



Local Hazard Mitigation Plan 2024-2029

City of La Cañada Flintridge
One Civic Center Drive
La Cañada Flintridge, CA 91011

City of La Cañada Flintridge

Local Hazard Mitigation Plan 2024 – 2029

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Special Acknowledgements

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Part I

Planning Process

1. Introduction

The City of La Cañada Flintridge 2024 Local Hazard Mitigation Plan (LHMP) includes resources and information to assist La Cañada Flintridge residents, public and private sector organizations, and others interested in participating in planning for local hazards. The LHMP provides long-term and short-term policies, programs, projects, and other activities that may assist in reducing risk and preventing loss from future disastrous events. The mitigation strategies address multiple hazard issues and specific activities for drought, earthquake, extreme heat, flood, windstorm, landslide, wildfire, and other hazards of interest.

The primary objective of the hazard mitigation plan is to reduce the negative impacts of future disasters on La Cañada Flintridge, saving lives and reducing injuries, minimizing damage to buildings and infrastructure (especially critical facilities), and minimizing economic losses. This LHMP is an educational and planning document, not a regulatory document.

The plan complies with federal and state hazard planning requirements for addressing hazards, vulnerability, and risk. Adoption of this mitigation plan is required for La Cañada Flintridge to remain eligible for future Federal Emergency Management Agency (FEMA) mitigation grant funds and to reimburse disaster-related expenses.

1.1 Local Hazard Mitigation Plan Mission

The City of La Cañada Flintridge Local Hazards Mitigation Plan is dedicated to building a resilient community through robust strategies that mitigate natural and human-induced hazards. Our mission centers on safeguarding citizens, critical infrastructure, and the environment. We achieve this by advocating for effective policies, enhancing public awareness, and fostering community engagement. Through resource documentation and collaboration with experts, we develop innovative solutions to minimize the impact of disasters on life, property, and the environment. Our commitment to preserving life and the natural surroundings guides our efforts to create a prepared community capable of responding to and recovering from any hazard.

1.2 Plan Benefits

The 2024 LHMP has been meticulously crafted to cater to every resident, business, and visitor within the City of La Cañada Flintridge. Our foremost commitment is to mitigate risks and enhance safety for everyone who lives, works, or spends time in our city. This comprehensive plan provides a robust framework to address a spectrum of anticipated natural and human-made hazards.

Engagement from our residents and stakeholders during the plan's formulation was instrumental. Their thoughtful insights and feedback ensure that LHMP's strategies are effective and reflect the community's needs. As we move forward, this plan's established goals and recommendations will serve as the cornerstone for both current and future mitigation endeavors, fostering local initiatives and lasting partnerships.

1.3 Local Mitigation Plan Review Tool

To assist the readers and reviewers of this document, markers have been inserted to identify and demonstrate how the local mitigation plan meets the regulation in 44 CFR § 201.6. The following is a sample marker:

FEMA Policy Connections: Element C3

Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards?

2. Planning Process

The 2024 LHMP for the City of La Cañada Flintridge was collaboratively crafted with contributions from citizens, public entities, non-profits, businesses, and regional/state bodies. Central to its formation was an unwavering commitment to supporting a whole community approach. A series of community meetings and workshops were organized to solicit valuable input. Additionally, a well-crafted survey was launched to cater to allow for citizen feedback. Our outreach was further amplified by consistent engagement on social media platforms, particularly Facebook and Twitter. Press releases ensured regular communication updates. Collectively, these efforts solidified the plan's goals, rooted in the community's best interests.

2.1 Plan Update

FEMA Policy Connection: Element E1
Was the plan revised to reflect changes in development?
FEMA Policy Connection: Element E2
Was the plan revised to reflect changes in priorities and progress in local mitigation efforts?

Hazard mitigation encompasses proactive measures to diminish the potential consequences of disasters, aiming specifically to protect lives, prevent injuries, and safeguard property. These measures span long-term strategies and immediate interventions, executed preemptively, concurrently, and post-incidents. The scope of hazard mitigation extends from strategic planning and policy revisions to tangible projects, programs, studies, and other initiatives that collectively serve to minimize hazard implications.

In 2000, the Disaster Mitigation Act (DMA; Public Law 106-390) was enacted, mandating state and local governments to formulate and maintain hazard mitigation plans as prerequisites for obtaining federal disaster grant assistance. The regulations formulated in accordance with the DMA's directives are consolidated under Title 44 of the Code of Federal Regulations (44 CFR).

Mitigating hazards is a collective responsibility that involves individual property owners, business enterprises, and various tiers of government—local, state, and federal. The Disaster Mitigation Act underscores the significance of intergovernmental collaboration during the pre-disaster phase and streamlines the planning process. Such collaborative efforts enable local governments to pinpoint precise mitigation needs, accelerating funding disbursement and facilitating the execution of more efficient risk-abatement initiatives.

Furthermore, the Disaster Mitigation Act promotes sustainability in hazard mitigation. A sustainable approach demands a holistic perspective, integrating prudent natural resource management. It necessitates viewing hazards and their associated mitigation strategies within the broadest socio-economic and environmental contexts.

2.1.1 Purpose and Strategy

Title 44 of the Code of Federal Regulations (44 CFR) is a crucial regulatory framework governing hazard mitigation planning in the United States. Monitoring, evaluating, and updating provisions in hazard mitigation plans are critical in promoting effective risk reduction and enhancing community resilience. This requirement serves as a vital mechanism for improving the effectiveness of hazard mitigation efforts and fostering resilience in communities nationwide. By providing a structured framework for assessing progress, adapting to changing conditions, and prioritizing mitigation efforts, these requirements contribute to more informed decision-making, improved resource allocation, and a safer and more resilient built environment.

Including a monitoring and evaluation schedule allows jurisdictions to track the progress of their mitigation initiatives systematically. By regularly assessing the implementation of recommended actions and projects, local authorities can gauge their effectiveness in reducing risks posed by various hazards, such as natural disasters or technological emergencies. This ongoing evaluation process enables stakeholders to identify successes, challenges, and improvement areas, facilitating informed decision-making and resource allocation.

The requirement to update the hazard mitigation plan ensures its relevance and adaptability to evolving circumstances. Hazard profiles, community demographics, land use patterns, and environmental conditions may change over time, necessitating adjustments to mitigation strategies. Through periodic updates, jurisdictions can incorporate new data, emerging threats, lessons learned from past experiences, and advances in mitigation practices into their planning framework. This iterative approach helps maintain the plan's currency and alignment with evolving priorities, enhancing its effectiveness in reducing vulnerability and improving resilience.

This monitoring, evaluation, and updating process allows jurisdictions to reevaluate their mitigation priorities and strategies. By analyzing the impacts of completed actions and assessing the effectiveness of existing measures, communities can identify shifting trends or emerging risks that may necessitate a recalibration of their mitigation approach. This flexibility allows for realigning resources and efforts towards areas of greatest need, ensuring that mitigation activities remain targeted, efficient, and responsive to evolving threats and community needs.

Additionally, the statutory requirement for jurisdictions to maintain current hazard mitigation plans, as mandated by the Robert T. Stafford Act, is closely linked to the availability of federal grant funding. Compliance with these regulations is essential for communities seeking federal assistance for hazard mitigation projects and initiatives. By demonstrating a commitment to

proactive planning and ongoing evaluation, jurisdictions fulfill regulatory requirements and enhance their eligibility for federal funding support. This incentivizes adopting robust hazard mitigation practices and fosters a culture of local resilience-building.

2.1.2 Changes to the Plan

A review of the 2019 Local Hazard Mitigation Plan provides for redirection based on reflection of current conditions, including financial and political realities, or changes in conditions or priorities following disaster events. The primary sources for updating the Local Hazard Mitigation Plan were analyzing new capabilities and reviewing existing plans, studies, reports, and technical information. A summary of the plan expansion and improvements are as follows:

- The updated plan identified goals and objectives that are more closely aligned with existing City plans and programs and state priorities.
- The list of evaluated hazards was revised to reflect the most current community experience and concerns.
- Clearer terminology and requirements introduced, emphasizing factual evidence of plan development or updates.
- Expansion of stakeholder involvement to various sectors like businesses, academia, and nonprofits.
- Targeting underserved communities for involvement and increased promotion of stakeholder and public engagement opportunities.
- Emphasis on discussing and utilizing building codes, land use regulations, and participation in other resource programs.
- Providing a comprehensive range of actions for mitigation, prioritized based on benefits versus costs.
- Focus on providing narrative descriptions or itemized lists for public participation, monitoring, evaluation, and updating of the plan.
- Integrating hazard mitigation information and actions into existing planning mechanisms, especially local governance structures.
- Expansion to include shifts in the needs of underserved communities or gaps in social equity.

These changes reflect a shift towards more inclusive stakeholder involvement, increased transparency, and a comprehensive approach to addressing natural hazards and mitigation strategies in emergency plans.

While the goals and objectives of the plan remain the same, they were refined to emphasize enhancing infrastructure resilience, improving stakeholder engagement through better communication, fostering proactive leadership in mitigation efforts, conducting targeted outreach to vulnerable populations, and providing comprehensive education on personal recovery strategies, aiming for a more strategic approach to achieve effective hazard mitigation and bolster community resilience. These changes were made in response to stakeholders' desire for increased inter-agency communication and discussion, particularly regarding public education and outreach for vulnerable populations, aiming to ensure inclusivity, accessibility, and effectiveness in community resilience efforts.

2.1.3 Changes in Development

The City has not developed significantly since the 2019 Local Hazard Mitigation Plan. It has limited capacity for new development due to several market constraints, including, but not limited to, construction costs, land cost and availability, financing cost, and land use control. As a primarily residential community with limited commercial areas, future changes in development are focused on increasing housing availability.

Critical determinants of raw land prices include location, parcel size, zoning, and supply. La Cañada Flintridge's regional location, attractive neighborhoods, and high-caliber school district make the community highly desirable for potential homebuyers. This demand, coupled with the community's built-out status and the steep topography of many residential areas, keeps land costs high regardless of local controls. As such, redevelopment occurs more often than changes in development.

The previous 2019-2024 and the current 2024-2029 Local Hazard Mitigation Plans provide a hazard risk assessment and outline the vulnerable community assets. The hazard risk assessment focuses on evaluating hazards according to their geographic extent, probability of occurrence in the future, magnitude or severity, and significance. At the same time, the vulnerable community assets identify exposed populations, residential buildings, commercial buildings, and facilities. The assessment and identified assets for the 2019-2024 plan, as compared to the 2024-2029 plan, show no change. These results can be found in the Risk Assessment sections of both plans. The continuity in findings underscores the ongoing relevance of identified risks and suggests a consistent approach to managing and mitigating these hazards over successive planning periods. Moreover, since the City of La Cañada Flintridge has not developed significantly since the 2019 local hazard mitigation plan, the environmental and infrastructural factors contributing to hazard risks remain largely unchanged.

2.1.4 Evaluation of Implementation Progress

Completing mitigation actions and integrating the plan into existing planning processes signify tangible progress in risk reduction. Appendix A identifies the status of previous mitigation action items and whether they are ongoing. The mitigation actions were also integrated into planning mechanisms during the General Plan update to include mitigation efforts in the Safety Element, Housing Element, and some of the zoning code updates.

- General Plan Safety Element — This element directly refers to the 2019-2024 Local Hazard Mitigation Plan as the document that addresses the hazards discussed and incorporates specific mitigations. The Safety Element sections on Emergency Preparedness and Response, Climate Change, and Addressing Seismic, Soil, and Other Geological Hazards directly refer to the Plan's strategies.
- General Plan Housing Element — This element established policies on flood hazards, wildfires, emergency preparedness, and climate change based on the information contained within the 2019-2024 Local Hazard Mitigation Plan. The Housing Element includes sections on Hillside Development, Environmental and Infrastructure Constraints, Community Safety and Compatibility with Natural and Built Environments, Housing Types, and Housing Programs, which work towards achieving the mitigation actions of the Plan.
- Zoning Code Updates — City Municipal Code Chapter 4.23 for Water Efficient Landscaping was updated to State standards to increase water efficiency and improve environmental conditions in the built environment. This aligns with the mitigation action item to encourage drought-tolerant landscape design in public and private spaces by incorporating drought-tolerant or xeriscape practices to reduce dependence on irrigation.

2.2 Plan Development

FEMA Policy Connection: Element A1

Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction?

FEMA Policy Connection: Element A2

Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, businesses, academia, and other private and non-profit interests to be involved in the planning process?

FEMA Policy Connection: Element A3

Does the plan document how the public was involved in the planning process during the drafting stages and before plan approval?

FEMA Policy Connection: Element A4

Does the plan describe the review and incorporation of the existing plans, studies, reports, and

technical information?

The City of La Cañada Flintridge's 2024 Local Hazard Mitigation Plan (LHMP) represents the third comprehensive revision of the City's hazard mitigation roadmap, adhering to FEMA's updated 2023 Local Hazard Mitigation Planning Policy Guide. The City prepared its hazard mitigation plan in 2013 and received FEMA's endorsement in 2014. In 2019, the City undertook its first comprehensive update, revising the 2014 plan to reflect community needs and set the stage for the subsequent five-year strategic window. The revised 2024 LHMP continues our commitment to progressive planning, ensuring our strategies align with current community conditions and priorities.

The Planning and Development Team was tasked with facilitating the 2024 LHMP update. The team's duties included conducting data research and analysis, facilitating public outreach, and developing the final LHMP. The team emailed and called committee members, made announcements at public meetings, and posted meeting details on the City's website and social media platforms.

Table 1: City of La Cañada Flintridge Planning and Development Team

Name	Title	Department
Madison Dederick	Senior Management Analyst	Administration
Arabo Parseghian	Director of Administrative Services	Administration
Jennifer Burghdorf	Public Safety Coordinator	Administration
Alana Gutkin	Management Intern	Administration
Paddy Taber	Senior Management Analyst	Public Works
Jeannette Klein	Senior Management Analyst	Public Works
Ryan Gonzalez	Management Intern	Public Works
Kurtis Fabela	Management Intern	Community Development

The plan consists of three primary parts, which are supported by appendices:

- Part I – Planning Process
- Part II – Risk Assessment
- Part III – Mitigation Strategies

2.2.1 Outreach Strategy

Input from stakeholders and the public can strengthen the content and outcomes of the mitigation plan. Equity was central to developing an outreach strategy to intentionally plan risk reduction for the whole community, particularly when considering those who face barriers to accessing

assistance and populations that are disproportionately affected by disasters.

The outreach strategy invites interested parties to share their views and ideas for mitigation while informing and educating the community about hazards and risks. The plan aims to identify conflicts and incorporate a wide range of opinions and priorities early in the process. Outreach provides an opportunity to share data and information that improves the overall quality and accuracy of the plan. Ensuring transparency and building trust maximizes the chances to carry out the plan with greater agreement and acceptance.

Public engagement motivates and prepares individuals to act while also gaining an understanding of the community's priorities. While not necessarily experts, the public can still:

- Recognize community strengths and weaknesses;
- Articulate concerns;
- Provide insights into past threats and hazards;
- Identify underserved communities and socially vulnerable populations;
- Help prioritize mitigation options;
- Contribute ideas for sustained public engagement post-plan adoption.

Continuing outreach is important during each step of the planning process. The city employed a multifaceted approach to outreach, utilizing diverse channels such as newspapers, social media platforms, community newsletters, and public events to engage with residents.

2.2.1.1 Hazard Mitigation Advisory Committee

The Hazard Mitigation Advisory Committee comprises representatives of key agencies and organizations serving the community of La Cañada Flintridge. The committee was formed to provide input and oversee the update to the Local Hazard Mitigation Plan and was invited to participate in several private and public meetings in which the update process was introduced and planned.

The HMAC members were critical participants throughout the process, developing mitigation elements and discussing drafts as project sections were refined. They participated individually, consulting in person and through email with the Planning and Development team on their areas of expertise. They also collectively met for meetings and workshops, working with City staff and the public to develop and refine the LHMP.

Table 2: Hazard Mitigation Advisory Committee Members

Name	Title	Agency/Organization
Maria Grycan	Community Service Liaison	Los Angeles County Fire Department Division III Station 150
Eric Matejka	Community Service Liaison	Los Angeles Sheriff's Department
Soraya Sutherlin	Disaster Management Area Coordinator	Los Angeles County Operational Area Disaster Management Area C
Pat Anderson	President & CEO	La Cañada Flintridge Chamber of Commerce
Ian Pinkham	Group Supervisor: Emergency & Continuity Management	NASA's Jet Propulsion Laboratory (JPL)
Chris Gaylord	Emergency Preparedness & Response Coordinator	NASA's Jet Propulsion Laboratory (JPL)
Jeff Olson	Public Safety Commissioner	City of La Cañada Flintridge
Arun Jain	Public Works & Traffic Commissioner	City of La Cañada Flintridge
Jeffrey McConnell	Planning Commissioner	City of La Cañada Flintridge
Patrick Atwater	Regulatory and Public Affairs Manager	Crescenta Valley Water District
Glenn Ramos	Road Maintenance Superintendent	Los Angeles County Public Works
Steven Gutierrez	Associate Civil Engineer	Los Angeles County Public Works
Kevin Basham	Executive Director	Flintridge Riding Club
Marisol Espinoza	Public Affairs	Southern California Gas
Marissa Castro-Salvati	Public Affairs	Southern California Edison
Betsy Ferguson	Executive Director	Community Center La Cañada Flintridge
Juliann Rooke	Executive Director	Descanso Gardens
Nina Jazmadarian	General Manager	Foothill Municipal Water District
Gabriel Gomez	General Manager	Liberty Utilities
Ryan Chan	Disaster Program Manager	American Red Cross
Eric Pivovarov	Director of Facilities and Security	Flintridge Sacred Heart
Justin Bailey	Assistant General Manager	La Cañada Irrigation District
Kirstie Ormbrek	Parish Contact for VIRTUS	St Bede The Venerable
Andy Burghdorf	Chief Operating Officer	St. Francis High School
Baudelia Chavez Taylor	Head of School	Crestview Preparatory School
Karen Hurley	Executive Director of Programs and Services	La Cañada Unified School District
Barbara Boliver	Director of Facilities	La Cañada Unified School District
Melissa Greenwood	Assistant Superintendent	La Cañada Unified School District
Vince Luculano	Chief Executive Officer	YMCA of the Foothills

2.2.1.2 Faith-based Organizations

The City hosted a meeting inviting local faith-based leaders to collaborate on reviewing the Local Hazard Mitigation Plan. Recognizing these leaders' pivotal role in their communities, the City aimed to leverage their direct contact with residents and their influence in disseminating critical information. The meeting united leaders from various denominations, fostering a diverse and inclusive dialogue. It began with introductions, followed by a comprehensive presentation of the hazard mitigation plan by City staff. The session then transitioned into a tabletop discussion, where participants voiced their concerns, suggested mitigation strategies, and explored potential partnerships with the City. This collaboration is essential for educating the public on disaster

preparedness and ensuring a resilient community response to emergencies.

2.2.1.3 Individuals and Communities

Public participation is a critical component of the Local Hazard Mitigation Plan process. Community engagement helps shape the plan and allows individuals and organizations to voice their ideas and concerns. Several public workshops were held during the Public Safety Commission's regularly scheduled meeting. Following these workshops, staff advertised the opportunity to provide public feedback via the newspaper and social media. Through citizen involvement, the mitigation plan reflects community issues, concerns, new ideas, and perspectives on mitigation opportunities and action items.

2.2.2 Planning Process

The information contained within the LHMP is based on research from various sources. The plan integrates a cross-section of citizen input throughout the planning process. To accomplish this goal, the City of La Cañada Flintridge developed a public participation process utilizing five components:

- Engaging La Cañada Flintridge's Hazard Mitigation Advisory Committee, which is comprised of knowledgeable individuals who are representative of the community;
- Conducting targeted stakeholder meetings and workshops to leverage the specialized knowledge of individuals working with populations or areas at risk from natural and human-caused hazards in and around the municipality;
- Conducting multiple public workshops where the community was invited to develop and discuss the plan;
- Implementing surveys to gather comprehensive feedback from a wide range of community members, ensuring diverse perspectives are incorporated into the decision-making process and
- Participating in regional partner meetings to identify common concerns and ideas regarding hazard mitigation and to discuss specific goals and actions of the mitigation plan.

Based on the review of existing plans and programs, the input received through the public participation process, expert knowledge from the Hazard Mitigation Advisory Committee, and the findings of a new, detailed assessment performed for this update, the planning team assembled a document that meets the federal hazard mitigation planning requirements.

A timeline of the planning process, including outreach and submission, is provided in the table below.

Table 3: Local Hazard Mitigation Plan Update Timeline

Event	Date	Topic
Regional Partners Meeting	September 13, 2023	The City of La Cañada Flintridge participated in the San Gabriel Valley (Area C) local hazard discussion, focusing on joint resources and considerations.
Project Kickoff	October 4, 2023	The internal Planning and Development Team meets and kicks off the LHMP update process.
Survey Distributed	October 6, 2023	Surveys were posted online, and advertising began to receive feedback on the 2019 Local Hazard Mitigation Plan.
Public Meeting	October 23, 2023	The Public Safety Commission held a public meeting introducing the LHMP and the follow-up update process.
Regional Partners Meeting	October 24, 2023	The City of La Cañada Flintridge participated in the San Gabriel Valley (Area C) local hazard discussion, focusing on joint resources and considerations.
Stakeholder Meeting	November 15, 2023	The Hazard Mitigation Advisory Committee met virtually, conducting a general overview/introduction and goal discussion.
Stakeholder Meeting	February 26, 2024	The Hazard Mitigation Advisory Committee met at City Hall to conduct a hazard and mitigation workshop.
Public Meeting	February 26, 2024	The Public Safety Commission hosted a workshop for hazard and mitigation discussion open to the public.
Public Meeting	March 25, 2024	The Public Safety Commission hosted a workshop for hazard and mitigation discussion open to the public.
Faith-based Organizations Meeting	April 11, 2024	The Planning and Development team met with faith-based leaders, giving an overview and conducting a hazard and mitigation discussion.
Survey Closed	April 25, 2025	The survey was taken off the website, and results were exported for review and incorporation.
Circulation of Final Draft	May 31, 2024	The final draft was posted on the website for public review, and advertising for the final review began.
Public Meeting	June 24, 2024	The Public Safety Commission hosted a public meeting to review the final LHMP draft.
Submission to Cal OES/FEMA	June 25, 2024	The final LHMP draft was sent to Cal OES/FEMA for initial document review.

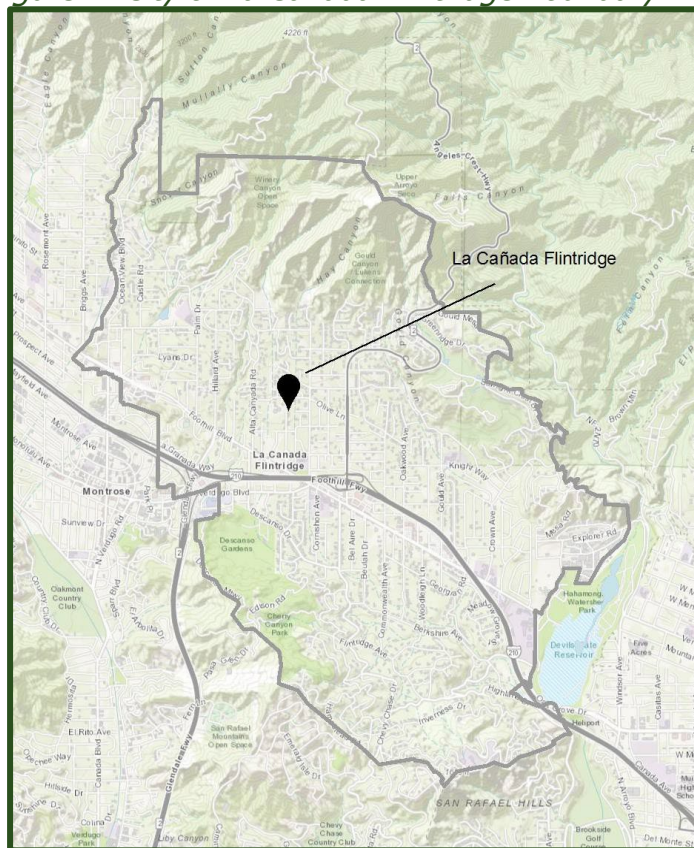
Appendix G includes materials associated with the meetings of the public, stakeholders, and faith-based organizations. The surveys, as well as the results, can also be found in Appendix G.

3. Community Profile

3.1 Geography

Nestled in the foothills of the San Gabriel Mountains, the City of La Cañada Flintridge boasts an estimated population of 19,752 as of 2022. Positioned roughly 13 miles northeast of downtown Los Angeles and 6 miles northeast of Burbank, it spans approximately 8.63 square miles with an average population density of 2,384.2 people per square mile, according to the 2020 U.S. Census. Enjoying a Mediterranean climate, the city is characterized by tree-lined streets and expansive estates. However, the potential impacts of natural hazards associated with the area make the environment and population potentially vulnerable to natural disasters.

Figure 1: City of La Cañada Flintridge Boundary Map



(Source: ArcGIS)

3.2 Historical

Before its incorporation on November 30, 1976, the La Cañada Flintridge area was divided into two distinct communities: La Cañada to the north and Flintridge to the south. In the 1920s, developers began parceling out the land to attract buyers, with major subdivisions such as Alta Canyada, developed by Edwin T. Earl, inventor of the refrigerated fruit railroad car, and Flintridge, planned by U.S. Senator Frank P. Flint.

Historical records reveal that limited growth in La Cañada Flintridge, dating back to the 1800s, was hindered by inadequate water supply and rights. The majority of early residents were ranchers grappling with drought and economic downturns. However, by 1913, the advent of new water sources and road construction heralded a shift in the Crescenta Valley from agriculture to suburban living. By 1955, water from the Colorado River facilitated further residential expansion.

Presently, the City of La Cañada Flintridge maintains a small-town feel and semi-rural character through policies that guide its desired pattern of development. Environmental and infrastructural challenges, like hillside terrain and wildfire risks, limit extensive development on remaining vacant land.

Over 90 percent of developed land is dedicated to single-family residences on spacious lots, exuding a serene charm with lushly landscaped streets. Commercial activities are primarily concentrated along Foothill Boulevard and Verdugo Boulevard, with no industrial presence. Notably, NASA's Jet Propulsion Laboratory, nestled in the easternmost part of the community, is the city's largest employer.

Growth remains modest, focusing on small residential subdivisions, infill projects, and repurposing commercial spaces along Foothill Boulevard.

3.2.1 Major Past Events

La Cañada Flintridge most recently experienced severe rains during the winter months, resulting in the Los Angeles County Area declaring a state of emergency. While impacted, the City did not face any major damage.

The following provides a brief timeline of major events to impact the City in recent times:

- March 2024 – A major windstorm resulted in the downing of approximately 38 public right of way trees, as well as several trees private trees breaking and crossing into the public right of way. This resulted in several road closures and property damage requiring the deployment of resources from City contractors, Southern California Edison, and the Fire Department.

- February 2023 – Hillside failure after severe rains resulted in a landslide that damaged three residences.
- March 2020 to March 2023 - COVID-19 posed significant challenges in Los Angeles County, with widespread transmission leading to high case counts and strained healthcare systems.
- August 2009 to February 2010 - The Station Fire wildfire erupted on August 26, threatening thousands of structures across multiple communities and endangering vital infrastructure, including Mount Wilson Observatory and communication antennas, before evacuation orders were eventually lifted on September 6. Subsequently, mudslides occurred as a result of hazardous heavy rains in 2010.

The Los Angeles Basin has a history of powerful and relatively frequent earthquakes, dating back to the powerful 8.0+ San Andreas earthquake of 1857, which substantially damaged the relatively few buildings that existed at the time. Studies in paleoseismology reveal that major earthquakes of 8.0+ magnitude occur along the San Andreas fault approximately every 45 to 332 years, with an average interval of 140 years. Other lesser faults have also caused very damaging earthquakes since 1857. Among these, notable ones include the 1933 Long Beach earthquake, the 1971 San Fernando earthquake, the 1987 Whittier earthquake, and the 1994 Northridge earthquake. Given its seismic activity, the region faces significant geological hazards such as earthquake ground shaking, liquefaction, and seismically induced landslides.

3.3 Physical Setting

As a hillside community, land uses are predominantly single-family residential and range from neighborhoods on large lots to estates on winding, tree-lined streets. The City does not have manufacturing or industrial development. The undeveloped hillsides and its trail system have resulted in nearly 20 percent of its land being devoted to public and private open space uses. Future development is constrained by environmental and safety constraints such as topography, resource protection, and wildfire hazards on its undeveloped steep slopes (City of La Cañada Flintridge General Plan 2030).

3.3.1 Topology

The cityscape is defined by striking alluvial fans stretching along the San Gabriel range front. Reflective of this terrain, slopes are notably steeper near the range front, gradually tapering off as one moves southward onto the Valley floor. Nestled within the Crescenta Valley, the city is positioned along the Interstate (I) 210 corridor between the San Gabriel Mountains and Angeles National Forest to the north and the San Rafael Hills to the south. Elevation varies from 970 feet near Devil's Gate Dam in the Arroyo Seco to nearly 2400 feet at the highest neighborhood along the northern boundary, adjacent to the San Gabriel range front.

3.3.1.1 Local Rivers and Streams

Close to La Cañada Flintridge lie the Los Angeles River, Rio Hondo River, and San Gabriel River. While these rivers are nearby, they typically pose no threat to the city. Under normal conditions, these maintained river channels remain dry, only seeing substantial water flow during heavy rainstorms.

3.3.2 Geology

The city is situated on soil attributed to the Hanford and Vista-Amargosa soil associations. Low-lying areas rest upon Hanford soils, while upland regions are supported by Vista-Amargosa soil (U.S. Soil Conservation Service 1969).

The Hanford association consists of loam and sandy loam soils formed on gently sloping alluvial fans below 3,500 feet elevation. Typically exceeding 60 inches in depth, Hanford soils may contain gravel horizons in their lower sections. They exhibit mild acidity to mild alkalinity, good drainage, slow runoff, slight erosion risk (except in dry soils prone to wind erosion), and moderately rapid subsoil permeability. Shrink-swell potential is generally low (U.S. Soil Conservation Service 1969).

In contrast, the Vista-Amargosa association consists of shallower sandy loam soils on steep bedrock slopes at elevations ranging from 1,300 to 3,900 feet. Vista soils, typically 28–38 inches thick, develop on granitic bedrock and range from neutral to slightly acidic. They feature good drainage and moderately rapid subsoil permeability. Amargosa soils are thinner at 14–20 inches, are slightly acidic, and excessively drained with rapid runoff, posing a higher risk of erosion, including sheet and rill erosion and gullying. Shrink-swell potential is low (U.S. Soil Conservation Service 1969).

The mineral and soil characteristics in La Cañada Flintridge hint at potential hazards. In upland areas, steep terrain combined with intense rainfall periods leads to significant erosion risks. During and after heavy storms, substantial debris and soil wash down from higher elevations into the city, particularly affecting vacant land with steep slopes. This rapid erosion contributes to debris flow hazards as sediment inputs increase in rain-swollen drainages. While vegetation has somewhat mitigated erosion, vacant steep slopes still experience considerable erosion during moderate to heavy rainfall events.

3.3.3 Climate

La Cañada Flintridge experiences a Mediterranean climate marked by mild winters and dry summers. Annual average temperatures typically range from 44 to 88 degrees Fahrenheit, with recorded highs and lows of 113 and 21 degrees Fahrenheit, respectively. However, temperature fluctuations can vary over a wider range, especially during Santa Ana wind events, which bring

elevated temperatures and low humidity. Summer temperatures seldom exceed 100 degrees Fahrenheit, while winter temperatures rarely dip below 37 degrees Fahrenheit.

Humidity levels in the area are moderate, averaging around 65 percent. The city receives an average annual rainfall of approximately 21 inches, with the heaviest precipitation occurring between December and March. However, the term "average rainfall" can be misleading, as historical records indicate wide variability, ranging from one-third to more than double the normal amount.

Southern California experiences three main types of precipitation-producing storms: winter storms, locally generated thunderstorms, and summer tropical storms. Rainfall in the region often occurs in intense bursts during sporadic, heavy storms rather than consistently over regular intervals, leading to a "feast or famine" pattern within a single year. Additionally, due to extensive urban development, water from higher-elevation areas can swiftly impact adjacent regions.

3.4 Development Profile

3.4.1 Land Use

The City currently has 14 existing General Plan land use designations (City of La Cañada Flintridge, 2023). Zoning divides a community into districts or "zones", which specify the permitted, special, and prohibited uses within those zones. Land uses in each zone can be regulated according to type, density, height, lot size, placement, building bulk, and other development standards. Table 4 and Figure 3 summarize the breakdown of current land use in the City.

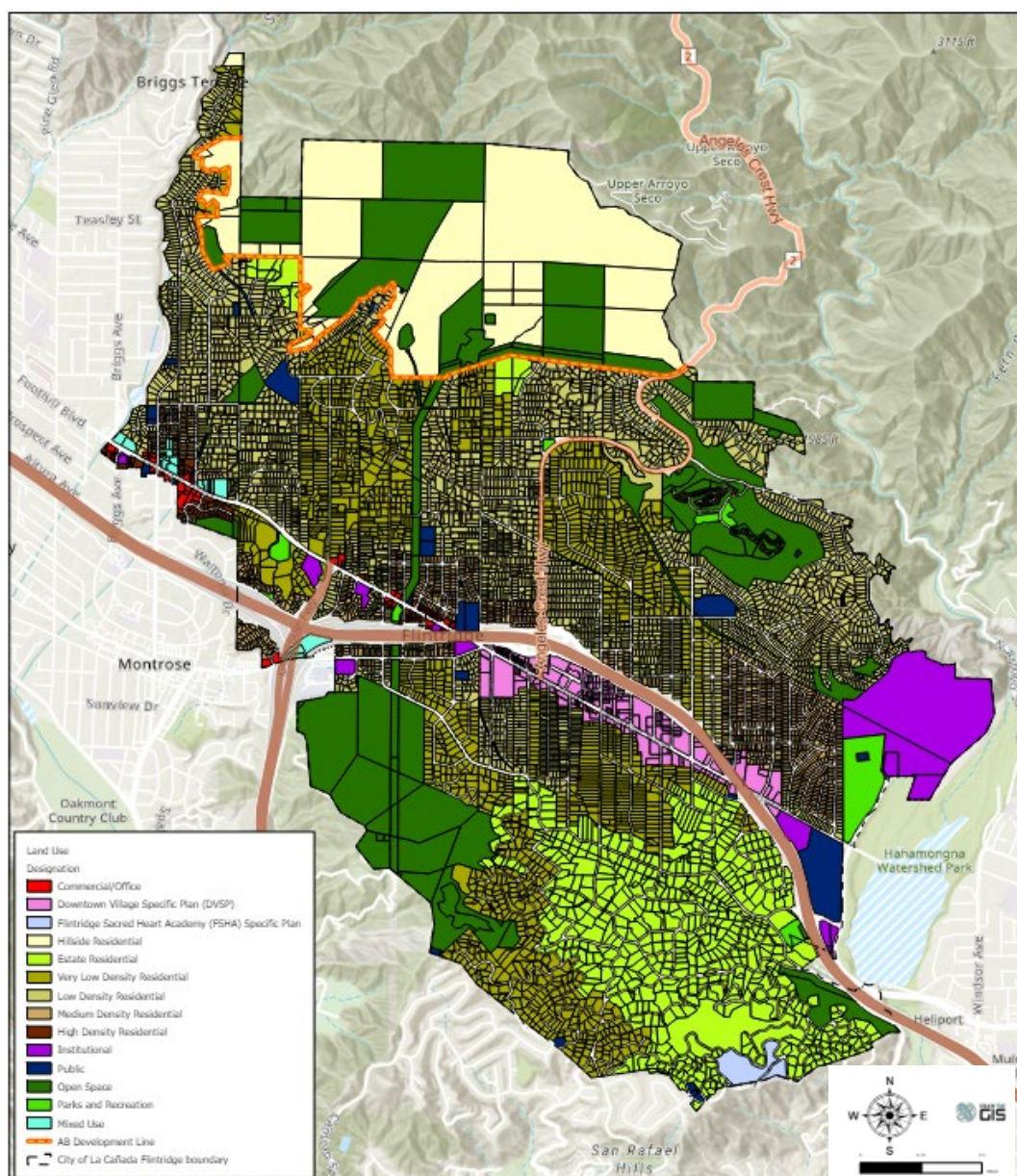
Table 4: General Plan Land Use Designations

General Plan Designation	Acreage	% Total Land Use
Commercial/Office	16.43	0.434
Downtown Village Specific Plan	103.34	2.6
Flintridge Sacred Heart Academy Specific Plan	17.95	0.37
Mixed Use	19.05	0.40
Hillside Residential	579.11	12.10
Estate Residential	636.29	13.29
Very Low Density Residential	877.35	18.32
Low Density Residential	1,104.64	23.07
Medium Density Residential	240.57	5.02
High Density Residential	15.78	0.33
Institutional	174.42	3.64
Public	79.71	1.66

General Plan Designation	Acreage	% Total Land Use
Parks and Recreation	54.31	1.13
Open Space	870.00	18.17
Total	4,788.90	100%

(Sources: City of La Cañada General Plan Land Use Element Table LUE-1, (2023). Acreage is approximate; calculated from GIS data.)

Figure 2: City of La Cañada Flintridge Land Use Element Map



3.4.2 Housing and Community Development

In La Cañada Flintridge, the demand for housing surpasses the available supply, particularly for medium to high-priced homes. According to the U.S. Census Bureau's data spanning 2018-2022, 89.0% of housing units were owner-occupied, with a median value of \$1,983,300. Median gross rent exceeded \$3,500, and the average household size was 3.15 persons. During the same period, the American Community Survey 5-Year Estimates estimated approximately 6,451 households in La Cañada Flintridge.

3.4.3 Critical Facilities and Infrastructure

Critical facilities and infrastructure encompass all public and private establishments recognized by the community as indispensable for delivering vital services, safeguarding special populations, and providing other essential services crucial to the well-being of that community.

3.4.3.1 Critical Operating and Response Facilities

Critical operating facilities house City personnel, supplies, and key community and are required for the day-to-day conduct of City business. They include City Hall, an emergency operation center (EOC), Lanterman Auditorium, and CERT emergency equipment storage unit.

Critical response facilities are necessary for hazard event response. They include Crescenta Valley Sheriff Station, Fire Station #82 (East), Fire Station #19 (West), NASA's Jet Propulsion Laboratory, hospitals, and evacuation centers, such as La Cañada Unified School District schools (La Cañada High School Gymnasium), recreation and park facilities, radio tower, and alternative EOC locations such as the La Cañada Unified School District offices. In addition, the Los Angeles County Fire Department utilizes the 23 miles of interconnection trails for a fire break.

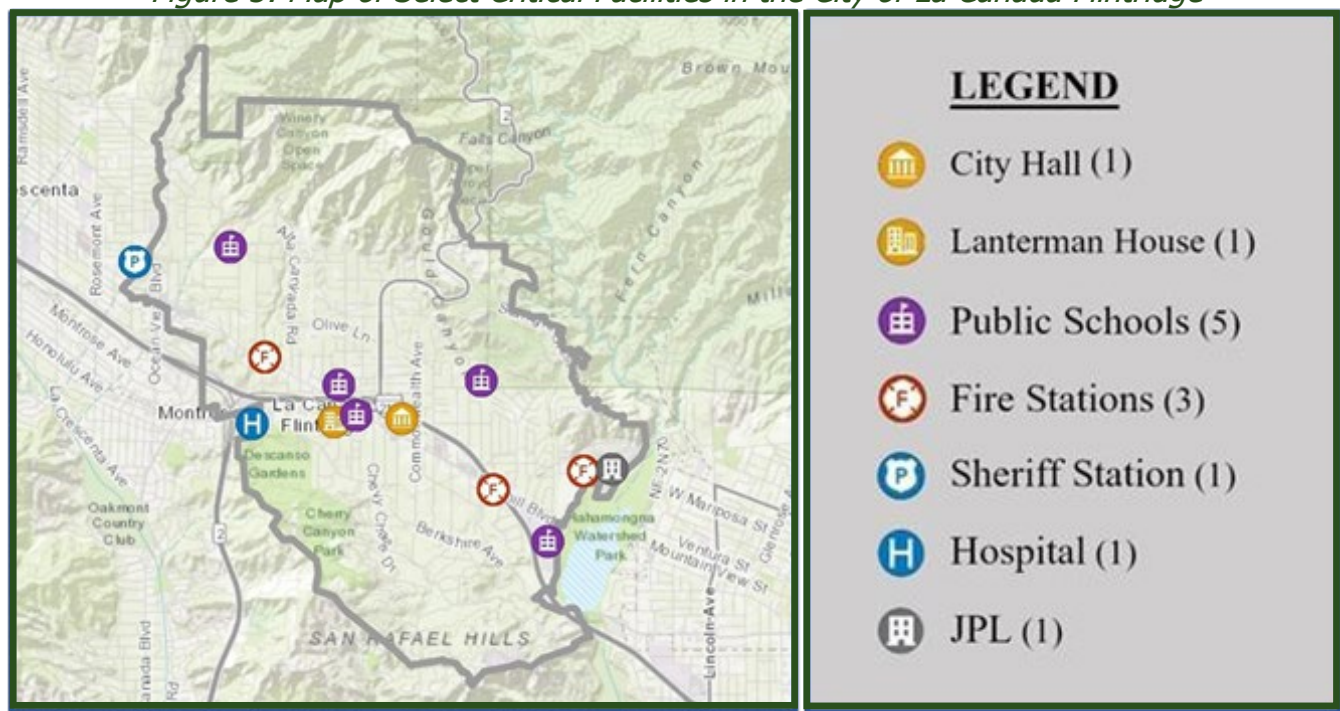
Below is an extended list and map of some of the critical facilities in the City of La Cañada Flintridge.

Tabel 5: Critical Facilities

Type	Name	Location
Government	City Hall	One Civic Center Drive
Government	Lanterman House	4420 Encinas Drive
Government	VERT Equipment Storage Unit	1300 Foothill Boulevard Blvd
School District	La Cañada High School	4463 Oak Grove Drive
School District	La Cañada Elementary School	4540 Encinas Drive
School District	Paradise Canyon Elementary School	471 Knight Way
School District	Palm Crest Elementary School	5025 Palm Drive
School District	La Cañada School District	4490 Cornishon Avenue

Type	Name	Location
Government	LA County Fire Station #19	1729 W. Foothill Boulevard
Government	LA County Fire Station #82	352 N. Foothill Boulevard
Government	LA County Fire Camp #2	4810 N. Oak Grove Drive
Hospital	USC Verdugo Hills Hospital	1812 Verdugo Boulevard, Glendale, CA 91208 (Outside City limits)
Federal Government	NASA's Jet Propulsion Laboratory	4800 Oak Grove Drive, Pasadena, CA 91109

Figure 3: Map of Select Critical Facilities in the City of La Cañada Flintridge



3.4.3.2 Critical Infrastructure

In La Cañada Flintridge, infrastructure is essential to maintaining the city's vitality and resilience. Critical infrastructure includes robust transportation networks of freeways, streets, and bridges that ensure seamless mobility. Vital utilities, such as water treatment, wastewater management, electricity, and communication systems, are meticulously maintained by outside agencies to sustain quality of life, support economic activity, and ensure public safety. These infrastructures are indispensable lifelines, enabling connectivity, information dissemination, and efficient services for residents and businesses alike.

3.5 Community Demographic Profiles

Certain individuals face a heightened risk during hazardous events due to limited resources or

physical abilities. The City's per capita personal income is higher than California's average, resulting in a relatively affluent community. Those living near or below the poverty line, the elderly, children, ethnic minorities, renters, individuals with disabilities, and others with access and functional needs are more vulnerable to the severe effects of disasters compared to the general population. These vulnerable groups may differ from the general population in risk perception, living conditions, access to information before, during, and after a hazard event, capabilities during such events, and access to resources for post-disaster recovery.

3.5.1 Population Demographics

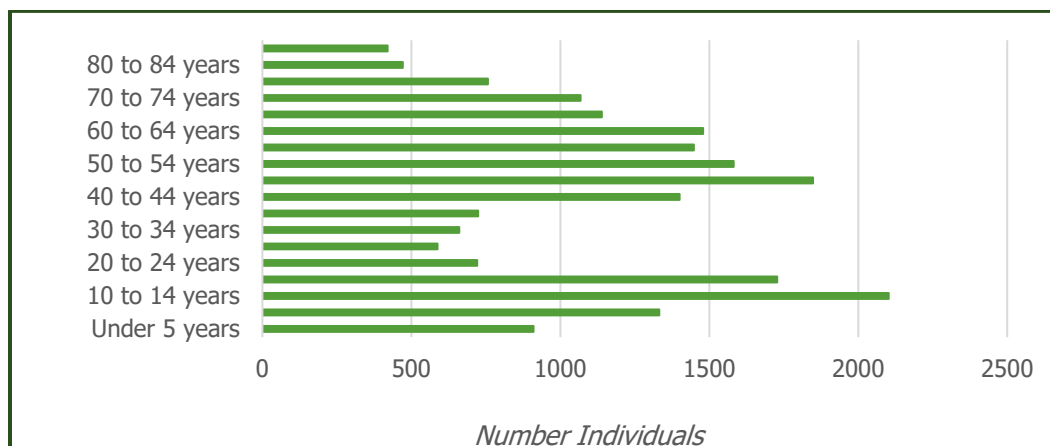
Population data plays a crucial role in planning as it directly informs the allocation of land for housing, industry, retail, public amenities, and transportation infrastructure. According to estimates from the United States Census Bureau, the population of La Cañada Flintridge was 19,752 as of July 1, 2022, down from 20,572 in April 2020. Although the city's population has been stable for many years, there has been a recent slight decrease, representing a -4% change since 2020.

3.5.2 Age Distribution

Children under the age of 14 are particularly vulnerable during disaster events due to their young age and reliance on others for basic necessities. Infants and toddlers may face additional vulnerability to injury or illness, which can be exacerbated during natural disasters when they may not comprehend the necessary safety measures to protect themselves from hazards.

Figure 4 illustrates the age distribution for La Cañada Flintridge in 2022. According to the most recent 5-year estimates from the U.S. Census Bureau's American Community Survey (2018-2022), 18.9% of the population is 65 or older, while 21.3% are 14 or younger. The city's median age is 45.1.

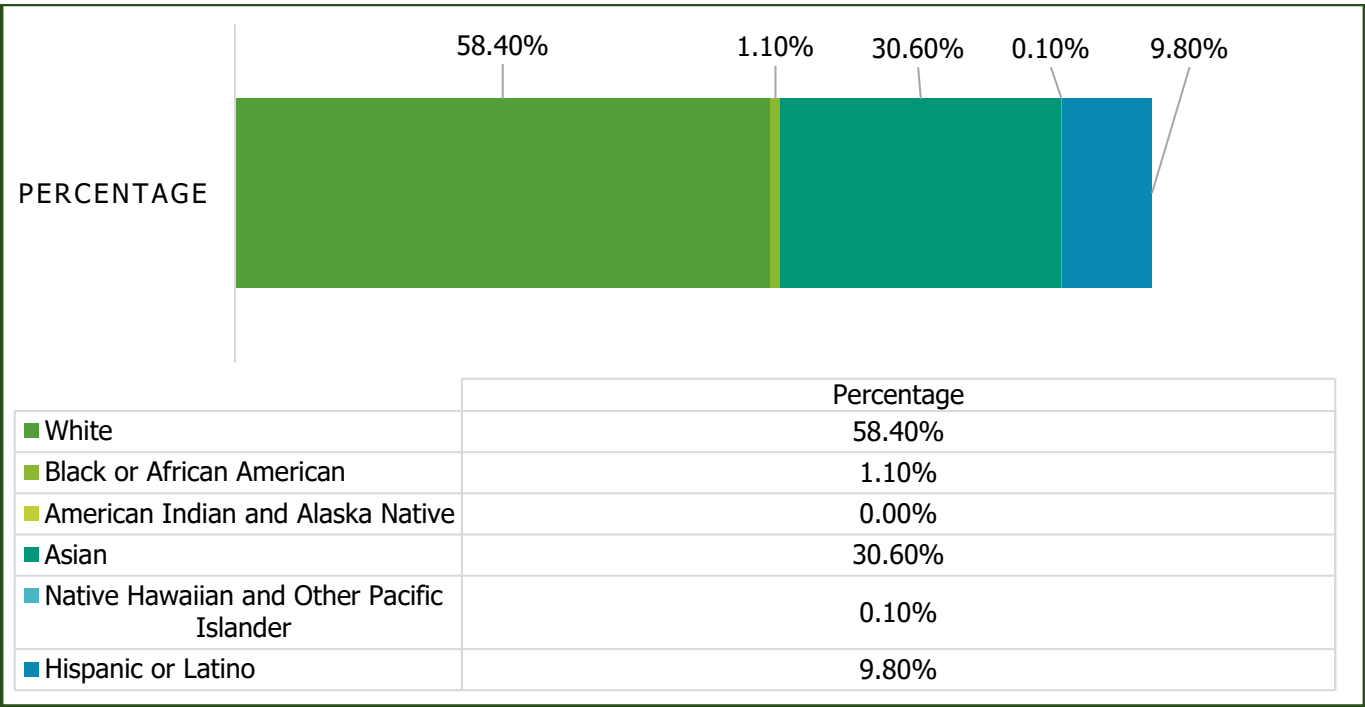
Figure 4: Age Distribution



3.5.3 Race

Figure 5 shows the U.S. Census 2022 racial distribution in the City of La Cañada Flintridge based on race categories.

Figure 5: Race Distribution



3.6 Economy

3.6.1 Income

In the United States, individual households are typically relied upon to use their private resources for disaster preparedness, response, and recovery efforts to some degree. However, households living below the poverty line often lack insurance coverage to offset losses resulting from natural disasters. This places them at a significant disadvantage when faced with hazards. According to estimates from the U.S. Census Bureau, the per capita average income in La Cañada Flintridge from 2018 to 2022 was \$99,697, with a median household income of \$210,625. California's average per capita personal income during the same period was \$45,591. Approximately 3.3% of La Cañada Flintridge residents live in poverty.

3.6.2 Industry, Business, and Institutions

The primary industries in La Cañada Flintridge include the following:

- Professional, scientific, and technical services – This category includes a variety of professional services, such as legal, accounting, architectural, engineering, and consulting firms.
- Healthcare and Social Assistance – Includes Hospitals, medical offices, and social assistance organizations.
- Retail Trade – Establishments that cater to the needs of its residents, including boutique shops, grocery stores, and restaurants.

3.6.3 Employment Trends

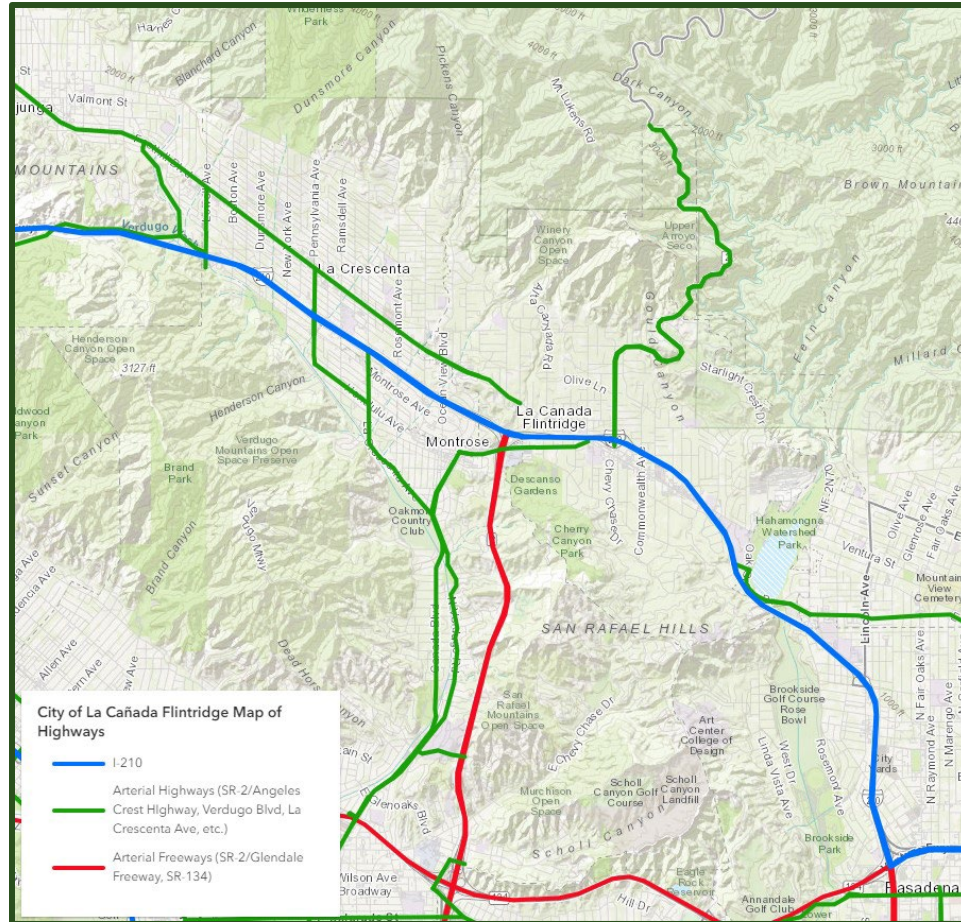
According to the 5-year American Community Survey (2018-2022), 57.9% of the population in the City of La Cañada Flintridge 16 years old or older is in the labor force. Within the working-age population, 50.1% percent of the labor force identifies as female.

3.7 Transportation

Private automobiles are the dominant means of transportation in Southern California and in the La Cañada Flintridge. However, the City of La Cañada Flintridge meets local public transportation services needs through the LCF Shuttle, a local circulator shuttle service, and a regional transit public transportation system service, through the Glendale Beeline. The Glendale Beeline provides bus service to the City of La Cañada Flintridge and connections to other regional transportation agencies in the Los Angeles County metropolitan area, including Pasadena Transit, Foothill Transit, and via the Los Angeles County Metropolitan Transit Authority and Foothill Transit. Natural hazards such as earthquakes, localized flooding, and severe weather have the potential to disrupt automobile traffic and shut down local and regional transit systems.

The major arterial highways are Foothill Boulevard, which runs east to west, and Angeles Crest Highway, which runs north to south and terminates at the intersection Foothill Boulevard. Additional points of entry and exits to the City include Chevy Chase Drive, Oak Grove Drive, Verdugo Blvd, and Ocean View Boulevard. Impacts to any of these major points can render local roads unusable. The figure on the next page shows a map of the major local roads within the City.

Figure 6: Major Local Roads within the City



(Source: City GIS, 2024)

3.8 Schools

The City has both public and private educational institutions. La Cañada Unified Schools District oversees three elementary schools, a middle school (La Cañada High School 7/8), and a comprehensive high school (La Cañada High School 9-12), with a current student enrollment of approximately 4,000. Public educational facilities within the community include La Cañada Elementary, Palm Crest Elementary, Paradise Canyon Elementary, La Cañada High School 7/8, and La Cañada High School 9-12. These school campuses also double as evacuation centers for the City during emergency events.



Part II

Risk Assessment

4. Risk Assessment

Risk assessment is measuring the potential loss of life resulting from hazards, as well as personal injury, economic injury, and property damage, to determine the vulnerability of people, buildings, and infrastructure to hazard events. The process allows for a better understanding of a jurisdiction's potential risk to natural hazards. It provides a framework for developing and prioritizing mitigation action items to reduce risk from future hazard events.

4.1 Methodology

The methodology employed for conducting the risk assessment involved a systematic approach aimed at identifying, analyzing, and evaluating potential threats and hazards to assess their likelihood and potential impact on the city. This process integrated quantitative and qualitative data, stakeholder engagement, and expert input to develop comprehensive risk profiles, guiding informed decision-making for mitigation and preparedness efforts.

4.1.1 Hazard Identification and Approach

FEMA Policy Connection: Element B1

Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and the probability of future hazard events?

The risk assessment provides the foundation for the mitigation planning process. It can establish emergency preparedness and response priorities for land use, comprehensive planning, and decision-making by City departments, businesses, and community organizations. This risk assessment was conducted using the five-step process as described in the FEMA Local Mitigation Planning Handbook (2023):

- 1) Identify Hazards;
- 2) Describe Hazards;
- 3) Identify community assets;

4) Analysis Impacts; and

5) Summarize Vulnerability.

4.1.1.1 Identify Hazards

The Hazard Mitigation Advisory Committee played a pivotal role in the risk assessment process. They reviewed the natural hazards identified in the 2019 plan and new dangers as recommended by the staff assigned to the Planning and Development Team. This collaborative effort incorporated a review of the risks in the 2019 plan and discussions of state and local hazard information, ensuring a comprehensive and accurate assessment of the city's hazards.

Identified hazards include two primary categories: natural dangers and risks of interest. Natural hazards include hurricanes, tornados, storms, high water, wind-driven water, tidal waves, tsunamis, earthquakes, volcanic eruptions, landslides, mudslides, snowstorms, and droughts. Hazards of interest include other sources of potential danger or adverse conditions that are technological or human-caused. While there is a wide range of possible risks, the identification process narrowed the scope by asking the following questions:

- Have you reviewed your state's hazard mitigation plan? Does it effectively summarize statewide risks? Should your planning area be included if it's identified as at risk by the state? If a hazard is identified for your area but excluded, what's the rationale behind that decision?
- Have you examined recent mitigation plans developed for nearby areas?
- Have you interviewed your planning team, stakeholders, and the public? What hazards do they believe affect the planning area and should be included in the mitigation plan?
- Have you checked local sources of information, such as newspapers? Have you spoken with groups like the Chamber of Commerce or historical societies who may have records of past events?
- When updating the plan, have you started with previously identified hazards? If any are no longer relevant, have you explained why? Have you added any new hazard events, including declared disasters, that have occurred since the last plan update?

During the Hazard Mitigation Advisory Committee workshop, individuals were given four tokens representing the limited resources and funding. They then had the opportunity to choose which hazards they deemed most deserving of the limited resources. Table 6 provides the list of identified hazards and perceived risks as identified by the Hazard Mitigation Advisory Committee.

Table 6: Hazards Applicable to the City of La Cañada Flintridge and the Perceived Risk Ranking

Hazard	Perceived Risk Ranking
Earthquake	1
Wildfire	2
Hazards of Interest	3
Extreme Heat	4
Flood	5
Windstorm	6
Landslide	7
Drought	8

4.1.1.2 Describe Hazards

The plan must comprehensively document the type, location, and extent of all natural hazards impacting the jurisdiction. Additionally, it must provide detailed information on past occurrences of hazard events and assess the probability of future hazard events. Each hazard has a unique hazard profile providing the following information:

- Past Events
- Locations
- Frequency
- Severity
- Warning Time

Additionally, after each hazard profile, the plan includes a discussion of secondary impacts to provide a holistic view of the hazard's entitlements.

4.1.1.3 Identify Community Assets

This process involves identifying assets at risk for hazards important to the community. Assets are resources that add to the community's character or serve a function, such as people, the economy, the built environment, and the natural environment.

- People - People are the most important asset. As a result, it is critical to identify populations exposed to a hazard to better help with targeted preparedness.
- Economy - Economic resiliency plays a vital role in the recovery process after a disaster.

Direct (infrastructure) and indirect (loss of employment wages) losses can affect employers and commercial centers that support the local economy.

- **Built Environment** - Includes existing structures, infrastructure, critical facilities, and community/cultural resources. Critical facilities are of particular concern because they provide essential products and services to the general public that are necessary to preserve the welfare and quality of life in the City and fulfill important public safety, emergency response, and/or disaster recovery functions.
- **Natural Environment** - Environmental assets and natural resources are identified as those that shape the community's identity and quality of life. Assets include the City's five recreational parks, public botanical gardens, and trail systems.

While all assets may be affected by a hazard, some may become more vulnerable. Table 7 shows an asset inventory in the community. These estimates are determined by utilizing Geographic Information System (GIS) overlay analysis software and tools. Existing GIS layers, such as parcels, can be overlaid with theoretical hazard boundary extents, and items such as the number of structures affected by the hazard can be calculated.

Table 7: Vulnerability of Community Assets

Hazard Event	Exposed Population	# of Residential Buildings	# of Commercial Buildings	# of Critical Facilities	# of Natural Resources
Drought	20,413	0	3	0	7
Earthquake	20,413	7,000	200	11	7
Extreme Heat	20,413	0	0	0	7
Flood*	1,000	342	0	0	5
Human Made	20,413	0	5	11	7
Landslides	1,000	250	0	2	1
Wildfires	20,413	7,000	200	11	6
Windstorm	20,413	7,000	200	11	6

**The above shows the hazard-prone areas with a high probability of occurring hazards.*

4.1.1.4 Analysis Impacts

Analysis of impacts involves evaluating vulnerable assets, describing potential consequences, and estimating the likelihood of losses in a geographic area over a given period. This assessment of exposure can be determined using qualitative or quantitative measures. Impacts can be physical (damage), monetary (estimated building or economic loss), or social (disrupted community life). They should include the effects of future conditions, including population, land use, development, and climate. Each hazard discussed in the Local Hazard Mitigation Plan consists of an exposure assessment that analyzes impacts by examining the past, conducting an exposure analysis of

assets and hazards, and using scenario analysis.

4.1.1.5 Summarize Vulnerability

This step provides a summary of the information generated through the risk assessment process, including the results and overall vulnerability of the city. This plan offers a comprehensive description of the character of the City of La Cañada Flintridge and how the identified hazards impact people, property, and the environment. The City's vulnerability assessment includes natural hazard mitigation action items that can reduce the impacts on citizens, public infrastructure, private property, the commercial sector, critical facilities, and the environment. Understanding the risk of natural hazards can allow the city to utilize better relationships that help minimize the effects of hazard events.

4.1.2 Data Sources

Varies data sources were used to complete the risk assessment, analyze mitigation action items, and update the overall plan. The City's General Plan, Capital Improvement Plan, and Zone Ordinance were utilized to evaluate areas of need in the City and develop goals and mitigation action items aligned with the plan. The City's Geographic Information System (GIS) was used to retrieve, analyze, and map hazard-prone locations and estimate risk to assets.

Data from regional, state, and national agencies complemented this analysis by providing broader context and benchmarking information, enhancing the overall accuracy and relevance of the risk assessment. However, the input provided by the public, including residents, community members, and stakeholders, was particularly valuable. Residents offered firsthand observations about local hazards that were not captured in broader data sets, such as issues associated with defensible space and evacuation routes. Their feedback also included personal experiences and concerns that highlighted gaps in current mitigation strategies, such as inadequate emergency response protocols or insufficient community awareness programs. Stakeholder input from meetings and surveys helped prioritize action items based on perceived urgency and community impact, ensuring that the updated plan addressed the most critical issues as seen by those directly affected.

This combined approach, integrating both technical data and community insights, resulted in a more comprehensive and actionable risk assessment tailored to the unique needs and experiences of the city's residents. A complete reference list can be found in Appendix D.

4.1.3 Limitations

Loss estimates, exposure assessments, and evaluations of hazard-specific vulnerability depend on the most reliable data and methodologies accessible. Uncertainties are inherent in methods.

When conducting a hazard risk assessment, limitations stem from approximations, incomplete data, and each hazard's unique nature, geographic extent, and severity. The City may also face some constraints when implementing the mitigation action items listed in the plan, such as limited City staff, lack of available funds, limited data and software systems to analyze areas within the City, and vested property rights that might expose the City to legal action as a result of adverse impacts on private property. The risk assessment is an approximation used only to understand the relative risk of each hazard.

The following strategies will be utilized to mitigate the limitations and constraints:

- communicate the limitations upfront to ensure stakeholders understand the scope and reliability of the risk assessment.
- Continuously strive to improve data quality and accessibility, seeking additional sources or collaborations to enhance the reliability of the assessments.
- Prioritize resource allocation to address constraints such as staffing, funding, and technological infrastructure, recognizing that investing in these areas can strengthen the accuracy and effectiveness of mitigation efforts.
- Involve stakeholders in the risk assessment process to gather local knowledge, validate findings, and enhance the relevance of mitigation strategies to the community's needs and concerns.
- Treat the risk assessment as a living document, subject to periodic review and updates as new data, methodologies, or circumstances emerge. This will allow for ongoing refinement and improvement of mitigation strategies.

4.2 Summary of Risk Assessment Results

Sections 6 through 13 of this plan provide a complete risk assessment for each hazard. Below is a summary of the risk assessments.

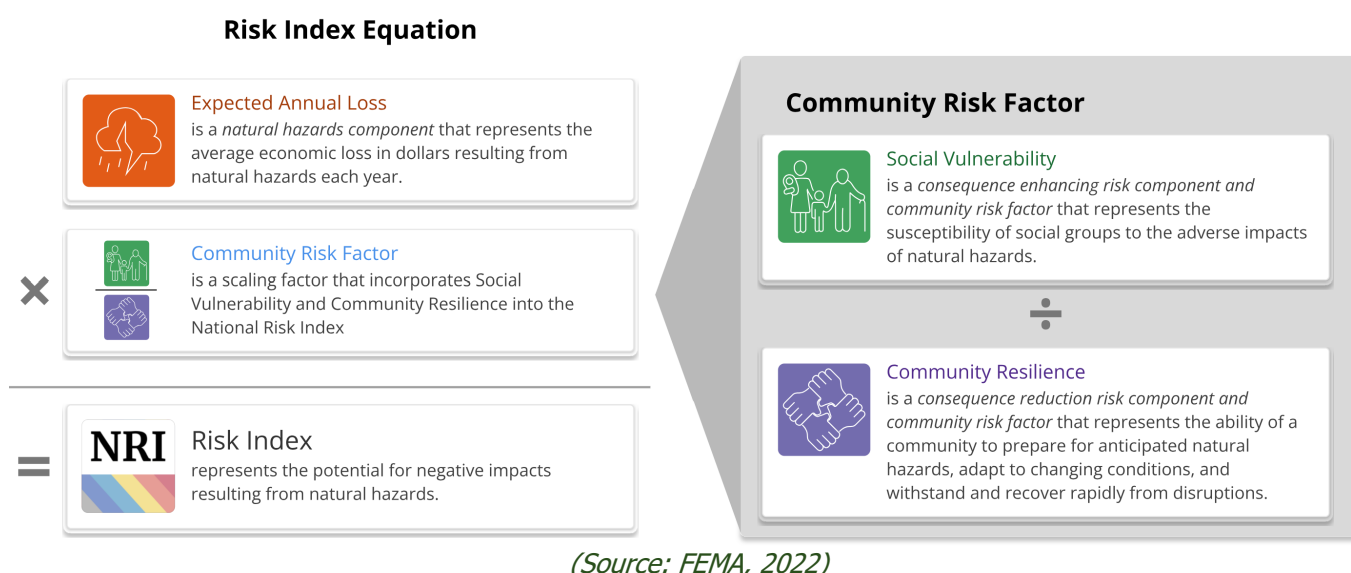
4.2.1 FEMA National Risk Index

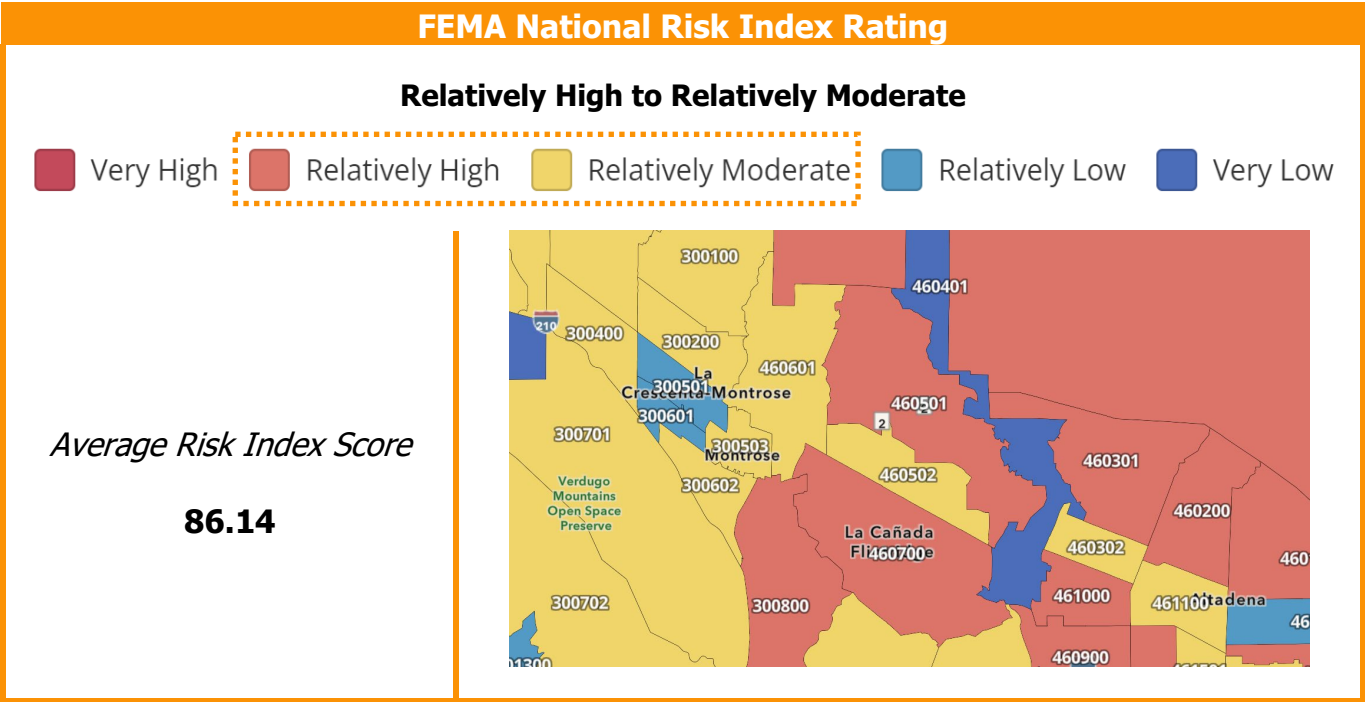
The National Risk Index, a collaboration between FEMA and various stakeholders, is an online resource to identify US communities most susceptible to natural hazards. The Index establishes a foundational risk measurement by leveraging comprehensive data sources, including those on natural hazards and community risk factors. Within this framework, risk is construed as the potential for adverse effects stemming from natural hazards. Comprising three main components—natural hazards, social vulnerability, and community resilience—the Risk Index

utilizes standardized datasets to ensure uniformity in risk calculation. These components culminate in composite and hazard-specific Risk Index values, facilitating a comprehensive risk assessment at the community level.

Risk Index values serve as the foundation for assessing risk within the National Risk Index, guiding the generation of percentiles and ratings. Through a Community Risk Adjustment, the Index scales Expected Annual Loss values based on community risk factors, with higher Social Vulnerability increasing the Risk Index and higher Community Resilience decreasing it. The Index individually provides relative percentiles and ratings for Expected Annual Loss, Social Vulnerability, and Community Resilience as composite scores for all hazards. These ratings offer qualitative comparisons between communities, ranging from "Very Low" to "Very High" risk levels.

Figure 7: National Risk Index Components





***How to read:** Above the is National Risk Rating for all natural hazards. The map shows the four census tracts that make up the City of La Cañada Flintridge (460601, 460501, 460502, and 460700) as well as surrounding areas. Each color represents a risk rating ranging from very low to very high. At the top in bold, the risk rating range from the four census tracts is provided, and to the left of the map is the average risk index score of the four census tracts offered. The risk index score measures the relative risk of a location to show which areas are most at risk of a natural hazard occurrence.*

A comparison report for the four census tracks located within the City of La Cañada Flintridge can be found in Appendix E.

4.2.2 City of La Cañada Flintridge Hazard Ranking Results

To identify, profile, and rate the significance of the hazards, the following criteria were created:

Table 8: Hazard Rating Criteria

Geographic Extent	Probability of Future Occurrence	Magnitude/Severity	Significance
Limited: Less than 10% of the planning area	Highly Likely: Near 100% chance of occurrence in next year or happens every year.	Catastrophic: More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths.	Low: Minimal potential impact

Significant: 10-50% of the planning area	Likely: Between 10 and 100% chance of occurrence in the next year or has a recurrence interval of 10 years or less.	Critical: 25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses resulting in permanent disability.	Medium: moderate potential impact
Extensive: 50-100% of the planning area	Occasional: Between 1 and 10% chance of occurrence in the next year or has a recurrence interval of 11 to 100 years.	Limited: 10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability.	High: widespread potential impact
	Unlikely: Less than 1% chance of occurrence in the next 100 years or has a recurrence interval greater than every 100 years.	Negligible: Less than 10 percent of property damaged, shutdown of facilities and services for less than 24 hours, and/or injuries/illnesses treatable with first aid.	

These criteria were used to assess the identified hazards as follows:

Table 9: City of La Cañada Flintridge Hazard Risk Assessment

Hazard	Geographic Extent	Probability of Future Occurrence	Magnitude/Severity	Significance
Drought	Significant	Likely	Negligible	Low
Earthquake	Extensive	Occasional	Catastrophic	High
Extreme Heat	Significant	Highly Likely	Negligible	Medium
Flood	Limited	Occasional	Negligible	Low
Hazards of Interest	Significant	Occasional	Critical	Medium
Landslides	Significant	Likely	Limited	Medium
Wildfires	Extensive	Likely	Catastrophic	High
Windstorm	Extensive	Highly Likely	Negligible	Low

5. Earthquakes

FEMA Policy Connection: Element B1

Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events?

FEMA Policy Connection: Element B2

Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods?

5.1 General Background

An earthquake is the vibration of the earth's surface following a release of energy in the earth's crust. This energy is often triggered by a sudden shift or dislocation in the crust, leading to the most destructive earthquakes. Initially, the crust may flex, but under stress, it breaks and shifts to a new position, emitting seismic waves in the process. These waves propagate outward from the earthquake's epicenter at different speeds.

Geologists have observed that earthquakes frequently recur along faults, which are areas of weakness in the earth's crust. Even after an earthquake, there's no certainty that all stress in a fault zone has been relieved; another earthquake could still happen. Furthermore, relieving stress in one part of a fault might escalate stress in another.

California experiences frequent seismic activity due to the movement of the North American Plate, which encompasses everything east of the San Andreas Fault, and the Pacific Plate, including coastal communities to the west of the fault. La Cañada Flintridge lies on the Pacific Plate, which steadily moves northwest past the North American Plate at a rate of approximately 2 inches per year.

Active faults have shown displacement within recorded history, but even inactive faults, where no displacement has been documented, hold the potential for reactivation or displacement along a branch in the future. The State Division of Mines and Geology warns that heightened earthquake activity in California could trigger movement along currently inactive fault systems.

5.1.1 Causes

California's seismic activity is attributed to its location along the boundary of two tectonic plates. Most of the state, spanning east of the San Andreas Fault, rests on the North American Plate. Meanwhile, cities like Monterey, Santa Barbara, Los Angeles, and San Diego lie on the Pacific Plate, which steadily shifts northwestward past the North American Plate at a rate of approximately two inches (50 millimeters) per year. Although the San Andreas Fault is recognized as the boundary between these plates, some of the movement, known as slip, occurs on faults as distant as central Utah.

The movement between the Pacific and North American plates predominantly happens along the faults of the San Andreas system and the eastern California shear zone. Faults with higher rates of movement, recent seismic activity, significant displacements, and alignment conducive to stress relief are more prone to future earthquakes. Almost all plate movement is concentrated on active faults.

5.1.1.1 Faults

A fault is a fracture between blocks of the earth's crust, where either side moves relative to the other along a parallel plane to the fracture.

Strip Slip Faults - Strike-slip faults are vertical or almost vertical rifts where the earth's plates move mostly horizontally. From the observer's perspective, if the opposite block looking across the fault moves to the right, the slip style is called a right lateral fault; if the block moves left, the shift is called a left lateral fault.

Dip-Slip Fault - Dip-slip faults are slanted fractures where the blocks mostly shift vertically. If the earth above an inclined fault moves down, the fault is called a normal fault, but when the rock above the fault moves up, the fault is called a reverse fault.

Thrust Fault - Thrust faults have a reverse fault with a dip of 45° or less. The earthquakes of California are caused by the movement of huge blocks of the earth's crust. Southern California straddles the boundary between the Pacific and North American plates. These large sections of the earth's crust (the North American plate extends east to Iceland while the Pacific plate extends west to Japan) are moving past each other. The Pacific plate is moving northwest, scraping horizontally past North America at a rate of about 50 millimeters (2 inches) per year.

5.1.2 Characteristics

Earthquakes are typically classified by the amount of energy released, measured as magnitude, or by the impact on people and structures, measured as intensity.

5.1.2.1 *Magnitude*

An earthquake's magnitude is a gauge of the energy unleashed at its epicenter, measured through the amplitude of seismic waves detected by instruments. Traditionally, magnitude is quantified using the Richter and moment magnitude (Mw) scales. The Richter scale assesses magnitude based on the largest energy wave produced by the earthquake, primarily suitable for smaller seismic events. However, the Richter scale becomes less precise for larger earthquakes beyond a certain threshold due to its logarithmic nature.

Introduced in 1979 to overcome the limitations of the Richter scale while maintaining uniformity, the moment magnitude (Mw) scale hinges on the earthquake's seismic moment. For moderate earthquakes, Mw values align closely with Richter values, such that a magnitude 5.0 earthquake registers approximately 5.0 on both scales. Unlike its predecessors, the Mw scale doesn't reach a ceiling, allowing it to measure extremely large magnitudes without saturation. Nevertheless, this freedom from upper bounds leads to discrepancies with smaller earthquakes. The Mw scale is the most widely employed magnitude assessment method.

5.1.2.2 *Intensity*

The intensity of an earthquake is based on the observed effects of ground shaking on people, buildings, and natural features and varies with location. The intensity of earthquake shaking lessens with distance from the earthquake epicenter. The Modified Mercalli Intensity (MMI) scale expresses the intensity of an earthquake and describes how strongly a shock was felt at a particular location in terms of values. The MMI is currently the most commonly used intensity scale.

Table 10: Modified Mercalli Intensity (MMI) Scale

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.

Intensity	Shaking	Description/Damage
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very Strong	Damage negligible in buildings of good design and construction; slight to moderate in well- built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

(Source: Abridged from *The Severity of an Earthquake*, USGS General Interest Publication 1989-288-913)

5.1.2.3 Ground Motion

During an earthquake, when the ground is shaking, it also experiences acceleration. The peak acceleration is the largest increase in velocity recorded by a particular station during an earthquake. Earthquake hazard assessment based on expected ground motion involves determining the annual probability that certain ground motion accelerations will be exceeded and then summing the annual probabilities over a time period of interest.

5.1.2.4 Effect of Soil Types

The impact of an earthquake on structures and infrastructure is primarily influenced by ground shaking, distance from the epicenter, and liquefaction—a secondary effect characterized by the loss of shear strength in soils, causing them to flow or behave like a liquid, thus jeopardizing structures reliant on soil support.

Liquefaction typically occurs in soft, unconsolidated sedimentary soils. The National Earthquake Hazard Reduction Program (NEHRP) utilizes soil characteristic maps to identify areas prone to liquefaction.

The US Geological Survey (USGS) has devised a soil-type map for the Los Angeles region, offering approximate assessments of site effects based on surface geology. NEHRP assigns soil types to geological units based on their average velocity, albeit this method may entail some inaccuracies.

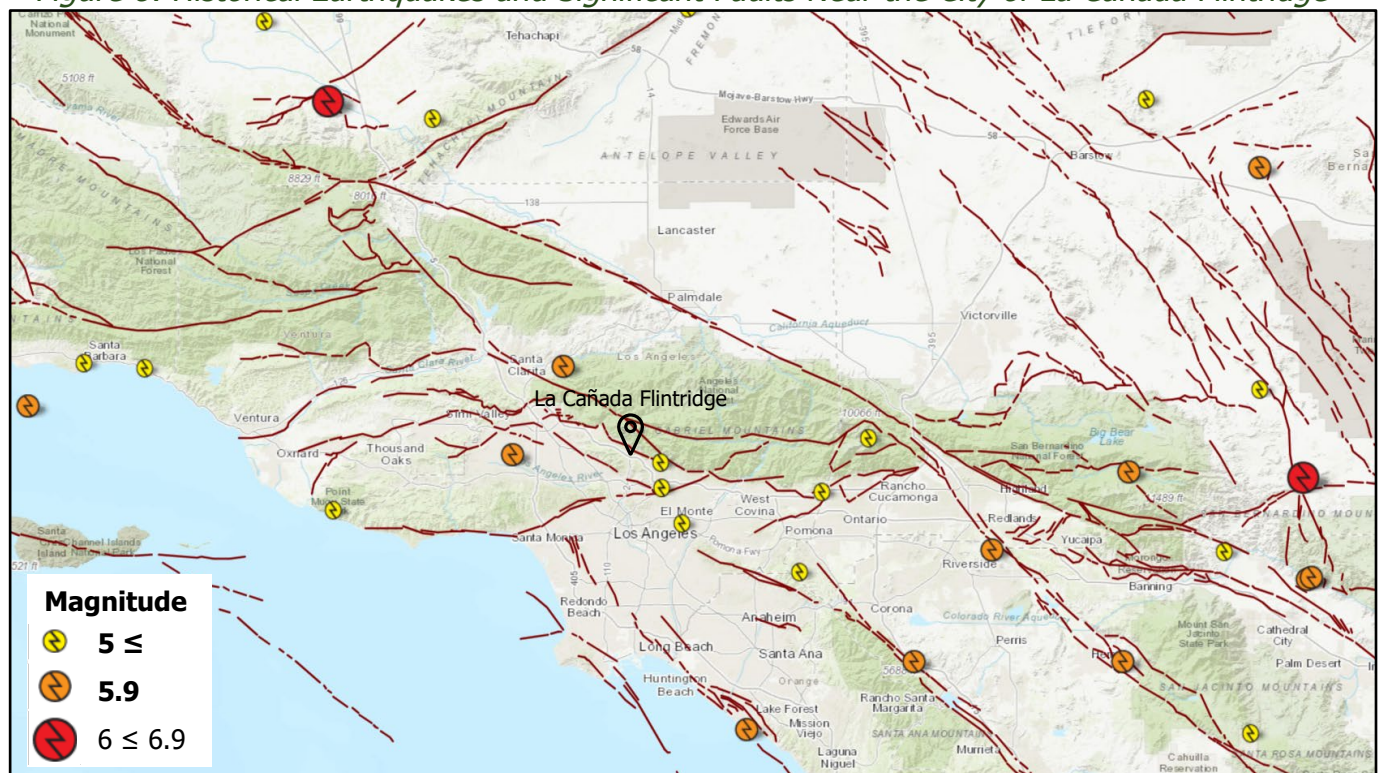
5.2 Hazard Profile

The initial phase of earthquake hazard assessment is seismic hazard identification. This stage involves determining the geographic regions susceptible to seismic activity, assessing the potential shaking intensity in specific locations, and estimating the likelihood of earthquake occurrences.

5.2.1 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. However, no community in Southern California, including the City of La Cañada Flintridge, is beyond the reach of a damaging earthquake of great magnitude. The map below indicates significant earthquake magnitudes that have occurred near the City of La Cañada Flintridge.

Figure 8: Historical Earthquakes and Significant Faults Near the City of La Cañada Flintridge



(Source: Southern California Earthquake Data Center, 2024)

The table below describes the historical earthquake events over the last 50 years that have affected Southern California near the City of La Cañada Flintridge.

Table 11: Earthquake Magnitude 5.0 or Larger Near the Sierra Madre Fault

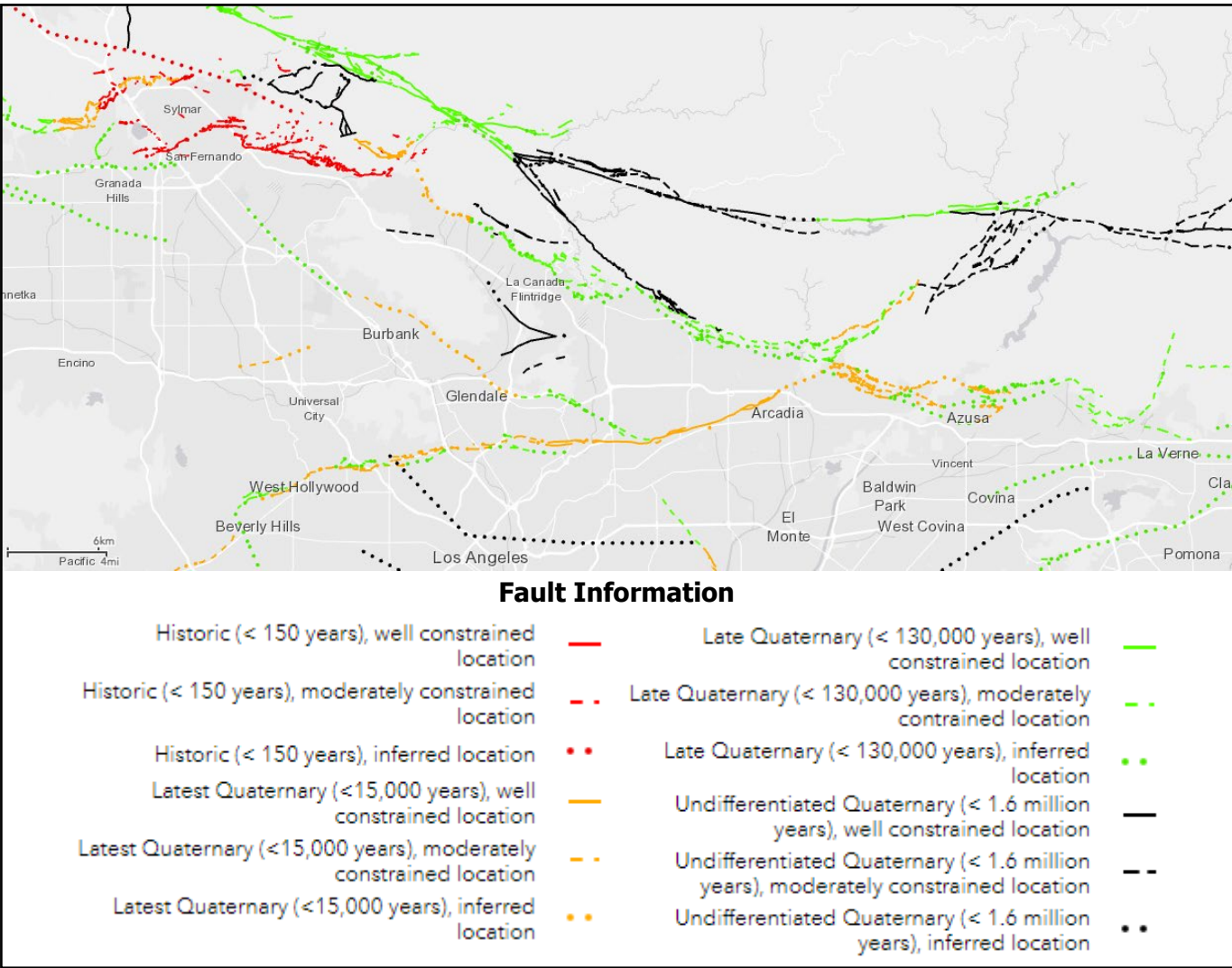
Date	Earthquake Name	Magnitude	Epicenter	Fault Line
March 28, 2014	La Habra	5.1	Near Brea	Puente Hills Fault
July 29, 2008	Chino Hills	5.4	Near Chino Hills	Whittier Fault
January 17, 1994	Northridge	6.7	20 miles W-NW of Los Angeles	Northridge Thrust
June 28, 1991	Sierra Madre	5.8	12 miles NE of Pasadena	Clamshell-Sawpit Canyon Fault
December 3, 1988	Pasadena	5.0	Below City of Pasadena	Raymond Fault
October 1, 1987	Whittier Narrows	5.9	SE of Pasadena	Puente Hills Fault
February 9, 1971	San Fernando	6.5	Near Sylmar	San Fernando Fault

(Source: Southern California Earthquake Data Center, 2024)

5.2.2 Locations

The map below delineates faults situated close to and within the boundaries of La Cañada Flintridge.

Figure 9: Faults around the City La Cañada Flintridge



(Source: USGS, U.S. Quaternary Faults, 2024)

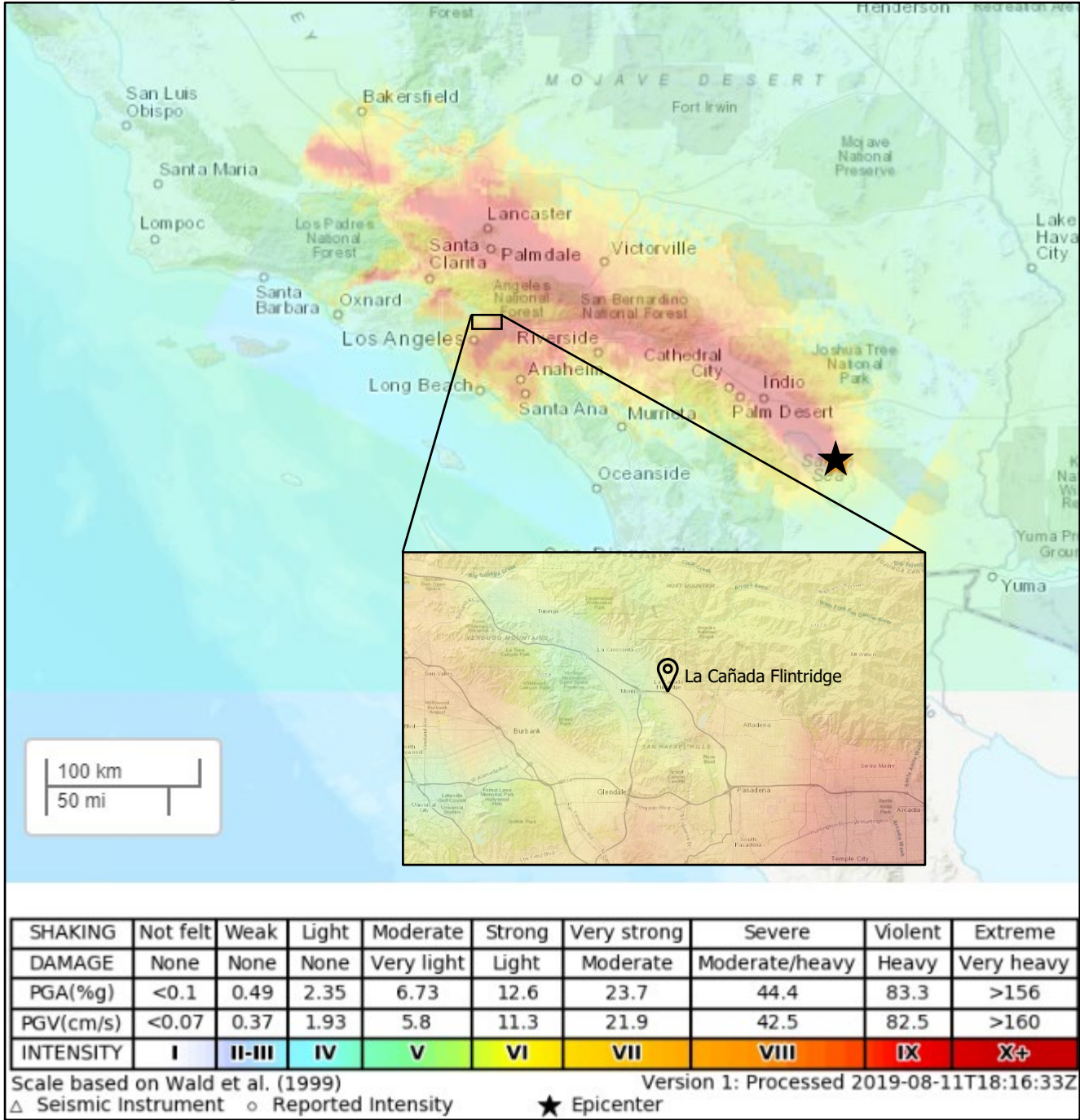
5.2.3 Frequency

California encounters numerous earthquakes annually, with the majority registering below 3.0 on the Richter scale and causing minimal damage. Moderate seismic events, which result in tangible structural harm, occur multiple times per year. According to the US Geological Survey (USGS), robust earthquakes exceeding 5.0 on the Richter scale manifest every two to three years, while major tremors surpassing 7.0 occur roughly once per decade. The San Andreas Fault poses a significant risk for experiencing major to catastrophic events. As outlined in the State Hazard Mitigation Plan, California faces a greater than 99 percent likelihood of a magnitude 6.7 earthquake and a 94 percent probability of a magnitude 7.0 earthquake within the next 30 years.

5.2.4 Severity

A ShakeMap provides a representation of ground shaking produced by an earthquake, typically generated following moderate and large earthquakes. The maps are only approximate. They should be considered unreliable at small scales, as the input data is raw and unchecked. The information it presents differs from the earthquake magnitude and epicenter released after an earthquake because ShakeMap focuses on the ground shaking produced by the earthquake rather than the parameters describing the earthquake source. So, while an earthquake has one magnitude and one epicenter, it produces a range of ground shaking levels at sites throughout the region depending on the distance from the earthquake, the rock and soil conditions at sites, and variations in the propagation of seismic waves from the earthquake due to complexities in the structure of the Earth's crust. Part of the strategy for generating rapid-response ground motion maps is to determine the best format for reliable presentation of the maps given the diverse audience, which includes scientists, businesses, emergency response agencies, media, and the public. The ShakeMap shown below is a scenario that demonstrates what the perceived shaking would be with an anticipated 7.8 magnitude earthquake along the San Andreas fault, demonstrating the far-reaching effects.

Figure 10: Scenario M7.8 on the Southern San Andreas Fault



(Source: USGS Earthquake Scenarios, 2012)

The community should expect to experience tremors from earthquakes a few times annually, typically minor, or moderate in intensity with minimal damage. However, a seismic event measuring 6.0 magnitude or higher should be anticipated to occur somewhere in Southern California every few years. The timing and severity of significant earthquakes remain unpredictable.

5.2.5 Warning Time

An Earthquake Early Warning System utilizes seismic science and monitoring technologies to notify both devices and individuals when seismic waves from an earthquake are anticipated to reach their vicinity. While the warning time is brief, it could allow individuals to take precautionary measures such as seeking refuge under a desk, moving away from hazardous materials, or shutting down computer systems. In addition to public warning, this technology can also activate first responder mobilization and notify utility companies and mass transit systems.

California residents can now receive earthquake alerts on their smartphones seconds before they feel the tremors. The time to act after notification depends on the speed of the sensor system and your distance from the event. This warning system, known as ShakeAlert, reaches individuals through two avenues: the MyShake app and existing wireless emergency alerts, which also signal for flood warnings and Amber Alerts.

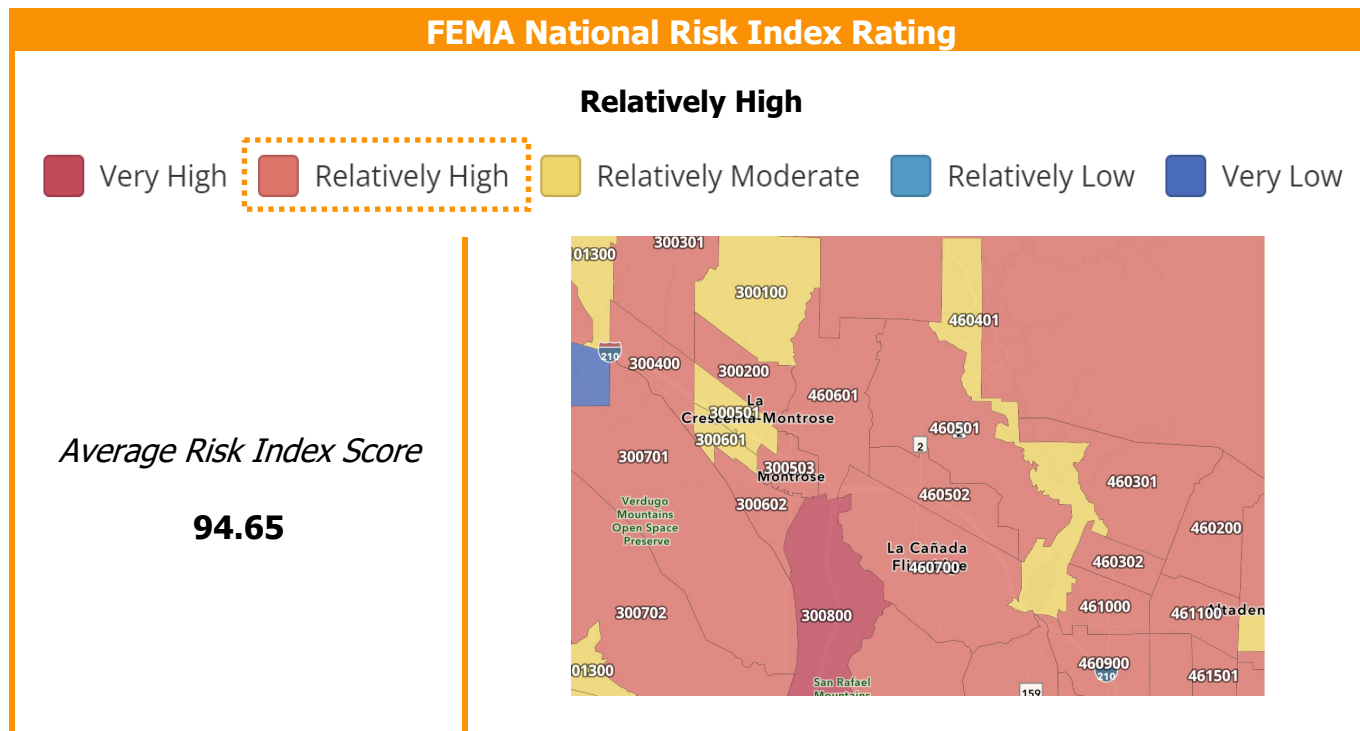
5.3 Secondary Impacts

Earthquakes have the potential to trigger substantial and sometimes catastrophic landslides and mudslides. Soil liquefaction, a phenomenon wherein water-saturated sands, silts, or gravelly soils are violently shaken, causes individual grains to lose cohesion, transforming the ground into a pudding-like liquid. Consequently, building and road foundations may lose their load-bearing capacity, leading to sinking into what was once solid ground. Unsecured hazardous materials may be released, posing significant risks to both the environment and human safety. Moreover, earthen dams and levees are particularly vulnerable to seismic events, with the subsequent failures presenting secondary risks associated with earthquakes. Additionally, fires can erupt from broken or downed gas lines or power lines during the earthquake, challenging containment efforts, especially if water lines supplying fire hydrants are also damaged.

Fatalities and injuries can occur both indoors and outdoors due to collapsed buildings, falling equipment, furniture, debris, and structural materials. Furthermore, downed power lines and ruptured water and gas lines pose additional hazards to human life.

5.4 Risk Assessment

A seismic event presents a substantial risk due to its expansive geographic reach and potentially catastrophic magnitude. The extensive extent of an event would have widespread repercussions, while its intermittent but persistent nature heightens the risk over time. Moreover, the potential for catastrophic damage underscores its significance, warranting comprehensive risk management strategies. Ranked second among the City of La Cañada Flintridge's hazardous risks, the hazard demands diligent assessment and proactive measures to minimize its impact on communities, infrastructure, and the environment.



5.4.1 Exposure Assessment

In California, numerous agencies are dedicated to addressing seismic safety concerns. These include the State's Seismic Safety Commission, the Applied Technology Council, the California Emergency Management Agency, the United States Geological Survey (USGS), Cal Tech, the California Geological Survey, and several universities and private foundations. Through collaborative efforts with state and federal entities, these organizations have embarked on a comprehensive initiative to identify seismic hazards and risks across California. This endeavor encompasses various aspects such as active fault detection, assessment of bedrock shaking, delineation of tsunami inundation zones, evaluation of ground motion amplification, analysis of liquefaction potential, and studying earthquake-induced landslides. Seismic hazard maps have been meticulously compiled and are accessible to many Californian communities through the State Division of Mines and Geology.

5.4.1.1 Sierra Madre Fault

The Sierra Madre fault zone is a north-dipping reverse fault zone spanning about 47 miles (75 km) in length. It traces the southern periphery of the San Gabriel Mountains, stretching from San Fernando to San Antonio Canyon, where it transitions southeastward into the Cucamonga fault. This fault has been segmented into five distinct sections, each displaying varying activity levels. It is the nearest fault to the City of La Cañada Flintridge, with the western extent of the "D" segment intersecting the city. The map below shows a visual depiction of these segments.

Figure 11: Sierra Madre Fault Segment Map



(Source: Southern California Earthquake Data Center, 2024)

The San Fernando segment, situated at the northwestern end of the Sierra Madre Fault, ruptured in 1971, triggering the Mw 6.7 San Fernando (or Sylmar) earthquake and confirming the fault's active status. In the 1980s, Crook et al. (1987) conducted a study on the Transverse Ranges, employing general geological and geomorphic mapping alongside limited trenching, proposing that segments of the Sierra Madre Fault east of the San Fernando segment had not experienced significant earthquakes for several millennia, possibly up to 11,000 years. Consequently, based on California's criteria for active faulting, most of the Sierra Madre Fault would be classified as inactive. However, in the mid-1990s, Rubin et al. (1998) excavated a section of the Sierra Madre Fault in Altadena (at Loma Alta Park, see Plate 1-2), revealing evidence of at least two ruptures within the past 15,000 years, resulting in earthquakes ranging from magnitude 7.2 to 7.6. This underscores the susceptibility of the Los Angeles area to infrequent yet substantial near-field earthquakes along the Sierra Madre Fault. Rubin et al.'s trenching data indicate that during the most recent earthquake, surface displacement along the fault trace reached up to 13 feet (4 meters), with a cumulative displacement exceeding 34 feet (10.5 meters) across the last two events.

Although the Sierra Madre Fault appears to slip at a relatively slow rate of approximately 0.6 mm/yr, it can accumulate significant strain over time. Paleoseismic data collected at the Loma Alta Park site were insufficient to determine the recurrence interval and age of the last surface-rupturing event on this fault segment. However, Tucker and Dolan (2001) conducted trenching at Horsethief Canyon on the eastern Sierra Madre Fault, obtaining data consistent with Rubin et al.'s (1998) findings. At Horsethief Canyon, the Sierra Madre Fault last ruptured over 8,000 years ago. Utilizing a slip rate of 0.6 mm/yr and a slip per event of 5 meters, an estimated recurrence interval of about 8,000 years can be calculated. If the last event occurred more than 8,000 years ago, it is conceivable that these segments of the Sierra Madre Fault are nearing the end of their seismic cycle, potentially leading to an earthquake in the foreseeable future.

The San Andreas Fault serves as the principal boundary between the Pacific and North American plates, earning the moniker "Master Fault" due to its frequent occurrence of large earthquakes, significantly influencing the seismic hazard in southern California. Stretching over 1,000 miles (1,600 kilometers) from near Cape Mendocino in northern California to the Salton Sea region in the south, the San Andreas Fault lies approximately 23 miles (38 kilometers) north of La Cañada Flintridge at its closest point.

While the five divisions of the Sierra Madre Fault offer a simplified view of the fault zone, they should not be regarded as individual faults. Some segments consist of complex systems of parallel and branching faults. It has been suggested that differing fault geometries within this zone keep each lettered segment distinct during rupture events, potentially precluding simultaneous ruptures of neighboring segments. However, others propose that both single-segment and multiple-segment ruptures are possible within the fault zone.

The most recent surface ruptures are observed on the B and D segments, with the A segment, also known as the Vasquez Creek Fault, appearing to be the least active based on surface evidence. At the junction of the C and D segments, the Clamshell - Sawpit Canyon Fault branches off toward the northeast. This fault, rather than the Sierra Madre fault zone itself, ruptured to produce the Sierra Madre earthquake of 1991.

Segment D includes a strand known as the Duarte Fault due to its proximity to the Duarte community. Segment E represents the easternmost part of the fault zone, where it intersects with several other faults northwest of Upland, near the epicenter of the 1990 Upland earthquake. The Sierra Madre Fault Zone extends eastward along the base of the San Gabriel Mountains, transitioning into the Cucamonga Fault Zone. The Cucamonga Fault Zone appears to be more active, with a higher slip rate than the Sierra Madre Fault Zone.

While the rupture on the Sierra Madre Fault Zone could theoretically be confined to one segment at a time, recent suggestions propose that a large event on the San Andreas Fault to the north could trigger simultaneous ruptures on reverse faults south of the San Gabriel Mountains, such as the Sierra Madre Fault Zone. However, the potential for multiple simultaneous ruptures of Sierra Madre Fault Zone segments remains uncertain.

5.4.1.2 Population

As per the 2022 Census, the population of the City of La Cañada Flintridge stands at 19,752. Every resident within the city potentially faces both direct and indirect repercussions from earthquakes. Whether experiencing direct impact or indirect consequences, the entire population must contend with the aftermath of seismic events to varying extents. Business disruptions may hinder employment opportunities, road closures might isolate communities, and utility outages could affect residents who haven't incurred direct damage from the event itself.

While a population experiencing a growth plateau, such as the City of La Cañada Flintridge, can offer stability and certain advantages in terms of urban planning and infrastructure management, its impact on earthquake resilience largely depends on how effectively the city continues to prioritize and invest in seismic preparedness measures despite demographic stability. On one hand, a stable population provides consistent demands on infrastructure and emergency services, potentially allowing for more focused planning and preparedness measures for seismic events. This could include maintaining and upgrading buildings to meet seismic safety standards without the rapid strain of population growth. However, if there are no changes in population patterns, there might be less urgency or political will to invest in seismic retrofitting of older buildings or in updating infrastructure to withstand earthquakes. This could lead to a situation where critical infrastructure remains vulnerable to seismic hazards, putting residents at risk. Moreover, without demographic changes, there might be a lack of fresh perspectives or innovative approaches to disaster preparedness and response, potentially hindering the city's ability to adapt to evolving seismic risks or new challenges posed by climate change.

Socially vulnerable populations face heightened risks and challenges during earthquakes due to several intersecting factors. These groups often reside in substandard housing that can lack seismic resilience, exacerbating their exposure to structural damage and collapse. Economic disadvantages limit their access to essential resources like emergency supplies and healthcare, while limited access to timely information and communication barriers hinder their ability to prepare and respond effectively. Vulnerable communities also experience difficulties in accessing necessary medical care and face heightened risks of displacement and homelessness following earthquakes. Psychological impacts are compounded by existing social marginalization and discrimination, underscoring the need for targeted policies and interventions to bolster resilience and support equitable disaster preparedness and recovery efforts.

5.4.1.3 Property

The city has more than 7,000 residential and close to 200 commercial buildings. All structures in La Cañada Flintridge are susceptible to earthquake impacts to varying degrees. Future changes in development are centered on expanding housing availability within currently developed sites through increased density. This approach could have varied effects on the city's earthquake resilience. Increased housing development might lead to heightened seismic risks if new construction occurs in seismically vulnerable areas. Conversely, careful urban planning and adherence to updated seismic safety regulations could mitigate these risks, ensuring that new housing developments are designed to withstand potential earthquakes. Moreover, concentrated development within existing sites reduces urban sprawl and limits the spread of seismic risks across a wider area, potentially enhancing the city's overall resilience to seismic events by focusing resources and infrastructure upgrades in targeted zones.

5.4.1.4 Critical Facilities and Infrastructure

The earthquake hazard extends to all critical facilities in La Cañada Flintridge, including Fire Station 82 and 19, City Hall, school facilities, and other essential service providers within the community. Ensuring the functionality of these facilities and their services post-earthquake is crucial. It's worth noting that some critical service facilities may be housed in older buildings that do not meet current seismic codes.

Facilities housing hazardous materials, such as NASA's Jet Propulsion Laboratory (JPL), pose particular concerns due to the potential isolation of surrounding neighborhoods. In the event of an earthquake, structures containing these materials could rupture, leading to leaks into the nearby area or adjacent waterways, resulting in severe environmental consequences. Additionally, transportation routes may be disrupted during earthquakes, increasing the risk of material release into the surrounding environment. Recognizing these risks, NASA's JPL has developed its own hazard mitigation plan.

5.4.1.5 Environment

Secondary hazards associated with earthquakes will likely have damaging effects on the environment. Earthquake-induced landslides, mudslides, building and road foundations that lose load-bearing strength, gas lines rupture, downed power lines, broken fire hydrants, and fires can significantly impact the surrounding habitat.

Earthquakes may also be impacted by changes to geological processes as a result of climate change. The melting of glaciers reduces the weight of the Earth's crust, causing it to rebound and potentially triggering seismic activity as the crust adjusts. Rising sea levels increase pressure on coastal and oceanic regions, altering stress distributions in the crust and potentially leading to increased seismicity, particularly in earthquake-prone areas. Changes in precipitation patterns can raise groundwater levels and alter pore pressure in fault lines, weakening them and increasing the likelihood of earthquakes. Thawing permafrost destabilizes the ground and can induce seismic events, although the direct link to significant earthquakes is less clear. Moreover, climate change-driven human activities such as dam construction, geothermal energy extraction, and fracking can induce seismic events by altering stress fields and lubricating faults. While tectonic forces remain the primary drivers of earthquakes, these climate change-induced effects have the potential to affect both the frequency and intensity of seismic activity in specific regions.

5.4.2 Vulnerability Assessment

Mapping data tools like HAZUS will be employed alongside GIS technology to gather earthquake vulnerability data. These tools will determine the location and magnitude of a hypothetical earthquake. Subsequently, they will estimate various factors, including ground shaking intensity, building damage, casualties, impacts on transportation systems and utilities, displacement of

residents, and the projected cost of repairs and cleanup efforts.

5.4.2.1 Population

The degree of vulnerability of people exposed to earthquake hazards is dependent on many factors, including the age and construction type of the structures they live in, the soil types their homes are constructed on, their proximity to fault location, and similar factors.

Individual Preparedness - The potential for earthquake occurrences and earthquake-related property damage is relatively high in the City of La Cañada Flintridge, increasing individual preparedness is essential. Strapping down heavy furniture, water heaters, expensive personal property, and being earthquake-insured and anchoring buildings to foundations are just a few steps individuals can take to prepare for an earthquake. Developing a family communication plan and an emergency escape plan is a critical first step in preparing. Next, a disaster kit with enough food and water to last for seven days is recommended.

5.4.2.2 Property

In California, each seismic event prompts revisions and enhancements to building codes. The 1933 Long Beach earthquake catalyzed the implementation of the Field Act, impacting school construction. Subsequent earthquakes, such as the 1971 Sylmar quake, ushered in heightened structural standards. Similar reassessments occurred following the 1989 Loma Prieta and 1994 Northridge earthquakes, resulting in the adoption of more robust and earthquake-resistant building regulations. The table below identifies significant milestones in building and seismic code requirements that directly affect the structural integrity of development.

Table 12: Building Code Requirements

Year	Codes
Pre-1933	There were no explicit earthquake requirements in building codes. State law did not require local governments to have building officials or issue building permits.
1940	The first strong motion recording was made.
1960	The Structural Engineers Association of California published guidelines on recommended earthquake provisions.
1975	Significant improvements were made to lateral force requirements.
1994	The Uniform Building Code was amended to include provisions for seismic safety.
Present	The seismic code is currently enforced and continues to evolve with further research.

Using Hazus, a risk modeling software, would provide the means to identify the number of

structures in the planning area by the date of construction. Hazus identifies areas with high risk for natural hazards and estimates the physical, economic, and social impacts of earthquakes, hurricanes, floods, and tsunamis.

Businesses - Seismic activity can cause great loss to businesses, both large-scale corporations and small retail shops. When a company is forced to stop production for just a day, the economic loss can be tremendous, especially when its market is at a national or global level. Seismic activity can create an economic loss that presents a burden to large and small shop owners who may have difficulty recovering from their losses.

5.4.2.3 Critical Facilities and Infrastructure

Mapping data tools employ categories such as no damage, slight damage, moderate damage, extensive damage, or complete damage to assess the vulnerability of critical facilities to earthquakes. These tools can assign a category to each critical facility within the city and estimate the time required to restore them to full functionality. Results are presented in terms of the probability of functionality at specific time intervals: 1, 3, 7, 14, 30, and 90 days post-event. For instance, a mapping data tool may indicate a 5 percent likelihood of full functionality by day 3 and a 95 percent likelihood by day 90 for a given facility.

Bridges - Even contemporary bridges are susceptible to earthquake damage, rendering them unsafe for passage. Some bridges have experienced total failure as a result of intense ground motion. Given their critical role as transportation arteries, even minor damage can render certain areas unreachable. Bridges constructed prior to the mid-1970s face a substantially greater risk of structural damage during moderate to large earthquakes compared to those built after 1980 when design enhancements were implemented.

A significant portion of the interstate highway system was constructed during the mid to late 1960s. Within the City of La Cañada Flintridge, bridges are owned by either the State, the City itself, or privately. While the California Department of Transportation (Caltrans) has retrofitted most bridges on the freeway system, there remain some city-maintained bridges that have not undergone retrofitting. In compliance with Federal Highway Administration (FHWA) regulations, bridges listed in the National Bridge Inventory must undergo inspection every two (2) years. Caltrans oversees these inspections as they manage federal funding for bridge projects. The County of Los Angeles conducts bridge inspections on behalf of the City of La Cañada Flintridge. A list of bridges located in the City are as follows:

- Berkshire Bridge
- Chevy Chase Bridge
- Castle Road Bridge
- Lyans Drive Bridge
- Cross Street Bridge
- Foothill Boulevard Bridge
- Jessen Drive Bridge
- Oak Grove Bridge

Lifelines - Lifelines are the connections between communities and outside services. They include

water and gas lines, transportation systems, electricity, and communication networks. Ground shaking and amplification can cause pipes to break open, power lines to fall, roads and railways to crack or move, and radio and telephone communication to cease. Disruption to transportation makes it especially difficult to bring in supplies or services. Lifelines need to be usable after an earthquake to allow for rescue, recovery, and rebuilding efforts and to relay important information to the public.

Dams - Within the city limits of La Cañada Flintridge, there is one dam known as the Devils Gate Dam. Constructed in 1920, the inaugural dam was erected by the Los Angeles Flood Control District. Originally designed to address flood control and water conservation needs, the dam also functioned as a primary thoroughfare connecting La Cañada Flintridge to Pasadena for an extended period.

Disruption of Services - Critical service facilities encompass the sheriff station, fire stations, city hall, and other establishments offering vital services to the community. Ensuring the functionality of these facilities and their services post-earthquake is imperative. Notably, some critical service facilities may be situated in older buildings that do not comply with current seismic codes.

5.4.2.4 Environment

Effects induced by earthquakes, whether directly stemming from the seismic source or triggered by ground shaking, can notably affect the surrounding environment. Secondary hazards, such as faulting, ground failure, landslides, mudslides, weakened building and road foundations, ruptured gas lines, downed power lines, broken fire hydrants, and fires, vividly illustrate this impact.

6. Flood

FEMA Policy Connection: Element B1

Does the plan include a description of the type, location and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events?

FEMA Policy Connection: Element B2

Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods?

6.1 General Background

Flooding occurs when climate, geology, and hydrology combine to create conditions where water flows outside of its usual course. Flooding poses a threat to life and safety and can cause severe damage to public and private property.

6.1.1 Causes and Characteristics

La Cañada Flintridge faces a risk of urban flooding, particularly in low-lying areas. When rainfall and runoff surpass the capacity of the stormwater system, developed regions are susceptible to flooding. Situated in the western San Gabriel Valley, the city's proximity to the San Gabriel Mountains significantly affects rainwater accumulation.

In the past 125 years, Los Angeles has experienced an average annual rainfall of 14.3 inches. However, the term "average" is deceptive as rainfall has varied greatly over this period, ranging from a mere 3.21 inches in 2006 and 2007, to a substantial 37.3 inches in 2004 and 2005. In 2022, the rainfall totaled approximately 28.4 inches. These fluctuations demonstrate the Los Angeles basin's status as a region characterized by extreme annual precipitation.

6.1.1.1 Geography and Geology

The greater Los Angeles Basin is the product of rainstorms and mountain erosion. Much of the coastal plain rests on ancient rock debris and sediment washed down from the mountains. This sediment can act as a sponge, absorbing vast quantities of rain in those years when heavy rains

follow a dry period. But like a sponge that is near saturation, the same soil fills up rapidly when heavy rain follows a period of wet weather. Therefore, even in years of heavy rain, flooding can be minimal if the ground is relatively dry. However, the same amount of rain following a wet period can cause extensive flooding.

The street space between the curbs of a street is a part of the flood control system. As water leaves a property and accumulates in the streets, it is directed toward the underground portion of the flood control system. The street's carrying capacity is determined by the width and height of the curbs along the street. Often, when streets are being resurfaced, a one- to two-inch layer of asphalt is laid down over the existing asphalt. This added layer of asphalt subtracts from the rated capacity of the street to carry water. Thus, the original engineered capacity of the entire storm drain system is marginally reduced over time. Subsequent re-paving of the street will further reduce the engineered capacity even more. As a result, this "asphalt creep" is a potential source of flooding.

6.1.1.2 Flood Types

The City of La Cañada Flintridge is susceptible to localized flooding from severe storms and urban run-off. The main types of flooding the City may experience are as follows:

- River and Stream Flooding - This type of flooding is triggered by heavy rains, melting snows, and storm surges. Typically, there's a warning period of hours or even days, allowing for effective evacuation and sandbagging efforts that have been proven to reduce flood damage. River and stream flooding can also occur when a dam breaks, producing effects similar to flash flooding in minutes.
- Flash Flooding – Characterized by the rapid flooding of low-lying areas, flash flooding is usually caused by intense rainfall. This type of flooding offers very little to no advance warning or preparation time and can submerge an area in less than six hours. Flash floods often have a dangerous wall of roaring water that carries rocks, mud, and other debris that can sweep away most things in its path.

6.1.1.3 Urban Drainage Flooding

When land transitions from fields or woodlands to roads and parking lots, its capacity to absorb rainfall diminishes significantly. The absence of open ground leads to surface water retention and swift accumulation. This urbanization alters the hydrological dynamics of a watershed, prompting rapid collection and flow of heavy rainfall on impermeable surfaces like concrete and asphalt. Consequently, urban flooding can escalate quickly, resulting in surges of water with intense force. Streets may resemble rushing rivers, and basements can fill with water. Moreover, storm drains are prone to clogging from vegetative debris, exacerbating localized flooding issues.

6.1.1.4 *Dam Failure*

Loss of life and damage to structures, roads, and utilities may result from a dam failure. Because a dam failure can have severe consequences, FEMA requires that all dam owners develop Emergency Action Plans (EAP) for the warning, evacuation, and post-flood actions. The dam owner is responsible for developing potential flood inundation maps and emergency response facilitation. As of 2017, California requires dam owners to submit these maps to the Department of Water Resources within Cal OES. Approved Inundation maps are available on the California Department of Water Resources website.

6.2 Hazard Profile

FEMA Policy Connection: Element C2

Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate?

Hazard identification is the first phase of the flood hazard assessment. Identification is the process of estimating the geographic extent of the floodplain, the intensity of the flooding that can be expected in specific areas of the floodplain, and the probability of occurrence of flood events.

6.2.1 Past Events

The western San Gabriel Mountains have elevations that exceed seven thousand feet, with these high ridges often acting as barriers to eastward-moving winter storms. Although downtown Los Angeles averages less than fifteen inches of rain a year, some mountain peaks in the San Gabriels receive more than 40 inches of precipitation annually. Due to the steep terrain, the rainwater moves rapidly down the slopes. In extreme cases, flood-generated debris flows can roar down a canyon at speeds near 40 miles per hour with a wall of mud, debris, and water tens of feet high.

Historical records show that since 1811, the Los Angeles River has flooded 30 times, according to the Los Angeles All-Hazard Mitigation Plan. However, averages can be deceiving; for example, the Los Angeles basin has periods of drought and 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.

Summer tropical storms are another consistent source of heavy rainfall, especially in mountainous areas and adjacent cities. These storms typically align with El Niño years. Examples include 1997-1998 and 2015-2016, both of which were characterized by El Niño events that brought about substantial rainstorms.

Only a small number of dam failures in California have occurred in the past 50 years. The most

catastrophic failure in California’s history is the infamous St. Francis Dam in Los Angeles County, which failed in March 1928, shortly after construction was completed. This failure resulted in the deaths of more than 450 people and the destruction of nearly 1,000 homes and structures. Numerous roads and bridges were also destroyed or damaged beyond repair.

Flooding will continue to impact Los Angeles County and the City of La Cañada Flintridge, whether it is directly or indirectly. Recent storms have resulted in the City of La Cañada Flintridge filing under the following two Disaster Declarations:

- DR-4683-CA – Scope of work included emergency debris removal city-wide and infrastructure repair at Memorial Park. Reimbursement ranged from 75 percent to 100 percent, totaling \$36,851.30 of the \$39,011.62 in recorded damages.
- DR-4699-CA – The scope of work included emergency debris removal city-wide and infrastructure repair on Dover Road. A total of \$74,304.88 was reimbursed for the \$97,525.32 in recorded damages, which is approximately 75 percent.

The following table highlights the most destructive floods in Los Angeles County recently. Though most did not directly affect La Cañada Flintridge, they provide examples of possible incidents in the region.

Table 13: Significant Flood Disasters in Los Angeles County

Disaster Date(s)	Declaration #	Type of Event
12/27/2022 – 01/31/2023	4683	Severe winter storms, flooding, landslides, and mudslides
02/24/2019 - 03/01/2019	4434	Severe winter storms, flooding, landslides, and mudslides
01/18/2017 – 01/23/2017	4305	Severe winter storms, flooding, and mudslides
01/17/2010 – 02/06/2010	1884	Severe winter storms, flooding, and debris and mudflows
02/16/2005 – 02/23/2005	1585	Severe storms, flooding, landslides, and mud and debris flows
12/27/2004 – 01/11/2005	1577	Severe storms, flooding, debris flows, and mudslides
02/02/1998 – 04/30/1998	1203	Severe winter storms, and flooding
02/13/1995 – 04/19/1995	1046	Severe winter storms, flooding landslides, mudflow
01/03/1995 – 02/10/1995	1044	Severe winter storms, flooding, landslides, mudflows
10/26/1993 – 4/22/1994	1005	Fires, Mud and Landslide, Soil Erosion, Flooding
01/05/1993 – 03/20/1993	979	Severe winter storm, mud and landslides, and flooding
02/10/1992 – 02/18/1992	935	Rain/snow/wind storms, flooding, mudslides
01/17/1988 – 01/22/1988	812	Severe storms, high tides and flooding
01/08/1980	615	Severe storms, mudslides and flooding
02/15/1978	547	Severe storms and flooding
01/26/1969	253	Severe storms and flooding
02/25/1963	145	Floods
04/04/1958	82	Heavy rainstorm and floods
02/05/1954	15	Flood and erosion

Differences in duration due to the severity of the event, and in the case of the early instances FEMA recording policies. (Source: FEMA, Disaster Declarations)

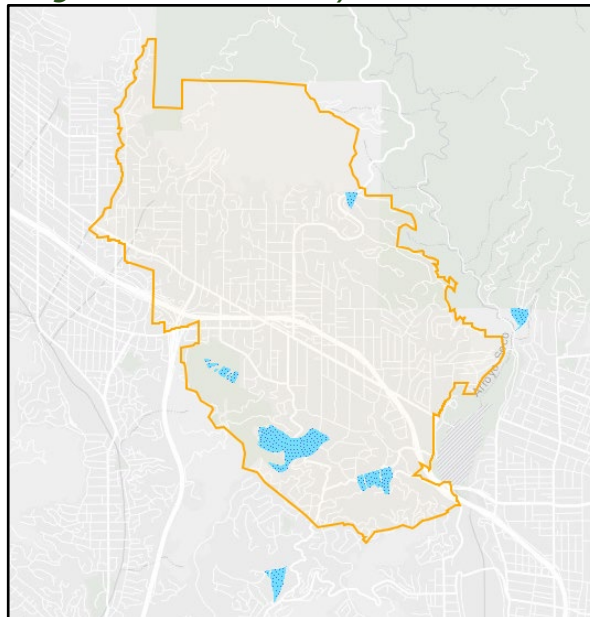
6.2.2 Locations

Identifying hazardous locations is an essential step toward implementing more informed mitigation activities. Flood maps and Flood Insurance Studies (FIS) often identify flood-prone areas. The National Flood Insurance Program (NFIP) was established in 1968 to provide low-cost flood insurance to the nation's flood-prone communities. The NFIP also reduces flood losses through regulations focusing on building codes and sound floodplain management. FEMA mapped the 100-year and 500-year floodplains through the FIS in conjunction with the United States Army Corps of Engineers (USACE) in August of 1987. In the City of La Cañada Flintridge, the NFIP and related building code regulations were updated on July 18, 2006. NFIP regulations (44 Code of Federal Regulations (CFR) Chapter 1, Section 60, 3) require that all new floodplain construction must be elevated at or above base flood level.

The City's Community Number is 060669. The City's current effective map is designated No Specific Flood Hazard Area (NSFHA). The City entered the regular phase of the National Flood Insurance Program on September 7, 1984.

The FEMA Flood Insurance Rate Map (FIRM) for the City of La Cañada Flintridge was updated in 2008. For flood insurance rating purposes, most of the community is ZONE "X," which are areas of minimal to moderate flood hazard. Within ZONE "X," small areas of the community are located within a 500-year flood zone, as seen in the figure below. Areas outside of Zone "X" fall under ZONE "D," with undetermined flood hazards. It's crucial to recognize that while these maps serve as valuable references, alterations in both natural landscapes and human-made structures can alter stormwater runoff dynamics.

Figure 12: FEMA 500-year Flood Zones



(Source: My Plan, Cal OES)

Although many communities rely exclusively on FIRMs to characterize the risk of flooding in their area, there are some flood-prone areas that are not mapped but remain susceptible to flooding. These areas include locations next to small creeks, local drainage areas, debris basins, and areas susceptible to human-caused flooding. The City of La Cañada Flintridge can use Geographic Information System (GIS) FIRM maps can be imported directly into GIS, which allows for GIS analysis of flood hazard areas.

Communities find overlaying flood hazard areas on tax assessment parcel maps particularly useful. This allows a community to evaluate the flood hazard risk for a specific parcel while reviewing a development request. Coordination between FEMA and local planning jurisdictions is the key to making a strong connection with GIS technology for flood hazard mapping.

FEMA and the Environmental Systems Research Institute (ESRI), a private company, have partnered to provide multi-hazard maps and information to the public via the Internet. ESRI produces GIS software, and the ESRI website has information on GIS technology and downloadable maps. The hazards maps provided on the ESRI site are intended to assist communities in evaluating geographic information about natural hazards. Flood information for most communities is available on the ESRI website. Visit www.esri.com for more information.

6.2.2.1 Implementation and Enforcement

Implementing and enforcing local floodplain management regulations is crucial for regulating and permitting development in Special Flood Hazard Areas (SFHAs). These regulations include zoning ordinances, building codes, subdivision regulations, and other land use controls. Property owners and developers within SFHAs must obtain permits before undertaking any construction or development activities. This includes new construction, substantial improvements to existing structures, and sometimes even minor alterations. Regulations require that new development or substantial improvements to existing structures meet certain criteria to minimize flood damage. The Community Development Department is the floodplain administrator for the area that enforces these regulations through permit reviews, inspections during construction, and penalties for non-compliance.

In the City of La Cañada Flintridge, implementing the substantial improvement or damage provisions of the floodplain management regulations involves a structured process aimed at ensuring that properties affected by substantial improvement or damage comply with floodplain regulations. After an event such as flooding or any other incident causing substantial improvement or damage to properties in flood-prone areas, the Community Development Department, Building and Safety Division, would assess the extent of the damage or improvement. The Building and Safety Division Civil Engineer reviews the property owners proposed improvements or the damage incurred against the floodplain regulations. This includes checking if the improvements meet the required elevation standards, use of flood-resistant materials, and other relevant criteria. Property owners repairing or improving their properties in SFHAs must obtain a permit from the Community

Development Department. This permit ensures that the proposed work complies with all applicable floodplain regulations. During the permitting process, property owners need to provide documentation and evidence to verify compliance with floodplain regulations. This could include elevation certificates, engineering reports, and construction plans. The Building and Safety Division Building Inspectors enforce compliance with floodplain regulations through inspections and monitoring. They ensure that the construction or improvements proceed according to the approved plans and that all regulatory requirements are met. Given that La Cañada Flintridge participates in the NFIP (National Flood Insurance Program), the Community Development Department coordinates with FEMA to ensure that their implementation of substantial improvement/damage provisions meets federal requirements. This collaboration helps maintain eligibility for NFIP benefits and ensures consistency with national floodplain management standards.

6.2.3 Frequency

Over the past fifty years, major floods in the Los Angeles area have occurred approximately twice per decade, as listed under past events. Minor flooding in La Cañada Flintridge can occur more frequently, although the City has tried to address storm drain issues that could contribute to such occurrences. Major floods in the City of La Cañada Flintridge are uncommon; however, they may occur as a secondary hazard following wildfires or landslides. As previously discussed, FEMA designates only a small portion of the city as having any notable flood risk. However, climate change continues to increase the frequency of flooding and plays a key role in understanding the potential hazard.

6.2.4 Severity

Flooding poses significant risks to infrastructure and buildings, potentially leading to extensive property damage. While hazardous floods are infrequent in La Cañada Flintridge, any flooding that impacts the area could result in substantial harm. The extent of flood damage primarily depends on two key factors: flood depth and velocity. Deeper and swifter floodwaters tend to cause more severe damage. However, even shallow flooding with high velocities can inflict as much harm as deeper flooding with slower velocities.

6.2.5 Warning Time

The warning time that a community has to take action to protect lives and property from a flooding threat is a function of the time between the first predictions of heavy rainfall, the first rainfall, and the first occurrence of flooding. Each watershed has unique qualities that affect its response to rainfall. The amount of time that floodwaters remain above flood stage is an important characteristic of the flood hazard. Due to the sequential pattern of meteorological conditions needed to cause serious flooding, it is unusual for a flood to occur without warning. Warning times can be between 24 and 48 hours. Flash flooding can be less predictable, but communities

can be warned of the potential for flash flooding to occur.

The Los Angeles County flood threat system consists of a network of precipitation gauges throughout the watershed and stream gauges at strategic locations in the county that constantly monitor and report stream levels. This information is fed into a U.S. Geological Survey forecasting program, which assesses the flood threat based on the stream's flow. In addition to this program, the National Weather Service (NWS) provides data and flood warning information. All of this information is analyzed to evaluate the flood threat and possible evacuation needs. Los Angeles County is responsible for disseminating flood warnings to all municipalities within the County.

The NWS issues watches and warnings when forecasts indicate rivers may approach bank-full levels. When a watch is issued, the public should prepare for the possibility of a flood. When a warning is issued, the public is advised to stay tuned to a local radio station for further information and be prepared to take quick action if needed. A warning means a flood is imminent, generally within 12 hours, or is occurring. Local media broadcast NWS warnings.

6.3 Secondary Impacts

Floods may induce or be associated with other hazards. When floods occur, it is important to consider how the environment in La Cañada Flintridge may be susceptible to other hazards.

6.3.1 Debris Flow

Another flood-related hazard that can affect La Cañada Flintridge is debris flows. Most typically, debris flows occur in mountain canyons and the foothills against the San Gabriel Mountains. However, any hilly or mountainous area with intense rainfall and the proper geologic conditions may experience one of these very sudden and devastating events. Debris flows are especially likely when a storm follows sometime after a wildfire, as happened after the Station Fire. Refer to the Landslide section for more details about the Station Fire event.

6.4 Risk Assessment

A flood risk analysis for the City of La Cañada Flintridge should include two components. First, the life and value of the property that may incur losses from a flood event. Second, the number and type of flood events expected to occur over time. Within the broad components of a risk analysis, it is possible to predict the severity of damage from a range of events.

The flood hazard typically presents a limited impact and low significance. Its geographic extent confined to a specific area restricts its influence, minimizing potential repercussions. Occasional occurrences are expected, although their probability remains relatively low. Moreover, the hazard's negligible magnitude or severity suggests minimal harm or damage. Given these

attributes, its overall significance is deemed low, indicating a minor impact on communities, infrastructure, and the environment. Ranked seventh in risk, it occupies a relatively low position in the hierarchy of hazards, underscoring its relatively benign nature compared to more pressing concerns.

FEMA National Risk Index Rating

No Rating Available

**The FEMA National Risk Index only provides coastal and riverine flooding. As such does not provide a rating; however, the City of La Cañada Flintridge is still susceptible to flooding from other sources and events.*

6.4.1 Exposure Assessment

Flow-velocity models can help predict the amount of damage expected from different magnitudes of flood events. The data used to develop these models is based on hydrological analysis of landscape features. Changes in the landscape, often associated with human development, can alter the flow velocity and the severity of damage that can be expected from a flood event. Using GIS technology and flow velocity models, it is possible to map the damage that can be expected from flood events over time. It is also possible to pinpoint the effects of certain flood events on individual properties.

6.4.1.1 Population

About 0.21 square miles of the City of La Cañada Flintridge either has not assessed a flood risk or is in a 500-year flood risk area. This equates to about 2.5% of the population being within a flood-prone area. However, other areas, such as small creeks, local drainage areas, debris basins, or human-made blockages, can result in localized flooding. This can result in an unknown increase in the percentage of the population at risk.

Since the community is experiencing little to no population growth, urban expansion is less rapid, which reduces the amount of impermeable surfaces like concrete and asphalt that exacerbate surface runoff during heavy rain events. This could mitigate urban flooding to some extent and allow for more effective stormwater management practices to be implemented. Conversely, if the population remains stable due to economic stagnation or outmigration, there might be less investment in updating aging infrastructure, such as drainage systems and flood defenses, leaving the city more vulnerable to flooding events exacerbated by climate change.

6.4.1.2 Property

The type of property damage caused by flood events depends on the depth and velocity of the flood waters. Faster-moving flood waters can wash buildings off their foundations and sweep cars

downstream. Pipelines, bridges, and other infrastructure can be damaged when high waters are combined with flood debris. Extensive damage can be caused by basement flooding and landslide damage related to soil saturation. Most flood damage is caused by water-saturating materials susceptible to loss (i.e., wood, insulation, wallboard, fabric, furnishings, floor coverings, and appliances). In many cases, flood damage to homes renders them unlivable. In California, the average flood claim in 2019 was \$13,620.

The limited changes in development, which focus on redevelopment rather than expansive new construction, that are occurring in the City of La Cañada Flintridge can significantly influence vulnerability to floods. Redevelopment often prioritizes improving existing infrastructure, including drainage systems and flood defenses, which can mitigate flood risks more effectively than new developments. By retrofitting older areas with modern stormwater management techniques such as green roofs, permeable pavements, and retention ponds, cities can better handle intense rainfall and reduce surface runoff into drainage systems. However, if redevelopment efforts are inadequate or stalled due to economic constraints associated with a plateaued population, there may be missed opportunities to enhance flood resilience. In such cases, older parts of the city might remain susceptible to flooding, underscoring the critical need for proactive urban planning and investment in flood mitigation strategies.

6.4.1.3 Critical Facilities and Infrastructure

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

Bridges are key points of concern during flood events because they are important links in road networks and river crossings, and they can be obstructions in watercourses, inhibiting the flow of water during flood events. The bridges in the City of La Cañada Flintridge are city-owned. A state-designated inspector must inspect all state, county, and city bridges every two years. The rigorous inspections look at everything from the seismic capability to erosion and scour.

Local drainage problems have been common throughout the City of La Cañada Flintridge, often present where stormwater runoff enters culverts or goes underground into storm sewers. Inadequate maintenance can also contribute to flood hazards in urban areas. As part of its annual Miscellaneous Storm Drain Repairs project, the City Department of Public Works tracks, monitors, and repairs all storm drains to prevent the failure of the storm drainage system.

The Los Angeles County Flood Control District owns and maintains catch basins within the city. These basins are critical for protecting communities from damage during flood events.

There are three sanitary districts in the City of La Cañada Flintridge. Much of the community south of Foothill Boulevard uses septic systems, and some properties north of Foothill Boulevard have not transitioned to the sewer. There are no wastewater treatment facilities in the City.

6.4.1.4 Environment

Environmental quality problems include bacteria, toxins, and pollution. Some of this may result from waterways being contaminated by wastewater from sewer or septic systems.

Additionally, climate change may result in changes in precipitation patterns, sea level rise, and altered weather patterns, which increase the likelihood of flooding events.

6.4.2 Vulnerability Assessment

The vulnerability assessment integrates the floodplain boundary, established through hazard identification, with an inventory of properties situated within the floodplain. Understanding the demographic and property exposure to natural hazards is crucial for mitigating risks and preventing losses in future occurrences.

However, assessing the community's vulnerability to flooding is challenging due to the unavailability of site-specific inventory data and inundation levels for specific flood events. The amount of property in the floodplain and the type and value of structures on those properties should be calculated to provide a working estimate for potential flood losses.

The most significant impact of flood events on communities is the loss of life and property. During certain years, property losses resulting from flood damage are extensive, affecting both private and public properties.

6.4.2.1 Population

Youth, the elderly, and economically disadvantaged community members are the most at risk during a flood event. As of 2020, 27.8% of the population was 18 or under, and 18.9% was 65 or older. Only a small portion of residents are economically disadvantaged.

Floods pose significant threats to public health and safety due to the contamination of floodwater. The following health and safety risks are commonly associated with flood events:

- Unsafe food - Floodwaters carry disease-causing bacteria, pollutants, and chemicals from various sources, contaminating food items and rendering them unsafe for consumption. Power outages resulting from floods can also spoil refrigerated and frozen foods, while packaging materials may become unhygienic and prone to mold contamination.

- Contaminated drinking and washing water and poor sanitation - Floods contaminate clean water sources and disrupt sanitation systems, increasing the risk of waterborne diseases through direct or indirect contact with pollutants. Malfunctioning wastewater treatment plants can lead to sewage backflows, further exacerbating health hazards.
- Mosquitoes - Extended periods of rainfall and flooding create ideal breeding grounds for mosquitoes, contributing to the spread of mosquito-borne diseases.
- Molds and mildews - Flood-damaged areas are prone to mold and mildew growth, posing respiratory health risks, particularly for individuals with allergies or asthma. Mold spores can cause allergic reactions and respiratory problems, especially in vulnerable populations such as infants, children, and the elderly.
- Hazards when re-entering and cleaning flooded homes and buildings - Flooded buildings can harbor various hazards, including electrical dangers, gas leaks, and hazardous materials hidden in debris. Cleaning efforts, post-flood can result in injuries from debris or exposure to hazardous chemicals.
- Mental stress and fatigue - Flood victims may experience long-term psychological effects, including stress and trauma, due to the loss of property and loved ones and the financial burden of recovery. Children may also exhibit behavioral changes, while concerns about future flooding can contribute to ongoing stress.

Effective mitigation of these impacts involves raising awareness, educating the public, and preparedness measures to address vulnerabilities during flood events.

6.4.2.2 *Property*

The City of La Cañada Flintridge uses building codes, zoning codes, and various planning strategies to address its goals of restricting development in areas of known hazards and applying the appropriate safeguards.

- Business and Industry - Businesses are adversely affected by flood events, experiencing property damage and operational disruptions. Floods can impede customer access and necessitate temporary closures for repair work. Prompt assistance to businesses affected by floods is essential for sustaining economic vitality within the community. Response efforts may involve providing funding to support owners in elevating or relocating business structures.
- National Flood Insurance Program - The City of La Cañada Flintridge participates in the National Flood Insurance Program. As of 2014, there were 76 insurance policies active

within the city.

- Repetitive Loss - The City of La Cañada Flintridge has no properties that qualify as repetitive loss areas under the National Flood Insurance Program.

6.4.2.3 *Critical Facilities and Infrastructure*

Critical Facilities are essential for maintaining operations before, during, and after emergencies or hazardous events and are crucial for public health and safety. Water Districts, for instance, need to remain operational during emergencies to guarantee residents have continuous access to clean water. Stormwater systems, which manage runoff water, are vital in mitigating flood impacts. Ensuring these systems are sufficient and operational is key to flood mitigation efforts.

- Water Districts - There are four water service companies and/or districts in the City of La Cañada Flintridge: Crescenta Valley Water District, La Cañada Irrigation District, Liberty Utilities, and the Valley Water Company. During a disaster, water districts in the region work together to provide water for the City of La Cañada Flintridge residents. In emergency situations, for example, each water district can inter-tie with one another.
- Storm Water System - There are a variety of surface water management providers in the county that manage water quality and stormwater runoff, the primary one being the Los Angeles County Department of Public Works. The City of La Cañada Flintridge Municipal Code, Chapter 9.21, addresses stormwater management and discharge.

6.4.2.4 *Environment*

Flooding, combined with human development, can negatively impact the environment. Fish may be displaced onto roads or swept over dikes into flooded fields. Contaminants from roads, such as oil and hazardous materials, can be carried into streams, settling on previously dry soils and polluting them, making them unsuitable for agriculture. Furthermore, human development, like bridge abutments, can exacerbate stream bank erosion, altering the natural courses of rivers and streams.

The environmental areas vulnerable to flood hazards are essentially those exposed to such risks. Assessing the environment's vulnerability is best done by reviewing past flood event damages. Data specifically segregating environmental damage was not accessible during the formulation of this plan. However, collecting such information from future events could prove invaluable in gauging the environment's vulnerability for subsequent updates.

7. Landslide

FEMA Policy Connection: Element B1

Does the plan include a description of the type, location and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events?

FEMA Policy Connection: Element B2

Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods?

7.1 General Background

Across the nation, landslides claim between 25 and 50 lives annually and cause upwards of \$1 billion in damages. Given California's susceptibility to seismic activity and wildfires, the region experiences a significant number of landslides. These events, with their potential to damage private properties, transportation networks, energy infrastructure, and communication systems, pose a grave danger to human lives, a fact that should not be taken lightly.

7.1.1 Causes and Characteristics

Landslides include rock falls, topples, slides, spreads, and flows. These occurrences can be triggered by rainfall, earthquakes, volcanic activity, changes in groundwater, human disturbance, or slope alterations through construction activities, alone or in combination. A slope failure transpires when the gravitational force exceeds the strength of the materials comprising the slope, exhibiting both slow, gradual movements and rapid, catastrophic ones, as seen in debris flows.

Landslides can be broadly categorized into two types: rapidly moving, often referred to as debris flows, and slow-moving. Rapidly moving landslides, such as debris flows, pose the highest risk to human life. Individuals residing in or traveling through areas prone to these landslides face an elevated risk of severe injuries. Conversely, slow-moving landslides, while less likely to cause serious harm to humans, can inflict significant damage to property. Understanding these differences is crucial for effective mitigation and preparedness.

The scale of a landslide is contingent upon geological factors and the initiating cause. Variables

such as rock and soil volume, the affected area's dimensions (length, width, depth), frequency of occurrence, and speed of movement vary greatly among landslides. Characteristics such as slope gradient, moisture content, and substrate composition play pivotal roles in determining the type and scale of a landslide event.

7.1.2 What is a Debris Flow?

A debris flow, also known as a mudflow, is a forceful torrent of rocks, soil, vegetation, and assorted materials thoroughly drenched in water. This high percentage of water gives the debris flow a rapid rate of movement down a slope. Debris flows often reach speeds greater than 20 miles per hour and can move much faster. This high rate of speed makes debris flows extremely dangerous to people and property in their path.

These flows are initiated by heavy, usually sustained, periods of rainfall but sometimes can happen because of short bursts of concentrated rainfall in susceptible areas. Burned areas charred by wildfires are particularly vulnerable to debris flows, given specific soil characteristics and slope conditions. Wildfires can change the structure of underlying soil, resulting in less water being absorbed into the soil during periods of rain. This causes the top layer of soil and debris to be saturated with water, making them more likely to move and damage property in its path.

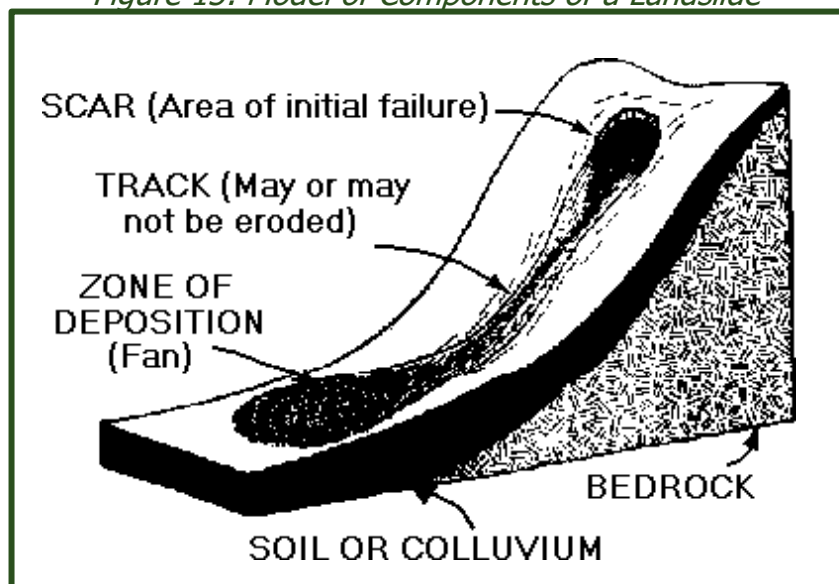
7.1.3 Landslide and Events Impacts

Landslides are a common hazard in California. Weathering and decomposition of geologic materials produce conducive conditions further exacerbated by human activities. Many landslides are difficult to mitigate, particularly in areas of historic movement with weak underlying geologic materials.

Rock falls occur when material becomes loose on steep slopes. Weathering, erosion, or excavations, such as along highways, can cause falls where the road has been cut through bedrock. They are fast moving with the materials free falling or bouncing down the slope and can cause considerable damage even if the volume of material involved is small.

As communities modify the terrain and influence natural processes, it is essential to be aware of the physical properties of the underlying soils as they, along with climate, create landslide hazards. Even with proper planning, landslides will continue to threaten the safety of people, property, and infrastructure. However, with adequate planning and proactive risk management strategies, we can significantly reduce the frequency and severity of these hazards, empowering us to protect our community.

Figure 13: Model of Components of a Landslide



(Source: California Department of Conservation)

7.1.4 Landslide Conditions

Landslides are often triggered by periods of heavy rainfall. Earthquakes, subterranean water flow, and excavations may also trigger landslides. Certain geologic formations are more susceptible to landslides than others. Human activities, including structures near steep slopes, can increase susceptibility to landslide events. Landslides on steep slopes are more dangerous because movements can be rapid. Grading for road construction and development can increase slope steepness and decrease the stability of a hill slope. This can be due to additional weight at the top of the slope, less support at the base, and increased water content. Other human-generated activities affecting landslides include excavation, drainage, groundwater alterations, and changes in vegetation.

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

Natural processes can cause landslides or re-activate historical landslide sites. Seismic tremors can trigger landslides on slopes historically known to have landslide movement. Earthquakes can also cause an additional failure that can occur on gentle slopes above steep streams and riverbanks.

7.2 Hazard Profile

Hazard identification is the first phase of the landslide-hazard assessment. Identification is the process of estimating the geographic extent of areas at risk of landslides and the likelihood of occurrences of landslide events.

7.2.1 Past Events

Landslides often occur as a secondary impact of wildfires and heavy rainstorms. Due to the hillside nature of the community and residential development, landslides will continue to impact the City of La Cañada Flintridge. Recent landslides are as follows:

- February 2024 – Above-normal rainfall triggered a mudslide that damaged three residential properties, two yellow-tagged by building and safety officials.
- January 2005 - 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 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.
- 2009 to 2010 - Above-normal rainfall triggered damaging debris flows that required residential evacuations. The 2009 Station Fire burned 250 square miles of the San Gabriel Mountains, right up to residential areas in La Cañada Flintridge. All the vegetation was burned, leaving only the hillside. Following the torrential rains, debris basins designated to hold mud and water overflowed, damaging multiple homes. A slow-moving rainstorm triggered a mudslide along Ocean View Boulevard in the La Cañada Flintridge burn area, flooded freeways, and caused traffic problems and mudslides throughout the region. This incident highlighted that the debris basins in the City had not been adequately maintained to mitigate the incident. Since then, the City has worked to improve coordination with the County to support such critical infrastructure.

The following table highlights the most destructive landslide incidents in Los Angeles County in recent history. Though most of them did not directly affect La Cañada Flintridge, they provide examples of possible incidents in the region.

Table 14: Past Landslides and Debris Flows

Disaster Date(s)	Declaration #	Type of Event
12/27/2022 – 01/31/2023	4683	Severe winter storms, flooding, landslides, and mudslides
02/24/2019 – 03/01/2019	4434	Severe winter storms, flooding, landslides, and mudslides
01/18/2017 – 01/23/2017	4305	Severe winter storms, flooding, and mudslides
01/17/2010 – 02/06/2010	1884	Severe winter storms, flooding, and debris and mudflows
10/21/2007 – 03/31/2008	1731	Wildfires, flooding, mudflow and debris flow
02/16/2005 – 02/23/2005	1585	Severe storms, flooding, landslides, and mud and debris flows
12/27/2004 – 01/11/2005	1577	Severe storms, flooding, debris flows, and mudslides
10/21/2023 – 03/31/2004	1498	Wildfires, flooding, mudflow and debris flow
02/13/1995 – 04/19/1995	1046	Severe winter storms, flooding landslides, mudflow
01/03/1995 – 02/10/1995	1044	Severe winter storms, flooding, landslides, mudflows
1/17/1994 – 11/30/1994	1008	Northridge Earthquake
10/26/1993 – 4/22/1994	1005	Fires, mud and landslide, soil erosion, flooding
01/05/1993 – 03/20/1993	979	Severe winter storms, mud and landslides, and flooding
02/10/1992 – 02/18/1992	935	Rain/snow/wind storms, flooding, mudslides
10/01/1984 – 11/20/1987	799	Earthquake and Aftershocks
01/08/1980	615	Severe storms, mudslides and flooding
02/09/1971	299	San Fernando Earthquake

Differences in duration are due to the event's severity and, in the case of the early instances, FEMA recording policies. (Source: FEMA, Disaster Declarations)

The USGS has recognized and mapped a small area of liquefaction zones in the City of La Cañada Flintridge. The figure below displays the liquefaction zones in the City.

Figure 15: Landslide Zones in the City of La Cañada Flintridge



(Source: Los Angeles County ArcGIS)

7.2.3 Frequency

Although La Cañada Flintridge is situated in an area prone to landslides, such events have been relatively infrequent and typically not linked to seismic activity. Over the years, the community has experienced only a handful of landslide incidents, mainly attributed to intense rainfall rather than seismic disturbances.

7.2.4 Severity

Landslides destroy property and infrastructure and can endanger human life. They can pose a severe hazard to properties on or below hillsides. Landslides directly damage structures in two ways: disruption of structural foundations caused by differential movement and deformation of the ground upon which the structure sits and the physical impact of debris moving down-slope against structures in the debris flow's path. As a landslide breaks away from a slope, it deforms the ground into an undulating surface broken up by fissures and scarps. This deformation distresses foundations and structures on top of a landslide by settling, cracking, and tilting. This can occur slowly, over years, or rapidly within days or hours. A water-saturated, fast-moving debris flow can destroy all in its path, including structures. Landslides and debris flows cause millions of dollars in cumulative damage to Southern California's homes, businesses, and infrastructure annually. Due to slope conditions, geological settings vary from site to site and can include specific conditions such as hydration from soils, particle-sized density, and the angle of repose. In addition, because most landslides occur on private property, it is difficult for the City to generate or access information to determine the average scale of total damage.

7.2.5 Warning Time

Mass movements can occur suddenly or slowly. Severe storms, earthquakes, wildland fires, or human modification of the land can initiate them. They can rush down slopes or through channels and strike with no warning at avalanche speeds.

Assessing an area's geology, vegetation, and amount of predicted precipitation can help determine which areas are at risk over short periods. This allows areas to be monitored after events that may trigger debris flows, like wildfires. However, there is no practical warning system for individual landslides. The standard operating procedure is to monitor situations on a case-by-case basis and respond after the event.

When atmospheric weather patterns reach the Los Angeles area, the risk and dangers of landslides and debris flows increase. Improved forecasting of such events could allow an advanced warning to better prepare for and respond to potential slope failures and flood events. Generally accepted warning signs for landslide activity include the following:

- Springs or saturated ground in areas that have not typically been wet before;

- New cracks or unusual bulges in the ground, street pavements, or sidewalks;
- Soil moving away from foundations;
- Ancillary structures (decks, patios, etc.) tilting and/or moving relative to the building;
- Tilting or cracking of concrete floors and foundations;
- Broken water lines and other underground utilities;
- Leaning telephone poles, trees, retaining walls or fences;
- Offset fence lines;
- Sunken or down-dropped roadbeds;
- Rapid creek water increase can be accompanied by increased turbidity (soil content);
- Sudden decrease in creek water levels though rain is still falling or just recently stopped;
- Sticking doors or windows, visible open space indicating jambs and frames out of plumb;
- A faint rumbling sound that increases in volume as the landslide nears and/or
- Unusual sounds, such as trees cracking or boulders knocking together.

7.3 Secondary Impacts

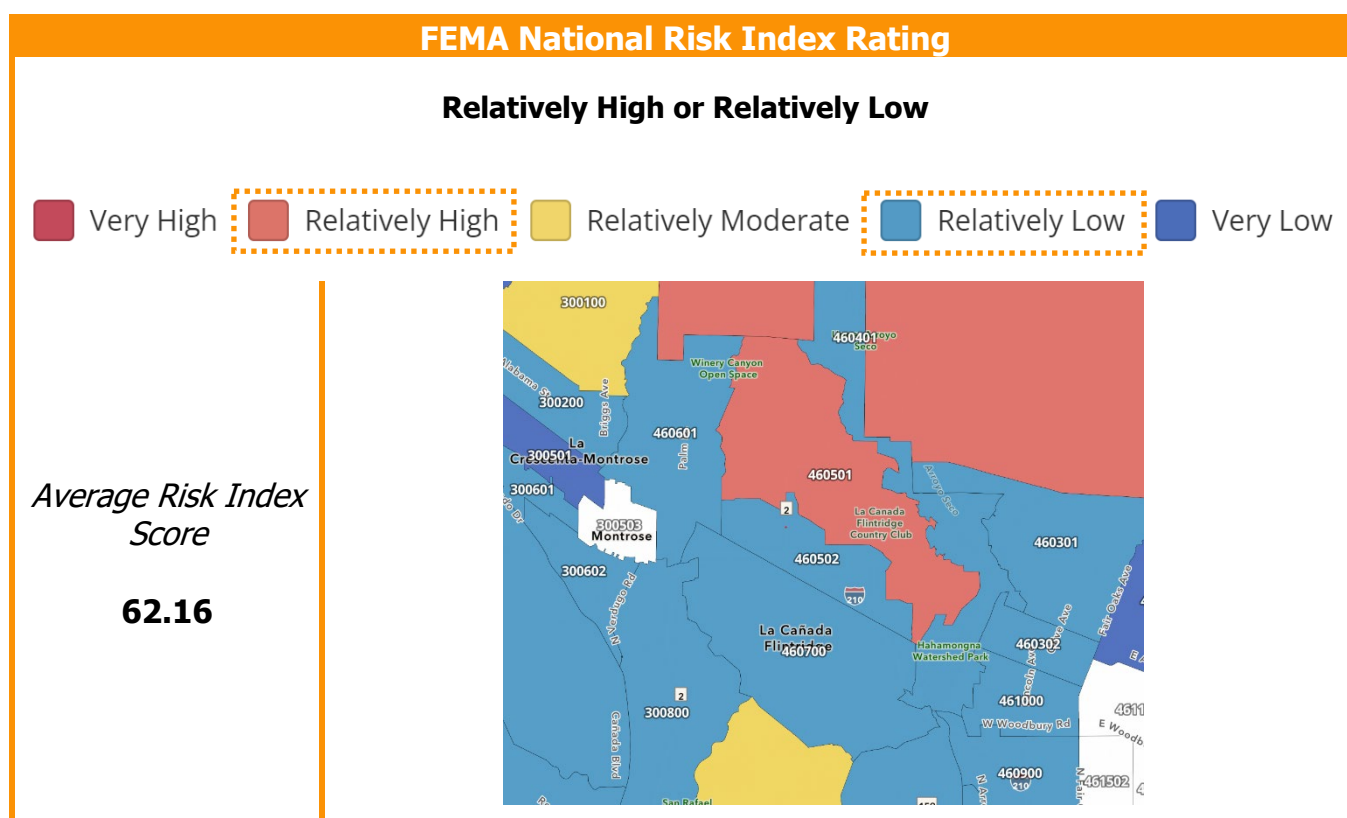
Landslides, often thought of as isolated events, are frequently intertwined with other natural phenomena, amplifying their potential impact and complexity. These geological upheavals can be set in motion by various triggers, including earthquakes, torrential rainfall, flooding, and wildfires. The aftermath of wildfires is particularly concerning, as the compromised terrain becomes primed for catastrophic events like debris flows.

Anticipating the precise location and severity of secondary impacts like landslides is challenging to predict before the initial threat occurs. Even in the wake of the primary hazard, such as an earthquake or wildfire, forecasting the onset and magnitude of landslides or debris flows is uncertain. The dynamic nature of geological processes and the variability of environmental conditions underscores the complexity of hazard assessment and the imperative for proactive risk management strategies. In essence, the interconnectivity of natural hazards underscores the

importance of holistic approaches to disaster preparedness and response, emphasizing the need for adaptive measures that account for the cascading effects of multiple hazards.

7.4 Risk Assessment

Factors in assessing landslide risk include population and property distribution in the hazard area, the frequency of landslide or debris flow occurrences, slope steepness, soil characteristics, and precipitation intensity. With a significant geographic extent and a likelihood of future occurrence, landslides' magnitude and severity are directly related to location. Despite their relatively moderate impact potential, the widespread geographical reach and expected frequency of occurrence elevate their importance in risk assessment and management strategies.



7.4.1 Exposure Assessment

Landslides are a problem in the City of La Cañada Flintridge and impact the City's infrastructure and private property. The most recent landslide losses in the City were the result of rainstorms in February 2010 and February 2023. The City received a higher-than-normal amount of rainfall, which resulted in saturated ground conditions and slope failures.

Areas at risk from landslides or debris flows have one or more of the following conditions:

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

7.4.1.1 Population

The City of La Cañada Flintridge is about 8.64 square miles in size. It is estimated that about 1.5 square miles in the City are considered at risk for landslides, or about 17 percent. However, most of this area is in the sparsely populated hills. This means that a small portion of the City's population is directly threatened by living in areas vulnerable to landslides.

With little to no population growth expected due to minimal development opportunities, there is a reduced need for construction on steep or unstable terrain that could trigger landslides. This can contribute to maintaining the natural stability of hillsides and slopes within the city limits. Additionally, with stable demographics, there may be fewer instances of land clearing for urban expansion, which are activities that can increase landslide risks. However, without population growth stimulating economic activities, there could be limited funding available for proactive measures such as slope stabilization projects or comprehensive land use planning that considers landslide risk.

Socially vulnerable populations within the community face heightened risks of displacement, injury, and loss of livelihoods during landslides triggered by heavy rainfall or seismic activity. Economic disadvantage restricts their ability to prepare for disasters or access emergency services, exacerbating the challenges of evacuation and recovery. Vulnerable groups such as the elderly, children, and people with disabilities are particularly at risk due to limited mobility and health vulnerabilities. Addressing these disparities requires targeted efforts to improve housing resilience, enhance access to information and support services, and ensure equitable disaster preparedness and response strategies that prioritize the needs of marginalized communities.

7.4.1.2 Property

Although landslides are natural, human impacts can affect the potential for landslides in the City of La Cañada Flintridge. Proper planning and geotechnical engineering can reduce the threat to the safety of people, property, and infrastructure.

Slope excavation is a joint process in the development of home sites or roads on sloping terrain. Grading these slopes can result in steeper slopes than the preexisting ones. Since slope steepness is a significant factor in landslides, these steeper slopes can be at an increased risk for landslides. The added weight of fill placed on slopes can also increase landslide hazard. Small landslides can happen in the road cut or the road fill. Landslides occurring below new construction sites are indicators of the potential impacts stemming from the excavation.

Water flowing through or above ground can trigger landslides. Any activity that increases water flow into landslide-prone slopes can increase landslide hazards. Broken or leaking water or sewer lines can be especially problematic, as can water retention facilities that direct water onto slopes. Excess runoff can also cause erosion and increase the risk of landslide hazards. Drainage can be affected naturally by the geology and topography of an area. Development that increases impervious surface impairs the land's ability to absorb water and may redirect water to other places. Channels, streams, ponding, and slope erosion indicate potential slope problems.

Road and driveway drains, gutters, downspouts, and other constructed drainage facilities can concentrate and accelerate flow. Ground saturation and concentrated velocity flow cause slope problems and may trigger landslides.

Removing vegetation from very steep slopes can increase landslide hazards. Areas that experience wildfire and land clearing for development may have periods of increased landslide hazard. Also, specific ground covers need frequent watering to remain green. Non-native ground cover plants may increase the risk of landslides.

Future changes in development, including increasing housing density within established areas, could alter natural drainage patterns and increase surface runoff, potentially exacerbating landslide risks, especially in hilly or sloped terrain. However, the impact on landslide susceptibility could be minimized with careful planning and adherence to sustainable land use practices, such as implementing effective drainage systems and utilizing landslide mitigation techniques. Concentrating development within existing sites might mitigate the need for new infrastructure development in undeveloped or environmentally sensitive areas prone to landslides, thereby preserving natural landscapes and reducing overall landslide risk across the city.

7.4.1.3 Critical Facilities and Infrastructure

Landslide and debris flow damage to buildings, roads, utilities, and transportation lines can have catastrophic repercussions, such as loss of power to critical facilities (hospitals, schools, fire departments, etc.), impaired disposal of sewage, contamination of water supplies, disruption of transportation infrastructure, the release of flammable fuels. The impact of such lifeline failures, including the secondary failure of systems that depend on lifelines, can be much more significant than that of individual building failures.

7.4.1.4 Environment

The cascading consequences of landslides extend far beyond their immediate impact on terrain and infrastructure. The sudden influx of debris alters the watercourse's physical landscape and disrupts vital habitats for fish and other aquatic organisms. Sedimentation can smother aquatic habitats, compromising spawning grounds and feeding areas crucial for the survival of various species. Landslides can degrade water quality as eroded soil and debris introduce pollutants, sediment, and nutrients into waterways. Increased turbidity and sedimentation can impair water clarity, impede light penetration, and smother aquatic vegetation, further exacerbating habitat degradation for fish and other organisms. The influx of contaminants can compromise water quality, posing risks to aquatic life and human health downstream.

Furthermore, the loss of hillsides to landslides can have enduring repercussions for wildlife populations. These hillsides often serve as critical habitats, providing shelter, foraging areas, and breeding grounds for diverse species. The disruption caused by landslides can displace wildlife populations and fragment habitats, leading to long-term biodiversity and ecological resilience declines.

Climate change is expected to potentially worsen the risk of landslides in the City of La Cañada Flintridge. Climate change-induced phenomena such as melting glaciers and permafrost thawing can have indirect effects on landslide risks by altering global weather patterns and sea levels, potentially influencing local conditions in La Cañada Flintridge. One significant factor is the anticipated increase in extreme weather events, including intense rainfall and storms, which can trigger landslides by saturating soils and destabilizing steep slopes. Higher temperatures associated with climate change may also lead to changes in vegetation patterns and water availability, affecting slope stability and increasing the likelihood of landslides. Moreover, alterations in precipitation patterns could result in periods of prolonged drought followed by heavy rainfall, further stressing hillsides and contributing to landslide susceptibility.

7.4.2 Vulnerability Assessment

Landslides can affect utility services, transportation systems, and critical lifelines. Communities may suffer immediate damages and loss of service. Disruption of infrastructure, roads, and

necessary facilities may also affect the economy in the long term. Utilities, including potable water, wastewater, telecommunications, natural gas, and electric power, are all essential to serve community needs.

Vulnerability assessment for landslides will assist in predicting how different types of property and population groups will be affected by a hazard. The potential for slope failure is dependent on many interrelated factors. The most critical factors include slope height, steepness, sheer strength, the orientation of weak layers in the underlying geologic unity, and pore water pressures. Joints and shears, which weaken the rock fabric, allow water penetration, leading to deeper weathering of the rock and increasing the pore pressures, the plasticity of weak clays, and the weight of the landmass.

A quantitative vulnerability assessment that describes the number of lives or amount of property exposed to landslides has not been conducted for the City of La Cañada Flintridge. Currently, few qualitative factors point to potential vulnerability.

7.4.2.1 Population

All people exposed to landslide risk are vulnerable. The fact that many homes are built on steep slopes subject to mass movement increases the number of lives in danger. In addition to the immediate threat to lives, property damage and displacement often accompany landslide events, exacerbating the impact on affected communities. Moreover, the aftermath of landslides can disrupt critical infrastructure and access to essential services, compounding the challenges those in landslide-prone areas face. Predicting which hillside areas will likely be subject to landslides is difficult. Therefore, all people living or working on or below hillsides are exposed to landslide risk, necessitating a proactive approach to risk management and community resilience-building initiatives.

7.4.2.2 Property

Adherence to engineering standards is paramount when managing natural slopes or graded terrain. These standards safeguard against potential hazards, ensuring the structural integrity and safety of developments built on or adjacent to such landscapes. Whether it's a natural slope, a graded incline, or a combination of both, meeting minimum engineering criteria is essential to mitigate the risk of landslides and other geological hazards.

It's crucial to recognize that even in areas with seemingly low risk, the consequences of landslides can still be significant, especially when public safety and infrastructure are at stake. Engineering standards must be carefully justified and accompanied by comprehensive risk management strategies to ensure the resilience and longevity of the built environment. Ultimately, the goal is to strike a harmonious balance between development needs, safety considerations, and environmental sustainability, thereby fostering resilient communities that can withstand the

challenges posed by natural hazards.

7.4.2.3 Critical Facilities and Infrastructure

Publicly owned facilities are a vital component of daily life for all citizens. Damage to transportation networks, emergency facilities, and offices can hinder the government's ability to deliver services. The government can act to reduce risk to public infrastructure from landslide events and craft public policy that reduces risk to private property from landslide events.

- Roads and Bridges – Losses incurred from hazards in the City of La Cañada Flintridge have been associated with roads. The Public Works Department is responsible for responding to incidents that inhibit traffic flow or damage a road or a bridge. The Public Works Department does its best to communicate with residents impacted by incidents. Repair work is usually limited to the road itself and the areas adjacent to the incident where the city has the right of way. This response activity is often the most cost-effective in the short term but is only temporary.
- Utilities – Loss of electricity has the most widespread impact on other utilities and the whole community. Natural gas pipes may also risk breakage from landslide movements as small as an inch or two.

Utilities and critical facilities should remain accessible, if possible, during a natural hazard event. The impact of closed transportation arteries may be increased if the closed road or bridge is critical for hospitals and other emergency facilities. Therefore, inspection and repair of critical transportation facilities and routes is essential and should receive high priority. Losses of power and phone service are also potential consequences of landslide events.

Due to heavy rains, soil erosion in hillside areas can be accelerated, resulting in loss of soil support beneath high-voltage transmission towers in hillsides and remote regions. Flood events can also cause landslides, which can seriously impact gas lines that are invulnerable soils.

7.4.2.4 Environment

Landslides can trigger a range of environmental challenges. Landslides can degrade water quality when they infringe upon streams and have the potential to disrupt hillsides that serve as critical wildlife habitats, often resulting in prolonged loss of these essential ecological zones. Efforts to mitigate the impacts of landslides must consider the interconnectedness of terrestrial and aquatic ecosystems, employing strategies that safeguard habitats, preserve water quality, and promote ecological resilience in the face of natural hazards.

8. Wildfire

FEMA Policy Connection: Element B1

Does the plan include a description of the type, location and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events?

FEMA Policy Connection: Element B2

Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods?

8.1 General Background

Wildfires are a natural occurrence in Southern California's ecosystem, yet they pose significant risks to life and property, especially in communities amidst hillsides and mountainous terrain. The region's weather patterns, topography, and indigenous vegetation increase its wildfire vulnerability. Prolonged periods of drought, characteristic of Southern California's Mediterranean climate, leave extensive areas of dry vegetation susceptible to ignition, fueled further by the inherently explosive nature of the native plants. Additionally, intermittent Santa Ana winds exacerbate fire risk, with their hot and dry gusts prevalent during spring and late fall.

When ignited, fires can swiftly spread between structures, escalating into catastrophic events. Insurance providers categorize such incidents as catastrophes if they result in at least \$25 million or more than 1,000 individual claims, as exemplified by the devastating Oakland Hills firestorm of October 1991. Firestorms are particularly dangerous in the interface between urban developments and wildlands, presenting intricate challenges to public safety and firefighting efforts while causing profound losses of life and property.

Mitigating these hazards demands ongoing and concerted efforts in planning, readiness, and public education. By understanding and acknowledging the risks, we can curtail fire risks and minimize the destructive impact of wildfires. Each of us has a role to play in this, and our collective actions can make a significant difference in our community's resilience and safety.

8.1.1 Causes and Characteristics

Wildfires are caused when natural or human sources ignite vegetation. Their characteristics vary by the fuels involved, the influence of weather, and an ignition source. Certain conditions must be present for significant interface fires to occur. The most common conditions include hot, dry, and windy weather, the inability of fire protection forces to contain or suppress the fire, multiple fires that overwhelm committed resources, and a large fuel load (dense vegetation). Once a fire has started, several conditions influence its behavior, including fuel topography, weather, drought, and development.

There are three categories of interface fire:

- Classic Wildland-Urban Interface - This exists where well-defined urban and suburban development presses up against open expanses of wildland areas. These areas often experience heightened fire risks due to the proximity of flammable vegetation to human settlements, necessitating vigilant fire management strategies and community preparedness.
- Mixed Wildland-Urban Interface - This type of environment is characterized by isolated homes, subdivisions, and small communities situated predominantly in wildland settings. Managing fire risks in such environments necessitates balancing preserving the natural landscape and safeguarding human lives and property.
- Occluded Wildland-Urban Interface - This exists where islands of wildland vegetation occur inside a largely urbanized area. These wildland pockets can pose significant fire risks despite the urban surroundings, especially during drought or when coupled with ignition sources. Effective fire management strategies in occluded interfaces demand integrated approaches that account for urban infrastructure and natural ecosystems, fostering resilience in the face of wildfire threats.

The entire City of La Cañada Flintridge has been designated a "Very High Fire Hazard Severity Zone" [Cal FIRE Fire Hazard Severity Zones](#) and has the potential for classic urban interface brush fires.

8.2 Hazard Profile

The first step in wildfire hazard assessment, hazard identification, involves estimating areas at risk and the likelihood of fires. This process combines analyzing factors like vegetation, weather, and past fire occurrences to develop targeted prevention and response strategies, guiding efforts to reduce wildfire impact.

8.2.1 Past Events

Large fires have been part of the Southern California landscape for millennia. Written documents reveal that during the 19th century, human settlement of southern California altered the fire regime of coastal California by increasing the fire frequency. This was an era of minimal fire suppression; yet, like today, large fires covering tens of thousands of acres were not uncommon. One of the largest fires in Los Angeles County (60,000 acres) occurred in 1878, and the largest fire in Orange County’s history, in 1889, was over half a million acres.

The “Station Fire” of 2009, a devastating event, burned over 160,000 acres and destroyed over 200 structures. The fire, which began in the Angeles National Forest near the U.S. Forest Service ranger station just north of La Cañada Flintridge, posed a significant threat to many homes in the northern side of the City, as well as neighboring communities. The severity of the situation forced many La Cañada Flintridge residents to evacuate their homes. Tragically, two firefighters lost their lives while responding to the blaze. The “Station Fire” stands as the 13th largest in modern California history and the largest wildfire in the history of Los Angeles County (based on acres burned). This stark reality underscores the urgent need for effective wildfire management strategies in our community.

Table 15: Significant Wildfires in Los Angeles County

Date	Name	Declaration
October 5, 2020	Bobcat Fire	No Local Declaration
October 24, 2019	The Tick Fire	No Local Declaration
October 10, 2019	The Saddle Ridge Fire	No Local Declaration
November 8, 2018	The Woolsey Fire	No Local Declaration
June 4, 2018	The Stone Fire	No Local Declaration
December 5, 2017	Creek Fire	No Local Declaration
September 1, 2017	La Tuna Fire	No Local Declaration
August 26, 2009	Station Fire	Local Declaration City Resolution No. 09-28

8.2.2 Locations

The entire City of La Cañada Flintridge has been designated a “Very High Fire Hazard Severity Zone” per the Cal FIRE Fire Hazard Severity Zones. This designation is based on specific criteria such as the presence of flammable vegetation, the proximity of structures to wildland areas, and the historical frequency of wildfires. The zones are based on the physical conditions that create a likelihood that an area will burn over a 30 to 50-year period without considering modifications such as fuel reduction efforts. It considers how a fire will behave and the probability of flames and embers threatening buildings. This designation implies that the City is at high risk of wildfires, and specific measures and precautions need to be taken to ensure the safety of residents and properties.

8.2.3 Frequency

As listed under past events, significant wildfires in the Los Angeles area have happened multiple times in a decade, with notable incidents such as the Station fire posing a direct threat to the City of La Cañada Flintridge. As temperatures rise and weather patterns become increasingly erratic due to climate change, the conditions conducive to wildfires are amplified. Prolonged periods of drought, intense heat waves, and gusty winds create a perfect storm for ignition and rapid fire spread. Additionally, expanding urban areas into previously uninhabited wildland interfaces further compounds the risk, as human activities introduce potential ignition sources and increase the likelihood of fire encroachment into populated areas.

8.2.4 Severity

The potential severity of wildfires extends far beyond the immediate destruction of infrastructure, buildings, and property. While these visible impacts are undeniably devastating, wildfires also affect human and wildlife populations and the broader natural environment. The potential severity of wildfires encompasses a wide array of interconnected effects, ranging from immediate threats to life and property to long-term ecological and socioeconomic consequences.

- Life and Property – Wildfires pose a direct threat to human safety, with the potential to cause injury, displacement, and even loss of life among those living in affected areas. The rapid spread of flames can outpace evacuation efforts, trapping residents in harm's way and overwhelming emergency responders. The inhalation of smoke and toxic fumes poses significant health risks, particularly for vulnerable populations such as older people, children, and individuals with respiratory conditions.
- Socioeconomics – Disrupted transportation routes, damaged infrastructure, and diminished air quality can disrupt daily life for communities far removed from the fire's epicenter, affecting agriculture, tourism, and commerce.
- Ecological – Wildfires wreak havoc on wildlife habitats, leading to the displacement, injury, and death of countless species. The flames can decimate entire ecosystems, with long-lasting repercussions for biodiversity and ecological balance. The loss of vegetation destabilizes soil and increases the risk of erosion, which can trigger secondary disasters like landslides and debris flows, further compounding the devastation wrought by wildfires.

Addressing this multifaceted challenge requires a comprehensive approach integrating wildfire prevention, preparedness, response, and recovery efforts while addressing underlying factors such as climate change and land use planning. Only through concerted action can communities hope to mitigate the worst effects of wildfires and build resilience in the face of this formidable threat.

8.2.5 Warning Time

The warning time before a wildfire varies depending on several factors, including the ignition source, environmental conditions, and detection capabilities. Unlike some natural disasters, wildfires may erupt suddenly and spread rapidly, offering limited time for evacuation or preparation. There may be no warning in some cases, especially for fires sparked by human activities or lightning strikes in remote areas.

However, technological advancements and monitoring systems have improved early detection and notification efforts, providing communities valuable lead time to respond to wildfire threats. Tools such as fire weather forecasting, remote sensing technologies, and surveillance networks enable authorities to identify potential fire outbreaks and issue timely warnings to residents in at-risk areas.

Despite these advancements, the warning window for wildfires remains relatively short compared to other disasters. This underscores the importance of proactive measures such as preparedness planning, fuel reduction strategies, and community education to enhance resilience and mitigate the impact of wildfires. By staying informed, remaining vigilant, and taking proactive steps to reduce fire risk, individuals and communities can better prepare for the unpredictable nature of wildfire events.

Evacuating when instructed during a wildfire is not just a matter of personal safety; it is a critical step in safeguarding lives and protecting communities from the devastating impacts of these unpredictable disasters. When authorities issue evacuation orders, they do so based on careful assessment of the imminent threat posed by the fire, considering factors such as fire behavior, weather conditions, and potential for rapid spread.

By heeding evacuation orders, individuals reduce their own risk of injury or death and facilitate the work of emergency responders, enabling them to focus on firefighting efforts rather than rescue operations. Moreover, evacuating promptly helps prevent traffic congestion and bottlenecks, ensuring a smoother and more efficient evacuation process for everyone involved.

Additionally, staying behind during a wildfire can jeopardize not only your life but also the lives of first responders. Rescue operations become exponentially more difficult and dangerous amid a wildfire, and those who defy evacuation orders may find themselves trapped with no means of escape. Evacuating when instructed during a wildfire is a responsible and necessary action to protect oneself and the broader community, and it can make all the difference in minimizing the human toll of these catastrophic events.

8.3 Secondary Impacts

The greatest wildfire-related hazard that can affect La Cañada Flintridge is debris flows. Wildfires burn vegetation that retains the soils. When a storm follows the fire, the loose soils and burnt vegetation are swept away from the hillsides.

Typically, debris flows occur in mountain canyons and the foothills against the San Gabriel Mountains. However, any hilly or mountainous area with intense rainfall and the proper geologic conditions may experience one of these sudden and devastating events.

8.4 Risk Assessment

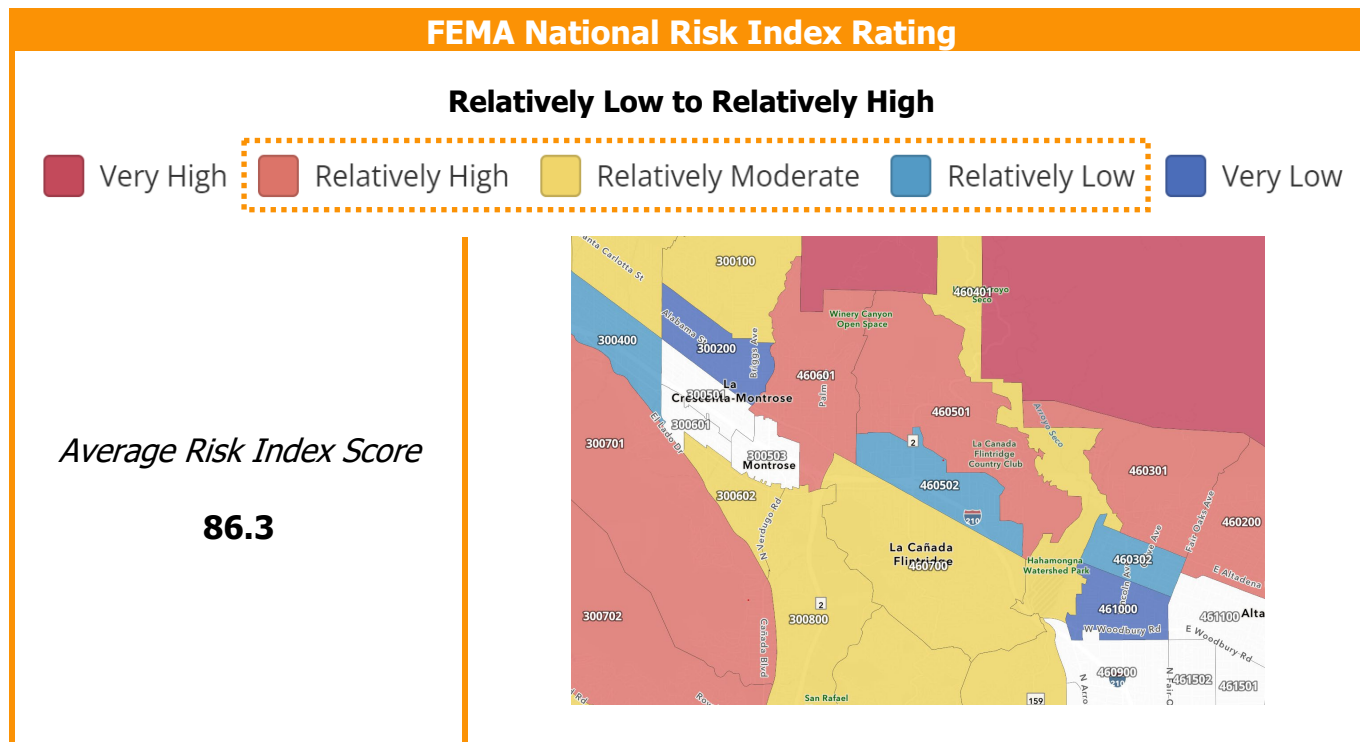
The City of La Cañada Flintridge has been classified by the California Department of Forestry and Fire Protection as entirely situated within a very high fire hazard severity zone. Thus, the entire city is recognized as susceptible to urban interface brush fires.

La Cañada Flintridge's topography ranges from gradual slopes to steep hillsides, which influences the movement of air and thereby contributes to the direction of a fire's course. For example, fire travels faster upslope. Gulches and canyons can funnel air and act as chimneys, intensifying fire behavior and causing the fire to spread faster. Solar heating of dry, south-facing slopes produces upslope drafts that can complicate fire behavior.

Unfortunately, many communities' hillsides with hazardous topographic characteristics are desirable residential areas. This underscores the need for wildfire hazard mitigation and increased education and outreach to homeowners living in interface areas.

Recent concerns about the effects of climate change, particularly drought, contribute to fears of wildfire vulnerability. Warmer temperatures, drier conditions, and altered vegetation patterns create favorable conditions for wildfires to occur and spread. Drought occurs when there is an unusual scarcity of rain, which causes a severe hydrological imbalance. Additionally, arid winters or significantly less rainfall than usual can lead to relatively drier conditions and lower reservoirs and water tables. Drought leads to problems with irrigation and may contribute to additional fires or difficulties in fighting fires.

With an extensive geographic reach, a likely probability of future occurrence, and the potential for catastrophic magnitude, this event's identified risk ranks first in significance among the community. The combination of these factors underscores the urgent need for proactive measures and preparedness efforts to mitigate the potentially devastating impact of this high-risk scenario.



8.4.1 Exposure Assessment

One challenge Southern California faces regarding the wildfire hazard is the increasing number of houses built on the wildland-urban interface. Every year, the growing population has expanded further into the hills and mountains, including forest lands. The increased "interface" between urban and suburban areas and the open spaces created by this expansion has increased dramatically threats to life and property from fires. It has pushed existing fire protection systems beyond their original or current design and capability. Property owners in the interface are not aware of the problems and threats they face. Therefore, many owners have done little to manage or offset fire hazards or risks on their property. Furthermore, human activities increase the incidence of fire ignition and potential damage.

A wildfire will likely break out in the City on a Red Flag Warning day. A Red Flag Day is when weather conditions are such that there is an excellent 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 City of La Cañada Flintridge 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 a number of different reasons, including car fires, illegal burning, arcing wires, arson, or lightning strikes. The tree canopy in the city could spread fire with any winds that affected the area.

8.4.1.1 Population

The entirety of La Cañada Flintridge falls within the boundaries of a Very High Fire Hazard Severity Zone per the Cal FIRE Fire Hazard Severity Zones, categorizing the entire city as susceptible to urban interface brush fires. The diverse topography of La Cañada Flintridge further exacerbates the risk factors. Spanning from gradual slopes to steep hillsides, the terrain presents varied challenges for fire containment and evacuation efforts. These geographical features contribute to the rapid spread of wildfires and complicate firefighting strategies, necessitating adaptable tactics to address the evolving threat.

8.4.1.2 Property

Southern California's hills and mountainous areas are considered interface areas. The development of homes and other structures is creeping into the wildlands and is expanding the wildland-urban interface. The interface neighborhoods are characterized by diverse housing structures, development patterns, ornamental and natural vegetation, and natural fuels.

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

- Combustible roofing material;
- Wood construction;
- Structures with no defensible space;
- The fire department with poor access to structures;
- Subdivisions located in heavy natural fuel types;
- Structures located on steep slopes covered with flammable vegetation;
- Limited water supply; and
- Winds over 30 miles per hour.

8.4.1.3 Critical Facilities and Infrastructure

Critical infrastructure, encompassing utilities, hospitals, schools, and roads, forms the backbone of any community and is crucial for its functioning and resilience. Environmental factors such as vegetation types, historical fire occurrences, and proximity to the wildland-urban interface are meticulously considered when conducting exposure assessments. The density, type, and condition of surrounding vegetation play pivotal roles in determining its potential as fuel for wildfires, directly impacting the vulnerability of critical infrastructure. Furthermore, weather patterns and climatic conditions can significantly exacerbate wildfire risk near these essential facilities, necessitating thorough risk analysis and mitigation strategies. Delving into historical wildfire data yields invaluable insights into fire behavior and patterns, elucidating ignition points and the consequential impacts on infrastructure facilities. This comprehensive approach to assessing wildfire exposure enables communities to proactively safeguard their critical infrastructure, enhancing overall resilience and preparedness in the face of wildfire threats.

8.4.1.4 Environment

Although communities without an urban/wildland interface are much less likely to experience a catastrophic fire, in Southern California, there is a scenario where any community might be exposed to an urban conflagration similar to the fires that occurred following the 1906 San Francisco earthquake.

Large fires following an earthquake in an urban region are rare but have occasionally been catastrophic. The two largest peace-time urban fires in history, 1906 San Francisco and 1923 Tokyo were both caused by earthquakes.

The fact that fire following an earthquake has been little researched or considered in the United States is particularly surprising when one realizes that the conflagration in San Francisco after the 1906 earthquake was the single largest urban fire and the single largest earthquake loss in U.S. history. The loss over three days of more than 28,000 buildings within an area of 12 km² was staggering: \$250 million in 1906 dollars or about \$5 billion at today's prices.

The 1989 Loma Prieta Earthquake, the 1991 Oakland Hills Fire, and the 2011 Tōhoku Earthquake demonstrate the current possibility of a large fire, such as a fire following an earthquake, developing into a conflagration. In the United States, all the elements that would hamper fire-fighting capabilities are present: the density of wooden structures, limited personnel, and equipment to address multiple fires, debris blocking the access of fire-fighting equipment, and limited water supply.

Thus, in Southern California, this scenario highlights the need for fire mitigation activity in all sectors of the region, whether wildland-urban interface or not.

8.4.2 Vulnerability Assessment

Conducting a vulnerability assessment for wildfires is imperative as it helps identify high-risk areas and populations most susceptible to wildfire hazards, aiding in resource allocation and mitigation planning. By understanding vulnerability, authorities can effectively allocate resources, plan evacuation procedures, and implement community outreach programs to enhance wildfire safety measures. Additionally, vulnerability assessments inform the development of comprehensive mitigation plans tailored to address specific risks, aiding emergency response preparedness and fostering community engagement. Ultimately, these assessments provide valuable insights crucial for enhancing preparedness, mitigating risks, and protecting lives and property from the devastating impacts of wildfires.

8.4.2.1 Population

The entire city, home to a population exceeding 20,000, faces susceptibility to wildfires. Statistics from the U.S. Census Bureau reveal significant demographics within this at-risk population: approximately 42.76% of households include children under 18, roughly 18.93% of residents are aged 65 or older, and 21.3% of residents are 14 years old or younger. Additionally, around 5.89% of individuals identify as living with a disability, highlighting potential vulnerabilities within the community during wildfire events.

8.4.2.2 Property

Growth and development in scrubland and forested areas are increasing the number of human-made structures in Southern California interface areas. Wildfire affects development, yet development can also influence wildfire. Owners often prefer private homes that have scenic views, are nestled in vegetation, and use natural materials. A private setting may be far from public roads or hidden behind a narrow, curving driveway. These conditions, however, make evacuation and firefighting difficult. The scenic views along mountain ridges can also mean areas of dangerous topography. Natural vegetation contributes to scenic beauty, but it may also provide a ready trail of fuel, leading a fire directly to the combustible fuels of the home itself. As a Tree City USA, the city is heavily populated by trees. These trees increase the risk of wildfires. In addition, the majority of the City is zoned for residential properties. Residential properties are more susceptible to fires.

8.4.2.3 Critical Facilities and Infrastructure

The designation of the entire City of La Cañada Flintridge within a Very High Fire Hazard Severity Zone per the Cal FIRE Fire Hazard Severity Zones underscores the critical vulnerability of its predominantly residential population, highlighting the potential for severe economic repercussions in the event of a wildfire. Given the residential nature of the city, the loss of homes in such an event could result in staggering economic losses, estimated to be in the tens of millions of dollars.

One of the primary challenges emergency service providers face in this area is road access. As development continues to creep into rural areas, the number of houses lacking adequate turn-around space for emergency vehicles is rising. This deficiency poses significant obstacles for firefighters and other emergency workers, impairing their ability to carry out their duties effectively. Narrow roads and limited access make maneuvering large fire trucks difficult, and insufficient turnaround space further hampers firefighting efforts. In situations with inadequate turnaround space, firefighters are compelled to focus solely on evacuating occupants, unable to remain safely to protect threatened structures. To address this issue, ongoing maintenance of road access is crucial, requiring collaboration with entities like the Los Angeles County Fire Department to ensure fire roads remain in optimal condition, especially following significant storm events that may degrade roadways.

Additionally, the availability and reliability of water supply present another critical concern for firefighting efforts. Firefighters may encounter challenges with limited water supply and lack of hydrant outlets in certain areas. Moreover, reliance on pump-supplied water distribution areas can prove problematic if wildfires disrupt electricity, causing water pumps to fail. This underscores the need for robust contingency plans and alternative water-sourcing strategies to ensure adequate firefighting resources are available even in adverse conditions. By addressing these critical challenges related to road access and water supply, emergency responders can enhance their ability to effectively combat wildfires and protect both lives and property in La Cañada Flintridge.

8.4.2.4 Environment

The interface between wildland areas and urban or suburban developments increases the risk of wildfires impacting human communities. Homes and infrastructure in these interface zones are particularly vulnerable to fire damage, as flames can quickly spread from wildlands to populated areas.

In a wildfire, vegetation, structures, and other flammables can merge into unwieldy and unpredictable events. The environment's vulnerability to wildfires stems from a convergence of factors that create conditions conducive to ignition, rapid spread, and amplified severity of fires. Key contributors to this vulnerability include:

- Extended periods of drought, coupled with high temperatures and low humidity, create tinder-dry vegetation that fuels wildfires. Climate change exacerbates these conditions, leading to more frequent and intense heatwaves and prolonged droughts, increasing the risk of fire ignition and spread.
- The presence of dense vegetation, such as forests, grasslands, and chaparral, provides ample fuel for wildfires. Accumulated dead vegetation, known as fuel loads, can ignite easily and sustain fires, especially during hot and dry conditions.

- Steep slopes, rugged terrain, and inaccessible areas pose challenges to firefighting efforts, allowing fires to spread quickly and uncontrollably. Canyons, valleys, and wind corridors can funnel flames, accelerating their advance and making containment more difficult.
- Invasive plant species can alter natural fire regimes, increasing the frequency and intensity of wildfires. These species often outcompete native vegetation, creating dense and highly flammable fuel beds contributing to fire risk.
- Historic fire suppression practices have led to the accumulation of dense vegetation and fuel loads in some ecosystems, making them more susceptible to catastrophic wildfires. Additionally, suppressing natural fire cycles can disrupt ecosystem processes and increase the severity of future fires.

Addressing this vulnerability requires a multifaceted approach that includes wildfire prevention, fuel management, land-use planning, community preparedness, and climate resilience strategies.

9. Windstorm

FEMA Policy Connection: Element B1

Does the plan include a description of the type, location and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and the probability of future hazard events?

FEMA Policy Connection: Element B2

Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods?

9.1 General Background

Severe windstorms, such as the Santa Ana winds and microbursts, present a significant and immediate risk to life and property in the region. These conditions disrupt essential systems like public utilities, telecommunications, and transportation routes, potentially causing significant damage to local homes and businesses. The destabilizing effect of the dry brush that covers local hillsides and urban-wildland interface areas can lead to heightened fire threats. The destructive impacts, especially to trees, power lines, and other utility services, underscore the urgency and importance of our preparedness and mitigation efforts.

9.1.1 Causes and Characteristics

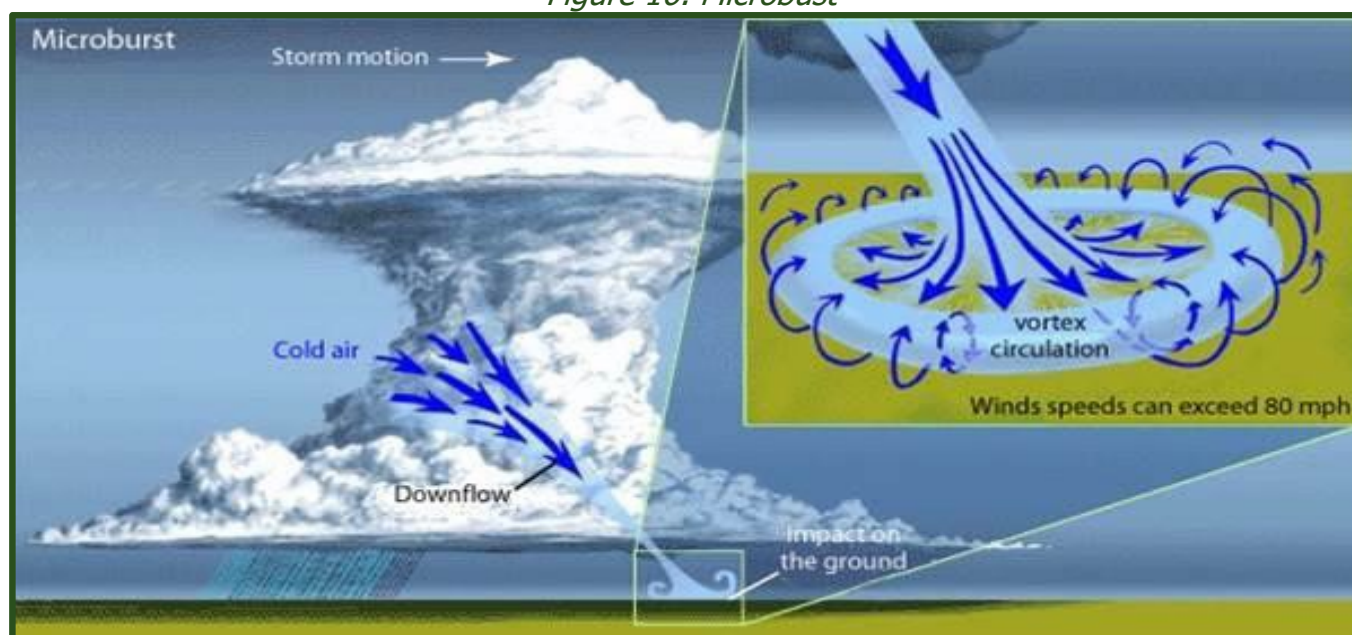
Based on local history, most incidents of high winds in the City of La Cañada Flintridge result from the Santa Ana wind conditions or microbursts.

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. The complex topography of Southern California and various atmospheric conditions create numerous scenarios that may cause widespread or isolated Santa Ana events. Commonly, Santa Ana winds develop when a region of high pressure builds over the Great Basin (the high plateau east of the Sierra Mountains and west of the Rocky Mountains, including most of Nevada and Utah). The clockwise circulation around the center of this high-pressure area forces air downslope from the high plateau. Due to compressional heating, the air warms as it descends toward the California coast at 5 degrees Fahrenheit per 1000 feet.

Thus, compressional heating provides the primary source of warming. The air is dry since it originated in the desert and dries out even more as it is heated. 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 “Santa Ana” for winds greater than 28 mph. These winds accelerate to 35 knots as they move through canyons and passes, with gusts to 57 mph or even 69 mph.

Microbursts occur at a thunderstorm’s core and are strong, damaging winds that strike the ground and typically only affect a rather small area.

Figure 16: Microburst



(Source: https://www.weather.gov/bmx/outreach_microbursts)

When the microburst wind hits an object on the ground, such as a house, garage, or tree, it can flatten the buildings and strip limbs and branches from the tree. After striking the ground, the powerful outward running gust can wreak further havoc along its path.

Damage associated with a microburst is often mistaken for the work of a tornado, mainly directly under the microburst. However, damage patterns away from the impact area are characteristic of straight-line winds rather than the twisted pattern of tornado damage.

9.2 Hazard Profile

In windstorm hazard assessment, the initial phase, hazard identification, entails evaluating areas prone to wind-related damage and the probability of windstorm occurrences. This stage integrates

analysis of wind patterns, topography, and historical windstorm events to formulate tailored mitigation and response plans. Your role in implementing these strategies is crucial. By minimizing the impact of windstorms on infrastructure, communities, and emergency services, we can significantly reduce the risks posed by these formidable natural phenomena.

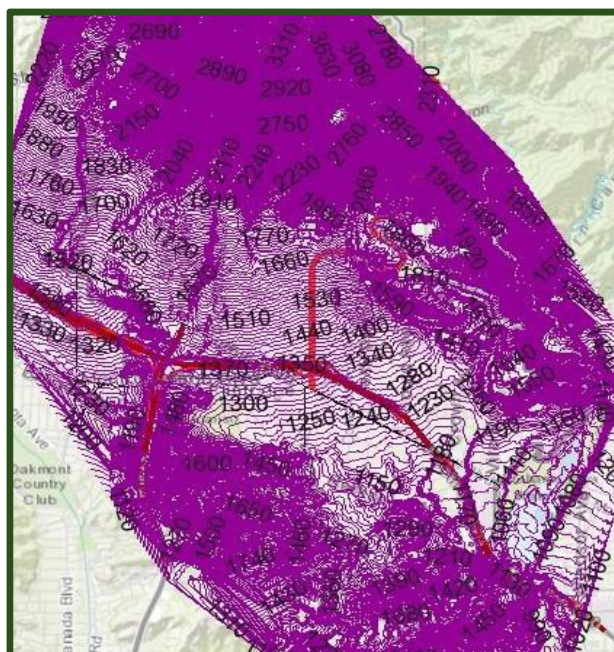
9.2.1 Past Events

A windstorm event in the region can range from short-term microburst activity lasting only minutes to a long-duration Santa Ana wind condition, which may last several days. This happened in the December 2011 and February 2024 Santa Ana wind events. Windstorms in the City of La Cañada Flintridge and surrounding areas can cause extensive damage, including destroying tree stands, road and highway infrastructure, and critical utility facilities. Other major windstorm events warranting news coverage included December 1, 2011 (LA Times), November 17, 2008 (San Gabriel Valley Tribune), November 23, 2007 (San Gabriel Valley Tribune), and January 9, 2007 (Pasadena Star-News). Windstorms have also been a major factor in fueling ferocious California Wildfires, such as in 2017.

9.2.2 Locations

The City of La Cañada Flintridge is between two mountains, creating a tunnel ideal for significant wind incidents.

Figure 17: City of La Cañada Flintridge 10-foot Contours



(Source: GIS)

9.2.3 Frequency

These regional winds typically occur from September to April, with the peak month being December. The frequency of the windstorm events is annual. However, the storm's severity varies on factors like temperature or weather patterns.

9.2.4 Severity

Santa Ana winds from high-pressure air masses over the Great Basin and the upper Mojave Desert can escalate windstorms to potentially catastrophic levels. Any low-pressure area over the Pacific Ocean, off the coast of California, can change the stability of the Great Basin High, causing a pressure gradient that turns the synoptic scale winds southward into Southern California. The magnitude of this shift and the degree to which the Great Basin High is disrupted directly influence the intensity of Santa Ana winds. When low-pressure systems exert significant influence and disturb the stability of the Great Basin High, the resulting pressure gradient can amplify the ferocity of the windstorms, escalating their severity to potentially catastrophic levels. This underscores the critical importance of closely monitoring atmospheric conditions and implementing robust preparedness measures to mitigate the risks posed by these formidable natural phenomena.

9.2.5 Warning Time

Most windstorms are now predictable events due to advancements in weather technology. Through the National Weather Service, a National Oceanic and Atmospheric Administration (NOAA) division, high wind advisory warnings are issued, on average, three to five days before the expected event. These warnings provide valuable lead time for communities to prepare and take necessary precautions.

Despite the advancements in weather technology and the issuance of regional forecasts and warnings, accurately predicting the localized impacts of windstorms remains a challenge. While the broader area may receive indicators of impending high winds, the specific effects on a local scale are more complicated to pinpoint. Factors such as topography, urban infrastructure, and microclimate variations can all influence how intensely a windstorm affects a particular area. Therefore, even with advanced technology and early warnings, communities must remain vigilant and prepared for the potential impacts of high wind events.

9.3 Secondary Impacts

Communities facing increasingly frequent and severe windstorms are contending with immediate threats and far-reaching secondary impacts. Two critical secondary impacts deserving attention are power outages and heightened fire threats. As high wind events sweep through regions, they

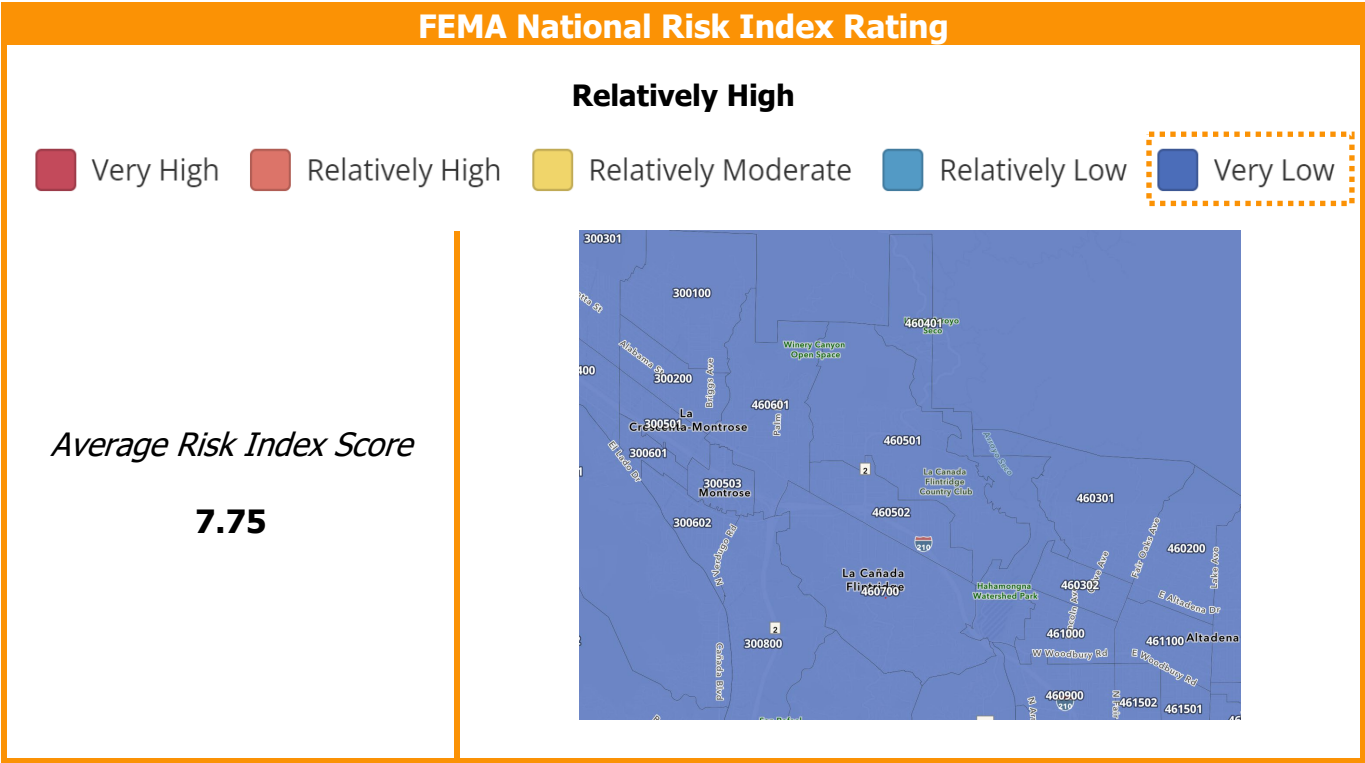
pose a significant risk to power infrastructure, leading to widespread outages that can disrupt daily life and strain community resources. Furthermore, the convergence of powerful winds with the ever-present danger of wildfires, particularly in areas like Southern California, creates a volatile combination that demands heightened vigilance and proactive measures. Understanding and addressing these secondary impacts are paramount for ensuring the resilience and safety of communities in the face of these increasingly common natural hazards.

The impact of high windstorms extends beyond immediate concerns to include the secondary effects, notably on power infrastructure. As strong winds batter the region, powerlines become vulnerable to damage, leading to widespread outages that can disrupt essential services, communication networks, and public safety. Restoring power after such events often requires extensive efforts and resources, highlighting the importance of proactive measures to mitigate the impact of windstorm-related power outages.

In regions like Southern California, windstorm activity poses a danger that extends beyond physical damage to encompass heightened fire risk. The combination of powerful Santa Ana winds with periodic significant fires in the urban-wildland interface presents a grave threat. When Santa Ana winds fan the flames of wildfires, the speed and reach of the inferno escalate dramatically, underscoring the critical need for meticulous brush clearance and fire prevention measures in wildland-urban interface areas. The Santa Ana winds also exacerbate the potential for rapid fire spread between structures, elevating community risk. Consequently, residents and authorities must remain vigilant and implement stringent measures to mitigate the devastating impact of wind-driven wildfires in Southern California.

9.4 Risk Assessment

Windstorms, spanning vast geographical areas, are anticipated to continue occurring frequently. Despite their extensive reach, these storms manifest with minimal severity, resulting in relatively low significance. As a result, they rank sixth in terms of risk priority, indicating a moderate level of concern for mitigation strategies and preparedness measures.



9.4.1 Exposure Assessment

With an analysis of the high wind and tornado events, we can deduce the common windstorm impact areas, including the effect on life, property, utilities, infrastructure, and transportation. Additionally, if a windstorm disrupts power in local residential communities, the American Red Cross and City resources' critical infrastructure might be called upon for care and shelter duties.

The figure below shows the direction of the Santa Ana winds as they travel from the stable, high-pressure weather system called the Great Basin High through the canyons towards the low-pressure system off the Pacific. The City of La Cañada Flintridge directly follows the ocean-bound Santa Ana winds.

Figure 18: Santa Ana Winds



9.4.1.1 Population

The city's geographical features render its entire population vulnerable to the destructive forces of windstorms. When displaced during such events, residents often rely on city resources for essential services, including shelter, staffing, and cleanup efforts. This reliance on municipal resources can strain the city's finances, potentially leading to economic hardships for the community.

A stable population with no changes in growth patterns could impact windstorms in the City of La Cañada Flintridge in several ways. Consistent population levels might allow for focused infrastructure planning and maintenance, particularly regarding trees, and improving the city's preparedness for mitigating windstorm risks. This could also help maintain natural windbreaks and green spaces that reduce wind impacts on the community. Conversely, a lack of demographic changes might limit economic growth and investment in upgrading infrastructure to withstand increasingly severe windstorms expected due to climate change. Moreover, without population growth stimulating technological advances or community awareness, there may be a lack of progress in developing more effective windstorm preparedness and response strategies. Thus, while a population plateau could provide stability in resource management and urban planning, proactive measures and adaptation strategies are crucial to enhance the city's resilience to future windstorm events despite demographic stability.

9.4.1.2 Property

The abundance of lush trees within the city increases the risk of property damage during windstorms. Responsibility for tree maintenance is divided between the city's maintenance of

public trees and private property owners' upkeep of trees on their land. However, fallen trees, particularly from private properties, pose a significant risk of damage to homes, vehicles, and other structures during windstorms. Hence, property owners' proactive and regular maintenance of private trees is essential in reducing the potential for costly damages and ensuring the safety and resilience of the community's infrastructure.

Future development plans in La Cañada Flintridge prioritize expanding housing availability as redevelopment projects. Increased housing density might affect wind patterns within the city, especially if tall buildings and additional structures alter local airflow dynamics. However, careful urban planning, including measures to preserve natural wind barriers and green spaces, could help mitigate these effects. Moreover, maintaining building codes that ensure structural resilience against wind damage and promoting community awareness about windstorm preparedness will be crucial in minimizing the potential negative impacts of increased housing density on La Cañada Flintridge's susceptibility to windstorms.

9.4.1.3 Critical Facilities and Infrastructure

Windstorms directly threaten critical facilities and infrastructure, primarily through the downing of power lines caused by fallen trees and toppled power poles. The resulting power outages can have far-reaching consequences, particularly for vital facilities that rely on continuous electricity supply. Institutions such as USC Verdugo Hills Hospital, NASA's Jet Propulsion Laboratory (JPL), and water companies are particularly vulnerable to these disruptions. Hospitals may struggle to maintain life-saving medical equipment and provide essential healthcare services without power, while research facilities like JPL may face interruptions in critical operations. Additionally, water companies rely on electricity to power pumps and treatment facilities, jeopardizing access to clean water for residents and essential services like firefighting. Ensuring the resilience of these critical facilities and infrastructure in the face of windstorm-related disruptions requires proactive measures, such as robust backup power systems, emergency response plans, and coordinated efforts to minimize downtime and safeguard public safety.

9.4.1.4 Environment

La Cañada Flintridge's unique geography creates a wind tunnel perfect for Santa Ana windstorms, putting the entire city at risk. Changes in weather patterns and increasing extreme events due to climate change make these storms even more severe.

Recognized as a Tree City USA, the city prioritizes tree protection. However, during significant windstorms, the lush trees pose a threat. Their vulnerability to toppling can lead to downed power lines, property damage, and even the endangerment of lives. Thus, while the city's commitment to greenery enhances its beauty, it also heightens the stakes when nature unleashes its fury.

Climate change is anticipated to heighten the impact of windstorms on La Cañada Flintridge by

increasing temperatures and intensifying weather patterns, potentially leading to more frequent and severe wind events. These storms could result in tree damage, infrastructure disruptions, and power outages, posing significant risks to the community. Changes in precipitation patterns may also weaken root systems, making trees more susceptible to wind damage. Additionally, shifts in atmospheric circulation patterns driven by climate change may alter the frequency and intensity of windstorms affecting the area, complicating preparedness and response efforts. Effective urban planning, maintenance of green infrastructure, and community resilience initiatives will be essential in mitigating these risks and enhancing the city's ability to withstand future windstorm impacts.

9.4.2 Vulnerability Assessment

The region's history shows that windstorm events can be expected, perhaps annually, across widespread areas. The City of La Cañada Flintridge and the surrounding region can be adversely impacted during a windstorm, which can result in the involvement of the City of La Cañada Flintridge's emergency response personnel during a wide-ranging windstorm or microburst activity.

9.4.2.1 Population

After severe windstorms, airborne debris poses a grave threat, extending beyond property damage. These projectiles endanger lives and damage building structures, from breaking windows to compromising walls meant to protect inhabitants from nature's fury.

The collateral damage inflicted by windstorms in the aftermath of a catastrophic event often includes downed trees and power lines that obstruct vital thoroughfares and impede the ingress of emergency personnel. Furthermore, the widespread devastation inflicted upon residential and commercial properties serves as a formidable barrier to the expeditious restoration of normalcy, prolonging the agony of displacement and exacerbating the socioeconomic toll exacted by the calamity.

9.4.2.2 Property

Both residential and commercial structures with weak reinforcement are susceptible to damage. Wind pressure can create a direct and frontal assault on a structure, pushing walls, doors, and windows inward. Conversely, passing currents can create lift suction forces that pull building components and surfaces outward. Extreme wind forces can cause the roof or entire building to fail, causing considerable damage.

As shown below, the Beaufort Scale illustrates how varying wind speeds can affect sea swells and structures.

Table 16: Beaufort Scale

Beaufort Force	Speed (mph)	Wind Description	Effects on Land
0	<1	Calm	Smoke rises vertically
1	1-3	Light	Smoke drift shows the direction of the wind, but wind vanes do not
3	8-12	Gentle Breeze	Leaves and small twigs move constantly; Small, light flags are extended.
4	13-18	Moderate Breeze	Longer waves; Whitecaps – Wind lifts dust and loses paper; Small branches move
5	19-24	Fresh Breeze	Moderate, long waves; Many Whitecaps; Some Spray – Small trees with leaves begin to move.
6	25-31	Strong Breeze	Some large waves; Crests of white foam; Spray – Large branches move; Telegraph wires whistle; Hard to hold umbrellas
7	32-38	Near Gale	White foam from breaking waves blows in streaks with the wind – Whole trees move; Resistance felt walking into the wind.
8	39-46	Gale	Waves high and moderately long; Crests break into the spindrift, blowing foam in well-marked streaks - Twigs and small branches break off trees; difficulty walking.
9	47-54	Strong Gale	High waves with wave crests that tumble; Dense streaks of foam in the wind; Poor visibility from spray - Slight structural damage
10	55-63	Storm	Very high waves with long, curling crests; Sea surface appears white from blowing foam; Heavy tumbling of the sea; Poor visibility – broken trees or uprooted; Considerable structural damage
11	64-73	Violent Storm	Waves high enough to hide small and medium-sized ships; Sea covered with patches of white foam; Edges of wave crests blown into froth; Poor visibility - Seldom experienced inland; Considerable structural damage.
12	>74	Hurricane	Sea white with spray. Foam and spray render visibility almost non-existent - Widespread damage. Very rarely experienced on land.

9.4.2.3 Critical Facilities and Infrastructure

In Southern California, windstorms pose significant challenges to utilities, infrastructure, and

transportation systems. Falling trees and flying debris during microbursts and Santa Ana Winds can cause widespread power outages and damage. The region's growing population and infrastructure increase the risk of windstorm-related damage. These storms disrupt utilities, infrastructure, and transportation, impacting industries, commerce, and emergency response operations.

- Utilities - Historically, falling trees have been the region's primary cause of power outages. Windstorms such as strong microbursts and Santa Ana Wind conditions can cause flying debris and downed utility lines. For example, tree limbs breaking in winds of only 45 mph can be thrown over 75 feet. As such, overhead power lines can be damaged even in relatively minor windstorm events. Falling trees can bring electric power lines down to the pavement, creating the possibility of lethal electric shock. Rising population growth and new infrastructure in the region increase the probability of windstorm damage as more life and property are exposed to risk.
- Infrastructure - Due to falling trees and branches, windstorms can damage buildings, power lines, and other property and infrastructure. During wet winters, saturated soils cause trees to become less stable and more vulnerable to uprooting from high winds. Windstorms can result in collapsed or damaged buildings, blocked roads and bridges, and damaged traffic signals, streetlights, and parks, among others. Roads blocked by fallen trees during a windstorm may have severe consequences for people who need access to emergency services. Emergency response operations can be complicated when roads or power supplies are blocked. Industry and commerce can suffer losses from interruptions in electric services and extended road closures. They can also sustain direct losses to buildings, personnel, and other vital equipment. Direct consequences to the local economy resulting from windstorms related to physical damages and interrupted services.
- Transportation—Windstorm activity can impact local transportation in addition to the problems caused by downed trees and electrical wires blocking streets and highways. During powerful Santa Ana winds, significant highways can temporarily close to the truck and recreational vehicle traffic. However, typically, these disruptions are not long-lasting, nor do they carry a severe long-term economic impact on the region.

9.4.2.4 *Environment*

The interplay of dense vegetation and mountainous terrain in urban residential areas exacerbates the risks of windstorms. Towering trees, susceptible to uprooting and limb breakage under high winds, pose threats not only to infrastructure and human safety but also to the integrity of local ecosystems. The resultant debris from wind-battered trees can lead to widespread defoliation, disrupting delicate habitats and causing ecological imbalance and biodiversity loss. Additionally, the erosion of topsoil, worsened by wind erosion, further compromises stability, increasing the risk of landslides and exacerbating habitat disruption. These vulnerabilities are compounded by

climate change-induced alterations in wind patterns, emphasizing the urgent need for proactive conservation measures and resilient ecosystem management practices to mitigate the environmental impacts of windstorms and safeguard both human and ecological well-being.

10. Drought

FEMA Policy Connection: Element B1

Does the plan include a description of the type, location and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events?

FEMA Policy Connection: Element B2

Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods?

10.1 General Background

Drought is a significant decrease in water supply relative to what is “normal” in a given location. A part of the climate cycle of most regions, drought originates from a deficiency of precipitation over an extended period, usually a season or more. A drought is a gradual phenomenon that occurs over several dry years, depleting reservoirs and groundwater basins without the expected annual recharge from winter precipitation. This leads to a water supply shortage for some activity, group, or environmental sector.

10.1.1 Causes and Characteristics

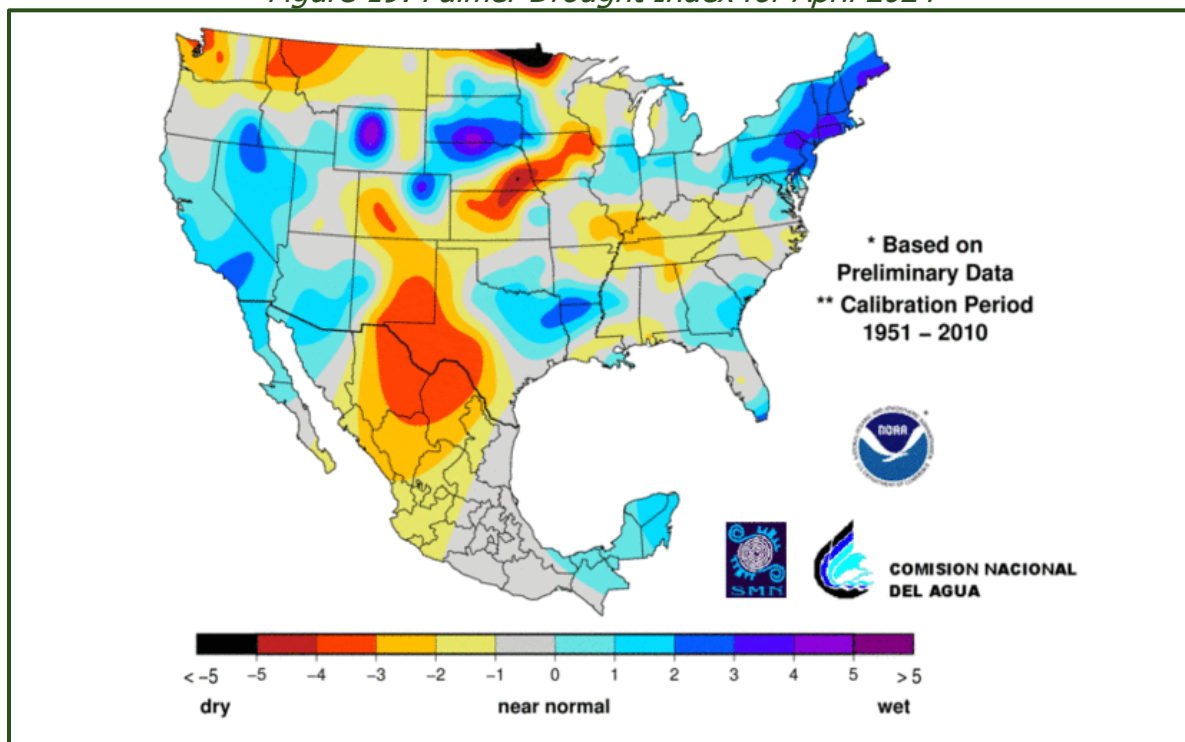
A drought is characterized as a period of below-average precipitation in a particular region in which a scarcity of rain causes a severe hydrological imbalance, culminating in water supply shortages. Determination of when a drought begins is based on impacts on water users and assessments of the available water supply, including water stored in surface reservoirs or groundwater basins. Different water agencies have different criteria for defining drought. Some issues include drought watches or drought warning announcements. The California water code does not include a statutory definition of drought; however, the code frequently focuses on drought conditions during water shortages.

10.1.2 Monitoring Drought

The National Oceanic and Atmospheric Administration has developed several indices to measure drought impacts and severity and to map their extent and locations:

- The **Palmer Drought Index** measures the duration and intensity of long-term drought-inducing circulation patterns. Long-term drought is cumulative, so the intensity of drought during a given month depends on the current weather patterns and the cumulative patterns of previous months. Weather patterns can change quickly from long-term drought to long-term wet patterns, and the Palmer Drought Index can respond rapidly. The figure below shows this index for April 2024.

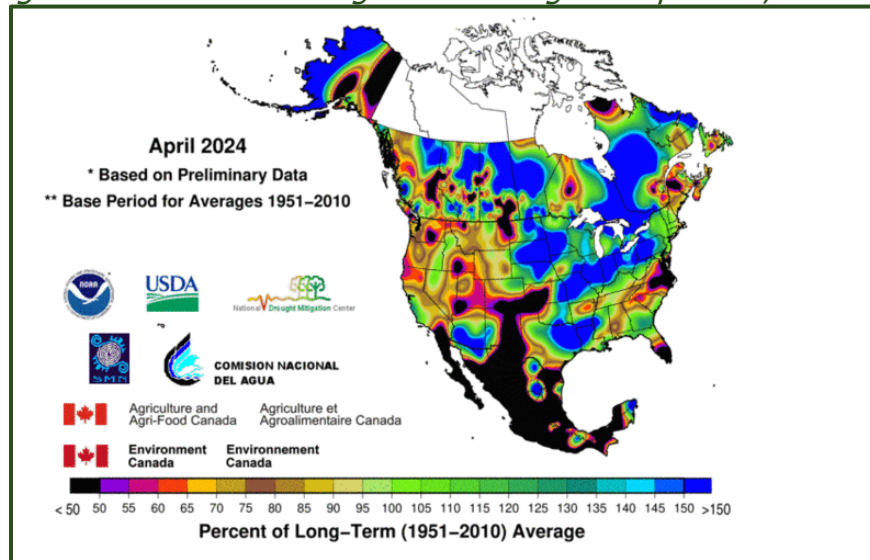
Figure 19: Palmer Drought Index for April 2024



Note: The following graphics represent snapshots in time of parameters that can change daily. They are provided only as examples of the type and level of detail of mapping available on the drought hazard.

- Long-term average precipitation for station or climatic division has been calculated over an extended base period. The **Percentage of Long-Term Average Precipitation** is a viable indicator of drought conditions. The maps show the percentage of these averages that have fallen in periods ranging from the past month to the past five years. The figure below shows this index for April 2024.

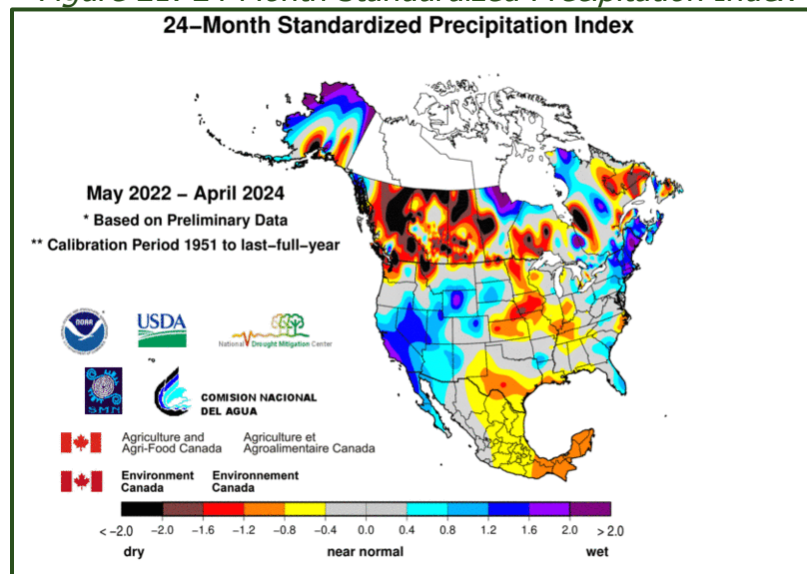
Figure 20: Percent of Long-Term Average Precipitation, 1-Month



Note: The following graphics represent snapshots in time of parameters that can change daily. They are provided only as examples of the type and level of detail of mapping available on the drought hazard.

- While the Palmer indices consider precipitation, evapotranspiration, and runoff, the Standardized Precipitation Index considers only precipitation. In the **Standardized Precipitation Index**, zero indicates the median precipitation amount; the index is negative for drought and positive for wet conditions. The Standardized Precipitation Index is computed for time scales ranging from one month to 24 months. The figure below shows the 24-month Standardized Precipitation Index map for May 2022 through April 2024.

Figure 21: 24-Month Standardized Precipitation Index



Note: The following graphics represent snapshots in time of parameters that can change daily. They are provided only as examples of the type and level of detail of mapping available on the drought hazard.

10.1.3 Drought in California

Most of California's precipitation comes from storms moving across the Pacific Ocean. The path followed by the storms is determined by the position of an atmospheric high-pressure belt that typically shifts southward during the winter, allowing low-pressure systems to move into the state. On average, 75 percent of California's annual precipitation occurs between November and March, and 50 percent occurs between December and February. A persistent Pacific high-pressure zone over California in mid-winter signals a tendency for a dry water year.

A typical water year produces about 100 inches of rainfall over the North Coast, 50 inches of precipitation (combination of rain and snow) over the Northern Sierra, 18 inches in the Sacramento area, and 12 to 14 inches in the planning area. In arid years, these totals can fall to as little as a third of these amounts.

10.1.4 Local Water Supply

The City of La Cañada Flintridge has four water providers serving a different section of the City.

- La Cañada Water District serves approximately 1,400 acres.
- Valley Water Company serves approximately 2,400 acres.
- Crescenta Valley Water District serves approximately 45 acres.
- Liberty Utilities serves approximately 573 acres.

The agencies are all members of the Foothill Municipal Water District (FMWD). FMWD distributes imported water that it receives from the Metropolitan Water District of Southern California (MWD). The MWD imports water supplies to Southern California from two primary sources: the Sacramento and San Joaquin Rivers through the State Water Project and the Colorado River via the Colorado River Aqueduct.

10.2 Hazard Profile

Droughts originate from a deficiency of precipitation resulting from an unusual weather pattern. The drought is considered short-term if the weather pattern lasts a short time (a few weeks or a couple of months). The drought is considered long-term if the weather pattern becomes entrenched and the precipitation deficits last for several months or years. It is possible for a region to experience a long-term circulation pattern that produces drought and to have short-term changes in this long-term pattern that result in short-term wet spells. Likewise, short-term weather spells can interrupt a long-term wet circulation pattern that results in short-term drought.

10.2.1 Past Events

The California Department of Water Resources has state hydrologic data from the early 1900s. The hydrologic data show multi-year droughts from 1912 to 1913, 1918 to 1920, 1922 to 1924, and 1928 to 1934. The following sections describe additional prolonged periods of drought in California since then, all of which impacted the Los Angeles County area, including the City of La Cañada Flintridge, to some degree.

- **1976 to 1977 Drought**—California had one of its most severe droughts due to a lack of rainfall during the winters of 1976 and 1977. In California, 1977 was the driest period on record, with the previous winter recorded as the fourth. The cumulative impact led to widespread water shortages and severe water conservation measures throughout the state. Only 37 percent of the average Sacramento Valley runoff was received, with just 6.6 million acre-feet recorded. A federal disaster declaration was declared but did not apply to Los Angeles County.
- **1986 to 1992 Drought** - California received precipitation well below average for four consecutive years. While the Central Coast was most affected by the lack of rainfall and low runoff, the Sierra Nevada range in Northern California and the City of Los Angeles was also affected. During this drought, only 56 percent of the average runoff for the Sacramento Valley was received, totaling just 10 million acre-feet. By February 1991, all 58 counties in California were suffering from drought conditions. Urban areas, as well as rural and agricultural areas, were impacted. In 1988, the City of Los Angeles adopted a plumbing retrofit ordinance to mandate the installation of conservation devices in all properties and require water-efficient landscaping in new construction.
- **2007 to 2009 Drought**—The governor issued an Executive Order that proclaimed a statewide drought emergency on June 4, 2008, after spring 2008 was the driest spring on record and snowmelt runoff was low. On February 27, 2009, the governor proclaimed a state of emergency for the entire state as the severe drought conditions continued widespread impacts and the most considerable court-ordered water restriction in state history (at the time).
- **2011 to 2017 Drought** - On January 17, 2014, the governor declared a state of emergency for drought throughout California. This declaration followed a report stating California had had the least rainfall in its 163-year history. Californians were asked to reduce their water consumption by 20 percent voluntarily. Drought conditions worsened into 2015. On April 1, 2015, following the lowest snowpack ever recorded, the governor announced actions to save water, increase enforcement to prevent wasteful water use, streamline the state's drought response, and invest in new technologies to make California more drought-resilient. The governor directed the State Water Resources Control Board to implement mandatory water reductions in cities and towns across California to reduce

water usage by 25 percent on average. MWD implemented its Water Supply Allocation Plan (WSAP) on July 1, 2015, which assigned a 15 percent water cutback on regular supply deliveries. Throughout the allocation period, Foothill Municipal Water District consistently tracked lower than its cumulative target and conserved more than 18 percent compared to the WSAP baseline. This period of drought in California set several records:

- The period from 2012 to 2014 ranked as the driest three consecutive years for statewide precipitation.
- 2014 set new climate records for statewide average temperatures and record-low water allocations in the State Water Project and federal Central Valley Project.
- 2013 set minimum annual precipitation records for many communities.
- **2020 to 2022** - California experienced a significant drought, marked by consecutive years of arid conditions and below-average precipitation levels. The drought intensified over time, posing severe challenges to the state's water resources, agriculture, and ecosystems. Water reservoirs dwindled, exacerbating concerns over water scarcity and agricultural productivity. The lack of precipitation exacerbated wildfires, which threatened several communities. Efforts to mitigate the drought's impacts included water conservation measures, restrictions on water usage, and increased emphasis on sustainable water management practices. While sporadic rainfall provided temporary relief, the drought underscored the urgent need for long-term solutions to address California's vulnerability to water scarcity in the face of changing climate patterns.

10.2.1.1 Drought Impact Reporter

The National Drought Mitigation Center developed the Drought Impact Reporter in response to the need for a national drought impact database for the United States. Information comes from various sources: online, drought-related news stories and scientific publications, members of the public who visit the website and submit a drought-related impact for their region, members of the media, and members of relevant government agencies. The Drought Impact Reporter contains information on 41 impacts from droughts that specifically affected the County of Los Angeles from January 2019 through May 2024. The following are the categories and reported number of implications (note that some impacts have been assigned to more than one category):

- Agriculture—7
- Business and Industry—6
- Energy—0

- Fire—3
- Plants and Wildlife—8
- Relief, Response, and Restrictions—31
- Society and Public Health—4
- Tourism and Recreation—8
- Water Supply and Quality—32

10.2.2 Locations

Drought is a regional phenomenon. A drought that affects the planning area would affect the entirety of the area simultaneously and has the potential to directly or indirectly impact every person in the county and adversely affect the local economy.

10.2.3 Frequency

California experiences droughts with varying frequency depending on climatic conditions and regional factors. Historically, California has faced droughts approximately once every decade, although the severity and duration of these events can vary widely. In recent years, there has been a growing concern about the increasing frequency and intensity of droughts due to climate change, which can exacerbate natural variability in precipitation patterns. Additionally, factors such as population growth, urbanization, and water management practices can influence the impacts of droughts on water resources and communities in California. Overall, the drought frequency in California underscores the importance of proactive measures to adapt to and mitigate the impacts of water scarcity in the state.

10.2.4 Severity

Drought can have a widespread impact on the environment and the economy. However, it typically does not result in loss of life or damage to property, as do other natural disasters. Nationwide, drought impacts occur in the following categories: agriculture, business and industry, energy, fire, plants and wildfire, relief, response, and restrictions, tourism and recreation, and water supply and quality sectors. The National Drought Mitigation Center uses three categories to describe likely drought impacts:

- Economic Impacts — These impacts of drought cost people or businesses money.

- Environmental Impacts — Plants and animals depend on water like people. When a drought occurs, their food supply can shrink, and their habitat can be damaged.
- Social Impacts — These impacts affect people's health and safety. Social impacts include public safety and health, conflicts between people when there is insufficient water and lifestyle changes. The severity of a drought depends on the degree of moisture deficiency, the duration, and the size and location of the affected area. The longer the duration of the drought and the larger the area impacted, the more severe the potential impacts.

Drought generally does not affect groundwater sources as quickly as surface water, but groundwater supplies typically take longer to recover. Reduced precipitation during a drought means groundwater supplies are not replenished at an average rate. This can lead to reduced groundwater levels and problems such as reduced pumping capacity or wells drying. Shallow wells are more susceptible than deep wells. Reduced replenishment of groundwater affects streams. Much of the stream flow comes from groundwater, especially during the summer when there is less precipitation and after the snowmelt ends. Reduced groundwater levels mean that even less water will enter streams when stream flows are lowest.

10.2.5 Warning Time

Drought is a gradual phenomenon. It is a climatic pattern that occurs over long periods. Due to the numerous variables, only generalized warnings can occur. Empirical studies conducted over the past century have shown that meteorological drought never results from a single cause. It results from many causes, often synergistic; these include global weather patterns that produce persistent, upper-level high-pressure systems along the West Coast with warm, dry air resulting in less precipitation.

Scientists at this time do not know how to predict drought more than a month in advance for most locations. Predicting drought depends on the ability to forecast precipitation and temperature. Anomalies of rainfall and temperature may last from several months to several decades. California often has several-year-long droughts, while other areas in the United States may undergo droughts as short as 1 or 2 months. How long they last depends on interactions between the atmosphere and the oceans, soil moisture and land surface processes, topography, internal dynamics, and the accumulated influence of weather systems on a global scale.

10.3 Secondary Impacts

The secondary impact most associated with drought is wildfire. A prolonged lack of precipitation dries out vegetation, which becomes increasingly susceptible to ignition as the drought extends. Millions of board feet of timber have been lost. In many cases, erosion occurred, which caused serious damage to aquatic life, irrigation, and power production by heavy silting of streams, reservoirs, and rivers.

Drought is often accompanied by extreme heat, which exposes people to the risk of sunstroke, heat cramps, and heat exhaustion. Pets and livestock are also vulnerable to heat-related injuries, and crops can also be vulnerable.

10.4 Risk Assessment

Drought, extending significantly across various regions, is anticipated to persist in the future with high likelihood. However, its severity and magnitude are relatively low, indicating minimal immediate impact. Despite its widespread occurrence, drought ranks eighth in terms of risk significance. While it demands attention and preventative actions, its present effect remains limited, ranked eighth in terms of risk significance by the community.

FEMA National Risk Index Rating

No Rating Available

**The FEMA National Risk Index is based on Agricultural (crop-only) impacts. As such, it does not provide a rating; however, the City of La Cañada Flintridge is still susceptible to drought impacts.*

10.4.1 Exposure Assessment

Drought can affect various economic, environmental, and social activities. Its impacts can span many sectors of the economy because water is integral to the ability to produce goods and provide services. The impacts can reach well beyond the area undergoing physical drought. An activity's vulnerability to drought depends on its water demand and the water supplies available to meet the demand.

California's 2005 Water Plan and subsequent updates indicate that water demand in the state will increase through 2030. The Department of Water Resources predicts a modest decrease in agricultural water use, but urban water use will increase by 1.5 to 5.8 million acre-feet per year (DWR 2005). The 2023 update to the Water Plan explores measures, benchmarks, and successes in increasing agricultural and urban water use efficiency.

10.4.1.1 Population

Drought's impact on health and safety is multifaceted, encompassing various health concerns stemming from diminished water flows and quality and heightened dust levels. These conditions can exacerbate respiratory ailments and other health issues, potentially resulting in the loss of human life. Additionally, drought can heighten recreational risks, degrade air quality, and compromise living conditions due to energy shortages, diminished air quality, and hygiene challenges. Water scarcity can also jeopardize food security and nutrition, increasing illness and disease prevalence within affected communities. Moreover, droughts can impair local firefighting

capabilities, amplifying the risk of wildfires.

Foothill Municipal Water District serving the City of La Cañada regional stakeholders have devoted considerable time and effort to protect life, safety, and health during times of consecutive dry years. Provisions and measures have been taken to analyze and account for anticipated water shortages. Through collaborative efforts with residents in the planning area, these water entities have developed strategies to mitigate the impacts on residents and water consumers, ensuring coordinated responses to alleviate the strain caused by drought conditions.

A population plateau with no changes to growth patterns can significantly influence a city's resilience to drought conditions. In the context of La Cañada Flintridge, stable population levels may lead to consistent water demand, stabilizing water management, and conservation efforts. This predictability can facilitate long-term planning for sustainable water use practices and infrastructure investments aimed at improving water efficiency and resilience to drought. However, without population growth stimulating innovation or economic development, there might be limited incentive to invest in new technologies or initiatives for water conservation. Additionally, stagnant population growth could result in slower adaptation to changing environmental conditions exacerbated by climate change, such as prolonged droughts.

10.4.1.2 Property

No structures will be directly affected by drought conditions, though some structures may become vulnerable to wildfires, which are more likely following years of drought. Droughts can also have significant impacts on landscapes, which could cause a financial burden to property owners. However, these impacts are not considered critical in planning for impacts from the drought hazard.

Future changes in development aimed at increasing housing availability within existing sites in La Cañada Flintridge could have varying impacts on the city's vulnerability to drought. Increased housing density may lead to higher water demand, potentially straining local water resources during periods of drought. However, efficient urban planning practices such as implementing water-saving technologies, promoting drought-resistant landscaping, and enforcing water conservation measures can help mitigate these impacts. Moreover, focusing on development within existing sites rather than expanding into undeveloped areas can reduce the overall ecological footprint and limit disruptions to natural water cycles.

10.4.1.3 Critical Facilities and Infrastructure

Critical facilities and infrastructure, as defined for this plan, will continue to be operational during a drought. A benefit of water conservation in the City is delaying the need for sewer facility expansions by reducing wastewater discharge into the sewer collection and treatment system. Critical facility elements such as landscaping may not be maintained due to limited resources, but

the risk to the planning area's critical facilities inventory will be primarily aesthetic. These aesthetic impacts are not considered significant.

10.4.1.4 Environment

Droughts profoundly impact the environment of Southern California, a region already characterized by semi-arid and Mediterranean climates. With water resources already limited, prolonged periods of drought intensify stress on ecosystems, exacerbating existing challenges. Reduced precipitation reduces water availability in rivers, streams, and groundwater reserves, negatively affecting habitats such as riparian zones, wetlands, and coastal estuaries. As water sources dwindle, vegetation struggles to survive, increasing the risk of wildfires and biodiversity loss. Moreover, water scarcity exacerbates competition among species for limited resources, disrupting ecological balance and potentially driving shifts in species distributions. Additionally, drought-induced soil moisture deficits contribute to desertification and land degradation, further compromising the resilience of ecosystems.

10.4.2 Vulnerability Assessment

Based on the region's historical climate patterns, drought events can be anticipated intermittently, impacting vast areas across Southern California. The City of La Cañada Flintridge and its surrounding areas are susceptible to adverse effects during prolonged drought. These impacts may necessitate the involvement of the City's emergency response personnel to address various challenges arising from water scarcity, including but not limited to managing water resources, implementing water conservation measures, and providing support to communities affected by drought-related hardships.

10.4.2.1 Population

Droughts in California can harm public health and safety in various ways. Reduced water availability and quality can lead to waterborne diseases and health disparities, mainly affecting vulnerable populations. Dust storms from dry landscapes worsen air quality, causing respiratory issues. Industries relying on water sources, such as agriculture and manufacturing, may suffer from economic losses and job cuts. Addressing these impacts requires comprehensive water management and community-based approaches to enhance resilience to future droughts.

10.4.2.2 Property

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

10.4.2.3 Critical Facilities and Infrastructure

Critical facility elements such as landscaping may not be maintained due to limited resources, but the risk to the planning area's essential facilities and infrastructure inventory will be primarily aesthetic.

10.4.2.4 Environment

Environmental losses result from damage to plants, animals, wildlife habitat, air and water quality, forest and range fires, landscape quality degradation, biodiversity loss, and soil erosion. Some of the effects are short-term, and conditions quickly return to normal after the end of the drought. Other environmental effects linger for some time or may even become permanent. Wildlife habitat, for example, may be degraded through the loss of vegetation. However, many species will eventually recover from this temporary condition. The degradation of landscape quality, including increased soil erosion, may lead to a more permanent loss of biological productivity. Although environmental losses are difficult to quantify, growing public awareness and concern for ecological quality have forced public officials to focus greater attention on these effects.

11. Extreme Heat

FEMA Policy Connection: Element B1

Does the plan include a description of the type, location and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events?

FEMA Policy Connection: Element B2

Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods?

11.1 General Background

Extreme heat is typically when temperatures consistently stay ten degrees or more above a region's average high temperatures for an extended period. In La Cañada Flintridge, the summers are hot. Still, the combination of high temperatures and high humidity required for the National Weather Service (NSW) to declare a heat emergency is relatively rare. The County of Los Angeles Public Health issues Heat Alerts for the San Gabriel Valley when high temperatures are experienced. Extreme heat events could cause significant impacts on the community. Temperatures in urban areas can exacerbate already warm conditions due to materials, such as asphalt, absorbing and releasing heat, causing urban heat islands. Increased exposure to heat puts children, the elderly, and people with pre-existing health conditions at more severe risk of suffering from heat stroke and heat-related complications.

11.1.1 Causes and Characteristics

Extreme heat is temperatures that hover ten °F or more above the average high temperatures for a region for several weeks.

According to the California Climate Adaptation Strategy, heat waves have claimed more lives in California than all other declared disaster events combined. Despite this history, no single heat emergency was proclaimed at the state or federal level between 1960 and 2016. Heat emergencies are often slow to develop and usually hurt vulnerable populations. Heat waves do not strike victims immediately; their cumulative effects slowly take the lives of vulnerable populations. It could take several days of oppressive heat for a heat wave to have a significant or quantifiable impact in the Los Angeles area.

The Los Angeles region is experiencing more heat waves and more extreme heat days. Heat waves have increased by more than three per century, and extreme heat days have increased by 23 per century. Both have more than tripled over the past 100 years due to the steady warming in the Los Angeles region. The average annual maximum temperature in Los Angeles has warmed by 5.0°F, and the average annual minimum temperature has warmed by 4.2°F. The most significant rate of change was during the summer for both maximum and minimum temperatures, with late fall and early winter having the lowest rates of change. There was also an increase in heat wave duration. Heat waves lasting longer than six days occurred regularly after the 1970s but were nonexistent from 1906 until 1956, when the first six-day heat wave was recorded.

11.1.2 Urban Heat Island Index for California (UHII)

The Urban Heat Island Index, developed by the California Environmental Protection Agency, quantifies the extent and severity of urban heat islands for individual cities, including interactive urban heat island maps showing the urban heat island effect for each census tract in and around most metropolitan areas throughout the state. This can also help identify and prioritize areas across the state for adaptation efforts, such as urban greening and cool roofs and pavements. Heat islands can affect communities by increasing summertime peak energy demand, air conditioning costs, air pollution, greenhouse gas emissions, heat-related illness and mortality, and water quality.

Because of its expansive urban size, the Los Angeles region is identified as an urban heat island (UHI). UHIs develop in urban areas where natural surfaces are paved with asphalt or covered by buildings. These surfaces absorb radiation from the sun during the day and are re-radiated at night, raising ambient temperatures. UHIs have high nighttime minimum temperatures compared to neighboring areas. Waste heat from air conditioners, vehicles, and other equipment contributes to the UHI effect.

11.2 Hazard Profile

Hazard identification is the foundational step in assessing the risk of extreme heat events. This phase involves evaluating various factors, including climatic conditions, historical temperature data, urban heat island effects, and vulnerability of populations and infrastructure. By systematically analyzing these elements, experts can estimate the geographic extent of areas prone to extreme heat and the likelihood of heat waves occurring. This information is crucial for developing targeted heat mitigation strategies, implementing heat action plans, and enhancing community resilience to extreme heat events.

11.2.1 Past Events

The Los Angeles region has not been included in federal declarations for extreme heat, high winds, or tornadoes. According to the Western Regional Climate Center, the planning area

averages 20 days a year with temperatures exceeding 90°F, and those days may be included in a heat wave event. A storm event database maintained by NOAA's National Centers for Environmental Information (NCEI) lists three excessive heat events in the planning area:

By the 1990s, average temperatures in Los Angeles had risen to 5 degrees Fahrenheit warmer than in 1940. This was due to the dramatic loss of Los Angeles County orchards and farmland in favor of buildings and roads. The increased concrete and asphalt served to absorb solar heat and heat the surrounding atmosphere, causing a massive "urban heat island." Studies suggest that a massive planting of trees in the San Fernando Valley alone could lower average temperatures by as much as 9 degrees Fahrenheit.

The worst single heatwave event in Southern California for loss of life occurred in 1955, when an eight-day heat wave is said to have resulted in 946 deaths. The summer 2006 heat wave in California caused the deaths of about 650 people over 13 days.

- June 2008—Strong high pressure centered over Arizona and weak offshore flow generated extreme heat conditions across Central and Southern California. Across many sections of the area, afternoon temperatures climbed to between 100°F and 114°F, setting numerous high-temperature records. The extreme heat resulted in several power outages due to excessive electrical use.
- August 2007 – The above-normal temperatures and relative humidity produced excessive heat across the planning area. Eight fatalities occurred related to the heat. Heat index values were between 105 and 112 degrees.
- July 2006—California and Nevada were impacted by a heat wave that was unprecedented in terms of the magnitude and duration of high temperatures, especially high nighttime minimums; great areal extent, as it simultaneously impacted both northern and southern California; and very high humidity levels (Los Angeles Times, 25 July 2006). The events are credited with 163 deaths in California. A temperature of 119°F was recorded in Woodland Hills, with high humidity.

11.2.2 Locations

Extreme heat events present a widespread risk throughout the city, with no specific area immune to their effects. However, certain factors within urban environments can exacerbate the intensity and frequency of these events. Reduced airflow, often attributed to the urban heat island effect, occurs due to the abundance of concrete and asphalt surfaces, which absorb and retain heat, elevating temperatures. The reduction in vegetation cover within urban areas contributes to the amplification of extreme heat events. Trees and green spaces play a crucial role in regulating temperatures through shading and evapotranspiration, but urbanization often leads to vegetation removal.

11.2.3 Frequency

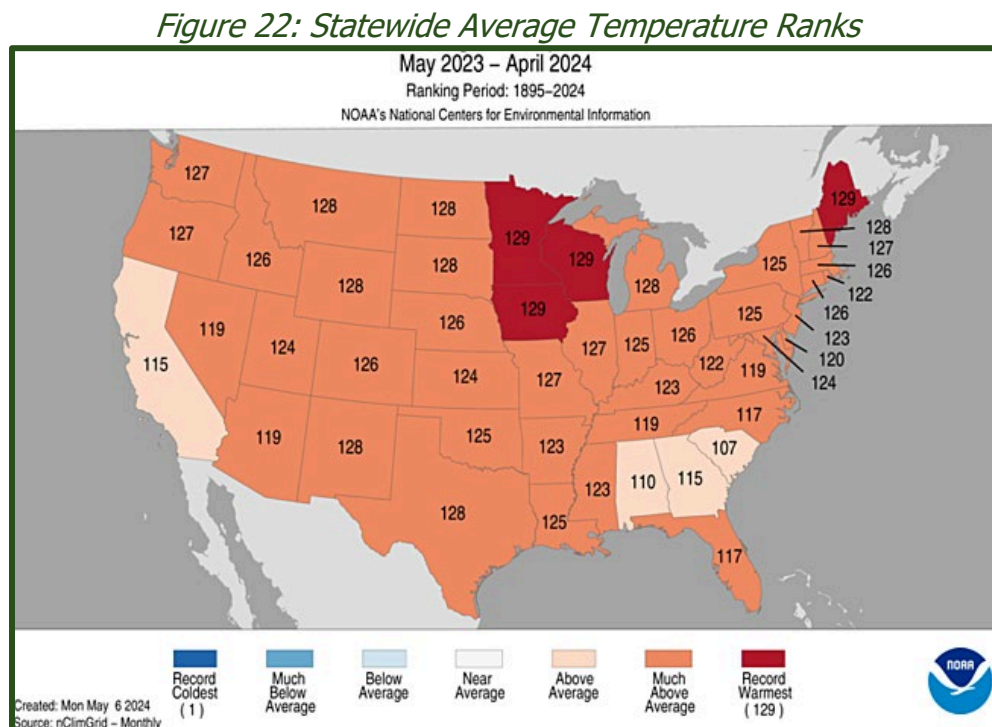
In La Cañada Flintridge, extreme heat events are a recurring phenomenon, typically occurring annually over several days during the summer months from June through September. These heat waves bring intense and sustained periods of high temperatures, significantly impacting the local climate and environment.

While the exact frequency of extreme heat events may vary from year to year, they are a regular occurrence in the City of La Cañada Flintridge due to its location in Southern California, where hot and dry conditions are prevalent during the summer months. The combination of geographic factors, such as proximity to desert regions and urban heat islands, contributes to the frequency and intensity of heat waves experienced in the area.

The growing concern over the impact of climate change on the frequency and intensity of extreme heat events is particularly pronounced in regions like Southern California, where climate projections indicate a higher likelihood of more frequent and intense heat waves in the future.

11.2.4 Severity

The National Center for Environmental Information (NCEI) documents heat waves that have affected California over the years. The figure below shows the average temperature for California from May 2023 to April 2024.



The Office of Environmental Health Hazard Assessment (OEHHA) finds an increase in annual average temperatures statewide and, more specifically, in Southern California of 1.8°F per century beginning in 1895.

11.2.5 Warning Time

The National Weather Service (NWS) has developed experimental forecasts called HeatRisk to assess heat risk to local thresholds. The numeric (0-4) and color (green, yellow, orange, red, and magenta) scales are similar to the NWS air quality index. HeatRisk provides one value each day that indicates the approximate level of heat risk concern for any location and identifies the groups that are most at risk.

Table 17: HeatRisk Thresholds

Value	Risk of Heat-Related Impacts	How common is this Heat?	For those at risk, what actions can be taken?
Green 0	There is little to no risk from expected heat.	Very Common	No preventative actions necessary
Yellow 1	Minor - This heat level primarily affects those extremely sensitive to heat, especially outdoors, without effective cooling and adequate hydration.	Very Common	- Increase hydration - Reduce time spent outdoors or stay in the shade when the sun is strongest - Open windows at night and use fans to bring cooler air inside buildings
Orange 2	Moderate—This level of heat affects most individuals sensitive to heat, especially those without effective cooling and/or adequate hydration. Impacts are possible in some health systems and in heat-sensitive industries.	It is pretty standard in most locations. It is widespread in southern regions of the country	- Reduce time in the sun during the warmest part of the day - Stay hydrated - Stay in a cool place during the heat of the day - Move outdoor activities to more excellent times of the day - For those without an a/c, use fans to keep the air moving and open windows at night
Red 3	Major—This level of heat affects anyone without effective cooling and/or adequate hydration. It will likely impact some health systems, heat-sensitive industries, and infrastructure.	Uncommon most locations It is relatively common in southern regions of the country.	- Consider canceling outdoor activities during the heat of the day; otherwise, move activities to the most excellent parts of the day - Stay hydrated - Stay in a cool place, mainly during the heat of the day

Value	Risk of Heat-Related Impacts	How common is this Heat?	For those at risk, what actions can be taken?
			and evening If you have access to air conditioning, use it or find a location that does. Even a few hours in an excellent location can lower the risk. Fans may not be adequate
Magenta 4	Extreme - This rare and/or long-duration extreme heat with little to no overnight relief affects anyone without effective cooling and adequate hydration. Impacts are likely in most health systems, heat-sensitive industries, and infrastructure.	Rare most locations It occurs up to a few times a year in southern regions of the country, especially the Desert Southwest.	- Strongly consider canceling outdoor activities - Stay hydrated - Stay in a cool place, including overnight - If you have access to air conditioning, use it or find a location that does. Even a few hours in an excellent location can lower the risk. Fans will not be adequate - Check on your neighbors

(Source: NWS, 2024)

The NWS continues to issue excessive heat watches, excessive heat warnings, and heat advisories to warn of an extreme heat event (a “heat wave”) within the next 36 hours. Suppose NWS forecasters predict an excessive heat event beyond 36 hours. In that case, the NWS will issue messaging through a particular weather statement, partner emails, and social media within three to seven days. The NWS will use the HeatRisk output to determine whether an excessive heat watch/warning or an advisory is warranted. The NWS issues the following types of heat-related advisories:

- Heat Advisory—Tied to events where the HeatRisk output is on the orange/red (Level 2-3) thresholds (orange will not be an automatic heat advisory).
- Excessive Heat Watch/Warning— Tied to events where the HeatRisk output is on the red/magenta (Level 3-4) thresholds.

These advisories are intended to raise the public’s awareness to prevent heat illnesses from occurring. If significantly hot weather is forecasted, the NWS will issue an excessive heat watch generally two to three days in advance. An excessive heat watch is a way to warn the public and emergency officials that extreme temperatures are expected. Suppose significantly hot temperatures remain in the forecast for 24 to 28 hours. In that case, the excessive heat watch will be upgraded to an excessive heat warning, indicating that extreme heat has either arrived or is expected soon.

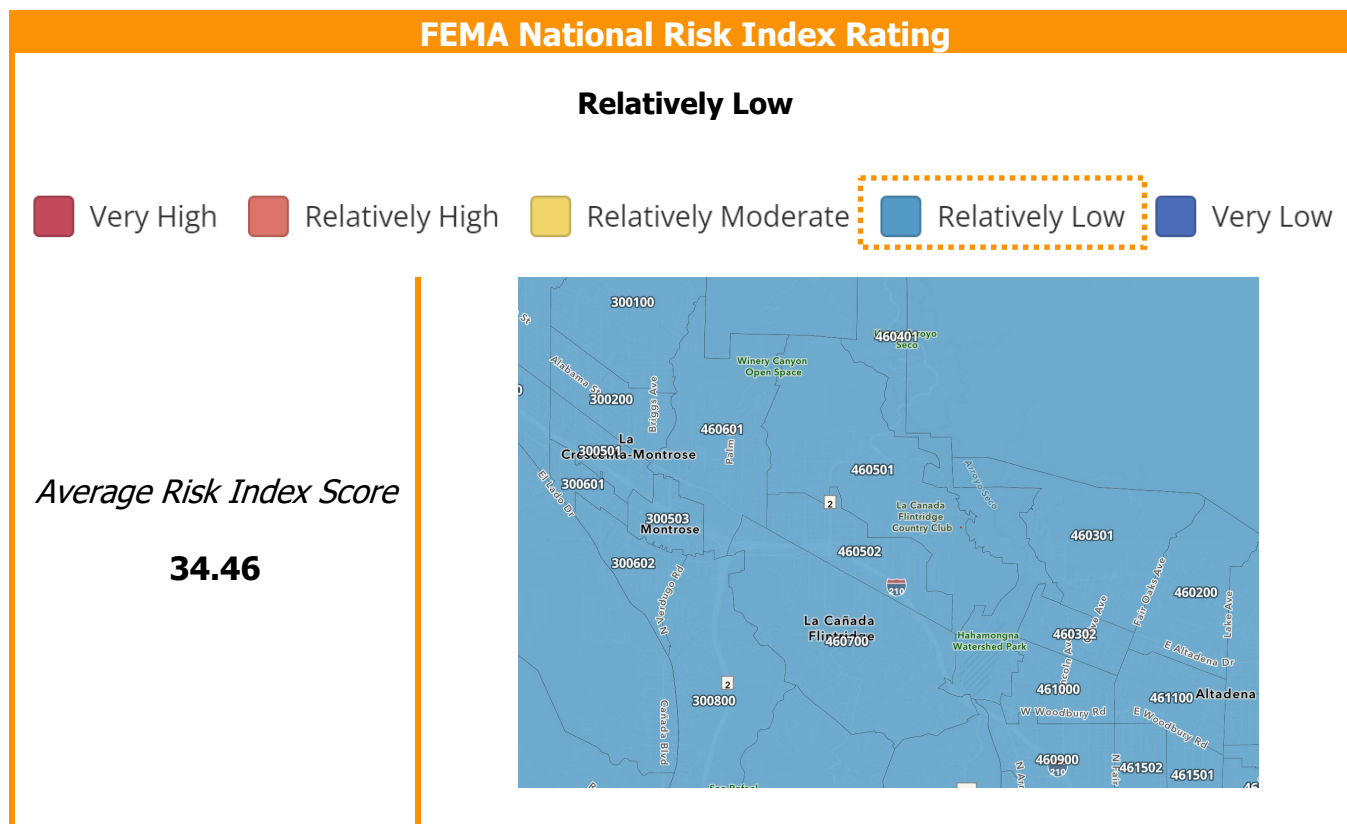
11.3 Secondary Impacts

A secondary impact of extreme heat is an elevated fire danger when a prolonged heat wave occurs. There is an increased threat of fire ignitions and considerable fire growth. A heat wave combined with low humidity will bring an extended period of elevated fire weather concerns to the region, particularly the mountains and foothills, where there will be an increased risk of sizeable plume-dominated fire behavior.

Another secondary impact of extreme heat is poor air quality, which can occur during summer when stagnant atmospheric conditions trap humid air and pollutants near the ground and closer to residents. Ozone, a major component of smog, is created in the presence of sunlight via reactions between chemicals in gasoline vapors and industrial smokestacks. Hot weather can increase ozone levels. High ozone levels often cause or worsen respiratory problems. The longer a given heat wave lasts and the hotter the temperature is, the greater the risk of adverse impacts on human health or infrastructure. Climate change is likely to bring hotter temperatures, hot days, and frequent heat waves. As the population ages and climate change brings more extreme heat events, heat-related impairments and deaths may rise.

11.4 Risk Assessment

Extreme heat events are expected to occur with increased frequency and have a significant geographic extent. Despite the high probability of occurrence, the magnitude or severity of the impacts is considered negligible but extremely dangerous. Therefore, in the risk ranking, it occupies the fourth position. While the scenario does not pose immediate severe consequences, its widespread occurrence underscores the need for proactive measures to address and mitigate its effects, ensuring the sustained resilience of affected regions and communities.



11.4.1 Exposure Assessment

In most areas of the state, summer temperatures are expected to be warm; however, temperatures can rise much higher during specific periods to the point of being considered severe or possibly dangerous. Severe heat conditions are much warmer than average for a particular time and place. Severe heat conditions may also include increased humidity. An extreme heat event is a series of severe heat days occurring consecutively. Heatwave activity is rising in California, and humid heat waves are becoming more prevalent.

Heat ranks as among the deadliest of all-natural hazards. Even though heat-related deaths and illnesses are largely preventable, many people annually succumb to the extreme and incredibly humid heat. In a 10-day humid California heat wave in 2006, 655 people died due to heat-related conditions.

11.4.1.1 Population

Due to the natural Mediterranean climate, all residents of La Cañada Flintridge are exposed to some extent to extreme heat each year. Extreme heat can cause heat exhaustion, in which the body becomes dehydrated, resulting in an imbalance of electrolytes. Without intervention, heat exhaustion can lead to collapse and heatstroke. Heatstroke occurs when sweat cannot happen,

and the body overheats. Without intervention, heatstroke can lead to confusion, coma, and death. Extreme heat is the primary weather-related cause of death in the U.S. In a 10-year record of weather fatalities across the nation from (2006-2015), excessive heat claimed more lives each year than floods, lightning, tornadoes, and hurricanes. 2015 heat claimed 25 lives, though none were in California (NWS 2016b). Extreme heat events do not typically impact buildings; however, losses may be associated with the UHI effect and overheating of HVAC systems. These extreme heat events can lead to drought, impact water supplies, and increase heat-related illnesses and deaths.

Consistent population levels could help stabilize urban heat island effects by potentially lessening temperature swings in developed regions. This steadiness might facilitate targeted urban planning and infrastructure upgrades to address heat-related challenges, including the expansion of green spaces, installation of cool roofs, and enhancement of public cooling facilities. However, lacking population growth to drive economic activity and innovation, there could be reduced investment in sustainable technologies and initiatives crucial for mitigating urban heat island impacts and adapting to escalating temperatures intensified by climate change.

11.4.1.2 Property

According to the Los Angeles County Assessor, approximately 7,200 buildings within the census tracts define the planning area. Most of these buildings are residential. All of these buildings are considered to be exposed to adverse weather hazards. The frequency and degree of damage will depend on specific locations. Extreme heat generally does not damage property, although it may damage or destroy crops or landscape plants. Typically, the only impact extreme heat has on general building stock is increased demand for air conditioning equipment, which may cause strain on electrical systems.

Future development efforts aimed at increasing housing availability may contribute to the urban heat island effect, where densely populated areas experience higher temperatures compared to rural surroundings due to the absorption and retention of heat by buildings and paved surfaces. This could potentially exacerbate heat-related risks for residents. However, strategic urban planning and design interventions such as incorporating green spaces, implementing cool roofing materials, and promoting energy-efficient building designs can help mitigate these impacts. By focusing development within existing sites rather than expanding into undeveloped areas, there is an opportunity to minimize additional heat absorption and reduce overall urban heat island effects.

11.4.1.3 Critical Facilities and Infrastructure

Critical facilities and infrastructure are increasingly exposed to the risks of extreme heat due to climate change. High temperatures can strain and compromise the resilience of essential services such as power generation, transportation networks, water supply systems, and healthcare

facilities. Heatwaves can lead to equipment failures, service disruptions, and increased energy demand for cooling, placing additional stress on infrastructure. As the frequency and intensity of extreme heat events continue to rise, it is imperative to implement adaptation measures, enhance infrastructure resilience, and develop contingency plans to ensure the uninterrupted operation of critical facilities and services, safeguarding public health and safety.

11.4.1.4 Environment

Prolonged extreme heat, worsened by rising global temperatures, threatens landscapes, lakes, and vegetation. This heat leads to landscape degradation, drying up lakes and causing vegetation to wither, impacting biodiversity. As temperatures rise, ecosystems become parched, disrupting their balance. Vegetation, vital for biodiversity and soil stability, suffers under prolonged heat, triggering wildfires and soil erosion.

11.4.2 Vulnerability Assessment

The risk assessment summarizes the City's vulnerability to extreme heat and provides a framework for developing and prioritizing appropriate mitigation actions and strategies to reduce losses.

11.4.2.1 Population

According to the EPA, those at greater risk of the adverse effects of excessive heat events are individuals with physical or mobility constraints, cognitive impairments, economic constraints, and social isolation. Such populations include the elderly, young children, low-income people, people with life-threatening illnesses, and those who are overweight. Power outages can be life-threatening to those dependent on electricity for life support. Outdoor recreational users may also be more vulnerable to adverse weather events.

People experiencing homelessness are particularly vulnerable to extreme heat during the summer when increased humidity keeps nighttime temperatures above 80°F. The cumulative effects over several days of continuous exposure to heat without relief put the homeless at serious risk of heat stroke or worse. Others at significant risk are low-income populations who do not have access to air conditioning. This population, like people experiencing homelessness, would lack nighttime relief from the heat, elevating their risk of heat stroke or other complications. Heat commonly affects certain groups, typically identified as heat sensitive or vulnerable, at lower thresholds than other populations. Some of these groups include:

- The elderly and the very young;
- Those on certain medications and/or those with pre-existing conditions that make them

more sensitive to heat (your doctor can let you know if this is you);

- Those working outdoors -- especially new workers, temporary workers, or those returning to work after a week or more;
- Those exercising or doing strenuous activities outdoors during the heat of the day - especially those not used to the level of heat expected, those who are not drinking enough fluids, or those new to that type of activity;
- Those without a reliable source of cooling and/or hydration;
- Those not acclimated to the level of heat expected - especially those who are new to a much warmer climate
- Some economic sectors, such as energy and transportation, are also affected by increasing heat levels.

11.4.2.2 Property

While extreme heat can impact all properties, structural integrity, building materials, and environmental factors play pivotal roles in determining a property's vulnerability to extreme heat. Structures that have not been adequately maintained or are constructed with substandard materials are at greater risk during periods of extreme heat. Weak roofs, deteriorating foundations, and compromised insulation can exacerbate the effects of high temperatures, leading to structural damage, such as cracking or warping. Additionally, poorly insulated buildings may struggle to regulate internal temperatures, resulting in discomfort for occupants and increased energy consumption for cooling.

Location is another critical factor influencing a property's susceptibility to extreme heat. Urban heat island effects can significantly elevate temperatures in densely populated areas, exacerbating heat-related stress and discomfort. Properties in urban environments with limited green space and high levels of impervious surfaces are particularly vulnerable to heat accumulation. Similarly, properties situated in regions with limited access to cooling resources, such as shade or air conditioning, may experience more severe heat impacts. Environmental factors such as exposure to direct sunlight, proximity to heat-generating sources, and lack of natural ventilation can further amplify a property's vulnerability to extreme heat. Buildings located in areas with limited tree cover or surrounded by heat-absorbing surfaces, such as asphalt or concrete, may experience higher temperatures and prolonged exposure to heat stress.

11.4.2.3 Critical Facilities and Infrastructure

Extreme heat events can significantly strain electrical infrastructure, leading to power outages or roaming blackouts that disrupt critical facilities and infrastructure reliant on electricity. As temperatures soar, demand for electricity surges as air conditioning systems and cooling equipment work overtime to maintain comfortable indoor temperatures. This increased demand can overload power grids, causing circuits to overheat and fail, resulting in localized or widespread power outages.

Critical facilities and infrastructure that depend on electricity for operation are particularly vulnerable during a blackout. Hospitals, emergency response centers, water treatment plants, and communication networks are just a few examples of essential services that rely on an uninterrupted power supply to function effectively. Without electricity, these facilities may be unable to provide life-saving medical care, maintain essential services, or communicate vital information during emergencies.

The impact of power outages extends beyond critical infrastructure to affect businesses, households, and individuals alike. Loss of refrigeration can spoil perishable food and medication, disruption to air conditioning can lead to heat-related illnesses and discomfort, and the inability to charge electronic devices can hinder communication and access to information.

To mitigate the impact of power outages during extreme heat events, backup power sources such as generators, battery systems, and uninterruptible power supplies (UPS) can provide temporary relief. These backup systems can help maintain essential services, support critical operations, and minimize disruption until regular power supply is restored.

11.4.2.4 Environment

Extreme heat events have become increasingly common and severe due to climate change, posing significant environmental risks. High temperatures can alter habitat suitability, disrupt reproductive cycles, and increase species' susceptibility to diseases and predation. Heat stress can also result in forest dieback and shifts in species distributions, affecting ecosystems' overall resilience and functioning. Extreme heat exacerbates water scarcity by increasing evaporation rates and decreasing precipitation, leading to drought conditions in many regions. Heatwaves can intensify the urban heat island effect, further stressing water resources through increased demand for irrigation and cooling.

Effective adaptation strategies, such as enhancing green infrastructure, implementing heat-resilient urban planning, and promoting water conservation measures, are essential for building resilience to extreme heat events and safeguarding the environment and human health. Collaboration among governments, communities, and stakeholders is crucial to address the complex challenges of rising temperatures and mitigate the adverse effects on the environment.

12. Hazards of Interest

FEMA Policy Connection: Element B1

Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events?

FEMA Policy Connection: Element B2

Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods?

12.1 General Background

FEMA defines a disaster as an occurrence of a natural catastrophe, technological accident, or human-caused event that has resulted in severe property damage, deaths, and/or multiple injuries. For the purposes of this plan, hazards of interest are disasters that are categorized as technological or human-caused. Each hazard has unique causes and characteristics with varying risk potential.

12.1.1 Hazardous Materials

A hazardous material refers to a substance or a mixture of substances that, due to its quantity, concentration, or physical, chemical, or infectious properties, has the potential to cause or contribute to heightened mortality rates, severe illnesses, or pose threats to human life, property, or the environment. Hazardous material releases carry risks to life, public health, air and water quality, and the environment, often necessitating facility or neighborhood evacuations. Besides immediate dangers, prolonged exposure to certain substances can lead to enduring public health and environmental consequences.

Hazardous material incidents involve releases that can occur at facilities (fixed site) or along transportation routes (off-site). They can occur because of human carelessness, technological failure, intentional acts (terrorism), and natural acts.

12.1.2 Cyber Threats

Cyber threats pose both financial and operational risks, potentially disrupting a community's economy and everyday functions. Unlike many other hazards, cyber-attacks can emerge suddenly and evolve rapidly, making them particularly challenging to mitigate. Cyberterrorism and cyberattacks are terms for cyber threats that are often used interchangeably, though they are not the same. All cyberterrorism is a form of cyberattack, but not all cyberattacks are cyberterrorism.

Both public and private computer systems face a range of cyber threats, spanning from widespread malware infections to precise assaults on system functionalities. Cyberattacks aim to breach the security measures of information technology originally put in place to safeguard individuals or organizations. After the initial breach, more destructive attacks may follow, intending to cause harm, pilfer data, or generate financial profit. Organizations are vulnerable to various types of attacks, whether automated or meticulously targeted.

12.1.3 Pandemics and Epidemics

Widespread public health crises consist of pandemics and epidemics, emerging when a disease to which the population has little immunity emerges. An epidemic is a disease outbreak confined to a specific geographic area, while a pandemic occurs when the disease spreads across multiple regions or globally. Experts in public health express concern regarding pandemics originating from diseases transmissible across species. Depending on the characteristics of such diseases, an estimated 25 to 35 percent of the population may fall ill. Such disease activity levels would profoundly disrupt societal functioning and significantly impact the economy. The COVID-19 pandemic is a recent example, while the 20th century witnessed three significant pandemics, notably the 1918 Spanish influenza, which resulted in 20 to 40 million deaths worldwide.

Disease activity resulting in a pandemic or epidemic may occur because of one of the following:

- Vector-Borne Diseases - An infection transmitted to humans and other animals by blood-feeding arthropods, such as mosquitoes, ticks, and fleas.
- Zoonotic Diseases - A disease that normally exists in animals but can be transmitted from animals to people.
- Foodborne Diseases – Originate from bacterial and parasitic pathogens in food sources.
- Waterborne Diseases – Occurs when an individual drinks dirty or contaminated water.
- Influenza – A contagious respiratory illness caused by influenza viruses.

In the latter half of the 20th century, advancements like vaccines, antibiotics, and enhanced living standards led to significant drops in communicable diseases. However, infectious diseases have resurged due to various factors, such as population growth, environmental changes, microbial adaptation, and changes in health care, such as immunosuppression or widespread use of antibiotics.

12.1.4 Terrorism

Terrorism represents a criminal act where the mere threat of violence can be as impactful as the actual violence itself. It's a tactic employed by individuals or groups to advance their political objectives through inducing fear, causing physical harm, inflicting economic damage, triggering psychological distress, and undermining trust in governmental systems. Terrorists often resort to weapons of mass destruction to achieve their aim of causing widespread casualties and instigating public panic.

Incidents involving weapons of mass destruction differ from other emergencies in several critical ways: they may not be immediately recognizable, could involve multiple simultaneous events, pose heightened risks to first responders, lead to contamination of vital facilities and extensive geographical areas, expand rapidly in scope, elicit stronger public reactions, disrupt support facilities, and overwhelm local response capacities.

There has been a noticeable uptick in assailants employing firearms to target multiple individuals, commonly known as active shooter attacks. While such incidents haven't occurred in La Cañada Flintridge, it's imperative to continually work towards preventing, safeguarding, and mitigating potential attacks on city-owned properties. Across California, numerous potential targets exist, including government buildings, commercial areas, places of worship, water reservoirs, financial institutions, educational institutions, and utility infrastructures. La Cañada Flintridge is no exception, sharing similar vulnerabilities with other cities in the Los Angeles metropolitan area.

12.1.5 Aviation

Aviation disasters that occur in densely populated residential areas can result in considerable loss of life and property. The impact of a disabled aircraft that strikes the ground creates the likely potential for multiple explosions resulting in intense fires. These explosions and fires can cause injuries, fatalities, and extensive property damage not only at the crash site but also in adjacent areas. Southern California's mountainous terrain heightens the risk of helicopter-related accidents, especially during events like wildfires, compounding existing hazards.

Such disasters may stem from mechanical failure, pilot error, or deliberate acts. The magnitude of casualties and property damage depends on factors such as the aircraft's size, passenger capacity, crash location (residential, commercial, open field), and the population density in the impact zone. Assessing damage and organizing relief efforts for air crash incidents necessitates

collaboration among local governments, private entities, and state and local regulatory agencies.

12.2 Hazard Profile

The following provides the type, location, and extent of each of the identified hazards of interest within the City of La Cañada Flintridge.

12.2.1 Hazardous Materials

Releases of hazardous materials can lead directly to injuries, loss of life, and contamination of the environment. Although the chances of such incidents happening at fixed facilities or along local transport routes are extremely low, the potential outcomes are severe. Depending on the specifics, a hazardous material spill could have devastating effects. For example, a chemical leak emitting toxic fumes could spread over vast distances, prompting the evacuation of hundreds of people. Typically, these spills occur suddenly, often due to accidents on highways or mishandling of waste. Nevertheless, in certain situations, temporary measures for containment might be enacted to offer early warning and facilitate the evacuation of the area before the hazardous material is fully released.

NASA’s JPL, situated in the city's eastern part, is a national space/aerospace facility that houses numerous hazardous materials, posing the highest fixed-site hazard risk. Any release of these materials from NASA’s JPL would profoundly affect a significant portion of the city and surrounding areas. Depending on the severity of the incident, residential neighborhoods could be impacted, potentially necessitating the evacuation of hundreds, if not thousands, of properties.

In addition to NASA’s JPL, there are other fixed sites located within City boundaries with potentially hazardous materials housed on site:

Table 18: Locations of Hazardous Materials within the City of La Cañada Flintridge

Location	Purpose	Hazardous Waste Product
La Cañada Shell	Gas Station	Gasoline
La Cañada 76	Gas Station	Gasoline
Chevron	Gas Station	Gasoline
ARCO	Gas Station	Gasoline
NASA’s JPL	Research Facility	Various Chemicals
La Cañada High School	Education	Various Chemicals
Flintridge Automotive	Automobile Repair Facility	Various Chemicals
Flintridge Cleaners	Dry Cleaning	Acids/Solvents
Dunn-Edwards Paints	Paint Supplier	Paint

In addition to fixed sites, the presence of multiple transportation corridors through the city heightens the risk of off-site hazardous material releases. La Cañada Flintridge is encircled by two significant highways, Interstate 210 and State Route 2, both serving as major transportation arteries in the broader Los Angeles and Southern California region. These highways witness a daily influx of trucks transporting goods across the Los Angeles Metropolitan area, including some carrying hazardous cargo. Any accidents leading to hazardous spills along the 210 or 2 highways could have significant repercussions for the population residing along these routes.

12.2.2 Cyber Threat

Any facility reliant on computers, systems, and software for operations is susceptible to cyber threats. Typically, attacks endure from minutes to days, but the ramifications of large-scale events can persist far longer. As information technology advances in capability and connectivity, cyber threats grow both in frequency and severity. These threats vary in motive, method, and perpetrator profile, spanning from financial exploitation to political or social agendas. Identifying and comprehending cyber threats poses significant challenges. Examples include viruses capable of wiping entire systems, unauthorized access for file manipulation, commandeering personal computers for attacks, or pilfering confidential data. The breadth of cyber risks is extensive, with potential impacts ranging from individual to national levels.

Cyber threats are not geographically based; attacks can stem from any computer worldwide, targeting any other connected system. Any system is vulnerable to exploitation, whether linked to the Internet or operating wirelessly. Cyber-attacks can target individual computers, networks, organizations, business sectors, or governments. Both public and private operations in the City face daily threats from the multitude of engineered cyber-attacks designed to exploit technological vulnerabilities. Cyber threats have evolved over time, employing tactics like advanced phishing, ransomware, malware, and traditional viruses to impact as many computers as possible.

12.2.3 Pandemics and Epidemics

The impact of public health dangers hinges on both the nature of the public health crises and the size of the exposed population. Effective containment, through isolation, is crucial to curbing the spread of hazards from the exposed to the unexposed population. Emphasizing education and personal preparedness can play a vital role in lessening their severity and mitigating their effects. The likelihood of exposure to pandemics and epidemics increases as the population grows.

Coronavirus (COVID-19) caused a worldwide pandemic, resulting in national and local impacts. In response to this pandemic event, the City of La Cañada Flintridge initiated planning and response efforts to mitigate its impacts. The World Health Organization declared the COVID-19 health emergency a pandemic on March 11, 2020. Shortly after, on March 21, 2020, the first case was reported in La Cañada Flintridge. The City activated the Emergency Operations Center (EOC) on March 19, 2020, and proclaimed the existence of a local emergency on March 25, 2020. The

EOC actively monitored, coordinated, and supported the City's response to the pandemic for 1,076 days. It operated at a Level III, remote activation. At the termination of the local emergency, 4,487 cases and 27 fatalities were reported in La Cañada Flintridge.

12.2.4 Terrorism

Although there is no recorded history of terrorist incidents in the City of La Cañada Flintridge, the possibility cannot be dismissed. For instance, on April 16, 2013, the Metcalf electrical substation was attacked in Coyote, CA. The attack took place at night and used 100 rifle rounds to poke holes in 17 critical transformers, draining them of oil and causing their failure. In nineteen minutes, the attackers caused \$15 million in damages requiring the local utility to take emergency steps to rebalance the system and avoid a service disruption. Despite the magnitude of the event, no individuals have been charged in connection with this act of terrorism on vital infrastructure.

Similarly, the tragic events of December 2, 2015, in San Bernardino, CA, where two assailants opened fire on a work gathering, leading to sixteen deaths (including the perpetrators) and twenty-four injuries, underscore the reality that terrorism knows no bounds. Highly populated or historically significant areas are often prime targets for such acts, and within La Cañada Flintridge, potential high-value targets exist.

The severity of terrorist acts varies greatly, depending on factors such as the type of attack, its scale, and the chosen target. These can range from shootings in public spaces to strategically placed bombs designed for maximum impact. In most cases, there is little to no advance warning before such events occur, emphasizing the need for vigilant preparedness measures.

12.2.5 Aviation

La Cañada Flintridge has remained free from aviation disasters to date. Although it lies off the main routes for airlines, its proximity to Burbank Airport and Ontario Airport raises potential concerns. Additionally, the presence of helicopters, whether for news coverage or emergency response, adds to the risk. Given the dense residential layout, an aviation incident could devastate hundreds of homes and businesses around the area of impact.

12.3 Secondary Impacts

The impact on the community will depend on the type and breadth of these hazards of interest. While specialized resources will respond to the city to assist, it will take time for that assistance to arrive. Local public safety resources may be depleted, causing delayed responses to emergency and routine community service requests.

Community panic, intense media interest, and a surge of patients at local hospitals and urgent

care centers can be expected. Rapid assessment of the size and type of incident, activation of the ICS emergency management infrastructure, and designation of injured field treatment and casualty collection points will be critical. Efforts to assess the situation and provide clear emergency management instructions to the public will be crucial.

Roads, freeways, and transit systems may be affected due to panic that may cause some residents to self-evacuate. As a result of this, traffic congestion and gridlock may occur. These factors will slow the response time for assisting agencies, specialized resources and equipment, and additional emergency services personnel. Additionally, injured victims or persons who believe they have been injured or exposed may leave the area of an incident and transport themselves to care facilities. The influx of persons seeking treatment will impact the availability of treatment facilities for persons being sent to those facilities by on-site emergency services personnel.

12.4 Risk Assessment

Each hazard profile outlined above presents a risk to the City of La Cañada Flintridge, with impacts that cannot be fully measured. The following offers a qualitative analysis of each hazard's potential effects on the community, considering both exposure and vulnerability in tandem.

The hazards of interest are of considerable concern, marked by significant geographic reach and critical magnitude. Its impact extends over a wide area, indicating the potential for widespread consequences. Although occurrences are not frequent, they are anticipated periodically, posing a persistent threat. The severity of these hazards is deemed critical, implying substantial harm or damage in affected areas. With a medium level of significance, it underscores the importance of addressing its potential impacts on communities, infrastructure, and the environment. Ranked third in risk, it holds a prominent position among hazards, highlighting the urgency of implementing robust mitigation and preparedness measures to safeguard against its potentially devastating effects.

12.4.1 Hazardous Materials

Hazardous material exposure and community vulnerability depend on the substance and release method. A caustic substance released may cause a plume to travel for miles, resulting in injuries, fatalities, and contamination of air, water, and soil. Evacuation of local residents and notification to neighboring jurisdictions' emergency agencies will be necessary.

As an active lab, NASA's JPL regularly works with hazardous materials. Beyond the risks of lab accidents, the transportation of these materials also presents potential hazards to the surrounding community. A significant spill, whether due to human error or a natural calamity like an earthquake, could necessitate large-scale evacuations in the eastern part of the community.

Despite a California Vehicle Code prohibition on commercial trucks with specific weight restrictions traveling on State Route 2 between I-210 and County Route N4, over 2100 trucks commute along these highways daily, according to the State of California's Traffic Census program. With such traffic volume, the possibility of a hazardous materials release due to an accident looms. Should such an accident occur, it would likely result in the closure of the freeway or street for several hours, diverting traffic through La Cañada Flintridge streets. In the event of an accident involving a vehicle carrying hazardous materials such as toxic gas, adjacent business and residential areas would require evacuation.

12.4.2 Cyber Threat

Cyber threats pose an ongoing risk to every organization and community, regardless of their prominence. While the City of La Cañada Flintridge might not be a high-profile target, the presence of potentially attractive targets in the area, such as NASA's JPL, elevates the risk of potential cyber threats. The entire population of the city shares this risk due to its geographical location and the presence of critical infrastructure.

These threats have the potential to severely disrupt essential facilities and infrastructure, particularly those reliant on IT systems. Outcomes could range from forced outages to network failures and equipment malfunctions, with institutions like USC Verdugo Hills Hospital, NASA's JPL, and water companies facing significant operational challenges. The limited telecommunications infrastructure exacerbates the vulnerability, potentially hindering emergency response and coordination.

Cyber threats also target high-profile entities and businesses, posing a risk to individuals' personal and sensitive data. Industries such as finance, energy, defense, aerospace, communication, retail, and healthcare are especially vulnerable to these attacks, with far-reaching consequences.

As technology continues to evolve and integrate into daily life, the threat of cyber-attacks expands, especially with the rise of remote work. Ransomware emerges as a significant threat, emphasizing the need for robust continuity plans. Cyberterrorism presents a system-wide vulnerability driven by political motives against information systems or data. As society becomes more dependent on computer networks for critical infrastructure, the nation faces heightened vulnerability to cyberattacks from both state and non-state actors.

12.4.3 Pandemics and Epidemics

During a public health crisis, the goal is for the City of La Cañada Flintridge to protect the community, employees, facilities, systems, property, and operations and maintain normal operations, to the extent possible, consistent with those goals. In the event of a pandemic or epidemic, the City of La Canada Flintridge's main responsibility will be to maintain critical community services in line with the City's mission and to respond to the needs of its population.

The nature of a public health crisis will primarily impact the community, employees, and their security. Unlike most other potential disasters, such as earthquakes, fire, floods, severe storms, and the like, the primary threat is not physical destruction of facilities or records caused by such a disaster event. Therefore, the focus is on the threats that are reasonably related to a pandemic emergency, primarily the health and well-being of the community and officials/employees of the government.

The following events would be considered trigger events for implementation by the City of La Canada Flintridge:

- Determination by the State Public Health Department that a pandemic is imminent or has begun.
- Directive of the Los Angeles County Director of Health Services to implement a response protocol.
- Irrefutable evidence that an outbreak has occurred within our community or the Los Angeles County Operational Area and is not a generic seasonal illness outbreak.
- Excessive employee absenteeism, whether pandemic-induced or not, that results in the government being in jeopardy of experiencing a pandemic-related business crisis.
- Confirmation of employee exposure to illness contagions.

The primary mission of the City of La Canada Flintridge's health crisis preparedness and response is as follows:

- Identify the hazards that will be produced by an outbreak of a pandemic or epidemic.
- Plan for and reduce the impact of the outbreak.
- Maintain operations during an outbreak, after the event, and after subsequent mini-outbreaks have subsided.
- Advise senior officials, department heads, employees, the community, consultants, vendors, and sub-contractors on procedures to mitigate the impact of an outbreak on the community and themselves to become more pandemic-resistant.

12.4.4 Terrorism

Experts prioritize mitigation and preparedness efforts by first identifying critical sites and assessing their vulnerability to terrorist attacks. These sites typically include those essential to the city's functioning, containing critical assets, or having the potential for significant impacts if targeted. La Cañada Flintridge, situated near Los Angeles, a recognized potential target for terrorism, is likely to be affected depending on the nature of the attack due to its proximity to downtown Los Angeles.

While the global average property damage from terrorist attacks is generally less than \$1,000,000, estimating the risk and specific local losses for La Cañada Flintridge is challenging due to the unpredictable and sensitive nature of terrorism. Moreover, the city hosts governmental, financial, and utility facilities, but disclosing specific information about their locations, probability of attacks, and potential magnitude is considered sensitive homeland security-related information.

12.4.5 Aviation

The skies above La Cañada Flintridge are filled with commercial and private airplanes. La Cañada Flintridge is not in a major flight path of commercial airplanes inbound to the Los Angeles World Airports (LAX) or Hollywood Burbank Airport (BUR). While there has never been an aviation disaster in La Cañada Flintridge, there is a moderate amount of vulnerability and risk that the first aviation disaster will occur due to the existence of surrounding air traffic.



Part III

Mitigation Strategies

13. Capabilities Assessment

FEMA Policy Connection: Element C1

Does the plan document each participant’s existing authorities, policies, programs and resources and its ability to expand on and improve existing policies and programs?

A capability assessment is an inventory of existing planning and regulatory tools and an analysis of their capacity to carry them out. The City of La Cañada Flintridge has programs and policies currently in use to reduce hazard impacts, or that could be used to implement hazard mitigation action items. A capability assessment will help to ensure that proposed mitigation action items are deemed practical considering the City’s ability to implement them.

13.1 Planning and Regulatory

Planning and Regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

Table 19: Planning and Regulatory Capabilities Assessment

Plan	Department	Comments
General Plan	Community Development	The General Plan guides the pattern of land development, including residential, commercial, and recreational uses. It describes how the City will grow or change over time and is the mechanism by which community character is preserved and enhanced. The General Plan contains the official policies that guide the development of the City and can assist with coordinating mitigation action items within the City. The Safety Element of the General Plan expresses goals and objectives to increase the City’s resilience to hazards and recommended policies to achieve stated goals. These elements were utilized to influence the mitigation actions within the Local Hazard Mitigation Plan.

Plan	Department	Comments
Climate Action Plan	Community Development	The Climate Action Plan is intended to build on the community's existing sustainability efforts to facilitate the reduction of greenhouse gas (GHG) emissions throughout the City of La Cañada Flintridge in a way that is practical, efficient, and beneficial to the community and enhances La Cañada Flintridge's desirable characteristics and qualities. These measures may include mitigation actions that support reducing the risk of hazard events in La Cañada Flintridge.
Emergency Operation Plan	Administration	An Emergency Operations Plan (EOP) is a comprehensive framework that outlines the procedures and responsibilities for responding to various types of emergencies and disasters. It is a critical guide for coordinating actions and resources among different agencies and stakeholders to ensure an effective and organized response. The EOP details specific roles and functions of personnel, communication protocols, resource management strategies, and steps for evacuation, shelter, and recovery operations. By anticipating potential hazards and defining clear action plans, an EOP helps minimize emergencies' impact on communities, protect lives and property, and facilitate a swift and efficient return to normalcy.
Local Hazard Mitigation Plan	Administration	The Local Hazard Mitigation Plan (LHMP) includes resources and information to assist La Cañada Flintridge residents, public and private sector organizations, and others interested in participating in planning for natural and human-made hazards. The LHMP provides long-term and short-term policies, programs, projects, and other activities that may assist in reducing risk and preventing loss from future disastrous events. The mitigation strategies address multiple hazard issues and specific activities for drought, earthquake, extreme heat, flood, windstorm, landslide, wildfire, and other hazards of interest.

Table 20: Planning Ordinances and Building Code Capabilities Assessment

Ordinances and Codes	Department	Comments
Zoning Ordinance	Community Development	The Zoning Ordinance establishes the area requirements, the density of land occupancy, and the necessary, proper, and comprehensive groupings and arrangements of the city's various industries, businesses, and population. The Zoning Ordinance influences where the populace is located and how hazards affect different city areas. Mitigation action items pertaining to new developments may be reviewed under this ordinance.
Hillside Development Ordinance	Community Development	The Hillside Development Ordinance regulates the safety and development of hillsides within the City. (Ord. 329 § 1.2, 2002). The Hillside Development Ordinance can assist

Ordinances and Codes	Department	Comments
		with mitigation measures related to modifying and protecting the quality of hillsides.
Trees in the Public Right-of-Way Ordinance	Administration	Tree Ordinance helps maintain the health of flora in the City. The Ordinance allows the City to remove trees if the tree is dead, diseased, a hazard or creates an unreasonable burden upon an abutting property owner. Mitigation Action items related to vegetation may be reviewed under this ordinance
Floodplain Management Ordinance	Public Works	The Floodplain Management Ordinance promotes public health, safety, and general welfare and minimizes public and private losses due to flood conditions in specific areas. (Ord. 357 § 1, 2006). Mitigation action items related to flooding may be reviewed under this ordinance.
Emergency Organization and Function Ordinance	Administration	The Emergency Organization and Functions Ordinance outlines preparing and carrying out plans for protecting people and property within the City in the event of an emergency. (Ord. 337 § 1, 2003) The ordinance ensures the City is implementing mitigation actions
Building and Safety Codes	Community Development	The purpose of this chapter is to regulate grading and the erection, construction, enlargement, alteration, repair, moving, removal, demolition, conversion, occupancy, use, height, area, and maintenance of all structures and certain equipment therein specifically regulated within the city, providing for the issuance of permits and the collection of fees therefor, and providing procedures for correction of violation of this code.

13.1.1 How can these capabilities be expanded and improved to reduce risk?

Planning and regulation provide the City with a method to organize efforts and engage the public. It communicates how the city seeks to mitigate long-term risk. Through a public process, plans such as the General Plan and Local Hazard Mitigation Plan distill community input into long-term goals. These goals are finalized within the plan and enforced through the various means of regulation, ordinances, and codes. Over time, these mechanisms will change how the community is built and functions, driving change to mitigate hazards, lower risk, and increase the community's resiliency.

To expand and improve the City's planning and regulatory capabilities for hazard mitigation, several strategies can be considered:

1. Enhanced Public Engagement:

- **Broader Outreach Methods:** Incorporate diverse engagement methods beyond

traditional public meetings, such as online forums, interactive surveys, and social media campaigns. This approach can help capture a wider range of community input and ensure that the perspectives of various demographic groups are considered.

- **Stakeholder Workshops:** Host specialized workshops with stakeholders, including community organizations, businesses, and vulnerable populations, to gather targeted input and foster collaborative solutions.

2. **Regulatory Updates:**

- **Periodic Reviews:** Establish a regular review process for updating regulations, ordinances, and codes to ensure they reflect the latest hazard data and mitigation strategies. This could involve creating a task force dedicated to reviewing and proposing updates to these documents on a set schedule.
- **Integration of New Research:** Incorporate the latest scientific research and best practices into planning and regulatory documents to address emerging hazards and improve resilience measures.

3. **Planning Tools and Resources:**

- **Advanced Modeling:** Utilize advanced hazard modeling and GIS tools to improve risk assessments and inform planning decisions. This could involve investing in new technology or software to enhance the accuracy of hazard mapping and analysis.
- **Collaborative Planning:** Partner with neighboring jurisdictions and regional agencies to coordinate planning efforts and address hazards that cross jurisdictional boundaries.

13.2 **Administrative and Technical**

Administrative and Technical capabilities include staff, tools, and public resources that can be used for mitigation planning and to implement specific mitigation actions.

Table 21: Administrative Capabilities Assessment

Advisory Body	Department	Comments
Disaster Council	Administration	The Disaster Council, which includes the City’s Mayor, Director, and Assistant Director of Emergency Services, Emergency Operations Center Coordinator, and other appointees, is responsible for developing and recommending emergency and

Advisory Body	Department	Comments
Emergency Preparedness Committee	Administration Community Development Public Works	mutual aid plans and agreements for City Council adoption. The Emergency Preparedness Committee includes 2-3 staff members from each City department. The Committee collaborates on emergency management strategies and initiates designed to enhance preparedness and improve the City's ability to respond to all-hazard threats. It analyzes and evaluates the initiative's effectiveness for emergency preparedness, response, recovery, and mitigation.
Hazard Mitigation Advisory Committee	Administration	The Hazard Mitigation Advisory Committee is responsible for evaluating the Local Hazard Mitigation Plan on an ongoing basis. This is one of the Public Safety Commission's roles.
Planning Commission	Community Development	The Planning Commission is responsible for reviewing proposed residential and commercial development projects, subdivisions, and land use requests on private property to determine their compliance with applicable City regulations. The Commission has the authority to approve various development projects that comply with City requirements. In addition, the Commission makes recommendations to the City Council with respect to the City's General Plan, Zoning Code, Specific Plans, and other matters related to development within the City. The Commission may be responsible for implementing mitigation items pertaining to the Commission's scope
Public Safety Commission	Administration	The Public Safety Commission evaluates the community's public safety needs and makes recommendations to the City Council. The Commission also reviews the activities of the Los Angeles County Fire Department and evaluates service and equipment needs. The Commission also provides valuable direction for the City's emergency preparedness efforts and goals.
Public Works and Traffic Commission	Public Works	The Public Works & Traffic Commission is responsible for advising the City Council on the Public Works program for the City, including infrastructure improvements to the City's streets and roads, maintenance requirements of the City's roads, parks, trees, planted medians, traffic signals, storm drains, and other improvements. The Commission develops a five-year Capital Improvement Project Plan annually for submission

Advisory Body	Department	Comments
		to the City Council outlining infrastructure needs for the future. In addition, the Commission reviews public works conditions imposed on development projects, traffic circulation, congestion issues, and parking restriction needs. It authorizes changes consistent with state and local requirements. The Commission may analyze and evaluate mitigation items pertaining to the Commissions scope.

Table 22: Department Capabilities Assessment

Department	Comments
Administration	The Administration Department is multifaceted and performs various internal and external services, including public safety, risk management, human resources, recreation, information technology, transportation, and emergency preparedness. The City Attorney, City Treasurer, and City Clerk are also considered staff and functions of the department. The Administration Department is the lead internal agency in charge of hazard mitigation planning and overseeing the implementation of mitigation activities.
Community Development	The Community Development Department comprises three divisions: Planning, Building & Safety (Building Permits), and Community Preservation (Code Enforcement and Community Development Block Grant). The divisions' responsibilities are all closely related to the city's physical development. This department can implement mitigation activities related to planning and building.
Finance	The Department of Finance manages the City's financial operations consistent with adopted policies and plans. The department seeks to assist other departments in achieving their objectives and ensure the City's long-term fiscal well-being. It also assists with financing mitigation activities.
Public Works	The Department is primarily responsible for designing, preparing, and checking plans for all facilities within street rights-of-way, including those within private developments and City-owned property. The Department prepares necessary plans, designs, and specifications for streets, sidewalks, storm drains, sewers, parks, parkways, medians, signing, and striping. Mitigation actions involving new or retrofitted public infrastructure fall within the purview of the Public Works Department.

Table 23: Staff Capabilities Assessment

Staff	Department	Comments
Public Safety Team	Administration	The Public Safety Team includes the Director of Administrative Services, City Manager, Public Safety Coordinator, and Senior Management Analyst. The team is responsible for a holistic view of the city's public safety efforts, including first

responders, emergency preparedness, and the Local Hazard Mitigation Plan.

Table 24: Technical Capabilities Assessment

Technical	Comments
Alert LCF (Mass Notification System)	Alert LCF is the City’s mass emergency notification system which has been in effect since 2014. The system delivers emergency alerts to residents when there is a threat to the health and safety of residents in the City and provides critical information such as evacuation orders and shelter locations.
Genasys	Genasys Citizen Protect serves as a vital lifeline for providing essential safety directives and information during emergencies. Whether accessed through the mobile application or the user-friendly online platform at protect.genasys.com, this innovative tool empowers individuals to stay informed and prepared, safeguarding both themselves and their loved ones. Through real-time updates and personalized notifications, users can effortlessly monitor crucial details tailored to their specific needs and geographical location. From evacuation procedures to weather alerts and community advisories, Genasys Citizen Protect ensures that pertinent information is readily available, enhancing readiness and resilience in the face of uncertainty.
Hazard Data and Information	Located within the General Plan and Local Hazard Mitigation Plan.

13.2.1 **How can these capabilities be expanded and improved to reduce risk?**

These administrative bodies advise and/or generate plans and regulations that lower the long-term risk to the community and use technology to assist in implementing those plans. The Hazard Mitigation Advisory Committee, Planning Commission, Public Safety Commission, and Public Works & Traffic Commission are all means for residents to engage City Staff on hazard mitigation. The Disaster Council and Emergency Preparedness Committee are internal mechanisms that City staff utilize to organize to protect from, mitigate, respond to, and recover from disasters. To synchronize all these efforts, the Public Safety Team works across departments, commissions, and functions to ensure unity of effort in the City’s steps toward mitigation.

Alert LCF facilitates rapid communication between the City and residents. Messages can be passed from a web-based platform to a database of phone numbers and delivered as voice messages, text messages, or emails. Technology assists all involved in better understanding the City, its residents, and the environment. Various technical reports within the City’s General Plan depict high-hazard areas for debris flows, earthquake liquefaction, and wildfire hazards.

To enhance administrative and technical capabilities, the following approaches can be considered:

1. **Expanded Committee Roles:**

- **Enhanced Training:** Provide ongoing training for members of the Hazard Mitigation Advisory Committee, Planning Commission, and other relevant bodies to keep them informed about the latest mitigation techniques and regulatory changes.
- **Broaden Mandates:** Expand the roles of these committees to include additional responsibilities, such as overseeing specific mitigation projects or coordinating with other regional initiatives.

2. **Technology Upgrades:**

- **System Improvements:** Upgrade the Alert LCF system to include more advanced features, such as multilingual support, integration with social media platforms, and real-time data analytics to better target and customize communications. Evaluate other methods of communication, including outdoor warning systems.
- **Data Integration:** Enhance the integration of technical reports and hazard data across different departments and commissions to improve coordination and decision-making.

3. **Coordination Mechanisms:**

- **Unified Platforms:** Develop a unified platform for communication and collaboration among the Public Safety Team, Disaster Council, and Hazard Mitigation Advisory Committee. This could include a shared database or project management tool to streamline efforts and track progress.

13.3 **Fiscal Capabilities Assessment**

The City has access or is eligible to use the following funding resources for hazard mitigation:

Table 25: Fiscal Capability Assessment

Funding Resource	Department	Comments
General Fund	Administration Community Development Public Works	The General Fund is the City’s primary fund which consists of assets and liabilities that are used to finance the daily and long-term operations. Funding for mitigation action items can be accomplished by accessing available funds or using funds for grant matching.
Capital Improvement Program	Public Works	The Capital Improvement Plan (CIP) identifies individual capital improvement projects and funding sources. The CIP is unique construction projects

Funding Resource	Department	Comments
		that provide improvements or additions such as land, buildings, and infrastructure. The CIP helps with mitigation action items by improving the physical structures, systems, and facilities that provide services to the community.
Community Development Block Grant	Community Development	The Federal Government provides Community Development Block Grant (CDBG) funding to communities for projects that directly benefit households with low/moderate incomes, which may align with the mitigation action items. Private property owners share the responsibility to protect themselves and their property.

13.3.1 How can these capabilities be expanded and improved to reduce risk?

There are two specific ways that the City's fiscal capabilities might be improved to reduce mitigation risk: (1) targeting specific grant resources to enhance the City's ability to fund mitigation projects and (2) increasing the total amount of funds available for projects through external revenue enhancement or internal reappropriation.

To strengthen fiscal capabilities for hazard mitigation, the City should explore the following opportunities:

1. Grant Opportunities:

- **Targeted Applications:** Actively pursue additional grant opportunities, such as those provided by the Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC), and Flood Mitigation Assistance (FMA). This may involve dedicating staff resources to grant research and application processes. The City has pursued these grants in the past but has been unable to secure grant funding due to the community's affluence.
- **Partnerships:** Establish partnerships with other municipalities or non-profit organizations to jointly apply for and manage larger grant-funded projects, increasing the likelihood of securing funding.

2. Revenue Enhancement:

- **Alternative Funding Sources:** Explore alternative funding sources, such as public-private partnerships, philanthropic contributions, or crowdfunding

campaigns, to supplement existing budgets for mitigation projects.

- **Internal Reallocation:** Evaluate the City’s budget to identify areas where funds could be reallocated or increased to support hazard mitigation efforts.

13.4 Education and Outreach

Education assists the City in reducing risk by empowering the individual constituents with knowledge of how to care for themselves during a disaster. The more individuals can prepare their families and businesses for disaster, the less risk the disaster will pose. Furthermore, less of a burden will be placed on the larger community, freeing resources for those most in need.

Outreach is important not just because it provides an avenue for education to reach various stakeholder groups but also for external organizations to give feedback on education or potentially contribute to the public mission. If a method of education is believed to be effective outreach to various stakeholder groups can confirm or deny that sentiment, adjusting methods to ensure the desired message is being communicated.

Table 26: Educational Capabilities Assessment

Program/Organization	Comments
Responsible Water Use Program	The City educates the public about water consumption within their residences and businesses, discussing how they might reduce usage through smart irrigation or xeriscaping. The Public Works, Planning, and Administration departments also notify residents through flyers or pages on the city website about how the City is conserving water within public areas, including using recycled water on traffic medians or installing low-flow and no-flow toilets in public restrooms. This program directly relates to mitigation activities related to hazards like drought, extreme heat, or fire by increasing the public’s understanding of the scarcity of resources.
Emergency and Disaster Volunteers	The volunteer program is designed to assist the City's residents during emergencies or disasters.
Communications and Outreach Program	General education on local government issues, including hazard mitigation, is provided through quarterly newsletters and social media outreach.

13.4.1 How can these capabilities be expanded and improved to reduce risk?

Outreach, and specifically notification, is organized by the department taking action. Centralizing communication efforts may improve hazard mitigation outreach and education capabilities. Similarly, the quantity and types of content being developed can be expanded to ensure the accessibility of information and clear communication on hazard risks and mitigation activities.

To advance education and outreach capabilities, the City should consider:

1. **Centralized Communication:**

- **Unified Outreach Strategy:** Develop a centralized communication strategy that coordinates all hazard mitigation outreach efforts. This could involve creating a dedicated team or office responsible for managing and overseeing all educational and outreach activities.
- **Enhanced Messaging:** Improve the clarity and accessibility of hazard information by developing standardized messaging and utilizing multiple channels, such as newsletters, community events, and local media.

2. **Expanded Content and Engagement:**

- **Diverse Formats:** Expand the types and formats of educational content to include interactive webinars, workshops, and multimedia presentations. This will cater to different learning preferences and increase engagement.
- **Community Participation:** Organize events like the Great ShakeOut or other disaster preparedness drills to actively involve the community and enhance public awareness of hazard risks and mitigation strategies. Incorporate outreach efforts for existing City events such as National Night Out, Fiesta Days, and Music in the Park.

14. Mitigation Strategies

14.1 Mitigation Goals

FEMA Policy Connection: Element C3

Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards?

Mitigation goals are broad, long-term policy and vision statements that explain what the mitigation strategy aims to achieve, focusing on reducing or avoiding losses from the identified hazards. The goals describe the overall direction La Cañada Flintridge agencies, organizations, and citizens can take to work toward mitigating risk from natural and human-caused hazards. The goals are stepping-stones between the broad purpose of the plan and the specific recommendations outlined in the mitigation action items.

The mitigation goals were developed by examining the history of disasters in the City of La Cañada Flintridge and surrounding communities, supplemented by feedback received during public outreach. The goals are outlined below:

- Advance critical facilities, services, and infrastructure projects completion through supportive policies.
- Enhance the resilience of infrastructure and property against hazards to protect lives.
- Balance land use planning with hazard mitigation to protect life, property, and the environment.
- Foster stakeholder engagement through improved communication channels.
- Increase hazard mitigation efforts among public agencies, the school district, citizens, non-profit organizations, businesses, and industry.
- Promote proactive leadership in local and regional mitigation initiatives.

- Raise awareness of hazard risks through outreach programs, particularly considering vulnerable populations.
- Educate the public on personal recovery strategies.

14.1.1 Creation of Mitigation Action Items

The mitigation action items were formed through research, subject matter experts, and collective ideas from stakeholders and the public. A comprehensive review through cost-benefit analysis, prioritization, and review creates a basis for the Action Plan in Section 15.

14.2 Mitigation Actions

FEMA Policy Connection: Element C4

Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, emphasizing new and existing buildings and infrastructure?

FEMA Policy Connection: Element C5

Does the plan contain an action plan describing how the identified actions will be prioritized (including a cost-benefit review), implemented, and administered by each jurisdiction?

Mitigation actions are specific projects and activities that help achieve the goals of the Local Hazard Mitigation Plan. They are measures, projects, plans, or activities proposed to reduce the current and future vulnerabilities described in the risk assessment.

Mitigation actions are primarily categorized as follows:

- Local Planning and Regulations – These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.
- Structure and Infrastructure Projects – Initiatives entail adapting existing structures and infrastructure to mitigate hazards or relocate them away from hazard-prone areas. This may encompass public and private assets, including critical facilities and infrastructure.
- Natural Systems Protection – Actions involve strategies such as green infrastructure, low-impact development, nature-based solutions, Engineering with Nature, and bioengineering, which integrate natural elements or processes into the built environment to bolster resilience.
- Education and Awareness Programs – These types of actions keep residents informed about potential natural disasters, fostering preparedness and resilience within

communities.

14.2.1 Cost-Benefit Review

Cost-benefit review is a crucial mechanism used by the California Governor's Office of Emergency Services (Cal OES), the Federal Emergency Management Agency (FEMA), and other state and federal agencies in evaluating hazard mitigation projects and is required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act of 2000 (Public Law 106-390). A cost-benefit review is used in hazard mitigation to determine if the benefits to life and property protected through mitigation efforts exceed the cost of the mitigation activity. Conducting a cost-benefit review for a mitigation activity can assist in determining whether a project is worth undertaking now to avoid disaster-related damages later.

Each mitigation action item in Appendix B is accompanied by a cost-benefit ranking to evaluate the feasibility of implementing each strategy. Subjective ratings (high, medium, and low) were assigned to the costs and benefits of these projects based on established parameters.

Cost ratings were defined as follows:

High— Existing funding will not cover the project's cost; implementation would require new revenue through an alternative source (for example, bonds, grants, and fee increases).

Medium—The project could be implemented with existing funding but would require a budget reapportionment or amendment, or the cost would have to be spread over multiple years.

Low—The project could be funded under the existing budget. The project is part of or can be part of an ongoing program.

Benefit ratings were defined as follows:

High—The project will immediately reduce risk exposure for life and property.

Medium—The project will have a long-term impact on reducing risk exposure for life and property, or the project will provide an immediate reduction in the risk exposure for the property.

Low—Long-term benefits of the project are difficult to quantify in the short term.

This section is not intended to provide a comprehensive description of a cost-benefit review or to

provide details of economic analysis methods that can be used to evaluate local projects.

14.2.2 Priority Analysis

In addition to examining the cost-benefit of each mitigation action item, the Planning and Development team used the following criteria to conduct an additional feasibility assessment to prioritize the actions:

Life and Safety

- How will the project impact businesses, residences, and properties in the planning area?
- Will the project proactively reduce natural hazard risk?

Administrative/Technical Assistance

- Is there sufficient staff to implement the project?
- Is training required for the staff to implement the project?
- Is there political support for the project?
- Does the community have the legal authority to do the project?

Project Cost and Economic Factors

- What is the cost of the project?
- Does the community have the funds for the project as a whole or as a local match?

Support for Community Objectives

- Does the action advance other objectives or plans, like capital improvement, economic development, environmental quality, or open space preservation?

Equity

- Will the action adversely affect underserved and socially vulnerable populations?

- Does the action build resilience for underserved and socially vulnerable populations?

This evaluation and prioritization framework enables the planning team to evaluate the advantages and disadvantages of various actions carefully.

Each action item was rated as high, medium, or low priority. The subjective ratings were assigned to the action based on the following parameters:

High Priority

- Life and Safety Impact: Action items directly address life and safety concerns in the planning area, such as implementing measures to mitigate natural hazard risks or enhancing emergency response capabilities.
- Resource Availability: Action items where sufficient staff capacity and/or funding are available to implement the project effectively.
- Community Resilience: Action items that actively build resilience for underserved and socially vulnerable populations, prioritizing equity and inclusivity in disaster preparedness and response efforts.

Medium Priority

- Resource Requirements: Action items that require additional resources, such as staff training or funding, but are feasible with some adjustments or reallocation of resources.
- Community Impact: Action items that significantly impact businesses, residences, and properties in the planning area but may not directly relate to life and safety concerns.
- Alignment with Objectives: Action items that contribute to advancing other community objectives or plans, such as economic development or environmental quality, are not directly related to life and safety.

Low Priority

- Cost Consideration: Action items with high costs relative to their potential impact on life and safety or other community objectives, indicating a need for further cost-benefit analysis or alternative funding sources.
- Funding Availability: Action items where funding is not readily available at the local level, requiring additional time and effort to secure external funding or partnerships.

- **Limited Community Impact:** Action items that have minimal impact on underserved and socially vulnerable populations or do not actively address their resilience needs.

By categorizing action items based on these criteria, the City of La Cañada Flintridge can prioritize resources and efforts more effectively, focusing on addressing critical life and safety concerns while also considering broader community objectives and equity considerations.

After prioritization, each mitigation action item was given one of the following timelines:

Short-term – Timeline of 1 to 2 years

Long-term – Timeline of 3 to 5 years

Ongoing – Continuous efforts to implement mitigation

14.2.3 Action Items

Appendix B contains a complete list of all mitigation action items, as well as their cost-benefit review, prioritization, timeline, category, constraints, and potential funding.

Documenting all proposed mitigation action items provides a comprehensive record of the strategies that were considered, helping in understanding the decision-making process and serving as a valuable resource for future reference. By maintaining a thorough record of why certain actions were not selected, this list ensures that these ideas can be revisited and reassessed as conditions evolve. This approach allows for flexible adaptation of strategies in response to changing circumstances, ensuring that the most effective and relevant mitigation measures can be implemented as new information and needs emerge.

Table 27: Excluded Mitigation Action Items

Proposed Mitigation Action Item	Reason for Exclusion
Implement regular maintenance and inspection schedules for utility systems, including water, electricity, and gas infrastructure.	Utility companies, which may have their own established protocols, are responsible for implementing such maintenance schedules. Included mitigation action items involve working more closely with these companies in communication efforts and broader operational understanding in case of disasters.
Utilize post-fire data such as soil sampling, satellite imagery, and hydrological models to identify areas where soils have become hydrophobic.	Implementation requires specialized expertise and resources that are not available due to the complexity and cost of data collection and analysis.

Develop a color-coded system to categorize and prioritize households with vulnerable populations, such as the elderly, disabled individuals, or families with young children. This system should involve collecting data on household demographics and health status and then assigning color codes based on the level of vulnerability.	This action was excluded due to concerns about privacy and data security, as well as the challenges in accurately and consistently identifying and categorizing vulnerable populations.
Utilize Geographic Information Systems (GIS) technology to create detailed maps highlighting regions susceptible to flooding and landslides.	While GIS mapping has been conducted previously, its value has been deemed limited due to issues with accuracy.
Create and update a map that identifies individuals with disabilities or specific needs in compliance with the Americans with Disabilities Act (ADA).	Due to privacy concerns and the logistical challenges associated with maintaining such a map, this action was excluded. The process of collecting and handling sensitive personal information requires stringent safeguards and does not align with current data protection regulations.
Implement educational programs aimed at teaching young children about emergency preparedness and safety procedures.	The primary reason for excluding this action was the city's lack of authority over school curricula and educational content. Since the implementation and control of such programs fall under the jurisdiction of educational institutions and school districts, the city cannot influence or mandate this type of educational initiative directly.

For a comprehensive understanding of the decision-making process, including the rationale behind both the chosen and discarded options, refer to the stakeholder notes available in Appendix G. These notes provide in-depth discussions and insights into how each action was evaluated, offering a clear view of the considerations that guided the final selection and highlighting the context for future reassessment of both implemented and excluded strategies.

15. Plan Adoption & Implementation

15.1 Plan Review, Adoption and Approval

FEMA Policy Connection: Element F1

For single-jurisdiction plans, has the governing body of the jurisdiction formally adopted the plan to be eligible for certain FEMA assistance?

A hazard mitigation plan must document that it has been formally adopted by the governing body of the jurisdiction, which in the case of the City of La Cañada Flintridge, is the City Council. The City Council's adoption of the plan demonstrates the city's commitment to meeting mitigation goals and objectives, and authorizes responsible agencies to execute their responsibilities. DMA compliance and its benefits cannot be achieved until the plan is adopted. Prior to formal adoption, the plan must go through a review with Cal OES and FEMA. Upon acceptance by FEMA, an Approvable Pending Adoption notice is sent to the City Council, requesting that the Final Draft Plan be submitted for adoption. A copy of the adoption resolution is provided in Appendix C of the final plan.

15.2 Implementation Action Plan

FEMA Policy Connection: Element C5

Does the plan contain an action plan that describes how the actions identified will be prioritized (including a cost-benefit review), implemented, and administered by each jurisdiction?

FEMA Policy Connection: Element D1

Is there discussion of how each community will continue public participation in the plan maintenance process?

FEMA Policy Connection: Element D2

Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)?

FEMA Policy Connection: Element D3

Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital

improvement plans, when appropriate?

The action plan describes how the mitigation actions will be carried out, including how they will be prioritized, administered, and tied into the community's existing planning mechanisms.

The Planning and Development team compiled a set of actionable measures deemed feasible and effective in addressing the identified issues from the risk assessment based on the cost-benefit review and priority analysis questions. The prioritization process determined which actions to initiate first considering their significance in alignment with the plan's objectives and the prevailing risks and capacities, as well as accounting for their anticipated start date. It's important to note that prioritization criteria for each mitigation item may evolve over time in response to shifts in community dynamics, risks, and resource availability. This adaptability ensures that the plan remains effective and responsive to the changing needs of La Cañada Flintridge.

15.2.1 Implement Mitigation Actions

To reduce long-term risk reduction, the Local Hazard Mitigation Plan is integrated across operations, incorporating hazard mitigation principles and actions into community plans. The City of La Cañada Flintridge addresses statewide planning goals and legislative requirements through its General Plan, Capital Improvement Plans, Comprehensive School Safety Plans, and City Building and Safety Codes. The city can ensure sustained action to enhance resilience by creating partnerships and aligning governance structures. Integrating goals with existing plans, using risk assessments to inform policies, and implementing actions pre- and post-disaster are vital strategies. This approach enhances community safety and fosters effective recovery.

- General Plan – The City's General Plan, a comprehensive long-term plan for the physical development of the city, includes a Safety Element which details local hazards, vulnerability to hazards, and emergency preparedness. The Local Hazard Mitigation Plan is adopted and incorporated into the Safety Element, ensuring that hazard mitigation is a key consideration in the city's overall development strategy.
- Capital Improvement Program – The City develops and reviews capital improvement projects on an annual basis. This provides an opportunity to integrate mitigation action items where appropriate.
- Comprehensive School Safety Plans – The La Cañada Unified School District updates its Comprehensive School Safety Plan annually, which includes emergency operations. The City reviews this document, providing feedback and integrating inter-jurisdictional coordination.
- Building and Safety Codes – Ensures that life-safety criteria are met for new construction.

The City will integrate the Local Hazard Mitigation Plan into its four key plans — General Plan, Capital Improvement Program, Comprehensive School Safety Plans, and Building and Safety Codes — through a coordinated approach that incorporates hazard profiles, mitigation actions, and risk assessments from the Plan.

- General Plan - The General Plan will utilize the hazard profiles to outline the types and sources of risks affecting the city. Additionally, the mitigation actions detailed in the LHMP will be integrated into the Safety Element to ensure that hazard mitigation is a fundamental part of the city's development strategy. The risk assessment from the LHMP will also inform land-use policies and planning decisions to reduce vulnerability to identified hazards.
- Capital Improvement Program - In the annual review and development of the Capital Improvement Program, the City will integrate relevant mitigation actions from the LHMP into planned projects. This involves evaluating proposed projects against the LHMP's hazard profiles and risk assessments to ensure that capital improvements address key vulnerabilities and contribute to hazard reduction. For example, infrastructure upgrades might be prioritized in areas identified as high-risk in the LHMP.
- Comprehensive School Safety Plans - The LHMP will be used to inform the La Cañada Unified School District's Comprehensive School Safety Plans by providing insights into local hazards and emergency preparedness strategies. The City will review these plans annually, offering feedback based on the LHMP's risk assessments and mitigation actions. This ensures that school safety plans are aligned with broader city-wide hazard mitigation efforts and that there is effective inter-jurisdictional coordination.
- Building and Safety Codes - The City's building and safety codes will be reviewed and updated to reflect the hazard profiles and mitigation actions detailed in the LHMP. This ensures that new construction meets the latest life-safety criteria and incorporates measures to mitigate risks identified in the LHMP. For example, if the LHMP highlights a high risk of flooding in certain areas, the building codes may be updated to include elevated construction standards or flood-resistant materials for new developments in those areas.

By systematically incorporating the Local Hazard Mitigation Plans hazard profiles, mitigation actions, and risk assessments into these plans, the City ensures a comprehensive approach to hazard mitigation and public safety across all areas of its strategic planning and operations.

Each mitigation action item is assigned to a minimum of one of the four city departments: Administration, Public Works, Community Development, and Finance. The assigned department will be responsible for coordination with partner agencies and implementation of the mitigation actions. A Resource Directory, included in Appendix D, provides a comprehensive list of resources, tools, and contacts that can be utilized during the implementation of the mitigation actions. This directory is a valuable tool for ensuring that the necessary resources and support are readily

available, enhancing the efficiency and effectiveness of the implementation process. The progress will be tracked in accordance with the Action Plan Maintenance section (below).

15.2.2 Maintenance

In order for this Local Hazard Mitigation Plan to remain effective and useful to the community of La Cañada Flintridge, it must remain up to date. An updated version of the plan will continue to guide hazard mitigation action items in La Cañada Flintridge and will help keep the City eligible for state and federal hazard mitigation funding. The Planning and Development Team has structured this plan so that the City can easily update individual sections as new information becomes available and as new needs arise, helping to keep this Plan current. This update process involves a thorough review of the plan's goals, strategies, and actions, and the incorporation of any new information, data, or insights that may have emerged since the last update.

15.2.2.1 Monitoring

The Planning and Development team and the Hazard Mitigation Advisory Committee have established goals and objectives and have prioritized mitigation actions that will be implemented through existing plans, policies, and programs over the next five years. The City of La Cañada Flintridge Administration Department will oversee the Plan implementation and maintenance strategy. Designated staff will supervise the plan monitoring and ensure that plan implementation and evaluation will be shared among all departments identified as lead departments in the mitigation action item plan.

The plan maintenance process includes a schedule for monitoring and evaluating the plan on a quarterly basis. This regular monitoring is essential for tracking the progress of the mitigation actions, identifying any issues or challenges, and making necessary adjustments to ensure the plan's effectiveness. A progress tracker and evaluation template for monitoring purposes can be found in Appendix F. If needed, these quarterly updates will be used to produce an updated plan in the occurrence of a disaster. Each fiscal year, the Administrative Services Department will meet and plan budgeting requests and or staffing resources to implement the scheduled mitigation based on the monitoring template. Annually, designated staff will produce a report outlining current progress on mitigation action items and the plan's overall effectiveness. The report will be presented to the City Council for review.

15.2.2.2 Evaluating

The Hazard Mitigation Advisory Committee oversaw the development of the Plan and made recommendations on key elements of the plan, including the maintenance strategy. A Hazard Mitigation Advisory Committee is recommended to remain a viable body involved in critical elements of the Plan maintenance strategy. Designated staff will engage the Hazard Mitigation Advisory Committee in the review and be responsible for the ongoing evaluation of this plan. The

Planning and Development Team and Hazard Mitigation Advisory Committee should meet annually to review the implementation of mitigation action items and evaluate the plan's effectiveness. These meetings include:

- Discussion of the timing of implementing the mitigation action items.
- Evaluation of the action items that are being implemented and determining if these action items are succeeding.
- Revisions, as needed, of the prioritization of mitigation action items.
- Integration of the mitigation action items into other mechanisms as needed.

To the extent possible, Committee 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 action items are considered.

15.2.2.3 Updating

Local hazard mitigation plans must be reviewed, revised if appropriate, and resubmitted for approval to remain eligible for benefits under the DMA (44 CFR, Section 201.6(d)(3)). The City of La Cañada Flintridge intends to update the hazard mitigation plan on a 5-year cycle from the date of initial plan adoption. This cycle may be accelerated to less than five years based on the following triggers:

- A Presidential Disaster Declaration that impacts the planning area;
- A change to conditions related to a hazard;
- A comprehensive update of the City of La Cañada Flintridge General Plan and/or
- At the direction of the City Manager or designee.

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 information as necessary. This will help keep the Plan relevant and current. The Department of Administrative Services will update the Plan and ensure the Hazard Mitigation Advisory Committee is engaged throughout the process. Designated staff, along with the Committee, will determine the best method for updating the Plan, which should include the following steps:

- Involve at least one member from each City department or in a supporting role to contribute.
- Invite the public to participate.
- Review and update the hazard mapping and threat assessment for critical facilities.
- Revise the threat assessment for populations and other assets.
- Review and revise the mitigation actions as needed, including in response to actions that have been completed, changed, canceled, or postponed.
- Send a draft of the updated Plan to appropriate external agencies.
- Make a draft of the updated Plan available to members of the public for comment.
- Following public review, send a draft of the updated plan to the California Office of Emergency Services (Cal OES) and the Federal Emergency Management Agency (FEMA) for review and approval.
- Adopt the final updated Plan within one year of beginning the update process and within five years of adopting the previous Plan.

The LHMP update is estimated to begin in March 2028, with a draft version available for public comment in March 2029. In May 2029, a final draft will be submitted to Cal OES and FEMA for review and approval, followed by adoption by the La Cañada Flintridge City Council before expiration in late 2029.

15.2.2.4 Continuing Public Involvement

The public will continue to be apprised of the plan's progress through a City website and by the progress reports to the City Council. The website will house the final plan and provide information regarding the plan and plan implementation. Upon initiation of future update processes, a new public involvement strategy will be initiated based on guidance from the Hazard Mitigation Advisory Committee. This strategy will be based on the needs and capabilities of the City of La Cañada Flintridge at the time of the update. The public involvement strategy is as follows:

- Regular Updates - Host periodic workshops and forums to update the community on progress, challenges, and next steps. These events can include interactive elements like breakout sessions, live polls, and Q&A segments.

- Themed Sessions - Organize workshops around specific themes or issues, such as flood prevention or emergency preparedness, to delve deeper into relevant topics and gather targeted feedback.
- Regular Meetings - Schedule regular meetings with the Hazard Mitigation Advisory Committee to review progress, discuss emerging issues, and brainstorm solutions.
- Online Platforms - Develop and maintain an interactive webpage where residents can access real-time updates, provide feedback, participate in surveys or polls, and see upcoming events.
- Virtual Town Halls - Utilize virtual town hall meetings to reach people who may not be able to attend in person. These can be supplemented with live chats or discussion forums to facilitate real-time interaction.
- Workshops and Training - Offer educational workshops and training sessions on topics related to the plan, such as emergency preparedness, flood safety, and resilience-building.
- Public Awareness Campaigns - Run awareness campaigns through local media, social media, and community bulletins to keep the public informed about the plan's objectives and how they can get involved.
- Collaborative Initiatives - Partner with local schools, community groups, non-profits, and businesses to reach broader audiences and leverage existing networks.
- Community Events - Participate in or sponsor community events like fairs, festivals, and neighborhood meetings to promote the plan and solicit input.
- Suggestion Boxes - Set up physical or digital suggestion boxes where residents can anonymously submit their ideas and concerns.
- Feedback Surveys - Conduct regular surveys to gauge public opinion on various aspects of the plan and its implementation.
- Progress Reports - Publish regular progress reports and updates on how public input has influenced the plan and its implementation.

By incorporating these strategies, the City can create a dynamic and inclusive engagement process that keeps the public actively involved and invested in the plan's ongoing success and relevance.



Appendices

Appendix A

Status of Mitigation Action Items from 2019 Local Hazard Mitigation Plan

Number	Mitigation Action	Status	Ongoing?
EQH-STA 2	Identify funding sources for potentially vulnerable structures.	Completed. The City applied for a number of federal grants to earthquake-proof key buildings within the community, including the Building Resilient Infrastructure and Communities (BRIC) grant. Unfortunately, the grant administrators informed the City that the likelihood of the City getting the grant was low due to the community's high income.	Yes
EQH-LTA 2	Reduction of nonstructural and structural earthquake hazards in homes, schools, businesses, and government offices.	Completed. The City partnered with the California Joint Power Authority to assess all City owned property for earthquake threat and are working on building upgrades to refortifie them. The City's Community Development in collaboration with County Building and Safety, regularly updates building codes to meet new earthquake standards for private property to mitigate future risks.	Yes
LSH-STA 1	They are educating residents about the importance of properly maintaining the hillsides on their property.	Completed. The City issued various social media posts regarding property maintenance as a prevention method. The City also collaborated with the Los Angeles County Fire on private property protection zones and educating residents on protecting their property by reducing vegetation/flammable material around their structures.	Yes
WFH-STA 1	Inventory pools and other potential water resources which can be used during an emergency as water supply.	Completed. The City worked with County Fire on implementing the mitigation. Fire. Dept advises against including this as an Item. Residential Pools are too shallow and will not be used.	No
WFH-LT5	Research the utility of wider streets to facility evaluation and fire responder access during regular Capital Improvement project maintenance, including underground utilities, resurfacing, ADA compliance, and similar activities	Beginning in 2022, the City began implementing a No-Parking-During-Red-Flag Days Program. The program's development has been a collaboration between the Fire department, the Sheriff, and the City. The City completed the draft of the program in late 2023 and is currently working on the public engagement review and education process. The full outreach and education campaign is estimated to be completed by June 2025.	Yes
WFH-LT6	Research fuel reduction methods, codes, and ordinances for especially high-risk wildland-urban interface areas.	Completed. All projects are subject to the most current version of the Building Codes and California Fire Code. This is implemented through conditions of approval for projects as well as the Fire Departments plan check.	No
WSH-STA 1	Establish public education campaigns on proper vegetation and landscaping to minimize property damages in case of an event.	Due to the COVID pandemic, this mitigation measure must still be completed or started. The City plans to continue this mitigation item in the next cycle for LHMP.	Yes
WSH_LTA 3	Establish a new high frequency for tree pruning program to reduce the potential for property damage.	Completed. During this LHMP cycle, the City established a five-year tree trimming program. This was to conduct more frequent trimming of trees. The City beginning July 1st, 2024 will once again increase the friequency by transiting into a four-year tree trimming program.	No
DTH-STA 2	Review and modify existing ordinances to promote water conservation measures during drought emergencies that restrict the use of public water resources and prioritize, or control water use for emergency situations.	Completed. California AB 1572 outlaws the use of potable water for nonfunctional grass at commercial, industrial, municipal and institutional properties. The City does not have conrol over water restrictions. However, the City is working with utility companies to promote water wise community including smart irrigation systems.	No
DTH-LTA 1	Encourage drought-tolerant landscapes design in public and private spaces by incorporating drought tolerant or xeriscape practices to reduce dependence on irrigation.	Completed. The City Municipal Code Chapter 4.23 Water Efficient Landscaping, also known as WELO.	No
ETH-STA 2	Educate homeowners and builders on cooling methods for homes to reduce urban heat island effect. Inform homeowners on energy-efficient financing programs like the HERO Program.	Completed. The City partnered with the CSDA PACE program to promote and empower residents and businesses to make energy-efficient upgrades and contribute to a greener, more sustainable future.	No
MH-STA 1	Ensure the codes and ordinances of the city of La Cañada Flintridge reflect the intent of the goals and the action items found in the City's Local Hazard Mitigation Plan.	Completed. The LHMP plan implementors worked with the Community Development Department during the General Plan update to include mitigation efforts in the Safety Element, Housing Element, and some of the zoning code updates.	Yes
MH-LTA 3	Analyze City ingress and egress to develop potential alternate routes of access through the area.	Completed. The City was one of the early adopters of Genasys Protect formally Known as Zone Haven. The system creates designated evacuation zones and allows reisidents to know how to evacuate incase of an emergency.	No
ETH-STA 3	Information campaign on backup electric powered generators to prepare homeowners and business for emergencies and when power outages occur. An emergency solar and/or wind-powered power generation system can help homeowners, small business owners, and public facilities generate their own energy for onsite use.	Due to the COVID pandemic, this mitigation measure has not been completed or started. The City plans to continue this mitagtion item to the next cycle for LHMP.	No
EQH-LTA 1	Encourage seismic strength evaluations of critical facilities located in the City of La Cañada Flintridge.	Move to the next cycle. The City will be partnering with the California Joint Powers Authority to conduct thorough assessment of the City's owned property for earthquake volnaribity. The City has also started regular collaborarion with utility providers and will encourage them to conduct similar assessments.	No

Number	Mitigation Action	Status	Ongoing?
FLH-STA 1	Biannual inspection of catch basins. The inspection will help identify catch basins that need cleaning and/or repair work. The catch basins are an essential part of the storm drain system. If the catch basins are not functioning at full capacity the potential for flooding will increase in the area.	Completed. The City conducts Catch Basins clean out 3x a year. Furthermore, prior to any major known rainstorms, the City inspects flooding areas to make sure drains are cleared of debris.	No
FLH-STA 2	They are educating residents who own properties with waterways on maintenance responsibilities. The city has many natural waterways that run through private properties. The waterways are an essential part of a drainage system. Educating the residents that they are responsible for maintaining and upkeep the natural waterway is crucial in preventing flooding on their property and properties upstream of them. Debris buildup will cause water to back up and flood the surrounding area.	Due to the COVID pandemic, this mitigation measure must still be completed or started. The City plans to continue this mitigation item in the next cycle for LHMP.	Yes
FLH-STA 3	Perform an inventory of storm drains in the city and determine which agency has responsibility for maintenance. Without a proper database, it's difficult to keep an accurate maintenance record. This database will be the basis of our biannual inspection of catch basins	Completed. The City hired a consultant to conduct an asset inventory, including catch basins. The work began in 2023 and is set to be completed in June 2024. The work will include a GIS layer which will have the geolocation.	No
LSH-LTA 1	Collaborate with responsible agencies for regular inspection and maintenance of debris basins.	Completed. The City conducts Catch Basins clean out 3x a year. Furthermore, prior to any major known rainstorms, the City inspects flooding areas to make sure drains are cleared of debris.	No
WFH-LTA 1	Collaborating with utilities to evaluate areas of improvement to reduce wildfires, such as turning off power or having an adequate water source.	Completed. The City has started utility/interagency meetings to collaborate on various matters, including emergency preparedness, mitigation measures, and public outreach.	Yes
WFH-LTA 2	Work with water districts (to inventory all fire hydrants) and flow testing them. Additionally, create a GIS layer with the resource to use during emergencies.	Completed. Vally Water Company = 512 Hydrants La Cañada Irrigation = 244 Hyrants, Mesa Crest Water = 79 Hydrants Total 835. Flow rate varies from 1,250 gpm to 2,500 gpm.	No
WFH- LT3	Establishing fire breaks or defensible space, or permanent structure(s) in the City to prevent the spread of fires during hazard events	Completed. The City has a brush clearance program, through which defensible space is annually created for all city-owned property and open space.	Yes
DTH-LTA 2	Develop stormwater capture infrastructures such as green street which captures rainwater as it falls and prevents runoff into impervious surfaces such as streets or sidewalks	Completed. The City constructed an alley designated for capturing water and being a "green" project: Green Alley Project behind Armstrong.	No
ETH-LTA 1	Built green streets to incorporate vegetation and sustainable design features to cool ambient temperatures and provide shade and an attractive streetscape for pedestrians. Green streets can help reduce the urban heat island effect.	Completed. The City constructed an alley designated for capturing water and being a "green" project: Green Alley Project behind Armstrong.	No
EQH-STA 1	Incorporate new earthquake hazard software for risk analysis for the City of La Cañada Flintridge.	Completed. The City used open-source systems, including those from State and Federal government, to analyze community risk.	No
EQH-STA 3	Encourage homeowners and business to purchase-earthquake hazard insurance by distributing informational material on the topic.	Completed. The City participated in homeowners association meetings with insurance brokers to educate them on property insurance and understanding coverages.	No
EQH-LTA 3	Identify if the City falls within a fault and work with geological personnel.	Completed, the City has a number of faults withing it's boundaries.	No
EQH-LTA 4	Reevaluate potential secondary facilities for an Emergency Operations Center within the City limits.	The City worked on a Mobile EOC but was not successful in getting funding. The City's IT division has made the City's operation including EOC completely mobile and staff are able to work from any location with a mobile internet connection.	Yes
WFH-STA 2	Educate the public on wildfire, providing brochures, public service announcements with information on the hazard	Completed. City partnered with LA County Fire on Ready Set GO campaign https://fire.lacounty.gov/rsg/ . The City also has done many public awareness campaigns on emergency prepardness and wildfire prevention.	No
WFH- LT4	Establish an outdoor warning system for potential placement in highly vulnerable areas designed to alert residents and visitors of La Cañada Flintridge about possible danger.	The City has looked at various outdoor siren systems and is still evaluating their effectiveness and need in the community.	Yes
WSH-LTA 1	Collaborate with utility companies on ways to reduce hazard during an event. Early communication between agencies to mitigate disasters and create unified strategies.	Completed. The City has started utility/interagency meetings to collaborate on various matters, including emergency preparedness, mitigation measures, and public outreach.	Yes
WSH-LTA 2	Identify and establish a system of shared community resource in case of an emergency.	Completed. The City started training for CERT for the Community in 2022. In 2024, the City has formally created the program and will have a dedicated CERT team to assist with community preparedness and outreach.	Yes
DTH-STA 1	Increase public awareness and education on water saving measures such as installing rain-capturing devices for irrigation and minimizing daily water usage.	Completed. The water companies within the City conduct multiple campaigns and outreach for reducing water and conserving.	Yes

Number	Mitigation Action	Status	Ongoing?
ETH-STA 1	Increase public awareness of extreme heat risks and safety. Organize outreach and education to vulnerable populations during periods of extreme temperature to inform about the dangers, how to prepare and protect themselves.	Completed. Area C DMAC constantly updates City Hall on the Weather. LA County sends out Extreme Heat Notifications and locations for Cooling Centers. The City currently needs an established cooling center.	Yes
HMH-STA 1	Educate the public on cybersecurity threats and ways for individuals to protect themselves.	Due to the COVID pandemic, this mitigation measure must still be completed or started. The City plans to continue this mitigation item in the next cycle for LHMP.	Yes
HMH-STA 2	Annual meeting with utility companies to exchange ideas and method of increasing cybersecurity.	Completed. The City has started utility/interagency meetings to collaborate on various matters, including emergency preparedness, mitigation measures, and public outreach.	Yes
HMH- STA 3	Use a defense in depth model to mitigate the threat from Active Shooters in government-owned properties by hardening spaces, distributing critical equipment, training personnel and better coordinating the response.	Completed. The City has implemented bleeding control kits with signage throughout city-owned properties. Staff is trained annually with the Stop the Bleed Campaign. The City has also conducted active shooter training and will complete one more in June 2024.	Yes
HMH-LTA 1	Establish a redundancy for voice and data communications for City’s Emergency Operation Center.	Completed. The City has a 100% mobile unit, including its phone system. They can operate as long as city-issued devices are connected to the internet from anywhere.	No
HMH-LTA 2	Maintain a backup data to activate in case of a cyber takeover of current data.	Completed. The City has two cloud-based backup systems and recently instituted an on-premise external hard drive swap backup system.	No
MH-STA 2	Develop informational material about flood, fire, earthquake, and other forms of natural hazards to distribute among all La Cañada Flintridge property owners.	Completed. The City has a dedicated webpage on emergency preparedness for residents and local businesses.	Yes
MH-STA 3	Develop strategies and capabilities to mitigate risk to local government facilities, or to utilize alternative facilities should local hazard events cause damage	Completed. The City has 100% remote capability and can conduct operations virtually.	Yes
MH-LTA 1	Encourage individual and family preparedness.	Completed. The City has a dedicated webpage on emergency preparedness for residents and local businesses.	Yes
MH-LTA 2	Establish partnerships with nongovernmental organizations to secure funding for mitigation activities that would be mutually beneficial.	Completed. The City partners with the American Red Cross, but we do not receive funding from them; we receive community preparedness programs, shelter volunteers, and other items from them.	Yes

Appendix B

2024 Mitigation Action Items

Hazard	Number	Mitigation Action	Cost-Benefit Rating	Priority	Timeline	Coordinating Department	Category	Constraints	Potential Funding
All Natural Hazards	00-01	Conduct annual education and training campaigns for community preparedness (evacuations, house hardening, shelter in place and other proactive measures). Collaborate with schools, parents, and community organizations in hosting town halls, and booths at community events.	Low - High	High	Ongoing	Administration	Education and Awareness Programs	Available Personnel	General Fund
All Natural Hazards	00-02	The City to research and identify options to support and educate vulnerable/elderly/and people with disabilities on preparing for a disaster including needs for evacuations.	Low - High	High	Short-term	Administration	Education and Awareness Programs	Funding Confidentiality/Privicay	General Fund
All Natural Hazards	00-03	Develop strategies and capabilities to mitigate risk to local government facilities, or to utilize alternative facilities should local hazard events cause damage.	High - Low	Medium	Long-Term	Administration	Structure and Infrastructure Projects	Funding Expertise	General Fund & Hazard Mitigation Grant Program
All Natural Hazards	00-04	Conduct an impact analysis on city streets when 210 freeway is closed. Create a public safety communication and coordination plan with first responders.	Medium - High	High	Long-Term	Administration	Local Planning and Regulations & Structure and Infrastructure Projects	Funding Available Personnel Infrastructure	General Fund & Pre-Disaster Mitigation Program Grant
All Natural Hazards	00-05	Reevaluate potential secondary facilities for an Emergency Operations Center within the City limits and resource sharing with local agencies.	High - Medium	Medium	Short-term	Administration	Structure and Infrastructure Projects	Funding Location	General Fund & Building Resilient Infrastructure and Communities Grant Program
All Natural Hazards	00-06	Develop informational material about flood, fire, earthquake, and other forms of natural hazards to distribute among all La Cañada Flintridge property owners.	Medium - Medium	Medium	Short-term	Administration	Education and Awareness Programs	Funding	General Fund
General	00-07	Prioritizing vulnerable populations in emergency planning, including non-English speakers, children, and seniors, with tailored outreach and support programs.	Medium - High	High	Ongoing	Administration	Education and Awareness Programs	Funding	General Fund
General	00-08	Regular meetings with utility companies to collaborate on energy preparedness, cyber security, utility hardening, public outreach and joint operational exercises.	Low - High	High	Ongoing	Administration	Local Planning and Regulations & Education and Awareness Programs	Coordination Available Personnel Conflicting Priorities	General Fund
General	00-09	Ensure the codes and ordinances of the city of La Cañada Flintridge reflect the intent of the goals and the action items found in the City's Local Hazard Mitigation Plan.	Low - High	High	Ongoing	Community Development Administration	Local Planning and Regulations	None	General Fund
General	00-10	Establish partnerships with nongovernmental organizations to secure funding for mitigation activities that would be mutually beneficial.	Low - Medium	Low	Ongoing	Administration	Local Planning and Regulations	Funding	General Fund
General	00-11	Utilize the citys newly established CERT team in emergency preparedness outreach campaigns.	Low - Medium	Medium	Ongoing	Administration	Education and Awareness Programs	Funding Available Personnel	General Fund
Earthquake	05-01	Identify funding sources for potentially vulnerable structures.	Low - Medium	Low	Long-Term	Community Development Public Works Administration	Structure and Infrastructure Projects	Funding Available Personnel	General Fund & Building Resilient Infrastructure and Communities Grant Program
Earthquake	05-02	Reduction of nonstructural and structural earthquake hazards in homes, schools, businesses, and government offices.	Medium - Medium	Medium	Long-Term	Community Development Administration	Structure and Infrastructure Projects	Funding Available Personnel	General Fund & Building Resilient Infrastructure and Communities Grant Program
Flooding	06-01	Biannual inspection of catch basins. The inspection will help identify catch basins that need cleaning and/or repair work. The catch basins are an essential part of the storm drain system. If the catch basins are not functioning at full capacity the potential for flooding will increase in the area. Conduct as needed inspections prior to know major rainstorms.	Low - High	High	Ongoing	Public Works	Structure and Infrastructure Projects & Natural Systems Protection	Funding Available Personnel	General Fund
Flooding	06-02	Educating residents who own properties with waterways on maintenance responsibilities. The city has many natural waterways that run through private properties. The waterways are an essential part of a drainage system. Educating the residence that they are responsible for the maintenance and upkeep of the natural waterway is important for preventing flooding on their property and properties upstream of them. Debris build up will cause water to back up and flood the surrounding area.	Medium - Medium	Medium	Ongoing	Public Works Administration	Natural Systems Protection & Education and Awareness Programs	Funding Available Personnel	General Fund

Hazard	Number	Mitigation Action	Cost-Benefit Rating	Priority	Timeline	Coordinating Department	Category	Constraints	Potential Funding
Landslide	07-01	Educating residents about the importance of proper maintenance of the hillsides on their property and incorporation of drought tolerant plants for hillside stability.	Medium - Medium	Medium	Ongoing	Community Development Administration	Education and Awareness Programs & Structure and Infrastructure Projects Local Planning and Regulations	Funding Available Personnel	General Fund
Wildfire	08-01	Complete the implementation of the Cities proposed No Parking During Red Flag Days Program. The development of the program has been a collaboration between Fire, Sheriff, and the City. The City completed the draft of the program in late 2023 and is currently working on the public engagement review and education process. The full outreach and education campaign is estimated to be completed by June of 2025.	Medium - High	High	Ongoing	Administration	Structure and Infrastructure Projects & Education and Awareness Programs	Fesibility	General Fund
Wildfire	08-02	Establishing fire breaks or defensible space, or permanent structure(s) in the City to prevent the spread of fires during hazard events	Low - High	High	Ongoing	Administration	Structure and Infrastructure Projects Education and Awareness Programs	Available Personnel	General Fund
Wildfire	08-03	Incorporate Fire wise community programs into the Cities established neighborhood watch program.	Low - High	High	Short-term	Administration	Education and Awareness Programs & Local Planning and Regulations	Available Personnel	General Fund
Wildfire	08-04	Establish an outdoor warning system for potential placement in highly vulnerable areas designed to alert residents and visitors of La Cañada Flintridge about possible danger.	High - High	Medium	Long-Term	Administration	Structure and Infrastructure Projects	Funding Location	Pre-Disaster Mitigation Program Grant
Windstorm	09-01	Identify and establish a system of shared community resources in case of an emergency.	Low- Low	Low	Long-Term	Administration	Education and Awareness Programs	Available Personnel Resources	General Fund
Drought	10-01	Create a list of drought tolerant landscaping to provide to residences. Incorporate incentives such as awards or recognitions for properties that implement drought tolerant landscaping.	Low- Low	Low	Long-Term	Community Development	Natural Systems Protection	Expertise Available Personnel	General Fund
Drought	10-02	Work with Irrigation Districts to promote there Advanced Metering Infrastructure (AMI) program to alert residences when there is a potential leak and promote smart irrigation and other storm water capture methods.	Low - Medium	Low	Long-Term	Administration	Local Planning and Regulations	Available Personnel	General Fund
Extreme Heat	11-01	Inform the community of nearby cooling centers during major extreme heat events.	Low - Low	Low	Short-term	Administration	Structure and Infrastructure Projects	Location	General Fund
Hazards of Interest	12-01	Use a defense in depth model to mitigate the threat from Active Shooters in government-owned properties by hardening spaces, distributing critical equipment, training personnel and better coordinating the response.	Medium - High	High	Ongoing	Administration	Education and Awareness Programs	Funding Available Personnel	General Fund
Hazards of Interest	12-02	Conduct joint exercises with first responders, schools and major community groups surrounding active shooter events.	Medium - High	High	Ongoing	Administration	Education and Awareness Programs	Funding Coordination Available Personnel	General Fund
Hazards of Interest	12-03	Use a defense in depth model to mitigate the threat from Active Shooters in government-owned properties by hardening spaces, distributing critical equipment, training personnel and better coordinating the response.	High - High	High	Ongoing	Administration	Education and Awareness Programs & Structure and Infrastructure Projects	Funding Available Personnel	General Fund
Hazards of Interest	12-04	Evaluate and consider local ordinances regulating drones and build awareness of irresponsible drone usage.	Low - Low	Low	Long-Term	Administration	Local Planning and Regulations	Funding Enforcement	General Fund
Hazards of Interest	12-05	Promote and facilitate disposal of hazardous waste.	Low - Low	Low	Ongoing	Administration	Education and Awareness Programs	Funding	General Fund
Hazards of Interest	12-06	Continue outreach and solicitation for ISP companies to provide alternative broadband services within the community.	High - Medium	Medium	Long-Term	Administration	Education and Awareness Programs	Funding Coordination	General Fund & Building Resilient Infrastructure and Communities Grant Program
Hazards of Interest	12-07	Share calendars of public events with Sheriff such as special events, parade, schools (public and private), and events in high-density locations.	Low - Medium	Medium	Ongoing	Administration	Education and Awareness Programs	Coordination	General Fund
Hazards of Interest	12-08	Educate the public on cybersecurity threats and ways for individuals to protect themselves.	Medium - Medium	Medium	Ongoing	Administration	Education and Awareness Programs	Funding Available Personnel	General Fund
Hazards of Interest	12-09	Establish strong internal security measures and backup mechanisms (physical and cloud).	Medium - Medium	Medium	Short-term	Administration	Structure and Infrastructure Projects	Funding Available Personnel	General Fund

Appendix C

City of La Cañada Flintridge Adopted Resolution



FEMA

September 24, 2024

Madison Dederick
Senior Management Analyst
City of La Cañada Flintridge
One Civic Center Drive
La Cañada Flintridge, CA 91011

Dear Madison Dederick:

The Federal Emergency Management Agency (FEMA) has completed its review of the *City of La Cañada Flintridge Local Hazard Mitigation Plan 2024-20229* and has determined that this plan is eligible for final approval pending its adoption by the City of La Cañada Flintridge.

Formal adoption documentation must be submitted to FEMA Region 9 within one calendar year of the date of this letter, or the entire plan must be updated and resubmitted for review. FEMA will approve the plan upon receipt of the documentation of formal adoption.

If you have any questions regarding the planning or review processes, please contact the FEMA Region 9 Hazard Mitigation Planning Team at fema-r9-mitigation-planning@fema.dhs.gov.

Sincerely,

XING LIU

Digitally signed by XING
LIU
Date: 2024.09.23 10:05:36
-07'00'

for: Alison Kearns
Planning and Implementation Branch Chief
Mitigation Division
FEMA Region 9

Enclosure (1)

City of La Cañada Flintridge Plan Review Tool, dated September 24, 2024

cc: Robyn Fennig, State Hazard Mitigation Officer, California Governor's Office of
Emergency Services
Victoria LaMar-Haas, Hazard Mitigation Planning Chief, California Governor's Office of
Emergency Services

CITY OF LA CAÑADA FLINTRIDGE

RESOLUTION NO. 24-40

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LA CAÑADA FLINTRIDGE, CALIFORNIA, ADOPTING THE LOCAL HAZARD MITIGATION PLAN FOR 2024-2029 IN ACCORDANCE WITH THE FEDERAL DISASTER MITIGATION ACT OF 2000 (PUBLIC LAW 106-390)

WHEREAS, the Disaster Mitigation Act of 2000 (DMA2K) was enacted which required all public agencies to complete a Local Hazard Mitigation Plan in order to qualify for pre- and post-disaster funds; and

WHEREAS, the DMA2K focuses specifically on planning, and recognized the significance of hazard mitigation planning at the local level and the necessity for effective coordination between State and local entities to promote an integrated, comprehensive approach to mitigation planning; and

WHEREAS, local hazard mitigation planning is essential to the sustainability of the City of La Cañada Flintridge in that it increases the City's disaster resiliency; and

WHEREAS, the DMA2K requires local agencies like the City of La Cañada Flintridge to develop a mitigation plan that includes a detailed city profile; identifies specific threats and vulnerabilities with the City, and sets forth specific mitigation measures to address such threats and vulnerabilities; and

WHEREAS, in order to comply with the requirements of the Federal Government's DMA2K, each jurisdiction must plan, organize and develop the process by which the Local Hazard Mitigation Plan is created; and

WHEREAS, the DMA2K further requires detailed documentation of all actions, meetings, studies and directives undertaken in furtherance of developing and implementing the City's Local Hazard Mitigation Plan; and

WHEREAS, the City adopted Resolution No. 19-17 on July 2, 2019 adopting the City of La Cañada Flintridge's Local Hazard Mitigation Plan for 2019-2024; and

WHEREAS, the City has evaluated the hazards, risks, and mitigation measures identified in the previous plan, and incorporated the results of these evaluations into the update of the plan for 2024-2029; and

WHEREAS, the updated Local Hazard Mitigation Plan has been received by all City Departments, committees, California Governor's Office of Emergency Services and Federal Emergency Management Agency, Region IX; and

WHEREAS, the updated Local Hazard Mitigation Plan was available for public comment and review for the required time period; and

WHEREAS, the City Council desires to rescind Resolution No. 19-17 and adopt the updated Local Hazard Mitigation Plan for 2024-2029 in accordance with the DMA2K; and

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

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF LA CAÑADA FLINTRIDGE DOES HEREBY FIND, DETERMINE AND RESOLVE AS FOLLOWS:

Section 1. The recitals set forth above are true and correct and are incorporated herein by reference.

Section 2. Resolution No. 19-17 is hereby rescinded.

Section 3. The City Council does hereby adopt the Local Hazard Mitigation Plan for 2024-2029 (dated October 2024), establishing goals and objectives to ensure the health, safety and welfare of its citizens, in the event of a natural or manmade disaster.

Section 4. The Local Hazard Mitigation Plan for 2024-2029 meets the program criteria of the Stafford Act as amended (Disaster Mitigation Act of 2000) in order that the City of La Cañada Flintridge will remain eligible for future pre-disaster and post-disaster mitigation funds.

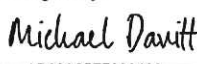
Section 5. The City Council authorizes the City manager or designee to perform all duties required to carry out the Local Hazard Mitigation Plan for 2024-2029.

Section 6. The City Council authorizes the City manager or designee to make necessary administrative and operational changes to the Local Hazard Mitigation Plan for 2024-2029 that are in keeping with the intent of the plan as approved.

Section 7. This Resolution shall go take effect as of the date of its passage and adoption.

Section 8. The City Clerk shall certify the adoption of this Resolution.

PASSED, APPROVED AND ADOPTED this 15th day of October, 2024.

Signed by:

AP69A65E7290400...
Michael T. Davitt, Mayor

ATTEST:

DocuSigned by:
Tania Garcia
95AE4A4BA9FF48B
Tania Garcia, City Clerk

APPROVED AS TO FORM:

Signed by:
Adrian R. Guerra
793906C33D394DC...
Adrian R. Guerra, City Attorney

State of California)
County of Los Angeles) ss.
City of La Cañada Flintridge)

I, Tania Garcia, City Clerk of the City of La Cañada Flintridge, California, do hereby certify that the foregoing Resolution No. 24-40 was duly adopted by the City Council of the City of La Cañada Flintridge at a Regular Meeting held on the 15th day of October 2024, by the following vote:

AYES: COUNCILMEMBERS: HOBSON, FOSSAN, EICH, BOWMAN, AND DAVITT
NOES: COUNCILMEMBERS: NONE
ABSENT: COUNCILMEMBERS: NONE
ABSTAIN: COUNCILMEMBERS: NONE

Dated: October 15, 2024

DocuSigned by:
Tania Garcia
94AE44BA9FF48B
Tania Garcia, City Clerk

Appendix D

Resource Directory and References

Local Resource Directory

Los Angeles County Department of Public Works

The Los Angeles County Department of Public Works protects property and promotes public safety through flood control, water conservation, road maintenance, bridges, buses and bicycle trails, building and safety, land development, waterworks, sewers, engineering, and capital projects.

Address: 900 S. Fremont Ave., Alhambra, CA 91803

URL: www.dpw.lacounty.gov

☐ (626) 458-5100

Email: info@dpw.lacounty.gov

Southern California Earthquake Center (SCEC)

The Southern California Earthquake Center (SCEC) gathers new information about earthquakes in Southern California, integrates this information into a comprehensive and predictive understanding of earthquake phenomena, and communicates this understanding to end-users and the general public in order to increase earthquake awareness, reduce economic losses, and save lives.

Address: 3651 Trousdale Parkway, Suite 169, Los Angeles, CA 90089

URL: www.scec.org

☐ (213) 740-5843

☐ (213) 740-0011

Sanitation Districts of Los Angeles County

The Sanitation Districts of Los Angeles County help to manage wastewater and solid waste. These services protect both the environment and public health, and these services may be interrupted in the case of a flood.

Address: 1955 Workman Mill Road Whittier, CA 90607

URL: www.lacsd.org/

☐ (562) 699-7411 x2301

EMAIL: info@lacsd.org

☐ (562) 908-4278

West Coast Arborists

West Coast Arborist provides tree maintenance and management services to municipalities and public agencies throughout California and Arizona.

Address: 2200 E. Via Burton Street, Anaheim, CA 92806

URL: www.westcoastarborists.com/

☐ (800) 521-3714

EMAIL: corporate@wcainc.com

☐ (714) 956-3745

Crescenta Valley Water District

The District provides water distribution and sewage collection for a small portion of the City of La Cañada Flintridge.

Address: 2700 Foothill Boulevard, La Crescenta, CA 91214

URL: www.cvwd.com

☐ (818) 248-3925

Email: customerservice@cvwd.com

☐ (818) 248-1659

Foothill Municipal Water District

The District provides wholesale water distribution retailers serving the City of La Cañada Flintridge.

Address: 4536 Hampton Road, La Cañada Flintridge, CA 91011

URL: www.fmwd.com

☐ (818) 790-4036

La Cañada Irrigation District

The District provides water distribution portion of the City of La Cañada Flintridge.

Address: 1443 Foothill Boulevard, La Cañada Flintridge, CA 91011

Mailing Address: P.O. Box 39, La Cañada Flintridge, California 91012

URL: <https://www.lacanadaid.org/>

☐ (818) 790-6749

☐ (818) 790-8459

Liberty Utilities

The District provides water distribution for a small portion of the City of La Cañada Flintridge.

Address: 14920 W. Camelback Road, Litchfield Park, AZ 85340

URL: <https://libertyutilities.com/>

☐ 800-727-5987

Valley Water Company

The Company provides water distribution for a portion of the City of La Cañada Flintridge.

Address: 4524 Hampton Road, La Cañada Flintridge, CA 91011

URL: www.valleywatercompany.com

☐ (818) 790-5516

Email: info@ValleyWaterCompany.com

☐ (818) 790-6019

National Oceanic and Atmospheric Administration Southwest California-NWS Los Angeles/ Oxnard

Provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.

Address: 520 North Elevar Street, Oxnard, CA 93030

URL: <https://www.weather.gov/lox/>

☐ (805) 988-6610

Email: Eric.Boldt@noaa.gov

County of Los Angeles Fire Department Division 3

The Los Angeles County Fire Department mission is to protect lives, the environment, and property by providing prompt, skillful, and cost-effective fire protection and life safety services. The Fire Department provides initial response to a hazardous waste spill or emergency response.

Station 19

Address: 1729 W. Foothill Blvd. La Cañada Flintridge, CA 91011

☐ (818) 249-1562

Station 82 (Battalion 4 Headquarters)

Address: 352 W. Foothill Blvd. La Cañada Flintridge, CA 91011

☐ (818) 790-4686

URL: www.fire.lacounty.gov

Los Angeles County Sheriff's Department Crescenta Valley Sheriff's Station

The Los Angeles Sheriff's Department provides an initial response to a hazardous waste spill or emergency response.

Address: 4554 Briggs Ave. La Crescenta, CA 91214

LASD URL: www.lasd.org

☐ (818) 248-3464

Crescenta Valley Station URL: www.CrescentaValley.lasd.org

State Resource Directory

California Department of Transportation (Caltrans)- District 7

Caltrans is responsible for the design, construction, maintenance, and operation of the California State Highway System, as well as that portion of the Interstate Highway System within the state's boundaries. Alone and in partnership with Amtrak, Caltrans is also involved in the support of intercity passenger rail service in California.

Address: 100 S. Main Street, Los Angeles, CA 90012

URL: www.caltrans.ca.gov/d7/

☐ (213) 897-3656

☐ (213) 897-3836

California Department of Conservation Division of Mines and Geology (DMG)

The California Geological Survey develops and disseminates technical information and advice on California's geology, geologic hazards, and mineral resources.

Address: 801 K Street, Ms12-30, Sacramento, CA 95814

URL: www.conservation.ca.gov

☐ (916) 445-1825

Email: cgsh@consrv.ca.gov

☐ (916) 445-5718

California Governor's Office of Emergency Services

The Governor's Office of Emergency Services coordinates overall state agency response to major disasters in support of local government. The office is responsible for assuring the state's readiness to respond to and recover from natural, human-caused, and war-caused emergencies, and for assisting local governments in their emergency preparedness, response and recovery efforts.

Address: 4671 Liberty Ave. Building 283, Los Alamitos, CA 90720

URL: www.caloes.ca.gov

☐ (562) 795-2939

Email: Jim.Acosta@caloes.ca.gov

☐ (562) 795-2877

California Natural Resources Agency

The Sanitation Districts aim to protect public health and the environment through wastewater and solid waste management. In the case of a flood, both wastewater and solid waste management systems are likely to be disturbed in the case of a significant flood.

Address: 1955 Workman Mill Road, Whittier, CA 90607

URL: www.lacsd.org/

☐ (562) 699-7411 x2301

EMAIL: info@lacsd.org

☐ (562) 695-5139

California Department of Water Resources (DWR)

The Department of Water Resources (DWR) is responsible for managing and protecting California's water resources. They partner with other agencies to protect, restore, and enhance natural and human environments. This includes providing grants and technical assistance to service local water needs.

Address: 1416 Ninth Street, Sacramento, CA 95814

URL: www.water.ca.gov/

☐ (916) 653-5791

California Geological Survey

The California Geological Survey maps and analyzes data on the state's diverse geologic hazards and provides critical information to protect life, property, commerce, and the environment from natural hazards. The California Geological Survey is regarded as the primary source of geologic information used for decision-making by California's government agencies, its businesses, and the public.

Address: Junipero Serra Building, 320 W. 4th Street, Suite 850, Los Angeles, CA 90013

URL: www.conservation.ca.gov/cgs

☐ (213) 239-0877

☐ (213) 239-0894

California Department of Forestry and Fire Protection (Cal Fire) Southern Region Headquarters

CAL FIRE's mission emphasizes the management and protection of California's natural resources; a goal that is accomplished through ongoing assessment and study of the State's natural resources. CAL FIRE also oversees enforcement of California's forest practice regulations. From experience with both forestry and fire management, the agency has expertise on how to mitigate certain potential causes of landslides.

Address: 2524 Mulberry Street, Riverside, CA 92501

URL: www.fire.ca.gov/

☐ (951) 782-4140

California Department of Conservation: Southern California Regional Office

The Department of Conservation provides services and information that promote environmental health, economic vitality, informed land-use decisions and sound management of our state's natural resources.

Address: 888 S. Figueroa Street #1475, Los Angeles, CA 90017

URL: www.conservation.ca.gov

☐ (213) 239-0878

☐ (213) 239-0894

The Metropolitan Water District of Southern California

The mission of the Metropolitan Water District of Southern California is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

Address: 700 North Alameda Street, Los Angeles, CA 90012-2944

URL: www.mwdh2o.com

☐ (916) 653-5791

California Environmental Protection Agency (CalEPA)

Develops, implements and enforces environmental laws that regulate air, water, and soil quality, pesticide use and waste recycling and reduction.

Address: 1001 I Street, P.O. Box 2815, Sacramento, CA 95812-2815

URL: <https://calepa.ca.gov/>

Region 9 (AZ, CA, HI, NV)

U.S. Environmental Protection Agency

The Environmental Protection Agency protects people and the environment from significant health risks, sponsors and conducts research, and develops and enforces environmental regulations.

Address: 75 Hawthorne Street, San Francisco, CA 94105

URL: <https://calepa.ca.gov/>

☐ (415) 947-8000

☐ (866) EPA-WEST (toll free in Region 9)

Email: r9.info@epa.gov

☐ (415) 947-3553

Federal Resource Directory

United States Geological Survey

The USGS provides reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

Headquarters Address: 12201 Sunrise Valley Drive Reston, VA 20192

Field Office Address: Pasadena USGS- 525 S. Wilson Avenue, Pasadena, CA 91106

URL: www.usgs.gov

☐ (916) 444-8077

☐ (888) 275-8747

National Institute of Building Sciences Building Seismic Safety Council (BSSC)

The Building Seismic Safety Council develops and promotes building earthquake risk mitigation regulatory provisions for the nation.

Address: 1090 Vermont Avenue, NW Suite 700, Washington D.C. 20005

URL: www.nibs.org

☐ (202) 289-7800

Email: sstubbs@nibs.org

☐ (202) 289-1092

Federal Emergency Management Agency, Mitigation Division

The Mitigation Division manages the National Flood Insurance Program and oversees FEMA's mitigation programs. It has programs and activities which provide citizens Protection, with flood insurance; Prevention, with mitigation measures and Partnerships, with communities throughout the country.

Address: 500 C Street, S.W., Washington, D.C. 20472

URL: www.fema.gov/fima/planhowto.shtm

☐ (202) 646-2500

Federal Emergency Management Agency, Region IX

The Federal Emergency Management Agency supports citizens and first responders to ensure that communities work together to build, sustain and improve capabilities to prepare for, protect against, respond to, recover from, and mitigate all hazards

Address: 1111 Broadway, Suite 1200, Oakland, CA 94607

URL: www.fema.gov

☐ (510) 627-7100

☐ (510) 627-7112

Western States Seismic Policy Council (WSSPC)

WSSPC is a regional earthquake consortium funded mainly by FEMA. Its website is a great resource, with information clearly categorized - from policy to engineering to education.

Address: 801 K Street, Suite 1236, Sacramento, CA 95814

URL: www.wsspc.org

☐ (916) 444-6816

Email: wsspc@wsspc.org

☐ (916) 444-8077

Institute for Business & Home Safety

The Institute for Business & Home Safety (IBHS) is a nonprofit association that engages in communication, education, engineering, and research. The Institute works to reduce deaths, injuries, property damage, economic losses and human suffering caused by natural disasters.

Address: 4775 E. Fowler Avenue, Tampa, FL 33617

URL: www.ibhs.org

☐ (813) 286-3400

Email: smillerick@ibhs.org

☐ (813) 286-9960

National Flood Insurance Program (NFIP)

The National Flood Insurance Program (NFIP) aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures.

Address: 500 C Street, S.W., Washington, D.C. 20472

URL: www.floodsmart.gov/

☐ (202) 566-1600

EMAIL: floodsmart@fema.dhs.gov

The Floodplain Management Association

The association serves as an unbiased forum for the legislature, government, industry, and science to advance best practices, technologies, policies, regulations, and legal strategies, for floodplains with a focus on California, Nevada, and Hawaii.

Address: P.O. Box 846, Ramona, CA, 92065

URL: www.floodplain.org

☐ (916) 847-3778

EMAIL: admin@floodplain.org

National Weather Service (NWS)

NWS provides resources to teach the public how to stay safe before, during, and after floods. NWS also has alert and warning systems for potentially dangerous floods.

Address: 520 North Elevar Street, Oxnard, CA 93030

URL: www.weather.gov/lox/

☐ (805) 988-6610

EMAIL: w-lox.webmaster@noaa.gov

Office of Water Prediction, National Weather Service

The Office of Water Prediction (OWP) collaboratively researches, develops and delivers state-of-the-science national hydrologic analyses, forecast information, data, decision-support services, and guidance to support and inform essential emergency services and water management decisions. The OWP helps to coordinate, integrate and support consistent water prediction activities.

Address: 1325 East West Highway, SSMC2, Silver Spring, MD 20910

URL: www.water.noaa.gov/ ☐ (301) 713-1658

EMAIL: nws.nwc.ops@noaa.gov

USGS Water Resources

The U.S. Geological Survey, California Water Science Center provides reliable, impartial, foundational data and scientific analysis to address water issues facing California today. They conduct hydrologic monitoring and investigative studies in partnership with Federal, State, and local agencies to assist them in managing California's water resources.

Address: California Water Science Center, 6000 J Street, Placer Hall, Sacramento, CA 95819-6129

URL: <https://www.usgs.gov/centers/california-water-science-center>

☐ (916) 278-3000

☐ (916) 278-3070

Bureau of Reclamation, Mid Pacific Regional Office

The Mid Pacific Region of the Bureau of Reclamation strives to develop and implement a balanced approach to water allocation, serving users while protecting the environment. The Region's goal is to balance competing needs among water uses and users.

Address: Federal Office Building 2800 Cottage Way, Sacramento CA 95825-1898

URL: www.usbr.gov/mp/ ☐ (916) 978-5001

EMAIL: mppublicaffairs@usbr.gov ☐ (916) 978-5005

Army Corps of Engineers

The Army Corps of Engineers is the Nation's environmental engineers. They have expertise in water storage and management.

Address: Los Angeles District, 915 Wilshire Blvd., Los Angeles, CA 90017

URL: www.spl.usace.army.mil/ ☐ (213) 452-3333

EMAIL: publicaffairs.spl@usace.army.mil ☐ (213) 452-4209

American Public Works Association

The American Public Works Association (APWA) serves professionals in all aspects of public works.

Address: 1200 Main Street, Suite 1400, Kansas City, MO 64105-2100

URL: www.apwa.net/

☐ (816) 472-6100

☐ (816) 472-1610

The National Drought Mitigation Center

The Drought Center helps people, organizations, and institutions build resilience to drought through monitoring and planning, and we are the academic partner and web host of the U.S. Drought Monitor map. The Drought Impact Reporter (DIR) is the nation's first comprehensive database of drought impacts.

Address: 3310 Holdrege Street, Lincoln, NE 68583-0988

URL: www.drought.unl.edu

☐ (402) 472-6707

Email: DIRinfo@unl.edu

☐ (402) 472-2946

NOAA/ National Weather Service NOAA Center for Weather and Climate Prediction

Delivers real-time products and information that predict and describe climate variations on time scales from weeks to years thereby promoting effective management of climate risk and a climate-resilient society.

Address: 5830 University Research Court College Park, Maryland 20740

URL: www.cpc.ncep.noaa.gov/

National Centers for Environmental Information

NOAA's National Centers for Environmental Information (NCEI) hosts and provides access to one of the most significant archives on earth, with comprehensive oceanic, atmospheric, and geophysical data.

Address: 151 Patton Avenue, Asheville, NC 28801-5001

URL: www.ncei.noaa.gov

Email: ncei.info@noaa.gov

National Oceanic and Atmospheric Administration

Work to understand and predict changes in climate, weather, oceans, and coasts, to share that knowledge and information with others, and to conserve and manage coastal and marine ecosystems and resources.

Address: 1401 Constitution Avenue NW, Room 5128, Washington, DC 20230

URL: <http://www.noaa.gov/>

Federal Bureau of Investigation

The FBI is a national security organization with both intelligence and law enforcement responsibilities working to help protect communities and business from terrorism, espionage cyber-attacks, and major criminal threats.

Headquarters Address: 935 Pennsylvania Avenue, NW. Washington, D.C. 20535-0001

Field Office: 11000 Wilshire Boulevard, Suite 1700, Los Angeles, CA 90024

URL: <https://www.fbi.gov/>

☐ **Headquarters:** (202) 324-3000

Field Office URL: losangeles.fbi.gov ☐ **Field Office:** (310) 477-6565

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Appendix E

FEMA National Risk Index Report

National Risk Index



April 30, 2024

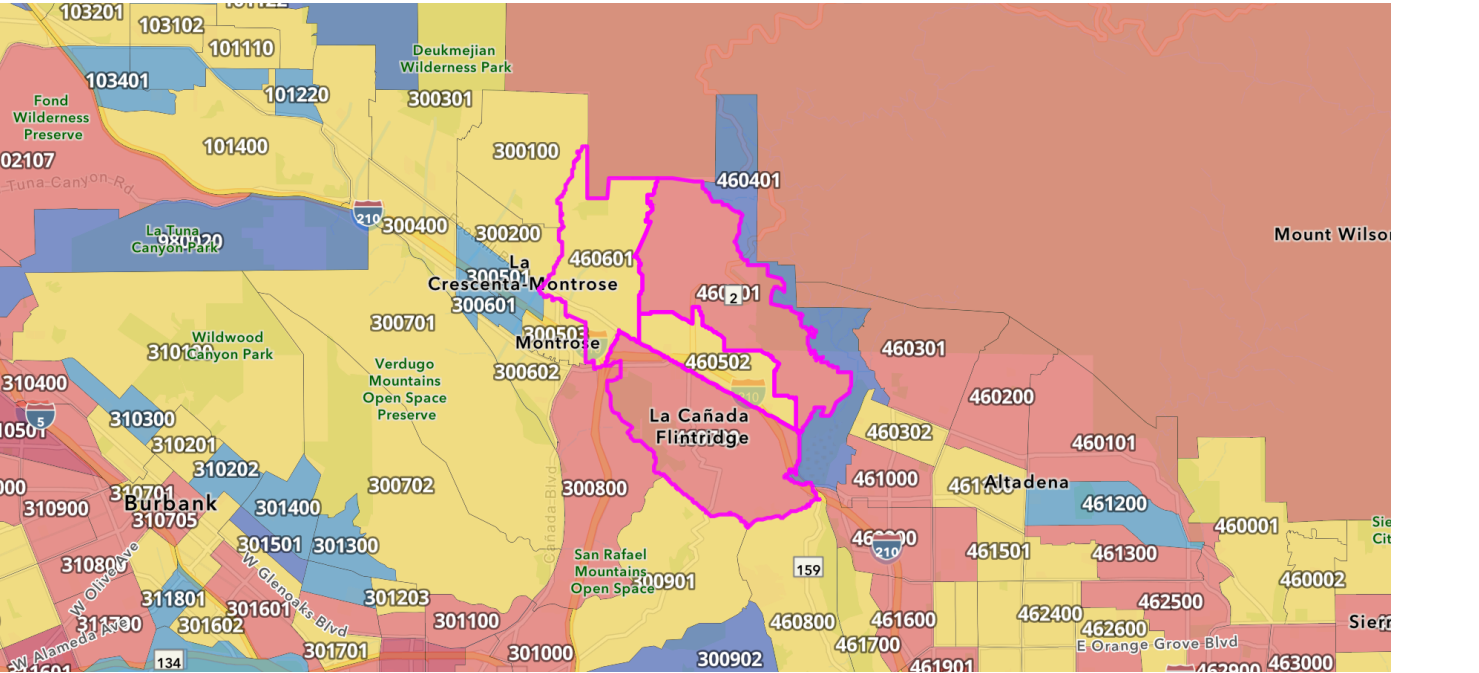
Risk Comparison Report

Use this report to determine how risk factors in selected communities compare to each other. Click a community name in any table below to open an individual risk profile report for that community and review its risk factors in more detail.

While reviewing this report, keep in mind that low risk is driven by lower loss due to natural hazards, lower social vulnerability, and higher community resilience.

For more information about the National Risk Index, its data, and how to interpret the information it provides, please review the **About the National Risk Index** and **How to Take Action** sections at the end of this report. Or, visit the National Risk Index website at hazards.fema.gov/nri/learn-more to access supporting documentation and links.

Risk Index



Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile	
4	Census tract 06037460502	CA	Relatively Moderate	79.36	0	100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 06037460501	CA	\$3,464,204	Very Low	Very Low	0.8	\$2,768,926	92.31
2	Census tract 06037460700	CA	\$3,333,433	Very Low	Very Low	0.81	\$2,696,899	91.97
3	Census tract 06037460601	CA	\$1,788,674	Very Low	Very Low	0.83	\$1,484,105	80.93
4	Census tract 06037460502	CA	\$1,933,816	Very Low	Very Low	0.72	\$1,389,166	79.36

Hazard Type Risk Index

Hazard type Risk Index scores are calculated using data for only a single hazard type, and reflect a community's relative risk for only that hazard type.

Avalanche

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
	Census tract 06037460501	CA	Not Applicable		
	Census tract 06037460502	CA	Not Applicable		
	Census tract 06037460601	CA	Not Applicable		
	Census tract 06037460700	CA	Not Applicable		

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
	Census tract 06037460501	CA	N/A	Very Low	Very Low	0.8	N/A	N/A
	Census tract 06037460502	CA	N/A	Very Low	Very Low	0.72	N/A	N/A
	Census tract 06037460601	CA	N/A	Very Low	Very Low	0.83	N/A	N/A
	Census tract 06037460700	CA	N/A	Very Low	Very Low	0.81	N/A	N/A

Coastal Flooding

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
	Census tract 06037460501	CA	No Rating	0	0 100
	Census tract 06037460502	CA	No Rating	0	0 100
	Census tract 06037460601	CA	No Rating	0	0 100
	Census tract 06037460700	CA	No Rating	0	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
	Census tract 06037460501	CA	\$0	Very Low	Very Low	0.8	\$0	0
	Census tract 06037460502	CA	\$0	Very Low	Very Low	0.72	\$0	0
	Census tract 06037460601	CA	\$0	Very Low	Very Low	0.83	\$0	0
	Census tract 06037460700	CA	\$0	Very Low	Very Low	0.81	\$0	0

Cold Wave

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
	Census tract 06037460501	CA	No Rating	0	0  100
	Census tract 06037460502	CA	No Rating	0	0  100
	Census tract 06037460601	CA	No Rating	0	0  100
	Census tract 06037460700	CA	No Rating	0	0  100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
	Census tract 06037460501	CA	\$0	Very Low	Very Low	0.8	\$0	0
	Census tract 06037460502	CA	\$0	Very Low	Very Low	0.72	\$0	0
	Census tract 06037460601	CA	\$0	Very Low	Very Low	0.83	\$0	0
	Census tract 06037460700	CA	\$0	Very Low	Very Low	0.81	\$0	0

Drought

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
	Census tract 06037460501	CA	No Rating	0	0  100
	Census tract 06037460502	CA	No Rating	0	0  100
	Census tract 06037460601	CA	No Rating	0	0  100
	Census tract 06037460700	CA	No Rating	0	0  100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
	Census tract 06037460501	CA	\$0	Very Low	Very Low	0.8	\$0	0
	Census tract 06037460502	CA	\$0	Very Low	Very Low	0.72	\$0	0
	Census tract 06037460601	CA	\$0	Very Low	Very Low	0.83	\$0	0
	Census tract 06037460700	CA	\$0	Very Low	Very Low	0.81	\$0	0

Earthquake

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile		
1	Census tract 06037460700	CA	Relatively High	97.53	0		100
2	Census tract 06037460501	CA	Relatively High	96.16	0		100
3	Census tract 06037460502	CA	Relatively High	93.59	0		100
4	Census tract 06037460601	CA	Relatively High	91.31	0		100

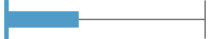
Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 06037460700	CA	\$3,251,752	Very Low	Very Low	0.81	\$2,630,816	97.53
2	Census tract 06037460501	CA	\$2,509,407	Very Low	Very Low	0.8	\$2,005,760	96.16
3	Census tract 06037460502	CA	\$1,919,162	Very Low	Very Low	0.72	\$1,378,639	93.59
4	Census tract 06037460601	CA	\$1,217,948	Very Low	Very Low	0.83	\$1,010,560	91.31

Hail

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile	
1	Census tract 06037460700	CA	Very Low	8.33	0	100
2	Census tract 06037460501	CA	Very Low	7.95	0	100
3	Census tract 06037460601	CA	Very Low	7.09	0	100
4	Census tract 06037460502	CA	Very Low	5.02	0	100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 06037460700	CA	\$54	Very Low	Very Low	0.81	\$44	8.33
2	Census tract 06037460501	CA	\$52	Very Low	Very Low	0.8	\$42	7.95
3	Census tract 06037460601	CA	\$45	Very Low	Very Low	0.83	\$38	7.09
4	Census tract 06037460502	CA	\$39	Very Low	Very Low	0.72	\$28	5.02

Heat Wave

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile	
1	Census tract 06037460601	CA	Relatively Low	36.26	0	
2	Census tract 06037460501	CA	Relatively Low	36.04	0	
3	Census tract 06037460700	CA	Relatively Low	34.31	0	
4	Census tract 06037460502	CA	Relatively Low	31.24	0	

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 06037460601	CA	\$4,739	Very Low	Very Low	0.83	\$3,932	36.26
2	Census tract 06037460501	CA	\$4,841	Very Low	Very Low	0.8	\$3,870	36.04
3	Census tract 06037460700	CA	\$4,220	Very Low	Very Low	0.81	\$3,414	34.31
4	Census tract 06037460502	CA	\$3,771	Very Low	Very Low	0.72	\$2,709	31.24

Hurricane

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile	
	Census tract 06037460501	CA	Not Applicable			
	Census tract 06037460502	CA	Not Applicable			
	Census tract 06037460601	CA	Not Applicable			
	Census tract 06037460700	CA	Not Applicable			

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
	Census tract 06037460501	CA	N/A	Very Low	Very Low	0.8	N/A	N/A
	Census tract 06037460502	CA	N/A	Very Low	Very Low	0.72	N/A	N/A
	Census tract 06037460601	CA	N/A	Very Low	Very Low	0.83	N/A	N/A
	Census tract 06037460700	CA	N/A	Very Low	Very Low	0.81	N/A	N/A

Ice Storm

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
	Census tract 06037460501	CA	Not Applicable		
	Census tract 06037460502	CA	Not Applicable		
	Census tract 06037460601	CA	Not Applicable		
	Census tract 06037460700	CA	Not Applicable		

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
	Census tract 06037460501	CA	N/A	Very Low	Very Low	0.8	N/A	N/A
	Census tract 06037460502	CA	N/A	Very Low	Very Low	0.72	N/A	N/A
	Census tract 06037460601	CA	N/A	Very Low	Very Low	0.83	N/A	N/A
	Census tract 06037460700	CA	N/A	Very Low	Very Low	0.81	N/A	N/A

Landslide

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 06037460501	CA	Relatively High	96.57	0  100
2	Census tract 06037460601	CA	Relatively Low	60.45	0  100
3	Census tract 06037460502	CA	Relatively Low	45.97	0  100
4	Census tract 06037460700	CA	Relatively Low	45.65	0  100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 06037460501	CA	\$14,252	Very Low	Very Low	0.8	\$11,391	96.57
2	Census tract 06037460601	CA	\$904	Very Low	Very Low	0.83	\$750	60.45
3	Census tract 06037460502	CA	\$188	Very Low	Very Low	0.72	\$135	45.97
4	Census tract 06037460700	CA	\$155	Very Low	Very Low	0.81	\$126	45.65

Lightning

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 06037460601	CA	Very Low	9.47	0  100
2	Census tract 06037460501	CA	Very Low	9.32	0  100
3	Census tract 06037460700	CA	Very Low	8.53	0  100
4	Census tract 06037460502	CA	Very Low	7.13	0  100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 06037460601	CA	\$593	Very Low	Very Low	0.83	\$492	9.47
2	Census tract 06037460501	CA	\$603	Very Low	Very Low	0.8	\$482	9.32
3	Census tract 06037460700	CA	\$532	Very Low	Very Low	0.81	\$430	8.53
4	Census tract 06037460502	CA	\$487	Very Low	Very Low	0.72	\$350	7.13

Riverine Flooding

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
	Census tract 06037460501	CA	No Rating	0	0  100
	Census tract 06037460502	CA	No Rating	0	0  100
	Census tract 06037460601	CA	No Rating	0	0  100
	Census tract 06037460700	CA	No Rating	0	0  100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
	Census tract 06037460501	CA	\$0	Very Low	Very Low	0.8	\$0	0
	Census tract 06037460502	CA	\$0	Very Low	Very Low	0.72	\$0	0
	Census tract 06037460601	CA	\$0	Very Low	Very Low	0.83	\$0	0
	Census tract 06037460700	CA	\$0	Very Low	Very Low	0.81	\$0	0

Strong Wind

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 06037460601	CA	Very Low	8.41	0  100
2	Census tract 06037460501	CA	Very Low	8.27	0  100
3	Census tract 06037460700	CA	Very Low	7.74	0  100
4	Census tract 06037460502	CA	Very Low	6.56	0  100

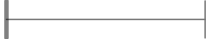
Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 06037460601	CA	\$285	Very Low	Very Low	0.83	\$237	8.41
2	Census tract 06037460501	CA	\$289	Very Low	Very Low	0.8	\$231	8.27
3	Census tract 06037460700	CA	\$263	Very Low	Very Low	0.81	\$212	7.74
4	Census tract 06037460502	CA	\$234	Very Low	Very Low	0.72	\$168	6.56

Tornado

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 06037460700	CA	Very Low	25.63	0  100
2	Census tract 06037460501	CA	Very Low	23.41	0  100
3	Census tract 06037460601	CA	Very Low	19.46	0  100
4	Census tract 06037460502	CA	Very Low	15.85	0  100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 06037460700	CA	\$14,836	Very Low	Very Low	0.81	\$12,003	25.63
2	Census tract 06037460501	CA	\$12,967	Very Low	Very Low	0.8	\$10,365	23.41
3	Census tract 06037460601	CA	\$9,827	Very Low	Very Low	0.83	\$8,153	19.46
4	Census tract 06037460502	CA	\$9,117	Very Low	Very Low	0.72	\$6,549	15.85

Tsunami

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
	Census tract 06037460501	CA	No Rating	0	0  100
	Census tract 06037460502	CA	No Rating	0	0  100
	Census tract 06037460601	CA	No Rating	0	0  100
	Census tract 06037460700	CA	No Rating	0	0  100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
	Census tract 06037460501	CA	\$0	Very Low	Very Low	0.8	\$0	0
	Census tract 06037460502	CA	\$0	Very Low	Very Low	0.72	\$0	0
	Census tract 06037460601	CA	\$0	Very Low	Very Low	0.83	\$0	0
	Census tract 06037460700	CA	\$0	Very Low	Very Low	0.81	\$0	0

Volcanic Activity

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
	Census tract 06037460501	CA	Not Applicable		
	Census tract 06037460502	CA	Not Applicable		
	Census tract 06037460601	CA	Not Applicable		
	Census tract 06037460700	CA	Not Applicable		

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
	Census tract 06037460501	CA	N/A	Very Low	Very Low	0.8	N/A	N/A
	Census tract 06037460502	CA	N/A	Very Low	Very Low	0.72	N/A	N/A
	Census tract 06037460601	CA	N/A	Very Low	Very Low	0.83	N/A	N/A
	Census tract 06037460700	CA	N/A	Very Low	Very Low	0.81	N/A	N/A

Wildfire

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile	
1	Census tract 06037460501	CA	Relatively High	98.76	0	 100
2	Census tract 06037460601	CA	Relatively High	97.97	0	 100
3	Census tract 06037460700	CA	Relatively Moderate	91.14	0	 100
4	Census tract 06037460502	CA	Relatively Low	57.33	0	 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 06037460501	CA	\$921,333	Very Low	Very Low	0.8	\$736,418	98.76
2	Census tract 06037460601	CA	\$553,989	Very Low	Very Low	0.83	\$459,658	97.97
3	Census tract 06037460700	CA	\$61,621	Very Low	Very Low	0.81	\$49,854	91.14
4	Census tract 06037460502	CA	\$819	Very Low	Very Low	0.72	\$588	57.33

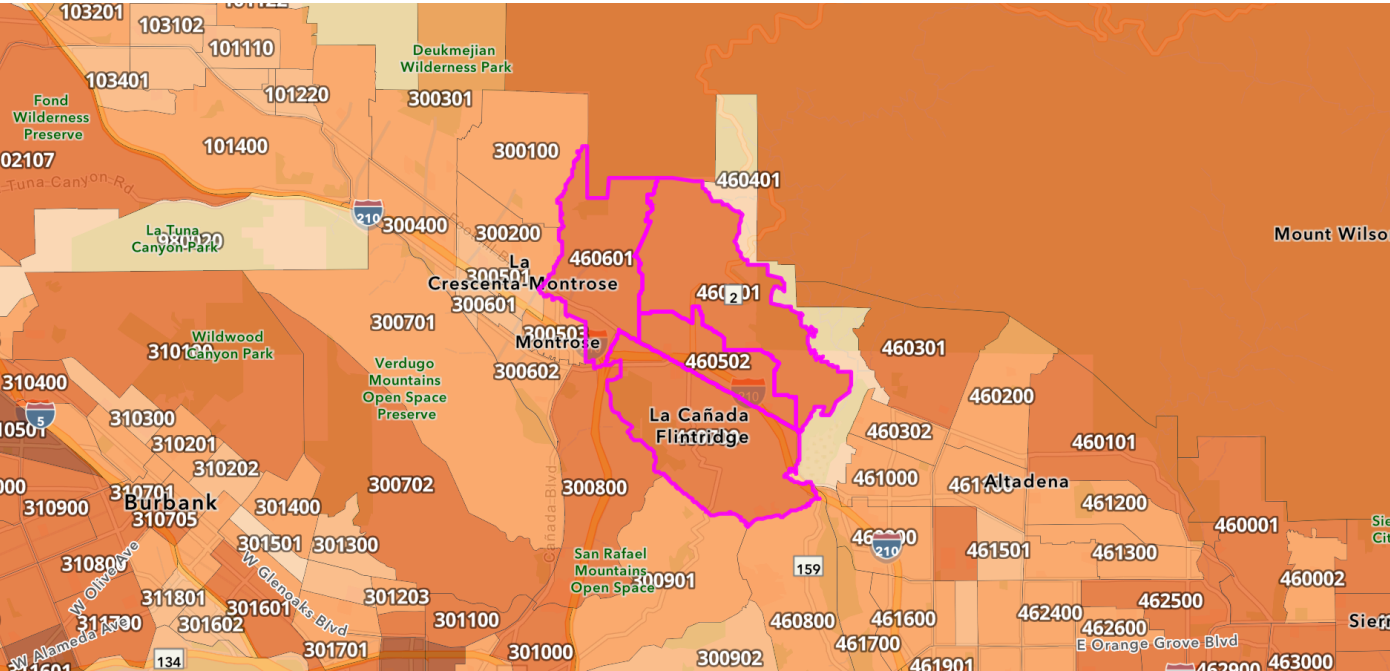
Winter Weather

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile	
1	Census tract 06037460501	CA	Relatively Low	29.85	0	 100
2	Census tract 06037460601	CA	Relatively Low	27.66	0	 100
	Census tract 06037460502	CA	No Rating	0	0	 100
	Census tract 06037460700	CA	No Rating	0	0	 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 06037460501	CA	\$460	Very Low	Very Low	0.8	\$367	29.85
2	Census tract 06037460601	CA	\$343	Very Low	Very Low	0.83	\$285	27.66
	Census tract 06037460502	CA	\$0	Very Low	Very Low	0.72	\$0	0
	Census tract 06037460700	CA	\$0	Very Low	Very Low	0.81	\$0	0

Expected Annual Loss

Expected Annual Loss measures the expected loss each year due to natural hazards.



Expected Annual Loss Legend

- Very High
- Relatively High
- Relatively Moderate
- Relatively Low
- Very Low
- No Expected Annual Losses
- Not Applicable
- Insufficient Data

Rank	Community	State	EAL Value	Score
1	Census tract 06037460501	CA	\$3,464,204	96.26
2	Census tract 06037460700	CA	\$3,333,433	95.93
3	Census tract 06037460502	CA	\$1,933,816	89.28
4	Census tract 06037460601	CA	\$1,788,674	87.97

Expected Annual Loss for Hazard Types

Expected Annual Loss scores for hazard types are calculated using data for only a single hazard type, and reflect a community's relative expected annual loss for only that hazard type.

Avalanche

Rank	Community	State	EAL Value	Score
	Census tract 06037460501	CA	N/A	--
	Census tract 06037460502	CA	N/A	--
	Census tract 06037460601	CA	N/A	--
	Census tract 06037460700	CA	N/A	--

Coastal Flooding

Rank	Community	State	EAL Value	Score
	Census tract 06037460501	CA	\$0	0.0
	Census tract 06037460502	CA	\$0	0.0
	Census tract 06037460601	CA	\$0	0.0
	Census tract 06037460700	CA	\$0	0.0

Cold Wave

Rank	Community	State	EAL Value	Score
	Census tract 06037460501	CA	\$0	0.0
	Census tract 06037460502	CA	\$0	0.0
	Census tract 06037460601	CA	\$0	0.0
	Census tract 06037460700	CA	\$0	0.0

Drought

Rank	Community	State	EAL Value	Score
	Census tract 06037460501	CA	\$0	0.0
	Census tract 06037460502	CA	\$0	0.0
	Census tract 06037460601	CA	\$0	0.0
	Census tract 06037460700	CA	\$0	0.0

Earthquake

Rank	Community	State	EAL Value	Score
1	Census tract 06037460700	CA	\$3,251,752	99.0
2	Census tract 06037460501	CA	\$2,509,407	98.3
3	Census tract 06037460502	CA	\$1,919,162	97.2
4	Census tract 06037460601	CA	\$1,217,948	94.2

Hail

Rank	Community	State	EAL Value	Score
1	Census tract 06037460700	CA	\$54	11.8
2	Census tract 06037460501	CA	\$52	11.5
3	Census tract 06037460601	CA	\$45	10.3
4	Census tract 06037460502	CA	\$39	9.1

Heat Wave

Rank	Community	State	EAL Value	Score
1	Census tract 06037460501	CA	\$4,841	41.4
2	Census tract 06037460601	CA	\$4,739	41.1
3	Census tract 06037460700	CA	\$4,220	39.4
4	Census tract 06037460502	CA	\$3,771	37.7

Hurricane

Rank	Community	State	EAL Value	Score
	Census tract 06037460501	CA	N/A	--
	Census tract 06037460502	CA	N/A	--
	Census tract 06037460601	CA	N/A	--
	Census tract 06037460700	CA	N/A	--

Ice Storm

Rank	Community	State	EAL Value	Score
	Census tract 06037460501	CA	N/A	--
	Census tract 06037460502	CA	N/A	--
	Census tract 06037460601	CA	N/A	--
	Census tract 06037460700	CA	N/A	--

Landslide

Rank	Community	State	EAL Value	Score
1	Census tract 06037460501	CA	\$14,252	97.9
2	Census tract 06037460601	CA	\$904	63.7
3	Census tract 06037460502	CA	\$188	48.0
4	Census tract 06037460700	CA	\$155	46.9

Lightning

Rank	Community	State	EAL Value	Score
1	Census tract 06037460501	CA	\$603	12.4
2	Census tract 06037460601	CA	\$593	12.3
3	Census tract 06037460700	CA	\$532	11.5
4	Census tract 06037460502	CA	\$487	10.8

Riverine Flooding

Rank	Community	State	EAL Value	Score
	Census tract 06037460501	CA	\$0	0.0
	Census tract 06037460502	CA	\$0	0.0
	Census tract 06037460601	CA	\$0	0.0
	Census tract 06037460700	CA	\$0	0.0

Strong Wind

Rank	Community	State	EAL Value	Score
1	Census tract 06037460501	CA	\$289	12.6
2	Census tract 06037460601	CA	\$285	12.5
3	Census tract 06037460700	CA	\$263	11.8
4	Census tract 06037460502	CA	\$234	10.8

Tornado

Rank	Community	State	EAL Value	Score
1	Census tract 06037460700	CA	\$14,836	30.4
2	Census tract 06037460501	CA	\$12,967	28.9
3	Census tract 06037460601	CA	\$9,827	25.6
4	Census tract 06037460502	CA	\$9,117	24.6

Tsunami

Rank	Community	State	EAL Value	Score
	Census tract 06037460501	CA	\$0	0.0
	Census tract 06037460502	CA	\$0	0.0
	Census tract 06037460601	CA	\$0	0.0
	Census tract 06037460700	CA	\$0	0.0

Volcanic Activity

Rank	Community	State	EAL Value	Score
	Census tract 06037460501	CA	N/A	--
	Census tract 06037460502	CA	N/A	--
	Census tract 06037460601	CA	N/A	--
	Census tract 06037460700	CA	N/A	--

Wildfire

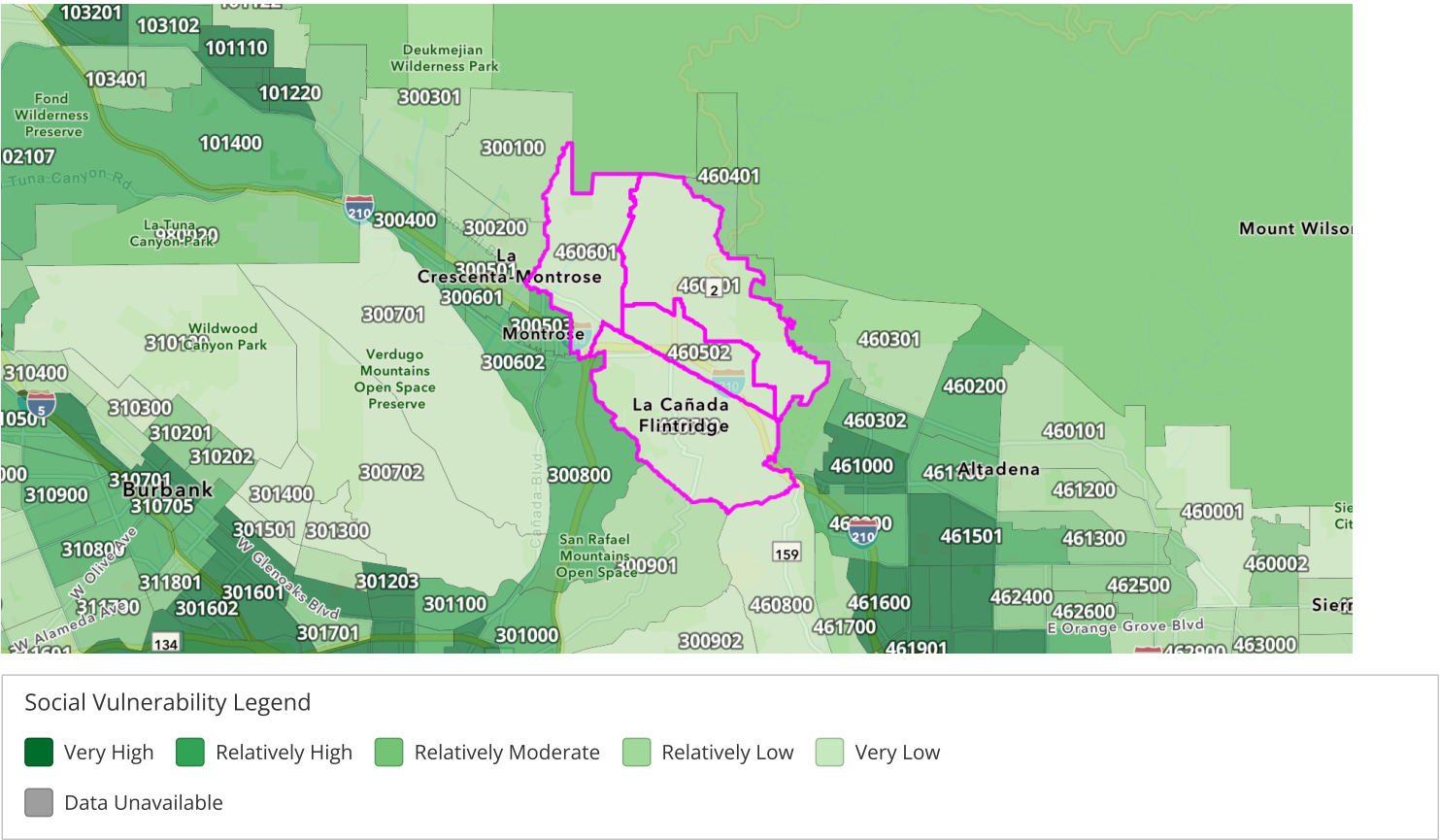
Rank	Community	State	EAL Value	Score
1	Census tract 06037460501	CA	\$921,333	99.1
2	Census tract 06037460601	CA	\$553,989	98.5
3	Census tract 06037460700	CA	\$61,621	92.4
4	Census tract 06037460502	CA	\$819	62.9

Winter Weather

Rank	Community	State	EAL Value	Score
1	Census tract 06037460501	CA	\$460	34.1
2	Census tract 06037460601	CA	\$343	31.2
	Census tract 06037460502	CA	\$0	0.0
	Census tract 06037460700	CA	\$0	0.0

Social Vulnerability

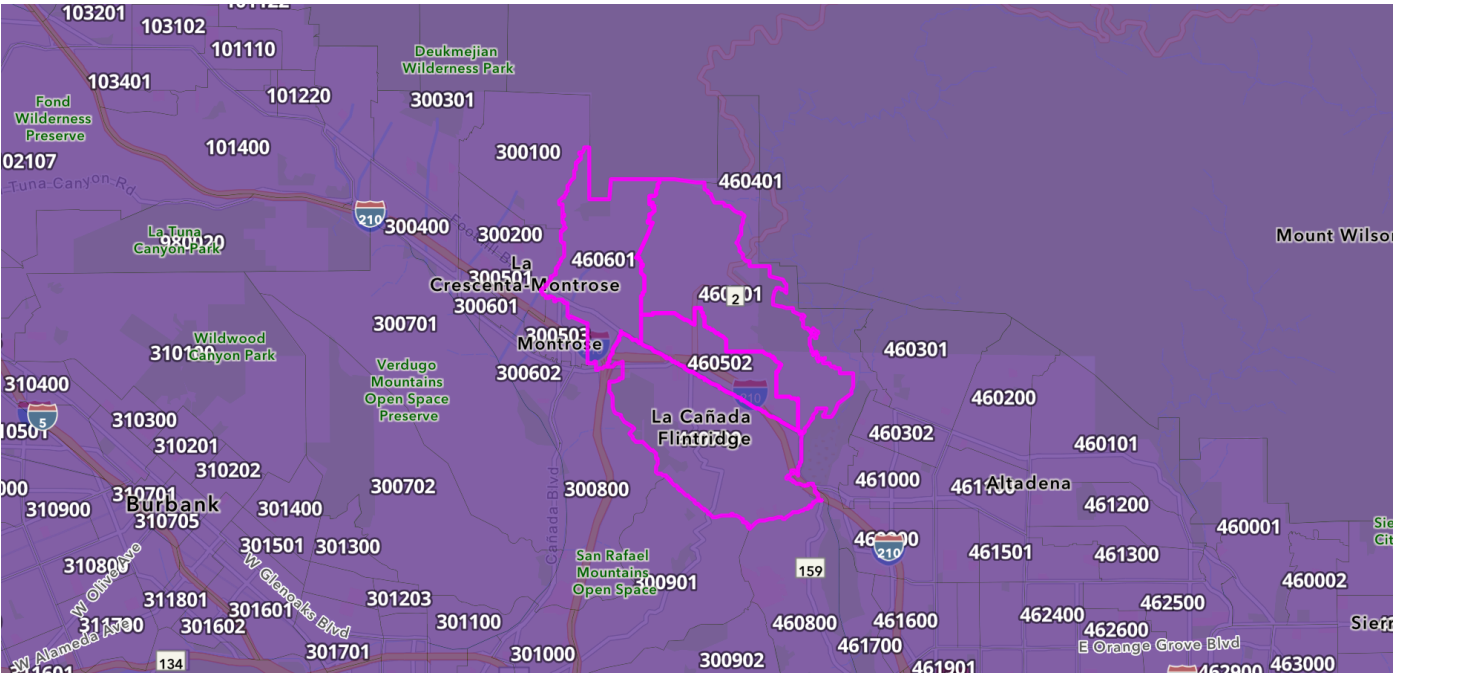
Social Vulnerability measures the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood.



Rank	Community	State	Rating	Score
1	Census tract 06037460601	CA	Very Low	13.5
2	Census tract 06037460700	CA	Very Low	11.9
3	Census tract 06037460501	CA	Very Low	11.1
4	Census tract 06037460502	CA	Very Low	5.9

Community Resilience

Community Resilience measures a County's ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions.



Community Resilience Legend

Very High

Relatively High

Relatively Moderate

Relatively Low

Very Low

Data Unavailable

Rank	Community	State	Rating	Score
1	Census tract 06037460501	CA	Very Low	15.4
1	Census tract 06037460502	CA	Very Low	15.4
1	Census tract 06037460601	CA	Very Low	15.4
1	Census tract 06037460700	CA	Very Low	15.4

About the National Risk Index

The National Risk Index is a dataset and online tool to help illustrate the United States communities most at risk for 18 natural hazards: Avalanche, Coastal Flooding, Cold Wave, Drought, Earthquake, Hail, Heat Wave, Hurricane, Ice Storm, Landslide, Lightning, Riverine Flooding, Strong Wind, Tornado, Tsunami, Volcanic Activity, Wildfire, and Winter Weather.

The National Risk Index leverages available source data for Expected Annual Loss due to these 18 hazard types, Social Vulnerability, and Community Resilience to develop a baseline relative risk measurement for each United States county and Census tract. These measurements are calculated using average past conditions, but they cannot be used to predict future outcomes for a community. The National Risk Index is intended to fill gaps in available data and analyses to better inform federal, state, local, tribal, and territorial decision makers as they develop risk reduction strategies.

Explore the National Risk Index Map at hazards.fema.gov/nri/map.

Visit the National Risk Index website at hazards.fema.gov/nri/learn-more to access supporting documentation and links.

Calculating the Risk Index

Risk Index scores are calculated using an equation that combines scores for Expected Annual Loss due to natural hazards, Social Vulnerability and Community Resilience:

$$\text{Risk Index} = \text{Expected Annual Loss} \times \text{Social Vulnerability} \div \text{Community Resilience}$$

Risk Index scores are presented as a composite score for all 18 hazard types, as well as individual scores for each hazard type.

For more information, visit hazards.fema.gov/nri/determining-risk.

Calculating Expected Annual Loss

Expected Annual Loss scores are calculated using an equation that combines values for exposure, annualized frequency, and historic loss ratios for 18 hazard types:

$$\text{Expected Annual Loss} = \text{Exposure} \times \text{Annualized Frequency} \times \text{Historic Loss Ratio}$$

Expected Annual Loss scores are presented as a composite score for all 18 hazard types, as well as individual scores for each hazard type.

For more information, visit hazards.fema.gov/nri/expected-annual-loss.

Calculating Social Vulnerability

Social Vulnerability is measured using the Social Vulnerability Index (SVI) published by the Centers for Disease Control and Prevention (CDC).

For more information, visit hazards.fema.gov/nri/social-vulnerability.

Calculating Community Resilience

Community Resilience is measured at the County level using the Baseline Resilience Indicators for Communities (HVRI BRIC) published by the University of South Carolina's Hazards and Vulnerability Research Institute (HVRI).

For more information, visit hazards.fema.gov/nri/community-resilience.

How to Take Action

There are many ways to reduce natural hazard risk through mitigation. Communities with high National Risk Index scores can take action to reduce risk by decreasing Expected Annual Loss due to natural hazards, decreasing Social Vulnerability, and increasing Community Resilience.

For information about how to take action and reduce your risk, visit hazards.fema.gov/nri/take-action.

Disclaimer

The National Risk Index (the Risk Index or the Index) and its associated data are meant for planning purposes only. This tool was created for broad nationwide comparisons and is not a substitute for localized risk assessment analysis. Nationwide datasets used as inputs for the National Risk Index are, in many cases, not as accurate as available local data. Users with access to local data for each National Risk Index risk factor should consider substituting the Risk Index data with local data to recalculate a more accurate risk index. If you decide to download the National Risk Index data and substitute it with local data, you assume responsibility for the accuracy of the data and any resulting data index. Please visit the [Contact Us](#) page if you would like to discuss this process further.

The methodology used by the National Risk Index has been reviewed by subject matter experts in the fields of natural hazard risk research, risk analysis, mitigation planning, and emergency management. The processing methods used to create the National Risk Index have produced results similar to those from other natural hazard risk analyses conducted on a smaller scale. The breadth and combination of geographic information systems (GIS) and data processing techniques leveraged by the National Risk Index enable it to incorporate multiple hazard types and risk factors, manage its nationwide scope, and capture what might have been missed using other methods.

The National Risk Index does not consider the intricate economic and physical interdependencies that exist across geographic regions. Keep in mind that hazard impacts in surrounding counties or Census tracts can cause indirect losses in your community regardless of your community's risk profile.

Nationwide data available for some risk factors are rudimentary at this time. The National Risk Index will be continuously updated as new data become available and improved methodologies are identified.

The National Risk Index Contact Us page is available at hazards.fema.gov/nri/contact-us.

Appendix F

Progress Tracker Template

Draft Template

Progress Tracker LHMP 2024 - 2029																					
Hazard	Mitigation Action	2024 - 2025				2025 - 2026				2026-2027				2027 - 2028				2028 - 2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
All Natural Hazards	Reevaluate potential secondary facilities for an Emergency Operations Center within the City limits and resource sharing with local agencies.																				
All Natural Hazards	Conduct annual education and training campaigns for community preparedness (evacuations, house hardening, shelter in place and other proactive measures). Collaborate with schools, parents, and community organizations in hosting town halls, and booths at community events.																				
All Natural Hazards	The City to research and identify options to support and educate vulnerable/elderly/and people with disabilities on preparing for a disaster including needs for evacuations.																				
All Natural Hazards	Develop informational material about flood, fire, earthquake, and other forms of natural hazards to distribute among all La Cañada Flintridge property owners.																				
All Natural Hazards	Develop strategies and capabilities to mitigate risk to local government facilities, or to utilize alternative facilities should local hazard events cause damage																				
Drought	Create a list of drought tolerant landscaping to provide to residences. Incorporate incentives such as awards or recognitions for properties that implement drought tolerant landscaping.																				
Drought	Work with Irrigation Districts to promote there Advanced Metering Infrastructure (AMI) program to alert residences when there is a potential leak and promote smart irrigation and other storm water capture methods.																				
Earthquake	Identify funding sources for potentially vulnerable structures.																				
Earthquake	Reduction of nonstructural and structural earthquake hazards in homes, schools, businesses, and government offices.																				
Extreme Heat	Inform the community of nearby cooling centers during major extreme heat events.																				

Cells to be highlighted when progress has been made with notes such as 'grant applied for'

Appendix G

Public Outreach Materials



City of La Cañada Flintridge Local Hazard Mitigation Plan Update

Meeting Agenda:

Local Hazard Mitigation Plan Advisory Committee / Stakeholders Meeting #1
Wednesday, November 15th, 2023, 01:30 p.m. – 02:30 p.m.
Virtual through Microsoft Teams

1. Welcome & Introductions
2. Overview of 2019 Local Hazard Mitigation Plan
3. Review Potential Hazards
4. Project Overview & Schedule
5. Stakeholder Input Form
6. Next Meeting

- Wednesday, January 24th, 2024
09:00 a.m. (In Person)
LCF City Hall – Council Chambers
One Civic Center Drive,
La Cañada Flintridge, CA 91011

7. Questions

1. Summary

	Local Hazard Mitigation Advisory Committee / Stakeholders Initial Meeting (Virtual)
Meeting title	
Attended participants	29
Start time	11/15/23, 1:17:41 PM
End time	11/15/23, 3:30:53 PM
Meeting duration	2h 13m 11s
Average attendance time	30m 51s

2. Participants

Name	First Join	Last Leave
Jared Hartel	11/15/23, 1:26:00 PM	11/15/23, 1:59:07 PM
Jennifer Burghdorf	11/15/23, 1:24:33 PM	11/15/23, 1:59:13 PM
Erik Castro	11/15/23, 1:25:15 PM	11/15/23, 2:00:54 PM
Gabriel Gomez	11/15/23, 1:26:10 PM	11/15/23, 1:57:48 PM
Jeff Olson	11/15/23, 1:26:12 PM	11/15/23, 1:59:13 PM
Jennifer Bautista	11/15/23, 1:27:53 PM	11/15/23, 1:58:49 PM
Paddy Taber	11/15/23, 1:28:45 PM	11/15/23, 1:57:42 PM
Karen Hurley (Guest)	11/15/23, 1:28:51 PM	11/15/23, 1:57:41 PM
Emily Cronkhite	11/15/23, 1:29:43 PM	11/15/23, 1:57:54 PM
Avina, Arianna	11/15/23, 1:29:43 PM	11/15/23, 1:58:53 PM
Joanne Pingry	11/15/23, 1:29:43 PM	11/15/23, 1:57:42 PM
David (Guest)	11/15/23, 1:29:59 PM	11/15/23, 1:59:01 PM
Madison Dederick	11/15/23, 1:30:00 PM	11/15/23, 1:57:35 PM
Baudelia Taylor, Head of School, Crestview	11/15/23, 1:30:02 PM	11/15/23, 1:57:34 PM
Patrick Atwater	11/15/23, 1:30:03 PM	11/15/23, 3:30:53 PM
Pinkham, Ian A (US 2321)	11/15/23, 1:30:04 PM	11/15/23, 1:57:41 PM
Steven Gutierrez	11/15/23, 1:30:44 PM	11/15/23, 1:57:33 PM
Betsy Ferguson	11/15/23, 1:31:16 PM	11/15/23, 1:57:40 PM
ARUN K JAIN	11/15/23, 1:31:56 PM	11/15/23, 1:57:52 PM
Espinoza, Marisol S	11/15/23, 1:31:57 PM	11/15/23, 1:57:38 PM
Justin Bailey	11/15/23, 1:31:58 PM	11/15/23, 1:57:54 PM
Kevin Basham	11/15/23, 1:32:00 PM	11/15/23, 1:57:43 PM
Gaylord, Chris (US 2321)	11/15/23, 1:32:08 PM	11/15/23, 1:58:00 PM
Maria Grycan	11/15/23, 1:32:09 PM	11/15/23, 1:59:21 PM
Hahnlein, Robert G.	11/15/23, 1:34:00 PM	11/15/23, 1:57:53 PM
Jeannette Klein	11/15/23, 1:34:04 PM	11/15/23, 1:59:06 PM
Valeria Virgen	11/15/23, 1:34:30 PM	11/15/23, 1:57:43 PM
Steven Cronkhite	11/15/23, 1:37:36 PM	11/15/23, 1:57:34 PM
Jeff S. McConnell	11/15/23, 1:39:21 PM	11/15/23, 1:57:49 PM

Local Hazard Mitigation Plan Update

Stakeholder Hazard Advisory Committee Meeting

City of La Cañada Flintridge Community Stakeholders

This meeting will be a brief overview of the City's plan for updating its Local Hazard Mitigation Plan (LHMP)

11/15/2023



Meeting Agenda

1. Welcome & Introductions
2. Overview of LHMP
3. Review Potential Hazards
4. Project Overview & Timeline
5. Stakeholder Input Form
6. Next Meeting (this has changed from previous agenda)
 - Wednesday, January 17th , 2024
 - 09:00 a.m. (In Person)
 - LCF City Hall – Council Chambers
 - One Civic Center Drive
 - La Cañada Flintridge, CA 91011
7. Q&A



Welcome Hazard Advisory Committee Stakeholders

Today's Presenters:

Public Safety Coordinator

Jennifer Burghdorf – jburghdorf@lcf.ca.gov

Emergency Services Coordinator

Jared Hartel – eocoordinator@lcf.ca.gov



Overview of Local Hazard Mitigation Planning



What is Hazard Mitigation Planning?

"Hazard mitigation is any sustainable action that reduces or eliminates long-term risk to people and property from future disasters."

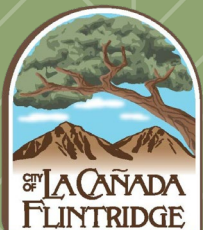


FEMA

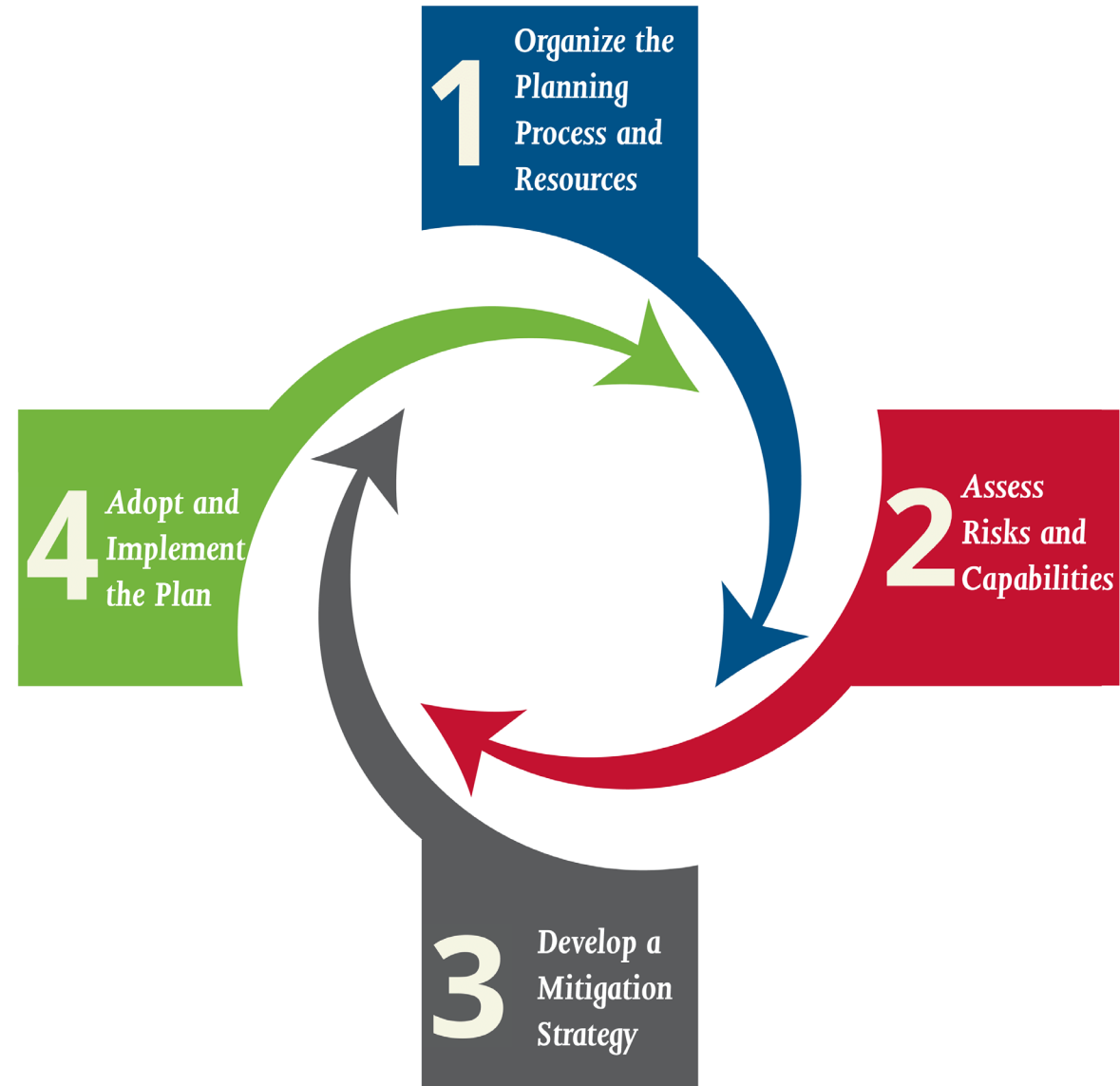
"Hazard mitigation planning is a dynamic process built on realistic assessments of hazards and effective strategies for investing in priority mitigation projects and actions. This process involves multiple stakeholders and allows for the blending of overall mitigation goals, objectives, and actions of all levels of government."



Cal OES
GOVERNOR'S OFFICE
OF EMERGENCY SERVICES

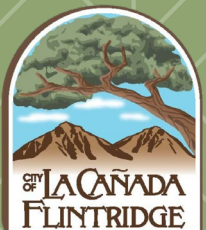


LHMP Planning Cycle



Resilient Community

- What is a Resilient Community?
 - A community that is prepared for, and able to respond, withstand and recover from the effects of natural or human made disasters
 - Equitable outcomes for all residents that involve the whole community.



Hazard Mitigation vs. Preparedness

Actions

Preparedness

Acquire knowledge and resources to protect or maintain functionality *in anticipation of a disaster*

Mitigation

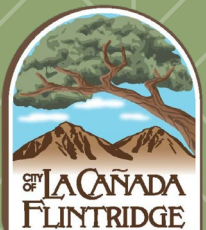
Influencing the built or natural environment in a way that reduces impact of hazards *to prevent disaster*

HAZARD EVENT

Outcomes

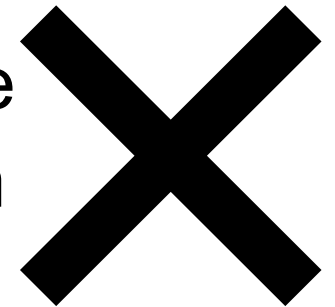
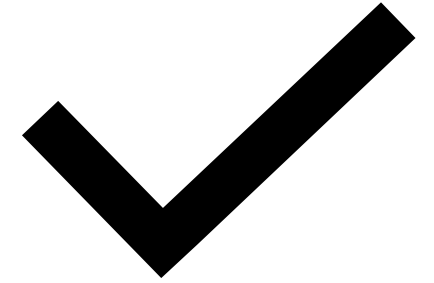
- Better response to disaster
- Knowledge of how to react
- Does not typically reduce hazard impacts on structures

- Helps prevent disasters
- Reduced hazard impacts

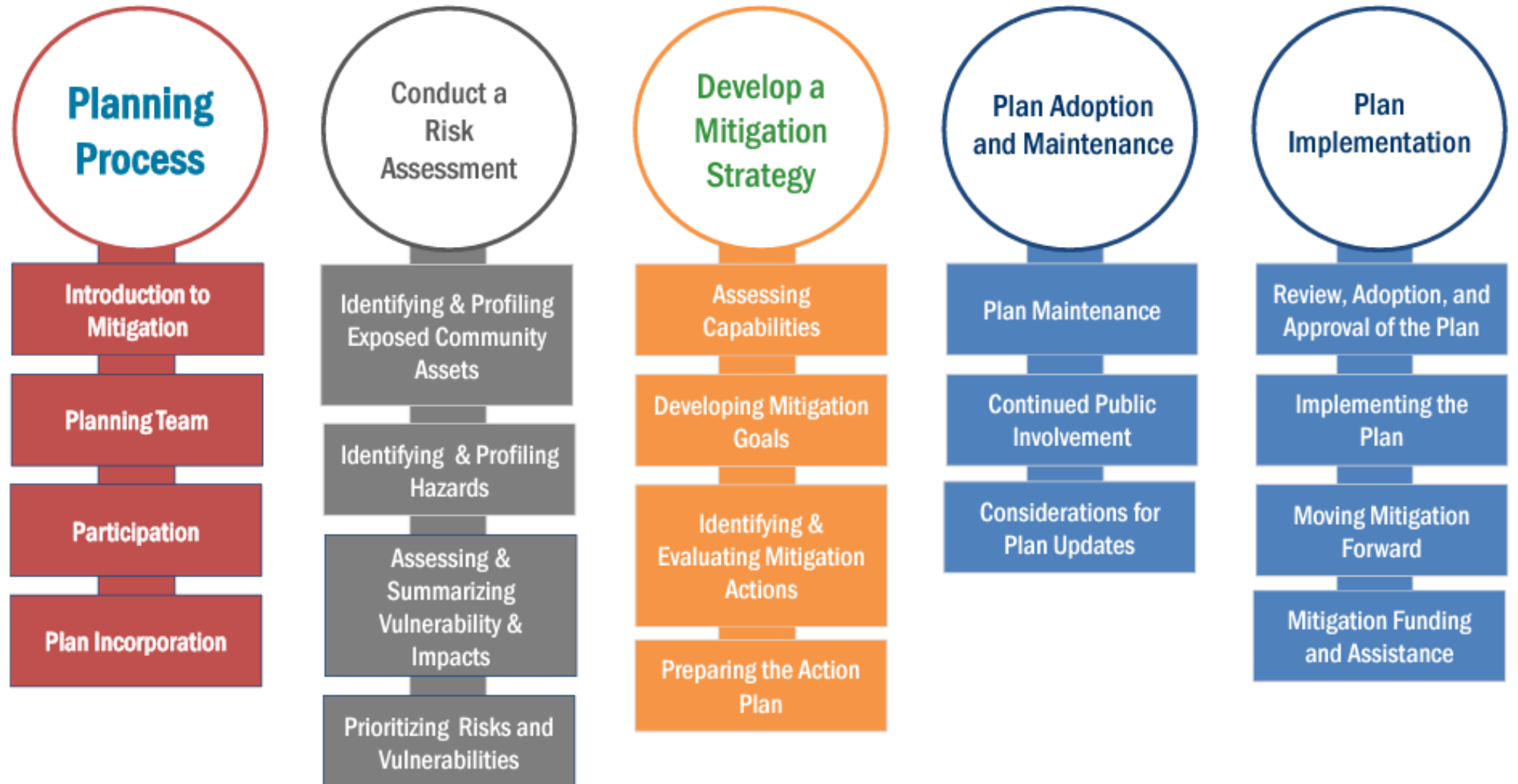


Examples of Mitigation

- Constructing Barriers or Defensible Space
 - Implement Building Codes
 - Establish Zoning Requirements
 - Performing Seismic Retrofitting
 - Updating Alert and Warning Capabilities
-
- Purchasing a New Rapid Response Vehicle
 - Create an Urban Search and Rescue Team
 - Opening and Managing Shelters

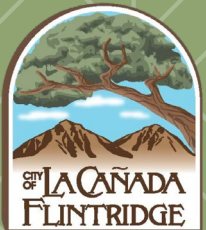


5 Steps of the Development Process



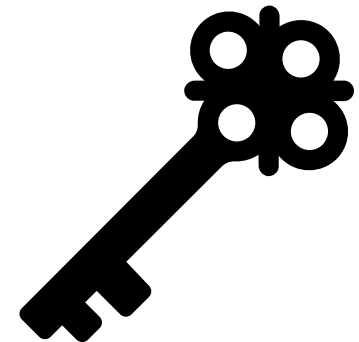
Why Have This Plan?

- Protect Life and Property
- Build Community Resilience
- Reduce the Burden on Local Governments and Taxpayers
- Speed Disaster Recovery Efforts
- Complies with Federal and State Requirements to Qualify for Specific Grant Funding



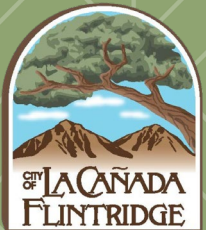
Key Objectives

- Review previous mitigation strategy and update mitigation action items
- Update hazard section to include hazards that involve climate change, cybersecurity, public health and civil unrest
- Improve plain maintenance procedures to establish a supported review process which will address the status of the new mitigation strategy
- Conduct public outreach and stakeholder involvement to support successful whole community integration into the plan.



Plan Approval Requirements

- Required as a result of the Disaster Mitigation Act (DMA) of 2000 as a condition to receive Hazard Mitigation Funding
- LHMP must be prepared and updated every 5 years
- New LHMP Planning Policy Requirements Released by FEMA Effective April 19th, 2023



Local Mitigation Planning Policy Guide

FP 206-21-0002

Released April 19, 2022, Effective April 19, 2023

OMB Collection #1660-0062



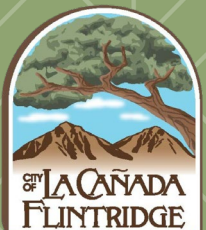
FEMA

Plan Approval Order

- **City (LCF)** – Prepares and Submits to the State
- **State (Cal OES)** – Reviews the Plan and Returns to the City or Submits to FEMA
- **Federal (FEMA)** – Reviews the Plan and Approves it or does not approve it.



FEMA

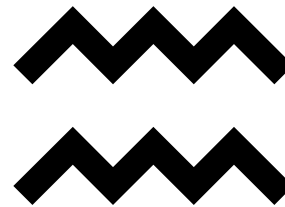
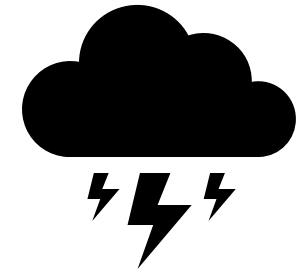


Potential Hazards



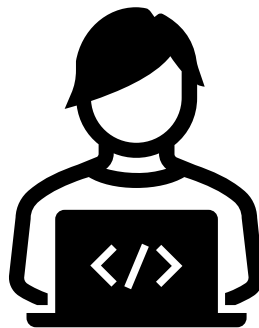
Previous 2019 Hazards

- Earthquake
- Flood
- Landslide
- Wildfire
- Windstorm
- Drought
- Extreme Heat
- Human Made
- Multiple Hazard



Possible New Hazards

- Public Health Crisis
- Cybersecurity
- Civil Unrest
- Severe Weather (replaces windstorm)
- Climate Change (details how it impacts listed hazards)

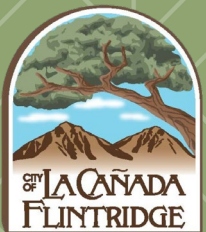


Project Timeline



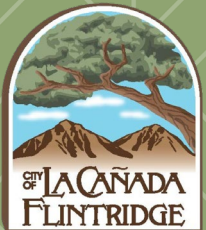
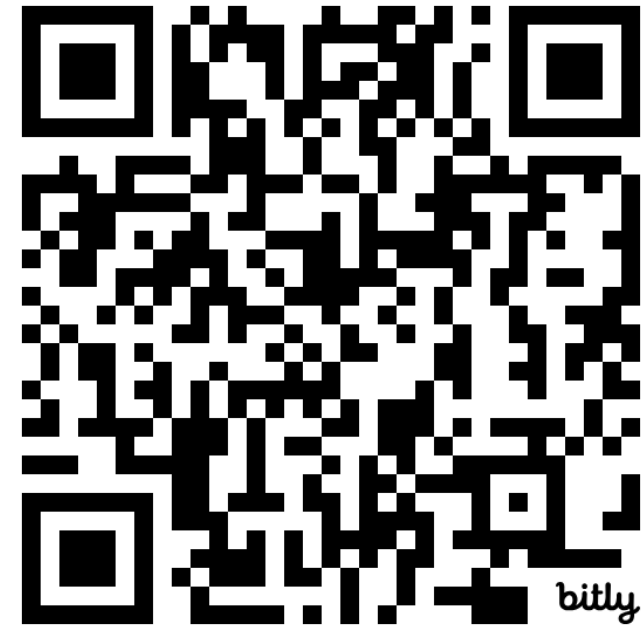
Stakeholder Meetings

Event	Topics	Date
Stakeholder Meeting	Overview of LHMP Discussion	November 15 th 2023
Stakeholder Meeting	Risk Assessment and Hazard Profiling Discussion	January 17 th 2024 09:00 a.m. LCF – Council Chambers
Stakeholder Meeting	Community Vulnerabilities and Review of Mitigation Action Items	March 20 th 2024 TBD
Stakeholder Meeting	Review of LHMP Final Draft	April 17 th 2024 TBD



Stakeholder LHMP Form

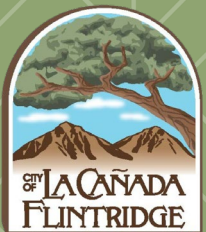
- Please scan the QR code
- You will be directed to an open google form to provide your professional input and feedback on the update process.
- This form is different from the public form that is on our City's website.
- <https://forms.gle/8gzWMYBuxpFsSiJZ8>



Next Meeting (In Person)

- Wednesday, January 17th, 2024
- 09:00 a.m. (In Person)
- LCF City Hall – Council Chambers
- One Civic Center Drive,
- La Cañada Flintridge, CA 91011

Meeting will be a discussion workshop centered around brainstorming how hazards may impact our community and how we can develop strategies to mitigate against them. Think Risk Assessment and Mitigation Action.





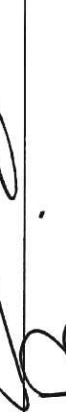
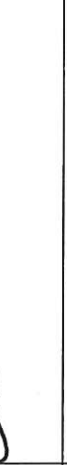
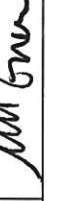
City of La Cañada Flintridge Local Hazard Mitigation Plan Update

Meeting Agenda:

Local Hazard Mitigation Plan Stakeholders Meeting
Monday, February 26th, 2023, 09:00 a.m. – 11:00 a.m.
City Hall
One Civic Center Drive
La Canada Flintridge, CA 91011

1. Breakfast & Check-in – 8:30 AM – 9:00 AM
2. Welcome & Introductions – 9:00 AM – 9:15AM
3. Tabletop discussion – 9:15 AM – 9:45 AM
4. 10 Minute Break – 9:45 AM – 9:55 AM
5. Group presentations and discussion – 9:55 AM-10:55 AM
6. Questions and Closing Comments - 10:55 AM – 11:00 AM

FULL NAME		AGENCY NAME		EMAIL ADDRESS	SIGN IN
Nina Jazmadarian		Foothill Municipal Water District		nina.jaz@fmwd.com	
Paddy Taber		City of La Canada Flintridge		ptaber@lcf.ca.gov	
Pat Anderson		LCF Chamber of Commerce		exec@lacadaflintridge.com	Pat Anderson
Patrick Atwater		CVWD		patwater@cvwd.com	
Rick Gunter		City of La Canada Flintridge		rgunter@lcf.ca.gov	
Ryan Chan		American Red Cross		Ryan.chan2@redcross.org	
Sgt Armstrong		~~Police Department~~ LASD		NA	Sgt. A. Armstrong
Steven CronkHITE		Flintridge Sacred Heart Academy		SCronkHITE@fsha.org	
Vince luculano		YMCA of the Foothills		viuculano@ymcafoothills.org	
Seadra Chagolla		Crestview Preparatory School		Schagolla@crestviewprep.org	
Anita Pireseghian		City of LCF		btaylor@crestviewprep.org	
Kristin Cook		City of LCF		aparesghian@lcf.org	
Andrew Burghdorf		St. Francis High School		Kcook@lcf.ca.gov	
Marie Grycen		LACS		burghdorf@sfhs.net	
Keith Eich		City		keich@lcf.ca.gov	
BOB HANWEN		LASD		BOB.HANWEN@LASD.OVER	
Jeanette Klein		City of LCF		klein@lcf.ca.gov	
Patrick Attardi		CVWD		patrick@cvwd.com	

FULL NAME		AGENCY NAME		EMAIL ADDRESS		SIGN IN
Arianna Avina	American Red Cross, Los Angeles			arianna.avina@redcross.org		
Arun K Jain	City of La Canada Flintridge, Public Works & Traffic Commission			addinc@gmail.com		
Barbara Boliver	La Canada USD			bboliver@lcsud.net		
Betsy Ferguson	Community Center of La Canada Flintridge			betsy@cclcf.org		
Chris Gaylord	NASA Jet Propulsion Laboratory			christopher.gaylord@jpl.nasa.gov		
Deputy Chun	~~LAUSD~~ LAUSD			NA		
Deputy Hong	~~LAUSD~~ LAUSD			NA		
Emily Cronkhite	Flintridge Preparatory School			ecronkhite@flintridgeprep.org		
Eric Pivovarovoff	FSHA			epivovarovoff@fsha.org		
Gabriel Gomez	Liberty Utilities			Gabriel.Gomez@libertyutilities.com		
Ian Pinkham	NASA - JPL			ian.a.pinkham@jpl.nasa.gov		
Jamie Lewsadder	La Canada Unified			jl@lcsud.net		
Jeff Olson	La Canada Public Safety Commission			olsonrep@gmail.com		
Jennifer Bautista	Crescenta Valley Water District			jbautista@cvwd.com		
Justin P. Bailey	La Cañada Irrigation District			justin.lcid@outlook.com		
Karen Hurley	La Canada Unified School District			khurley@lcsud.net		
Kimberly Wong	Foothill Municipal Water District			kwong@fmwd.com		
Melissa Greenwood	LCUSD			mgreenwood@lcsud.net		

Stakeholder Meeting – Hazard Mitigation Advisory Committee

LHMP Update

February 26, 2024

Earthquake Breakout Group

- Neighbors Looking After Neighbors
 - More training / education - make it simple and short
 - CERT
 - Utilize Neighborhood Watch for information / training / checking on seniors or those with special needs
- Involve the Businesses
 - Business MOUs for supplies
 - Improve working relationships with General Managers
- Communications
 - work more closely with schools
 - give tips to schools on what to tell parents / have some "canned" messages in advance
 - share plans among schools and city - have a "one sheet" / summary sheet
- Infrastructure
 - Check into secondary EOC sites
 - Check into community resource sites - YMCA, Community Center etc to be used for resident resources (information or supply distribution post disaster)
 - hardening of utilities
 - implement an asset management plan

Drought and Extreme Heat Breakout Group

- Cooling Centers
- Inter-agency messaging (specifically with water companies and the city)
 - City and water company involvement with mitigation strategies
 - The water company employee explained that there isn't a communication system between the city and water companies
- The City can assist with water usage enforcement
- Local area preparedness
 - CERT & Neighborhood Watch
- Drought tolerant landscaping awards

- Smart irrigation
- Rain Barrels
- Educational campaign for kids
- Water usage awareness campaigns for kids and adults
- Flood channels maintained by LA County

Landslide Breakout Group

- Relationship with landslide, flooding, and fires
 - Landslide occurring when there is a lot of rain/flooding typically when there is little to no vegetation after fires
 - Fires create hydrophobic soil → this has implications for landslides
 - Data potential: identify areas where soil may be hydrophobic
- Utilization of storm water capture as a landslide prevention method
- Specifics of Evacuation
 - When should someone leave their house?
 - Pre evacuation resources, such as sandbags
- Vulnerable populations
 - Elderly, pets
 - Individuals with limited social network
 - Conduct check ins with neighbors
- Identify households with signs that identify potential vulnerable populations; i.e. a green we're okay & red we need assistance; pets in the house; number of people; have kids; limited mobility; (idea is quick prioritization for first responders)
 - City could create an optional template that can be completed and displayed.
- GIS and Databases
 - Identify areas where flooding occurring or see water flowing that could potentially impact landslides
 - Use census data to map populations that may be vulnerability for assessment during an emergency or understanding of population as a whole and potential resources we need
- Drought tolerant plants to stabilize hillsides
 - Education and mailers
 - Contact/partnership with the Arroyos and Foothills Conservancy
- Education
 - School education → teaching about the fire flood landslide cycle
 - Discuss the distribution of mud/debris → where does it go? May not be where you expect.

- CERT à provide broad education (La Crescenta-Montrose is very active)
 - What an individual's responsibility to prevent a landslide on their property
 - Story telling/videos of individuals in town who have lived through these experiences.
 - Focus attention on areas where there may be potential for landslides à example: Descanso Drive has several properties with steep cliffs that people put tarps up as containment.
- During assessment of fire and brush clearance it would also be helpful to identify landslide risk
 - Irrigation monitoring à water company is developing an Advanced Metering Infrastructure (AMI) program that will alert you if there is a potential leak; they

Windstorm Breakout Group

- More PSA pre-windstorm events
- Generator Hub- Location where there are generators for residents to use.
- ADA Map- Map of vulnerable persons upon request
- Alternative Satellite ISP's
- Work with utility company to bury power lines
- Prioritize high-risk areas prone to windstorm-related power outages

Flood Breakout Group

- Define ownership/responsibility for catch basins
- GIS mapping catch basin layers
- Develop and communicate maintenance protocols to ensure regular inspection and cleaning of catch basins.

Wildfire Breakout Group

- Vegetation Clearance
- Home Hardening (Making the home resistant to ember showers)
- Looter Suppression
- Narrow Streets
- Homelessness (starting fires)
- AB 3074 – Needs to define what are Flammable Materials
- Fire Wise Communities – How to make 100% of homes fire resistant.
- Genasys Protect – Software used by LA County Fire
- Where is the City on Red Flag Days?
 - Currently going out on multiples phases
 - Outreach starts April
 - Phase I – Major arteries and one-way streets (Cities divided by district)
 - Phase II – Public Outreach – what does the community want to prioritize
- Genasys should be aligned with the City districts
- Availability of water to fight fires?
 - Structure fires use hydrants, but can cause a Main break
 - Water tenders follow engines to refill them with water (can fill 6 engines)

- Helicopters have “pumpkins (????)” to snorkel water from for refills
- Primary Issues: Getting people to leave/evacuate!!!
 - What can the City do to encourage evacuation
 - EDUCATION. Why we ask them to leave so early.
 - County Fire and Sheriffs need time and space for fire engines.
- Vulnerable Population: What about people who cannot leave their homes.
 - Currently, there is no program/design to help store addresses for vulnerable people. If you’re a vulnerable person and need to evacuate, call 911
 - You cannot force someone to evacuate.
- Water availability à different for wildfire (more water options and can stay on the move) vs in town (must be stationary and hooked up to a fire hydrant)
- Large trees present a fire concern.
- Evacuation à leaving early; police and fire must prioritize life. If you stay, they cannot focus on protecting your neighborhood.
- Identification of individuals who need help evacuating (former SNAP databases was voluntary, became political/privacy issue)
- Red Flag Program
- Educating the public on ventilation and ember proofing
 - Potential Rebate Program
- PSA on Home Hardening (no vegetation around properties)
- City to develop Fire wise Community program.

Human-Made Hazards Breakout Group

Transportation of Hazardous Materials (210 + CHP/Sheriff)

- Avoid issues with proactive enforcement.
- Effective August 6, 2009, Commercial Vehicles with 3 or more axles, or a gross vehicle weight of 9,000 pounds or more, are prohibited on Rte 2 between I-210 (City of La Canada Flintridge).

Hazmat Locations

- Revisit inventory and location.
- Risk Analysis
- Promote and facilitate disposal (i.e., E-waste)

Flexible Evacuation Plans

- Bottleneck Analysis
- Communication plan and coordination strategy
- Red flag parking.
- Consider vulnerable groups in response.
- Promote registration with AlertLCF

Cyber Attacks and Security

- Work-from-Home (WFH)

- Introduces new security risks with employment facilitated in online mediums.
- Establish strong internal security measures and backup mechanisms (physical and cloud)
- Strengthening security for private industry and public institutions can involve communication with local partners through connections made with the Chamber of Commerce
- Utility Coordination
 - Limited 5G and landline capabilities in the city (i.e., Spectrum and no fiber optic network)
 - Does the city have a robust plan?
 - Will require resiliency planning for outages or other cyber-related events relating to response and proactive mitigation.
 - In the case of an emergency outside the realm of cyber security, response and/or coordination of those within the city may rely heavily on telecommunications.
 - Coordinating with utility companies would be advantageous to planning efforts.

Terrorism (& Bioterrorism)

- Active Shooter
 - Coordination with Sheriff's Department
 - Sharing calendars of public events with Sheriff (i.e., special events, parade, MITP, schools (public and private), high-density locations)
 - Interactive drills with students and residents through Sheriff
 - Additional tabletops for issue (identified by LHMP stakeholder group as a priority issue given that active shooter events are severe, rapid, and not predictable)
 - More response/recovery focus
 - Promote registration with AlertLCF
 - Hardening of public-facing facilities and institutions/infrastructure
 - May require extensive resources but provides adequate protection in the case of an active shooter event.

Aviation

- Drones
 - Educate the community on any applicable and local laws as the enforcement/regulation of drones is very difficult.
 - Build awareness of the impacts of irresponsible drone usage.
- Helicopter Crashes
 - The last LHMP update did not focus on the prevalence of helicopter traffic in city boundaries and the Angeles Crest Mountains.
 - Especially during events such as wildfires, a helicopter accident could introduce additional issues to a hazard that already exists.
 - Plan for local coordinated response and revisit in the LHMP update as Southern California has become one of the nation's most crowded airspaces.
 - Promote registration with AlertLCF

Human-Made Hazards - Key stakeholders, agencies of interest, and vulnerable populations

- Chamber of Commerce (+300 businesses)
- Schools (public and private)
- NASA JPL
- Utilities, SCE, etc.
- Caltrans
- CHP + LASD + LACo Fire
- Community center + YMCA
- Churches (St. Bede, LCPC, etc.)
- ESL and non-English speakers
- Children and senior populations

General Discussion

Earthquake

A limited event with longer recovery

- No one knows when an earthquake is coming
- Emergency plans should be shared with schools, public and private
- There should be a communication plan. A program available to all parents
- Neighborhood watch can be a good contact
- Community being isolated for extended periods of time à particularly with things like water infrastructure and other resources (age of infrastructure plays a role)
- Social media can create false narrative and spread unhelpful potentially harmful information
- Infrastructure vs planning/operations. Need to have cross training and appropriate communication to know how everything works together holistically
- Utilities can include resources such as fuel for vehicles or generators à Need to address EV cars when the power grid goes down
-

Added Thoughts:

- Recovery after an earthquake can take a long time, months or even years. At some point, the City will be on its own and will need to allocate resources to those affected
- CERT Program coming back and can go hand in hand with Neighborhood watch
- An agreement for businesses to not PRICE GAUGE
- Encouraging the integration of utilities (water!)
 - There should be a strong relationship between the City and the water districts. Communication & Familiarity with each other, they know who to call for help
- Better outreach, before emergencies. "How we practice is how we play"
- October 17 is National Day without Water
- Fueling cars! Don't let your car get to Empty, in case an emergency strikes, you need fuel to drive away. Same with electric vehicles. Keep it charged.
 - Does the City have charging stations? Generators? Are there grants for generators?
 - If no generator, a larger battery (Jackery) can help keep charge for phones/flashlights

Flood/Landslides/Windstorms

- Flood channels maintained by LA County
- Build relationships for better communications
- Road maintenance (potholes happen with water saturates the roads)
- Landscaping can help manage landslides
- Signage for vulnerable populations
- GIS Layer
- Recovery can take a long time, have resources prepared
- Windstorms can uproot trees, break off large branches, down power lines and disrupt electricity
- Yard maintenance can help keep debris away from windstorms
- The City can have a "generator hub" location, specifically for the vulnerable population
- Neighbor helping neighbor (Neighborhood watch!)
- Wildland interface as potential areas of issue

Human Made Events

- Risk assessment, hazard disposal
- Utilities communications regarding cyber security
- Internal security
- Community outreach between businesses
- Enforcement is difficult! Many discussions needed to create an effective plan

Drought/Extreme Heat

- Communications (First Net)
- Cooling centers, Neighborhood watch, CERT
- Raising awareness, giving awards as incentives, grants for generators
- Water awareness campaign





Faith-Based Organizations

LHMP Update

April 11, 2024

Station fire- how can we create mitigation strategies for fire breaks? Because if there were winds then the whole city would have been burned.

- Vegetation clearance
- How do you harden houses to prevent embers from catching fire?

Deadends explode which can cause embers to fly and cause massive fires.

What groundwork can churches lay ahead of time so that churches can assist with emergency mitigation?

- Can't use parking lots because they would need to get approval.
- Todd said he can get pre-approvals in order to use facilities.
 - o Arabo said that churches can be used for first responders to stage.
 - o Schools can't shut down for multiple days which is why Churches could be more beneficial.

Communication is always an issue.

- o If churches can be used as communication hubs, then that could be greatly beneficial.
- o What assets do they have: space, cooling, communication, etc.
- o What are the church's limitations?
- What do we do when we lose tower signal?
 - o Operation side (First responders) FirstNet is the way that first responders can communicate.
 - o Radios
 - o CERT Class – part of emergency plan designated spots so that families can go to different spots.
 - o Hand radio trainings
 - o Preparedness events
- Using scouting groups and preschools for communication
 - o Scouts can teach preparedness
- 4 days a week we have a parent education system
- Preschools
- Quanis Groups
- Livestreaming services

United Methodist for space for first responders:

- 100 seats
- Proximity to schools

- Command post for first responders.

LCIF Sanctuary – space for 250 individuals

Presbyterian – space for 400 individuals in sanctuary

YMCA – Has plenty of space but would need approval/further discussion

St. Bedes – space for ~300 individuals

What is the most effective training forum that your community members would be receptive too?

- Extremely short
- Links
- Flyers
- Fairs
 - o Idea: Fridge magnets, one-page flyers for education material
- Evacuation plans- finding out who runs their neighborhood watch.
- Elderly community: what kind of training can they have?
 - o Vulnerable population: disabled, special needs, and elderly
 - o How can churches identify who is vulnerable and how to communicate with them.
 - o Fairs or neighborhood training for vulnerable populations
 - o Combining fairs with emergency preparedness booths
 - o Hear are the most common things to think about... link with quick questions and answers.
 - o Music in the park
 - Where people are already going.
 - Booth and links
 - o Keep in touch with the city so that we can be a part of their events.
- What is the minimum information people need.
- Worship Bulletin
- Alert LCF
 - o Outdoor siren solution

Main talking points: communication, transit, power, and education.

- Rebate for generators.
- Septic for flooding and earthquakes
- Would it be helpful if the senior pastors or someone from the church would be able to get a device so that if the power goes out, they can communicate with the city?

LCF Local Hazard Mitigation Plan 2019 Update Comment Form
Results
(2 Responses)

Timestamp		2024/01/25 3:00:51 PM MST	2024/03/22 11:57:37 AM MDT
1. Please select the section(s) you are commenting on. check all that apply	Section 9: Wildfire	Section 2: Community Profile;Section 3: Risk Assessment;Section 4: Multi-Hazard Goals and Action Items;Section 5: Plan Maintenance;Section 6: Earthquake;Section 7: Flood;Section 8: Landslide;Section 9: Wildfire;Section 10: Windstorm;Section 11: Manmade Hazards;Appendix	
2. Type in your comment here. Be sure to specify which section you are referring to if you chose multiple sections	My primary concern, even more than earthquake, is wildfire. The most vulnerable areas, near the mountains, have the narrowest, least accessible roads. The 2019 plan has several mitigation goals (for example, WFH-LT5: wider streets) but I don't see that any significant action has been taken. Without a much greater effort on the City's part, we are headed for the equivalent of the 1991 Oakland Hills fire, which killed 25 people and destroyed 800 homes. Time for some ACTION.	The 2018 document, it's table of contents, and the comment sections listed above are not consistent in order nor in titles. Some sections are missing completely from the above list: 1) Plan update, 2) Capabilities Assessment, 3) Drought, 4) Extreme Heat, 5) Public Participation, 6) Resource Directory, 7) City Council Approval. Are we being asked to only comment on the sections listed above or on the entire 2018 document?	
3. Use this section to type in any new ideas you have that should be considered for the new plan.	Quickly create "wider" streets by banning parking on one or both sides of the street on red flag days or other risky situations.	It is easier to comment on a draft document that is line-by-line numbered throughout.	
4. Additional Comments		evacuation and the processes to implement, especially for vulnerable populations such as children and elderly in institutional settings. Perhaps LCF will be relying on LA County to implement an evacuation but should	

LCF Stakeholder Hazard Mitigation Advisory Committee Professional Input Form
Results
(2 Responses)

Timestamp	2023/11/15 3:00:02 PM MST	2023/11/15 4:51:35 PM MST
Are you a Resident of La Cañada Flintridge?	No	No
In the previous LHMP from 2019 what are some sections that you believe need to be updated or addressed the most. Select all that apply.	Section 3 Plan Maintenance	Section 10 Wildfire;Section 13 Extreme Heat;Section 14 Human Made Hazard
From the sections you selected above please provide specific details on what the City needs to address.	It made me select one - no specific input yet	Better evacuation plans for fire, cooling stations for extreme heat, mass shooter
In your professional opinion which hazard poses the GREATEST THREAT to our community? Choose one	Earthquake	Climate Change
Now choose what the SECOND greatest threat to the community would be? Choose one	Climate Change	Severe Weather (rain/windstorm)
Lastly choose the THIRD greatest threat to the community would be? Choose one	Cybersecurity	Earthquake
In your professional opinion what would be the most vulnerable aspect of our community in the face of a disaster? Examples could be (infrastructure, transportation, preparedness, specific populations or groups)	Infrastructure	Seniors
What are some things you would like to see in the updated LHMP?	n/a	Not sure.
Any additional comments please write them here.	[No response]	[No response]



**MINUTES OF A REGULAR MEETING OF THE
PUBLIC SAFETY COMMISSION
OF THE CITY OF LA CAÑADA FLINTRIDGE
HELD ON OCTOBER 23, 2023**

CALL TO ORDER

Chair Kamar called the meeting to order at 6:02 p.m.

ROLL CALL

Present: Chair Charlie Kamar, Commissioners Jeanette Applegate, John Hicks, and Jeff Olson
Absent: Commissioner Wes Seastrom

PLEDGE OF ALLEGIANCE

Commissioner Hicks led the Pledge of Allegiance.

COMMENTS FROM THE PUBLIC

Caludio Ayestas, a resident, addressed his concerns regarding burglaries in the City. He asked for feedback and suggestions.

In response to Mr. Ayestas, Director of Administrative Services, Parseghian stated that the City contracts with the Los Angeles County Sheriff's Department. The City works closely with the Sheriff's Department to address burglaries. The City has a Neighborhood Watch Program that residents can register for by contacting Community Liaison Officer Eric Matejka. The City recently conducted a public education campaign with Captain Hahnlein for burglary prevention. Further, the City has created a new Public Safety Coordinator position. Jennifer Burghdorf, the new Public Safety Coordinator, will work closely with the Sheriff's Department to increase patrols and public safety in the City. Director Parseghian noted that the Sheriff's Department also presents a Crime Statistics Report monthly during City Council meetings, and the City reviews the crime statistics. The Sheriff's Crime Statistics Report is posted on the City's website.

Commissioner Applegate recommended advertising Commission and Committee meetings in the Outlook Valley Sun Newspaper.

Commissioner Hicks agreed that the City has to address burglaries and assist residents by utilizing the resources the City provides. In addition, he recommended using different social media platforms, which are very helpful. He added that being engaged, vigilant, and aware of the available resources is essential. For instance, being engaged in the Neighborhood Watch Program. He recommended the whole neighborhood become more alert and involved in keeping the community safe. Lastly, he noted that the Neighborhood Watch Program has been very effective not just for crime but for emergency preparedness as well.

In response to Mr. Ayestas, Deputy John Hong with the Crescenta Valley Sheriff's Station recommended purchasing an alarm system as surveillance is one of the best ways to deter a potential burglar. Further, when an alarm system is activated, it allows the Sheriffs to respond and apprehend the burglars. Deputy Hong clarified that the alarm company was first notified. Then, the alarm

company contacts the main Sheriff's dispatch center, and Deputies are dispatched. Lastly, Deputy Hong suggested residents get to know their neighbors and look out for each other.

Commissioner Hicks recommended having cameras mounted around the house to help identify suspects. He added that the City has two dedicated deputies assigned to it.

REORDERING OF THE AGENDA

The agenda was not reordered.

CONSENT CALENDAR

1. Minutes of the Public Safety Commission Meetings

a) Approval of the May 22, 2023, Regular Meeting

A **MOTION** to approve the May 22, 2023, Regular Meeting Minutes as amended was made by Commissioner Hicks, seconded by Chair Kamar, and carried (3 – 0 – 2); Commissioner Wes Seastrom and Commissioner Jeff Olson were absent.

b) Approval of the June 26, 2023, Regular Meeting

A **MOTION** to approve the June 26, 2023, Regular Meeting Minutes as amended was made by Commissioner Applegate, seconded by Commissioner Hicks, and carried (3 – 0 – 2); Commissioner Wes Seastrom and Commissioner Jeff Olson were absent.

NEW OR CONTINUED BUSINESS

2. Los Angeles County Fire Department – Fire Activity Report for July, August, and September 2023

Maria Grycan, Community Services Representative with the Los Angeles County Fire Department, presented the July, August, and September fire activity reports.

Ms. Grycan stated that they have launched Genesis Protect, previously known as Zone Haven, for evacuation zones. They have a website and an app available for download. She encouraged resident to download the app and familiarize themselves with their evacuation zones.

In response to Commissioner Hicks, Community Services Representative Grycan stated that Genesis Protect depends on power and internet connectivity. However, this software does not replace everything they have always done to notify residents. It is another beneficial tool because it puts every public safety agency and the public on the same map for the first time. Further, when the status of a zone changes, it is instantaneous on the public-facing side as well. Usually, it takes time for public information officers to respond to reporters' requests and to air their segments on the news. However, Genesis Protect is instantaneous.

3. Los Angeles County Sheriff's Department – Crime Statistics Report July, August and September 2023

Deputy John Hong with the Los Angeles County Sheriff's Department presented the Crime Statistics Report for July, August, and September.

In response to Commissioner Applegate, Deputy Hong stated that their reports are very detailed. However, they cannot give the exact location of a public address. Further, the Sheriff's Department does not tell the newspaper how to report areas. As law enforcement officers, they cannot give an exact location of where the crime took place in a public setting. For instance, their report would specify the 800 block of Foothill Boulevard. A commercial burglary took place at that location. They do not provide specifics and location names when it is a public address.

In response to Commissioner Applegate, Director Parseghian, provided details about the City's Flock Safety security cameras. There are several Flock camera license plate readers throughout the City. The cameras read every license plate, and if a license plate is tagged for a warrant or if the vehicle is stolen, it immediately alerts the Sheriff's Department. The Sheriff's Department can immediately dispatch and pull the vehicle over. The City is in the process of installing four additional cameras throughout the City.

Director Parseghian stated that the City has a budget for six deputies. However, when the Sheriff's Captain sees potential uptakes in criminal activities, burglaries, or other emergencies, the captain can increase the saturation of the deputies outside of the contract through overtime pay. Therefore, this model works well because it allows the city to keep the force small and increase it when necessary. The City has a budget for six deputies assigned to the City, not including personnel, such as detectives or staff outside of that purview.

Deputy Hong stated that burglaries statistically are down 43 percent in the City for September compared to last year. Additionally, deputies have increased written citations from this time last year by approximately 450 sources. Deputy Hong reminded the community to lock their cars at night and not leave any valuables in vehicles. He also recommended that residents get a home alarm system with surveillance and get to know their neighbors because neighbors can also be helpful during emergencies.

Director Parseghian stated that the City of La Cañada Flintridge remains one of Los Angeles County's safest cities. He noted that the Sheriff's Department, including the Captain, meets regularly with vendors, different agencies, and businesses to educate them on public security and how they can facilitate securing their merchandise. Mr. Parseghian added that he met with the City Manager with various contract cities and other agencies within the San Gabriel Valley area. He noted all municipalities had the same discussion where enforcement officers are trying to do their job. Still, it is difficult when the criminals are simply issued a citation and released due to relaxed State laws. The City will continue to do everything possible to ensure the community remains safe and thriving. Lastly, Mr. Parseghian noted the Captain and Deputies have partnered with the Chamber of Commerce and held a business meeting with all the local businesses in town.

Deputy Chun stated that starting October 1, 2023, there was a single most significant monetary investment to combat retail theft, and for \$270 million, which gets distributed across 30 agencies in the state of California as well as 13 Districts and the Attorney's office.

The Los Angeles County Sheriff's Department and the LAPD have received \$15.6 million to combat retail theft. Deputy Chung stated that the funding will be used to fund data sharing surveillance, investigative units, and task forces, as well as targeting criminal organizations because these retail thefts are part of a more extensive web of crimes.

In response to Commissioner Hicks, Deputy Chun noted that residents should contact them for vacation patrol checks.

4. The Local Hazard Mitigation Plan Update

Emergency Services Coordinator Jared Hartel presented the staff report.

In response to Commissioner Applegate, Mr. Hartel responded that the committee members would be in a group with other commissioners and community stakeholders. For instance, utility companies, JPL Emergency Management, and other stakeholders will attend approximately four meetings, with the first scheduled for November 15, 2023. These meetings will address mitigation efforts in the City to build resiliency against various disasters. The final draft is to be completed by May. The last review will be completed in June, and the plan will be sent to the state for review.

Director Parseghian stated that there are various methodologies for getting input for the LHMP update. The City will receive public information from its website, town hall meetings, and public meetings, which the Public Safety Commission will host. The City will advertise in the local newspaper that it is doing an LHMP update. The Federal Emergency Management Agency (FEMA) requires the stakeholder meeting to invite stakeholders to these meetings. Attendance is not mandatory; however, it is recommended. There would probably be 20 to 30 participants to provide input.

Mr. Hartel stated that the first meeting will be virtual.

Commissioner Jeff Olson was appointed to the Hazard Mitigation Advisory Committee.

Jeff Reeb, a resident, complemented the response from the Sheriff's Department on his street when he called the Sheriff to report a suspicious car on his neighbor's property. He asked for an update on the public outreach campaign related to safety around homes and making properties more secure. Lastly, he noted that the solution to reducing residential burglaries has three components: leadership, law enforcement, and community. He stated that he had done everything that the Sheriff's Department had recommended him to do, including getting a large dog.

COMMENTS FROM THE COMMISSIONERS

Commissioner Hicks provided additional suggestions to reduce crime in the City.

Director Parseghian introduced Public Safety Coordinator Jennifer Burghdorf. This is one of the initiatives the City is taking to put public safety at the forefront and enhance it even further. Mr. Parseghian noted that Ms. Burghdorf is a Lieutenant Colonel in the U.S. Air Force. She has years of experience when it comes to logistics and public safety. She has a master's degree in Disaster and Emergency Management. She's more than well-versed in this arena.

Public Safety Coordinator Jennifer Burghdorf thanked the commission and said she is excited to be part of this team and looking forward to being part of the civilian workforce. She stated that she has a lot of experience on the military side. Thankfully, no significant disasters are happening in the City. She noted participating in the Great Shakeout with the Sheriff's Department. She stated she was also working on the Hometown Heroes banner program just in time for Veterans Day.

COMMENTS FROM THE STAFF

Director Parseghian provided an update on a program for residential homes with security cameras. He noted that public safety is a high priority for the City and aims to enhance public safety outreach. He stated that public safety is a collaborative effort between the Sheriff's Department, residents, and City staff. He recommended community engagement with our first responders and neighbors to enhance public safety. Lastly, he stated that the City has full support from the City Council, the staff, and the city manager to improve the City's public safety.

Chair Kamar invited commissioners and the City staff to celebrate Community Liaison Officer Eric Matejka's retirement at Flintridge Sacred Heart Academy on November 4th from 4 – 6:30 p.m. hosted by the Tournament of Roses.

Commissioner Hicks noted they concluded a program with the community center to train residents to raise awareness of fentanyl overdose.

ADJOURNMENT

The Public Safety Commission meeting was adjourned at 7:25 p.m.

DocuSigned by:

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Jennifer Burghdorf, Public Safety Coordinator



**MINUTES OF A REGULAR MEETING OF THE
PUBLIC SAFETY COMMISSION
OF THE CITY OF LA CAÑADA FLINTRIDGE
HELD ON FEBRUARY 26, 2024**

CALL TO ORDER

Chair Kamar called the meeting to order at 6:05 p.m.

ROLL CALL

Present: Chair Charlie Kamar, Vice Chair Wes Seastrom, Commissioner John Hicks, and Commissioner Jeff Olson

Absent: Commissioner Jeanette Applegate

PLEDGE OF ALLEGIANCE

Vice Chair Seastrom led the Pledge of Allegiance.

COMMENTS FROM THE PUBLIC

Jeff Reed, resident, thanked the Los Angeles County Sheriff's Department for their quick response when he reported a suspicious car parked by his neighbor's property. He also thanked the dispatcher for their excellent communication skills.

REORDERING OF THE AGENDA

The agenda was not reordered.

CONSENT CALENDAR

1. Minutes of the Public Safety Commission Meetings

a) Approval of the January 22, 2024, Regular Meeting Minutes

In response to Commissioner Olson, Director of Administrative Services Parseghian stated that the minutes will be amended to include the crime statistics report comment. Mr. Parseghian noted that the December report is a compilation of crime statistics from January until December. The December 2023 report will be attached to every crime statistic for comparison.

A **MOTION** was made by Commissioner Olson, seconded by Chair Kamar, and carried (4 – 0); Commissioner Applegate was absent, to approve the January 22, 2024, Regular Meeting Minutes as amended.

NEW OR CONTINUED BUSINESS

2. Los Angeles County Fire Department – Fire Activity Report for January 2024

Maria Grycan, Los Angeles County Fire Department Community Services Liaison, presented the Fire Activity Report for January 2024.

In response to Vice Chair Seastrom, Community Services Liaison Grycan said that single-family and multifamily dwelling units are required by law to have carbon monoxide and smoke detectors.

In response to Vice Chair Seastrom, Community Services Liaison Grycan responded that fire roads are maintained and inspected throughout the year. She noted that if the fire road is in the forest, it is not in their jurisdiction. Ms. Grycan stated that the fire roads in the county get assessed after the rainy season. She confirmed that the power lines went down in January due to the rains and winds.

3. Los Angeles County Sheriff's Department – Crime Statistics Report for January 2024

Deputy Chun presented the Los Angeles County Sheriff's Department Crime Statistics Report for January 2024.

Chair Kamar thanked the Sheriff's Department for their responsiveness.

Vice Chair Seastrom noted that a resident living on upper Vero Road reported that about three months ago, four or five homes were burglarized in one night, which were not listed in the report.

Deputy Chun noted that he would research and report back.

4. Public Information Workshop for the Local Hazard Mitigation Plan Update

Public Safety Coordinator Burghdorf presented the staff report.

Vice Chair Seastrom questioned the level of public outreach for the Local Hazard Mitigation Plan Update meeting. Director of Administrative Services Parseghian explained that the stakeholder meeting serves as a public forum, with social media and a notice in the Outlook Valley Sun Newspaper used to promote it. He noted ongoing efforts over seven months and plans for future workshops. Vice Chair Seastrom suggested advertising in the Outlook Valley Sun Newspaper instead of publishing a public hearing notice.

Resident Jeff Reed proposed involving neighborhood watch captains and community leaders. Parseghian confirmed their inclusion in the stakeholder meeting, which had 35 participants. Commissioner Olson affirmed receipt of notices and participation from key stakeholders.

Public Safety Coordinator Burghdorf suggested additional communication to residents for future meetings. A discussion ensued on improving public awareness and gathering resident input on mitigation initiatives. Director Parseghian clarified the selection process for meeting representatives and emphasized stakeholder involvement as community representatives.

Commissioner Hicks suggested providing a summary for resident feedback. Community Services Liaison Grycan recommended consulting residents about pressing community issues like wildfires, earthquakes, droughts, and others. Commissioner Olson proposed a resident forum for discussion.

Parks and Recreation Commissioner Hobson emphasized community engagement in hazard mitigation. Director Parseghian outlined extensive advertising plans, including a new website called "LCF in the Know." Vice Chair Seastrom confirmed receipt of newsletters.

Olson suggested that newspaper advertisements specify the Public Safety Commission's discussion on the Hazard Mitigation Plan and encourage community participation. Vice Chair Seastrom recommended involving the Chamber of Commerce.

Director Parseghian reiterated the city's commitment to public engagement. Commissioner Olson concluded that the meeting was successful and well-participated.

5. Discussion of Potential Fiscal Year 2024-25 Budget Requests for Public Safety Commission Programs and First Responder Training and Equipment Needs

Public Safety Coordinator Burghdorf presented the staff report.

Vice Chair Seastrom commended staff for presenting the item to the Commission early for thorough review.

Director of Administrative Services Parseghian, responding to Commissioner Olson, recommended that the Commission select two priorities to present to the City Council, proposing a focus on a Community Emergency Response Team (CERT) program, National Night Out, and emergency preparedness workshops or fairs. He outlined the public safety team's composition and advisory roles.

Commissioner Olson suggested prioritizing an outreach program to inform the community about the Public Safety Commission's initiatives.

Chair Kamar advocated retaining the La Cañada High School anti-DUI program, "Every 15-Minutes," valued at \$1,000.

Public Safety Coordinator Burghdorf informed Commissioner Hicks that funding remains for the Security Camera Rebate Program, with 78 submissions and an \$8,400 balance. Commissioner Hicks inquired about carrying over the balance into the next fiscal year, to which Director Parseghian explained the process of transferring the balance to the General Fund or reallocating it.

Public Safety Coordinator Burghdorf confirmed no business applications for the rebate program and shared plans for outreach with the Chamber of Commerce and advertising in the Outlook Valley Sun Newspaper.

Vice Chair Seastrom echoed Chair Kamar's support for retaining the "Every 15-Minutes" program.

Public Safety Coordinator Burghdorf highlighted the production and dissemination of a burglary prevention video, emphasizing its accessibility and online availability.

Commissioner Hicks emphasized public safety education, workshops, and outreach as top priorities.

Public Safety Coordinator Burghdorf outlined the Fiscal Year 2024-25 budget requests for Public Safety Commission Programs: \$6,000 for Public Safety Education, \$15,000 for the Home Alarm Security System Rebate Program, and \$2,000 for the "Every 15-Minutes" Anti-DUI Program.

Director Parseghian clarified the purpose and limitations of the mid-year budget, prompting a discussion among Commissioners and staff on program funding allocations.

Vice Chair Seastrom recapped the discussion and proposed the Fiscal Year 2024-25 budget requests for Public Safety Commission Programs: \$6,000 for Public Safety Education, reallocation of the remaining budget for the Security Camera Program to be used for the \$15,000 Home Alarm Security System Rebate Program, and \$2,000 for the "Every 15-Minutes" Anti-DUI Program, and \$3,000 for the CERT equipment.

A **MOTION** was made by Vice Chair Seastrom, seconded by Commissioner Olson, and carried (4 – 0); Commissioner Applegate was absent, recommending funding for Fiscal Year 2024-25 Budget Requests for Public Safety Commission Programs and First Responder Training and Equipment Needs.

COMMENTS FROM THE COMMISSIONERS

Commissioner Olson said he is glad the City has such an active community.

Chair Kamar asked if there was any news regarding the speed cameras.

Director of Administrative Services Parseghian noted that the state has granted certain agencies a pilot program until 2024. The City will have an update in 2025 regarding the speed cameras.

Commissioner Hicks thanked all the attendees.

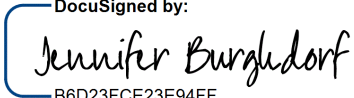
COMMENTS FROM THE STAFF

Public Safety Commissioner Burghdorf noted that the "LCF in the Know" communications hub went live last week. Also, the website has a calendar of events. She encouraged the Commission to visit the website and provide feedback. She added that she is working with the Sheriff and Fire Department to finalize a date for National Night Out. Ms. Burghdorf said she plans to get a public safety calendar of events: the Great Shakeout, Day Without Water, National Night Out, and other events that would benefit the community.

Director of Administrative Services Parseghian thanked the Commission and the public for their input.

ADJOURNMENT

The Public Safety Commission meeting was adjourned at 7:31 p.m.

DocuSigned by:

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Jennifer Burghdorf, Public Safety Coordinator



REGULAR PUBLIC SAFETY COMMISSION MEETING

CALL TO ORDER: Chair Kamar called the Regular meeting to order at 6:05 p.m.

ROLL CALL: Commissioner Jeanette Applegate, Commissioner Jeff Olson, Vice Chair Wes Seastrom and Chair Charlie Kamar.

Commissioner John Hicks was absent.

PLEDGE OF ALLEGIANCE: Commissioner Olson led the Pledge of Allegiance.

COMMENTS FROM THE PUBLIC:

Irene Mendon, resident, explained that the article in the April 28, 2022, edition of the Outlook Valley Sun Newspaper, stated that during the Public Works and Traffic Commission meeting, several representatives from the California Department of Transportation presented proposed safety changes and measures to comply with Americans with Disabilities Act (ADA). The proposed safety changes and measures included building a mini roundabout at Green Lane and Angeles Crest Highway. She noted that a final plan would be determined by March 2024. She expressed concern about this proposal, given the fire risk in the area. She drew comparisons to the 2018 Camp Fire in Paradise, California. She addressed her concerns about evacuating above Angeles Crest Highway if it was reduced to one lane. Given the Station Fire history in the area, she did not think it was a good idea for emergency access and evacuation routes.

Public Safety Coordinator Burghdorf thanked Ms. Mendon for her comments. She noted that she will follow up with staff for updates on the project. She said she would contact the Public Works and Traffic Commission for more information.

REORDERING OF THE AGENDA: The agenda was not reordered.

CONSENT CALENDAR

1. Minutes of the Public Safety Commission Meetings:

- a) Approval of the February 26, 2024, Regular Meeting Minutes

A **MOTION** was made by Commissioner Olson, seconded by Chair Kamar, and carried (3 – 0, Commissioner Hicks was absent, Commissioner Applegate recused herself she was absent from the meeting) to approve the February 26, 2024, Regular Meeting Minutes.

NEW OR CONTINUED BUSINESS

2. Los Angeles County Fire Department – Fire Activity Reports for February 2024

Maria Grycan, Los Angeles County Fire Department Community Services Liaison, presented the Fire Activity Report for February 2024. Ms. Grycan reminded the Commission that Community Emergency Response Team (CERT) training would start on Wednesdays, with 41 people currently signed up. She hoped for good attendance while noting that people can still make up any missed classes to receive certification.

Commissioner Olson asked what happens if someone only attends half the classes.

Ms. Grycan responded that they withhold the certificate until all classes are completed. Participants have opportunities to make up any missed sessions anywhere in Los Angeles County that provides CERT training.

Commissioner Olson expressed interest in participating in the CERT training.

In response to Vice-Chair Seastrom regarding the residential fire, Ms. Grycan replied that it was not reported if the house had smoke alarms.

3. Los Angeles County Sheriff's Department – Crime Statistics Reports for February 2024

Deputy Chun presented the Los Angeles County Sheriff's Department Crime Statistics Report for February 2024.

Commissioner Olson asked if flock related cases could be inputted into one of the charts or graphs to compare with the rest of the data. He wanted to ensure the Flock cameras work in the City.

Deputy Chun noted that he will report on getting a similar graph.

Public Safety Coordinator Burghdorf noted that the Sheriff's Department creates these graphs, and Captain Hahnlein will decide. She said that she would check and report back.

Sean Gregorian, Chamber of Commerce Director, addressed his concerns regarding thefts, home burglaries, and robberies in the City.

In response to Mr. Gregorian, Deputy Chun noted that the detectives would know more about the suspects of these types of burglaries. He noted that similar trends in the City of La Cañada Flintridge also match those in other cities.

4. Community Input Forum for the Local Hazard Mitigation Plan Update

Public Safety Coordinator Burghdorf presented the staff report.

Commissioner Olson noted that this is a great item to pursue.

Public Safety Coordinator Burghdorf noted that the City had excellent representation from various community members during the recent stakeholder meeting. There was lively and constructive discussion, voicing concerns and addressing issues raised by constituents. Administrators expressed concerns related to schools, both public and private. There were discussions about addressing wildfire threats, with Maria Grycan serving as spokesperson. Overall, the community was well represented, with stakeholders connected to their constituents and actively working to address their needs. The meeting facilitated discussions on various concerns and strategies to mitigate threats. Staff is compiling the notes from the meeting to address everyone's concerns. Vice-Chair Seastrom asked about prioritizing threats like cyber-attacks and terrorist attacks, as well as natural disasters such as floods, landslides, windstorms, extreme heat, and drought. He asked

whether wildfires and earthquakes should be ranked as the top two threats or if we should be consider factors. He emphasized the importance of community input in refining this prioritization.

Public Safety Coordinator Burghdorf stated that the City has completed a Red Flag program evaluation of its entire area but plans to implement changes in phases. The most urgent issues have been identified, and after a final review and approval from the City Manager, community workshops will begin. These workshops will be organized by sections of the City, allowing residents to provide input on their specific areas. The feedback gathered will be consolidated for City Council review. Staff will share more information about this initiative soon.

Vice-Chair Seastrom addressed his concerns about wildfires in the City, referencing the Station Fire of 2010 and the risk of a situation similar to the Paradise fire. He emphasized the community's vulnerability due to the dense canopy of trees and expressed gratitude for not experiencing such a catastrophe yet. He noted that the City should prioritize wildfires as its top concern due to the proactive measures that can be taken to mitigate them. In contrast, we cannot prevent earthquakes and they require preparation. Additionally, he discussed floods and landslides as significant concerns, citing past incidents and recent rains. He agreed that wildfires are his number one concern, given the potential for proactive action to prevent or mitigate their impact.

Commissioner Applegate shared her unique approach to emergency preparedness. Instead of traditional Christmas gifts, she purchases backpacks in September and fills them with essentials like emergency blankets, canned water, flashlights, batteries, and a transistor radio. She also includes practical items like comfortable shoes. She encourages recipients to keep these backpacks in their cars for easy access during emergencies. She also shared that she recently purchased flares from Riley's Auto and received a discount for buying in bulk. She recognizes the importance of flares for roadside emergencies and plans to include them in the backpacks. She noted that she used to obtain packs of flares from the Sheriff's Department but they no longer provide them. As a result, she observed that many people now request flares directly from the station.

Deputy Chun expressed that he is still determining the availability of flares for public distribution within the Sheriff's Department. He agreed that flares are useful during traffic accidents.

Public Safety Coordinator Burghdorf noted that the CERT program offers participants an emergency backpack filled with preparedness equipment.

Chair Kamar recommended that residents keep their car gas tank filled to at least half capacity to have enough fuel to navigate through unforeseen situations or emergencies.

Public Safety Coordinator Burghdorf summarized the stakeholder meeting, which covered various aspects of emergency preparedness and mitigation strategies for earthquakes, drought and extreme heat, landslides, windstorms, floods, wildfires, and human-made hazards. Key points included:

1. Earthquakes: easy-to-understand training materials, community workshops/webinars, and strengthening the CERT program.
2. Drought and extreme heat: collaboration with water agencies, water conservation campaigns, sustainable landscaping, and integrating water conservation into school curriculum.
3. Landslides: revegetation, stormwater capture systems, GIS mapping, education on drought-tolerant plants, and partnerships with environmental organizations.

4. Windstorms: widespread dissemination of safety information, generator hubs, ADA mapping, and ensuring redundancy in internet connectivity.
5. Floods: ownership and responsibility frameworks, communication protocols, GIS database management, and catch basin maintenance.
6. Wildfires: early warning systems, drills and simulations, educational materials, rebate programs for fire-resistant home improvements, and public service announcements.
7. Human-made hazards: hazardous material monitoring, risk assessments, safe disposal programs, evacuation planning, and cybersecurity measures.
8. Prioritizing vulnerable populations in emergency planning, including non-English speakers, children, and seniors, with tailored outreach and support programs.

In response to Commissioner Applegate, Public Safety Coordinator Burghdorf stated that the Every 15 Minutes Program, which schools host to raise awareness about the dangers of driving under the influence (DUI), is scheduled every other year, with the next one planned for 2025.

In response to Vice-Chair Seastrom, Deputy Brian Chun noted that the Baker to Vegas Challenge Cup Relay is an annual event where law enforcement agencies from various locations participate in a relay race from Baker, California, to Las Vegas, Nevada. Teams are strategically organized within departments, with intermediate, advanced, and elite teams. Deputy Hong ran the elite team, placing fifth overall. He noted that the event is a competitive challenge and a platform for fostering camaraderie and teamwork among law enforcement personnel. This annual event allows agencies to showcase their skills and build connections within the law enforcement community.

Commissioner Applegate stated that before the onset of COVID-19, the International Police Association (IPA) had organized 32 individuals from England to participate in the Baker to Vegas Challenge Cup Relay. As a member of the IPA, she facilitated their paperwork, including passports and race documentation. The Los Angeles Police Department assisted with housing arrangements, providing opportunities for the visitors to stay with local families. Unfortunately, the pandemic stopped the plans, but the interest from the English participants remains strong. She noted that, in the future, they will have the chance to join the event again.

COMMENTS FROM THE COMMISSIONERS

The Commission and staff congratulated Commissioner Hobson, who was in the audience, for being elected as the incoming Councilmember for the City.

COMMENTS FROM THE STAFF

Public Safety Coordinator Burghdorf provided two updates. The introduction of a crime prevention diagram available on the website, offering tips and advice in collaboration with local authorities, and the announcement of the City's first National Night Out event scheduled for July 16, 2024, at Olberz Park. The event will feature participation from the Sheriff's Department, Fire Department, CHP, and various organizations following a shortened City Council meeting. She congratulated the Sheriff's Department for their success in the Baker to Vegas event.

There was a discussion about rescheduling the July Commission meeting due to a Commissioners' absence. Vice-Chair Seastrom expressed concerns about missing upcoming meetings in May, June, and July. He noted his absence on the fourth Monday of June's meeting and suggested rescheduling the July meeting from the 22nd to the 29th.

Public Safety Coordinator Burghdorf announced that the July Commission meeting is tentatively scheduled for July 29, 2024, and noted that they can adjust the schedule to accommodate the Commissioners' schedules.

Chair Kamar thanked the citizens, the Sheriff's Department, and the Fire Department for attending the meeting and thanked the Public Safety Coordinator Burghdorf for her excellent work.

ADJOURNMENT

Chair Kamar adjourned the Public Safety Commission meeting at 7:00 p.m.

A handwritten signature in cursive script, reading "Jennifer A. Burghdorf".

Jennifer Burghdorf, Public Safety Coordinator

Minutes approved by the Public Safety Commission on April 22, 2024.

[Meeting Minutes for June 24th, 2024 Public Safety Commission Meeting]