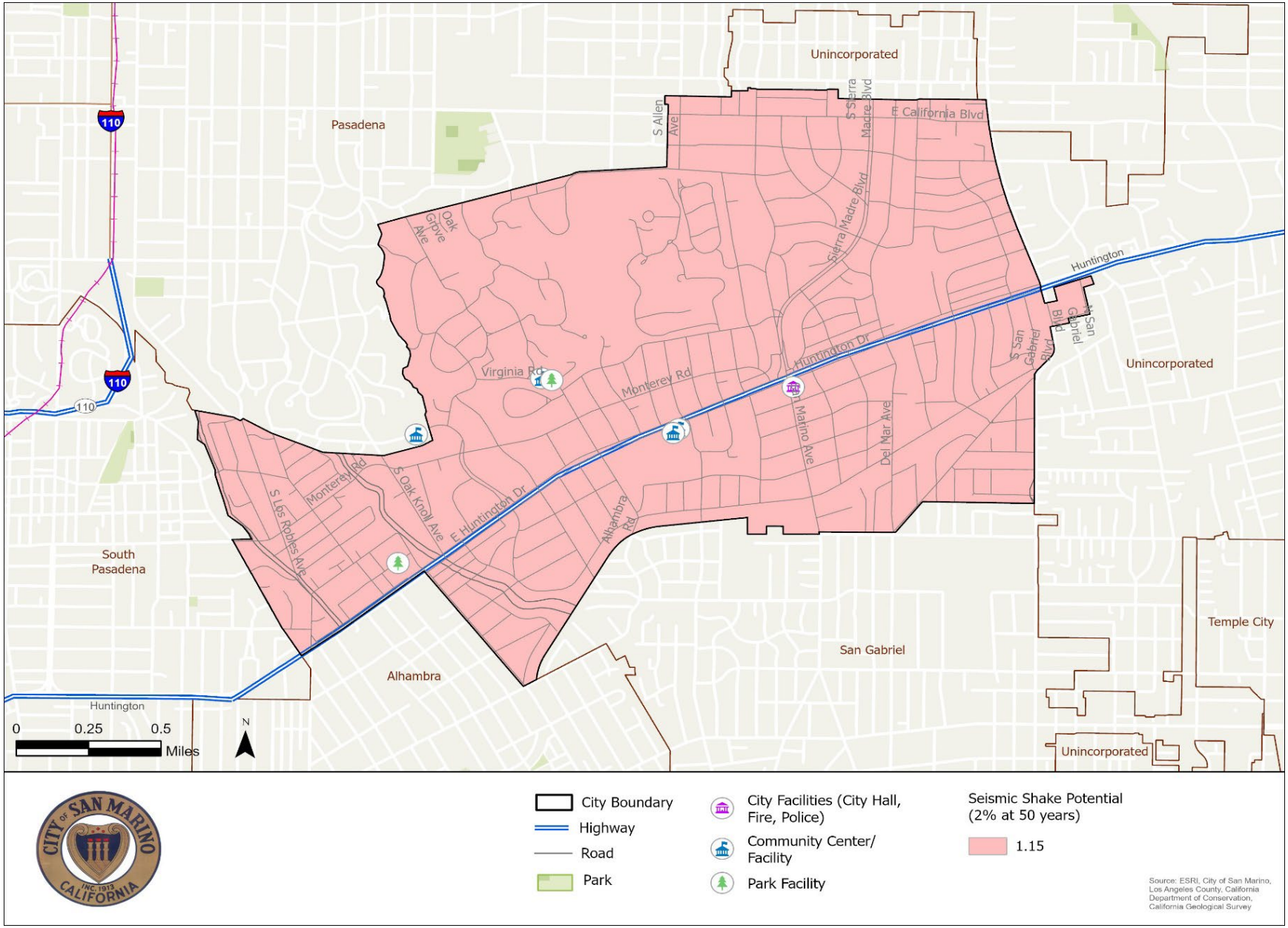
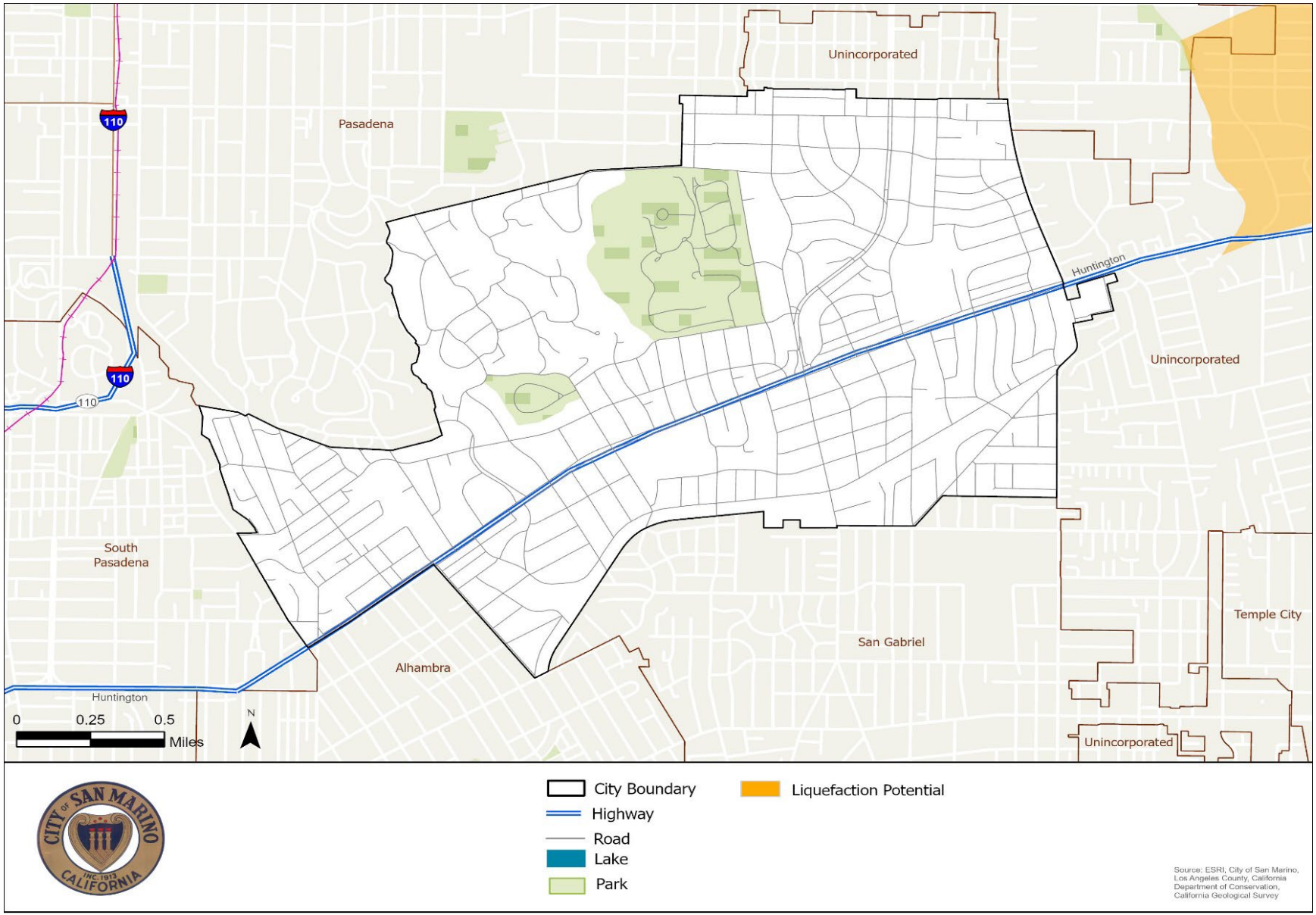


FIGURE 3-3: LIQUEFACTION POTENTIAL IN SAN MARINO



PAST EVENTS

Since seismologists started recording and measuring earthquakes, there have been tens of thousands of recorded earthquakes in Southern California, most with a magnitude below three. No community in Southern California is beyond the reach of a damaging earthquake. **Table 3-7** shows all earthquakes in Southern California with a magnitude of 5.0 or higher

TABLE 3-7: EARTHQUAKE EVENTS IN THE SOUTHERN CALIFORNIA REGION (5.0+ MW)		
1812 Wrightwood	1940 Imperial Valley	1987 Whittier Narrows
1812 Santa Barbara Channel	1941 Santa Barbara	1991 Sierra Madre
1857 Fort Tejon	1942 Fish Creek Mountains	1992 Joshua Tree
1892 Laguna Salada	1947 Manix	1992 Big Bear
1899 Cajon Pass	1948 Desert Hot Springs	1994 Northridge
1899 San Jacinto Fault Zone	1952 Kern County	2001 West Hollywood
1910 Elsinore	1954 San Jacinto Fault (Arroyo Salada)	2008 Chino Hills
1915 Imperial Valley	1968 Borrego Mountain	2010 Baja CA
1918 San Jacinto	1971 San Fernando	2012 Brawley
1923 North San Jacinto Fault	1978 Santa Barbara	2014 La Habra
1925 Santa Barbara	1979 Imperial Valley	2016 Borrego Springs
1927 Lompoc	1986 North Palm Springs	2019 Ridgecrest
1933 Long Beach	1986 Oceanside	2021 Antelope Valley
Source: https://www.earthquakeauthority.com/California-Earthquake-Risk/California-Earthquake-History-Timeline		

Fault Rupture

Seismic events involving fault rupture within the City have not occurred recently. It should be noted that the Alquist-Priolo Special Study Zone located along the Raymond Fault has a historic rupture interval of several thousand years.

Seismic Shaking

San Marino has undoubtedly felt the shaking of regional earthquakes, some stronger than others. The nearest earthquake event to San Marino that caused significant damage throughout the Southern California region was the 1933 Long Beach earthquake. The actual epicenter of the quake was in the City of Huntington Beach; however, most of the damage occurred in areas north of the epicenter. The event caused more than $50 million in property damage and resulted in the deaths of 120 people. Most deaths and damage from the 1933 Long Beach Earthquake occurred because of collapsing unreinforced masonry buildings.

Other strong regional earthquakes have occurred in Southern California, but their epicenters have been so distant from San Marino that seismic shaking generated by the earthquake did not cause significant property damage or harm to the City. For example, the 2014 La Habra earthquake caused major damage in Fullerton, La Habra, and Brea, though it was only considered light shaking in San Marino.

The most recent significant earthquake event affecting Southern California was the Northridge Earthquake on January 17, 1994. At 4:31 A.M. on Monday, January 17, a moderate but very damaging earthquake of 6.7 M struck the San Fernando Valley. Thousands of aftershocks occurred in the following days and weeks, causing additional damage to affected structures. Fifty-seven people were killed, and more than 1,500 people were 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, leaving 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 the 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. **Table 3-8** shows significant earthquakes – magnitude 6.0 Mw or greater – that have occurred within 100 miles of San Marino since the beginning of the 20th century. Authorities made disaster declarations in Los Angeles County and Southern California for the 1994 Northridge Earthquake.

Seismic Shaking

Seismic shaking primarily affects unreinforced masonry buildings, as seen here with this Long Beach middle school damaged by the 1933 Long Beach earthquake.

Source: The University of Washington

TABLE 3-8: SIGNIFICANT EARTHQUAKES (6.0+ MW) WITHIN 100 MILES OF SAN MARINO*

Event Name	Magnitude
9/12/1970 - Lytle Creek	Mw 5.2
2/09/1971 - San Fernando	Mw 6.6
12/03/1988 - Pasadena	Mw 5.0
1/19/1989 - Malibu	Mw 5.2
2/28/1990 - Upland	Mw 5.4
6/28/1991 - Sierra Madre	Mw 5.8
6/28/1992 - Big Bear/Landers	Mw 7.3
1/17/1994 - Northridge	Mw 6.7
10/16/1999 - Hector Mine**	Mw 7.1
7/29/2008 - Chino Hills	Mw 5.4

Source: Los Angeles Almanac

* Distance between the epicenter and San Marino City Hall

** Over 100 miles away, a massive seismic event was included for context.

Source: Southern California Earthquake Data Center. 2021. Earthquake Catalogs SCSN Catalog Search (1932-Present). http://service.scedc.caltech.edu/eq-catalogs/radius.php

Liquefaction

Limited information is available on past liquefaction events in San Marino. Since these events occur in conjunction with strong earthquakes, the nearest and most recent liquefaction event would have occurred near the mouth of the San Gabriel River at Alamitos Bay because of the Long Beach Earthquake in 1933. It was reported that pavement buckled, cracks appeared in the ground, and "mud volcanoes" erupted in the Los Alamitos area.[5]

RISK OF FUTURE EVENTS

Earthquakes have and will continue to happen in San Marino, Los Angeles County, and the region in general. As discussed in **Table 3-3**, a "highly likely" probability indicates a greater than ten percent chance of earthquake hazards occurring annually.

Fault Rupture

Given the presence of the Raymond Fault within the City, it is likely that fault rupture could occur in the future. The Sierra Madre Fault has a decreasing probability range from 1.50% to 0.35%, increasing in magnitude from 6.7 to 8.0.

Seismic Shaking

Historical and geological records show California has a long history of seismic events. Southern California is probably best known for the San Andreas Fault, a 400-mile-long fault running from the Mexican border to a point offshore, west of San Francisco. Geologic studies show that over the past 1,400 to 1,500 years, large earthquakes have occurred at about 130-year intervals on the Southern San Andreas Fault. As the last large earthquake on the Southern San Andreas occurred in 1857, that section of the fault is considered a likely location for an earthquake within the next few decades. The Third Uniform California Earthquake Rupture Forecast (UCERF3) was released in 2015 and is the most recent assessment of the probability of a major earthquake on various faults between 2015 and 2044. **Table 3-9** shows the results for San Marino's nearby and regional fault lines.

The U.S. Geological Survey scenarios show that the Raymond could cause the strongest seismic shaking in San Marino, followed by San Andreas, San Jacinto, and the Elsinore faults. The more distant faults, like the San Jacinto and San Andreas faults, can produce more intense earthquakes but are less likely to cause damage in San Marino due to their greater distance from the City. However, as noted in **Table 3-9,** the likelihood of a powerful earthquake occurring along the majority of these faults within the next 25 years is generally very low (excluding the San Andreas).

[5] California Geological Survey. 1998. "Seismic Hazard Zone Report for the Los Alamitos 7.5-Minute Quadrangle, Los Angeles and Orange Counties, California." http://gmw.conservation.ca.gov/SHP/EZRIM/Reports/SHZR/SHZR_019_Los_Alamitos.pdf

TABLE 3-9: EARTHQUAKE PROBABILITIES FOR KEY FAULTS NEAR SAN MARINO (2015-2044)

Fault	Distance (Miles)*	Estimated Probabilities			
		6.7+ Mw	7.0+ Mw	7.5+ Mw	8.0+ Mw
Raymond	0.82	1.50	1.02	0.35	<0.01
Verdugo	1.46	0.47	0.40	0.26	<0.01
Sierra Madre	4.52	1.17	1.12	0.78	0.03
Elysian Park	5.27	1.26	0.78	0.07	Negligible
Hollywood	6.78	1.46	1.11	0.25	<0.01
Whittier	8.21	0.49	0.42	0.25	Negligible
Puente Hills	10.25	1.01	0.51	0.15	Negligible
Newport- Inglewood	17.75	0.99	0.77	0.38	Negligible
Palos Verdes	26.55	2.97	2.68	0.10	Negligible
Chino Alt	27.39	1.42	0.15	0.08	Negligible
Elsinore	35.81	3.19	1.68	0.89	<0.01
San Jacinto	40.96	4.32%	4.31%	4.25%	2.32%
San Andreas	41.31	19.02%	15.55%	11.78%	4.06%

* Distance between San Marino City Hall and the nearest point of the fault. All distances are approximate.

† Southern California segments only.

Note: UCERF3 results consist of two individual models (3.1 and 3.2), each of which provides rupture probabilities for each segment of the fault. This table shows the maximum probability for a section of the fault in either model.

Source: Working Group on California Earthquake Probabilities. 2015. The Third California Earthquake Rupture Forecast (UCERF3). http://www.wgcep.org/ucerf3

Liquefaction

Soil liquefaction is a seismically induced form of ground failure, which has been a significant 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 was caused by liquefaction. Research and historical data indicate that loose, granular materials situated at depths of less than 50 feet with fine (silt and clay) contents of less than 30%, 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 San Marino, typically in valley regions, stream and river watersheds, and alluvial 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 San Marino area because 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 many valley floors and the larger canyon bottoms prevalent throughout Los Angeles County. The third condition is water-saturated sediments within about 50 feet of the surface. Liquefaction could occur, but defining the precise likelihood isn't possible. Refer to Table 3-8 for the probability of a major earthquake occurring in faults near San Marino.

CLIMATE CHANGE CONSIDERATIONS

Fault Rupture

Generally, there is no known direct connection between fault rupturing and climate change. Some evidence suggests that greater oceanic pressure on tectonic plates due to melting land ice could influence seismic events' behavior.[6] Still, little indicates that this would play a major factor in any seismic event, including fault rupture.

Seismic Shaking

There is no direct link between climate change and seismic activity, so climate change is not expected to cause any changes to the frequency or intensity of seismic shaking. Some research indicates that climate change could result in “isostatic rebounds,” or a sudden upward movement of the crust because of reduced downward weight caused by glaciers. As glaciers are known to melt when global temperatures increase, climate change could indirectly lead to increased seismicity in Southern California.[7]

Liquefaction

While climate change may not impact seismic shaking, it can directly impact liquefication. Climate change is anticipated to change the usual precipitation patterns in Southern California. Periods of both rain and drought are anticipated to become more intense and frequent. This means more precipitation will likely occur during rainy periods, and drought is expected to last even longer. As a result, the water table along the creeks and canyons in San Marino could rise during intense periods of precipitation. Alternatively, a longer-lasting drought may lead to more groundwater withdrawal and could lower the water table. Therefore, climate change could potentially increase or decrease the risk of liquefaction in San Marino, depending on the circumstances. Prolonged droughts can decrease groundwater levels if additional water extraction occurs, decreasing the liquefaction potential. An increase in precipitation intensity and frequency could increase groundwater levels, potentially increasing liquefaction potential.

Windstorm

DESCRIPTION

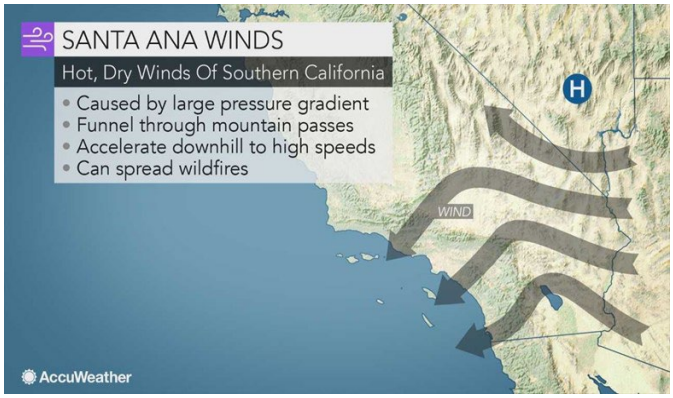
Windstorms and severe weather pose a risk to life and property in the region by creating conditions that disrupt essential systems such as public utilities, telecommunications, and transportation routes. High winds can and do occasionally cause tornado-like damage to local homes and businesses. Severe windstorms can present a very destabilizing effect on the dry brush that covers local hillsides and urban-wildland interface areas. High winds can have destructive impacts, especially on trees, power lines, and other utility services. In San Marino, severe weather patterns, such as Santa Ana Wind conditions are a recognized hazard. Wind is simply the movement of air caused by differences in atmospheric temperature. High-pressure

[6] National Centers for Environmental Information. 2020. Global Significant Earthquake Database, 2120 B.C. to present. https://www.ngdc.noaa.gov/hazard/hazards.shtml

[7] Masih, A. January 2018. “An Enhanced Seismic Activity Observed Due to Climate Change: Preliminary Results from Alaska.” IOP Conference Series: Earth and Environmental Science. doi :10.1088/1755-1315/167/1/012018. https://iopscience.iop.org/article/10.1088/1755-1315/167/1/012018/pdf

air will naturally move to areas of low pressure. Usually, the distance between these high- and low-pressure zones is far; however, these low- and high-pressure zones may occasionally be near one another. When this happens, air will flow dramatically, creating high-speed winds.

The most common wind events in southern California are the "Santa Ana" wind conditions that typically occur in the fall and winter. Santa Ana winds are generally defined as warm, dry winds that blow from the east or northeast (offshore). These winds occur below the passes and canyons of the coastal ranges of Southern California and in the Los Angeles basin. Santa Ana winds often blow with exceptional speed in the Santa Ana Canyon (the canyon from which it derives its name). Forecasters at the 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. When winds are fast enough, they can cause property damage to homes, public facilities, utilities, and other infrastructure. They can also uproot or topple mature trees or pick up debris and send it careening through the air. This debris can injure or even kill bystanders who may find themselves stranded outside. High-speed winds can also deposit this debris in the middle of rights-of-way, such as roads, freeways, and railways, blocking exit routes for would-be evacuees or impeding access to first responders trying to reach wounded people.



Typical Santa Ana Wind Event

Source: AccuWeather

Another type of severe wind event that can affect the City is a phenomenon called mountain waves". Mountain waves are typically observed near large mountain ranges around the world when the large-scale winds are perpendicular to the mountain range orientation. These mountain waves can produce very strong gusts in a narrow area along the foothills and can also create strong turbulence which adversely affects aviation. Strong gusts of wind from mountain waves generally affect a narrow zone in the foothills where the bottom of the wave intersects with the ground. Those that live outside of the foothills may experience little to no wind at all. Those people who live inside this narrow corridor along the foothills where these waves intersect the ground can sometimes experience hurricane-force wind gusts. Mountain waves generally occur during the cooler months of the year from late fall through early spring (mid-October to mid-April), when large low-pressure systems and stable air masses are more common. These events generally do not occur during the summer months.[8]

[8] NOAA. Gaffin, David "Explanation of Mountain Waves in the Western Foothills of the Southern Appalachians." National Weather Service, August 11, 2015. https://www.weather.gov/mrx/mountainwaves#:~:text=Mountain%20waves%20are%20typically%20observed,turbulence%20which%20adversely%20affects%20aviation.

LOCATION AND EXTENT

During Southern California's fall and winter months, high pressure over Nevada and Utah forces air currents down from the high desert toward the ocean. As the winds descend, they heat up and increase in speed, sometimes carrying particulate matter and aggravating the respiratory health of those with allergies.[9]

The entirety of the city can be affected by windstorms, which usually cause minimal damage; however, severe storms can cause massive damage to the city and personal property. San Marino is often affected by Santa Ana winds blowing through the San Joaquin Hills. Santa Ana winds are a leading cause of wildfires in California.

Generally, winds are measured using the Beaufort scale, developed in 1805, categorizing wind events on a force scale from 0 to 12 using their speed and impacts. Any wind classified as force nine or above is generally considered a severe wind event. **Table 3-10** details how the Beaufort scale classifies wind events.

TABLE 3-10: BEAUFORT SCALE

Force	Speed (mph)	Description
1	0 to 1	**Calm:** Smoke rises vertically, and the sea is flat
2	1 to 3	**Light air:** The direction of wind is shown by smoke drift, but not wind vanes
3	4 to 7	**Light breeze:** Wind is felt on the face, leaves rustle, and wind vanes are moved. Small wavelets appear on the ocean but do not break
4	8 to 12	**Gentle breeze:** Leaves and small twigs are in motion, and light flags are extended. Large wavelets appear on the ocean, and crests begin to break
5	13 to 18	**Moderate breeze:** Dust and loose paper become airborne, and small branches are moved. Small waves appear on the ocean
6	19 to 24	**Fresh breeze:** Small trees begin to sway and moderate waves form
7	25 to 31	**Strong breeze:** Large branches are in motion, and using an umbrella becomes difficult. Large waves begin to form
8	32 to 38	**Near gale:** Whole trees are in motion and walking against the wind can be hard. Foam from breaking waves is blown in streaks
9	39 to 46	**Gale:** Walking is difficult, and twigs break off trees
10	47 to 54	**Severe gale:** Slight structural damage. Crests of waves begin to topple
11	55 to 63	**Storm:** Trees are uprooted and considerable damage to structures. Very high waves form in long, overhanging crests
12	63 to 72	**Violent storm:** Widespread damage. Exceptionally high waves form, and the ocean is completely covered in foam

*Source: https://www.weather.gov/mfl/beaufort

PAST EVENTS

Several strong wind events have been recorded around the City of San Marino. **Table 3-11** depicts some of these Santa Ana winds and other major windstorm events in neighboring

[9] UCSD (University of California, San Diego). 2016. "Santa Ana." https://scripps.ucsd.edu/research/climate-change-resources/faq-climate-change-california

communities, Los Angeles County, and the surrounding region. Santa Ana Wind events have been and will continue to be a hazard of concern for the city.[10]

TABLE 3-11: SEVERE WIND EVENTS IN AND NEAR SAN MARINO

Event	Description
01/09/2007 Source: Pasadena Star-News	MALIBU - A wildfire fanned by Santa Ana winds destroyed four seaside mansions and damaged at least two others as it spread over more than 20 acres in this celebrity enclave Monday, authorities said. Flames boiled furiously out of the skeletons of multimillion-dollar beach homes for about two hours until little was left to burn. No injuries were reported, fire officials said.
11/23/2007 Source: San Gabriel Valley Tribune	Fire conditions are critical today as Santa Ana winds are expected to return to much of Los Angeles and Ventura counties. The National Weather Service has issued a red flag warning and high wind advisory for the region. Low humidity - in the teens and single digits - is expected, service announced. The City of San Marino also adopted an ordinance that precludes replacement or new wood roofs in the City of San Marino has adopted both the 2016 California Building Standards Code and the 2016 California Fire Code to ensure the codes and ordinances of the City reflect the intent of the goals and action items of the City's Local Hazard Mitigation Plan.
11/17/2008 Source: San Gabriel Valley Tribune	A wildfire that began Saturday morning in Corona quickly expanded, fueled by gusting Santa Ana winds. The blaze, dubbed the Triangle Complex Fire, chewed through over 20,000 acres of brush, destroying over 100 homes and menacing thousands more in Riverside, Orange, San Bernardino, and Los Angeles counties.
12/01/2012 Source: LA Times	Pasadena fire inspectors red-tagged 42 units damaged by strong winds, and an additional 200 must be evaluated before a second storm hits the region. Pasadena took the brunt of a windstorm that lashed Southern California on Wednesday night and Thursday morning. About 4,000 customers remained without power Thursday afternoon. Winds blowing 60-70 mph with gusts upwards of 100 mph were recorded. City officials in San Marino reported some 120 trees were downed, and an additional 11 homes red-tagged damaged by the winds. The Huntington Library, Art Collections and Botanical Gardens were all closed as a result of safety concerns.
10/12/2021 Source: Patch.com	Heavy winds pummel the City of San Marino and the southland. Reports of downed powerlines and trees are received throughout the county. The winds kicked up dust storms and knocked out power to tens of thousands of homes in Los Angeles County.

[10] National Oceanic and Atmospheric Administration. May 2017. "A History of Significant Weather Events in Southern California." https://www.weather.gov/media/sgx/documents/weatherhistory.pdf

RISK OF FUTURE EVENTS

Given the region's history of severe wind events in nearby cities, it is very likely that wind events will continue to impact the city. The most probable source of wind events in the future will likely originate from the Santa Ana winds or extreme storms. All expectations are that the probability of windstorm events occurring again in the future is highly likely. As discussed in **Table 3-3**, a "highly likely" probability indicates a greater than ten percent chance of windstorms occurring annually.

CLIMATE CHANGE CONSIDERATIONS

It is anticipated that the atmospheric rivers that deliver storms to Southern California may intensify because of climate change. While the average number of storms in Southern California will remain the same, storms are expected to increase in intensity between 10 and 20 percent.[11] This increase in storm intensity may also bring more intense winds to the Southern California region, including San Marino.

Studies indicate that climate change may affect Santa Ana wind events in varying ways, but it is unknown whether the frequency and intensity of events may be some of those ways. According to one study that examined two global climate models, there is a projected increase in future Santa Ana events. However, other studies have found that the number of Santa Ana events may decrease by about 20% in the future.[12] Given the anticipated increases in temperatures throughout the region, future events are anticipated to become more severe in some cases, even if the number of events decreases.

Wildfire (Wildland Fire, Urban Fire)

DESCRIPTION

Wildland Fire

Wildfires are fires that burn in largely undeveloped and natural areas and are a regular feature of ecosystems throughout California. These fires help to clear brush and debris from natural areas and are necessary for the health of many ecosystems and various species' life cycles. However, since the early twentieth century, the common practice was to suppress naturally occurring fires in wildland areas, allowing dry plant matter and other fuels to build up.

At the same time, human activity has caused changes in the buffer zone between urbanized and undeveloped areas, known as the wildland-urban interface (WUI). The more natural setting of a WUI can make these zones highly desirable places to live. In many parts of California, the WUIs have become developed, albeit at lower densities than fully urbanized areas. However, this development activity has brought more people into wildfire-prone areas. The availability of

[11] Oskin, B. (2014). Atmospheric Rivers to Soak California as Climate Warms. Live Science. https://www.livescience.com/49225-atmospheric-rivers-double-climate-change.html

[12] Hall, Alex, Neil Berg, Katharine Reich. (University of California, Los Angeles). 2018. Los Angeles Summary Report. California's Fourth Climate Change Assessment. https://www.energy.ca.gov/sites/default/files/2019-11/Reg%20Report-%20SUM-CCCA4-2018-007%20LosAngeles_ADA.pdf

fuel and increasing encroachment into the WUI, together with a changing climate, have made wildfires among California's most common and dangerous natural hazards.

Lightning, accidents, or arson can spark wildfires. The size and severity of any fire depend on fuel, weather conditions, and topography availability. However, wildfires in the WUI do not need to be large to be damaging. In Oakland, the 1991 Tunnel Fire was relatively small, only 1,600 acres, but it was one of California's deadliest and most destructive wildfires.[13] The flames from wildfires create severe risks to property and lives. Smoke and other particulate matter from wildfires pose a health risk, even to those not near the blaze. Burned areas can be more susceptible to flooding and landslides because wildfires destroy the vegetation that helps slow down water runoff and hold slopes together.[14] The ground may repel water rather than absorb it when faced with ash deposits. Due to the change in the landscape structure after a fire, repelled water can carry debris into water reservoirs.[15]

Urban Fire

An urban fire is a fire that causes damage to buildings or infrastructure in an urbanized area. In some minor situations, the fire prompts the evacuation of the building's occupants, and the fire is contained within a short amount of time by firefighting teams or the building's fire suppression systems. In severe cases, the fire leads to the complete destruction of the building and can spread to other surrounding properties. Common causes of urban fires include stoves that are accidentally left on, short-circuited electrical equipment, or mishandling of household tools. Breaches in gas pipelines may cause larger urban fires, large transportation accidents, or downed electrical transmission wires. Fires may also be intentionally started by arsonists.

LOCATION AND EXTENT

Wildland Fire

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 California Department of Forestry and Fire Protection (Cal Fire) defines the wildfire hazard zones on a three-tier scale of fire hazard severity zones (FHSZs): very high, high, and moderate. These zone classifications 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 Area (FRA) falls to federal agencies such as the US Forest Service, the Bureau of Land Management, and the National Park Service. State Responsibilities Area (SRA), which includes unincorporated land within counties that has statewide watershed value, falls to the Cal Fire. Local Responsibility Area (LRA), which includes portions of incorporated cities with identified wildfire hazard zones, falls to local governments. Only the very high FHSZs located within the LRA are identified and mapped by Cal Fire. However, in the SRA, high and moderate FHSZs are also mapped by Cal Fire.

[13] Cal FIRE. 2020. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top-20-deadliest-ca-wildfires.pdf?rev=dddeac543dd84d21a4b01ad6bed5f48c&hash=6A2BD57BB8EC29DB9EC0C94F92B00F52

[14] EPA. 2019. "Wildfires: How Do They Affect Our Water Supplies?" https://www.epa.gov/sciencematters/wildfires-how-do-they-affect-our-water-supplies

[15] Bichell, R. 2019. "How Wildfires May Muck Up the West's Reservoirs." Colorado Public Radio. https://www.cpr.org/2019/09/25/how-wildfires-may-muck-up-the-wests-reservoirs/

The City of San Marino is not located in a Very High Fire Hazard Severity Zone, according to the CAL FIRE- Fire Hazard Severity Zone Map (FHSZS06_3) of Los Angeles County. However, this does not make the city immune to wildfires, especially in the City of San Marino's Fire Enhancement Zone (FEZ), which is located in the northwest portion of the city. All homes in the City should still be considered vulnerable should a wildfire break out within the city or adjacent cities. **Figure 3-4** identifies the fire hazard zones within the city.

San Marino has designated the northwest portion of the city as being in what they designate as a FEZ. Thus, a small area of the city has been identified as a potential for wildland-urban interface brush fires. The topography ranges from gradual slopes to moderate hillsides. However, the substantial tree canopy within the city makes the entire city vulnerable to a significant wildfire event. **Figure 3-5** identifies the FEZ inspections conducted by the Fire Department.

The San Marino Fire Department is responsible for fire suppression on all private and public lands within the City of San Marino. The San Marino Fire Department constantly monitors fire hazards in the city and has ongoing programs for investigating and alleviating hazardous situations. Firefighting resources in the immediate San Marino area include the San Marino Fire Department and neighboring mutual aid city departments.

The Fire Department provides a full range of fire and life safety services to the residents and visitors of the City of San Marino. The service objectives of the fire department are currently achieved by maintaining one strategically located fire station within the community. Residents benefit from the prompt response of emergency service units. The units average less than 4 minutes to any location in the city. The Fire Department provides effective fire suppression, emergency medical care, fire prevention, and brush abatement, hazardous materials emergency response and inspection, fire cause investigation, and special services to the community. Firefighters are deployed on a forty-eight-hour basis to assist residential and corporate citizens in preventing and controlling fires, treating and transporting the sick and injured, and minimizing losses when unfortunate accidents occur.

San Marino has mutual aid and automatic aid agreements with adjacent cities. These agreements obligate the departments to help each other under pre-defined circumstances. Automatic aid agreements obligate the nearest fire company to respond to a fire regardless of the jurisdiction. Mutual aid agreements obligate fire department resources to respond outside of their district upon request for assistance. Jurisdictions that are responsible for fire suppression in areas adjacent to San Marino include:

- City of Alhambra
- City of Pasadena
- City of San Gabriel
- City of South Pasadena
- County of Los Angeles

FIGURE 3-4: SAN MARINO FIRE ENHANCEMENT ZONE (FEZ)

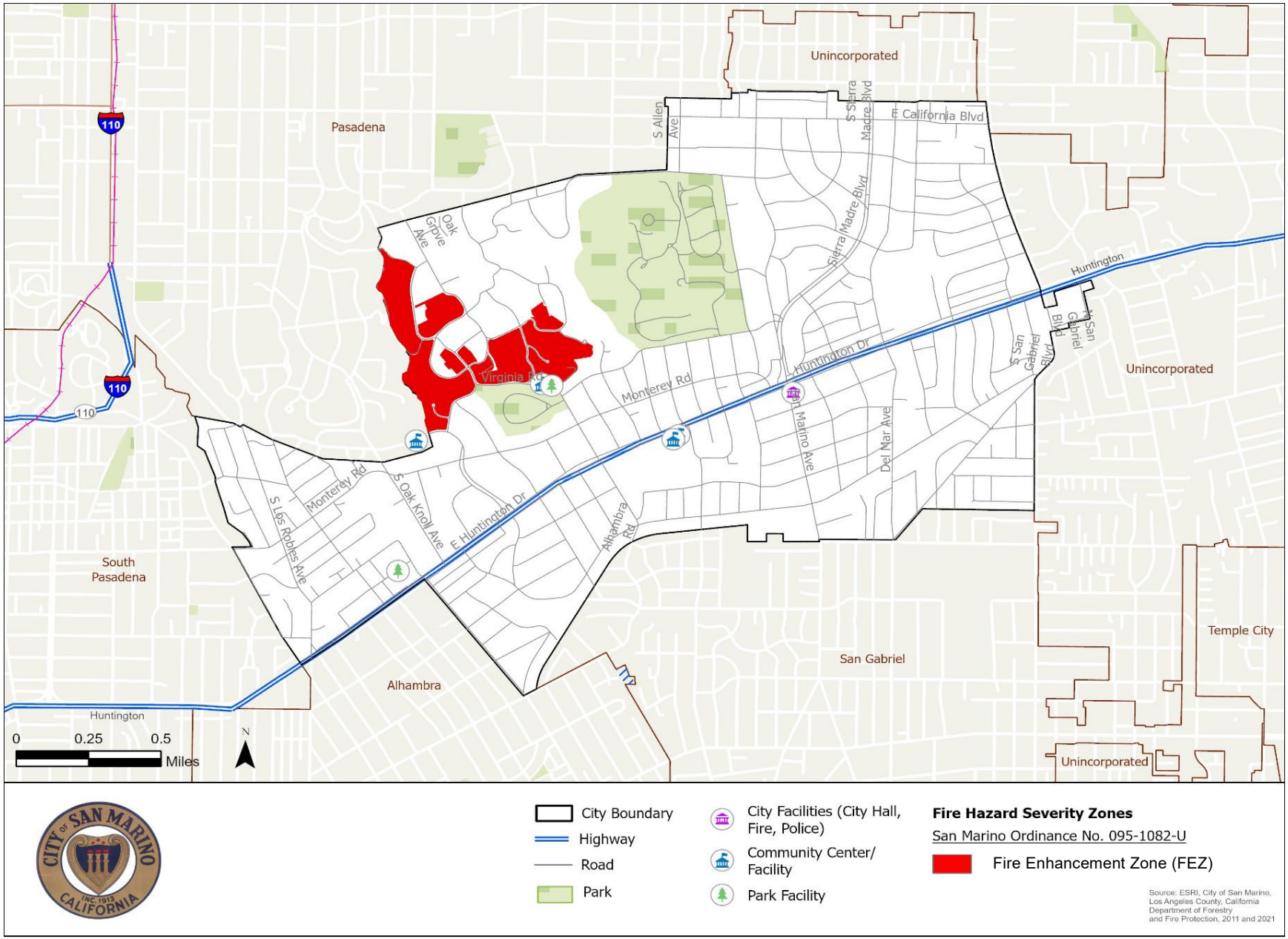
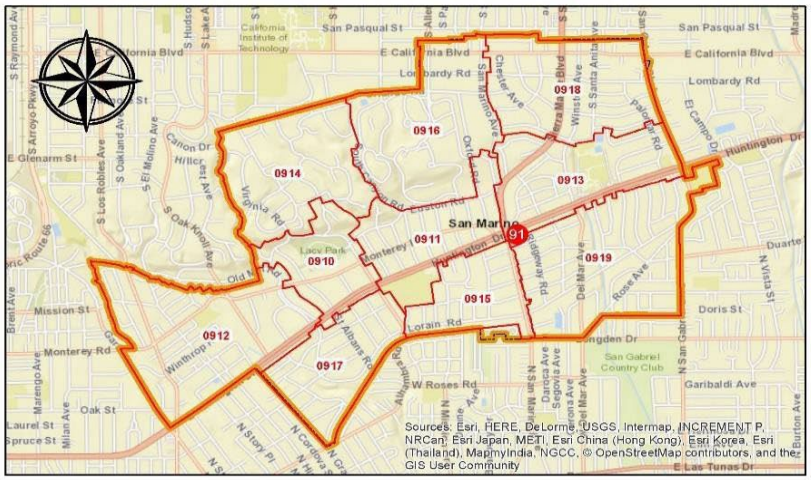
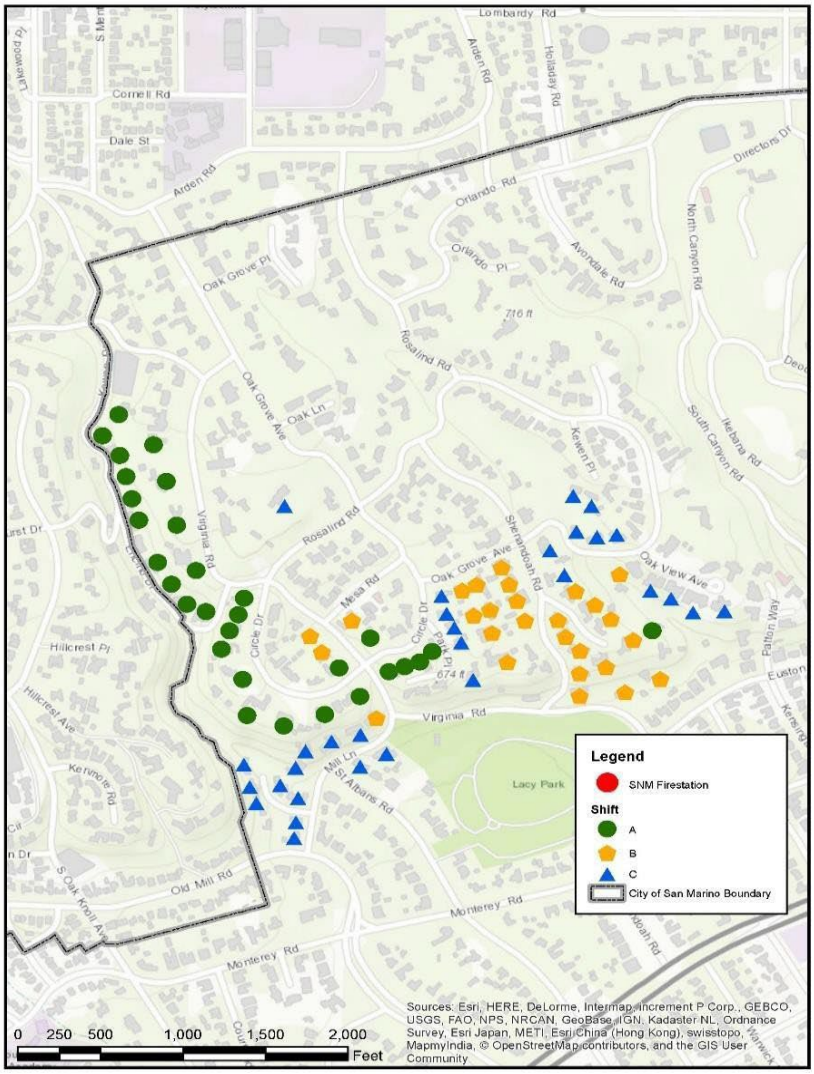


FIGURE 3-5: ENHANCED FIRE ZONE INSPECTIONS IN SAN MARINO

ADDRESS	CITY	ZIPCODE
1060 KEWEN DRIVE	SAN MARINO	91108
1066 KEWEN DRIVE	SAN MARINO	91108
1080 KEWEN DRIVE	SAN MARINO	91108
1100 KEWEN DRIVE	SAN MARINO	91108
1104 KEWEN DRIVE	SAN MARINO	91108
1160 ENCINO DRIVE	SAN MARINO	91108
1220 ENCINO DRIVE	SAN MARINO	91108
1240 ENCINO DRIVE	SAN MARINO	91108
1260 ENCINO DRIVE	SAN MARINO	91108
1280 ENCINO DRIVE	SAN MARINO	91108
1305 CIRCLE DRIVE	SAN MARINO	91108
1325 CIRCLE DRIVE	SAN MARINO	91108
1345 CIRCLE DRIVE	SAN MARINO	91108
1355 CIRCLE DRIVE	SAN MARINO	91108
1411 CIRCLE DRIVE	SAN MARINO	91108
1415 CIRCLE DRIVE	SAN MARINO	91108
1435 CIRCLE DRIVE	SAN MARINO	91108
1455 CIRCLE DRIVE	SAN MARINO	91108
1475 CIRCLE DRIVE	SAN MARINO	91108
1500 CIRCLE DRIVE	SAN MARINO	91108
1520 CIRCLE DRIVE	SAN MARINO	91108
1532 CIRCLE DRIVE	SAN MARINO	91108
1550 CIRCLE DRIVE	SAN MARINO	91108
1470 CIRCLE DRIVE	SAN MARINO	91108
1505 CIRCLE DRIVE	SAN MARINO	91108
1490 VIRGINIA ROAD	SAN MARINO	91108
1115 VIRGINIA ROAD	SAN MARINO	91108
1161 VIRGINIA ROAD	SAN MARINO	91108
1201 VIRGINIA ROAD	SAN MARINO	91108
1221 VIRGINIA ROAD	SAN MARINO	91108
1325 VIRGINIA ROAD	SAN MARINO	91108
1335 VIRGINIA ROAD	SAN MARINO	91108
1363 VIRGINIA ROAD	SAN MARINO	91108
1405 VIRGINIA ROAD	SAN MARINO	91108
1464 VIRGINIA ROAD	SAN MARINO	91108
1470 VIRGINIA ROAD	SAN MARINO	91108
1320 OAK GROVE AVENUE	SAN MARINO	91108
1336 OAK GROVE AVENUE	SAN MARINO	91108
1330 OAK GROVE AVENUE	SAN MARINO	91108
1334 OAK GROVE AVENUE	SAN MARINO	91108
1480 VIRGINIA ROAD	SAN MARINO	91108
1434 PARK PLACE	SAN MARINO	91108
1438 PARK PLACE	SAN MARINO	91108
1255 SHENANDOAH ROAD	SAN MARINO	91108
1267 SHENANDOAH ROAD	SAN MARINO	91108
1285 SHENANDOAH ROAD	SAN MARINO	91108
1325 SHENANDOAH ROAD	SAN MARINO	91108
1375 SHENDANDOAH ROAD	SAN MARINO	91108
1395 SHENDANDOAH ROAD	SAN MARINO	91108
1380 SHENANDOAH ROAD	SAN MARINO	91108
1270 MESA ROAD	SAN MARINO	91108
1300 WOODSTOCK ROAD	SAN MARINO	91108
1320 WOODSTOCK ROAD	SAN MARINO	91108
1340 WOODSTOCK ROAD	SAN MARINO	91108
1370 WOODSTOCK ROAD	SAN MARINO	91108
1365 WOODSTOCK ROAD	SAN MARINO	91108
1345 WOODSTOCK ROAD	SAN MARINO	91108
1325 WOODSTOCK ROAD	SAN MARINO	91108
1305 WOODSTOCK ROAD	SAN MARINO	91108
1321 OAK VIEW AVENUE	SAN MARINO	91108
1327 OAK VIEW AVENUE	SAN MARINO	91108
1331 OAK VIEW AVENUE	SAN MARINO	91108
1335 OAK VIEW AVENUE	SAN MARINO	91108
1341 OAK VIEW AVENUE	SAN MARINO	91108
1210 MILL LANE	SAN MARINO	91108
20 MILL CANYON ROAD	SAN MARINO	91108
40 MILL CANYON ROAD	SAN MARINO	91108
35 MILL CANYON ROAD	SAN MARINO	91108
70 MILL CANYON ROAD	SAN MARINO	91108
55 MILL CANYON ROAD	SAN MARINO	91108
1155 OAK GROVE AVENUE	SAN MARINO	91108
1590 CIRCLE DRIVE	SAN MARINO	91108
1570 CIRCLE DRIVE	SAN MARINO	91108
1400 PARK PLACE	SAN MARINO	91108
1420 PARK PLACE	SAN MARINO	91108
1440 PARK PLACE	SAN MARINO	91108
1260 SHENANDOAH ROAD	SAN MARINO	91108
1280 SHENANDOAH ROAD	SAN MARINO	91108
1445 OAK GROVE AVENUE	SAN MARINO	91108
1475 OAK GROVE AVENUE	SAN MARINO	91108
1505 OAK GROVE AVENUE	SAN MARINO	91108
35 KEWEN PLACE	SAN MARINO	91108
45 KEWEN PLACE	SAN MARINO	91108
1090 SAINT ALBANS ROAD	SAN MARINO	91108
1281 MILL LANE	SAN MARINO	91108
1280 MILL LANE	SAN MARINO	91108
1236 MILL LANE	SAN MARINO	91108
1260 MILL LANE	SAN MARINO	91108
1166 MILL LANE	SAN MARINO	91108
1150 MILL LANE	SAN MARINO	91108





San Marino Fire Department
Enhanced Fire Zone Inspections

Verdugo Fire GIS, June 2017

A fire can only ignite if three elements are present: heat, fuel, and oxygen. If any of these elements is removed, the fire will extinguish itself. In San Marino, copious amounts of fuel are given to thousands of structures, which makes them extremely flammable. Activity that creates intense heat that is unmonitored or unregulated may lead to the ignition of a fire. The National Institute of Standards and Technology, Fire Research Division, has developed a scale that measures the increase in temperature and the kind of fire response that develops. **Table 3-12** shows the progression of temperature relative to fire response.

Once a fire has been ignited, it could conceivably grow indefinitely if abundant fuel and oxygen are available. For example, a fire that ignites in one house could hypothetically continue to expand and even spread to other adjacent houses if there was enough fuel to link the structures together. Fires in confined spaces may occasionally burn so intensely that they consume all the oxygen available and burn out before they can expand.

TABLE 3-12: FIRE SUSCEPTIBILITY BASED ON TEMPERATURE INCREASE

Temperature (°F)	Response
98.6 °F	Average normal human oral/body temperature.
101 °F	Typical body core temperature for a working firefighter.
109 °F	Human body core temperature that may cause death.
111 °F	Human skin temperature when pain is felt.
118 °F	Human skin temperature causing a first-degree burn injury.
130 °F	Hot water causes a scald burn injury with 30 seconds of exposure.
131 °F	Human skin temperature with blistering and second-degree burn injury.
140 °F	Temperature when burned human tissue becomes numb.
162 °F	Human skin temperature at which tissue is instantly destroyed.
212 °F	Temperature when water boils and produces steam.
482 °F	Temperature when charring of natural cotton begins.
>572 °F	Modern synthetic protective clothing fabrics begin to char.
≥752 °F	Temperature of gases at the beginning of room flashover.
≈1832 °F	Temperature inside a room undergoing flashover.

Urban Fire

Most of San Marino's buildings consist of wooden-frame construction, which is susceptible to catching fire. Given that a significant portion of San Marino is developed, urban fires can occur at any location in the city since any structures can potentially burn. Fires are also likely to occur where significant pieces of infrastructure are located, such as gas pipelines, power lines, and major thoroughfares. SoCalGas operates large high-pressure gas pipelines that run underneath the city's streets and sidewalks. If a pipeline were to breach and the released gas ignites, any structures located along the extent of the breach would likely catch fire.

PAST EVENTS

Wildland Fire

Table 3-13 lists the large historic wildfires that have occurred in Los Angeles County and the region surrounding the City between 1980-2023. The table shows the date, acreage burnt, structures destroyed, and any fatalities.

TABLE 3-13: HISTORIC WILDFIRES IN LOS ANGELES COUNTY, 1980-2024

Fire Name	Date	Acres	Structures Destroyed	Deaths
Stable	November 16, 1980	6,600	57	0
Dayton Canyon	October 9, 1982	54,000	97	0
Piuma	October 14, 1985	5,120	6	0
Kinneloa	October 27, 1993	5,485	196	0
Old Topanga (Calabasas/Malibu)	November 2, 1993	18,500	350	3
Marple	August 26, 1996	21,500	1	0
Calabasas Canyon	October 28, 1996	13,010	6	0
Copper	May 6, 2002	23,407	26	0
Curve	September 1, 2002	20,857	72	0
Willimas	September 22, 2002	38,984	62	0
Pine	July 12, 2004	17,418	15	1
Foothill	July 17, 2004	6,000	0	0
Crown	July 20, 2004	11,966	10	0
Topanga	September 28, 2005	24,175	13	0
Ranch	October 20, 2007	58,401	10	0
Sesnon (Porter Ranch)	October 13, 2008	14,703	78	1
Sayre	November 14, 2008	11,262	10	0
Station	August 26, 2009	160,577	209	2
Powerhouse	May 30, 2013	30,274	58	0
San Gabriel Complex (Combination of Reservoir and Fish Fires)	June 20, 2016	5,399	0	3
Sand	July 22, 2016	41,432	18	2
La Tuna	September 1, 2017	7,194	10	0
Creek	December 5, 2017	15,619	123	0
Rye	December 5, 2017	6,049	6	0
Woolsey	November 8, 2018	96,949	1,643 (1,121 in LA County)	3
Saddle Ridge	October 10, 2019	8,799	19	1

Lake	August 12, 2020	31,089	12	0
Bobcat	September 6, 2020	115,796	170 (87 were homes)	0
Route	October 31, 2022	5,208	2	0
Source: Los Angeles Almanac - https://www.laalmanac.com/fire/fi07.php				

Urban Fire

The following are some of the recent incidents of urban fires in the City.

- **July 28, 2022 -** A fire broke out at a San Marino house under renovation early Thursday morning, July 28, causing an estimated $2 million in damage. The fire caused extensive damage to the vacant house and got into concealed spaces in the walls and attic, the fire chief said. It took 33 firefighters from the San Marino, Pasadena, Alhambra, and San Gabriel fire departments about 50 minutes to knock down the blaze.
- **June 2, 2022 -** San Marino Fire Department and Pasadena Fire units responded to a structure fire, a 3000 square foot, one-story home at 2710 California Street in our City. Engine 91 discovered a large fire from an attached garage, spreading into the residence. Firefighters described the fire as oven-like conditions at the rear of the home. The occupants, a young family with a three-week-old infant, escaped the home and met firefighters upon their arrival. There were no injuries, and the fire was contained to the garage and the rear kitchen portion of the home.
- **December 14, 2023 -** A large housefire in San Marino was contained along Huntington Dr. No one was home at the time of the fire. The fire was quickly contained thanks to the efforts of the San Marino Fire Department. Roads were temporarily closed as the blaze was extinguished. There were no injuries reported.
- **April 25, 2024 -** San Marino Fire Department responded to a structure fire, a 2500 square foot, one story home at 1889 South Los Robles in the City. The home was under renovation. Engine 91 discovered a large fire involving the home and attic space. The fire did not spread to other structures. There were no injuries reported.

RISK OF FUTURE EVENTS

Wildland Fire

A wildfire will likely break out in the City on a Red Flag Warning day. A Red Flag Warning Day is when weather conditions are such that there is a great potential for a fast-moving brush fire. The conditions are defined as 25 mph or more wind speeds and humidity of 15% or less. On any other day, the City is still vulnerable due to the topography and canopy of the community. The wildfire potential that encompasses the entire City of San Marino identifies a residential population that would have a severe economic impact in this jurisdiction. This City is primarily residential structures. The economic impact of a wildfire in this area, should homes be lost, would be in the tens of millions. The City of San Marino requires weed abatement, additional brush clearing, and the mandatory use of Class “A” roofs in this area. These precautions will help reduce the spread of any wildfire in the City. Fires could be started for several reasons,

including car fires, illegal burning, arcing wires, arson, or lightning strikes. With the tree canopy in the city, the fire could spread with any winds affecting the area. As discussed in **Table 3-3**, a "highly likely" probability indicates a greater than 10% chance of wildfire/urban fires occurring annually.

Urban Fire

If the conditions for an urban fire exist in San Marino, the city will forever be at risk of experiencing an urban fire event. Given how each fire event has unique origins, it is impossible to predict the precise likelihood of an urban fire emerging in the city. Some areas, however, are at an increased risk of an urban fire igniting, including the buildings along the SoCalGas pipeline's course through the City.

CLIMATE CHANGE CONSIDERATIONS

Wildland Fire

Climate change is expected to cause an increase in temperatures and more frequent and intense drought conditions. This increase will likely increase the amount of dry plant matter available for fuel, increasing wildfire risk statewide. Climate change is expected to increase the number of acres burned annually in the nearby San Joaquin Foothills, which are already highly prone to wildfires. However, increases in fuel supplies could cause wildfires to move faster or spread into more developed areas, increasing the future threat to San Marino and other surrounding communities.

Urban Fire

While climate change has been linked to a potential increase in wildfire events, it is unclear exactly how it could influence the ignition or behavior of urban fires in San Marino.

Human-Caused Hazards (Hazardous Materials Release, Natural Gas Pipeline)

DESCRIPTION

Hazardous Materials Release

California defines hazardous materials as toxic, ignitable, or flammable, reactive, and/or corrosive substances. The state also defines hazardous materials as substances that show high acute or chronic toxicity, are carcinogenic (causes cancer), have bioaccumulative properties (accumulates in the body's tissues), are persistent in the environment, or are water-reactive. The primary concern associated with a hazardous materials release is the public's short and/or long-term effects from exposure to the hazardous material.

Hazardous materials release refers to a hazard event whereby harmful concentrations of hazardous or toxic substances are released into the environment. This occurs when storage containers of hazardous materials leak or fail. This can happen due to industrial accidents, vehicle crashes, as a direct result of other disasters (e.g., a flood or earthquake), or as a deliberate act.

The threat that hazardous materials pose to human health depends on the type of material, frequency, and duration of exposure, and whether chemicals are inhaled, penetrate the skin, or are ingested, among other factors. Exposure to hazardous materials can result in short- or long-term effects, including major damage to organs and systems in the body or death. Hazardous waste is any material with properties that make it dangerous or potentially harmful to human health or the environment and is no longer of use requiring disposal. Hazardous materials can also cause health risks if they contaminate soil, groundwater, and air, potentially posing a threat long after the initial release.

Natural Gas Pipeline

Pipelines transport hazardous materials that, when released, can pose a significant threat to people and the built and natural environment near the pipeline. Pipeline failures are characterized as low-probability, high-consequence events. They do not happen often; however, the residents of any community that have experienced a significant pipeline failure are likely, in retrospect, to wish they had become more aware of the pipeline and informed of the potential risk. The Garfield Gas Pipeline is one of many gas pipelines that carries natural gas. Natural gas is the predominant gas transported by and associated with pipelines.

LOCATION AND EXTENT

Hazardous Materials Release

Hazardous materials and chemicals are used daily in households and businesses throughout San Marino. In addition to the locations of large commercial and industrial uses, sources of hazardous materials can originate from seemingly harmless places such as gas stations, auto repair shops, dry cleaners, medical centers, and almost any industrial business. Hazardous waste can take the form of liquids, solids, contained gases, or sludge and can be the by-products of manufacturing processes or simply discarded commercial products, like cleaning fluids and pesticides.

In severe situations, San Marino may also be at risk of hazardous materials release events on a regional level. With the right prevailing wind conditions, airborne toxic material could spread to and impact various parts of the air basin, including areas of San Marino.

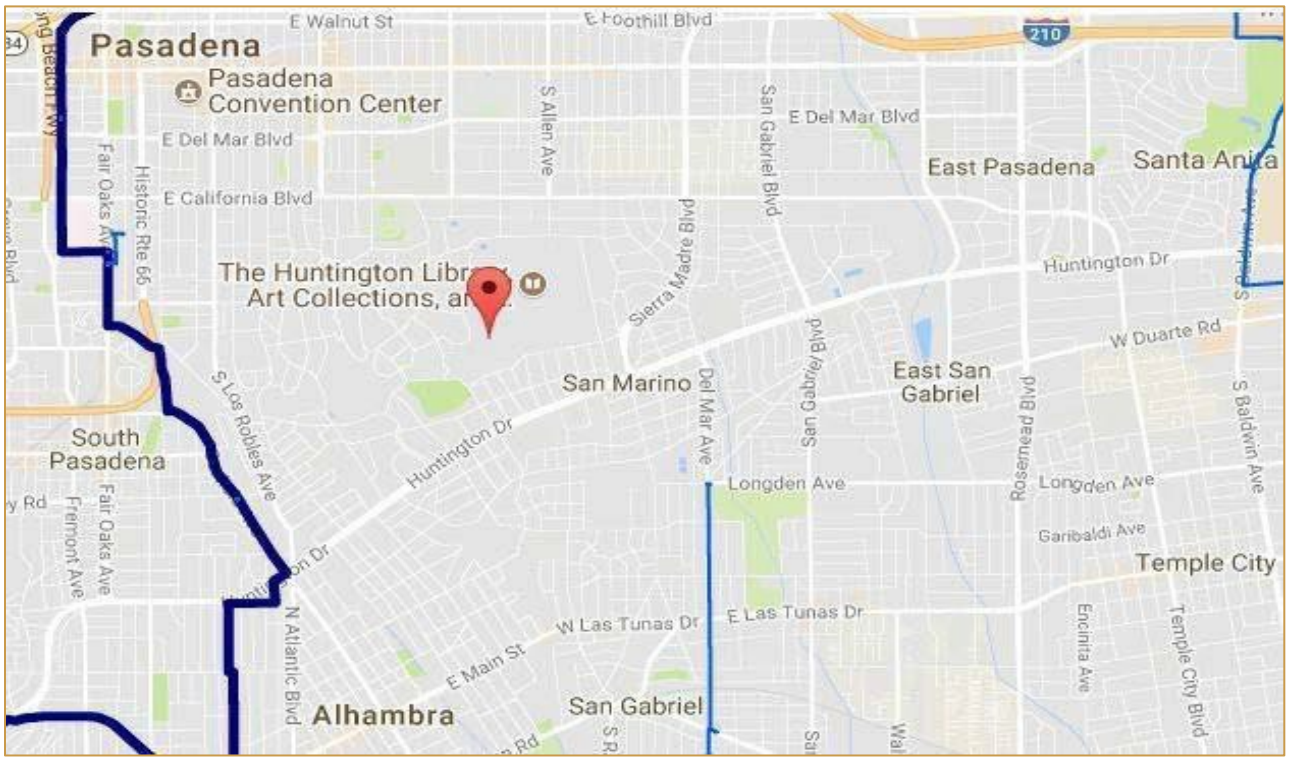
According to the California Department of Toxic Substances Envirostor database, there are no hazardous materials related sites located within the City. While there is no extent scale for hazardous materials release, the probability of an incident is anticipated to be occasional (less than 10% chance of occurrence) each year.

Natural Gas Pipeline

Pipelines can be located anywhere, including under streets and sidewalks. Damage to one of these pipelines while digging, planting, or doing demolition work can cause serious injury, property damage, and loss of utility service. The Garfield Oil Pipeline runs north along Garfield Avenue just south of Callita Place and near Marengo Avenue and Mission Road. The main valve for the pipeline is located at the intersection of Garfield Avenue and Huntington Drive. Mitigation action items to reduce the risk associated with the pipeline include regular testing, public awareness, annual emergency response exercises, and stakeholder communications.

Figure 3-6 displays the location of the pipeline in the City. Dark Blue Transmission Lines generally depict large diameter pipelines that operate at pressures above 200 psi and transport gas from supply points to the gas distribution system. Light Blue High-Pressure Distribution Lines depict pipelines that operate at pressures above 60 psi and deliver gas in smaller volumes to the lower-pressure distribution system. The accuracy of pipeline locations can vary by +/- 500 feet. Residents should be advised to call 811 before digging.

FIGURE 3-6: NATURAL GAS TRANSMISSION PIPELINES IN AND NEAR SAN MARINO



PAST EVENTS

Hazardous Materials Release

San Marino has experienced an average of 0.43 hazardous materials spills reported annually to the Cal OES Spill Release Reporting database; **Table 3-14** displays this data. Most of these incidents involve the accidental release of sewage and petroleum products.

TABLE 3-14: HAZARDOUS MATERIALS SPILLS REPORTED ANNUALLY IN SAN MARINO	
Year	**Reported Releases**
2010	1
2011	0
2012	0
2013	0
2014	1
2015	0
2016	0
2017	1
2018	0
2019	2
2020	0
2021	0
2022	0
2023	1
Annual Avg	**0.43**
Source: https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting	

RISK OF FUTURE EVENTS

Hazardous Materials Release

Most of the release events within San Marino have occurred due to human error, malfunctioning equipment, or as a deliberate act. Given this, it is anticipated that future events within San Marino will include minor incidents like the past occurrences identified above. Activities to prevent future releases, as well as response strategies, should take this into consideration. The City of San Marino has a mutual aid agreement with nearby fire departments from Burbank, Glendale, and the Los Angeles County Fire Department (LACoFD). The Cities of Burbank and Glendale will respond to hazardous materials incidents within the City of San Marino. In the event of a hazardous materials incident, either city will provide a qualified hazardous materials response unit. If a Burbank or Glendale unit is unavailable, the County of Los Angeles would be utilized to provide hazardous materials units to the City. The San Marino Police Department (SMPD) is responsible for maintaining the free flow of traffic through the city's transportation corridors and providing for public safety. In the event of a hazardous materials spill/release, it would be the SMPD's responsibility to cordon off the area, limiting access to only the appropriate emergency response personnel. In addition, SMPD personnel would be responsible for any necessary evacuations. As discussed in **Table 3-2**, a probability of "likely" indicates that there is between a one and ten percent probability of a hazardous material release or pipeline infrastructure failure occurring annually.

Natural Gas Pipeline

The presence of natural gas transmission lines in the city means there is a potential for an incident or accident. So Cal Gas is diligent in maintaining the pipeline and associated

infrastructure. At the same time, the City has been diligent in establishing and enforcing mitigation actions, public awareness, and city codes to aid in preventing accidents.

CLIMATE CHANGE CONSIDERATIONS

Hazardous Materials Release

Climate-related natural hazard events, such as increased precipitation and subsequent flooding, could cause an increase in hazardous materials release. Some of these incidents could result from transportation crashes (due to poorer road conditions) or damage to storage containers or vessels containing these substances. Climate-related hazards could also exacerbate the effects and impacts of such events. For example, heavier rains could lead to more runoff from a contaminated site with hazardous materials. These issues should be monitored during the five-year implementation period of this plan.

Natural Gas Pipeline

As climate-related natural hazard events can become either more frequent and/or more intense, the potential for damage to transmission line infrastructure could also increase. These issues should be monitored as part of the five-year implementation planning period.

Extreme Heat

DESCRIPTION

Extreme heat is a period when temperatures are abnormally high relative to the normal temperature range. There are generally three types of extreme heat events:

1) **Extreme Heat Days:** A day during which the maximum temperature surpasses 98 percent of all historic high temperatures for the area, using the time between April and October from 1950 to 2005 as the baseline.

2) **Warm Nights:** A day between April and October when the minimum temperature exceeds 98 percent of all historic minimum daytime temperatures observed between 1950 and 2005.

3) **Extreme Heat Waves:** A successive series of extreme heat days and warm nights where extreme temperatures do not abate; while no universally accepted minimum length of time for a heatwave event exists, Cal-Adapt considers four successive extreme heat days and warm nights to be the minimum threshold for an extreme heatwave.

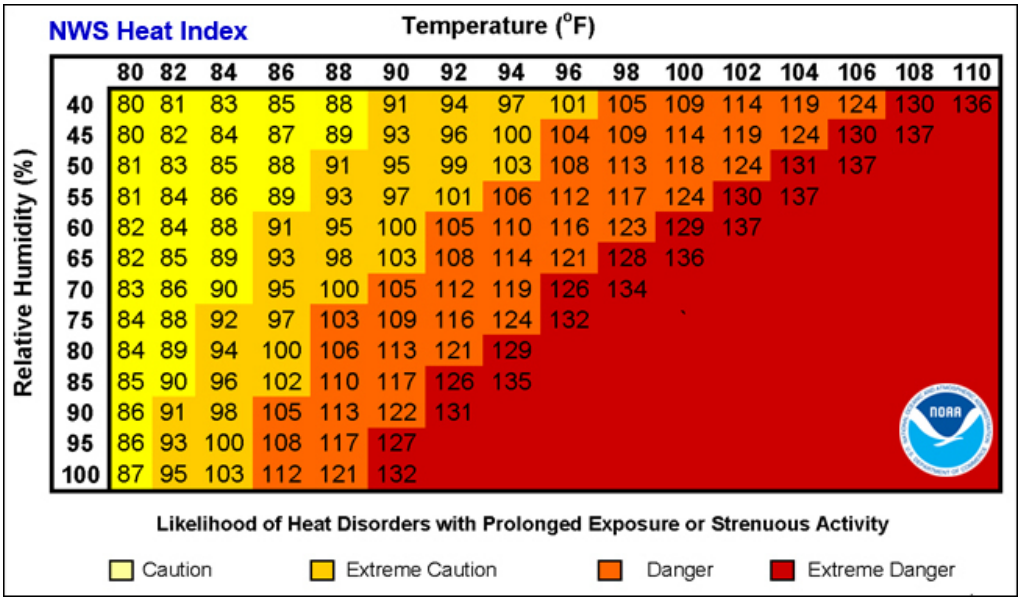
LOCATION AND EXTENT

Extreme heat events will differ from region to region since these areas have differing historically high temperatures. For example, an extreme heat day on the coast will feel different than an extreme heat day in the High Desert. The reason for this is how humidity affects people's perceived heat. Humid conditions will make a day feel hotter than non-humid conditions, even though the temperature may be the same. The difference between the perceived and actual temperatures is known as the “heat index.” To illustrate the effect of the heat index, a 90-degree day with 50 percent humidity feels like 95°F, whereas a 90°F Day with 90 percent humidity feels

like 122°F. **Figure 3-7** illustrates the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service Heat Index.

Extreme heat events are not limited to any part of the city. They occur with the same intensity and duration at the same time across all locations in San Marino. For San Marino, an extreme heat day involves a temperature that exceeds 100.7°F, and a warm night involves a temperature that exceeds 69.3°F.[16] These thresholds are based on a 2% probability event.

FIGURE 3-7: NOAA'S NATIONAL WEATHER SERVICE HEAT INDEX



PAST EVENTS

Based on Cal Adapt's historical information (1950 through 2005), the city experiences four extreme heat days per year. The city experienced a 4-day heatwave during this same period, approximately every four years. Over the past 16 years (2006-2023), the city has experienced, on average, 7 extreme heat day events (100.7° F or higher). The four highest temperatures occurred in 2005 (104°F), 2008 (105°F), 2016 (107°F), and 2020 (108°F). In 2022, California experienced one of the worst heatwaves it has ever experienced. From September 1st through September 9th, 2022, temperature records for September were shattered across the western portion of the United States, including San Marino, where temperatures reached 106° F.

RISK OF FUTURE EVENTS

As temperatures rise throughout California, the number of extreme heat days will also increase. According to Cal-Adapt data, which relies on NOAA data sources, San Marino experiences extreme heat days. The city historically (1950-2005) experienced, on average, four extreme heat days annually based on this historic period. That number of days increased to 7 days annually from 2006-2023. Cal Adapt simulations predict by the end of the century (2070-2099), San Marino is projected to experience an annual average of 22 extreme heat days per year. As

[16] https://cal-adapt.org/tools/extreme-heat

discussed in **Table 3-3**, a "highly likely" probability indicates a greater than ten percent chance of extreme heat events occurring annually.

CLIMATE CHANGE CONSIDERATIONS

The primary effect of climate change is warmer average temperatures. The hottest years on record have occurred since 2000, with 2016 and 2020 being tied.[17] As climate change accelerates in the 21st century, extreme heat events are anticipated to become more frequent and intense in the city. With the projection that extreme heat days could increase between 22 and 39 days annually by 2100, the city can expect a shift in residential and business needs for cooling and addressing heat-related issues.

Flood

DESCRIPTION

Flooding occurs when an area becomes inundated with more water than it can drain in a specified period. This can range from a small, confined area, such as a grassy field in a park that floods for a few hours after a rainstorm, to whole city sections, such as streets becoming impassable because of floodwaters. When floods are small, they may only represent a minor inconvenience as some recreational pathways and curb cuts become flooded. These smaller instances of flooding where water collects into a pool of standing water are referred to as "ponding." On the other hand, larger flood events can hamper a city's operations. For example, if multiple streets flooded simultaneously, the results could prevent emergency workers from reaching victims needing assistance. Flooding also has the destructive potential to damage critical infrastructure. For instance, unprotected electronic equipment can short-circuit if it becomes inundated by floodwaters. This could lead to outages in street lighting, traffic signals, and even city and government computer systems.

Flooding has the potential to occur from multiple sources. In Southern California, the primary cause of flooding is usually heavy rain occurring during the winter storm season. Most precipitation in California arrives either via atmospheric rivers or the ENSO cycle. Atmospheric rivers are channels of moist air located high in the atmosphere. The ENSO cycle is a regional meteorological phenomenon in the southern Pacific Ocean consisting of ocean water and air temperature variations. These variations give rise to two distinct phases: El Niño, the warm and wet phase, and La Niña, the dry and cold phase. When the El Niño phase is active, California will likely receive higher than normal precipitation levels. These higher-than-normal levels of rainfall can quickly overwhelm the capacity of certain sections of land to drain the precipitation before the rainwater begins to pool effectively.

A failure in infrastructure may also cause flooding. For example, a water main or sewage pipeline that bursts could cause flooding if left uncontained for a significant period of time. A more serious infrastructure failure, such as the failure of dams, reservoirs, or levees, could cause extensive flooding.

[17] Rebecca Hersher and Lauren Sommer. 2020. "2020 May be the Hottest Year on Record. Here's the Damage it did." NPR. https://www.npr.org/2020/12/18/943219856/2020-may-be-the-hottest-year-on-record-heres-the-damage-it-did

LOCATION AND EXTENT

The Federal Emergency Management Agency (FEMA) designates which areas in the United States are susceptible to flooding and how likely they are to experience flooding. FEMA uses a complex classification system to categorize the level of risk for each section of land. The two most well-known measures of flood event likelihood are known as the 100-year flood and 500-year flood zones. These designations do not refer to floods that occur every 100 or 500 years but to the likelihood of occurring yearly. For example, a 100-year flood zone has a 1 in 100—or 1% chance—of occurring in any given year, while a 500-year zone has a 1 in 500—or 0.2% chance—of occurring in any given year. These likelihood measures are combined with each locale's specific geography to produce specific flood "zone" designations. There have been no repetitively damaged structures within the City of San Marino. FEMA has designated San Marino as lying within Zone "X," generally meaning the city is not in danger of a 500-year flood **Table 3-15** shows a detailed list of all the flood zone categories used by FEMA.

TABLE 3-15: FEMA FLOODPLAIN ZONES

Zone	Description
A	Within a 100-year floodplain, but the water height of the 100-year flood is not known.
A1-30 or AE	Within a 100-year floodplain and the water height of the 100-year flood is known.
AO	Within a 100-year floodplain, and the water height of the 100-year flood is between one and three feet but not specifically known.
A99	Within a 100-year floodplain, protected by flood protection infrastructure such as dams or levees.
AH	Within a 100-year floodplain, and the water height of the 100-year flood is between one and three feet and is specifically known.
AR	Within a 100-year floodplain, protected by flood protection infrastructure that is not currently effective but is being rebuilt to provide protection.
V	Within a 100-year floodplain for coastal floods, but the water height is not known.
V1-30 or VE	Within a 100-year floodplain for coastal floods and the water height is known.
VO	Within a 100-year floodplain for shallow coastal floods with a height between one and three feet.
B	Within a 500-year floodplain or within a 100-year floodplain with a water height less than one foot (found on older maps).
C	Outside of the 500-year floodplain (found on older maps).
X	Outside of the 500-year floodplain (found on newer maps).
X500	Within a 500-year floodplain or within a 100-year floodplain with a water height less than one foot (found on newer maps).
D	Within an area with a potential and undetermined flood hazard.
M	Within an area at risk of mudslides from a 100-year flood event.
N	Within an area at risk of mudslides from a 500-year flood event.
P	Within an area at risk of mudslides from a potential and undetermined flood event.
E	Within an area at risk of erosion from a 100-year flood event.

FEMA also uses Base Flood Elevation (BFE) to determine the minimum depth of the floodwaters during one of these flood events. For example, an area with a BFE of three feet can expect to see a minimum floodwater depth of three feet with potentially additional depth in particularly severe flood events.

With the City identified in Zone X, which indicates the City is at minimal risk for flooding. City staff noted that as long as storm drains and related infrastructure are cleaned and debris-free, flooding is generally not an issue in the City. According to the Parks & Public Works Department, several specific flood areas are susceptible to localized flooding in the City of San Marino during intense storm periods. They are as follows:

1) Huntington Blvd., north side, cross street of Old Mill Road;
2) Lacy Park, between Virginia Road and St Albans Street;
3) Huntington Blvd., north side, in front of the high school.

Local flood areas 1 and 3 are primarily business areas, while flood area 2 is residential. All three areas are subject only to minor flooding because of storm funding identified in the City's General Fund for the drain deficiencies. Funding has been identified in the City's General Fund for the condition assessment of the City's storm drain system. As a result, the problem areas are only a hazard to their specific location and are not expected to threaten or endanger the safety or well-being of persons in the area. The city participates in the National Flood Insurance Program (NFIP). **Table 3-16** identifies relevant data from the NFIP regarding San Marino.

TABLE 3-16: NFIP DATA FOR SAN MARINO

Total Number of Policies	**10**
Total Premiums	$6,764
Insurance in Force	$3,500,000
Total Number of Closed Paid Losses	2
$ of Closed Paid Losses	$0
# of Repetitive Loss (RL) Properties	0
# of Severe Repetitive Loss (SRL) Properties	0
CRS Class Rating	N/A
Source: FEMA, 2024	

PAST EVENTS

Los Angeles County is no stranger to flooding during massive storm systems and has experienced the destructive effects that occur as a result. The City of San Marino is susceptible to localized flooding from severe storms and urban run-off. There are several rivers in the Southern California region, but the river with the best-recorded history is the Los Angeles River. The flood history of the Los Angeles River is generally indicative of the flood history of much of Southern California. Several flood control facilities, including storm-water systems and debris basins, have been constructed and eliminated the flood hazard to date.

Records show that since 1811, the Los Angeles River has flooded 30 times, on average once every 6.1 years. But averages are deceiving, for the Los Angeles basin goes through periods of drought and then periods of above-average rainfall. Between 1889 and 1891, the river flooded every year, and from 1941 to 1945, the river flooded 5 times. Conversely, from 1896 to 1914, a

period of 18 years, and again from 1944 to 1969, a period of 25 years, the river did not have serious floods. While the City of San Marino is just over 11 miles northeast of Los Angeles, it is not so far away as not to be affected by localized storm cells and heavy rains that brought flooding to Los Angeles. In addition, the towering mountains that give the Los Angeles region its spectacular views also bring a great deal of rain out of the storm clouds passing through. Because the mountains are so steep, the rainwater moves rapidly down the slopes and across the coastal plains on its way to the ocean. **Table 3-17** lists examples of significant historic flooding in the Los Angeles region and the surrounding County.[18]

[18] Weather.gov. (2017)"A History of Significant Weather Events in Southern California." https://www.weather.gov/media/sgx/documents/weatherhistory.pdf

TABLE 3-17: HISTORICAL FLOODING IN LOS ANGELES COUNTY	
Date	**Event**
1811	Flooding in Los Angeles County
1815	Flooding in Los Angeles County
1825	L.A. River changed its course back from the Ballona wetlands to San Pedro
1832	Heavy flooding
1861-62	Heavy flooding. Fifty inches of rain falls during December and January.
1867	Floods create a large, temporary lake out to Ballona Creek.
1876	The Novician Deluge
1884	Heavy flooding causes the river to change course again, turning east to Vernon and then southward to San Pedro.
1888-1891	Annual floods
1914	Heavy flooding. Great damage to the harbor.
1921	Flooding
1927	Moderate flood
1934	Moderate flood starting January 1. Forty dead in La Canada.
1938	Great County-wide flood with four days of rain. Most rain on day four.
1941-44	L.A. River floods five times.
1952	Moderate flooding
1969	One heavy flood after a nine-day storm. One moderate flood.
1978	Two moderate floods
1979	Los Angeles experiences severe flooding and mudslides.
1980	Flood tops banks of the river in Long Beach. Sepulveda Basin spillway almost opened.
1983	Flooding kills six people.
1992	15-year flood. Motorists trapped in Sepulveda basin. Six people died.
1994	Heavy flooding
1998	State-wide severe winter storms and flooding
2003	Flash Flooding throughout the County
2005	Heavy Flooding
2024	Major atmospheric storms lead to heavy flooding, mudslides, and debris flows in Los Angeles.

RISK OF FUTURE EVENTS

Localized instances of ponding occur at least annually or multiple times a year in cities across Southern California. During periods of drought, precipitation levels may decrease and lower the likelihood of ponding. In most years, though, it is almost certain that San Marino will experience some type of flood event. Larger-scale flood events are rare in San Marino. However, during a particularly severe rainstorm or after a dam failure, San Marino could experience some degree of large-scale flooding with inundation levels greater than one foot in depth. All expectations are that the probability of floods/storms occurring again is likely. As discussed in **Table 3-3**, a

probability of “possible” indicates an annual probability of between one and one/tenth of a percent.

CLIMATE CHANGE CONSIDERATIONS

Climate change is expected to exacerbate the conditions leading to San Marino's urban flooding. Climate change will cause more intense local, regional, and global weather patterns, intensifying atmospheric rivers. At this time, it is unknown exactly how climate change will impact ENSO frequency, but its effects are anticipated to become more intense. Winter storm precipitation amounts in Southern California will increase based on atmospheric rivers and ENSO changes. This increases the likelihood of an exceptional rain event in San Marino that could overwhelm the capacity of the region’s flood control system to contain and drain all the precipitation.

Due to climate change, droughts are also expected to increase in length and frequency. Soils dried by extensive drought periods are less able to absorb and drain water, likely increasing flood possibility. Overall, climate change is expected to create conditions that will raise the likelihood or potential of flooding in San Marino.

Landslide

DESCRIPTION

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 ranges between $1 and $2 billion annually. As a seismically active region, California has had many locations impacted by landslides. Some landslides damage private property, and other landslides impact transportation corridors, fuel and energy conduits, and communication facilities. They can also pose a serious threat to human life.

Landslides occur when slopes become destabilized, typically after heavy rains. If precipitation saturates soils, they can become unstable, or landslides can occur when significant erosion from rainfall destabilizes the ground. Slopes that have recently burned face a greater risk from rain-induced landslides, as the loss of vegetation can destabilize the earth. Earthquakes may also be a source of landslides as the shaking can destabilize steep hillsides covered in loose soils and weak rock layers.

Landslides can be broken down into two categories: (1) rapidly moving (generally known as debris flows) and (2) 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.

LOCATION AND EXTENT

The potential for slope failure is dependent on many factors and their interrelationships. Some of the most important factors include slope height, slope steepness, sheer strength, orientation of weak layers in the underlying geologic unity, and poor water pressures. Joints and shears, which weaken the rock fabric, allow water penetration, leading to deeper weathering of the rock,

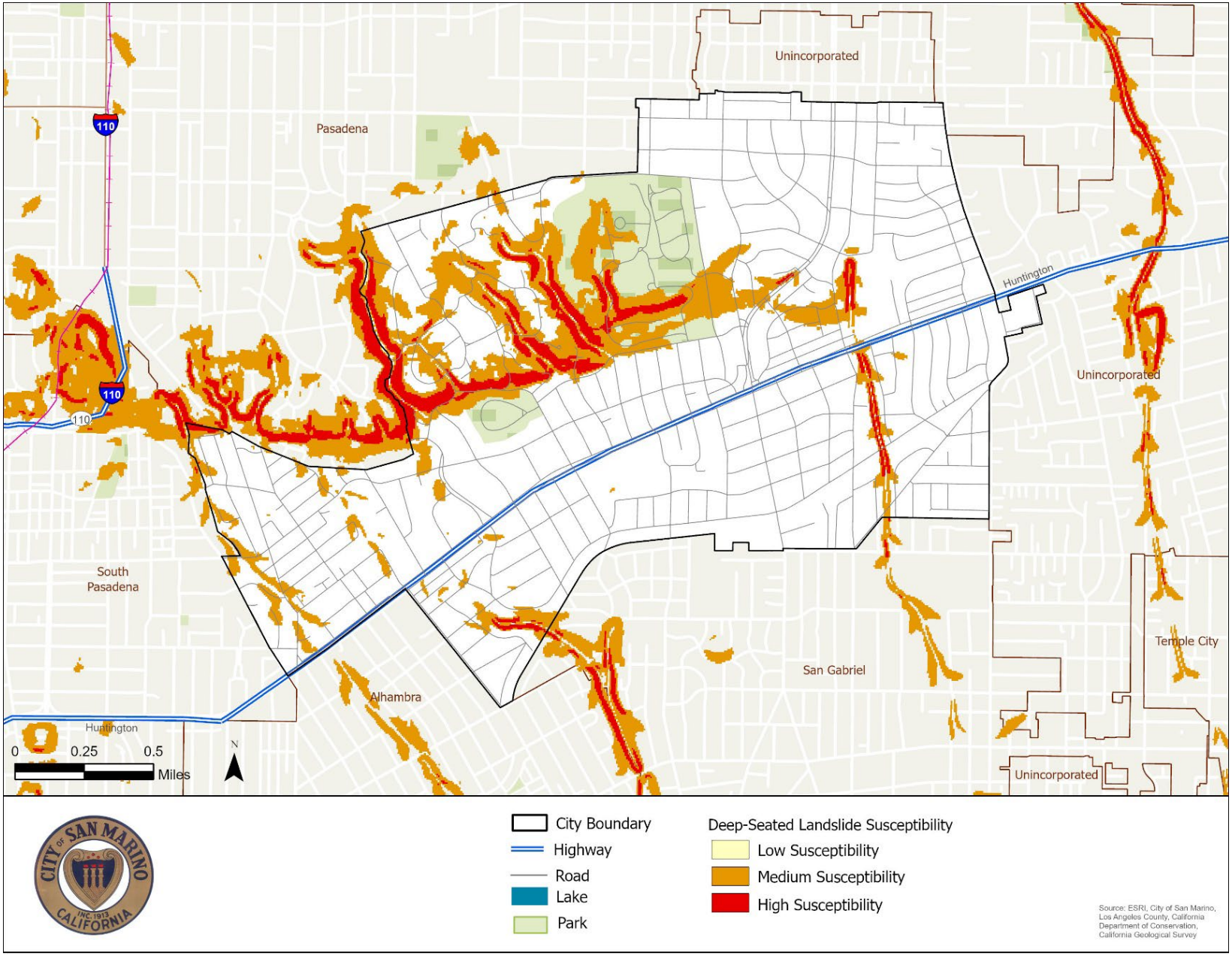
increasing the pressures, the plasticity of weak clays, and the weight of the landmass. These factors are combined in calculations to determine if a slope meets a minimum safety standard for the engineering of earth materials. The generally accepted standard is a factor of safety of 1.5 or greater, where (1.0 equilibrium and less than 1.0 is failure). Although existing landslides are not widespread in the area, it is probable that many of the steeper hillsides do not meet the minimum factor of safety, and slope stabilization may be needed if development reaches these areas. Natural slopes, graded slopes, or graded/natural slope combinations must meet these minimum engineering standards where they impact planned homes, subdivisions, or other types of developments. Slopes adjacent to areas where the risk of economic losses from land sliding is small, such as parks and mountain roadways, are often allowed a lesser safety factor.

Landslides are not a significant problem in the City of San Marino. There are no recorded landslide losses in the city to date. Years in which city received a higher-than-normal amount of rainfall that resulted in saturated ground conditions, the slopes remained stable. The City of San Marino has existing homes built atop a few low-grade hillsides. There are no structural threats to potential landslides should an emergency occur. Therefore, the City has no ordinances or building/zoning codes addressing this. While not extensive in San Marino, **Figure 3-7** shows the areas of the city that have been identified as having the potential to be a landslide hazard area. These areas are generally located along the western edge of the city boundary and the hilly areas near Huntington Library and Botanical Gardens, Encino Drive and Old Mill Road, and El Molino and Marengo Avenues.

While no definitive scale for measuring landslides exists, landslide events are usually measured using the amount of displaced material (i.e., the cubic feet of earth that moved). In addition to these landslide hazards, the California Geological Survey has mapped deep-seated landslide hazards, which uses a scale of landslide susceptibility that is based on slope steepness and the strength of the underlying rock, with 0 being no susceptibility and 10 being the highest susceptibility. **Figure 3-8** identifies these categories and their location within the city. To make the map more accessible and easier to read, the risk values (0-10) were aggregated and placed into one of three categories: *High Susceptibility* (10-8), *Medium Susceptibility* (7-5), and *Low Susceptibility* (4-0).

FIGURE 3-7: LANDSLIDE HAZARD ZONES IN SAN MARINO

FIGURE 3-8: LANDSLIDE SUSCEPTIBILITY AREAS IN SAN MARINO



PAST EVENTS

There have been no recorded landslide losses in San Marino. While landslides are not a significant problem for the city, the potential does exist, given the city's geographical makeup. **Table 3-18** is a history of landslide events in Los Angeles County and the surrounding region.

RISK OF FUTURE EVENTS

The potential for landslides will continue to exist in areas of the city, especially those in San Marino located along the canyons and hillier sections of the city. All expectations are that the probability of a landslide occurring again in the future is likely. As discussed in **Table 3-3**, a probability of “unlikely” indicates less than a 1/10th of a percent chance for a landslide to occur annually.

CLIMATE CHANGE CONSIDERATIONS

Due to the wide variety of factors that can lead to landslides, it is possible that climate change could indirectly affect the conditions for landslides. Increased frequency and more intense storms may cause more moisture-induced landslides. Warmer temperatures and more frequent drought conditions may lead to more fires, destabilizing soil on slopes and making future landslide events more likely.

TABLE 3-18: MAJOR LANDSLIDE EVENTS IN LOS ANGELES COUNTY AND SURROUNDING REGIONS	
Date	Event
03/12/1928	**Los Angeles County, California –** St. Francis Dam Failure. The dam gave way on March 12, and its waters swept through the Santa Clara Valley toward the Pacific Ocean, about 54 miles away. Sixty-five miles of valley were devastated, and over 500 people were killed. Damages were estimated at $672.1 million (in year 2000 dollars).
01/26/1969	**Glendora, CA** - Cost $26.9 million (year 2000 dollars) Los Angeles County, 175 houses damaged, mainly by debris flows.
02/9/1971	**San Fernando, California** - Earthquake-induced landslides Cost $302.4 million (year 2000 dollars). Damage due to the February 9, 1971, magnitude 7.5 San Fernando, California, earthquake. The earthquake of February 9 severely damaged the Upper and Lower Van Norman Dams. Landslides caused by the February 9, 1971, San Fernando, California, earthquake cost $266.6 million (year 2000 dollars). In addition to damaging the San Fernando Juvenile Hall, this 1.2 km-long slide damaged the Southern Pacific Railroad trunk lines, San Fernando Boulevard, Interstate Highway 5, the Sylmar, California, electrical converter station, and several pipelines and canals.
1977-1980	**Monterey Park, Repetto Hills, Los Angeles County, California** - Cost $14.6 million (year 2000 dollars) 100 houses damaged in 1980 due to debris flows.
10/02/1978	**Bluebird Canyon, Laguna Beach** - Unusually heavy rains in March of 1978 may have contributed to the landslide initiation. Although the 1978 slide area was approximately 3.5 acres, it is suspected to be a portion of a larger, ancient landslide. Sixty houses were destroyed or damaged, causing over $52 million in damages at the time.
1979-1980	**Southern California Slides** - $1.1 billion in damage (year 2000 dollars) heavy winter rainfall in 1979-80 caused damage in six Southern California counties. In 1980, the rainstorm started on February 8. A sequence of 5 days of continuous rain and 7 inches of precipitation had occurred by February 14. Slope failures began developing by February 15, and very high-intensity rainfall occurred on February 16. In many locations, as much as 8 inches of rain fell in a 6-hour period. Records and personal observations in the field on February 16 and 17 showed that the mountains and slopes fell apart on those 2 days.
03/10/1995	**Los Angeles and Ventura Counties** - Above-normal rainfall triggered damaging debris flows, deep-seated landslides, and flooding. The storms triggered several deep-seated landslides; the most notable was the La Conchita landslide, which, combined 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 was also 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.
01/05/2005	**Los Angeles and Ventura Counties** - Above-normal rainfall triggered damaging debris flows and flooding. Within the City of La Cañada Flintridge, slope failures and debris flows caused over $2.5 million in damage to public property. The most significant incident during this rain event was a slope failure on Inverness Drive, which caused the roadway and the adjacent hillside to slide several hundred feet, leaving approximately 4,000 cubic yards of debris blocking a major road in the City.
02/16/2010	**Los Angeles County** - Above-normal rainfall triggered damaging debris flows that required residential evacuations. The 2009 “Station Fire” had burned 400 miles of the San Gabriel Mountains, right up to residential areas in the foothill communities. All of the vegetation was burned, leaving only the hillside left. Following the torrential rains, catch basins designated to hold mud and water filled and overflowed into neighborhoods, damaging multiple homes.
Source: 2019 City of San Marino Local Hazard Mitigation Plan	

CHAPTER 4 – THREAT AND VULNERABILITY

Threat Assessment Process

The threat assessment process evaluates the harm San Marino may experience from a hazard event. Threat assessment does not consider a hazard's likelihood, so it gives equal consideration to more likely hazards (e.g., earthquakes, drought) and less probable hazards (e.g., urban fire, dam failure). The threat assessment examines three aspects of each hazard: the physical threat to Critical Facilities (CFs) and Facilities of Concern (FOCs), the social threat to vulnerable populations, and the threat to other assets.

CRITICAL FACILITIES AND FACILITIES OF CONCERN

Critical facilities consist of properties and structures that play important roles in government operations and their services to the community. Examples of CFs include local government offices and yards, community centers, public safety buildings like police and fire stations, schools, and any other properties a city has deemed essential for its operations. Critical Facilities may also serve dual roles if a city designates them as public assembly points during an emergency. The City often owns CFs, but many are owned and operated privately, such as utilities and telecommunication infrastructure. Facilities of concern are structures that play an important role in the city but are not critical to its function. These can be city-owned or privately owned facilities such as senior assisted living homes, parks, and storage facilities, to name a few.

The HMPC identified 10 CFs and 14 FOCs in San Marino that fall into five categories based on their function or characteristics. **Table 4-1** shows the number of CFs and FOCs in each category, the total estimated value of the facilities in each category, and examples of the facilities in each. **Appendix D** has a complete list of the CFs and FOCs.

The potential loss value is the total insured value of the CFs that fall within the hazard zone. It is intended to provide an estimate of a replacement cost if the property is completely or severely damaged. The actual repair costs could be smaller or larger than the provided estimate. The data relies on the City's Insured Asset Values; therefore, information for facilities not owned by the City is not shown (e.g., bridges and private buildings). In some instances, replacement cost information was not made available. Where this occurs, "N/A" is used in the table.

Based on the available data provided by the City, there is a minimum of $41,522,988 worth of City-owned assets. The greatest potential for loss among the city-owned assets comes from the Community Center/Facility category. The next category with the greatest loss potential is the City Facilities (City Hall, Fire, Police) category, followed by the Parks category. The final two categories are the Infrastructure category and the Schools category (values were unavailable for this category). To better understand the magnitude of impacts, this plan identifies representative percentages of potential impact based on the total valuation of City assets. For planning purposes, it is reasonable to assume that impacts would not exceed 50% of the total asset value citywide.

The following are parameters to help understand how much a proposed investment/improvement compares to the existing assets within the city:

- **1% Impact** - $415,230
- **5% Impact** - $2,076,149
- **10% Impact** - $4,152,229
- **20% Impact** - $8,304,598
- **50% Impact** - $20,761,494

The likelihood that all facilities are completely damaged simultaneously is extremely remote. Most impacts are anticipated to be isolated to specific locations based on the hazard. This estimate does not include the value of the City's underground infrastructure and surface drainage facilities.

TABLE 4-1: CRITICAL FACILITIES AND FACILITIES OF CONCERN

Category	Number of Facilities		Potential Loss
	Critical	Concern	
City Facilities (City Hall, Fire, Police) *	6	2	$10,778,817
Schools**	0	7	$ -
Community Center/Facility*	1	3	$21,997,507
Parks*	0	2	$8,746,664
Infrastructure*	3	0	$414,414
Total	**10**	**14**	**$41,522,988**

* Based on the City of San Marino insured replacement values
** Replacement Values were unavailable as they are not City-owned

VULNERABLE POPULATIONS

Factors such as age, physical and/or mental condition, socioeconomic status, access to key services, and many other factors affect the ability of people to prepare for and protect themselves and their property from a hazard event. Even though some hazard events may equally impact all parts of San Marino, people may experience the impacts differently. Higher-income households, for instance, are more likely to afford the cost of retrofitting their homes to resist flooding or move to a location that is less prone to flooding than a lower-income household. As a result, a higher-income household is less likely to experience significant damage during a flood event than a lower-income household, even if the same amount of rain falls on both.

A social threat analysis examines how hazard events are likely to impact different demographic populations in San Marino and where these different demographic populations live in the city. This includes assessing whether the people in an area of an elevated hazard risk are more likely than the average person to be considered a threatened population. The social threat analysis uses the following criteria to assess the threat to vulnerable populations:

- **Disability status:** Persons with disabilities may have reduced mobility and experience difficulties living independently. As a result, they may have little or no ability to prepare for and mitigate hazard conditions without assistance from others.
- **Income levels:** Lower-income households are less likely to have the financial resources to implement mitigation activities on their residences. They may also struggle with having the necessary time to find and access educational resources discussing hazard mitigation strategies. Furthermore, lower-income households are less likely to be able to move to safer areas that are less at risk of being impacted by a hazard. The national poverty limit standard for the U.S. for a four-person family in 2023 is an income of approximately $30,000 or less. For Los Angeles County, the FY 2023 Low-Income Limit for a four-person family, according to the Housing Authority of the City of Los Angeles (HACLA), is $37,850.
- **Seniors (individuals at least 65 years of age):** Seniors are more likely to have reduced mobility, physical and/or mental disabilities, and lower income levels, all of which may decrease their ability to prepare for and mitigate a hazard event.

Table 4-2 shows the metrics for San Marino residents who meet at least one of the criteria for threatened or vulnerable populations. The social threat analysis also shows the threat other populations may encounter. For example, people experiencing homelessness or people without access to lifelines (vehicles or communication networks) may experience greater hardship in evacuating or recovering from a disaster. Since data for these groups is not readily available, there is no definitive way to determine the number of persons in areas of elevated risk, so this assessment will discuss how these threatened groups may be affected on a general level.

TABLE 4-2: SAN MARINO THREATENED POPULATION METRICS (FAULTS 500FT BUFFER)

Threatened Population Metrix	Community-Wide Data
Population	12,324
Households	4,183
Median household income	$187,259
Renter Households	13.7%
Percentage of households with at least one person living with a disability	15.5%
Percentage of households living under the poverty limit	4.4%
Percentage of households with one member aged 65+	44.0%
Area Affected by Hazard (Sq Mile and Pct of City)	12,324

Source: US Census Bureau, American Community Survey, 2022 Projections. "Table DP03: Selected Economic Characteristics in the United States." https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_DP03&prodType=table

DATA LIMITATIONS AND NOTES ON VULNERABILITY TABLES

Due to data limitations, the data comparing the hazard zone population with the citywide population comes from two separate sources. The citywide data comes from the US Census Bureau's American Community Survey (ACS), and the hazard zone population data comes from

ESRI's Business Analyst reports. As a result, there may be minor discrepancies when comparing the two data sets. **Chapter 2** identifies additional census-related information, which may differ from the data in this Chapter based on the data available for the analysis.

OTHER ASSETS

In addition to the City's designated inventory of CFs/FOCs and vulnerable populations, hazard events could threaten other important assets to San Marino. These assets include services, artistic or cultural landmarks, and local economic activities. Based on available information, the threat assessment describes the potential harm to these other assets.

Earthquake Hazards (Fault Rupture, Seismic Shaking, Liquefaction)

PHYSICAL THREAT

Fault Rupture

Earthquakes are considered a major threat to the City of San Marino due to the proximity of several regional fault zones. The City has numerous faults mapped and identified in the nearby San Gabriel Mountains and surrounding regions that can produce earthquakes of magnitude 6.7 or greater. A significant earthquake along one of the major faults could cause substantial casualties, extensive damage, and other threats to life and property. The presence of an Alquist Priolo (AP) Special Study Zone within the city limits (the Raymond Fault) indicates an active fault system in San Marino. This increases the potential for fault rupture in the City and the potential to damage critical facilities and infrastructure. **Table 4-3** identifies the CFs and FOC located within 500 feet of these mapped fault segments. Based on this table, potential losses associated with fault rupture could amount to over $2.3 million and affect 1 CF and 3 FOC. **Figure 4-1** displays the CFs and FOC located within these zones.

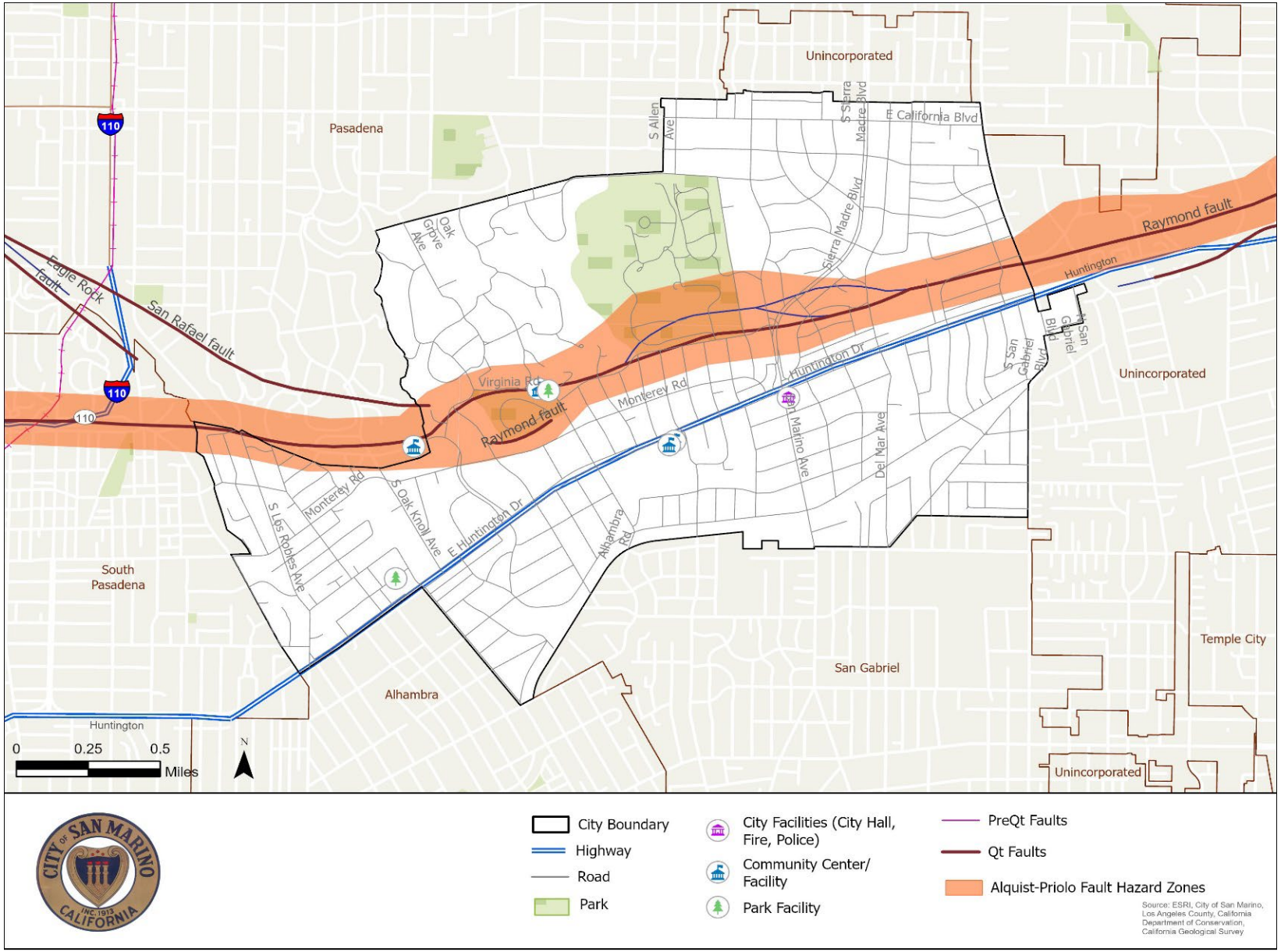
TABLE 4-3: CRITICAL FACILITIES AND FACILITIES OF CONCERN (SEISMIC SHAKE 0.9501 TO 1.15G)

Category	Number of Facilities		Potential Loss
	Critical	Concern	
City Facilities (City Hall, Fire, Police)*	0	0	$ -
Schools**	0	0	$ -
Community Center/Facility*	0	2	$1,227,114
Parks*	0	1	$1,153,154
Infrastructure*	1	0	$138,138
Total	**1**	**3**	**$2,380,268**

* Based on the City of San Marino insured replacement values

** Replacement Values were unavailable as they are not City-owned

FIGURE 4-1: CFS AND FOCS LOCATED WITHIN 500FT OF ALQUIST – PRIOLO SPECIAL STUDY ZONES



Seismic Shaking

Many physical assets in the city are estimated to experience the same seismic shaking intensity, ranging from 0.55 to 1.15g (shaking intensity in relation to the Earth's gravity). Therefore, all facilities could potentially be damaged during a significant seismic event, which could be extremely costly for the City. If all facilities were damaged at the same time during a seismic shaking event, it can be assumed that the City would incur a percentage of the maximum potential loss of its physical assets. Assuming 20% of the City's assets are impacted, this potential loss could amount to over $4.1 million. Underground physical assets, like pipelines or utilities, could be damaged if the intensity of the seismic shaking is severe enough. In such a scenario, natural gas and water delivery service to San Marino homes and businesses would not be available until repairs are completed. **Table 4-4** displays the potential scenario and losses that could be incurred should shaking reach the described threshold. **Figure 4-2** displays the CFs and FOCs located within the City's Seismic shaking potential hazard zones.

TABLE 4-4: CRITICAL FACILITIES AND FACILITIES OF CONCERN (SEISMIC SHAKE 0.9501 TO 1.15G)

Category	Number of Facilities		Potential Loss
	Critical	Concern	
City Facilities (City Hall, Fire, Police)*	6	2	$10,778,817
Schools**	0	7	$-
Community Center/Facility*	1	3	$21,997,507
Parks*	0	2	$8,746,664
Infrastructure*	3	0	$414,414
Total	**10**	**14**	**$41,522,988**

* Based on the City of San Marino insured replacement values
** Replacement Values were unavailable as they are not City-owned

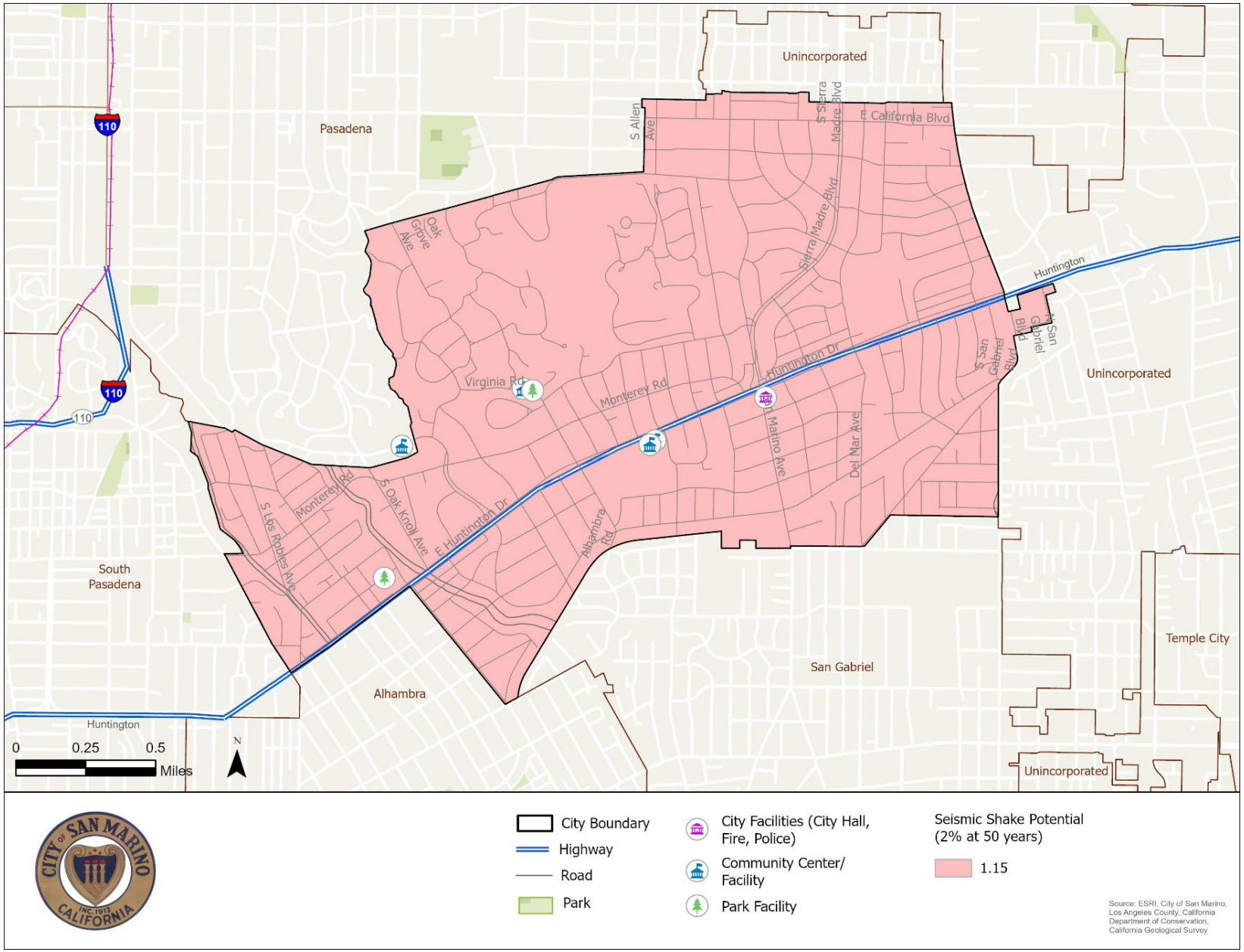
Liquefaction

Due to the City's location near so many regionally active faults capable of generating large earthquakes, the potential for CFs and FOCs to be affected by liquefaction is a concern. Like other cities in Los Angeles County, San Marino is located in a geographical area where the soil makeup is conducive to liquefaction hazards in some areas. Fortunately for San Marino, there are 0 CFs and 0 FOCs are located in identified liquefaction hazard zones.

SOCIAL THREAT

The risk of a seismic event is a danger to all San Marino households and businesses; however, some populations are at higher risk than others.

FIGURE 4-2: CFS AND FOCS LOCATED IN AREAS OF SEISMIC SHAKE 0.9501 TO 1.15G



Fault Rupture

The City used fault rupture data sets and the Alquist-Priolo Special Study zones mapped in **Figure 3-1** to analyze the social threat associated with fault rupture. These fault data sets provided by the California Geological Survey were then mapped and analyzed using a 500-foot buffer around each fault segment. **Table 4-5** identifies the threatened populations in AP Special Study areas, including approximately 13% of residents, with a median household income slightly higher than the City average. In these areas, there is a slightly lower percentage of persons living with a disability and a higher percentage of households with one member aged 65+. **Table 4-5** depicts the populations located near AP zones and especially vulnerable to fault rupture.

TABLE 4-5: AP SPECIAL STUDY ZONE HAZARD THREATENED POPULATIONS

Threatened Population Metrix	AP Zone	Community-Wide Data
Population	1,611	12,324
Households	558	4,183
Median household income	$188,712	$187,259
Renter Households	10.9%	13.7%
Percentage of households with at least one person living with a disability	15.2%	15.5%
Percentage of households living under poverty limit	3.5%	4.4%
Percentage of households with one member aged 65+	47.0%	44.0%
Area Affected by Hazard (Sq Mile and Pct of City)	.06 sq miles or 15.9%	3.77 sq miles

Seismic Shaking

Seniors, pregnant women, and persons with disabilities may be at higher risk in a seismic shaking event as they may have limited mobility, which could delay or prevent safe evacuation. Renters and persons with lower incomes are also more threatened by seismic shaking since they may live in homes that are not properly retrofitted to withstand the stresses of a seismic event. These groups may not have the financial resources to repair their homes or move to new housing if their homes become uninhabitable. Data compares the populations within the seismic shaking hazard zones to the citywide population. As depicted in **Table 4-6**, the entire city population is potentially at risk of hazards resulting from seismic shaking events.

Liquefaction

Fortunately, no hazard-threatened populations reside in or are located within an identified liquefaction zone in the city. However, the potential for a liquefaction event exists if all the required conditions are met.

TABLE 4-6: SEISMIC SHAKE HAZARD THREATENED POPULATIONS (1.15G)		
Threatened Population Metrix	**Seismic Shake Area**	**Community-Wide Data**
Population	12,324	12,324
Households	4,183	4,183
Median household income	$187,259	$187,259
Renter Households	13.7%	13.7%
Percentage of households with at least one person living with a disability	15.5%	15.5%
Percentage of households living under poverty limit	4.4%	4.4%
Percentage of households with one member aged 65+	44.0%	44.0%
Area Affected by Hazard (Sq Mile and Pct of City)	3.77 sq miles or 100%	3.77 sq miles

OTHER THREATS

Fault Rupture

Seismic events that cause surface fault rupture tend to damage roads and structures in impact areas. The rupture length is typically a component of the seismic event's magnitude. The stronger the event, the greater the distance that rupture can occur. Earthquakes that could affect the City would most likely originate from larger faults such as the San Andreas and Sierra Madre Faults. These faults are close enough in proximity or expected to generate strong enough shaking that could affect the City. The faults located within the AP Zones (the Raymond fault) in San Marino are more likely to rupture than these faults. If a rupture were to occur, it could likely impact multiple areas within the city.

Seismic Shaking

Earthquake Warning California is the country's first publicly available, statewide warning system that could give California residents crucial seconds to take cover before they feel shaking. Managed by the Governor's Office of Emergency Services (Cal OES), Earthquake Warning California uses ground motion sensors from across the state to detect earthquakes before humans can feel them and can notify Californians to "Drop, Cover and Hold On" before an earthquake.

The goal of early earthquake warning systems is to afford utility providers additional time that they may use to shut off gas, water, and power transmission to try and control potential leaks following the event. Authorities may also have enough warning to halt the use of bridges or safely shelter or evacuate workers from hazardous locations. Therefore, the goal is to allow service providers to remain inactive, reducing further impact, until authorities determine it is safe for employees to return and reactivate utilities. The length of this time will vary depending on the event's magnitude. A significant earthquake would necessitate utilities to remain off for a few hours or several days. The city and the region could lose the economic activity that normally occurs. In addition, structures such as downed telephone poles or power transmission towers could block roadways and prevent first responders from reaching victims or evacuees who need assistance.

Liquefaction

Services and mobility may be disrupted during and following a liquefaction event. Due to the liquefying soils, sidewalks, roadways, and pipelines may become fractured and disjointed. Severe liquefaction events may render roads and sidewalks impassable until they are repaired. Broken gas and water pipelines could result in utility outages, with services delayed until the infrastructure is repaired or replaced. Damage to power lines is unlikely since they are not rigid structures and can move if any transmission towers experience slight leaning. Homes and mid-rise office buildings may be unsafe for occupancy if the soil loses substantial strength.

CHANGES IN POPULATION AND LAND USE DEVELOPMENT

Fault Rupture

Based on the recent 2021-2029 Housing Element update, population patterns are not anticipated to change significantly over the next 20 years. While this may also be true concerning land use and development, if a strong earthquake impacts the city, there is the potential that older structures in the city may be impacted more severely than newer structures in other parts of the city. New developments or major redevelopments, especially those within AP Zones, must meet current city and state seismic building codes. The City's development review process will identify steps to mitigate or prevent future seismic events.

Seismic Shaking

Based on the recent 2021-2029 Housing Element update, population patterns are not anticipated to change drastically over the next 20 years. While this may also be true concerning land use and development, if a strong earthquake impacts the city, the city's older structures may be impacted more severely than newer structures and developments.

Liquefaction

Liquefaction is unlikely to cause changes in population patterns. However, land use designations and new development may be limited in some areas out of precaution or subject to policies developed in City documents such as the LHMP, Land Use, Housing, and Safety Elements. The City's development review process will identify steps to mitigate or prevent future liquefaction events.

Windstorm

PHYSICAL THREAT

Intense winds likely present the greatest threat to physical structures, particularly from trees or branches that fall on buildings and cause substantial damage. Older structures that have deferred maintenance or have not been retrofitted for high wind conditions may suffer greater damage than newer/updated structures. Utility lines and wooden utility poles face an elevated threat from wind, as do buildings without reinforced roofs.

SOCIAL THREAT

Severe wind events can harm people throughout San Marino but have a greater effect on the safety of people experiencing homelessness and people who work outdoors. Lower-income residents, who may not have the financial resources to purchase homes built or retrofitted to withstand powerful winds, could also have difficulty recovering from wind events.

OTHER THREATS

The potential for windstorms to create a financial strain on both the public and the City exists in the event of utility infrastructure damage or loss of power. These windstorms can uproot trees and landscaping, further burdening the owners to replace or repair the losses. Trees located in City parks may also be damaged or destroyed. Air quality can also be affected by these wind events, stirring up dust, pollen, debris, etc. Another threat associated with severe wind is wildfire impacts (discussed earlier) and the recent practice of electric utilities conducting Public Safety Power Shutoff activities. These shutoffs may affect electrical services during high wind events in parts of southern California. The City has no PSPS circuits that could affect power service to the City should it be activated to avoid a potential wildfire. PSPS circuits located in other parts of the County and region could impact the city in other ways, such as people relocating to San Marino temporarily due to power loss.

CLIMATE CHANGE VULNERABILITY

Climate change will likely increase the city's vulnerability to severe weather impacts associated with the anticipated increase in future storm intensity and frequency and increases in future temperatures.

CHANGES IN POPULATION AND LAND USE DEVELOPMENT

Severe windstorms occur periodically (primarily during the Fall months) and generally do not affect populations to the degree that they would need to migrate in and out of the city. It is unlikely that severe wind will affect land use and development because the development review process will take steps to mitigate or minimize the impacts of windstorms. There is the potential that older structures in parts of the city may be impacted more severely than newer structures in other parts of the city. Some areas of the city have overhead powerlines and mature trees, and older structures may not comply with current building codes. The city's anticipated lack of significant population growth over the next 20 years is not expected to impact San Marino's vulnerability to windstorms.

Wildfire (Wildland Fire, Urban Fire)

PHYSICAL THREAT

Structures and physical assets in San Marino that are not equipped with fire suppression technology or design features that mitigate fire vulnerability are at risk of fire. Generally, these buildings are older, may not be well maintained, and may not meet current code requirements and regulations. While all structures can be impacted by either wildland or urban fire, older buildings may have increased vulnerability to these hazards.

The California Department of Forestry and Fire Protection (CAL Fire) has not mapped any Very High Fire Hazard Severity Zones (VHFHSZ) within the City's Local Responsibility Area (LRA) and the State Responsibility Area (SRA). The LRA is a government-designated area where a local agency, city, or county, NOT the State, is responsible for fire protection. An SRA is the opposite, where the State is responsible for wildland fire protection. As previously discussed, the City has no mapped VHFHSZs in its LRA; however, San Marino acknowledges and recognizes that a wildfire threat does exist, and the City has designated these vulnerable areas as Fire Enhancement Zones (FEZ) instead of VHFHSZs. **Figure 4-3** identifies these zones along with the City's CFs and FOCs located within the general area. All structures within FEZ are at an elevated risk of wildfire impacts. Fortunately for the City, there are no CFs or FOCs within these areas, and most structures are, unfortunately, residential homes. While these areas have a high degree of vulnerability to wildfire, other areas of the city may also be susceptible due to ember cast. Sometimes, igniting a wildfire may occur because of power lines located around overgrown trees, causing a spark and catching the tree on fire.

SOCIAL THREAT

A fire hazard immediately threatens seniors and persons with disabilities. These groups may have limited mobility or diminished environmental awareness. For example, a senior who lives alone may not know if a fire ignites in their house until a room fills with smoke or a flashover occurs; at this point, escape may be more difficult or impossible. Therefore, a fire that starts in or spreads to senior residences in San Marino could be highly threatening to those populations. Persons with disabilities may require special mobility devices or caregiver assistance to evacuate, which may not be readily available when a fire occurs. Other groups with increased threat levels include lower-income people and renters. These individuals may live in substandard housing with outdated materials known to be flammable. Renters and lower-income people may also live in housing units with improperly designed or unmaintained electrical or heating systems that could cause a fire. These groups may not have the financial resources to rebuild or relocate to new homes after a wildland or urban fire.

San Marino has a portion of its residents located in the Fire Enhancement Zone, located in the community's northwestern area. **Table 4-7** shows that approximately 2% of the City's population is located within San Marino's LRA and the identified FEZs. Of these households, the vulnerable populations represent approximately 28.3% of these households having at least one person living there with a disability, 0% of these households live under the poverty limit, and 69.8% of these households have one member aged over 65+; however, these households have a much higher median income than the City as a whole.

FIGURE 4-3: CFS AND FOCS LOCATED NEAR FIRE ENHANCEMENT ZONES

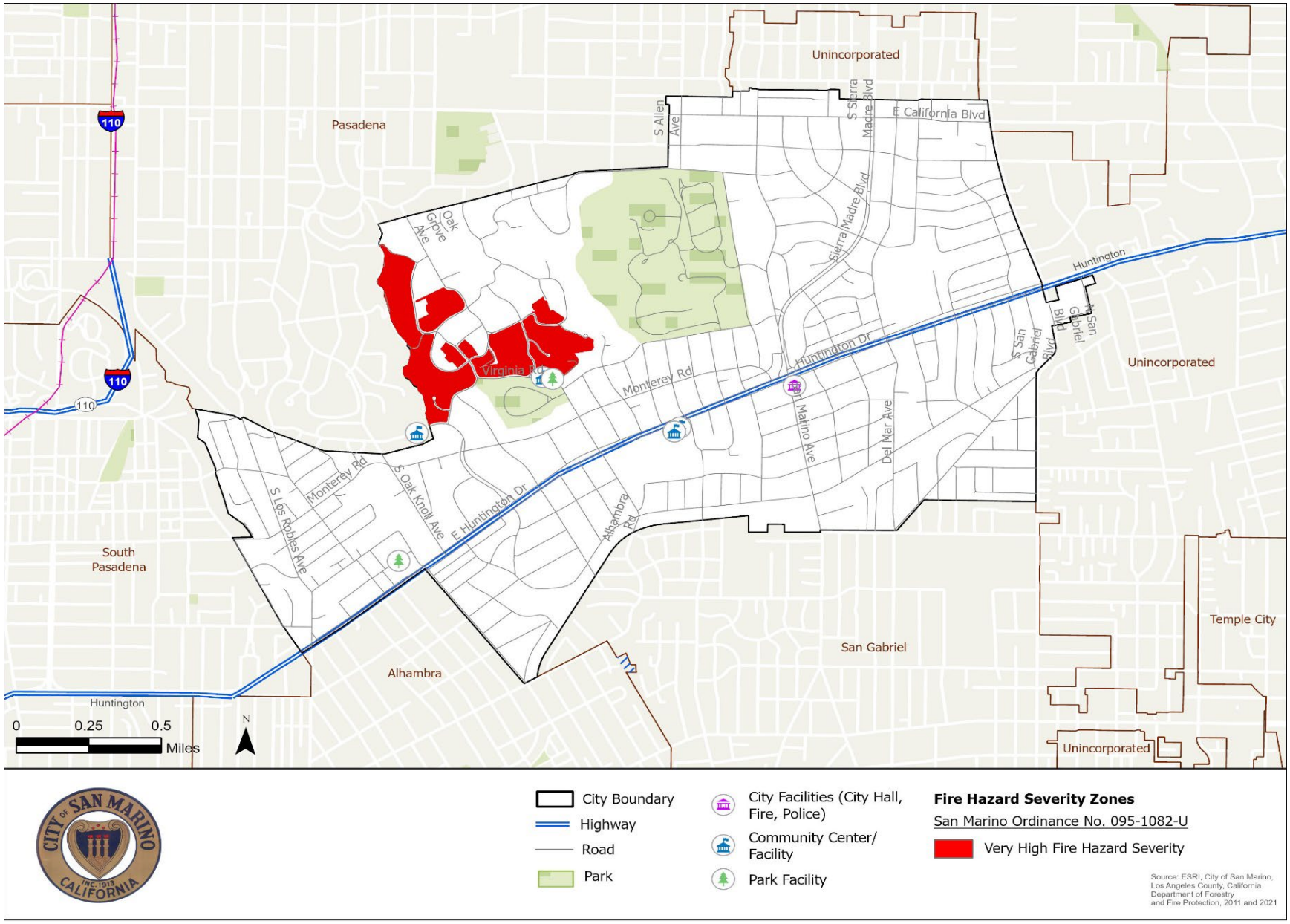


TABLE 4-7: FIRE ENHANCEMENT ZONE (FEZ) THREATENED POPULATIONS		
Threatened Population Metrix	**FEZ**	**Community-Wide Data**
Population	236	12,324
Households	69	4,183
Median household income	$200,001	$187,259
Renter Households	15.9%	13.7%
Percentage of households with at least one person living with a disability	28.3%	15.5%
Percentage of households living under poverty limit	0.0%	4.4%
Percentage of households with one member aged 65+	69.8%	44.0%
Area Affected by Hazard (Sq Mile and Pct of City)	0.14 sq miles or 3.7%	3.77 sq miles

OTHER THREATS

Wildfires and urban fires can consume power lines and force utility operators to shut off electrical and gas transmission activity, leading to utility outages in San Marino homes and businesses. Any streets surrounded by blazes or blocked by burning debris would hinder transportation, prevent victims from escaping, and block emergency response crews from reaching the source of the fire. Anyone living towards the end of a cul-de-sac faces an elevated threat of being trapped if the fire occurs or spreads to the mouth of the street. Fires that destroy trees or vegetation (especially within parks and open space areas) could limit or prevent the use of these areas, affecting recreational opportunities for residents. Public Safety Power Shutoffs (PSPS) are a significant issue for many communities throughout California. In the event of a PSPS outage in neighboring cities near San Marino, the City's resources could be strained as residents of affected areas seek refuge in communities with power. Outreach to residents and businesses to help them understand and prepare for these events will be an important aspect of the City's overall hazard mitigation strategy.

CLIMATE CHANGE VULNERABILITY

Climate change will likely increase the city's vulnerability to wildfire impacts because of increasing temperatures, which could change the moisture content of plant materials and potentially increase future drought conditions.

CHANGES IN POPULATION PATTERNS AND LAND USE DEVELOPMENT

Based on the recent 2021-2029 Housing Element update, the anticipated lack of significant population growth in the city over the next 20 years is not expected to drastically impact San Marino's vulnerability to wildfire. If a large wildfire were to occur, it is feasible that changes to population patterns could fluctuate. Future land use designations, re-development, or new development in these areas could be restricted or even prohibited, especially in the FEZs. Considering that San Marino is a predominantly built-out city with a decreasing population trend,

large changes in population may not be a concern. All development and redevelopment in the City would have to meet the current fire building standards and state code.

Extreme Heat

PHYSICAL THREAT

Extremely high temperatures can cause roads to deform and buckle as the pavement expands in the heat, especially in poorly maintained areas. Power lines and other electrical grid components become less effective in higher temperatures and may be damaged due to stress during extreme heat events. Urban heat islands occur when natural land cover is replaced with concentrations of pavement, buildings, or other surfaces that absorb and retain heat. Buildings with dark pavement will absorb more heat than surfaces with vegetation or lighter materials that are better at reflecting the sun's energy. This urban heat island effect is strongest during the summer when solar radiation is strongest.

SOCIAL THREAT

Whereas a heat event can be relatively harmless for those with a reliable means of staying hydrated and cool, the event can be deadly for others. Young children, the elderly, or people suffering from serious medical conditions are physiologically more vulnerable to heatstroke. Some senior citizens also take medicines that make it harder for their bodies to maintain a safe internal temperature, creating an additional threat from extreme heat events. Young children may not be aware of the signs of dehydration or ways of protecting themselves from heatstroke.

People living in homelessness are at a high risk of health complications during heat waves, especially if they are unsheltered. According to Los Angeles County homelessness counts, in 2023, there were approximately 75,518 individuals experiencing homelessness in Los Angeles County, with approximately 73.03% percent unsheltered. This population, whether in the City or elsewhere in the County, is extremely vulnerable to heatstroke during a heatwave, especially if they cannot reach a cooling center.

Sudden spikes in heat can catch people by surprise. Stores can rapidly sell out of fans, air-conditioning units, or drinking water during a heatwave. Many lower-income households live in older, poorly insulated, and energy-inefficient housing and cannot afford to run their air conditioning, which can be further compounded by the threat of power outages due to heat/rolling blackouts. During these events, extreme heat impacts may affect larger portions of the city and populations that would not be considered vulnerable under normal circumstances.

OTHER THREATS

Extreme Heat for any length of time can also affect other hazards and risks within the city. For example, it can create a spike in electricity demand, leading to power loss/failure, food insecurities, and a rise in vector-borne disease transmission. Coupled with windstorms, it can cause or spread wildland/urban fires and jeopardize additional neighborhoods/communities.

CLIMATE CHANGE VULNERABILITY

Climate change is projecting an overall increase in temperatures and the frequency in which these extreme heat events could occur. This indicates that it is feasible to assume the threat these events impose will also increase the City's and its residents' vulnerability.

CHANGES IN POPULATION AND LAND USE DEVELOPMENT

Based on the recent 2021-2029 Housing Element update, population patterns are not anticipated to change drastically over the next 20 years. There could be minor changes in population patterns due to extreme heat if people cannot continue to live in older structures with limited insulation and older cooling units. It is unlikely that extreme heat will affect land use and development because the development review process will take steps to mitigate or minimize impacts from extreme heat. While it is unlikely that extreme heat will affect land use and development, it is possible that additional investment in older parts of the city will occur to modify structures to handle these conditions.

Human-Caused Hazards (Hazardous Materials Release, Natural Gas Pipeline)

PHYSICAL THREAT

Hazardous materials can cause damage to physical assets in San Marino if they are released into the environment. Corrosive hazardous materials can damage the building exteriors of CFs or FOCs. Flammable hazardous materials can start fires and cause any CFs or FOCs nearby to flashover and ignite. Generally, sites closer to the origin for the release of hazardous materials are threatened greater than those further away. Fortunately, San Marino does not have any CFs or FOCs located near facilities that contain hazardous materials.

A partial or complete natural gas pipeline failure could be a devastating event for the city. Depending on the location and severity of the event, the results could be as minor as a small leak that introduces natural gas fumes to the area, or a catastrophic failure could result in an explosion and fires causing damage to physical assets.

SOCIAL THREAT

The threat of a hazardous materials release event affects those closest to a source of hazardous materials, including industrial sites, gas stations, gas transmission lines, or sewer mains. San Marino residents living next to major transportation infrastructures, such as highways or major arterial streets, also face a greater threat of being affected by a release of hazardous materials since vehicles transporting hazardous materials may release their contents into the environment if involved in a collision. Specifically, residents in San Marino living near the major transportation corridor running through the city (Huntington Ave) are at greater risk of exposure to transportation-related hazardous material release than residents living in other parts of the city.

Groups such as the elderly, low-income persons, or renters face a greater risk of exposure since they may not have the financial resources necessary to retrofit their homes against infiltration by hazardous materials or move away to a home that is further from the potential sources of

hazardous materials release events. Additionally, public and private schools, preschools, residential care, and skilled nursing facilities in this area are at risk of being impacted.

OTHER THREATS

Hazardous materials release could threaten the City's transportation networks and potentially the region's. Large areas of the local road may be closed to keep people away from areas contaminated with hazardous materials and allow remediation and cleanup activities to occur. If a highly corrosive hazardous material is released, it could potentially cause significant damage to the exteriors of any homes or businesses in the area surrounding the release. Hazardous materials could also harm the City's urban forest, resulting in the premature death of vegetation in the affected areas.

CLIMATE CHANGE VULNERABILITY

Climate change could indirectly increase the city's vulnerability to hazardous materials release impacts as climate-related hazard events occur. Precipitation events with increased intensity causing flooding or overwhelming infrastructure could cause an increase in hazardous materials release. Climate-related hazards could also exacerbate the effects and impacts of such events. For example, heavier rains could lead to more runoff from a contaminated site with hazardous materials.

CHANGES IN POPULATION AND LAND USE DEVELOPMENT

A change in population pattern would only occur if a hazardous materials release was severe enough to require people to move. It is unlikely that hazardous materials release will affect land use and development because the development review process will take steps to mitigate or minimize impacts from a hazardous materials release event. Locations that store, produce, and dispose of hazardous materials are highly regulated within the city and monitored regularly. It is not anticipated that land use and development patterns will change through this process and the development review process. The anticipated lack of population growth in the city over the next 20 years is not expected to significantly impact San Marino's vulnerability to hazardous materials release.

Flood

PHYSICAL THREAT

Fortunately, the City does not contain any 100-year or 500-year flood zones within the city boundary, so the threat of flooding typically is isolated to local ponding and small incidents. Any physical assets within the city could be inundated if enough precipitation fell, exceeding the storm drain infrastructure design capacity. Electronic or mechanical equipment on the ground could become waterlogged and nonfunctional. San Marino is extremely fortunate compared to other cities, as they have no CFs or FOCs at major risk of flooding.

SOCIAL THREAT

People who walk or bike as their primary form of transportation may encounter difficulties if they do not have access to an alternative means of transportation. Seniors, persons with disabilities,

and low-income persons are also likely to be threatened. Additionally, persons experiencing homelessness who are outside during flood conditions may experience property damage or may not be able to access shelter. Though floodwaters in San Marino are not expected to exceed a depth of one foot, six inches of floodwater may render any makeshift structures uninhabitable during the flood event. Possessions such as sleeping bags or electronic devices may be damaged or swept away by the floodwaters.

OTHER THREATS

Flooding may temporarily stop any type of transportation in the city. Debris from floodwaters can block roadways, hinder vehicle access, and potentially affect emergency response services. One foot of rushing water is enough to carry small vehicles. A severe flood may prevent people who own smaller vehicles from driving to work, reducing economic activity. Severe flooding that causes serious damage to homes and businesses may also reduce economic activity until repair work is completed.

CLIMATE CHANGE VULNERABILITY

Climate change will likely increase the city's vulnerability to flooding impacts associated with the anticipated increase in the intensity and frequency of local, regional, and global weather patterns, intensifying atmospheric rivers. This can increase the likelihood of an exceptional rain event in San Marino that could overwhelm the capacity of flood control infrastructure. Due to climate change, droughts are also expected to increase in length and frequency. Soils dried by extensive drought periods are less able to absorb and drain water, likely increasing flood potential.

CHANGES IN POPULATION AND LAND USE DEVELOPMENT

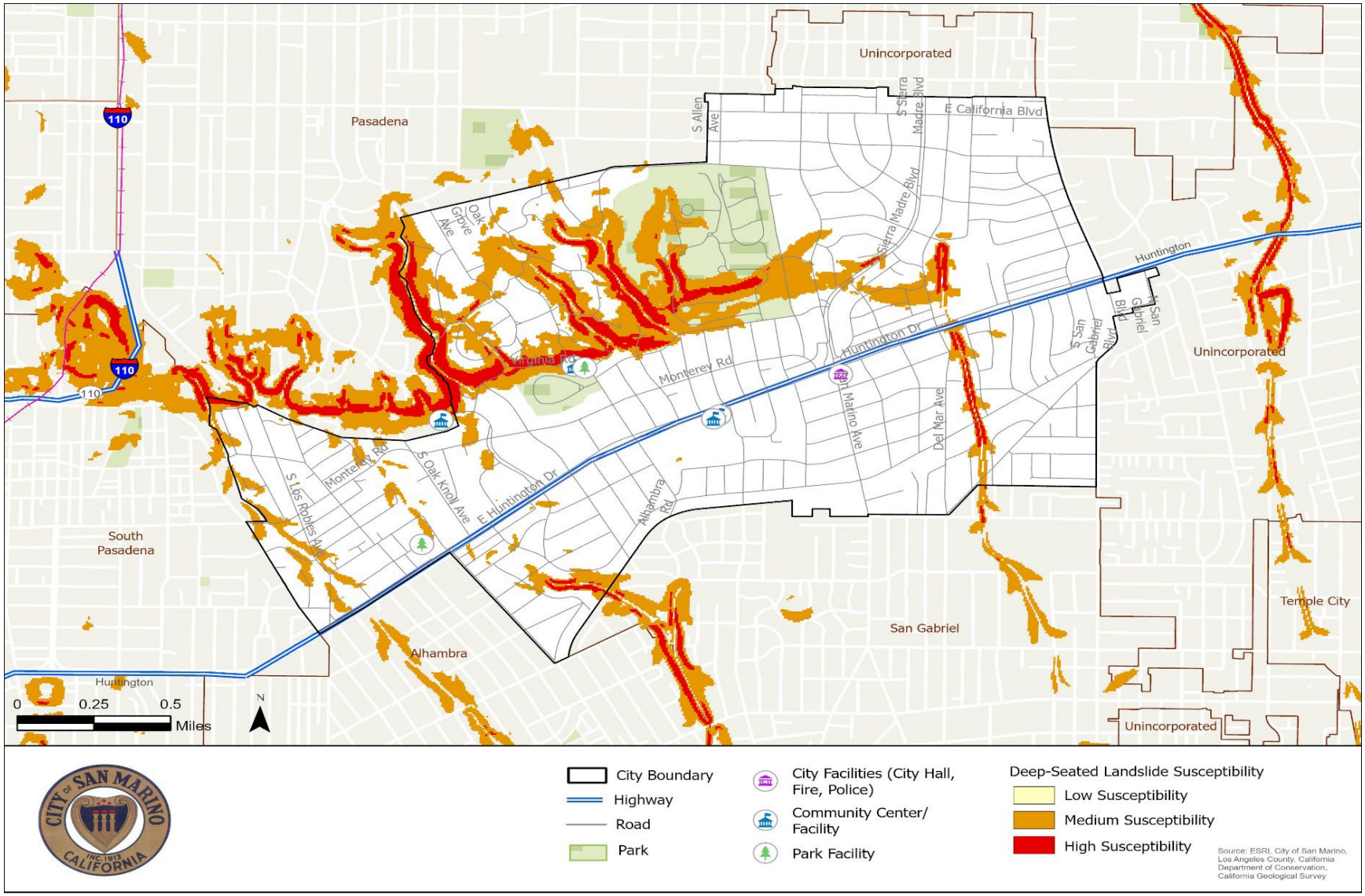
Given the lack of FEMA flood zones, it is highly unlikely that flooding will affect the City's population patterns and growth. It is also unlikely that flooding will affect land use and development patterns because the development review process ensures flood-related impacts are mitigated or minimized. The anticipated lack of population growth in the city over the next 20 years is not expected to significantly impact San Marino's vulnerability to flooding.

Landslide

PHYSICAL THREAT

Landslides pose a potential threat to a variety of facilities in the city. Parts of the City are located within these landslide susceptible areas, especially in those areas characterized by steep slopes and canyons, which are vulnerable to landslides during long periods of rainfall or seismic events. Fortunately for the city, no CFs or FOCs are located within these identified areas with landslide threat potential; however, the potential to damage residential structures does exist. **Figure 4-4** shows the CFs and FOCs in relation to the landslide hazard areas.

FIGURE 4-4: CFS AND FOCS LOCATED NEAR LANDSLIDE SUSCEPTIBLE ZONES



SOCIAL THREAT

According to data from the Department of Conservation, and fortunately for San Marino, there are no populations currently at risk within the 0.12 square miles of identified high susceptibility deep seated landslide areas.

OTHER THREATS

Landslides may block roadways, causing long-term disruptions to the roadway network, infrastructure systems, and city capabilities. Underground utility lines in slide-prone areas or above-ground lines built on or above them can be damaged in a landslide, causing service outages. Landslides could affect sensitive ecological areas around the community, causing localized harm to the region's ecosystem, although widespread disruptions are unlikely. Homes and businesses are typically damaged or destroyed by landslides. In addition to potentially causing significant injuries or fatalities, this can cause economic harm and create a need for long-term emergency sheltering and temporary housing until these buildings can be reconstructed. Utility lines, such as power lines or water pipes, may be broken by a landslide, interrupting important services.

CLIMATE CHANGE VULNERABILITY

Climate change could indirectly increase the city's vulnerability to landslide impacts. Increased frequency and intensity of future storms may cause more moisture-induced landslides. Warmer temperatures and more frequent drought conditions may lead to more fires, destabilizing soil on slopes and making future landslide events more likely.

CHANGES IN POPULATION AND LAND USE DEVELOPMENT

Landsliding is being monitored throughout the hazard-prone areas in the city; the impacts can cause damage to structures located within these zones. However, these zones are generally located in certain areas of the city, meaning that the damage potential is limited to these areas. Despite this potential, landslides are unlikely to cause changes in population patterns. However, land use designations and new development may be limited in these areas out of precaution or subject to any policies developed in City documents such as the LHMP, Land Use, Housing, and Safety Elements. The City's development review process will identify steps to mitigate or prevent future landslide events. The anticipated lack of population growth in the city over the next 20 years is not expected to significantly impact San Marino's vulnerability to landslides.

CHAPTER 5 – HAZARD MITIGATION STRATEGY

Strategy Development Process

San Marino's hazard mitigation strategy is a comprehensive set of actions intended to reduce the impact of hazard events. These hazard mitigation actions will help protect the safety and well-being of residents, visitors, CFs and FOCs, other buildings and structures, key services, the local economy, and other important community assets. Some actions will also help with emergency preparedness, allowing for a more effective community response to hazard events. Preparedness actions are not required for an LHMP, but they support and complement mitigation activities. The HMPC chose to include them as part of the overall hazard mitigation strategy.

USE OF HAZARD AND THREAT ASSESSMENT

The HMPC relied partly on the hazard profiles and threat assessments in this Plan to develop the mitigation strategy's actions. A comprehensive set of mitigation actions was prepared to respond to the relevant hazard situations and protect San Marino residents, businesses, and community assets. The HMPC ensured that the mitigation actions would help reduce damage from the most frequent types of hazard events, the most significant that may reasonably occur, and those with the greatest potential to harm the community. The HMPC also drafted mitigation actions to help protect the most vulnerable community members and the most vulnerable local assets.

CAPABILITIES ASSESSMENT

As part of the effort to draft mitigation actions, the City completed a capabilities assessment, which included reviewing existing policies, personnel, and technical resources to support hazard mitigation activities in San Marino. The hazard mitigation actions build off these resources' existing success and leverage their capabilities to support improved resiliency in the community. The capabilities assessment looked at the following types of resources:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and outreach Capabilities

CAPABILITIES IMPROVEMENT/EXPANSION

The ability to expand current mitigation capabilities will generally be reliant upon the budgeting allocated for each department/program for that fiscal year. The level at which these programs may or may not be expanded depends on the funding received. FEMA has released a series of guides over the past few years highlighting some ways jurisdictions can expand mitigation. Some strategies for increasing current mitigation capabilities may include:

1) City should actively identify, adopt, and enforce the most current set of development codes and standards available. Strongly encouraging new development to be constructed to higher standards than currently required, increasing resilience within the community.
2) Engaging parts of the community that may not be actively involved in mitigation efforts.
3) Expanding the number and types of organizations involved in mitigation planning and implementation, increasing both efficiency and bandwidth.
4) Fostering new relationships to bring underrepresented populations and partners to the hazard mitigation planning process.
5) During the annual LHMP review, the committee should look for opportunities to fund and expand/enhance the effectiveness of current mitigation actions.

Tables 5-1 through 5-4 show the capabilities assessment for San Marino. Within each resource described, a section titled "Expansion and Improvement" is provided, which helps the City recognize specific areas where each capability may be modified to align with mitigation priorities and actions to be taken in the future.

PLANNING AND REGULATORY CAPABILITIES

These include local ordinances, policies, and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes, and zoning ordinances. The City will adopt the approved 2024 LHMP into the General Plan Safety Element for AB 2140 compliance. Table 5-1 contains a list of legal and regulatory capabilities. The Description section of each Planning and Regulatory Capability includes a paragraph on Expansion and Improvement. These sections describe the processes for integrating the LHMP into other planning mechanisms.

TABLE 5-1: CITY PLANNING AND REGULATORY CAPABILITIES

City Code Chapter XXIV - Uniform Codes			
Uniform Codes includes the California Building Code, 2022 edition, based on the 2021 International Building Code as published by the International Code Council, including all appendices. Articles 2 through 6 include building, plumbing, electric, mechanical, and residential codes. Article 12 contains the Fire Code. **Expansion, Implementation, and Improvement:** General Codes will be reviewed based on developing trends in identified hazards and mitigation measures that can make them more effective at preventing losses. They will be updated to comply with the latest International and State building codes.			
Lead Department	Community Development	**Hazards Addressed**	All
City Code Chapter XXIII- Zoning			
The zoning code addresses land use in precise detail. It sets standards for building and construction types and usage for all parcels in the City. **Expansion, Implementation, and Improvement:** Zoning Codes must be modified and updated to reflect changes in development. Zoning Code may be used to address land use regulations that support mitigation actions such as development in floodplains and other hazard areas.			
Lead Department	Community Development	**Hazards Addressed**	Climate Change, Drought, Earthquake, Flooding, Landslide, Severe Weather, Wildland Fire

TABLE 5-1: CITY PLANNING AND REGULATORY CAPABILITIES			
City Code Chapter XXI I– Subdivisions			
The subdivision code addresses the development of groups of residences and commercial property. It describes requirements for transportation, water, and wastewater services. It sets limits on residential property density. Expansion, Implementation, and Improvement: The Subdivision Code should be modified and updated to support changes in land use development. It should be implemented to require adequate infrastructure to support residential area populations.			
Lead Department	Community Development	**Hazards Addressed**	Climate Change, Earthquake, Flooding, Landslide, Severe Weather, Wildland Fire
City Chapter XXIV Article 11 - Floodplain Management			
This Article aims to provide for public health, safety and general welfare and minimize public and private losses due to flood conditions in specific areas. It also addresses the intent to protect and enhance the water quality of the city's watercourses pursuant to and consistent with the Porter-Cologne Water Quality Control Act (Water Code Section 13000 et seq.), the Federal Clean Water Act (33 U.S.C. Section 1251 et seq.) and applicable implementing regulations. **Expansion, Implementation, and Improvement:** The FEMA FIRMS will be used to select mitigation items related to flooding. Development in the 100- and 500-year floodplains will be monitored and adhered to flood-safe practices. As the FIRMS are updated, new mitigation activities will be considered.			
Lead Department	Parks & Public Works	**Hazards Addressed**	Flood
City Emergency Operations Plan			
The City Emergency Operations Plan (EOP) addresses the City of San Marino's planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies. This plan is a preparedness document designed to be read, understood, and exercised before an emergency. It further describes the role of the City of San Marino as part of the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). **Expansion, Implementation, and Improvement:** The hazards section of the EOP will be informed by the hazard identifications and risk assessment information in the LHMP. While not mitigation activities, preparedness processes outlined in the EOP should be considered while developing mitigation strategies and project implementation.			
Lead Department	Fire Development	**Hazards Addressed**	All
City Stormwater Management Plan			
The Stormwater Management Plan provides information on flood-prone areas. That supports informed decisions about future development to avoid flood hazards. It Identifies potential projects such as catch basin retrofits. **Expansion, Implementation, and Improvement:** The Stormwater Management Plan should include mitigation measures that will be funded by the City such as improvements to stormwater collection systems, elevation of roadways at risk for flooding and strengthening of structures.			
Lead Department	Parks & Public Works	**Hazards Addressed**	Flood

TABLE 5-1: CITY PLANNING AND REGULATORY CAPABILITIES			
Capital Improvement Plan (CIP)			
The CIP provides broad direction for the development of City facilities and infrastructure. It describes the key investments that will be prioritized by the City over a 5 year period. Many projects focus on improvements to facilities and infrastructure that support daily city activities. **Expansion, Implementation, and Improvement:** The CIP should include mitigation measures that will be funded by the City, such as roadway improvements, improvements/retrofits to parks and City buildings, and other utilities owned and operated by the City.			
Lead Department	Parks & Public Works	**Hazards Addressed**	All

Integration with Other Planning Initiatives

The information on hazards, risk, vulnerability, and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes integrating natural hazard information and mitigation policies, principles, and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved through the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

Existing Integration

In the performance period since the previous hazard mitigation plan was adopted, San Marino made progress on integrating hazard mitigation goals, objectives, and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- **Capital Improvement Plan** - The capital improvement plan includes projects that can help mitigate potential hazards. The City will strive to ensure consistency between the hazard mitigation plan and the current and future capital improvement plan. The hazard mitigation plan may identify new possible funding sources for capital improvement projects and may result in modifications to proposed projects based on risk assessment results.
- **Building Code** - The City's 2022 California Building Code adoption incorporated local modifications addressing seismic and fire hazards.

Opportunities for Future Integration

As this hazard mitigation plan is implemented, the City will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans, and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- **Flood Control Capital Improvement Plan** - Capital improvement project proposals may take into consideration hazard mitigation potential as a means of evaluating project prioritization.
- **Capital Road Improvement and Preservation Plan** - Capital improvement project proposals may take into consideration hazard mitigation potential as a means of evaluating project prioritization.
- **City General Plan** - The City is conducting a comprehensive update to its General Plan. The opportunity to incorporate additional hazard mitigation and abatement measures will be contemplated for inclusion in the updated General Plan.
- **City Emergency Operations Plan (EOP)** - The City EOP establishes the emergency organization, assigns tasks, specifies policies and general procedures, and coordinates planning efforts of the various emergency staff and service elements utilizing the Standardized Emergency Management System (SEMS). The EOP and the hazard mitigation plan are currently integrated and will continue to be integrated as appropriate.
- **Post-Disaster Recovery Plan** - The City does not have a recovery plan and intends to develop one as a mitigation planning action during the next five years. The plan will build on the mitigation goals and objectives identified in the mitigation plan.

ADMINISTRATIVE AND TECHNICAL CAPABILITIES

These capabilities include community (including public and private) staff and their skills and tools, which can be used for mitigation planning and implementation. This capability includes engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers. Small communities may rely on other government entities, such as counties or special districts, for resources. These capabilities may be used to support mitigation activities. An example would be to create a GIS database of facilities that may be used as emergency shelters. **Table 5-2** lists administrative and technical capabilities.

TABLE 5-2: CITY ADMINISTRATIVE AND TECHNICAL CAPABILITIES	
Planners, Engineers, Building Officials, Code Enforcement	
The Planners/Engineers/ Building Officials / Code Enforcement issue building permits, review plans for new construction and improvements, conduct plan checks, work with architects, engineers, designers, and building owners during pre-construction, inspect all phases of residential and commercial/industrial construction for compliance; enforce municipal code violations. **Expansion and Improvement:** Provide opportunities for continued education to Community Development staff to maintain state-of-the-art knowledge of new code and regulatory requirements.	
Department	Community Development
Planners, Engineers, Analysts, General Staff	
The Planners/Engineers/ Analysts/General Staff plan future City land use; develop and implement the General Plan, land use regulations through zoning and subdivision codes, and environmental review of development; administer the Community Development Block Grant Program (CDBG); conduct Code Compliance program with the Building Division; conduct conditional use permits, variances, land subdivision, CEQA review, public hearings, noise permits, and zoning information. **Expansion and Improvement:** Provide opportunities for continued education to Community Development staff to maintain state-of-the-art knowledge of new code and regulatory requirements.	
Department	Community Development
Office of Emergency Management	
The Office of Emergency Management provides for the coordinated response and recovery from major emergencies and disasters; develops, administers, and coordinates the emergency planning preparedness program in conformity with local, State, and Federal requirements; develops emergency management and hazard mitigation plans; provides training to City staff in emergency planning and preparedness; develop, maintain, and coordinate the City Emergency Operations Center; provide businesses and residents with emergency planning and preparedness material to help reduce the loss of life and property resulting from a disaster; coordinate with City, State, and Federal counterparts; prepare emergency management grants; coordinate the efforts of volunteer organizations. **Expansion and Improvement:** Provide training to first responders, EOC staff, and other key personnel to better enable them to see potential hazards and take action to report them.	
Department	Fire and Police Departments
Office of Emergency Management	
Provide free disaster preparedness and Community Emergency Response Team (CERT) training to residents and businesses in the City; provide an organizing framework and support to neighborhood CERT teams, which may volunteer in the event of a serious earthquake or other major disaster. General Education for people and businesses. **Expansion and Improvement:** Include mitigation activities that enhance public awareness of hazards, advertise CERT, and contribute to individual/family preparedness.	
Department	Fire Department
Code Enforcement Officer	

TABLE 5-2: CITY ADMINISTRATIVE AND TECHNICAL CAPABILITIES	
Investigates citizen complaints regarding the enforcement of municipal code violations, conduct inspections, notification, communication, and the issuance of citations to proactively respond to citizens' concerns. **Expansion and Improvement:** Provide opportunities for continued education to Community Development staff to maintain state-of-the-art knowledge of new code and regulatory requirements.	
Department	Community Development
Floodplain Administrator	
As a member of the National Flood Insurance Program (NFIP), the Floodplain Manager is responsible for collaborating with stakeholders to ensure the Floodplain Management Ordinance is followed within the City. **Expansion and Improvement:** Continue to manage the City's NFIP participation. Support the development of mitigation activities consistent with the best practices for floodplain management.	
Department	Parks & Public Works
Public Information Officer	
The Public Information Officer provides public and media information regarding the City's disaster response, mitigation, and recovery efforts. **Expansion and Improvement:** Continue to use public information officers to promote awareness of the LHMP and activities associated with individual mitigation projects as they are implemented.	
Department	City Manager's Office
Information Technology and Geographic Information System	
Information technology and Geographic Information Systems provide the technical resources and support necessary to operate all of the applications relating to the City's information resources; respond to the service needs of all departments based on City-wide priorities as established by the City Manager; responsible for the training and effective use of all City technology computer hardware, software, and peripherals; provide internal coordination of technology efforts Citywide including substantial interface with all technology vendors to assure cost-effective, secure and reliable technologies compatible with the long-range needs of the City; provide high-quality spatial data to City departments. **Expansion and Improvement:** Acquire and conduct training for GIS technicians on the latest versions of ArcGIS	
Department	Community Development, Parks & Public Works
Risk Management	
Risk Management provides services to assist City departments in managing their risk of injury to employees, City property, and the public at large; purchase insurance for City departments and act in an advisory capacity with respect to workers' compensation, public liability, City property, and City contracts. **Expansion and Improvement:** Continue to have the Risk Manager provide input to support the analysis of potential losses due to hazards. Update LHMP based on current insurance values.	
Department	Human Resources

FINANCIAL CAPABILITIES

Table 5-3 contains a list of financial capabilities available to the City. These financial resources may be used to support mitigation activities based on procedures for each resource.

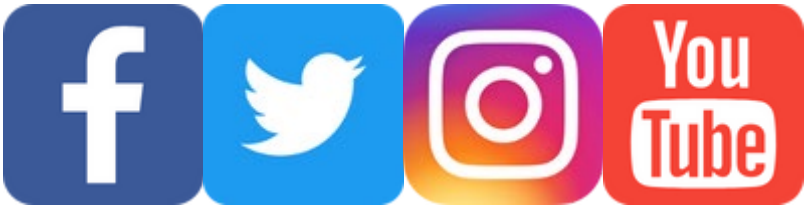
TABLE 5-3: CITY FINANCIAL RESOURCES	
General Fund	
The General Fund Program funds operations and specific projects. Expansion and Improvement: Hazard mitigation projects may be considered during the annual budgeting process for funding from the general fund.	
Administrator	Department Specific
Capital Improvement Project Funding	
The City Council oversees special revenue funds established to pay for infrastructure investments and rehabilitation. Use of these funds are intended to benefit the quality of life for city residents and businesses. . Expansion and Improvement: Focus Capital Improvement Project Funds on projects that provide mitigation to natural hazards.	
Administrator	Parks & Public Works
Community Development Block Grants (CDBG)	
The CDBG program provides funding for eligible senior activities such as in-home care, art classes, counseling, and home-delivered meals. HUD also provides Disaster Recovery Assistance through flexible grants to help cities, counties, and states recover from Presidentially declared disasters, especially in low-income areas, subject to the availability of supplemental appropriations. **Expansion and Improvement:** Where applicable, CDBG grants should be used to fund mitigation projects that enhance the resiliency of low-income and underserved communities.	
Administrator	Parks & Public Works
Hazard Mitigation Grant Program (HMPG)	
The HMPG provides support for post-disaster mitigation plans and projects. **Expansion and Improvement:** Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.	
Administrator	FEMA
Building Resilient Infrastructure and Communities (BRIC)	
BRIC provides support for pre-disaster mitigation plans and projects. **Expansion and Improvement:** Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.	
Administrator	FEMA
Flood Mitigation Assistance Grant Program (FMA)	
The FMA mitigates structures and infrastructure that have been repetitively flooded.	

TABLE 5-3: CITY FINANCIAL RESOURCES	
Expansion and Improvement: Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.	
Administrator	FEMA

EDUCATION AND OUTREACH CAPABILITIES

Table 5-4 lists the City's financial and public outreach capabilities. These capabilities include fire safety programs, hazard awareness campaigns, public information, and communications offices. Education and outreach capabilities can be used to inform the public about current and potential mitigation activities.

TABLE 5-4: CITY EDUCATION AND OUTREACH RESOURCES	
Emergency/Disaster Preparedness website	
https://sanmarinoca.gov/government/departments/fire/disaster_preparedness/index.php The City website has educational material on numerous programs, including making an emergency plan, stocking supplies, staying informed, and getting involved in community preparedness programs. **Expansion and Improvement:** Provide links to the Emergency/Disaster Preparedness website on all City websites. Post material on social media accounts that provide a link to the appropriate FEMA website page.	
Lead Organization	Fire Department
San Marino Community Alert	
San Marino Community Alert is the City's local public mass notification system, designed to inform those living or working in San Marino of important information during emergency events. San Marino Community Alert is used for urgent safety warnings to shelter in place, evacuation notices, and follow-up information after the emergency/danger has passed. **Expansion and Improvement:** Conduct outreach at City-sponsored events to increase the number of subscribers.	
Lead Organization	Fire Department
City CERT Coalition	
The CERT Program is a 20-hour all-risk, all-hazard training offered by the City of San Marino Fire Department. This valuable course is designed to help residents protect themselves and their families, neighbors, and neighborhood in an emergency. **Expansion and Improvement:** Conduct coordinated training and exercises with CERTs from surrounding communities to improve interoperability.	
Lead Organization	Fire Department
San Marino NIXLE	
The San Marino Police Department uses NIXLE. This technology communicates with groups/residents via cell phone text messages. Residents can sign up by sending a text to 888777 and typing SANMARINOPD into the text of that message. **Expansion and Improvement:** Conduct outreach at City-sponsored events to increase the number of subscribers.	

Lead Organization	Police Department
Social Media	
The City maintains Facebook, Twitter, Instagram, and YouTube accounts to share information better, gather feedback, and connect with our residents. Please follow us by clicking the images below.  **Expansion and Improvement:** Advertise the City's Emergency Disaster Preparedness web page and other resource documents on the City's social media accounts. Create a link to emergency preparedness and mitigation plans.	
Lead Organization	Community Engagement Manager

Hazard Mitigation Strategies And Actions

HAZARD MITIGATION GOALS

The goals identified in **Chapter 1** help develop policies to protect community members, ecosystems, and other important assets from hazard events. These goals were developed to ensure consistency with the City's General Plan Safety Element, which plays an important role in risk reduction within San Marino. These goals informed the development of mitigation actions and act as checkpoints to help City staff determine implementation progress.

EVALUATION OF POTENTIAL HAZARD MITIGATION ACTIONS

The HMPC prepared a set of potential mitigation actions based on the hazard profiles, threat assessment, capabilities assessment, community survey results, discussions among HMPC members, and existing best practices. Next, the HMPC evaluated these potential actions using the following criteria:

1) FEMA requires local governments to evaluate potential mitigation actions' monetary and non-monetary costs and benefits. While local governments are not required to assign specific dollar values to each action, they should identify the general size of costs and benefits.

2) The HMPC may elect to include measures with high costs or low benefits, but such measures should benefit the community and make appropriate use of local resources.

Also, FEMA directs local governments to consider the following questions as part of the financial analysis:

- What is the frequency and severity of the hazard type to be addressed by the action, and how vulnerable is the community to this hazard?
- What impacts of the hazard will the action reduce or avoid?
- What benefits will the action provide to the community?

The HMPC also reviewed and revised the potential hazard mitigation actions using the STAPLE/E (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) criteria (**Table 5-5**). The HMPC did not formally assess every potential mitigation action under all STAPLE/E criteria but used the criteria to guide and inform the discussion. The HMPC also discussed how the criteria might evaluate grant applications the City may submit to receive funding for LHMP implementation.

TABLE 5-5: STAPLE/E CRITERIA

Issues	Criteria
Social	• Is the action socially acceptable to San Marino community members? • Would the action mistreat some individuals? • Is there a reasonable chance of the action causing a social disruption?
Technical	• Is the action likely to reduce the risk of the hazard occurring, or will it reduce its effects? • Will the action create new hazards or make existing hazards worse? • Is the action the most useful approach for San Marino to take, given the City and community members' goals?
Administrative	• Does the City have the administrative capabilities to implement the action? • Are there existing City staff who can lead and coordinate the measure's implementation, or can the City reasonably hire new staff for this role? • Does the City have enough staff, funding, technical support, and other resources to implement the action? • Are there administrative barriers to implementing the action?
Political	• Is the action politically acceptable to City officials and other relevant jurisdictions and political entities? • Do community members support the action?
Legal	• Does the City have the legal authority to implement and enforce the action? • Are there potential legal barriers or consequences that could hinder or prevent the implementation of the action? • Is there a reasonable chance that the implementation of the action would expose the City to legal liabilities? • Could the action reasonably face other legal challenges?
Economic	• What are the monetary costs of the action, and do the costs exceed the monetary benefits? • What are the start-up and maintenance costs of the action, including administrative costs? • Has the funding for action implementation been secured, or is a potential funding source available? • How will funding the action affect the City’s financial capabilities? • Could the implementation of the action reasonably burden the San Marino economy or tax base? • Could there reasonably be other budgetary and revenue impacts to the City?
Environmental	• What are the potential environmental impacts of the action? • Will the action require environmental regulatory approvals? • Will the action comply with all applicable federal, state, regional, and local environmental regulations? • Will the action reasonably affect any endangered, threatened, or otherwise sensitive species of concern?

CHANGES TO PREVIOUS MITIGATION ACTIONS

As stated in Chapter 1, this is an update to the City of San Marino's 2019 LHMP, which will reinstate the City's eligibility, once approved and adopted by the City Council, to apply for FEMA grants for hazard mitigation projects and monetary relief during emergencies. The content from the previous plan has been included in this document and updated accordingly. Key modifications in this plan focus on expanding the risk assessment (understanding potential losses and vulnerable populations) within **Chapter 4** and revising and moderating mitigation strategies and actions within **Chapter 5**.

Key updated elements from the previous San Marino LHMP include the following:

- Updated Plan Goals
- Integration of the General Plan, Housing Element, Safety Element, and Climate Adaptation Vulnerability Assessment into the Community Profile, Hazards Assessment, and Vulnerability Assessment chapters of the plan
- Expanded historic events discussions within the plan
- Updated Capabilities Assessment
- Updated Mitigation Actions and Strategies, which include progress on previous actions

The 2019 LHMP mitigation actions that were carried over to the 2024 LHMP are marked as "Keep" or "Modify" in the 2024 Update Status column of **Table 5-7.**

Table 5-6 identifies the 2019 LHMP mitigation actions that were not carried over to the 2024 LHMP.

Table 5-6: Deleted 2019 Mitigation Actions

2018 LHMP Action #	Mitigation Action	Last Update 2018 Status
MH-6a	Analyze City ingress and egress to develop potential alternate routes of access through the area. This project will enhance traffic and pedestrian safety and assist in the development of emergency evacuation plans.	**Circulation and feedback from residents and city leaders.**
MH-7a	Refresh and rehabilitate city streets and all pavement markings, legends and lane striping. Replace faded street signs on biennial. Refresh all school-related markings, legends and crosswalks annually through maintenance division operating budget. May include streetlight management plan. This project will enhance traffic and pedestrian safety and mitigate against potential damage during a major disaster	**Incorporated into the CIP already**
MH-8a	Assess and upgrade of critical facilities to mitigate against all potential hazards.	**Covered in MH 4**
MH-9a	Sidewalk Replacement Program. Replace sidewalks identified by sidewalk condition assessment program. Year 1 plans 2-miles of replacement. Program	**Incorporated into CIP**

	includes an annual condition assessment of 1-mile of sidewalk by volunteers following CJPIA sidewalk evaluation criteria.	
MH-10a	Perform a comprehensive circulation study of traffic patterns including recommendations related to business district parking, speed reduction, safety improvements and circulation changes to improve traffic flow through the city on appropriate streets and reduce cut-through traffic on neighborhood residential streets including impacts of 710 North project.	**Project Complete**
FL-2	Flood Warning System. Develop better local flood warning systems. Utilize the capability of the mass notification system and the city's website.	**Project Complete**
LS-1	Hazard Mapping Study. Improve knowledge of landslide hazard areas and understanding of vulnerability and risk to life and property in hazard-prone areas. Conduct a landslide hazard mapping study in the City of San Marino. Develop public information to emphasize economic risk when building on potential or historical landslide areas.	**Relying on latest information available by the State**
LS-1a	Landslide Ordinance Update. Review local ordinances regarding building and development in landslide prone areas.	**Current building code adoption covers this.**
WF-1	Emergency Services Program Enhancements. Enhance emergency services to increase the efficiency of wildfire response and recovery activities. Create maps for use with the San Marino notification system at-risk urban/wildland interface residents to contact them during evacuations	**Project Complete**
WF-2	Educate agency personnel on federal cost-share and grant programs, Fire Protection Agreements and other related federal programs so the full array of assistance available to local agencies is understood.	**The City of San Marino is a participating agency in Unified Response which provides a full array of assistance if needed in the event of a wildfire. This effort is on going**
WF-2a	Develop Wildland/Urban Interface Plan. Develop plan to address and encourage local zoning and planning entities to work closely with landowners and/or developers who choose to build in the wildland/urban interface to identify and mitigate conditions that aggravate wildland/urban interface wildfire hazards, including: • Limited access for emergency equipment due to width and grade of roadways • Inadequate water supplies	**City currently addresses this through existing regulations**

	• Spacing, consistency and species of vegetation around structures • Inadequate fuel breaks or lack of defensible space • Highly flammable construction materials • Inadequate entry/escape routes	
HC-4a	Prepare and keep current an inventory list of all known hazardous substances present in City and School District Facilities.	**The County of Los Angeles Health Hazardous Materials Section acts on behalf of the City of San Marino in maintaining inventories of hazardous materials located within the City.**

2024 HAZARD MITIGATION STRATEGIES AND ACTIONS

Table 5-6 identifies the 2024 mitigation strategies and actions proposed by the City as part of this LHMP update process. In addition to the list of actions, the table also identifies potential funding sources, responsible departments, relative cost estimates, timeframes, and priorities for these actions, which are described further below. In addition to mitigation action and strategies, several preparedness activities were identified and denoted with the letter "P."

POTENTIAL FUNDING SOURCES

Table 5-6 also identifies the potential funding sources that may be used to implement mitigation strategies.

Federal and State Options

- **Building Resilient Infrastructure and Communities (BRIC):** A competitive FEMA grant program to support states, local communities, tribes, and territories.
- **Flood Mitigation Assistance Program (FMA):** 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.
- **Hazard Mitigation Grant Program (HMGP):** Provides funding to state, local, tribal, and territorial governments to rebuild in a way that reduces or mitigates future disaster losses in their communities. This grant funding is available after a presidentially declared disaster.
- **Emergency Management Performance Grant Program (EMPG):** provides state, local, tribal, and territorial emergency management agencies with the resources required to implement the National Preparedness System and work toward the National Preparedness Goal of a secure and resilient nation. The EMPG's allowable costs support efforts to build and sustain core capabilities across the prevention, protection, mitigation, response, and recovery mission areas.

Other Grants

Other grants may include State of California grants associated with climate change, water infrastructure, homeland security, transportation, or other funding sources that periodically become available. The list below provides some common sources:

- Climate Adaptation Planning Sustainable Transportation Planning Grant Program – Department of Transportation
- Sustainable Communities Competitive – Department of Transportation
- CAL FIRE Wildfire Prevention Grants Program – Department of Forestry and Fire Protection
- Integrated Climate Adaptation and Resiliency Program's Climate Adaptation Planning Grant – Office of Planning and Research
- Small Community Drought Relief Program – Department of Water Resources
- Addressing Climate Impacts – Department of Fish and Wildlife
- Cleanup Loans and Environmental Assistance to Neighborhoods (CLEAN) Program – Department of Toxic Substances Control
- Clean Water State Revolving Fund (CWSRF) Program Construction – State Water Resources Control Board
- Drinking Water State Revolving Fund (DWSRF) Construction – State Water Resources Control Board
- Water Recycling Funding Program (WRFP) Construction Grant – State Water Resources Control Board
- Equitable Community Revitalization Grants (ECRG) – Department of Toxic Substances Control
- Water Recycling Funding Program (WRFP) Planning Grant – State Water Resources Control Board
- Infrastructure State Revolving Fund (ISRF) Program – Infrastructure and Economic Development Bank

RESPONSIBLE DEPARTMENT

Table 5-6 includes the identification of key responsible departments that will be focused on future implementation of mitigation strategies and actions identified by the City.

Relative Cost Estimates

The HMPC identified relative cost estimates to meet the hazard mitigation planning process's cost estimation requirements based on their understanding of the mitigation action intent and their experience developing identical or similar programs/implementing projects. Three cost categories based on the City's typical cost criteria were used for budgeting purposes:

- **Low cost ($):** $30,000 or less

- **Medium cost ($$):** $30,001 to $499,999
- **High cost ($$$):** Greater than $500,000

Timeframes

Table 5-3 includes timeframes that provide general timing durations due to the nature of the mitigation actions identified by the City. The following timeframes are used based on the following conditions:

- **Ongoing (Annually):** Actions that identify this timeframe are the types of actions that City staff would conduct annually.
- **Ongoing (As Needed):** Actions that identify this timeframe include activities that City staff would conduct in response to a request by internal (City Departments) or external (Property Owners) forces.
- **Future Planning Process:** Actions identified within this timeframe are considered low-priority actions that the City would like to continue to track but does not feel they would be able to implement in the current planning implementation timeframe.

For actions that use these terms, it is intended to identify that the action may add to existing capabilities and not have a particular start or end date or occur periodically. This is typically used for actions that include new policies, tasks, or standard operating procedures intended to mitigate future risks.

Prioritization

As part of the mitigation actions development and review, the HMPC also prioritized the actions. The prioritization efforts looked at the risks and threats of each hazard, financial costs and benefits, technical feasibility, and community values. HMPC members were asked to identify their priority actions through a voting exercise. Items are prioritized based on the number of votes the HMPC members receive. These quantitative scores were then converted to low, medium, and high priority qualitative categories.

TABLE 5-7: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
Multi-Hazard Action Items								
MH-1	ST	Ensure City codes and ordinances are up to date and reflect the intent of the goals and actions contained in the Local Hazard Mitigation Plan.	Keep	Community Development	BRIC, FMA, HMGP	$	1-2 Years	Low
MH-2	ST	Develop public information and educational materials that achieve the following: 1. Covers the relevant hazards of concern: flood, fire, earthquake, extreme heat, and geologic hazards 2. Provides public education materials to residents and School District staff, parents, and age-appropriate students with mitigation strategies and actions pertaining to the protection of life and property before, during, and after hazard events. 3. Developed materials that can be distributed at City Council Meetings, Commission Meetings, City Hall, Parks and Recreation Centers, Fire Station, Police Station, Chamber of Commerce Meetings, School Administration Offices, and other appropriate venues. 4. Conduct specific community-based demonstration projects focused on community-level risk reduction (i.e., Fire prevention and mitigation in the wildland-urban interface).	Modify	Fire, Police, Parks & Public Works, Administration, Community Development, and San Marino USD	BRIC, FMA, HMGP	$	1-2 Years	Medium
MH-3	ST	Update mitigation strategies in conformance with the earthquake resiliency survey and facility conditions assessments completed in 2018/19.	Modify	Administration and Community Development	BRIC, FMA, HMGP	$	1-2 Years	High

TABLE 5-7: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
MH-4	ST	Implement software upgrades to the City's IT infrastructure, including security enhancements to ensure continuity of government operations following a major disaster.	Keep	Administration and Finance	BRIC, FMA, HMGP	$$	1-2 Years	High
MH-5	ST	Ensure the City's Emergency Communications Systems includes equipment upgrades and enhancements to better support Police personnel, Fire personnel, and the Emergency Operations Center.	Keep	Administration, Finance, and Fire	BRIC, FMA, HMGP	$$$	1-2 Years	High
MH-6	LT	Encourage individual and family preparedness through local media, schools, websites, community projects, and other public safety events.	Modify	Administration, Police, and Fire	BRIC, FMA, HMGP	$	3-5 Years	Low
MH-7	LT	Establish partnerships with nongovernmental organizations and businesses to secure funding for mitigation activities that would be mutually beneficial.	Modify	Administration	BRIC, FMA, HMGP	$	3-5 Years	Medium
MH-8	LT	Continue to use the latest mapping and analysis prepared by federal, state, regional, and local agencies to identify high-hazard probability areas and convey potential risks to residents and property owners within the city. Integrate new mapping and analysis as it becomes available.	Keep	Community Development	BRIC, FMA, HMGP	$	3-5 Years	Low
MH-9	LT	Continue to monitor tree canopy conditions and tree health in the city as projects within the Street Tree Management Plan and Fuels Modification Program are implemented.	Modify	Community Development and Parks & Public Works	BRIC, FMA, HMGP	$	3-5 Years	Medium

TABLE 5-7: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
MH-10	LT	Ensure the circulation network can adequately function as evacuation routes and provide the necessary capacity, safety, and viability under a range of emergency scenarios. To allow for this, the City may look to replace and upgrade signal controllers, acquire portable speed display signs and equipment, pavement condition assessments, alley improvements, bridge maintenance, speed display signs, traffic control equipment, and other projects to facilitate adequate evacuation.	Modify	Administration, Finance, and Parks & Public Works	BRIC, FMA, HMGP	$$	1-2 Years	Low
Earthquake Action Items								
EQ-1	LT	Retrofit City and School District critical facilities and structures identified as seismically vulnerable.	Modify	Community Development, Parks & Public Works, and San Marino USD	BRIC, FMA, HMGP	$$$	3-5 Years	High
EQ-2	LT	Coordinate with the California Insurance Commissioner on educational information about purchasing earthquake hazard insurance.	Modify	Community Development	BRIC, FMA, HMGP	$	3-5 Years	Low
EQ-3	LT	Encourage seismic strength evaluations of City and School District critical facilities to identify vulnerabilities requiring mitigation to meet current seismic standards for schools, public infrastructure, and critical facilities. Encourage owners of non-retrofitted structures to upgrade them to meet seismic standards.	Keep	Hazard Mitigation Advisory Committee	BRIC, FMA, HMGP	$	3-5 Years	High

TABLE 5-7: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
EQ-4	LT	Provide educational information regarding securing bookcases, filing cabinets, light fixtures, and other objects that can cause injuries and block exits. Explore partnerships to provide retrofitting classes for homeowners, renters, building professionals, and contractors.	Keep	Administration, Community Development, and San Marino USD	BRIC, FMA, HMGP	$	3-5 Years	Medium
Flood Action Items								
FL-1	ST	Analyze areas of repetitive flooding within the City and School District properties and identify feasible mitigation options. Explore options for incentives to encourage property owners to engage in mitigation.	Modify	Parks & Public Works	BRIC, FMA, HMGP	$$	1-2 Years	Medium
FL-2	ST	Continue to assess the condition of sewer system infrastructure to address concerns regarding system reliability and resiliency.	Modify	Parks & Public Works	BRIC, FMA, HMGP	$$$	3-5 Years	Medium
FL-3	LT	Identify surface water drainage obstructions for all parts of the City of San Marino. Prepare an inventory of culverts that historically create flooding problems and target them for retrofitting. Prepare an inventory of major urban drainage problems and identify causes and potential mitigation actions for urban drainage problem areas.	Keep	Parks & Public Works	BRIC, FMA, HMGP	$$	3-5 Years	Medium
FL-4	LT	Continue to assess and implement the recommendations of the citywide stormwater system condition assessment for lined and unlined channels and washes.	Keep	Parks & Public Works	BRIC, FMA, HMGP	$$$	3-5 Years	Medium

TABLE 5-7: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
Windstorm Action Items								
W-1	ST	Maintain coordination with Public Utilities to assess tree hazards and mitigation in accordance with the City's Tree Ordinance.	Modify	Community Development, Parks & Public Works, and Fire	BRIC, FMA, HMGP	$	1-2 Years	Medium
W-2	LT	Explore and assess the potential for undergrounding overhead utility lines throughout the City.	Keep	Parks & Public Works	BRIC, FMA, HMGP	$$$	3-5 Years	Low
Human Caused Hazard Action Items								
HC-1	ST	Enhance building access accountability and hardening of City/School District facilities.	Keep	Administration, Finance, Police, and San Marino USD	BRIC, FMA, HMGP	$$$	1-2 Years	High
HC-2	LT	Enhance interoperable communications to work seamlessly with City departments and neighboring jurisdictions.	Keep	Administration, Fire, and Police	BRIC, FMA, HMGP	$$$	3-5 Years	High
HC-3	LT	Organize local and regional training with neighboring jurisdictions and agencies.	Keep	Administration, Fire, and Police	BRIC, FMA, HMGP	$$	3-5 Years	Low
HC-4	LT	Conduct public education and first responder training on the Garfield Gas Pipeline in conjunction with the Sempra Energy Pipeline Safety Plan. Facilitate stakeholder communications.	Keep	Police and Fire	BRIC, FMA, HMGP	$$	1-2 Years	Low
Extreme Heat Action Items								
EH-1	ST	Monitor extreme heat conditions and update Extreme Heat annexes for the City and School District when new conditions arise.	New	Fire and San Marino USD	BRIC, FMA, HMGP	$$	2-3 Years	High

TABLE 5-7: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
EH-2	LT	Retrofit critical facilities to better accommodate extreme heat conditions and the vulnerable populations most impacted by these incidents.	New	Fire and San Marino USD	BRIC, FMA, HMGP	$$$	3-5 Years	Medium
Preparedness Action Items								
P-1	ST	Periodically conduct emergency drills throughout the school sites within the City.	Modify	Fire and San Marino USD	BRIC, FMA, HMGP, EMPG	$	1-2 Years	Medium
P-2	ST	Develop and maintain emergency preparedness plans for City Departments, residents, and businesses directed at operational readiness for major disasters.	Keep	Administration and Fire	BRIC, FMA, HMGP, EMPG	$$	1-2 Years	High
P-3	LT	Coordinate with neighboring jurisdictions on emergency management activities.	Modify	Administration	BRIC, FMA, HMGP, EMPG	$	3-5 Years	Low
P-4	LT	Install or upgrade backup power within City critical facilities for use during a power failure. Create an equipment/testing log to ensure backup power equipment is in working service.	Keep	Parks & Public Works and San Marino USD	BRIC, FMA, HMGP, EMPG	$$$	3-5 Years	Low
P-5	LT	Purchase supplies, food stores, and equipment that would accommodate the care and feeding of personnel for the duration of response for all City employees and their families for a period of ten days.	Keep	Administration, Police, Fire, and San Marino USD	BRIC, FMA, HMGP, EMPG	$$	3-5 Years	Medium

*** Relative Cost Categories**		**Funding Sources**
$	Less than $30,000	Building Resilient Infrastructure and Communities (BRIC)
$$	$30,001 to $499,999	Flood Mitigation Assistance Program (FMA)
$$$	Greater than $500,000	Hazard Mitigation Grant Program (HMGP)
31	# of Action Items	Emergency Management Performance Grant Program (EMPG)

National Flood Insurance Program

San Marino participates in the National Flood Insurance Program (NFIP), created by Congress in 1968 to provide flood insurance at subsidized rates to homeowners living in flood-prone areas. Individual communities can participate in the NFIP, although property owners who live in nonparticipating communities with flood-prone areas cannot buy flood insurance through the program. Additionally, nonparticipating communities with mapped floodplains cannot receive federal grants or loans for development activities in flood-prone areas and cannot receive federal disaster assistance to repair flood-damaged buildings in mapped floodplains.

The City adopted Model Floodplain Management Ordinances to maintain National Flood Insurance Program eligibility. The following data in **Table 5-7** is relevant.

TABLE 5-8: FLOOD INSURANCE PROGRAM PARTICIPANT DATA	
CID	065057#
Community Name	SAN MARINO, CITY OF
County	LOS ANGELES COUNTY
Initial FHBM Identified*	03/18/72
Initial FIRM Identified**	09/26/08
Current Effective Map Date	(NSFHA)
Reg-Emer Date	04/30/79
FHBM = Flood Hazard Boundary Map FIRM = Flood Insurance Rate Map	

Although participation is not a dedicated hazard mitigation action, San Marino will continue to participate in the NFIP and comply with the program's requirements through continued enforcement of the City's Floodplain Management Regulations (Municipal Code Chapter 11: Floodplain Management) as outlined in **Table 5-8**.

TABLE 5-9: SAN MARINO MUNICIPAL CODE	
Adoption of Minimum Floodplain Management Criteria and Implementation and Enforcement of Floodplain Management Regulations	25.11.03: Basis for Establishing Flood Prone Areas – (Ord. 0-06-1185, 7-12-2006) 25.11.04: Compliance (Ord. 0-06-1185, 7-12-2006)
Designee to Implement NFIP	25.11.01 - Designation of the Floodplain Administrator. The director of planning and building fulfills this role.
Implementation of Substantial Improvement/ Substantial Damages Provisions	25.11.10: Standards of Construction (Ord. 0-06-1185, 7-12-2006)
* Ordinances are hyperlinked to Municipal Code Section	

These regulations apply to all areas identified as flood-prone within the City. This chapter of the Municipal Code identifies the purpose of the regulation, methods of reducing flood losses, basis for establishing flood hazard areas, development permit requirements, duties and responsibilities of the City's Floodplain Manager, development standards that apply in flood-prone areas, and required documentation and analysis for construction within these areas. As part of the City's efforts to comply with NFIP, San Marino will make updates and revisions to the

Floodplain Management regulations to minimize the threat of harm from flood events. These updates and revisions may be promoted by changes in local demographics, land use shifts, flood regime changes such as frequency and intensity of flood events, and other factors that may warrant municipal action. The City will also continue incorporating any changes to mapped floodplains' locations and designations into future planning documents, including future updates to this Plan.

The City of San Marino participates in the National Flood Insurance Program (NFIP), which currently includes 10 policies in force, amounting to roughly $6,764 in annual premiums. The types of uses of these insured properties are currently unknown to the City. Total insurance coverage for these policies amounts to $3,500,000. San Marino has no repetitive loss properties that FEMA identified; however, they have had a total of 2 closed Paid Losses cases totaling some $1,065 in damages paid out. San Marino is currently not rated on the CRS (Community Rating System).[19] A CRS rating entitles property owners within the jurisdiction to a discount on insurance rates should their property be located within an SFHA and 5% if it is not. The City's most current FIRM (Flood Insurance Rate Map) was adopted on September 26, 2008.

[19] FEMA, National Flood Insurance Program Insurance Specialist, Edith Lohmann, 6/21/2024

CHAPTER 6 – PLAN MAINTENANCE

For this LHMP to remain effective and useful to the community of San Marino, it must remain up to date. An updated version of the LHMP will continue to guide San Marino's hazard mitigation activities and help keep the City eligible for state and federal hazard mitigation funding. The HMPC has structured this LHMP so individual sections can easily be updated as new information becomes available and new needs arise, helping to keep this Plan current.

This chapter discusses updating this Plan to comply with applicable state and federal requirements. This chapter also describes how the City can incorporate the mitigation actions described in **Chapter 5** into existing programs and planning mechanisms and how public participation will remain an important part of Plan monitoring and future update activities.

Coordinating Body

The HMPC will remain responsible for maintaining and updating the Plan, including evaluating the Plan's effectiveness as needed. Members of the HMPC will also coordinate the plan's implementation in their respective positions. **Table 1-1** contains a list of current members. In future years, staff and representatives (either current HMPC members or other individuals) from the following departments, districts, and agencies should be included in maintenance and update activities:

- City Manager's Office
- City Clerk
- Human Resources
- Finance
- Community Services – Library
- Community Services – Recreation
- Community Development
- Parks & Public Works
- Fire
- Police

The staff member currently serving as the HMPC leader (the person responsible for coordinating future updates) is the City of San Marino Fire Management Analyst. They will serve as the project manager or designate this role to another staff member during the update process. The HMPC leader or their designee will coordinate the maintenance of this Plan, lead the formal Plan review and evaluation activities, direct the Plan update, and assign tasks to other members of the HMPC to complete these activities. Such tasks may include collecting data, developing new mitigation actions, updating mitigation actions, making presentations to City staff and community groups, and revising the Plan sections.

Plan Implementation

The Plan's effectiveness depends on the successful implementation of the mitigation actions. Implementation includes integrating mitigation actions into existing City plans, policies, programs, and other implementation mechanisms. The mitigation actions in this Plan are intended to reduce the damage from hazard events, help the City secure funding, and provide a framework for hazard mitigation activities. HMPC members prioritized the hazard mitigation actions in Table 5-6 in Chapter 5. These priorities will guide implementing these actions through new or existing City mechanisms as resources are available. The LHMP project manager is responsible for overseeing this plan's implementation, promotion, and maintenance, facilitating meetings, and coordinating activities related to plan implementation and maintenance.

The key City Plans that should incorporate content from this LHMP include:

- **San Marino General Plan Safety Element** – This element should incorporate relevant mapping and analysis in the Safety Element to ensure this plan's goals and policies are reinforced throughout future developments and projects proposed within the city.
- **San Marino Emergency Operations Plan** – The EOP focuses on the effective preparedness and response to hazard events within the city. Incorporating relevant content from this plan into the EOP ensures consistency regarding the hazards addressed in both plans.
- **San Marino Capital Improvements Program** – The CIP identifies key infrastructure investments throughout the city, including hazard mitigation elements. Incorporating this plan into the CIP may enhance infrastructure investment through additional funding and/or modification of improvements to include hazard mitigation elements.

This integration of the LHMP into the San Marino General Plan also allows the City to comply with AB 2140 requirements, as identified in **Chapter 1** of this plan.

FUTURE PLAN INTEGRATION

Integration of the San Marino LHMP into other plans is expected to occur annually or as needed. The following are basic assumptions for these two categories:

Annual Integration – this is expected to occur with activities like Annual Budget Action Planning, where a Department identifies priorities for the upcoming year and initiatives to be achieved.

As Needed Integration – this is expected for updates to existing plans or the creation of new plans that should be connected to the LHMP. When existing plans like the General Plan, EOP, or CIP are updated, information from this plan should be incorporated where applicable. When these updates occur, new relevant information should also be incorporated back into the LHMP, ensuring greater consistency.

Plan Maintenance Process

The City's plan maintenance process will rely on the San Marino Mitigation Implementation Handbook, located in **Appendix E**. The handbook is intended to function as a stand-alone document that gives concise and accessible guidance to staff to implement and maintain the

Plan. A key component is the specific mechanisms that the City can use to integrate this plan into the other City planning mechanisms.

PLAN MONITORING AND EVALUATION

When members of the HMPC are not updating the Plan, they should meet at least once a year to go over mitigation action implementation and evaluate the Plan's effectiveness. These meetings should include:

1) Discussion of the timing of mitigation action implementation
2) Mitigation action implementation evaluation and determination of success
3) Mitigation action prioritization revisions, if deemed necessary
4) Mitigation action integration into other mechanisms, as needed

The first of these meetings will be held in the 2023-2024 fiscal calendar year. To the extent possible, HMPC meetings should be scheduled at an appropriate time in the City's annual budgeting process, which will help ensure that funding and staffing needs for mitigation actions are considered.

When the HMPC meets to evaluate the Plan, members should consider these questions:

- What hazard events, if any, have occurred in San Marino in the past year? What were the impacts of these events on the community? Were the impacts mitigated, and if so, how?
- What mitigation actions have been successfully implemented? Have any mitigation actions been implemented but not successfully, and if so, why?
- What mitigation actions, if any, have been scheduled for implementation but have not yet been implemented?
- What is the schedule for implementing future mitigation actions? Is this schedule reasonable? Does the schedule need to be adjusted for future implementation, and are such adjustments appropriate and feasible?
- Have any new concerns arisen, including hazard events in other communities or regions not covered by existing mitigation actions?
- Are new data available to inform the Plan's updates, including data relevant to the hazard profiles and threat assessments?
- Are there any new planning programs, funding sources, or other mechanisms to support hazard mitigation activities in San Marino?
- Is our approach to outreach connecting with vulnerable populations?

PLAN UPDATES

The information in this Plan, including the hazard profiles, threat assessments, and mitigation actions, is based on the best available information, practices, technology, and methods available to the City and HMPC when this Plan was prepared. As factors change, including technologies, community demographics and characteristics, best practices, and hazard

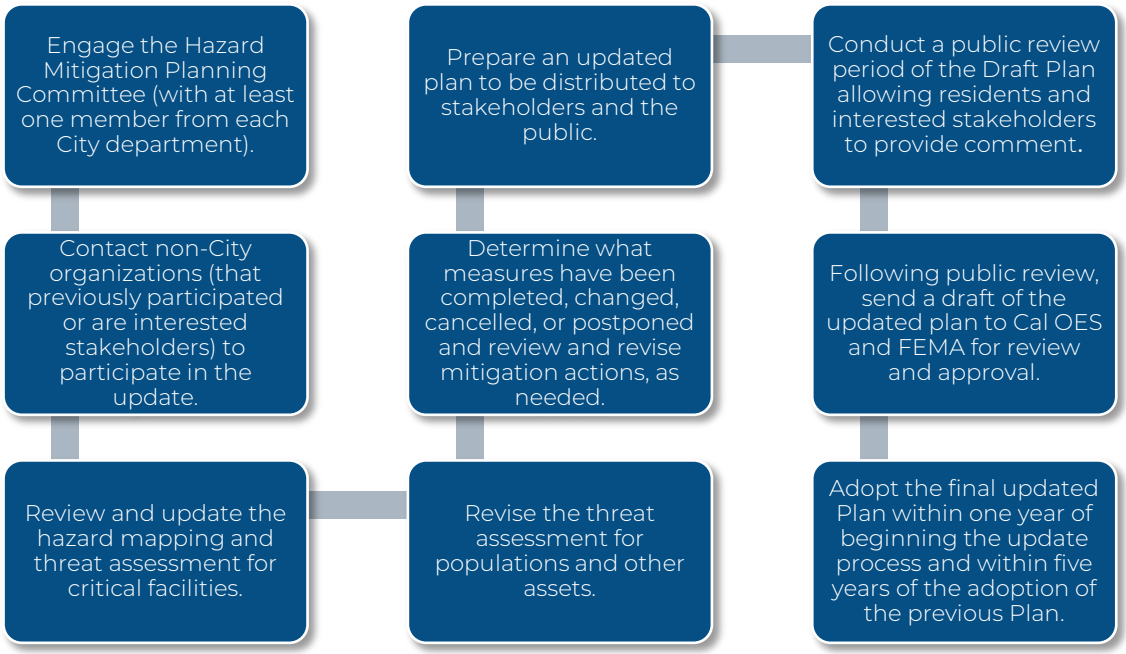
conditions, it is necessary to update the Plan to remain relevant. Additionally, Title 44, Section 201.6(d)(3) of the Code of Federal Regulations requires that LHMPs be reviewed, revised, and resubmitted for approval every five years to remain eligible for federal benefits.

UPDATE METHOD AND SCHEDULE

The update process will begin no later than four years after this Plan is adopted, allowing a year for the update process before the Plan expires. However, it is recommended that you begin the update process three years after plan adoption if the funding source for the plan will be a mitigation grant. Depending on the circumstances, the LHMP project manager or their designee may also choose to begin the update process sooner. Some reasons for accelerating the update process may include:

- A presidential disaster declaration for San Marino or an area that includes part of or the entire City.
- A hazard event that results in one or more fatalities in San Marino.

The update process will add new and updated methods, demographic data, community information, hazard data and events, considerations for threat assessments, mitigation actions, and other necessary information, keeping the Plan relevant and current. The HMPC will determine the best process for updating the Plan, which should include the following steps:



UPDATE ADOPTION

The San Marino City Council is responsible for adopting this Plan and all future updates. As previously mentioned, adoption should occur every five years. The City should begin the update process at least one year before expiration to ensure the plan remains active. If the City has a grant application that relies on the LHMP, an update to the plan should occur no later than 18 months before expiration. Adoption should take place after FEMA notifies the City that the Plan is Approved Pending Adoption. Once the City Council adopts the Plan following FEMA's approval, the adopted plan should be transmitted to FEMA.

CONTINUED PUBLIC INVOLVEMENT

The City will continue to keep members of the public informed about the HMPC's actions to review and update the LHMP. The HMPC will develop a revised community engagement strategy that reflects the City's updated needs and capabilities. The updated strategy should include:

1) A tentative schedule and plan for public meetings, where input and feedback can be provided from residents, property owners, and businesses.
2) Recommendations for using the City website and social media accounts,
3) Content for public outreach documentation.
4) The HMPC will also develop a short (3-5) question online survey that can be shared with the community to gather additional input during the implementation period, ensuring that the city's vulnerable populations are accommodated during this process.

The HMPC will then incorporate this content into the annual progress updates currently provided to the City Council. The HMPC or City Staff will then provide this information on the LHMP web page. When this update becomes available, the City will use its existing social media platforms and mailing lists to engage community members. These outreach opportunities will describe the actions taken by the City and ways that residents, property owners, and businesses can help further the City's goals. This information can also be provided to the San Marino Community Association (AVCA) and other participating HOAs to share with the residents within their associations. These updates are anticipated to occur after the City's annual HMPC meeting.

POINT OF CONTACT

The Hazard Mitigation Plan leader for San Marino is the primary point of contact for this Plan and future updates. At the time of production, the LHMP project coordinator is Chief Mario Rueda, City of San Marino Fire Chief, available at mrueda@cityofsanmarino.org and 626-300-0735.

For the San Marino Unified School District the Business Services Department is the primary contact and can be reached at 626-299-7000, extension 1391.

PLAN CONTINUITY

If the Fire Chief position is vacant during the next LHMP update, the point of contact (Project Manager) for the updated plan and/or plan implementation and maintenance would be identified by the appropriate city management personnel (Fire Chief or City Manager) overseeing emergency management functions within the City.

Appendix A – HMPC Meeting Materials

TABLE 1-1: SAN MARINO HAZARD MITIGATION PLANNING COMMITTEE (HMPC)		
Name	**Title**	**Department**
Jennifer McGee	Management Analyst	San Marino Fire Department
Mario Rueda	Fire Chief	San Marino Fire Department
Jason Sutliff	Captain	San Marino Fire Department
Mark Dondanville	Division Chief	San Marino Fire Department
John Incontro	Chief of Police	San Marino Police Department
Jeremy Bespitch	Sergeant	San Marino Police Department
Nicole Tibbet	Community Engagement Manager	City Manager's Office
Amber Shah	Parks & Public Works Director/ City Engineer	Parks & Public Works
Isidro Figueroa	Community Development Director	Community Development
Michael Lin	Chief Business Official	San Marino Unified School District
Jennifer Wheeler	Executive Administrative Assistant	San Marino Unified School District
Aaron Pfannenstiel	LHMP Project Manager	Atlas Planning Solutions
Crystal Stueve	LHMP Planner	Atlas Planning Solutions
Robert Jackson	LHMP Planner	Atlas Planning Solutions

City of San Marino

Local Hazard Mitigation Plan Update
HMPC Meeting #1 Agenda

Team Introductions

Local Hazard Mitigation Plan Overview

Review of Project Goals and Expectations

Review of Hazard Profiles

Data Needs

- **Hazard History**
- **Critical Facilities**
- **Vulnerable Populations/Assets**
- **Previous Mitigation Progress**

Community Engagement and Outreach Strategy

Next Steps

Hazard Mitigation Planning Process	**January 2024 – August 2024**
HMPC Meeting #2	March 2024
Community Outreach	February 2024 – August 2024
Administrative Draft LHMP	Spring 2024
Public Review Draft LHMP Document	Summer 2024
Cal OES/FEMA Review Draft Document	Summer/Fall 2024

City of San Marino

Local Hazard Mitigation Plan Update
HMPC Meeting #2 Agenda

I. Introductions

II. Review of Project Goals

Mitigation

A. Ensure the completion of mitigation projects for critical facilities, services, educational facilities, and infrastructure by establishing supportive policy.

B. Protect lives by implementing activities that make homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural and manmade hazards.

C. Preserve property and the environment by balancing land use planning with natural hazard mitigation.

Collaboration

A. Gain a vested interest in mitigation implementation by strengthening communication among and within public agencies, the school district, citizens, non-profit organizations, business, and industry.

B. Fortify emergency operations by increasing coordination among public agencies, the school district, citizens, non-profit organizations, business, and industry.

C. Create precedence for local and regional hazard mitigation activities by promoting involved leadership within public and private sector organizations.

Education

A. Increase public awareness on risks associated with natural and manmade hazards through education and outreach programs.

B. Discourage new development in high hazard areas and encourage preventative measures for existing development in areas vulnerable to natural hazards by increasing expertise with improved hazard assessment information.

C. Reduce exposure to loss and damage from chronic hazard events by advocating adequate insurance coverage on city facilities.

III. Overview of Mitigation Strategies

IV. Discussion of STAPLE/E Criteria

Plans and Regulations	• Ordinances, Regulations
Structural Projects	• Utility Undergrounding, Structural Retrofits
Natural Systems Protection	• Stream restoration, erosion control
Education Programs	• Outreach materials, websites, presentations
Preparedness and Response Actions	• Mutual aid agreements, equipment purchases, notification protocols

Issue	Criteria
Social	• Is the action socially acceptable to community members? • Would the action treat some individuals unfairly? • Is there a reasonable chance of the action causing a social disruption?
Technical	• Is the action likely to reduce the risk of the hazard occurring, or will it reduce the effects of the hazard? • Will the action create new hazards or make existing hazards worse? • Is the action the most useful approach for the City to take, given the City's goals and community members?
Administrative	• Does the City have the administrative capabilities to implement the action? • Are there existing City staff who can lead and coordinate the measure's implementation, or can the City reasonably hire new staff for this role? • Does the City have enough staff, funding, technical support, and other resources to carry out implementation? • Are there administrative barriers to implementing the action?
Political	• Is the action politically acceptable to City officials and other relevant jurisdictions and political entities? • Do community members support the action?
Legal	• Does the City have the legal authority to implement and enforce the action? • Are there potential legal barriers or consequences that could hinder or prevent the implementation of the action? • Is there a reasonable chance that implementation of the action would expose the City to legal liabilities? • Could the action reasonably face other legal challenges?
Economic	• What are the monetary costs of the action, and do the costs exceed the economic benefits? • What are the start-up and maintenance costs of the action, including administrative costs? • Has the funding for action implementation been secured, or is a potential funding source available? • How will funding the action affect the City's financial capabilities? • Could the implementation of the action reasonably burden the City’s economy or tax base? • Could there reasonably be other budgetary and revenue impacts to the City?
Environmental	• What are the potential environmental impacts of the action? • Will the action require environmental regulatory approvals? • Will the action comply with all applicable federal, state, regional, and local environmental regulations? • Will the action reasonably affect any endangered, threatened, or otherwise sensitive species of concern?

V. Discussion of Relative Cost Estimates

Example Cost Categories: **City specific values will be determined with the HMPC in the meeting.**	
$	Less than $100,000
$$	$100,001 to $999,999
$$$	Greater than $1,000,000

VI. Review and Discussion of Draft Mitigation Strategies

VII. Next Steps

Hazard Mitigation Planning Process	**January 2024 – August 2024**
Community Outreach	February 2024 – August 2024
Administrative Draft LHMP	Spring 2024
Public Review Draft LHMP Document	Summer 2024
Cal OES/FEMA Review Draft Document	Summer/Fall 2024

Appendix B – Outreach and Engagement Materials

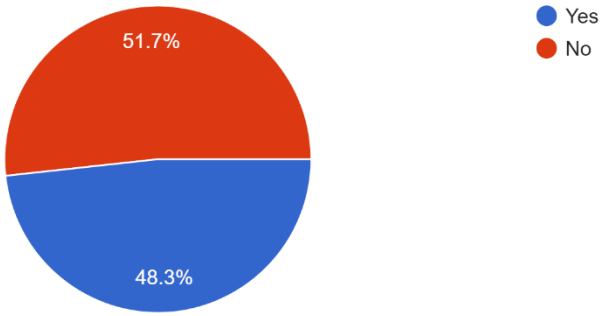
2024 San Marino Local Hazard Mitigation Plan Survey

Please indicate whether you live or work in the City of San Marino.

29 responses

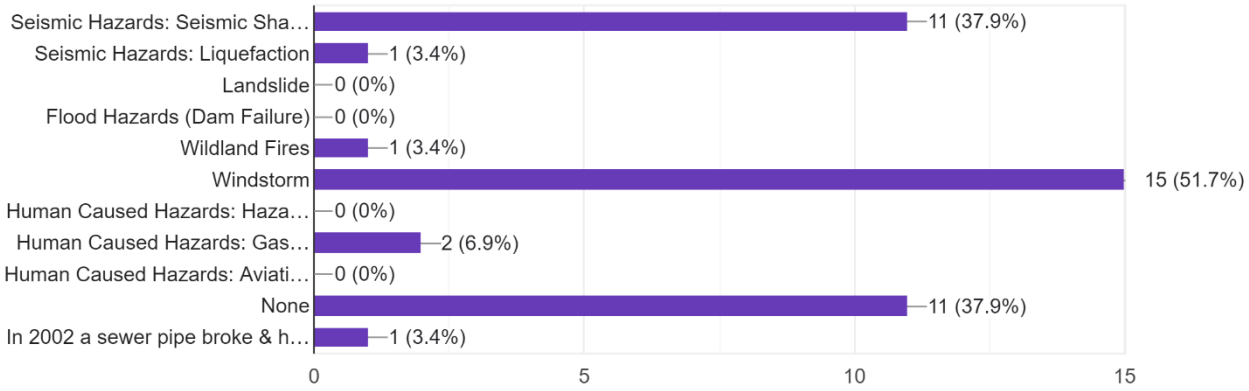
Have you been impacted by a hazard event in your current residence?

29 responses



If you answered yes to the previous question, please select the type of hazard event that you have been impacted by (select all that apply).

29 responses



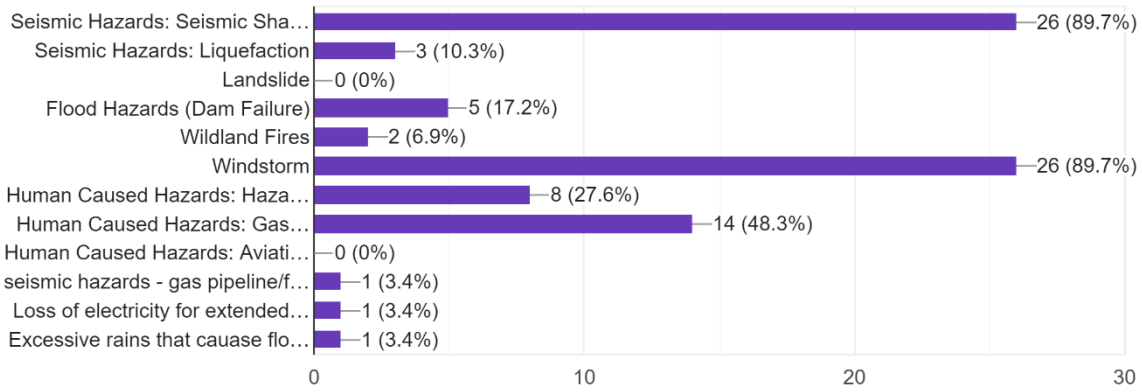
Please list any additional hazards that have previously impacted your neighborhood or home.

- None
- No additional
- n/a
- Poor lot drainage in times of heavy sustained rain
- Pools that are not maintenance. Either empty or full of green, mosquito water
- Unknown
- None known
- Concern that police and paramedic response times continue to be very quick
- Street Flooding due to poor street drainage
- Fallen tree due to wind storm
- No other hazards
- Falling branches from large tree on street
- See above
- Loss of electricity for extended periods of time (7 days or longer have occurred in the last 15 years).
- N/A
- Rain pooling and some flooding, falling major branches from oversized trees
- I suspect my home has stress cracks from previous earthquakes. I had trees fall over in wind storms.
- Trees/branches falling (including City Trees in the parking area in front of my home for which the City takes no responsibility)
- Earthquakes in a previous home
- Burglary
- rain
- na

- Recent Century Rains and over saturation of the soil causing trees to fall down. Erratic weather caused by Global Warming.
- Na
- 雨季时候，因为积水过多，排水缓慢，经常会向车库灌水。- During the rainy season, water is often poured into the garage due to excessive water accumulation and slow drainage.

The following hazards could potentially impact the City. Please mark the THREE (3) hazards that are of the greatest concern to your neighborhood or home.

29 responses



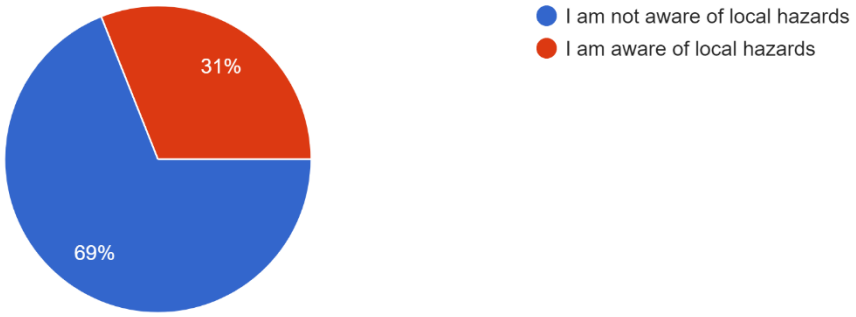
Please list any additional hazards that present a threat to your neighborhood or home.

- None
- Potenial sewage backup
- hazardous materials release/gas leak
- Extreme heat over a sustained period
- Speeding
- Not sure
- Unknown
- Spread of property crimes to San Marino
- Poor street drainage after severe rain causing flooding on street and property line.
- Falling tree
- possible flooding
- Flooding
- Large tree not trimmed - rental property
- I am not sure how vulnerable this particular home is to wild land fire or flooding from arroyo not far away.
- other human hazards, gun violence, drivers that don't stop at stop signs
- House fires

- Homeless people bringing in RVs and tents
- The oak tree in back of me.
- trees falling in wind storm
- Fire and severe wind, trees falling over
- Power outages from storms
- unaware
- na
- Power line and trees
- Contamination of the water supply during an earthquake, which happened during the Northridge Quake. Disruption of electricity, which happened to our home for 7 days during the 2011 windstorm. When AT&T stops being Carrier of Last Resort and kills my landline service, which was the only means of communication I had during the 2011 windstorm.
- Na
- 对灾害的警惕性不足，导致根本没有准备。以前倒是准备过救济物资，可是因为过了失效，就再没有安排过。- Insufficient vigilance against disasters results in no preparation at all. We had prepared relief supplies before, but because they had expired, they were never arranged again.

The planning team uses various data sources to identify hazards in your community; however, some of these data sources do not provide data at a gener...as ponding at a specific intersection during rain?

29 responses



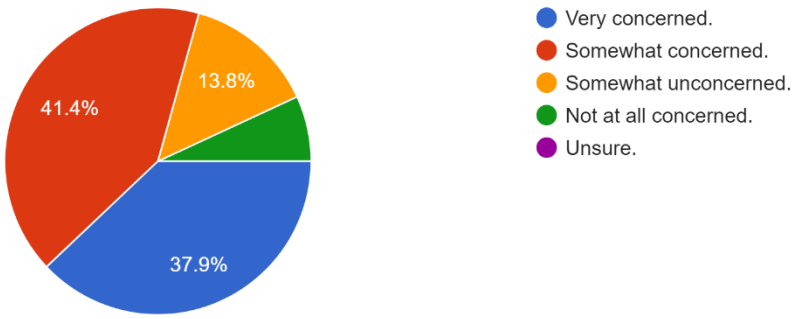
Please provide as much detail as possible, including location and type of hazard.

- n/a
- None
- Na
- Ponding on Sierrra Madre
- I am not aware of any small-scale local hazards
- Not sure.
- N/a

- After severe rains, streets are flooded and street drainage systems seemed to be compromised due to debris, leaves and trash.
- Tree fell due to heavy wind storm many years ago
- I think that our neighborhood near Valentine School could be vulnerable to flooding along a natural wash area or stream bed that we believe was made into a covered channel years ago.
- ?
- Large tree on a rental property during heavy windstorm
- I know this house can have basement flooding after a violent rainfall.
- There are a number of intersections along Huntington Drive that flood on a regular basis during heavy rain events in San Marino.
- Ponding near west and Sherwood to Lorain
- A oak tree that is almost leaning on my garage.
- uneven sidewalks / inadequate or inconsistent cell phone service
- Ponding on certain streets, including Huntington Drive.
- N/A
- flooding at the base of Park Pl
- na
- Our backyard neighbor has a tree that touch the power line; another neighbors tree is not doing well
- The street in front of 1200 Encino Drive has a history of flooding from an underground water source (low water table or leaking pipe). Kewen Canyon used to be a river that fed into a lake, which is not Lacy Park.
- 不知道 - have no idea

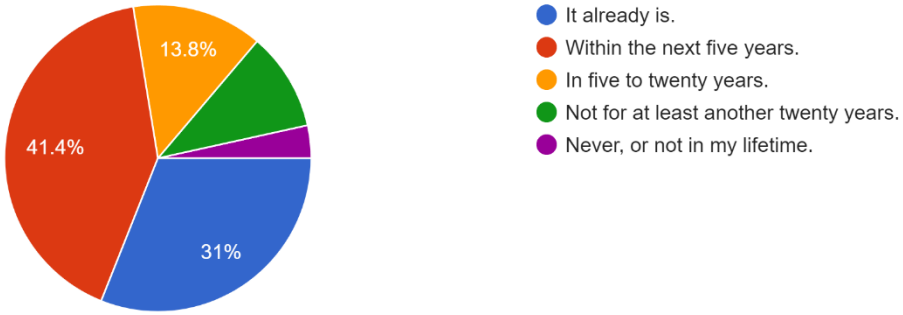
How concerned are you that climate change may create new hazardous situations in San Marino or worsen existing natural hazards?

29 responses



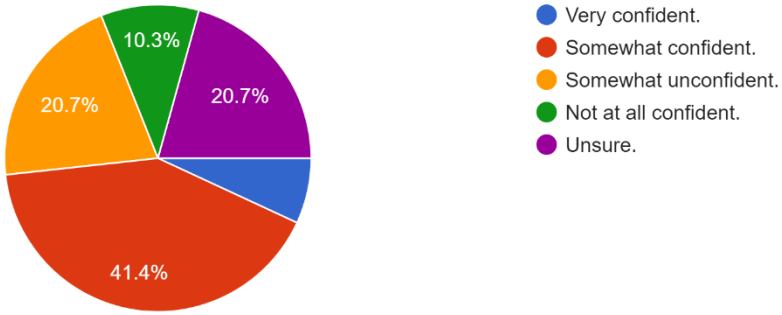
When do you think climate change will pose a threat to your health, property, livelihood, or overall wellbeing?

29 responses



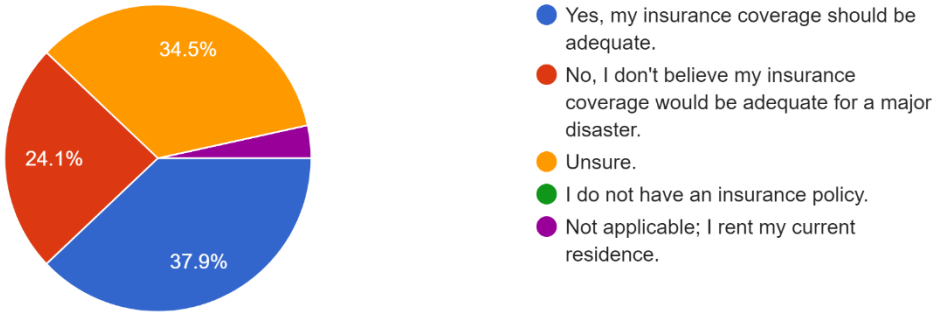
If you have taken any action to protect yourself against natural hazards, how confident are you that these actions will be sufficient to protect against...zards that are expected because of climate change?

29 responses



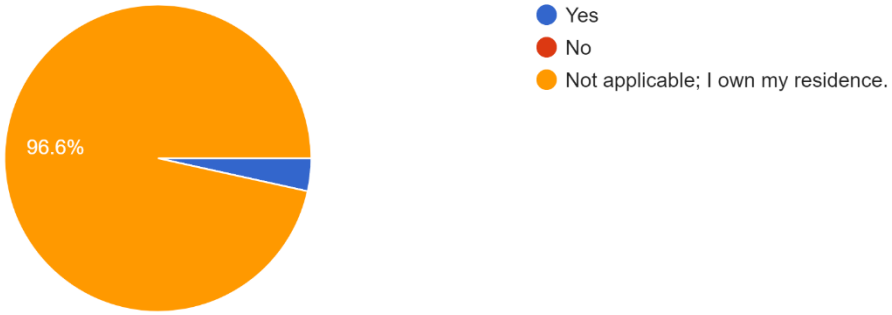
If you are a homeowner, do you have adequate homeowners' insurance to cover the hazards that could impact your home?

29 responses



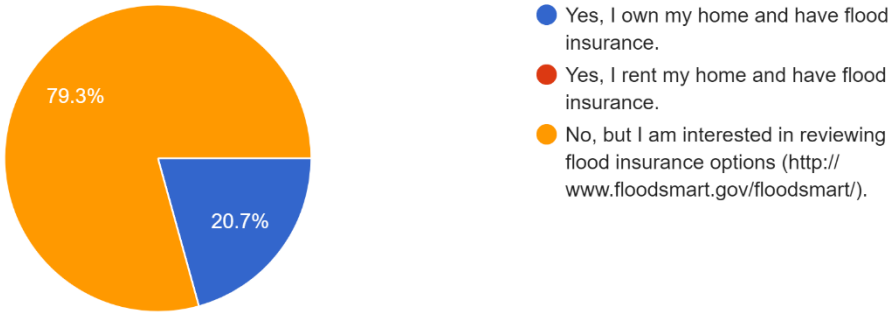
If you rent your residence, do you have renters' insurance?

29 responses



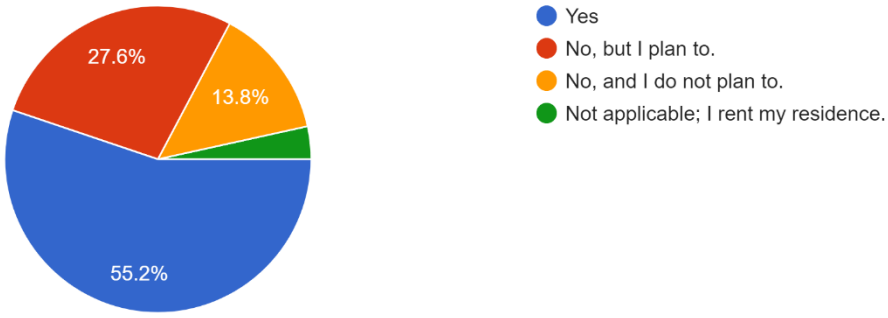
Do you have flood insurance for your home?

29 responses



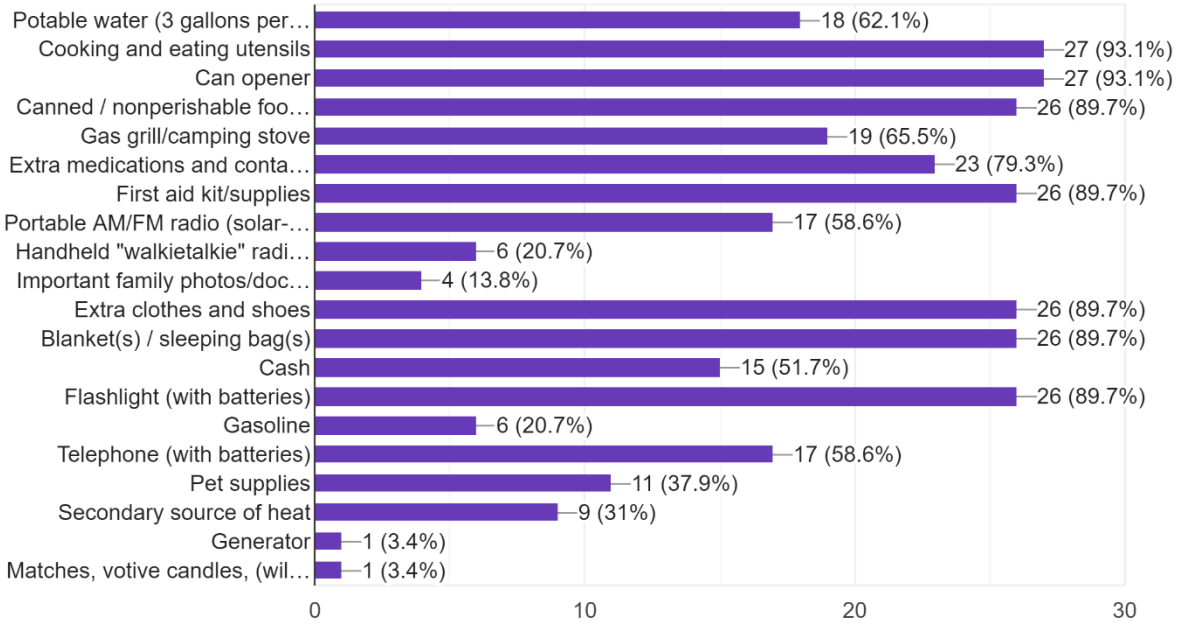
Have you done anything to your home to make it less vulnerable to hazards such as earthquakes, floods, and fires?

29 responses



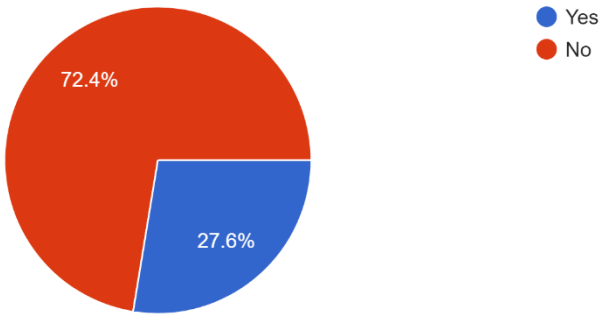
If a severe hazard event occurred today such that all services were cut off from your home (power, gas, water, sewer) and you were unable to leave or ...on emergency kits, visit: https://www.ready.gov/kit

29 responses



Are you familiar with the special needs of your neighbors in the event of a disaster situation (special needs may include limited mobility, severe medical conditions, memory impairments)?

29 responses

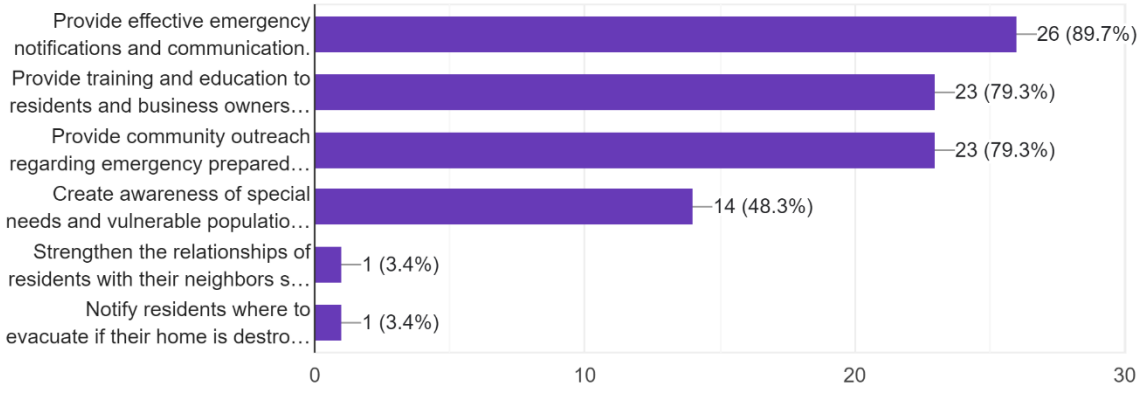


Have you attended the San Marino Fire Department's Disaster Preparedness workshops? For more information about disaster preparedness, ple... visit: https://www.SanMarinoCA.gov/disasterprep

29 responses

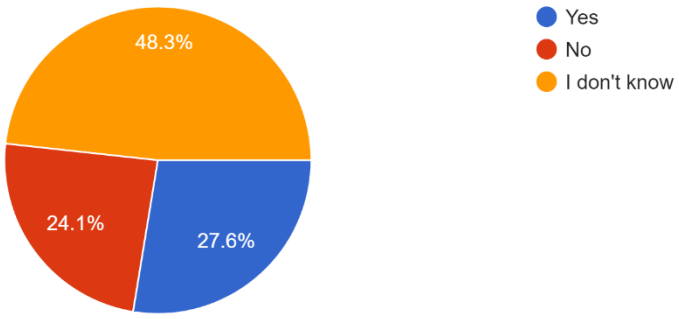
How can the City help you become better prepared for a disaster? (choose all that apply)

29 responses



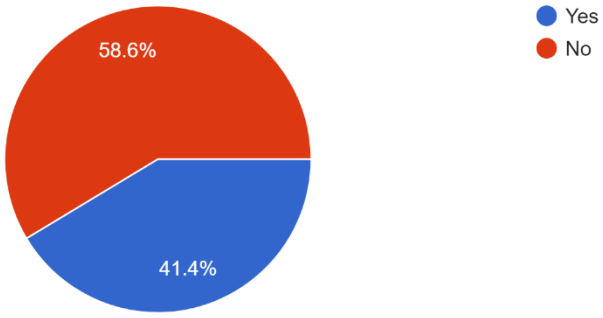
Does your employer have a plan for disaster recovery in place?

29 responses



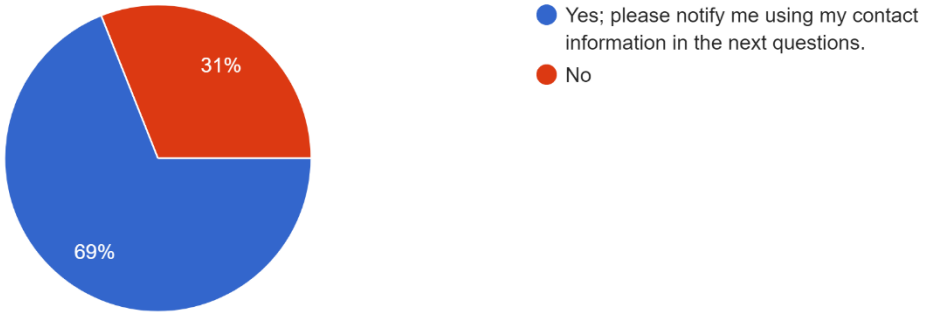
Does your employer have a workforce communications plan to implement following a disaster, so they can contact you?

29 responses



Would you like to be contacted when the Draft 2024 San Marino Hazard Mitigation Plan is available for review? If you would like to be notified of f... e-mail address, please provide your mailing address.

29 responses



Please provide us with any additional comments/suggestions/questions regarding your risk of future hazard events.

- None
- n/a
- N/A
- NA
- No additional
- The San Marino CERT program should make an effort to have at least an annual meeting
- N/a
- none
- Streets and sidewalks need repair due to wear and tear from rains and overgrowth of trees on the public pathways.
- In the past our neighborhood has worked together to help plan for a hazard event and to be ready to help each other. We have a large "Neighborhood Watch" group of 63 households. zi think that Covid disrupted this effort and it is now time for us to renew our efforts to build a cohesive neighborhood.
- Thank you
- Suggest- have published information sessions dates (in Tribune, through neighborhood watch pipeline)when throughout the city people can gather and ask questions regarding safety and hazards.
- Don’t forget: some persons are retired so the “employer” questions do not apply.
- Nothing at this time.
- Please make sure to implement citywide policies and laws to prevent San Marino becoming another camping ground of homeless tents and RVs like so many other neighboring cities.
- Interesting survey
- thanks for undertaking this outreach.

- Thank you for preparing us
- I am retired and do not have an employer, so the last two question do not apply to me. FYI: The evacuation plans for SMHS has the students and everyone else pass directly over the Raymond Fault line. Please review the SMHS evacuation plan because I believe all the evacuation plans that end up in the football field pass over the Raymond Fault line.
- na
- 除了天灾以外，大规模的伤害事件，是否也要考虑一下。- In addition to natural disasters, large-scale injury events should also be considered.

Appendix C - Resolution of Adoption
(to be inserted after City Council approval)

Appendix D- List of Key Facilities

Critical Facility	Facility of Concern	Asset Name	Asset Type Category	Address
X		San Marino City Hall (Administration)	City Facilities (City Hall, Fire, Police)	2200 Huntington Drive
X		San Marino Fire Department	City Facilities (City Hall, Fire, Police)	2200 Huntington Drive
X		San Marino Police Department	City Facilities (City Hall, Fire, Police)	2200 Huntington Drive
X		Public Works Building	City Facilities (City Hall, Fire, Police)	2200 Huntington Drive
	X	Wash Bay	City Facilities (City Hall, Fire, Police)	2200 Huntington Drive
	X	Fuel Station	City Facilities (City Hall, Fire, Police)	2200 Huntington Drive
X		San Marino Crowell Public Library	Community Center/Facility	1890 Huntington Drive
	X	Thurnher House	Community Center/Facility	1475 Virginia Road
	X	Lacy Park (All Buildings/Facilities)	Parks	1485 Virginia Road, San Marino, CA 91108
	X	Stoneman School & Recreation Center	Parks	1560 Pasqualito Drive
	X	The Old Mill (All Buildings)	Community Center/Facility	120 Old Mill Road

	x	Huntington Library (Privately Owned)		1151 Oxford Road, San Marino, CA 91108
	X	San Marino Community Center	Community Center/Facility	1800 Huntingtin Drive
X		Lift Station	Infrastructure	N/A
X		Lift Station Road	Infrastructure	N/A
X		Lift Station -	Infrastructure	N/A
X		San Marino Primary Emergency Operations Center (EOC)	City Facilities (City Hall, Fire, Police)	N/A
X		San Marino Alternate Emergency Operations Center (EOC)	City Facilities (City Hall, Fire, Police)	N/A
		City Owned Vehicles (43)	City Assets	
	X	San Marino Unified School District	Schools	1665 West Dr, San Marino, CA 91108
	X	Huntington Middle School	Schools	1700 Huntington Drive, San Marino, CA 91108
	X	Valentine Elementary School	Schools	1650 Huntington Drive, San Marino, CA 91108
	X	San Marino High School	Schools	2701 Huntington Drive, San Marino, CA, 91108
	X	Carver Elementary School	Schools	3100 Monterey Road, San Marino, CA 91108
	X	Del Mar Field	Schools	1700 Del Mar Avenue, San Marino, CA, 91108
	X	District Maintenance Facility	Schools	1645 Sherwood Road, San Marino, CA, 91108

Not all critical facility locations are listed here. Only locations made accessible to public records have been listed to maintain facility site integrity and security.

Appendix E – Hazard Mitigation Implementation Handbook

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Local Hazard Mitigation Plan Implementation Handbook

August 2024

What Is This Handbook?

The Local Hazard Mitigation Plan (LHMP) for the City of San Marino features an evaluation of the City's hazards as well as a variety of corresponding mitigation actions. These actions are intended to preserve public safety, maintain critical municipal government operations and services when hazard events emerge, and empower community members to take on hazard mitigation at an individual level. This Implementation Handbook (Handbook) is intended for use by City staff and decision-makers after the LHMP is adopted. It will:

- Give clear instructions following the adoption of the LHMP.
- Simplify future updates to the LHMP.
- Assist the City in preparing grant funding applications related to hazard mitigation.
- Guide annual plan review actions.

How do I Use This Handbook?

This Handbook can help City staff and decision-makers in several different situations. If and when the events listed below occur, consult the respective sections of this Handbook for advice on how best to proceed:

- A disaster proclamation has been issued by the San Marino City Council
- A disaster proclamation has been issued by the State of California
- A disaster declaration has been signed by the Federal Government
- I want to apply for mitigation grant funding
- San Marino is undergoing its budgeting process
- San Marino is holding its annual meeting of the Hazard Mitigation Planning Committee
- San Marino is updating the following policy and regulatory documents:
    - The Local Hazard Mitigation Plan
    - The Safety Element of the General Plan
    - The Housing Element of the General Plan
    - The Zoning Code

Who Maintains This Handbook?

The Hazard Mitigation Planning Committee (HMPC) leader is responsible for maintaining this Handbook. At the time of writing, the current HMPC leader is Chief Mario Rueda, City of San Marino Fire Chief. The HMPC may delegate this responsibility to someone else should they choose.

What to do when a disaster has been proclaimed or declared

Disasters may be proclaimed or declared by the San Marino City Council, the State of California, or the federal government. Responsibilities may differ depending on who proclaims or declares the disaster. If multiple organizations proclaim or declare a disaster, consult all applicable lists.

The San Marino City Council

If the San Marino City Council (or the Director of Emergency Services, if the City Council is not in session) proclaims a Local Emergency, take the following steps:

- ☐ Update **Attachment** 1 with information about the disaster. Include information about cumulative damage, including any damage outside of San Marino.
- ☐ Discuss local assistance opportunities with the California Office of Emergency Services (Cal OES) representatives.
- ☐ If the disaster damages local infrastructure or city-owned facilities, repair or rebuild the structure to make it more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included in **Attachment 4**.
- ☐ **Chapter 6** of the San Marino LHMP states that the City should consider updating the LHMP if a disaster causes a loss of life in the community, even if there is no state disaster proclamation or federal disaster declaration that includes part or all of the city. If there is a loss of life in San Marino, consider updating the LHMP. Consult the section on updating the LHMP in this Handbook for details.

The State of California

If the State of California proclaims a disaster for San Marino or an area that includes part or all of San Marino, take the following steps:

- ☐ Update **Attachment 1** with information about the disaster. Include information about cumulative damage, including any damage outside of San Marino.
- ☐ Collaborate with representatives from Cal OES to assess the damage from the event.
- ☐ Discuss opportunities for local assistance with representatives from Cal OES.
- ☐ If the disaster damages local infrastructure or city-owned facilities, repair or rebuild the structure to make it more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included in **Attachment 4.**
- ☐ If the disaster may escalate into a federal disaster declaration, begin any necessary coordination with representatives from the Federal Emergency Management Agency (FEMA).
- ☐ **Chapter 6** of the San Marino LHMP states that the City should consider updating the LHMP if a disaster leads to a state disaster proclamation or federal disaster declaration that includes part or all of San Marino, even if there is no loss of life. Consider updating the LHMP. Consult the section on updating the LHMP in this Handbook for details.

The Federal Government

If the federal government declares a disaster for San Marino or any area that includes part or all of San Marino, take the following steps:

- ☐ Update **Attachment 1** with information about the disaster. Include information about cumulative damage, including any damage outside of San Marino.
- ☐ Collaborate with Cal OES and FEMA representatives to assess the damage.
- ☐ Determine if San Marino will be eligible for public assistance funds related to the federal disaster declaration. These funds can be used to reimburse the City for response and recovery activities. If the City is eligible, work with FEMA and Cal OES representatives to enact the necessary requirements and receive funding.
- ☐ If the disaster damages local infrastructure or city-owned facilities, repair or rebuild the structure to make it more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included in **Attachment 4**.
- ☐ The Hazard Mitigation Grant Program (HMGP) is a FEMA program that helps fund hazard mitigation activities after a disaster event. San Marino may be eligible for funding because of the federal disaster declaration, although not all activities may meet the program's requirements. If San Marino is eligible, work with FEMA to apply for this funding.
- ☐ **Chapter 6** of the San Marino LHMP states that the City should consider updating the LHMP if a disaster leads to a state disaster proclamation or federal disaster declaration that includes part or all of San Marino, even if there is no loss of life. Consider updating the LHMP. Consult the section on updating the LHMP in this Handbook for details.

I Want to Apply for Mitigation Grant Funding

FEMA administers three potential grant funding programs for hazard mitigation activities. Two of these programs, the Building Resilient Infrastructure and Communities (BRIC) and Flood Mitigation Assistance (FMA) funding sources, are available to communities with an LHMP that complies with FEMA guidelines and has been adopted within the past five years. The third funding program is the Hazard Mitigation Grant Program (HMGP), available for communities that are part of a federal disaster declaration. This section discusses the BRIC and FMA programs and how to apply for them. The HMGP is discussed under the "Federal Government" subsection of the above "What to Do When a Disaster Has Been Proclaimed or Declared" section.

Building Resilient Infrastructure and Communities (BRIC)

Building Resilient Infrastructure and Communities (BRIC) will support states, local communities, tribes, and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. BRIC is a FEMA pre-disaster hazard mitigation program that replaced the Pre-Disaster Mitigation (PDM) program.

The BRIC program's guiding principles are supporting communities through capability- and capacity-building, encouraging and enabling innovation, promoting partnerships, enabling large projects, maintaining flexibility, and providing consistency.

Development projects must be identified in a hazard mitigation plan that meets FEMA guidelines and has been adopted within the past five years. When applying to this program, review the list of hazard mitigation actions in **Attachment 4** to see which projects may be eligible. Planning efforts for communities that lack a valid hazard mitigation plan may be eligible for funding if the

effort would create a valid hazard mitigation plan. All BRIC grant applications are processed by the state. To learn more, consult with Cal OES representatives or visit the FEMA webpage for the program. At the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities.

TAKE THE FOLLOWING STEPS TO APPLY FOR BRIC FUNDING:

- ☐ Confirm that the program is currently accepting funding applications. Check with representatives from Cal OES or consult the Cal OES webpage on the BRIC program. At the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities.
- ☐ Identify the actions from the hazard mitigation strategy (see Attachment 4) that call on the City to pursue funding or list grants as a potential funding source. Confirm that the actions are consistent with the requirements of the BRIC grant.
- ☐ Coordinate with Cal OES representatives to compile and submit materials for the grant application.

Flood Mitigation Assistance

The FMA grant program is a competitive, national program that awards funding for physical development projects and planning efforts that mitigate against long-term damage from flooding. The funding is only available to communities participating in the National Flood Insurance Program (NFIP), which San Marino currently does. Communities must also have a valid hazard mitigation plan that meets FEMA guidelines to be eligible, and all projects must be consistent with the list of actions in the hazard mitigation strategy. When applying to this program, review the list of hazard mitigation actions in **Attachment 4** to see which projects may be eligible. As with the BRIC program, applications for the FMA program must be processed through the State. To view more information, consult with Cal OES representatives or visit the FEMA webpage on the program. At the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/floods.

TAKE THE FOLLOWING STEPS TO APPLY FOR FMA FUNDING:

- ☐ Confirm that the program is currently accepting funding applications. Check with representatives from Cal OES or consult the Cal OES webpage on the FMA program. At the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/floods.
- ☐ Identify the actions from the hazard mitigation strategy (**see Attachment 4**) that call on the City to pursue funding or list grants as a potential funding source. Confirm that the actions are consistent with the requirements of the FMA grant.
- ☐ Coordinate with Cal OES representatives to compile and submit materials for the grant application.

San Marino is going through the budgeting process

San Marino's budget process is an ideal opportunity to secure funding for hazard mitigation actions and to ensure that hazard mitigation efforts are incorporated into the City's fiscal priorities. San Marino operates on an annual budget cycle from July 1 to June 30.

During this process, City staff should take the following steps to incorporate hazard mitigation into San Marino's annual budget:

- ☐ Include hazard mitigation activities in San Marino's Capital Improvement Projects (CIP) list. Review the list of hazard mitigation actions in Attachment 4 and identify the projects that can be included in the CIP or can support efforts within the CIP.
- ☐ Review the risk and threat assessments in the LHMP (Chapter 3 and Chapter 4) to ensure that all items in the CIP list are planned, designed, and constructed to minimize the threat from hazard events.
- ☐ Identify opportunities to identify stand-alone hazard mitigation actions through the annual budget process. Include appropriate items from Attachment 4 in the budget as stand-alone line items, particularly items that the Hazard Mitigation Planning Committee (Planning Committee) considered a high priority.
- ☐ Set aside staff to conduct hazard mitigation activities, including time to participate in Planning Committee meetings and research, prepare, and submit BRIC and FMA grant opportunities (consult the "I Want to Apply for Mitigation Grant Funding" section above).
- ☐ Ensure hazard mitigation activities are reflected in each department's priorities and earmarked time for specific goals.

San Marino is Conducting its Annual meeting of the Hazard Mitigation Planning Committee

The hazard mitigation planning process brings together representatives from multiple City departments as well as other relevant stakeholders. It provides a forum to discuss the hazards in San Marino and how to mitigate them effectively. As Chapter 6 of the LHMP mentions, the Planning Committee should meet at least once each year, beginning a year after the LHMP is adopted. During these meetings, the Planning Committee should discuss the progress of implementation and the integration of hazard mitigation actions in other City documents. At these meetings, the Planning Committee can review the status of the hazard mitigation actions and discuss whether completed or in-progress actions are working as expected. These meetings also allow the Planning Committee to strategically plan for the upcoming year.

It may help for the Planning Committee to meet early in the year, in advance of annual budget activities. **Attachment 3** contains an example of a Planning Committee Meeting Agenda.

The annual meeting should include representatives from City departments and other organizations that originally prepared the LHMP. Representatives from other relevant organizations should also be invited. During the preparation of the current LHMP, the following individuals were part of the Planning Committee:

TABLE 1-1: SAN MARINO HAZARD MITIGATION PLANNING COMMITTEE (HMPC)		
Name	**Title**	**Department**
Jennifer McGee	Management Analyst	San Marino Fire Department
Mario Rueda	Fire Chief	San Marino Fire Department
Jason Sutliff	Captain	San Marino Fire Department
Mark Dondanville	Division Chief	San Marino Fire Department
John Incontro	Chief of Police	San Marino Police Department
Jeremy Bespitch	Sergeant	San Marino Police Department
Nicole Tibbet	Community Engagement Manager	City Manager's Office
Amber Shah	Parks & Public Works Director/ City Engineer	Parks & Public Works
Isidro Figueroa	Community Development Director	Community Development
Michael Lin	Chief Business Official	San Marino Unified School District
Jennifer Wheeler	Executive Administrative Assistant	San Marino Unified School District
Aaron Pfannenstiel	LHMP Project Manager	Atlas Planning Solutions
Crystal Stueve	LHMP Planner	Atlas Planning Solutions
Robert Jackson	LHMP Planner	Atlas Planning Solutions

In advance of Planning Committee meetings, consider using **Attachment 1** to maintain an accurate list of recent disaster events that have occurred in and around San Marino since the LHMP was adopted. Review the Plan Maintenance Table (Attachment 2) at the Planning Committee meeting to identify any gaps in the LHMP or any other plan component that needs updating. This also allows Planning Committee members the opportunity to review the actions in the hazard mitigation strategy **(Attachment 4)** and ensure that they are implemented as intended.

San Marino is updating its policy and regulatory documents

If San Marino is updating the LHMP, the Safety Element or Housing Element of the General Plan, or the Zoning Code, consult the following applicable section.

Local Hazard Mitigation Plan

All LHMPs should be updated every five years. This helps keep the plan up to date and reflects the most recent guidance, requirements, science, and best practices. An updated LHMP also helps keep San Marino eligible for hazard mitigation grants requiring a valid, recent LHMP (see "I Want to Apply for Mitigation Grant Funding"), along with increased post-disaster recovery funds.

The update process for the LHMP takes approximately one year. To ensure that a new LHMP comes into effect before the previous one expires, the update process should begin no later than four years after the plan is adopted. Updates may occur sooner at the City's discretion. Potential reasons for updating the LHMP sooner may include a state disaster proclamation or federal disaster declaration that covers part or all of San Marino, or if a disaster leads to a loss of life in San Marino (see the "What to Do When a Disaster Has Been Proclaimed or Declared" section), as discussed in **Chapter 6** of the LHMP.

Take the following steps to update the LHMP:

Assemble the Hazard Mitigation planning committee

- ☐ Convene a Planning Committee meeting no later than four years after the LHMP is adopted. Invite the regular Planning Committee members and representatives from other organizations that may have a role to play in the update process.
- ☐ Review the current status of mitigation actions, including if there are any that are not being implemented as planned or are not working as expected. Determine if there have been any changes in hazard events, regulations, best practices, or other items that should be incorporated into an updated LHMP.
- ☐ Decide if there is a need for a technical consultant to assist with the LHMP update and conduct consultant selection activities if needed. If a consultant is desired, the selection process should begin a few months before the update begins.
- ☐ Create and implement a community engagement strategy based on the strategy prepared for the existing LHMP. Describe in-person and online engagement strategies and materials, including ideas for meetings and workshops, draft community surveys, content for websites and press releases, and other materials that may be useful.

Update the Risk and Threat Assessments

- ☐ Review and update the risk assessment to reflect the most recent conditions in San Marino. Consider recent hazard events, new science associated with hazards and climate change, new development and land use patterns, and other recent changes in local conditions.

- ☐ Evaluate the status of all key facilities. Update this list if new facilities have been constructed or if existing facilities have been decommissioned. Re-assess the threat to key facilities.
- ☐ Review the demographics of community residents and update the threat assessment for vulnerable populations and other community members.
- ☐ Assess any changes to the threat to all other community assets, including key services, other facilities, and economic drivers.

Update the Mitigation Actions

- ☐ Update the existing hazard mitigation actions to reflect actions in progress. Remove actions that have been completed or revise them to increase their effectiveness. Revise actions that have been abandoned or delayed to make them more feasible or remove them from the list of mitigation actions if they are no longer appropriate for San Marino.
- ☐ Develop mitigation actions to improve the status of hazard mitigation activities in San Marino by addressing any issues not covered by the existing LHMP.
- ☐ The ability to expand current mitigation capabilities will generally be reliant upon the budgeting allocated for each department/program for that fiscal year. The level at which these programs may or may not be expanded will depend upon the amount of funding received. FEMA has released a series of guides over the past few years highlighting some ways jurisdictions can expand mitigation. Some strategies for increasing current mitigation capabilities may include:
  - The City should actively identify, adopt, and enforce the most current development codes and standards available. Strongly encouraging new development to be constructed to higher standards than currently required, increasing resilience within the community.
  - Engaging parts of the community that may not be actively involved in mitigation efforts.
  - Expanding the number and types of organizations involved in mitigation planning and implementation increases efficiency and bandwidth.
  - Fostering new relationships to bring underrepresented populations and partners to the hazard mitigation planning process.
  - During the annual LHMP review, the HMPC should look for opportunities to fund and expand/enhance the effectiveness of current mitigation actions.
  - During annual budgeting processes, the City should identify new funding sources (bonds, grants, assessment districts, etc.) that can be used to support enhancements in existing capabilities.
- ☐ Ensure that the feedback from the community engagement activities is reflected in the new and updated mitigation actions.

Review and Adopt the Updated Plan

- ☐ Review the other chapters and appendices of the LHMP to reflect any changes made through the update process.
- ☐ Release the updated plan to the Planning Committee members and revise the plan to reflect any comments by Planning Committee members.

- ☐ Distribute the updated Plan to any appropriate external agencies not included in the Planning Committee and revise the plan as appropriate in response to any comments.
- ☐ Release the updated plan publicly for review and make revisions to the plan to reflect public comments.
- ☐ Submit the plan to Cal OES and FEMA for approval and make any necessary revisions.
- ☐ Submit the plan to the San Marino City Council for adoption.

The Safety Element of the General Plan

The Safety Element is a required component of San Marino's General Plan. It can be updated as a stand-alone activity or as part of a more comprehensive process to update multiple sections or all of the General Plan. The Safety Element does not need to be updated on any set schedule, but updates should be frequent enough for the element to remain current and applicable to the community.

Local communities can incorporate their LHMP into their Safety Element as allowed under Section 65302.6 of the California Government Code, as long as the LHMP meets minimum federal guidelines. This allows communities to be eligible for an increased share of post-disaster relief funding from the State if a hazard situation occurs, as per Section 8685.9 of the California Government Code.

Take the following steps to incorporate the LHMP into the Safety Element:

INCORPORATE NEW REQUIREMENTS INTO THE SAFETY ELEMENT AND ENSURE THAT THE LHMP IS CONSISTENT WITH THE SAFETY ELEMENT

- ☐ Review the requirements for Safety Elements in Section 65302(g) of the California Government Code and for LHMPs in Section 65302.6. Ensure that both documents meet all state requirements.
- ☐ Ensure that the information in both plans does not contradict each other and that any inconsistencies are corrected to use the most accurate and appropriate information. This information should include a community description, a risk assessment, and a threat assessment.
- ☐ Ensure that the policies in the Safety Element support the LHMP and provide a planning framework for specific hazard mitigation actions.

The Housing Element of the General Plan

The Housing Element is a required component of San Marino's General Plan. Section 65583 of the California Government Code requires a Housing Element to analyze and plan for new residential growth in a community, including residential growth for households with an annual income below the area median. Like an LHMP, state regulations require the Housing Elements to be updated regularly to remain current and valid.

The Housing Element is not required to contain any information or policies related to hazards, although it may include policies that address retrofitting homes to improve resiliency. However, state law links the regular schedule of Housing Element updates to mandatory revisions to other General Plan elements. For example, Section 65302(g)(2) of the California Government Code

requires that communities that update their Housing Element on or after January 1, 2009, also update their Safety Element to include specific information and policies related to flood protection. As the LHMP is incorporated into the Safety Element, updates to the Housing Element may indirectly trigger updates to the LHMP.

To update the LHMP concurrent with updates to the Housing Element, take the following steps:

ENSURE THAT THE LHMP MEETS ANY NEW REQUIREMENTS FOR THE SAFETY ELEMENT THAT MAY BE TRIGGERED BY A HOUSING ELEMENT UPDATE

- ☐ Section 65302(g) of the California Government Code lists several requirements for the Safety Element of the General Plan. Some of these requirements are triggered by updates to the Housing Element. Check to see if there are any new requirements of this nature. Note that the requirement is linked to the new Housing Element's adoption date, not the date the update process begins.
- ☐ Because the LHMP is incorporated into the Safety Element, any amendments or revisions to the Safety Element triggered by the Housing Element update may be made directly in the LHMP. Requirements triggered by the Housing Element are unlikely to require a full rewrite of the LHMP, but the process should fully involve the Planning Committee and include appropriate community engagement.
- ☐ Adopt the updated LHMP and incorporate it into the Safety Element. If necessary, amend the Safety Element to ensure the two documents are consistent (review the "Incorporate New Requirements Into the Safety Element, and Ensure that the LHMP is Consistent with the Safety Element" subsection above).

The San Marino Municipal Code

San Marino's Municipal Code contains a set of standards that guide land uses and development in the community. These standards include where different types of buildings and land use activities may be located, how these structures must be built, and how they must be operated or maintained. The Municipal Code may include requirements that structures (particularly new structures or those undergoing substantial renovations) incorporate hazard-resistant features, be located outside the most hazard-prone areas, or take other steps to reduce hazard vulnerability.

All communities in California are required to adopt the minimum state Building Standard Code (BSC), which includes some hazard mitigation requirements for new or significantly renovated structures. The BSC is generally updated every three years, with supplemental code updates halfway into each update cycle. Article 2, Building Code, of San Marino's Municipal Code contains building regulations and incorporates the BSC. Other sections of the Code adopt additional standards as desired by the City that adapt the BSC to San Marino's local context.

As a participant in the National Flood Insurance Program (NFIP), San Marino is required to incorporate Floodplain Management Requirements in its Zoning Code, which is located in the City's Floodplain Management Regulations (Municipal Code Article 11: Floodplain Management Ordinance). These regulations establish standards for developing and operating facilities within mapped flood-prone areas. Other sections of the San Marino Municipal Code may include additional standards related to hazard mitigation activities.

With the exception of the Floodplain Management Regulations and the minimum standards in the BSC, San Marino is not required to incorporate hazard-related requirements in the Municipal

Code. However, the Municipal Code is an effective tool for implementing hazard mitigation measures related to the siting, construction, and operation of new buildings and other structures. Substantial updates to the Municipal Code, including the Buildings and Construction and Zoning Code sections, should be done in a way that is consistent with the LHMP.

Include Hazard-Related Requirements in Applicable Sections of the San Marino Code of Ordinances

- ☐ If the BSC is being updated, evaluate the hazard-related requirements of all sections in the new BSC. Identify any areas where it may be feasible to add or revise standards to help reduce the threat from hazard events. Ensure that these standards are consistent with the LHMP. Consider whether standards should be applied to all structures, to specific types of structures, or to structures in a limited area (such as a flood plain).
- ☐ If the Zoning Code is being updated, ensure that all requirements do not expose community members or community assets to an excessive risk of harm. Where feasible, use the requirements to strengthen community resiliency to hazard events. Ensure that these standards are consistent with the LHMP. Consider possible standards such as overlay zones that strengthen zoning requirements in hazard-prone areas, landscaping and grading requirements that buffer development from hazards, siting and design standards that make structures more resilient, and other strategies as appropriate.

Attachment 1: Disaster Information Table

Use this table to fill out the information about any disaster events that have occurred in San Marino or nearby and have affected the community. Include the date and location of the disaster event, the damages associated with the event, and any information about disaster proclamations or declarations resulting from the event.

Date	Location	Damages *	Declaration Details †

* Includes number and type of injuries, number of deaths, and cost of physical damage
† If the disaster was proclaimed or declared by the local, state, and/or federal government

Attachment 2: Plan Maintenance Table

Use this table when reviewing the LHMP as part of the Planning Committee's annual activities. For each section of the LHMP, note if any changes should be made to make the plan more effective for the community. This includes noting if anything in the LHMP is incorrect or if any important information is missing. Make revisions consistent with these notes as part of the next update to the LHMP.

Section	Is Anything Incorrect?	Is Anything Missing?	Should Any Other Changes Be Made?
Multiple sections or throughout			
Chapter 1: Introduction			
Chapter 2: Community Profile			
Chapter 3: Risk Assessment			
Chapter 4: Threat Assessment			
Chapter 5: Mitigation Strategy			
Chapter 6: Plan Maintenance			
Appendices			

Attachment 3: Sample Agenda and Topics for the Hazard Mitigation Planning Committee

This attachment includes a sample agenda and discussion topics for the annual meeting of the Planning Committee. Meetings do not have to follow this order or structure, but the items included in this attachment should be addressed as part of the annual meeting. During the update process for the LHMP, it is likely that the Planning Committee will meet more frequently. The meetings of the Planning Committee during the update process will involve different discussion topics.

ITEM 1: RECENT HAZARD EVENTS

1.1. What hazard events have occurred this past year in San Marino or nearby in a way that affected the community?
- Identify events that caused loss of life or significant injury to San Marino community members, significant property damage in San Marino, or widespread disruption to San Marino.
- More minor events should also be identified if there is a need for a community response to mitigate against future such events.

1.2. What are the basic facts and details behind any such hazard events?
- Consider the size and location of the affected area, any measurements of severity, any injuries and deaths, the cost of any damage, the number of people displaced or otherwise impacted, and other relevant summary information.
- Ensure that these facts and details are clearly recorded for future plan updates, including using the Disaster Information Table (**Attachment 1**).

ITEMS 2: MITIGATION ACTION ACTIVITIES

2.1. What mitigation actions have been fully implemented? Are they working as expected, or do they need to be revised?

2.2. What mitigation actions have started to be implemented since the Planning Committee last met? Is the implementation of these actions proceeding as expected, or are there any barriers or delays? If there are barriers or delays, how can they be removed?

2.3. What mitigation actions are scheduled to begin implementation in the next year? Are there any factors that could delay implementation or weaken the effectiveness of the actions? How can these factors be addressed?

2.4. What resources are needed to support planned, in-process, or ongoing mitigation actions? Does the City have access to these resources? If not, how can the City obtain access to these resources?

ITEM 3: INFORMATION SHARING

3.1. Is the City communicating with all appropriate local jurisdictions, including neighboring communities, Los Angeles County, and special districts? This should include information on district-specific hazard situations, mitigation actions, and other relevant information.

3.2. Is the City communicating with the appropriate state and federal agencies? Is the City receiving information about new regulations, best practices, and data related to hazard mitigation activities?

3.3. Are there opportunities for the City to improve coordination with local, state, and federal jurisdictions and agencies?

ITEM 4: BUDGETARY PLANNING

4.1. What are the financial needs for San Marino to support the implementation of planned and in-process mitigation actions, including ongoing items? Is there sufficient funding for all measures in the LHMP that are planned for the next year, including in-process and ongoing items? If sufficient funding is unavailable, how can the City obtain these funds?

4.2. If it is not feasible for the City to support all planned, in-process, or ongoing mitigation actions, which ones should be prioritized?

4.3. Are there hazard-related activities not included in the LHMP that should be budgeted for? Can the City obtain the necessary funding for these activities?

ITEM 5: STRATEGIC PLANNING

5.1. Which grants are available for hazard mitigation activities, and which activities are best positioned to secure funding?

5.2. How should the agencies and other organizations represented on the Planning Committee coordinate to maximize the chances of receiving funding?

5.3. Are there any scheduled or anticipated updates to other City documents that could relate to hazard mitigation activities? How can the Planning Committee share information with staff and any technical consultants responsible for these updates and ensure that the updates will enhance community resiliency?

5.4. What capital projects are scheduled or anticipated? Are these capital projects being designed and built to be resistant to hazard events? Are there opportunities for these projects to support hazard mitigation activities?

5.5. How can Planning Committee members coordinate efforts with those responsible for capital projects to take advantage of economies of scale that will make implementing hazard mitigation activities easier?

5.6. Has it been four years since the adoption of the LHMP? If so, lay out a timeline for plan update activities, including additional meetings of the Planning Committee. Identify if a technical consultant is needed and begin the contracting process.

5.7. Are there any other opportunities for Planning Committee members and the organizations they represent to coordinate efforts?

ITEMS 6: NEW BUSINESS

6.1. Are there any other items related to the Planning Committee's mission?

Attachment 4: Hazard Mitigation Strategy

TABLE 5-6: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
•	**Multi-Hazard Action Items**							
MH-1	ST	Ensure City codes and ordinances are up to date and reflect the intent of the goals and actions contained in the Local Hazard Mitigation Plan.	Keep	Community Development	BRIC, FMA, HMGP	$	1-2 Years	Low
MH-2	ST	Develop public information and educational materials that achieve the following: 1. Covers the relevant hazards of concern: flood, fire, earthquake, extreme heat, and geologic hazards 2. Provides public education materials to residents and School District staff, parents, and age-appropriate students with mitigation strategies and actions pertaining to the protection of life and property before, during, and after hazard events. 3. Developed materials that can be distributed at City Council Meetings, Commission Meetings, City Hall, Parks and Recreation Centers, Fire Station, Police Station, Chamber of Commerce Meetings, School Administration Offices, and other appropriate venues. 4. Conduct specific community-based demonstration projects focused on community-level risk reduction (i.e., Fire prevention and mitigation in the wildland-urban interface).	Modify	Fire, Police, Parks & Public Works, Administration, Community Development, and San Marino USD	BRIC, FMA, HMGP	$	1-2 Years	Medium

TABLE 5-6: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
MH-3	ST	Update mitigation strategies in conformance with the earthquake resiliency survey and facility conditions assessments completed in 2018/19.	Modify	Administration and Community Development	BRIC, FMA, HMGP	$	1-2 Years	High
MH-4	ST	Implement software upgrades to the City's IT infrastructure, including security enhancements to ensure continuity of government operations following a major disaster.	Keep	Administration and Finance	BRIC, FMA, HMGP	$$	1-2 Years	High
MH-5	ST	Ensure the City's Emergency Communications Systems includes equipment upgrades and enhancements to better support Police personnel, Fire personnel, and the Emergency Operations Center.	Keep	Administration, Finance, and Fire	BRIC, FMA, HMGP	$$$	1-2 Years	High
MH-6	LT	Encourage individual and family preparedness through local media, schools, websites, community projects, and other public safety events.	Modify	Administration, Police, and Fire	BRIC, FMA, HMGP	$	3-5 Years	Low
MH-7	LT	Establish partnerships with nongovernmental organizations and businesses to secure funding for mitigation activities that would be mutually beneficial.	Modify	Administration	BRIC, FMA, HMGP	$	3-5 Years	Medium
MH-8	LT	Continue to use the latest mapping and analysis prepared by federal, state, regional, and local agencies to identify high-hazard probability areas and convey potential risks to residents and property owners within the city. Integrate new mapping and analysis as it becomes available.	Keep	Community Development	BRIC, FMA, HMGP	$	3-5 Years	Low

TABLE 5-6: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
MH-9	LT	Continue to monitor tree canopy conditions and tree health in the city as projects within the Street Tree Management Plan and Fuels Modification Program are implemented.	Modify	Community Development and Parks & Public Works	BRIC, FMA, HMGP	$	3-5 Years	Medium
MH-10	LT	Ensure the circulation network can adequately function as evacuation routes and provide the necessary capacity, safety, and viability under a range of emergency scenarios. To allow for this, the City may look to replace and upgrade signal controllers, acquire portable speed display signs and equipment, pavement condition assessments, alley improvements, bridge maintenance, speed display signs, traffic control equipment, and other projects to facilitate adequate evacuation.	Modify	Administration, Finance, and Parks & Public Works	BRIC, FMA, HMGP	$$	1-2 Years	Low
• **Earthquake Action Items**								
EQ-1	LT	Retrofit City and School District critical facilities and structures identified as seismically vulnerable.	Modify	Community Development, Parks & Public Works, and San Marino USD	BRIC, FMA, HMGP	$$$	3-5 Years	High
EQ-2	LT	Coordinate with the California Insurance Commissioner on educational information about purchasing earthquake hazard insurance.	Modify	Community Development	BRIC, FMA, HMGP	$	3-5 Years	Low

TABLE 5-6: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
EQ-3	LT	Encourage seismic strength evaluations of City and School District critical facilities to identify vulnerabilities requiring mitigation to meet current seismic standards for schools, public infrastructure, and critical facilities. Encourage owners of non-retrofitted structures to upgrade them to meet seismic standards.	Keep	Hazard Mitigation Advisory Committee	BRIC, FMA, HMGP	$	3-5 Years	High
EQ-4	LT	Provide educational information regarding securing bookcases, filing cabinets, light fixtures, and other objects that can cause injuries and block exits. Explore partnerships to provide retrofitting classes for homeowners, renters, building professionals, and contractors.	Keep	Administration, Community Development, and San Marino USD	BRIC, FMA, HMGP	$	3-5 Years	Medium
• **Flood Action Items**								
FL-1	ST	Analyze areas of repetitive flooding within the City and School District properties and identify feasible mitigation options. Explore options for incentives to encourage property owners to engage in mitigation.	Modify	Parks & Public Works	BRIC, FMA, HMGP	$$	1-2 Years	Medium
FL-2	ST	Continue to assess the condition of sewer system infrastructure to address concerns regarding system reliability and resiliency.	Modify	Parks & Public Works	BRIC, FMA, HMGP	$$$	3-5 Years	Medium

TABLE 5-6: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
FL-3	LT	Identify surface water drainage obstructions for all parts of the City of San Marino. Prepare an inventory of culverts that historically create flooding problems and target them for retrofitting. Prepare an inventory of major urban drainage problems and identify causes and potential mitigation actions for urban drainage problem areas.	Keep	Parks & Public Works	BRIC, FMA, HMGP	$$	3-5 Years	Medium
FL-4	LT	Continue to assess and implement the recommendations of the citywide stormwater system condition assessment for lined and unlined channels and washes.	Keep	Parks & Public Works	BRIC, FMA, HMGP	$$$	3-5 Years	Medium
• **Windstorm Action Items**								
W-1	ST	Maintain coordination with Public Utilities to assess tree hazards and mitigation in accordance with the City's Tree Ordinance.	Modify	Community Development, Parks & Public Works, and Fire	BRIC, FMA, HMGP	$	1-2 Years	Medium
W-2	LT	Explore and assess the potential for undergrounding overhead utility lines throughout the City.	Keep	Parks & Public Works	BRIC, FMA, HMGP	$$$	3-5 Years	Low
• **Human Caused Hazard Action Items**								
HC-1	ST	Enhance building access accountability and hardening of City/School District facilities.	Keep	Administration, Finance, Police, and San Marino USD	BRIC, FMA, HMGP	$$$	1-2 Years	High

TABLE 5-6: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
HC-2	LT	Enhance interoperable communications to work seamlessly with City departments and neighboring jurisdictions.	Keep	Administration, Fire, and Police	BRIC, FMA, HMGP	$$$	3-5 Years	High
HC-3	LT	Organize local and regional training with neighboring jurisdictions and agencies.	Keep	Administration, Fire, and Police	BRIC, FMA, HMGP	$$	3-5 Years	Low
HC-4	LT	Conduct public education and first responder training on the Garfield Gas Pipeline in conjunction with the Sempra Energy Pipeline Safety Plan. Facilitate stakeholder communications.	Keep	Police and Fire	BRIC, FMA, HMGP	$$	1-2 Years	Low
• **Extreme Heat Action Items**								
EH-1	ST	Monitor extreme heat conditions and update Extreme Heat annexes for the City and School District when new conditions arise.	New	Fire and San Marino USD	BRIC, FMA, HMGP	$$	2-3 Years	High
EH-2	LT	Retrofit critical facilities to better accommodate extreme heat conditions and the vulnerable populations most impacted by these incidents.	New	Fire and San Marino USD	BRIC, FMA, HMGP	$$$	3-5 Years	Medium
• **Preparedness Action Items**								
P-1	ST	Periodically conduct emergency drills throughout the school sites within the City.	Modify	Fire and San Marino USD	BRIC, FMA, HMGP, EMPG	$	1-2 Years	Medium
P-2	ST	Develop and maintain emergency preparedness plans for City Departments, residents, and businesses directed at operational readiness for major disasters.	Keep	Administration and Fire	BRIC, FMA, HMGP, EMPG	$$	1-2 Years	High
P-3	LT	Coordinate with neighboring jurisdictions on emergency management activities.	Modify	Administration	BRIC, FMA, HMGP, EMPG	$	3-5 Years	Low

TABLE 5-6: MITIGATION ACTIONS IMPLEMENTATION PLAN								
Action #	**Short/ Long Term**	**Mitigation Action**	**2024 Update Status**	**Responsible Department**	**Funding Sources**	**Relative Cost**	**Time Frame**	**Priority**
P-4	LT	Install or upgrade backup power within City critical facilities for use during a power failure. Create an equipment/testing log to ensure backup power equipment is in working service.	Keep	Parks & Public Works and San Marino USD	BRIC, FMA, HMGP, EMPG	$$$	3-5 Years	Low
P-5	LT	Purchase supplies, food stores, and equipment that would accommodate the care and feeding of personnel for the duration of response for all City employees and their families for a period of ten days.	Keep	Administration, Police, Fire, and San Marino USD	BRIC, FMA, HMGP, EMPG	$$	3-5 Years	Medium

*** Relative Cost Categories**		**Funding Sources**
$	Less than $50,000	Building Resilient Infrastructure and Communities (BRIC)
$$	$50,001 to $249,999	Flood Mitigation Assistance Program (FMA)
$$$	Greater than $250,000	Hazard Mitigation Grant Program (HMGP)
31	# of Action Items	Emergency Management Performance Grant Program (EMPG)