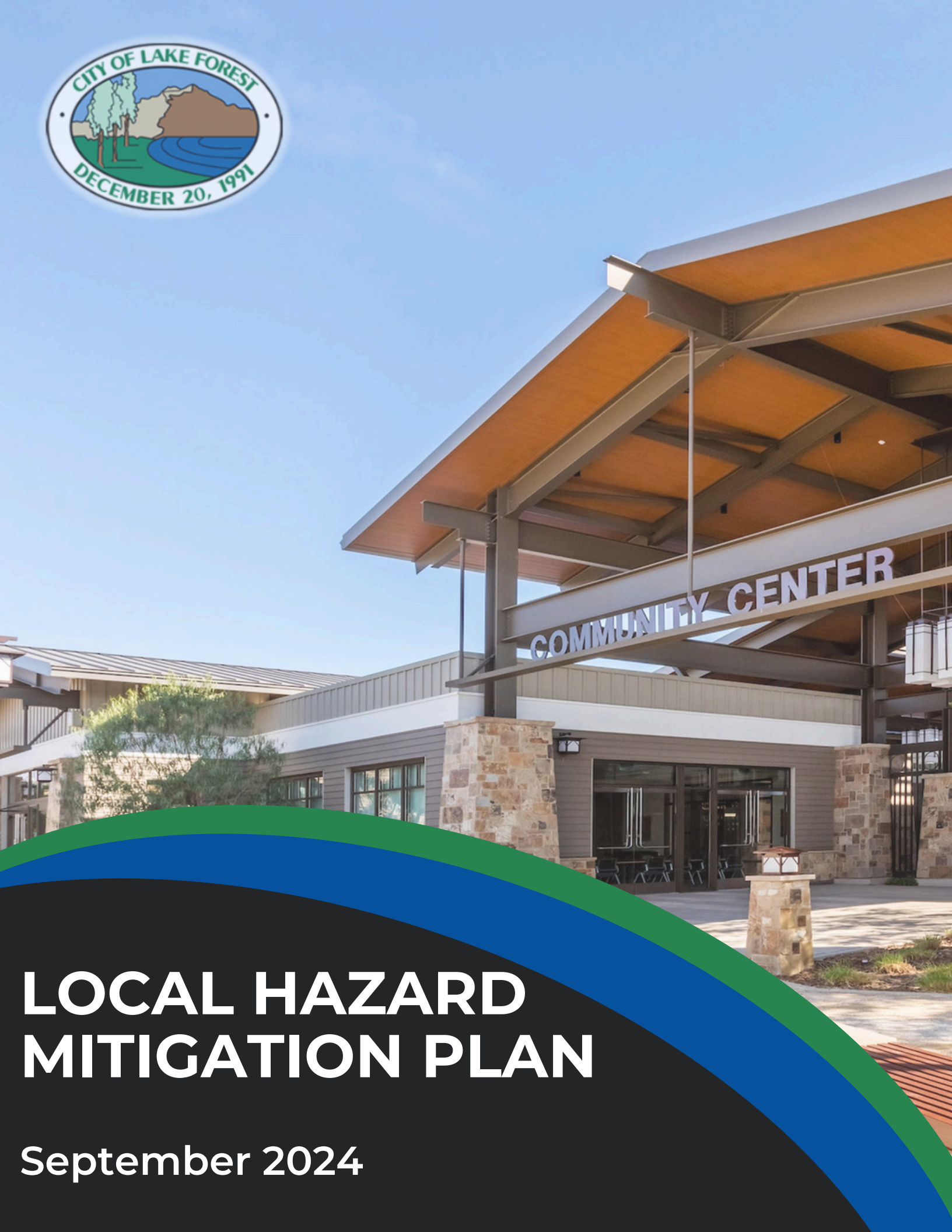

LOCAL HAZARD MITIGATION PLAN

September 2024

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ABBREVIATIONS

ACS: American Community Survey

CAL FIRE: California Department of Forestry and Fire Prevention

Cal OES: California Governor's Office of Emergency Services

CERT: Community Emergency Response Team

City: City of Lake Forest

CF: Critical Facilities

CFS: Cubic Feet Per Second

CPR: Cardiopulmonary resuscitation

DMA 2000: Disaster Mitigation Act 2000

EF: Enhanced Fujita scale

EOP: Emergency Operations Plan

ETWD: El Toro Water District

EPA: United States Environmental Protection Agency

FEMA: Federal Emergency Management Agency

FHSZ: Fire hazard severity zone

FOC: Facilities of Concern

FRA: Federal Responsibility Area

IRWD: Irvine Ranch Water District

LAWRP: Los Alisos Water Recycling Plant

LHMP: Local Hazard Mitigation Plan

MMI: Modified Mercalli Intensity scale

OCSD: Orange County Sheriff's Department

OCTA: Orange County Transportation Authority

OCFA: Orange County Fire Authority

OCWD: Orange County Water District

SCE: Southern California Edison

SMWD: Santa Margarita Water District

SoCalGas: Southern California Gas Company

TCA: Transportation Corridor Agency

TCWD: Trabuco Canyon Water District

US Census: United States Census Bureau

USGS: United States Geological Survey

WELO: Water Efficient Landscape Ordinance

Working Group: Hazard Mitigation Working Group

WUI: Wildland-urban interface

GLOSSARY

100-year flood: A flood that has a 1 percent chance (one in 100) of occurring in any given year.

500-year flood: A flood that has a 0.2 percent chance (one in 500) of occurring in any given year.

Atmospheric river: A narrow band of very moist air in the atmosphere, which can generate intense storms. Up to 50 percent of California's rainfall comes from the relatively small number of atmospheric storms that affect the state annually.

Climate change: Long-term changes in the average meteorological conditions (temperature, precipitation, wind, etc.) of an area.

Epicenter: The point on the surface of the ground above which an earthquake begins.

Fault line: A boundary between sections of the earth's surface.

Fault rupture: An event in which sections of the earth's surface suddenly move past each other along part or all the length of a fault. The sudden movement generates the shaking that we perceive as an earthquake.

Flash flood: A dangerous type of flood that occurs very quickly, with little warning. Usually a result of sudden, intense precipitation.

Flood plain: The area that may be affected by a flood, usually named by the type of flood that can occur there (e.g., a 100-year flood plain).

Liquefaction: A phenomenon in which loose, wet soil is suddenly shaken, causing the soil to behave more like a fluid and lose its stability. Often caused by earthquakes.

Modified Mercalli Intensity Scale: A way of measuring the intensity of an earthquake based on the damage it causes at a specific location. As a result, an earthquake will register a different rating on the Modified Mercalli Intensity scale in different places.

Rupture: See "Fault rupture"

Sea level rise: A global increase in the level of the ocean, driven by melting land ice and increases in water temperature as a result of climate change.

Social Threat: Encompasses the socioeconomic and demographic elements that have an impact on the resilience of communities.

Utility Area: Designated zones or locations where utility services, such as electricity, water, sewage, and telecommunications, are provided.

Utility Infrastructure: Physical structures and networks used to deliver utility services from the utility areas to the end-users.

CHAPTER 1
INTRODUCTION

PLAN PURPOSE AND AUTHORITY

Hazardous events can result in harm to individuals, including death and injuries, and have a negative impact on overall well-being and safety. Hazardous events can also cause damage to both public and private property, harm the environment, and disrupt essential services. While the actual hazard is usually what receives the most attention, it is only one aspect of the comprehensive emergency management cycle:

- The Event (Disaster)
- Response
- Recovery
- Mitigation
- Preparedness

During the emergency management cycle (which includes the phases of response, recovery, mitigation, and preparedness), steps can be taken by emergency planners and responders to minimize the harm caused by disasters.

This Local Hazard Mitigation Plan (LHMP) concentrates specifically on enhancing the mitigation phase of the cycle. Mitigation encompasses measures taken to increase the resilience of a community to disasters, reducing the amount of damage caused, and facilitating a more effective recovery.

This is distinct from preparedness, which involves planning ahead for the best possible response when a disaster occurs or is imminent. For instance, reinforcing homes to withstand earthquakes is a mitigation action, while equipping emergency shelters to accommodate those who lose their homes during an earthquake is a preparedness action. Some measures may be classified as both mitigation and preparedness.

Like other communities, the City of Lake Forest ("City") is vulnerable to natural and man-made events that can have a significant impact on the City. While it is not possible to eliminate the risks posed by such events, this Local Hazard Mitigation Plan can help make the City a safer place for residents, workers, and visitors. This LHMP conducts a thorough examination of the threats posed by both natural and human-made hazards to the City and outlines a coordinated strategy to minimize these threats. The LHMP offers access to information and resources that enable community members, City staff, and local officials to understand the local hazards and make informed decisions. It also aims to improve coordination and collaboration among the City, community stakeholders, service providers, and members of the public. This increased coordination and collaboration can be beneficial in bringing together various key stakeholders such as other public agencies, local employers, service providers, and community members to work together towards making the City safer.

FEDERAL AUTHORITY

The preparation of a LHMP is not mandatory for the City but is encouraged by state and federal regulations. The Robert T. Stafford Disaster Relief and Emergency Act, amended by the Disaster Management Act of 2000, establishes a federal framework for local hazard mitigation planning. The act specifies that, to be eligible for federal hazard mitigation grant funding, jurisdictions must create a hazard mitigation plan that adheres to established guidelines and submit the plan to the Federal Emergency Management Agency (FEMA) for review and approval. These guidelines are defined in the Code of Federal Regulations, Title 44, Part 201, and are described in more detail in FEMA's Local Mitigation Plan Review Tool.

STATE AUTHORITY

California Government Code Sections 8685.9 and 65302.6

California Government Code Section 8685.9 (also known as Assembly Bill 2140 or AB 2140) limits the State of California's share of disaster relief funds paid out to local governments to 75 percent of the funds not paid for by federal disaster relief efforts, unless the jurisdiction has adopted a valid hazard mitigation plan consistent with DMA 2000 and has incorporated the hazard mitigation plan into the jurisdiction's General Plan. In these cases, the State may cover more than 75 percent of the remaining disaster relief costs.

In California, all cities and counties must include a Safety Element addressing various hazardous conditions and other public safety issues. The Safety Element may be a stand-alone chapter or incorporated into another section of the General Plan. California Government Code Section 65302.6 indicates that a community may adopt an LHMP into its Safety Element, if the LHMP meets applicable state requirements. This allows communities to use the LHMP to satisfy state requirements for Safety Elements. As the General Plan is an overarching long-term plan for community growth and development, incorporating the LHMP into the General Plan by reference creates a stronger mechanism for implementing the LHMP.

California Government Code Section 65302 (g)(4)

Under California Government Code Section 65302 (g)(4), or Senate Bill (SB) 379, the Safety Element in a community's General Plan must address hazards arising from or intensified by climate change. This element should detail the projected impact of climate change on local hazard conditions and incorporate adaptive measures for increased resilience. Integrating the Local Hazard Mitigation Plan (LHMP) into the Safety Element fulfills the state requirement. SB 379 mandates the inclusion of climate change considerations in the Safety Element during LHMP updates post-January 1, 2017, or by January 1, 2022, for communities without an LHMP.

This LHMP is consistent with current standards and regulations as outlined by the California Governor's Office of Emergency Services (Cal OES) and FEMA. It uses the best available science, and its mitigation measures reflect best practices and community values. It meets the requirements of current state and federal guidelines and makes the City eligible for opportunities or benefits under state and federal law and practices.

Note that while FEMA is responsible for reviewing and certifying this LHMP, and Cal OES is responsible for conducting a preliminary review, this Plan does not grant FEMA or Cal OES an increased role in the governance of the City or authorize either agency to take any specific action in the community.

PLAN ORGANIZATION AND USE

The City's LHMP is both a reference document and an action plan. This planning document will serve as the City's long-term roadmap for community resiliency and sustainability. This is achieved through promoting sound policy to protect life, critical infrastructure and facilities, private property, and the environment from various hazards. The LHMP has information and resources to educate readers and decision makers about hazard events and related issues and includes a comprehensive strategy the City and community members can utilize to improve resiliency in the City.

This plan cumulates the process of assessing vulnerabilities, measuring risk, identifying strategies for risk reduction, and assigning responsible parties to carry out appropriate action. This initiative involves a comprehensive study of multiple hazards that could impact the City including natural and human-caused hazards.

In order to create a comprehensive plan, many stakeholders, community members, business leaders, and specialists were involved to attain a common objective of mitigating future risks to the City. This collaborative effort included not only residents, but also Emergency Managers from neighboring districts, utility representatives, and representatives from neighboring colleges. By involving these key parties, the plan can draw upon their expertise and resources to ensure a more robust and resilient approach to addressing potential hazards.

PLAN GOALS

This Plan was developed to broadly increase resiliency in the City. There are five goals for the LHMP:

1. Reduce the threat to life, injury, and property damage for the City's residents, employees, and visitors.
2. Keep critical services and government functions operational by protecting key infrastructure in the City.
3. Protect natural systems from current and future hazard conditions.
4. Coordinate mitigation activities among City departments and with neighboring jurisdictions.
5. Strengthen resiliency in the City through partnerships with community members, local businesses, and community organizations.

PLANNING PROCESS

State and federal guidance for local hazard mitigation plans do not require jurisdictions to follow a standardized planning process. FEMA encourages communities to create their own planning process that reflects local values, goals, and characteristics. FEMA suggests a general planning process as outlined in the 2013 Local Hazard Mitigation Planning Handbook:

This section describes the process used by the City to develop its LHMP.

HAZARD MITIGATION WORKING GROUP AND STEERING GROUP

The City established a Hazard Mitigation Working Group ("Working Group") which is made up of representatives from key City departments as well as stakeholder members that include residents, business leaders, representatives from local and regional agencies, and companies that are key to hazard mitigation activities.

The Steering Group was comprised of select members from the Working Group. This group prominently featured representatives from Lake Forest's Community Development and the consultants commissioned by the City who were tasked with planning and orchestrating the LHMP. As a part of the planning process, a clear distinction was drawn between the roles and responsibilities of the Steering Group and the Working Group, with both functioning synergistically towards achieving common objectives.

The Steering Group's primary mandate was to steer the strategic trajectory of the planning process, coordinate Working Group meetings, planning community outreach initiatives, and function as a crucial conduit facilitating communication between the multitude of stakeholders, the citizens of Lake Forest, and City staff, while simultaneously integrating input for the plan.

A comprehensive schedule of meetings was methodically designed and executed to ensure complete and accurate compilation of the LHMP (please refer to Appendix A for an in-depth account of planning meetings). During intervals between meetings, Steering Group members were entrusted with the task of acquiring relevant data, critically reviewing, and refining content to ensure the delivery of accurate and current information.

These members make up the Hazard Mitigation Steering and Working Group:

Name (Last, First)	Department / Organization	Group
Simmons, William	Jacob Green and Associates	Steering Group
Cheung, Raymond	Jacob Green and Associates	Steering Group
Faulkner, Katrina	Jacob Green and Associates	Steering Group
Stonich, Amy	Community Development /City of Lake Forest ("LF")	Steering Group
Young (née Ford), Arianna	Community Development/LF	Steering Group
Musler, Connor	Community Development Planning Division/LF	Steering Group
Hunter, Baryic	Fire/OCFA	Working Group
Wheeler, Thomas	Public Works/LF	Working Group
Marzara, Fred/Yuan, Faye	Community Development Building Division/LF	Working Group
Hill, Darrell	Community Development Code Enforcement/LF	Working Group
Shin, Simon	City Manager Department Information Technology/LF	Working Group
Mansur, Jennifer	Community Development Planning Division (GIS)/LF	Working Group
Blethen, Victoria	Community Services/LF	Working Group
Ackerman, Gayle	Community Development/LF	Working Group
Volzke, Jonathan	Management Services (PIO)/LF	Working Group
Slaven, Devin	Public Works Environmental Compliance/LF	Working Group
Tran, Tran	Public Works Traffic Division/LF	Working Group
Choi, Steve	Irvine Ranch Water District (IRWD)	Working Group
Seitz, Sherri	El Toro Water District	Working Group

Lopez, Chris	Santa Margarita Water District	Working Group
Falkenstein, Zoran	(Business Leaders) Applied Medical	Working Group
Albrecht, Jeremy	(Business Leaders) Applied Medical	Working Group
Robert Craven	Assistant Superintendent, Business Services (SVUSD)	Working Group
Sperazza, Sara	South Orange County Community College District (SOCCCD)	Working Group
Roberston, Kevin	Saddleback Valley Church	Working Group
Kuta, Cheryl (RSM)	(Neighboring Jurisdictions Emergency Managers - RSM)	Working Group
Catsimanes, Paul (Mission Viejo)	(Neighboring Jurisdictions Emergency Managers - Mission Viejo)	Working Group
Ames, Joe (Laguna Hills)	(Neighboring Jurisdictions Emergency Managers - Laguna Hills)	Working Group
Kim, So (Aliso Viejo)	(Neighboring Jurisdictions Emergency Managers - Aliso Viejo)	Working Group
Rivera, Rose (Aliso Viejo)	(Neighboring Jurisdictions Senior Planner- Aliso Viejo)	Working Group
Meier, Peter	Public Works Water Quality Inspector/LF	Working Group
Gates, Nick	Management Services /LF	Working Group

PUBLIC ENGAGEMENT

Under FEMA guidelines, local hazard mitigation planning processes should create opportunities for members of the public to be involved in plan development—at a minimum, during the initial drafting stage and during plan approval. The Steering Group chose to go beyond minimum standards and conduct more extensive community outreach to help ensure that the LHMP reflects community values, concerns, and priorities.

Identifying Vulnerable and At-Risk Populations

In recognizing the diverse needs of our community, the City focused on engaging vulnerable and at-risk populations, including the elderly, non-English speakers, and low-income families, in the LHMP development process. A targeted outreach event at the Senior Clubhouse specifically addressed the concerns of the elderly, where over 100 members learned about hazard profiles and emergency communication. To include non-English speaking residents, informational materials were provided in multiple languages, particularly Spanish, and distributed extensively in areas with high concentrations of non-English speakers. Additionally, understanding the challenges faced by low-income families in accessing information, the City utilized local community centers for material distribution, ensuring these families were well-informed and their voices heard in the planning process. These strategic efforts ensured that the LHMP reflected the diverse needs and concerns of all segments of the community.

Online Engagement

The City recognized not all community members were able to attend public meetings and conducted public engagement through social media and online platforms. The Steering Group set up an information page on the City's website as a simple one-stop location for community members to learn about the LHMP. This information page was provided in Spanish and English to engage more members of the community. The page included information about what an LHMP is and why the City was preparing one. It had links to materials and plan documents as they became available and notified members of the public about upcoming events.

The Steering Group also used social media accounts, such as Facebook, Instagram, Twitter, and NextDoor to send quick notifications or bursts of information about the Plan and the development process.

A central part of the online engagement was an online survey. This survey was provided in both Spanish and English and asked community members about their experience and familiarity with emergency conditions, their level of preparedness for future emergencies, and preferred actions for the City to take to increase resiliency in Lake Forest.

The survey had responses from 239 community members. Those responses are summarized here:

- Wildfire was the hazard of greatest concern to the largest number of respondents, followed by earthquakes.
- Approximately 46% of respondents have been affected by a disaster in their current home, and 89% of these respondents reported being impacted by wildfire.
- Most respondents listed active shooter incidents and long-term power outages as their top two concerns for manmade hazards.

- The top three public education community events requested by the City were as follows: Disaster Preparedness Education, CPR Training, and Community Emergency Response Team (CERT) Training.
- 80% of survey participants expressed concern that their neighborhood could be impacted by a disaster.
- Email, NIXLE, television, and the internet were cited as the most effective ways to provide emergency preparation information.
- 53% of survey participants expressed interest in learning more and being involved with the City's Local Hazard Mitigation Plan.

Public Outreach Events

In-person public meetings were a central component of the City's engagement efforts. These meetings provided an opportunity for members of the public to learn about the LHMP in depth—the plan development process, the hazards of concern, the mitigation strategies, and individual actions. At these events members of the public spoke directly to City staff, the City's consultant, and other stakeholders who provided detailed feedback. The City organized several public outreach events including two public meetings. Notification of the outreach events was shared on the City's website, local radio (AM 1690), in social media posts, the City's Spring Leaflet, City e-newsletters, and paper notices. Each event was widely distributed in advance to solicit as much participation as possible.

- **Outreach Event #1 (January 18, 2023):** Steering Group Members provided handouts and an opportunity to participate in the LHMP survey during the annual New Business Reception cohosted by the Chamber of Commerce. Participants learned about the importance of an LHMP, what the Plan would include, and the timeline for developing the Plan.
- **Outreach Event #2 (February 8, 2023):** Flyers with QR code to the survey and an invitation to the community outreach meeting were handed out at a City pop-up booth during the Farmer's Market at the City's Sports Park.
- **Outreach Event #3 (February 22, 2023):** This was a special outreach event held at City Hall during which members of the public learned about the importance of an LHMP, what the Plan would include, and the timeline for developing it. Participants engaged in a hands-on activity and discussion to identify the hazards of most concern. An all-hazards approach was taken and participants submitted their assessment of potential impacts of each hazard back to the planning team.
- **Outreach Event #4 (February 23, 2023):** To ensure a comprehensive community assessment was conducted, City staff and the Consultant provided a presentation explaining the plan, held a Q&A, and provided a survey to senior citizens at the City's Senior Clubhouse. At this event, over 100 members of the public learned about the hazard profiles developed for the plan and were engaged to assess their hazard concerns, assess individual preparedness, and best methods of contact in the event of a disaster. 98 survey responses were received during the presentation.
- **Outreach Event #5 (April 15, 2023):** A Southwest Outreach Event was hosted by the City on April 15, 2023, as part of the City's Neighborhood Improvement Task Force. The event was held at Cavanaugh Park, a central location for stakeholders in the subject neighborhood. Flyers for the survey were distributed to approximately 40 residents who attended the event.
- **Planning Commission Meeting (TBD)**
- **City Council Meeting (TBD):**

Additional Engagement Conducted

Additional efforts were conducted by the Steering Group to bring awareness and solicit as much participation from the community as possible. These included:

- Physical flyers in Spanish and English distributed for posting on bulletin boards at City Hall, Foothill Ranch Public Library, El Toro Public Library, Lake Forest's Sports Park Recreation Center, and 15 Spanish owned/speaking businesses.
- Digital flyers sent to current and past Sheriff's Team of Active Retired Seniors (STARS) classes, current and past Community Emergency Response Team (CERT) classes, and over 80 Lake Forest homeowners associations (HOAs).
- Internal email campaign to 146 personnel to encourage City Staff engagement.
- The Plan and details were featured in the City's March 2023 E-Newsletter with over 7k subscribers which was also accessible on the City's website. https://www.lake-forest.360civic.com/en/departments/community-services/programs/city-publications
- City Manager's message in the Leaflet Spring 2023 edition. The Leaflet is an official publication of the City of Lake Forest and is distributed as a public service to over 35,000 Lake Forest homes and businesses. The Leaflet and Spring Recreation Guide 2023 | Lake Forest, CA - Official Website (lakeforestca.gov)
- Ongoing radio outreach ad on AM 1690 featured across the City.
- Announcement in the Mayor's State of the City presentation, which was attended by community members and local business owners, as well as other stakeholders. The presentation was shared on social media and is available on the City's website and YouTube channel. 2023 State of the City - Magic of Lake Forest | Lake Forest, CA - Official Website (lakeforestca.gov) https://youtu.be/dmFPlwl2OaQ?t=346

Appendix B contains copies of all materials used for public outreach, including the full results of the community survey.

PUBLIC REVIEW DRAFT

On October 11, 2023, the City released a draft copy of the LHMP for a 2-week public review and comment period with a closing date of October 27, 2023. The document was posted electronically on the City's website. The City distributed notifications about the public review draft through the city website, social media accounts, radio station and Home Owner Associations in the City.

PLAN REVISION AND ADOPTION

After the public review stage, the Steering Group revised the Plan and submitted it to Cal OES and FEMA. Once Cal OES and FEMA completed their review, the Steering Group made additional adjustments based on comments from state and federal agencies. The final draft was then presented to the City decision-makers. The City of Lake Forest City Council adopted the final LHMP on 03 September 2024. **Appendix C** contains a copy of the adoption resolution.

PLAN RESOURCES

During the LHMP preparation and development, several other documents were reviewed to ensure consistency in planning efforts. Information from the following documents has been incorporated throughout this plan: the City's Emergency Operations Plan, General Plan (specifically, the City's Safety and Housing Elements of the General Plan), Storm Water Management Plan, the Strategic Business Plan, and the Community Wildfire Protection Plan.

Reviewing the various methodologies used in these plans compared to the methodology in the LHMP was useful in evaluating the risk and impact associated with each hazard. Other plans and documents provided base level data, either for statistical purposes or based on scientific research surrounding potential hazard impacts in the City. Finally, state, and other local hazard mitigation plans were reviewed to evaluate format and content. Some of the key documents, reports, and studies reviewed by the Steering Group are depicted in the **Table 1** below:

Table 1: KEY RESOURCES FOR PLAN DEVELOPMENT

Section	Key Resources	Example Uses
Multiple sections	• Cal-Adapt • California Geological Survey • California State Hazard Mitigation Plan • City of Lake Forest General Plan • FEMA Local Hazard Mitigation Plan Guidance • National Oceanic and Atmospheric Administration • National Weather Service • United States Geological Survey • US Census Bureau 2017-2021 American Community Survey	• Science and background information on different hazard conditions • Records of past disaster events in and around Lake Forest • Current and anticipated climate conditions in and around Lake Forest • Projections of future seismic conditions and events
Community Profile	• City of Lake Forest financial and economic reports • California Energy Commission • El Toro Water District • Trabuco Canyon Water District • Irvine Ranch Water District	• Demographic information for Lake Forest • History of the region • Economic trends in Lake Forest • Commute patterns in Lake Forest • Local land uses patterns • Background information on utilities serving Lake Forest
Hazard Assessment (Drought)	• California Department of Water Resources • US Drought Monitor • Western Regional Climate Center	• Science and background information of extreme weather events. • Historical record of extreme weather events in and around Lake Forest
Hazard Assessment (Flood)	• FEMA Map Service Center • Orange County Flood Control District	• Records of past flood events in and around Lake Forest • Locations of flood-prone areas in Lake Forest
Hazard Assessment (Earthquake)	• Southern California Earthquake Data Center	• Locations of fault zone • Records of past earthquakes
Hazard Assessment (Wildfire)	• California Department of Forestry and Fire Prevention	• Records of past fire events • Location of fire hazard zones in and around Lake Forest

Note: Sections that are not individually called out in this table relied primarily on sources identified in multiple

CHAPTER 2
COMMUNITY PROFILE

This chapter of the LHMP is a summary of the City with information about the community's physical setting, history, economy and demographics, current and future land uses, and key infrastructure. The Community Profile establishes the baseline conditions that inform the development of the hazard mitigation actions in **Chapter 5**.

OVERVIEW

Prior to incorporation, the City of Lake Forest was known as "El Toro". It was established in 1863 as an agricultural area and served as a stagecoach stop between San Diego and Los Angeles. The community flourished, being quintessential in bringing the Santa Fe Rail Line through the region and later establishing El Toro Road at the I-5 freeway - the epicenter of the Saddleback Valley.

In 1991, residents chose to incorporate the City, renaming it "Lake Forest". Nine years after its incorporation, the City expanded its limits to the northeast to include the Foothill Ranch and Portola Hills neighborhoods, bringing additional homes and business centers into the City. The City's name was inspired by its two man-made lakes, as well as around 400 acres of eucalyptus trees tucked alongside Ridge Route Drive, which serves as the "forest".

Today, the City is home to over 30 parks, and several corporate headquarters of fashion, technology, and restaurant industries. The City offers a wide range of municipal services to its 85,000-plus citizens. Many services are contracted by the City, including law enforcement, which is provided by the Orange County Sheriff's Department, and fire services which is provided through the Orange County Fire Authority.

GEOGRAPHY AND ENVIRONMENT

The City is located in southeast Orange County, in an area known as the Saddleback Valley, and is nestled up against the foothills of the Santa Ana Mountain range to the east and the Pacific Ocean approximately 8 miles to the west. The City is 16.8 square miles in size and is bordered by the cities of Irvine to the west, Laguna Hills and Laguna Woods to the south, Mission Viejo to the east, and unincorporated Trabuco Canyon to the northeast, and Modjeska Canyon and Limestone Canyon Regional Park to the north. Interstate 5 traverses the southwestern edge of the City.

The City sees an average annual rainfall of 14 inches and a humidity of 4 percent. The City enjoys an average summer high temperature of 83 degrees, a winter average high of 67 degrees, and rarely dips below 40 degrees. These averages are facilitated through the City's average elevation of 489 feet as reported by the USGS, its close proximately to the Pacific Ocean, and its abundance of open space, parks and trails.

DEMOGRAPHICS

The data used in this section comes from the American Community Survey (ACS), administered by the United States Census Bureau (US Census), completed in 2021. Based on this dataset, Lake Forest's population was estimated to be 85,742 with a median age of 39, one year younger than the average median age in Orange County. **Table 2** (below) shows the basic demographics of the City, which has gained on average 900 residents annually over the past 10 years.

The latest data depicts a diverse community, as shown in **Tables 2** and **3** below.

Table 2: BASIC DEMOGRAPHICS

Percentage of Total Lake Forest Population	
Persons under 5 years	6.4%
Persons under 18 years	21.4%
Persons between 18 - 65	58.7 %
Persons 65 years and over	13.5%
Source: US Census Bureau 2021	

Table 3: POPULATION BY RACE

Percentage of Total Lake Forest Population	
Non-Hispanic White	54.0%
Hispanic of any race	24.5%
Non-Hispanic Asian	15.4%
Non-Hispanic Black	1.8%
All Other Non-Hispanic Races	4.3%
Source: US Census Bureau 2021	

32.98% of City residents are bilingual, speaking both English and at least one other language. The remaining 67.02% of residents speak only English. Among those who are bilingual, the largest group, constituting 15.27% of the population, speaks Asian and Pacific Island languages, while Spanish is spoken by 15.05% of the population.

In 2021, the U.S. Census Bureau estimated that 11.81% of the noninstitutionalized population in the City was living with a disability. This percentage increases among the older population, with nearly 41.5% of the population 65 and older having some form of disability **Table 4** contains amplifying details that were considered during the planning process.

Table 4: DISABILITY POPULATION

Percentage of Total Lake Forest Population	
Persons under 20	5.5%
Persons 21-64	13.0%
Persons over 64	41.5%
Ambulatory	3.0%
Cognitive	2.4%
Vision	0.9%
Hearing	2.5%
Source: US Census Bureau 2021	

Note the percentages provided in Table 4, sourced from the U.S. Census Bureau, may not sum to exactly 100% due to rounding errors, statistical imprecision, or the possibility of respondents being able to select multiple categories.

ECONOMY AND PATTERNS

The City has a diverse mix of industries, including fashion, healthcare, technology, retail, and manufacturing. The largest employer in the City is Oakley Inc., a sports performance equipment and lifestyle company employing 1,275 people as of 2022. Other major employers include Cox Communications, Wal-Mart, and Kawasaki Motors Corp., U.S.A.

Commuting patterns in the City are largely influenced by the City's location within Orange County, which is known for its extensive freeway system. Many residents commute to other cities within the County for work. The average commute time for residents is around 27 minutes, slightly lower than the national average.

LAND USES & DEVELOPMENT TRENDS

Lake Forest has experienced significant growth and development in recent decades. The City has a diverse mix of land uses including residential, commercial, and industrial, and a focus on creating a balanced and sustainable community.

Residential development in the City consists primarily of single-family homes, multi-family homes, and apartments. Over the past decade, the City has undergone residential development of over 800 acres as part of the Opportunities Study[1] and 126 acres of the Meadows Residential Community subdivision. Other residential developments, including a 71-unit affordable housing project (Mountain View), have increased housing opportunities in the City. Five focus areas, recently rezoned to mixed-use as part of the City's 2040 General Plan update, are also anticipated to accommodate future residential development.

Commercial development in Lake Forest is focused on several shopping centers and retail districts located along the City's major corridors El Toro Road, Lake Forest Drive, and the 241 Toll Road. The Orchard at Saddleback, El Toro Square, Heritage Hill, and the Foothill Ranch Towne Centre are a few of the commercial centers within the City.

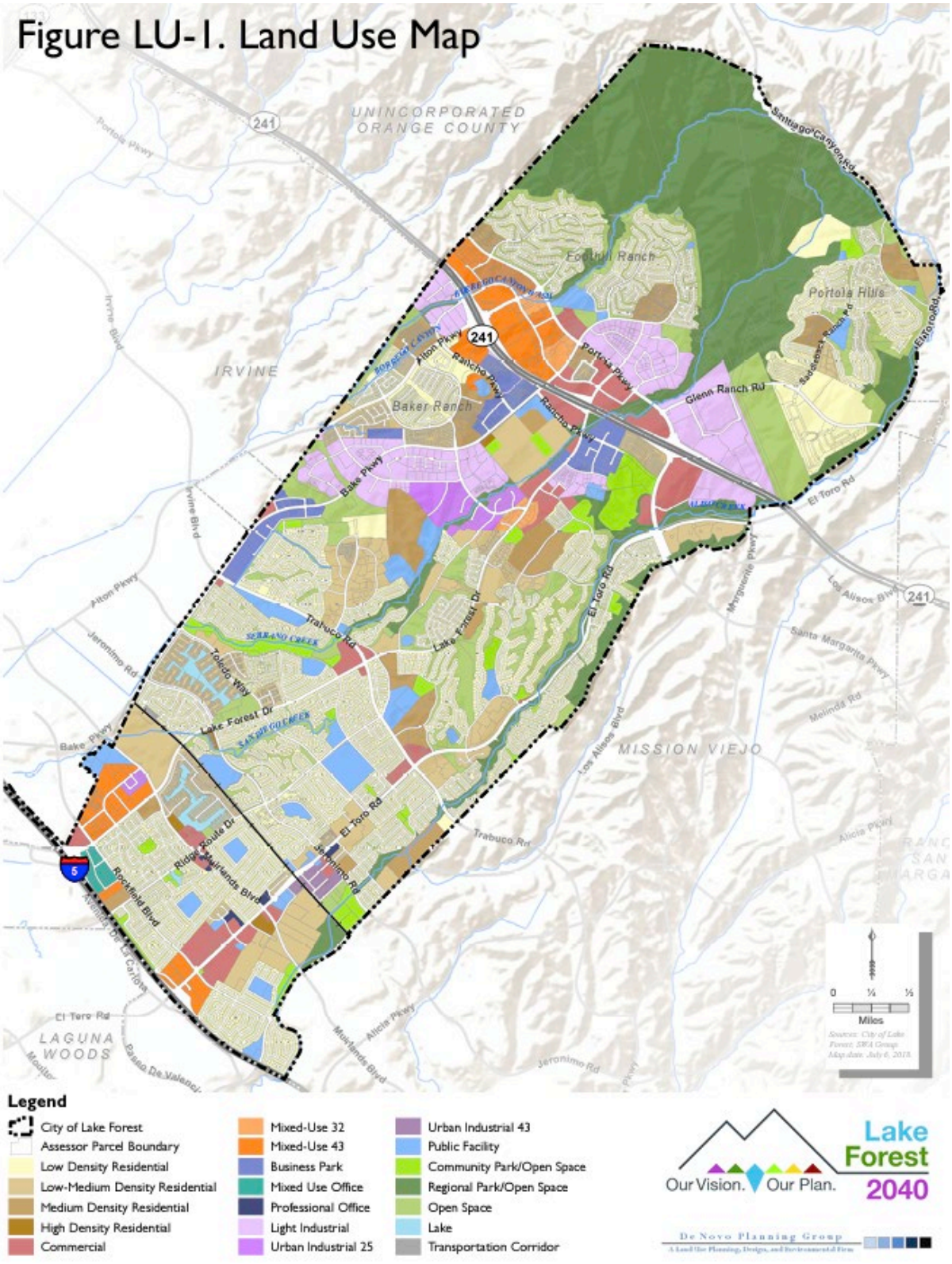
Industrial development in the City is primarily focused on the manufacturing and technology

[1]Opportunities Study: The City's comprehensive planning process to transition acres across 5 properties from business and industrial to residential, paving the way for amenities such as a sports park and community center.

sectors. The City is home to several major corporations, including Kawasaki Motors Corp. USA and Apria Healthcare, and has a number of industrial parks and office complexes.

Figure 1 depicts the land use designations in the City.

Figure 1 - Existing Land Use Map



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INFRASTRUCTURE ASSESSMENT

Maintaining key infrastructure networks in the City, as well as external partners supporting the community, is crucial. Any damage to these networks can result in additional hazards, such as a burst water tank causing flooding or downed power lines leading to a fire.

ELECTRICITY

The City is powered by Southern California Edison (SCE), which is the primary electricity supplier for much of Southern California. SCE is responsible for the ownership, maintenance, and operation of the power transmission and distribution infrastructure that serves the City. This infrastructure includes a complex system of power lines, transformers, and substations that work together to deliver electricity to homes, businesses, and other facilities in the area.

Substations are a critical component of the electrical grid infrastructure, as they play a key role in transforming the voltage of the electricity to a level that can be safely and efficiently distributed to homes and businesses. There are several substations located near Lake Forest that are owned and operated by SCE, as well as one within the City limits. These substations are responsible for regulating the flow of electricity, controlling voltage levels, and preventing power outages in the area.

Substations serving the City area include the Portola Substation located in nearby Irvine, the El Toro Substation located just outside of the City limits, the 220/66/12 kilovolt (kV) substation (Viejo Substation) on a 12.5-acre site located in the City of Lake Forest supported by a 3.1-mile 66 kV sub-transmission line along the corridor between the Viejo Substation, and the Chiquita Substation located in the City of Mission Viejo.

NATURAL GAS

Southern California Gas Company (SoCalGas) is the provider of natural gas service in the City. According to So Cal Gas, there is a significant transmission line running parallel to and in between Jeronimo Road and Muirlands Boulevard in the northwesterly part of the City, with no other major pipelines in the area. However, it is important to note that damage to the transmission line or facilities in neighboring communities may impact the natural gas service in the City. Due to the potential flammability and combustibility of natural gas, incidents such as a pipeline rupture or sparks near natural gas can lead to serious consequences, such as fire or explosion.

WATER AND WASTEWATER

The City relies on robust and reliable water and wastewater infrastructure to support the needs of its residents, businesses, and visitors. This infrastructure is comprised of a complex network of pipes, pumps, treatment plants, and storage facilities designed to collect, treat, and distribute water and wastewater throughout the City.

Water Infrastructure: The primary water supply for the City is processed at the Baker Water Treatment Plant, a facility operated by the Irvine Ranch Water District (IRWD) with a daily capacity of 28.1 million gallons. This plant, a joint regional facility serving the Santa Margarita Water District (SMWD) and four South Orange County water districts, enhances water supply reliability, quality, and local control. Since its launch in January 2017, the plant has effectively treated, processed, and distributed water at a cost lower than imported treated water, highlighting its cost-effectiveness and efficiency.

The City is primarily reliant on imported water from the Municipal Water District of Orange County, and the Metropolitan Water District also runs a pipeline through the City. The City has multiple water districts

- IRWD, El Toro Water District (ETWD), and Trabuco Canyon Water District (TCWD). IRWD manages approximately 3/4 of the City's water supply, while about 1/4 is served by ETWD, which also uses imported water.

The IRWD operates the City's water distribution system, which includes over 300 miles of pipes, storage tanks, and pumping stations. This system delivers water to more than 20,000 customers, including residential, commercial, and industrial users.

The City also uses recycled water from IRWD for various purposes. Several parks, parkways and common landscape areas in the City use recycled water, and IRWD has significant infrastructure for recycled water operating within the City.

Wastewater Infrastructure: The City's wastewater infrastructure prioritizes efficiency and cost-effectiveness through advanced technology in water treatment and recycling. The Los Alisos Water Recycling Plant (LAWRP), operating since 1964, has undergone numerous upgrades, increasing its recycled water production capacity to 7.5 million gallons per day. Recycled water accounts for over a quarter of the district's water demands and conserves drinking water resources.

The wastewater at LAWRP undergoes a multi-step process, resulting in tertiary recycled water suitable for non-potable uses. These processes include coagulation, flocculation, clarification, filtration, and sodium hypochlorite disinfection. In addition to LAWRP, the El Toro Water District Water Recycling Plant also serves the City, representing a significant portion of the City's water and wastewater lines.

TRANSPORTATION

Lake Forest has a well-established transportation system that utilizes several major highways to provide convenient access to other cities and regions in Southern California. The primary highways serving Lake Forest include Interstate 5 and State Route 241.

Interstate 5, the primary north-south interstate highway on the West Coast of the United States, runs along and parallel to the southwestern edge of the City. Northbound lanes provide quick access to nearby cities such as Irvine, Santa Ana, and Anaheim, as well as the greater Los Angeles metropolitan area. Southbound lanes provide access to Mission Viejo, San Juan Capistrano, Dana Point and San Clemente, as well as Marine Corps Base Camp Pendleton and the City of San Diego. State Route 241 is a toll road that connects from State Route 91 and runs from the eastern edge of Orange County to Rancho Santa Margarita and provides a convenient alternative to I-5 for commuters and travelers looking to avoid traffic congestion.

Lake Forest is also served by a network of local roads and streets that provide access to neighborhoods, commercial areas, and public facilities. The Orange County Transportation Authority (OCTA) provides public transit services in the City and the surrounding areas. This includes bus routes and paratransit services that connect the City to other parts of Orange County.

The City is also connected through the Southern California Regional Rail Authority's Metrolink system, which operates intercity passenger trains throughout the region. The nearest Metrolink station to Lake Forest is the Irvine Station, located approximately 7 miles northwest of Lake Forest. This rail network is shared with the BNSF Railway, which manages freight traffic, enhancing the City's connection to various commercial transportation networks. The closest major airport is John Wayne Airport, located in nearby Santa Ana.

CHAPTER 3
HAZARD ASSESSMENT

This chapter discusses the types of hazards that might reasonably happen within the City. It describes these hazards and how they are measured, provides a history of these hazards in and around the City, identifies where they may occur, and discusses the risks they pose. The discussion of risks include any changes to the frequency, intensity, and/or location of these hazards as a result of climate change. This chapter also discusses how the Working Group identified and prioritized the hazards in this Plan. The prioritization was accomplished through a series of meetings involving the broader group, wherein open discussions were conducted among all Working Group members in a virtual setting. Various factors were considered in the decision-making process, including public concerns expressed through surveys, historical data, subject matter expert opinions, hazardous events impacting neighboring communities, and additional information contributed by the members.

HAZARD IDENTIFICATION & SCORING

FEMA guidance identifies a number of hazards communities should evaluate for inclusion in a hazard mitigation plan. Communities may also consider additional hazards for their plans. The Working Group reviewed an extensive list of hazard events and excluded the ones that pose the least threat or are assessed to have the lowest probability of impact from the LHMP. **Table 5** below indicates the hazards discussed and their ranking measured on the Hazard Matrix.

The following criteria, based on historical and recent events, were used to determine the rating of each potential hazard, validating their frequency and impacts:

Probability

- Likely: There may or may not have been historic occurrences of the hazard in the community or region, but experts feel that it is likely that the hazard will occur in the community. Between 10% and 100% annual probability.
- Possible: There may or may not have been a historic occurrence of the hazard in the community or region, but experts feel that it is possible the hazard could occur in the community. Less than 10% annual probability.
- Unlikely: There have been no historic occurrences of the hazard in the community or region and experts agree it is highly unlikely that the hazard will occur in the community. Less than 1% annual probability.

Impact

- High: Catastrophic/Critical. The consequences will be significant in terms of building damage and loss of life.
- Moderate: Limited. The consequences are thought to be modest in terms of building damage and loss of life, limited either in geographic extent or magnitude.
- Low: Negligible. Little building damage and trivial impact to infrastructure and critical facilities.

Table 5: 2023 WORKING GROUP HAZARD MATRIX

		Probability of Occurrence		
Impact and Extent		**Likely**	**Possible**	**Unlikely**
	High	• Wildfires	• Earthquake	• Epidemic / Infectious Disease
	Moderate	• Floods • Drought • Climate Change • Hazmat / Radiological Incident	• Slope Failure / Landslides • Utility Resource Destruction	• Terrorism • Contamination • Technology Disruption
	Low	• Extreme Temperature	• Severe Storms	• Rail Incident • Civil Unrest / Protest / Riots • Aircraft Incident • Transportation Disruption

The Working Group reviewed the results of the January 2023 Hazard Assessment, along with the Community Hazard & Risk Assessment Survey, and developed the following list of natural hazards for inclusion in the 2023 LHMP:

- Wildfires
- Earthquakes
- Floods
- Drought
- Slope Failure/Landslides

The Steering Group then followed FEMA guidance for hazard mitigation plans and prioritized each of the five hazards. A score of 1 to 4 was assigned to four criteria for each of the five hazards. The four criteria are:

- **Probability**: the likelihood that the hazard will occur in Lake Forest in the future.
- **Location**: The size of the area that the hazard would affect.
- **Maximum probable extent**: The severity of the direct damage of the hazard to Lake Forest.
- **Secondary impacts**: The severity of indirect damage of the hazard to Lake Forest.

The Steering Group assigned a weighting value to each criterion, giving a higher weight to the criteria deemed more important, and multiplied the score for each criterion by the weighting factor to determine the overall score for each criterion. The weighting values were recommended by FEMA:

- **Probability**: 2.0
- **Location**: 0.8
- **Maximum probable extent**: 0.7
- **Secondary impacts**: 0.5

Table 6 shows the rubric used to assign a score for each criterion.

Table 6: CRITERION SCORING

Probability		**Maximum Probable Extent (Primary Impact)**	
The estimated likelihood of occurrence based on historical data.		*The anticipated damage to a typical structure in the community.*	
Probability	Score	Impact	Score
Unlikely—less than a 1 percent chance in a given year.	1	Weak—little to no damage	1
Occasional—a 1 to 10 percent chance in a given year.	2	Moderate—some damage, loss of service for days	2
Likely—a 10 to 90 percent chance in a given year.	3	Severe—devastating damage, loss of service for months	3
Highly likely—more than a 90 percent chance in a given year.	4	Extreme—catastrophic damage, uninhabitable conditions	4
Location		**Secondary Impact**	
The projected area of the community affected by the hazard.		*The estimated secondary impacts to the community at large.*	
Affected Area	Score	Impact	Score
Negligible—affects less than 10 percent of the planning area.	1	Negligible—no loss of function, downtime, and/or evacuations	1
Limited—affects 10 to 25 percent of the planning area.	2	Limited—minimal loss of functions, downtime, and/or evacuations	2
Significant—affects 25 to 75 percent of the planning area.	3	Moderate—some loss of functions, downtime, and/or evacuations	3
Extensive—affects more than 75 percent of the planning area.	4	High—major loss of functions, downtime, and/or evacuations	4

After calculating the overall score for each criterion for each hazard, the scores for location, maximum probable extent, and the secondary impact were summed to determine the total impact score for each hazard. FEMA guidance recommends multiplying the total impact score by the overall probability score to determine the final score for each hazard. A final score between 0 and 12 is considered a low-threat hazard, 12.1 to 42 is a medium-threat hazard, and a score above 42 is considered a high-threat hazard. This final score determines the prioritization of the hazards. Table 7 shows the individual criterion scores, the final score, and the threat level for each hazard based on the above prioritization process.

Table 7: HAZARD SCORE AND THREAT LEVEL

Hazard	Probability (2.0)	Impact (2.0)			Final Score	Threat Level
		Location (0.8)	Primary Impact (0.7)	Secondary Impact (0.5)		
Wildfire	4 (Highly Likely)	4 (Extensive)	4 (Extreme)	4 (High)	64	High
Earthquake	3 (Likely)	4 (Extensive)	4 (Extreme)	4 (High)	48	High
Drought	4 (Highly Likely)	4 (Extensive)	3 (Severe)	4 (High)	44	High
Flood	4 (Highly Likely)	2 (Limited)	3 (Severe)	4 (High)	36	Medium
Landslide and Mudflow	3 (Likely)	2 (Limited)	4 (Extreme)	4 (High)	30	Medium

The following information details each of the five natural hazards addressed in the LHMP, their effect on the City in the past, and the portion of the City's population, infrastructure, and environment that has been historically vulnerable to each specific hazard, based on available data.

HAZARD PROFILES

WILDFIRE

Description

California experiences large, destructive wildfires almost every year and the City is no exception. Wildfires have occurred throughout the county, ranging from small, localized fires to disastrous fires covering thousands of acres.

Wildfires burn primarily in undeveloped and natural spaces and are a common part of ecosystems across California. These fires assist in removing brush and debris from natural environments and are essential for the health of many ecosystems and the life cycles of numerous species. However, it has been standard practice since the early twentieth century to suppress naturally occurring fires in wilderness regions. This practice of suppressing fires has caused dry plant materials and other fuels to accumulate.

Simultaneously, human activity has altered the buffer zone between developed and undeveloped regions, known as the wildland-urban interface (WUI). The natural environment of a WUI may make these zones particularly appealing locations to live in. WUIs have become developed in many regions of California, albeit at lower densities than fully urbanized areas. This building activity, however, has drawn more people into wildfire-prone areas. Because of the abundance of fuel and the rising incursion into the WUI, wildfires have become one of the most prevalent and hazardous dangers in California.

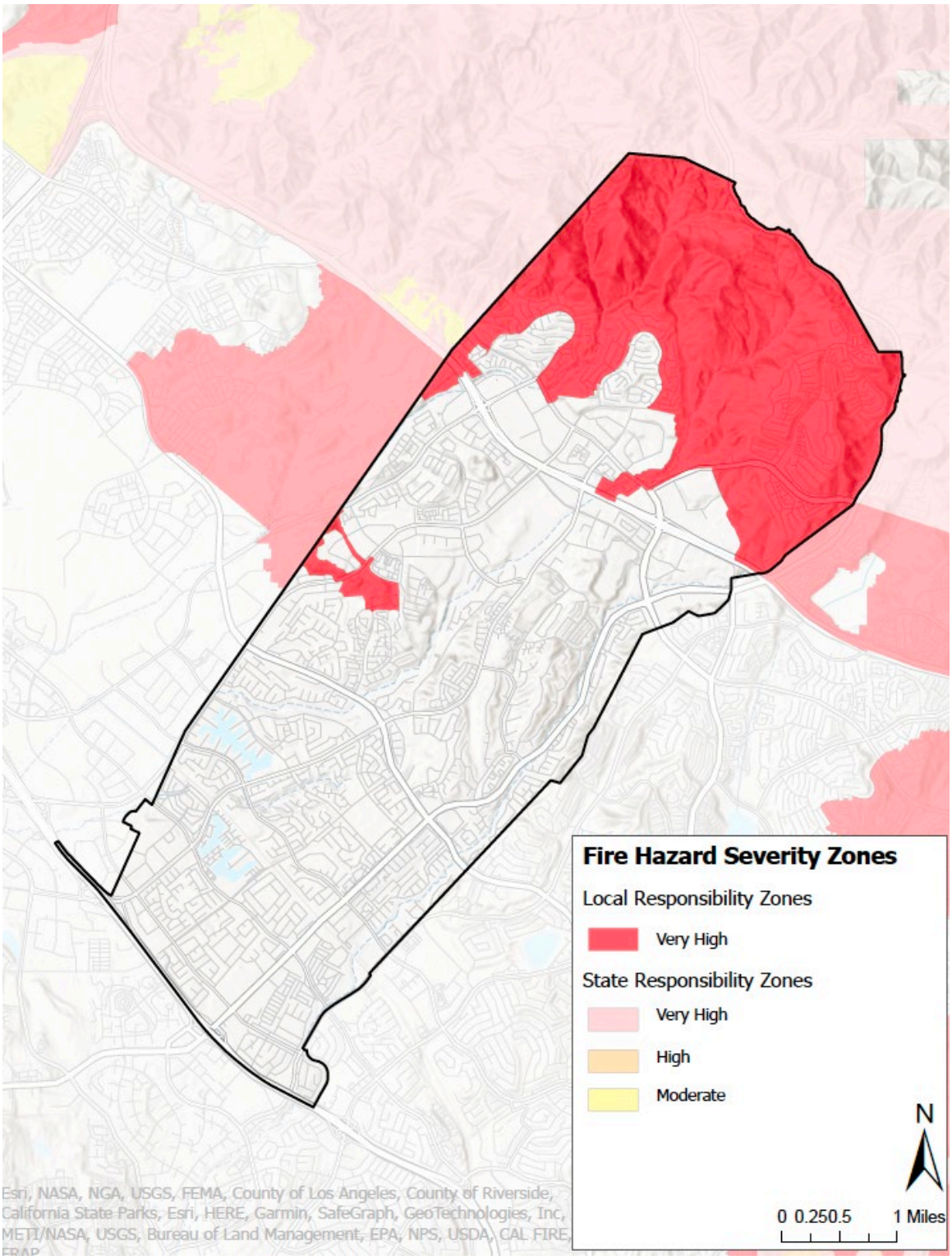
Wildfires, unlike the other natural catastrophes, can be started by either natural or man-made causes. Wildfires can be sparked by lightning, accidents, or arson. The extent and intensity of every fire is determined by the availability of fuel, meteorological conditions, and geography. Wildfires in the WUI do not have to be enormous to be destructive. Wildfires pose major threats to property and life. Smoke and other particulate matter from wildfires are hazardous to one's health, even to those not in proximity of the burn area. Because flames remove the vegetation that slows water flow and keeps slopes stabilized, burned regions may be more vulnerable to flooding and landslides.

Location and Extent

Wildfires are not measured on a precise scale, but rather by magnitude (e.g., acres burnt) or impact (buildings destroyed or damaged, injuries or deaths, cost of damage, etc.). Wildfire risk is graded on a three-tier scale of fire hazard severity zones (FHSZs): extremely high, high, and moderate. These classifications do not correlate to a precise danger or severity of fire but are more qualitative phrases that take into account a variety of elements. The agency in charge of fire prevention also classifies fire-prone locations. Federal Responsibility Areas (FRAs) are managed by federal organizations such as the US Forest Service, the Bureau of Land Management, and the National Park Service.

The terrain of the City's San Joaquin Hills and Santa Ana Mountain foothills is highly susceptible to wildfires. Directly northeast of the City, there are natural, undisturbed hillsides/mountains. To the southwest of the City, there are open space regions. The majority of the City is situated between these two areas. Cal FIRE has labeled most of these untouched areas as Very High Fire Hazard Severity Zones (VHFHSZ). This zone covers the Santa Ana Mountain range located in the northeastern part of the City, as shown in **Figure 2**.

Figure 2 - Very High Fire Hazard Severity Zones



PAST EVENTS

Santiago Canyon Fire – On October 21, 2007, a wildfire, set by an unidentified arsonist, began in the foothills north of Irvine and spread towards the areas to the east of the City of Orange. The fire consumed more than 28,000 acres, destroyed 32 structures, and damaged 12 others, with no fatalities reported. Notably, the fire reached the backyards of residences in Foothill Ranch and Portola Hills, but no homes were lost in these communities.

Holy Fire – The Holy Fire began on August 6, 2018, in the Holy Jim Canyon area of the Cleveland National Forest as a result of arson. This fire ravaged over 23,000 acres and destroyed 24 structures. Thousands of residents in the City were forced to evacuate and although there were no major injuries reported, its impact was felt on Lake Forest and the surrounding communities.

Silverado Fire [2]– On October 26, 2020, a fire began in the City of Irvine when a lashing wire in one of Southern California Edison's telecommunications lines sparked. The fire quickly spread, burning thousands of acres of brush and chaparral, eventually reaching nearly 13,000 acres and forcing thousands of residents to evacuate. The fire caused significant damage, destroying at least 5 structures and injuring several people.

Bond Fire – In December of 2020, the Bond Fire burned nearly 7,500 acres in the Santiago Canyon area and destroyed more than 30 structures. The fire began from an explosion at a home with an electric generator, which had propane tanks stored nearby. The fire necessitated the evacuation of 25,000 residents and injured two firefighters.

Hazard Declarations – Between 1991 and 2023, the State of California was included in 278 wildfire-related federal DR, EM, Farm Service Agency (FSA), or fire management (FM) declarations. Generally, these disasters cover a wide region of the state; therefore, they may have impacted many counties. Orange County was included in seventeen of the federal declarations for California, therefore the City has been included in nine declarations (FEMA 2023); refer to **Table 8**.

Table 8: WILDFIRE DECLARATIONS INCLUDING ORANGE COUNTY BETWEEN 1991 AND 2023

Designation Number	Date Declared	Event Name
DR-1005-CA	October 28, 1993	California Fires, Mud & Landslides, Soil Erosion, Flooding
EM-3120-CA	October 23, 1996	California Severe Fires
FSA-2405-CA	May 14, 2002	California Antonio Fire
FM-2630-CA	February 06, 2006	California Sierra Fire
EM-3279-CA	October 23, 2007	California Wildfires
DR-1731-CA	October 23, 2007	California Wildfires
FM-2683-CA	March 11, 2007	California 241 Fire
FM-2737-CA	October 22, 2007	California Santiago Fire
DR-1810-CA	November 18, 2008	California Wildfires

[2] There was another significant fire named the "Silverado Fire" that occurred in 2014, which also impacted Orange County. However, limited data is available regarding its effects and aftermath.

FM-2792-CA	November 15, 2008	California Freeway Complex Fire
FM-5213-CA	September 26, 2017	California Canyon Fire
DR-4344-CA	October 10, 2017	California Wildfires
FM-5268-CA	August 09, 2018	California Holy Fire
FM-5380-CA	October 26, 2020	California Silverado Fire
FM-5381-CA	October 26, 2020	California Blue Ridge Fire
FM-5383-CA	December 03, 2020	California Bond Fire
FM-5439-CA	May 12, 2022	California Coastal Fire
Source: FEMA 2023		

RISK OF FUTURE EVENTS

The likelihood of a wildland fire threat in the City and Orange County rises in direct proportion to the number of buildings developed in the WUI. Over time, the expanding population encroaches higher into the foothills. The expanded "interface" between urban/suburban areas and open spaces generated by new development has resulted in a major increase in fire hazards to life and property, as well as challenges to the design and capability of fire prevention systems.

The extensive history of wildfires in Orange County, as well as the presence of VHFHSZs in and around the City, underscores the tangible risk of similar incidents in the future. The immediate risk highest in the foothills of the Santa Ana Mountains and San Joaquin Hills. These areas are prone to wildfires due to their ideal conditions such as vegetation type, terrain, and climate.

CLIMATE CHANGE CONSIDERATIONS

Climate change exacerbates the risk of wildfires in the City through various mechanisms. The rise in temperatures associated with climate change is anticipated to lead to more frequent and severe drought conditions. This will likely result in greater amounts of dry plant matter available as fuel, heightening the susceptibility to wildfires statewide. Additionally, climate change may lead to an increase in the frequency of lightning strikes, a well-known ignition source for wildfires.

The City is situated in a region of Southern California that is known for Santa Ana winds. Santa Ana winds are a type of hot and dry wind that typically blows in Southern California during the fall and winter months. The winds are characterized by their strong and gusty nature and their ability to rapidly dry out vegetation, increasing the risk of wildfires. The winds are caused by high-pressure systems that develop over the Great Basin and flow towards the coast, accelerating and warming as they descend through mountain passes and canyons. Santa Ana winds can reach speeds of up to 80 miles per hour and are often accompanied by low humidity levels, making them a significant hazard to the region.

EARTHQUAKE

Description

An earthquake is the sudden movement of the earth's surface caused by the release of stress accumulated within or along the edge of the earth's tectonic plates, a volcanic eruption, or a manmade explosion. Most earthquakes occur at the boundaries where the earth's tectonic plates meet (faults); less

than 10% of earthquakes occur within plate interiors.

According to the United States Geological Society (USGS) Earthquake Hazards Program, an earthquake hazard is any disruption associated with an earthquake that may affect residents' normal activities. This includes surface faulting, ground shaking, landslides, liquefaction, tectonic deformation, tsunami, and seiches. Ground shaking and liquefaction are the primary causes of earthquake damage to man-made structures.

Ground Shaking: Also known as, "seismic shaking" is the ground shaking caused by an earthquake. Plate tectonics, or the slow shifting of parts of the Earth's surface, causes earthquakes. As the pieces along fault lines travel past each other at a pace ranging from a fraction of an inch to nearly five inches per year, friction causes the portions to "stick" and stress increases. The tension ultimately overcomes the friction that holds the parts together, enabling them to suddenly slide past each other. This quick movement ruptures the fault, resulting in the ground shaking associated with an earthquake.

Faults form at the borders of vast parts of the earth's surface known as plates. This ongoing process of sticking and releasing tension, on the other hand, can deform the plate and generate faults far from the boundaries themselves. The majority of California lies on the North American plate, while the coastal areas south of San Francisco are on the Pacific plate. The major border between these plates is the San Andreas Fault, but additional fault lines can be detected up to 200 miles away. The San Andreas Fault and several other fault lines are responsible for California's regular seismic shaking and other tectonic activity.

Shaking can be powerful enough to cause widespread damage or so mild that only scientific instruments can detect it. The quantity of energy released by the fault rupture (how much of the accumulated tension was released), the length of the rupture (the longer the slide along the fault line, the greater the shaking), and the depth at which the rupture occurs all contribute to the intensity of seismic shaking (ruptures that occur closer to the surface often cause stronger shaking). The locations nearest to the rupture usually suffer the most shaking.

Buildings and structures can be damaged or destroyed by seismic shaking, which can result in partial and complete collapse. Infrastructure on or below the surface, such as roads, rail lines, power lines, and pipelines, can be harmed or destroyed by ground movement. Hazardous material leaks, water line breaks that result in flooding, threats to human and environmental health due to broken wastewater lines, and other dangerous scenarios brought on by infrastructure failure can all arise from this. There is a possibility of fatalities or serious injuries due to falling objects and structures during seismic shaking.

Liquefaction: This transpires when water-saturated, loosely packed material, such as sand or silt, is violently disturbed. The saturated substance behaves less like solid ground and more like a liquid due to the force of the shaking. The danger of liquefaction is influenced by the soil's composition as well as the height of the groundwater table. If the soil is made up of material prone to liquefaction, it may be more likely to occur in locations where the groundwater level is higher due to wetter soil.

For liquefaction to occur, soils must be saturated with water. High water table areas typically have saturated soil because the distance between the shallowest aquifer and the surface is short. Alluvial soils—soft sands, silts, and clays—are similarly prone to liquefaction since they are fine grain and do not bind well together. Any structure built on liquefied earth may sustain damage since it has lost most or all stability. During some liquefaction events, buildings may be destroyed. Utility wires buried in the ground may be damaged or destroyed by liquefied soils. Additional risk considerations are flooding (if water lines are damaged), or fire (if natural gas lines are damaged). Additionally, liquefied soils may cause mudslides.

The risk of liquefaction in Lake Forest is also directly proportional to the likelihood of an earthquake occurring. The City is in close proximity to several local faults[3] that run across Orange County, increasing the possibility of seismic activity. An earthquake along any of these faults has the potential to cause significant ground shaking that can trigger liquefaction in the City.

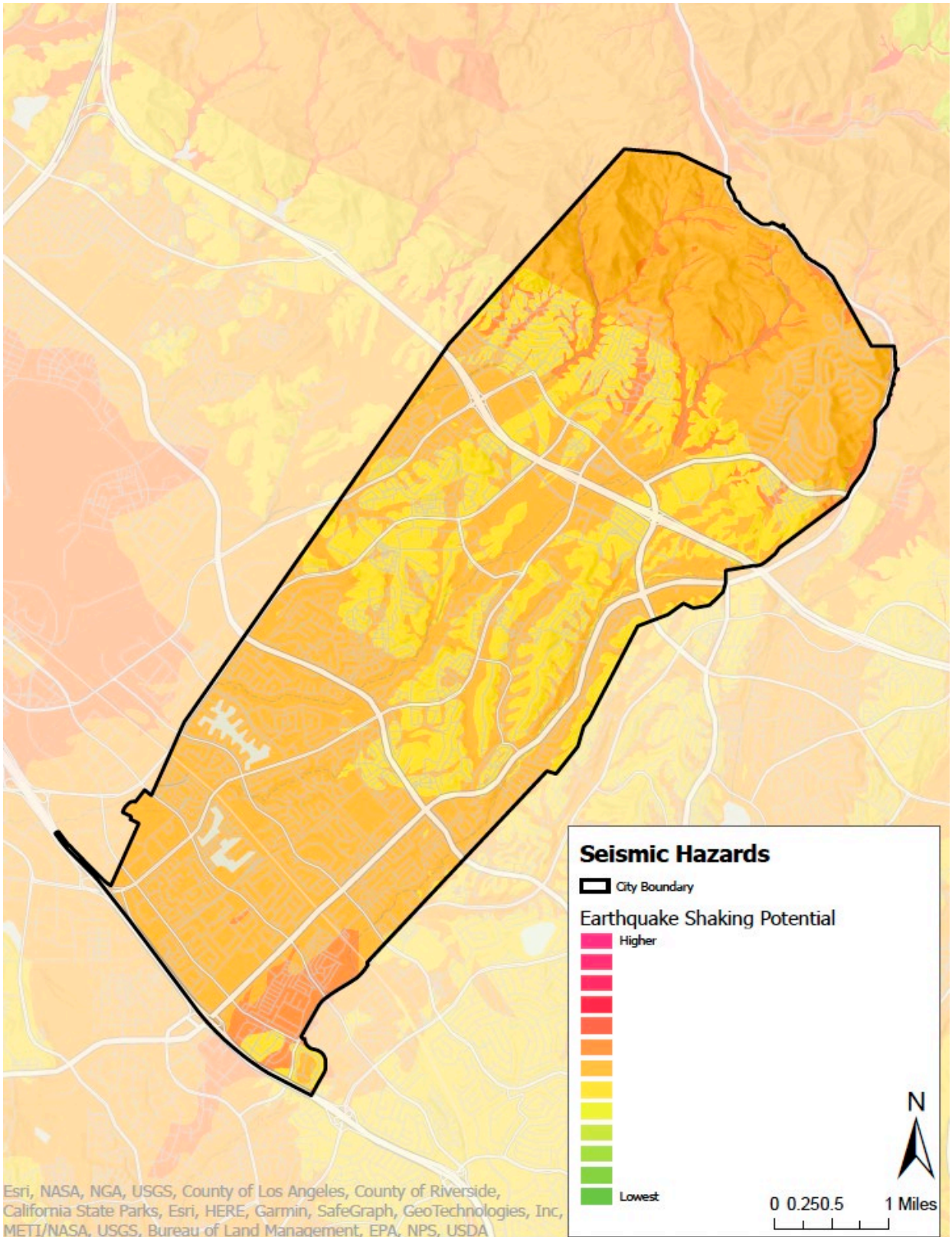
Location and Extent

The magnitude of ground shaking is evaluated by the quantity of energy discharged by the seismic event, which is determined by the length and depth of the fault. The stronger the shaking, the longer and closer the fault rupture is to the surface. In most situations, places closest to the fault rupture experience the most seismic effects, while areas further away experience fewer tremors. Seismic shaking can cause structural damage or destruction, resulting in partial or total collapse. Ground shaking can also damage or destroy subsurface infrastructure or pipelines, potentially resulting in hazardous material spills as well as flooding if water lines burst.

The southern region of California, encompassing Lake Forest, is characterized by considerable seismic activity attributable to substantial geological fault lines. Minor faults, while present in Lake Forest, contribute minimally to the potential for seismic disturbance. **Figure 3** illustrates the pronounced increase in ground shaking potential resultant from other, more significant faults.

[3] Local Faults: According to the USGS, Lake Forest is in close proximity to several significant fault lines that could impact the City. These include the San Andreas, Elsinore, Newport-Inglewood, San Joaquin Hills, Whittier, and Puente Hills Faults.

Figure 3 - Lake Forest Ground Shaking Potential



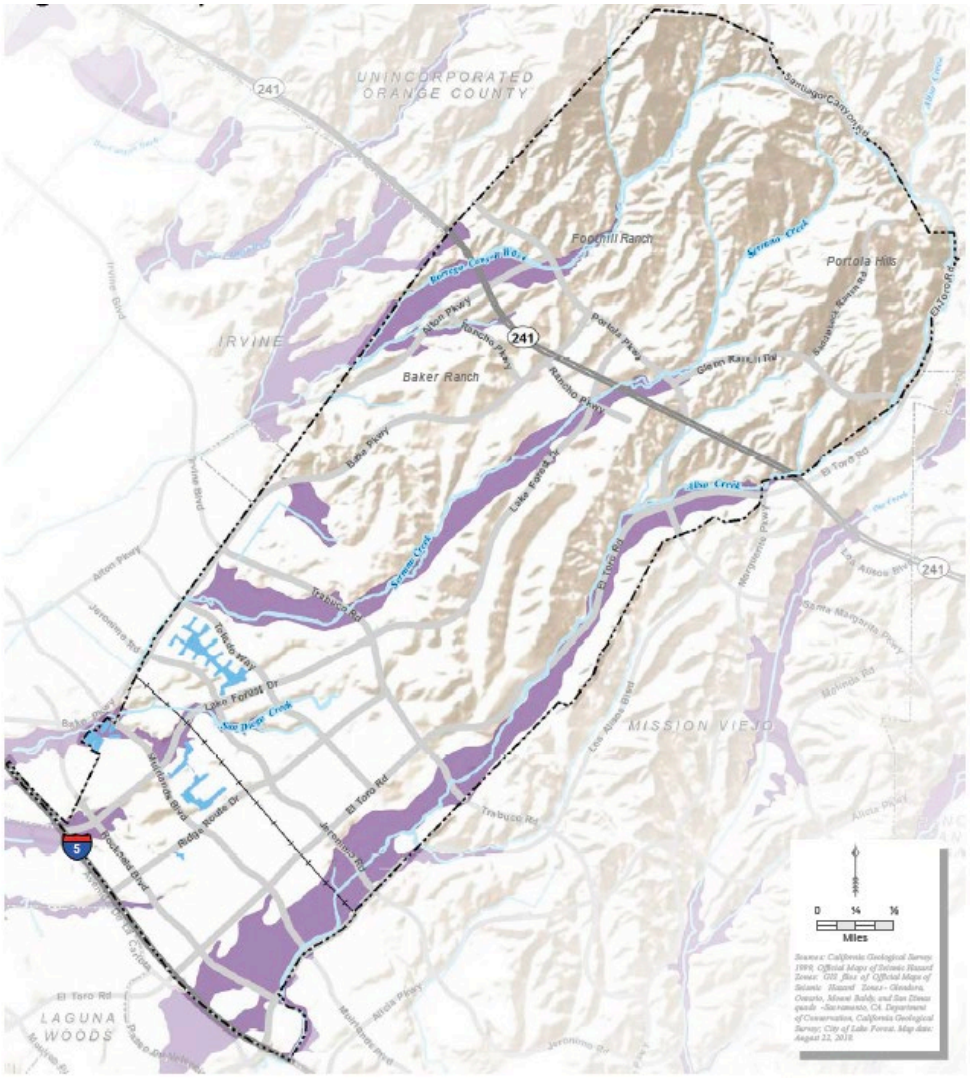
The Modified Mercalli Intensity (MMI) scale, which is based on the amount of documented damage, is typically used to gauge the intensity of seismic shaking. The Richter scale was superseded by the MMI scale because it was no longer accurate for measuring greater earthquakes. Different parts of a city or area may report varying MMI measures at various locations because the intensity of the shaking and, subsequently, the extent of the damage, often diminishes as the seismic energy moves farther from the point of origin of the fault rupture. Given the size of Lake Forest, it is conceivable that different areas of the City would record varying MMI readings. Roman numerals on a 12-point scale are used to represent each degree of shaking intensity on the MMI scale as shown on **Table 9** below.

Table 9: MII SCALE

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

Liquefaction events do not have a scale of measurement; however, other factors such as soil type, the strength of ground shaking in the area of liquefaction, size of the affected area, and degree of destruction as a result of the liquefaction can be used to assess the extent of damage associated with a liquefaction event. **Figure 4** below displays the liquefaction hazard zones for the City of Lake Forest.

Figure 4 - Liquefaction Hazard Zones



Legend

- City of Lake Forest
- Area where Liquefaction may occur during a Strong Earthquake

Lake Forest Our Vision. Our Plan. 2040

De Novo Planning Group

Past Events

As of September 2023, the City has a very high earthquake risk, with a total of 7,966 earthquakes since 1931. The largest earthquake in recent history within 30 miles of the City was a 5.5 Magnitude. The Chino Hills Earthquake struck Southern California on July 29, 2008, causing damage to structures and eight injuries across the region. Despite being 30 miles from the epicenter, Lake Forest experienced shaking and structural damage including cracked walls, broken windows, and damaged chimneys, in residential and commercial buildings. The earthquake caused temporary power outages and gas leaks, leading to emergency repairs.

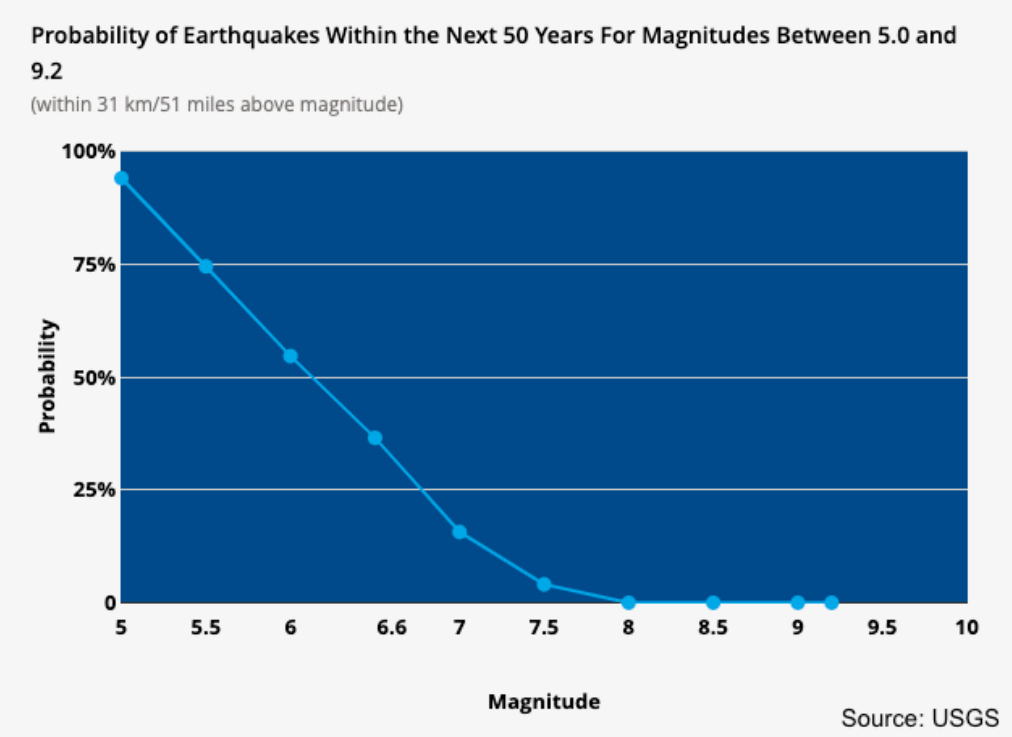
Despite the relatively moderate effects of the 2008 Chino Hills Earthquake on the City, the event underscores the region's susceptibility to seismic activity and highlights the ongoing risk earthquakes pose to the Community.

Hazard Declarations – Between 1991 and 2023, the State of California was included in 14 earthquake-related federal DR, EM declarations. Generally, these disasters cover a wide region of the state; therefore, they may have impacted many counties. However, Orange County was not included in any DRs or Ems, therefore the City has not been included in any declarations (FEMA 2023).

Risk of Future Events

In 2015, a study by the USGS, California Geological Survey, and the Southern California Earthquake Center, the third Uniform California Earthquake Rupture Forecast, calculated the probability of a future earthquake on a variety of fault systems. The study suggests a probability of 50% or higher for the occurrence of an earthquake with a magnitude ranging from 5.0 to 6.1 within a 51-mile radius of the City over the next 50 years. Additional information on the implications of this study for the City of Lake Forest is available in **Figure 5** below.

Figure 5 - Projected Earthquake Probability for Lake Forest, CA



The City is located in a seismically active zone. Given its history and its proximity to significant fault lines, it is highly likely that it will experience major seismic events in the future. The presence of major faults in the region suggests an imminent risk of substantial seismic shaking.

Climate Change Considerations

There is no evidence of a relationship between climate change and seismic activity that might alter conditions in the City. Therefore, climate change is not likely to change the frequency or intensity of earthquake occurrences. However, variations in precipitation patterns may influence groundwater levels, which may affect the vulnerability of the City soils to liquefaction. Nevertheless, there are no records of liquefaction episodes within the City, and it is uncertain if climate change will have any influence on liquefaction. There is no evidence of a direct relationship between climate change and earthquake occurrences that cause liquefaction.

FLOODS

Description

Flooding can occur following periods of excessive rainfall, whether as a single severe event or as a succession of storms. Flooding can also result from the failure of a water control structure, such as a levee or dam failure or from debris that jam a river or stream causing it to overflow onto the surrounding area. If precipitation exceeds the capacity of drainage and stream channels, they may flood their banks and shores. Flooding is likely when heavy rain falls in a region where the ground is already wet. The existence of pavement and other impermeable surfaces in urbanized regions means that the earth is less able to absorb water.

Floods endanger communities and public safety in a variety of ways. Flooding may damage property, ruin homes, transport automobiles, and other large objects. Floodwater can wash away topsoil and plants, causing erosion. Floodwater may obstruct the mobility of flood victims or first responders seeking to reach persons in need of assistance.

Location and Extent

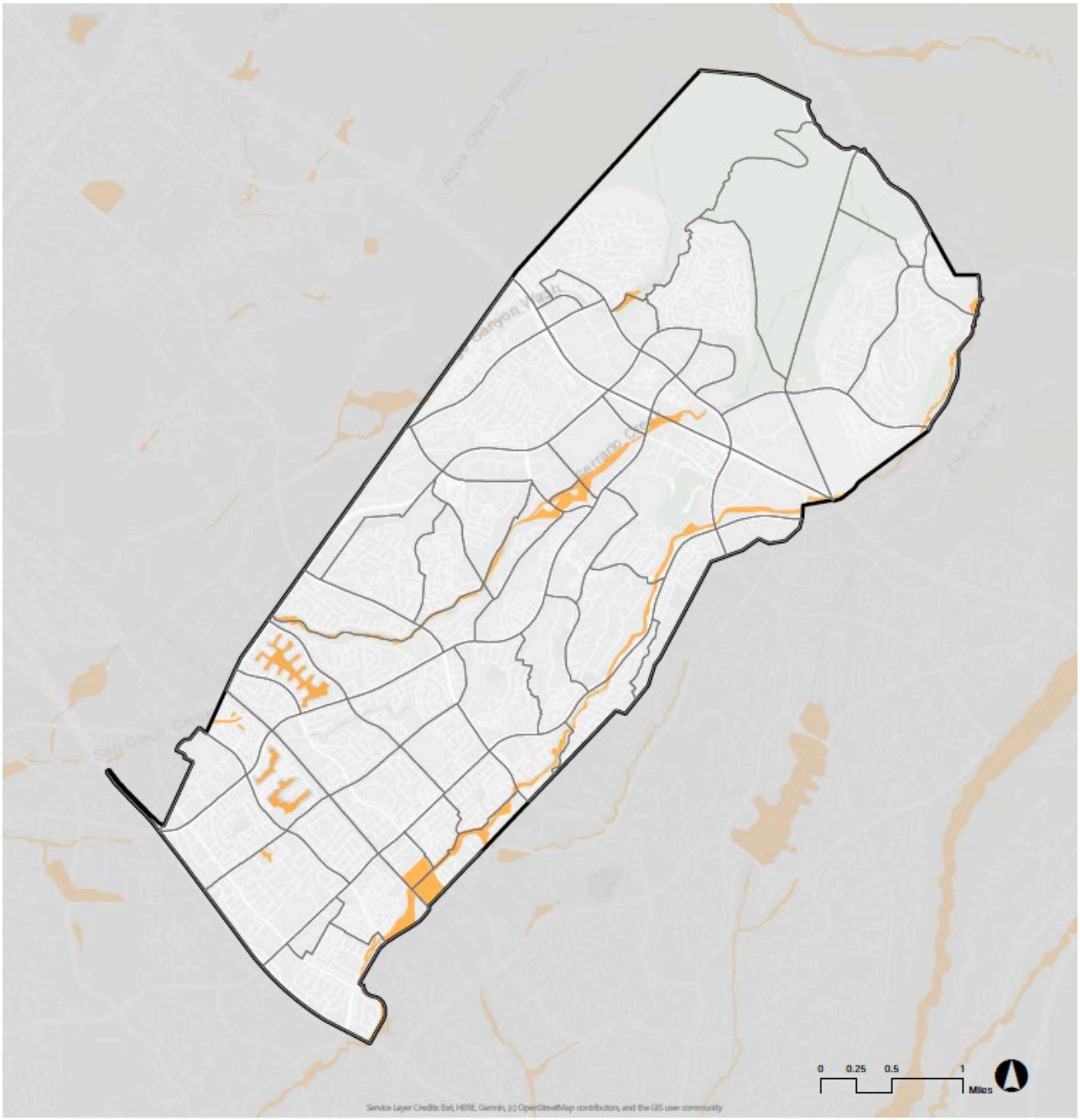
Floods within Lake Forest are influenced by several waterways, including Borrego Canyon Wash, Serrano Creek, and Aliso Creek, among others. These floods are characterized by their predicted frequency, such as a 100-year or 500-year event. Specifically, a 100-year flood indicates a 1% probability (1 in 100) of the event occurring in any given year, while a 500-year flood represents a 0.2% likelihood (1 in 500). Notably, 100-year floods are considered significant and are often referred to as "base floods." The Federal Emergency Management Agency (FEMA) is responsible for mapping flood zones, as depicted in **Figures 6** and **7**, which highlight these zones within Lake Forest.

Flood plains are areas that flood frequently and are classified by the intensity of the flood projected. The 100-year flood plain, for example, refers to a region that may be flooded by a 100-year flood. In principle, any location can be flooded if the flood event is strong enough, but low-lying regions near natural or man-made bodies of water are most vulnerable. FEMA defines flood plains as follows: the 100-year flood plain (or "special flood hazard area"), the area outside of the 100-year flood plain but within the 500-year flood plain (or "moderate flood hazard area"), and the area outside of the 500-year flood plain (or "minimum flood hazard area"). **Table 10** below shows these detailed flood plain categories.

Table 10: FEMA FLOOD PLAIN CATEGORIES

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

Figure 6 - Lake Forest 100 Year Flood Hazard Areas



Flood Hazard Areas in City of Lake Forest

100 Year Floodplain

* Transportation Analysis Zones (TAZ) Tier2 boundaries are shown in the map.

Data Source: Federal Emergency Management (FEMA) Digital Flood Insurance Rate Map (DFIRM)

Data Updated: 2021 | Map Created: 5/3/2022

Disclaimer: This map was created as a part of SCAG Data/Map Books to solicit feedback from local jurisdictions during Connect SoCal 2024 Local Data Exchange (LDX) process. SCAG shall not be responsible for user's misuse or misrepresentation of this map. For the details regarding the data sources, methodologies and contents of this map, please refer to the SCAG Data/Map Book or contact LIST@scag.ca.gov.

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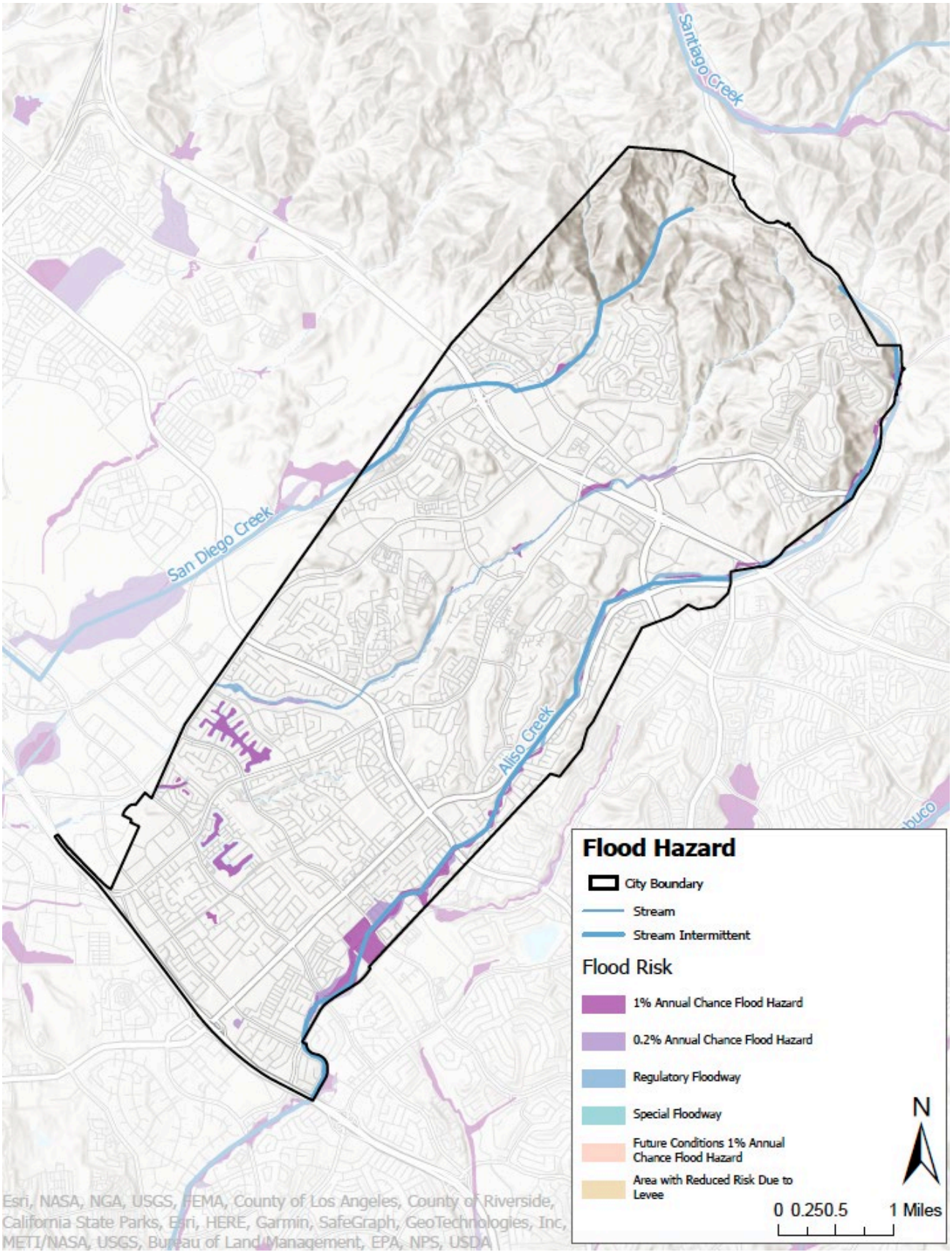
Figure 7 - Lake Forest Flood Hazard Zones



Past Events

Although the City itself does not have a long and extensive history of major flooding, the wider Orange County area has experienced several instances of flooding throughout its history. The County covers 948 square miles, including mountain terrain and floodplains, which have been significantly affected by the region's rapid urbanization and transformation from an agriculturally based community.

Following prolonged periods of rain in the past, Orange County has been prone to devastating floods that impacted the entire region. In 1938, Southern California experienced its worst flood when several inches of rain fell over three days, leading to the overflow of the Santa Ana River and flooding in areas of Fullerton and Anaheim, as highlighted in **Table 11**.

While there is a countywide system of flood control facilities in place, many of these are inadequate for conveying runoff from major storms and the frequency of very large floods further compounds the County's flood hazard. Severe storms have occurred less than 10 times in the past 175 years, making it challenging to accurately assess the risk of flooding. Nonetheless, major floods in Orange County are documented in **Table 11**, demonstrating the potential for significant flooding events in the area.

Table 11: ORANGE COUNTY MAJOR FLOOD EVENTS

Date	Description
1770, Jan.	• Information regarding this flood is gathered from Father Juan Crespi's diary.
1780, Dec.	• Information regarding this flood is gathered from Father Juan Crespi's diary.
1825	• Greatest flood of the previous 100 years. • Santa Ana River changed its main course from Anaheim Bay to Newport Bay.
1862, Jan.	• The greatest flood in California's history. • The rain began on Christmas Eve 1861 and continued for 30 days. The sun shone for a • total of 45 minutes in that thirty-day period. • Fifty inches of rain fell during December and January. • Water ran four feet deep through downtown Anaheim.
1862	• During the great flood, the entire population of Agua Mansa survived in a small church, where granite monuments marked the highest water level. In 1967, archeologists found the Agua Mansa Mission foundation near Route 60 in Riverside. Water surface data from mission monuments and old irrigation works allowed for a flow calculation of 315,000 Cubic Feet Per Second (cfs) at Agua Mansa. With nearly 700 square miles tributary to Prado Dam downstream, the estimated flow in Santa Ana Canyon was 400,000 cfs.
1884, Feb.	• Santa Ana River created a new ocean outlet
1888-1891	• Annual floods
1914	• Heavy flooding
1916	• Hundreds of square miles inundated Orange County. The flow in the Santa Ana River was about 75,000 cfs, overflowing into Anaheim Bay. • Santiago Creek overflowed into El Modena and Tustin.
1921	• Flooding
1927	• Moderate Flood
1938, Mar.	• Devastation to all of Orange County. • Greatest flood since 1862 - about 100,000 cfs in Santa Ana River. • 22" of rain fell in 5 days in the San Bernardino Mountains. • Santa Ana River levees failed in many places and waters flowed into Anaheim

	Bay. • 34 lives lost in Orange County. • Damage reached $14 million (1938).
1969	• Great damage, especially to governmental infrastructure. • The January storm was the greatest since 1938. There was one heavy flood after a 9-day storm and another moderate flood. • February storm greater than January but both were moderate intensity, long duration (i.e., large volume) events. 1-hour intensity and 24-hour volume. • Prado Dam inflow: 77,000 cfs, outflow 6,000 cfs. • Maximum Santa Ana River capacity is 40,000 cfs. • 1 ¬Ω million cubic yards of sediment carried by Santa Ana River nearly caused levee failure due to the invert rising over five feet near the river mouth. • Prado Dam was 60% filled.
1974	• 100-year rainfall along the coast of Orange County. • Damage limited by substantial flood control improvements and 3-hour duration of high intensity rainfall.
1983	• Damaging record-breaking storm. • 6-hours in duration, covering about 100 square miles of western Orange County. • Severe property damage in Huntington Beach, Fountain Valley, and Costa Mesa. • The storm influenced the criteria published in the 1986 Orange County Hydrology Manual.
1995	• A very damaging storm with record breaking intensities for 2- and 3-hour duration
1997	• The most severe storm ever measured in Orange County. • New records set for 30-minute, 1 hour, 2-hour, 3-hour, 6-hour, 12-hour, and 24-hour rainfall. • Severe damage to Laguna Beach, Lake Forest, Irvine, and to the I-5 Freeway. • 100-year rainfall covered over 200 square miles of our 948 square mile county. • This storm and the similar (but slightly less severe) 1983 and 1995 events revealed vulnerability of older flood control facilities built. It was thought this type of intense storm was too rare to consider protective measures. • Too many record-breaking storms hit in too short a period.
2005	• A series of "Pineapple Express" storms in January and February were the most significant since El Nino of 1998, causing mud flows and flooding throughout Orange County. • Both state proclamations and federal declarations of disaster were made for these storms.
2010	• Significant storms occurring in January and December resulted in damage from flooding and mud flows in Laguna Beach. • Levee damage occurred in San Juan Capistrano along Trabuco Creek.
2019	• Significant storm occurred in February which resulted in channel lining failures in Laguna Beach alongside Laguna Canyon Rd and San Juan Capistrano alongside Trabuco Creek Rd.

Source: Santa Ana River Mainstem Project – OC Public Works/Santa Ana River Division

National Flood Insurance Program (NFIP) History – The NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in participating communities. For most communities participating in the NFIP, FEMA has prepared a detailed Flood Insurance Study. The study presents water surface elevations for floods of various magnitudes, including the 1-percent annual chance flood and the 0.2-percent annual chance flood (the 500-year flood). Base flood elevations and the boundaries of the 100- and 500-year floodplains are shown on Flood Insurance Rate Maps (FIRMs).

Lake Forest entered the NFIP on September 15, 1994. The date of the City's current effective FIRM is December 03, 2009. As a participant in the NFIP, the City must, at a minimum, regulate development in its floodplain areas in accordance with NFIP criteria. Before a permit to build in a floodplain area is issued, the City must ensure that two basic criteria are met:

- All new buildings and developments undergoing substantial improvements must, at a minimum, be elevated to protect against damage by the 100-year flood.
- New floodplain development must not worsen existing flood problems or increase damage to other properties.

Properties constructed after a FIRM has been adopted are eligible for reduced flood insurance rates. Such structures are less vulnerable to flooding since they were constructed after regulations and codes were adopted to decrease vulnerability. Properties built before the FIRM was adopted may be more vulnerable to flooding and related damage because they do not meet code or are located in hazardous areas).

Implementation and Enforcement of Local Flood Management Regulations – The City of Lake Forest implements and enforces local flood management regulations to regulate and permit development in Special Flood Hazard Areas (SFHA). The City's floodplain management regulations are designed to minimize the risk of flood damage to new and existing structures within the SFHA. These regulations include requirements for elevation, floodproofing, and other measures to reduce flood risk. The City's Building Division is responsible for reviewing building permit applications and ensuring compliance with the City's floodplain management regulations.

It should be noted that the City of Lake Forest does not currently have any mapped SFHAs within its jurisdiction. However, the City recognizes the importance of maintaining and enforcing its floodplain management regulations to ensure that future development does not increase the risk of flooding.

Appointment of NFIP Designee – The Director of Public Works for the City of Lake Forest is designated as the official responsible for implementing the addressed commitments and requirements of the NFIP. The Director of Public Works oversees the City's floodplain management program and ensures that the City remains in compliance with NFIP regulations.

Implementation of Substantial Improvement/Substantial Damage Provisions – In the event of a flood, the City of Lake Forest will implement the substantial improvement/substantial damage provisions of its floodplain management regulations. These provisions require that any structure located within the SFHA that sustains damage or undergoes improvements that exceed 50% of the structure's market value must be brought into compliance with the City's floodplain management regulations. This may include elevating the structure, floodproofing, or other measures to reduce flood risk.

The City's Building Division will be responsible for conducting damage assessments and determining whether a structure has sustained substantial damage or is undergoing substantial improvements. Property owners will be required to obtain building permits and comply with the City's floodplain management regulations before rebuilding or repairing damaged structures.

National Flood Insurance Program Loss Analysis – A repetitive loss property is defined by FEMA as

an NFIP-insured property that has experienced any of the following since 1978, regardless of any changes in ownership:

- Four or more paid losses in excess of $1,000
- Two paid losses in excess of $1,000 within any rolling 10-year period
- Three or more paid losses that equal or exceed the current value of the insured property.

A severe repetitive loss property is further defined as follows:

- Four or more paid losses in excess of $5,000 each, with the cumulative amount of such claim payments exceeding $20,000
- At least two separate claim payments made, with the cumulative amount of the building portion of such claims exceeding the market value of the building
- At least two of the above referenced claims occurring within any rolling 10-year period and more than 10 days apart.

Several federal government programs encourage communities to identify and mitigate “repetitive loss” properties. Nationwide, repetitive loss properties make up only 1 to 2 percent of the flood insurance policies currently in force, yet they account for 40 percent of the flood insurance claim payments. A report on repetitive loss structures by the National Wildlife Federation found that 20 percent of these structures are listed as outside the 100-year floodplain. In 1998, FEMA reported that the NFIP’s 75,000 repetitive loss structures had already cost $2.8 billion in flood insurance payments.

FEMA identifies repetitive loss structures based on flood insurance payments. A repetitive loss area is the portion of the floodplain where numerous buildings have been subject to repetitive flooding. The purpose of identifying repetitive loss areas is to identify structures that are subject to the same risk but are not on FEMA’s list because a flood insurance policy was not in force at the time of loss.

The City of Lake Forest does not participate in the Community Rating System (CRS) program. This is largely due to the city's successful management of flood risk, as evidenced by the absence of reported repetitive loss properties within its jurisdiction.

Since there are no repetitive loss properties in Lake Forest, the City has not had to engage in the intensive flood projects that are common in other areas. This situation is beneficial for both the residents of Lake Forest and federal flood insurance programs, as it minimizes the financial and emotional toll of flood-related damages and reduces the reliance on post-disaster assistance from the federal government and taxpayers.

Hazard Declarations – Between 1991 and 2023, the State of California was included in 9 flood-related federal DR, EM declarations. Generally, these disasters cover a wide region of the state; therefore, they may have impacted many counties. Orange County was included in six of the federal declarations for California, therefore the City has been included in six declarations (FEMA 2023); refer to **Table 12**.

Table 12: FLOOD DECLARATIONS INCLUDING ORANGE COUNTY BETWEEN 1991 AND 2023

Designation Number	Date Declared	Event Name
DR-935-CA	February 10, 1992	California Snow Storm, Heavy Rain, High Winds, Flooding, Mudslide
DR-979-CA	February 03, 1993	California Severe Storm, Winter Storm, Mud & Landslides, Flooding

DR-1952-CA	February 02, 1998	California Severe Winter Storms and Flooding
DR-4305-CA	March 16, 2017	Severe Winter Storms, Flooding, and Mudslides
DR-3591-CA	January 09, 2023	California Severe Storms, Flooding, and Mudslides
DR-3592-CA	March 10, 2023	California Severe Winter Storms, Flooding, Landslides, and Mudslides
Source: FEMA 2023		

Risk of Future Events

Although the City has not experienced significant flooding events in the past, it is essential to note that the risk of flooding is still present. This is particularly true for areas near creek beds, which can overflow during heavy rainfall, posing a significant threat to nearby residents and infrastructure.

Orange County has a documented history of flooding events, as shown in prior disasters. The regular occurrence of heavy rainfall that produces floods is expected to continue in the region, including the City, making it crucial to consider flood hazards in any hazard mitigation plan.

Climate Change Considerations

Climate change is expected to have a significant impact on flooding in the City and the surrounding areas. The extent of these impacts will depend on several factors, including the local topography, land use patterns, and infrastructure. One of the significant impacts of climate change is rising temperatures, which can lead to more intense rainfall events and an increased risk of flash flooding in areas with poor drainage.

Furthermore, changes in snowmelt patterns can increase the risk of flooding during heavy rain events. The Sierra Nevada Mountain Range, which provides much of Southern California's water supply, is particularly vulnerable to these changes. As temperatures rise, snowmelt occurs earlier, leading to earlier runoff and lower water availability during the summer months. Earlier and more rapid snowmelt leads to higher water flow in rivers and streams. When this coincides with heavy rainfall, it can overwhelm watercourses, causing flooding. Altered snowmelt patterns can also saturate soil, reducing its capacity to absorb rainwater and increasing runoff. Moreover, these changes can impact vegetation, which stabilizes soil and absorbs excess water, further exacerbating flood risks. These factors highlight the need for effective flood management and adaptation strategies to protect communities and ecosystems.

DROUGHT

Description

Drought, unlike other natural disasters, does not emerge suddenly and catastrophically. Because drought may last for years, determining when a drought begins and ends is challenging. A drought is defined as a lengthy period of exceptionally low precipitation that has negative consequences for humans, vegetation, and animals. A drought is a transient phenomenon, as opposed to aridity, which is a climatic condition of a certain place. Droughts occur regularly in all climatic zones, although some locations are more prone to drought than others.

Drought primes conditions for a variety of other hazards, indirectly damaging the soil by drying it out and reducing its capacity to absorb water. Thus, when precipitation returns, the soil is less likely to hold onto water, increasing runoff and the risk of floods. Due to the soil's reduced ability to bond together, dry earth is more prone to erosion and landslides. In addition, the lack of precipitation affects plants and other vegetation in natural places as the lack of nutrients makes them more vulnerable to pests and diseases thereby raising the susceptibility to wildfires.

Location and Extent

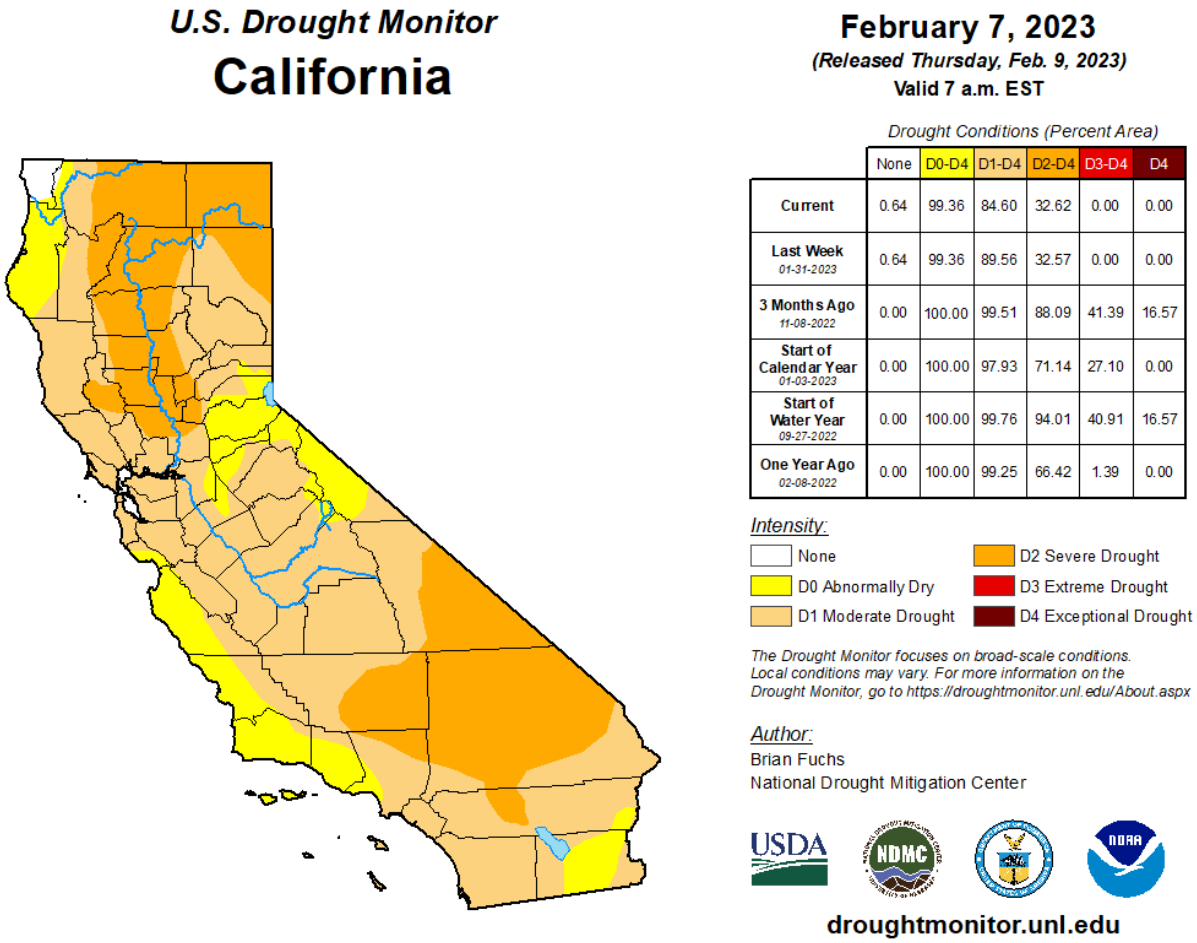
Drought can occur regionally across the City, Orange County, and Southern California. Droughts are a recurring feature of California's climate, but climate change is projected to increase the frequency, intensity, and duration of droughts. The U.S. Drought Monitor is a map released every Thursday, showing parts of the U.S. that are in drought. There are numerous scales for measuring drought conditions, although one of the most common is the US Drought Monitor Classification Scheme. This rating system is a synthesis of multiple different scales into a descriptive index, shown in **Table 13** below.

Table 8: US DROUGHT MONITOR CLASSIFICATION SCHEME

Category	Description	Possible Impacts
D0*	Abnormally dry	Slower growth of crops and pastures.
D1	Moderate drought	Some damage to crops and pastures. Water bodies and wells are low. Some water shortages may occur or may be imminent. Voluntary water uses restrictions can be requested.
D2	Severe drought	Likely crop and pasture losses. Water shortages are common, and water restrictions can be imposed.
D3	Extreme drought	Major crop and pasture losses. Widespread water shortages and restrictions.
D4	Exceptional drought	Exceptional and widespread crop and pasture losses. Emergency water shortages develop.

Figure 8 showcases the Classification Scheme and the various drought conditions that the City and State of California are in as of February 2023.

Figure 8 - Statewide Drought Conditions as of February 2023



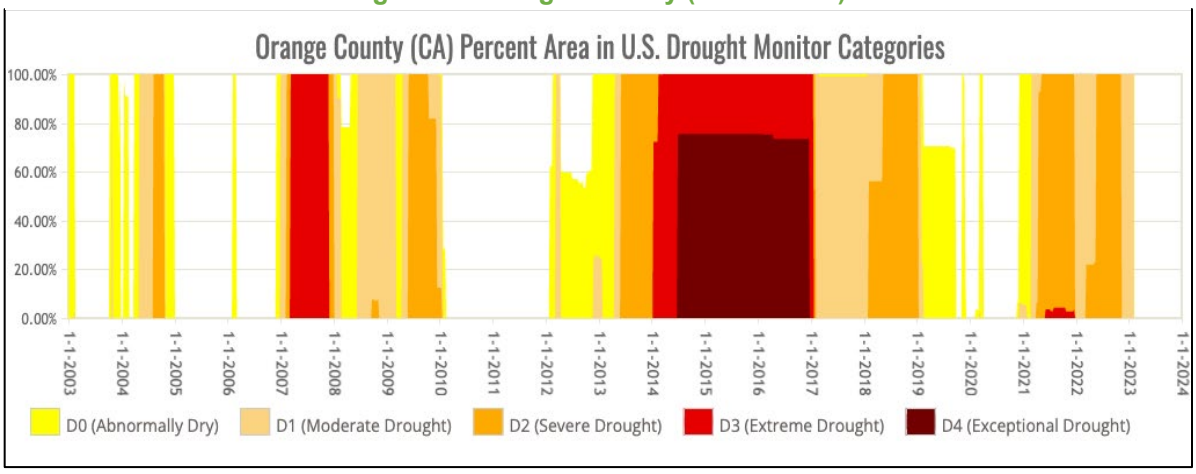
Past Events

Drought is an enduring characteristic of California's climatic conditions, with a historical record of significant drought events that have varying intensity, duration, and recurrence. The "Great Drought" of 1863 and 1864 was a devastating event that impacted the cattle industry throughout the state and contributed to the hastening of rancho land grants. Similarly, the "Dustbowl Droughts" from 1928 to 1935 brought forth severe damage to agriculture, prompting the modernization of California's water infrastructure.

The 1976-1977 drought event lowered reservoir levels throughout California and spurred water conservation practices that continue to date. The state has faced significant drought events in recent times, including those that occurred from 1987 to 1992 and from 2007 to 2009, resulting in adverse effects on agriculture, the environment, and public health.

The most recent drought began in 2012 and lasted until 2017. The entire state was affected, and by 2014, it had been deemed the worst drought in 1,200 years. The intensity of the drought conditions during the past 20 years is depicted in the image below. Nearly the whole state of California was suffering D2 (extreme drought) conditions by the summer of 2014. D4 (Exceptional Drought) conditions were observed in the City, all of Orange County, and more than 75% of California **Figure 9.**

Figure 9 - Drought History (2004 - 2023)



Hazard Declarations – Between 1991 and 2023, the State of California was included one drought-related federal EM declaration. Generally, these disasters cover a wide region of the state; therefore, they may have impacted many counties. However, Orange County was not included in that EM, therefore the City has been included in one declaration (FEMA 2023).

Risk of Future Events

Drought is a phenomenon that has wide-ranging impacts across various sectors of the economy, which extend beyond the physical location experiencing water scarcity. The impacts of drought are intricate and multifaceted, posing a complex web of challenges to diverse industries and society at large.

One of the significant impacts of drought is to the agricultural sector, which heavily depends on water for irrigation. During drought, reduced water availability leads to crop failures, low yields, and diminished productivity, resulting in severe financial losses for farmers. This has ripple effects on the food industry, leading to decreased crop availability, reduced quality of produce, and increased food prices.

Apart from the agricultural sector, drought also has ramifications on other industries such as tourism, manufacturing, and energy production. For example, hydroelectric power plants, which rely on water to generate electricity, experience decreased energy production during a drought. Additionally, recreational activities such as boating and fishing, which rely on water bodies such as lakes and rivers, can be significantly affected, leading to reduced tourism and related economic activities.

Moreover, drought can have profound environmental and social impacts. Reduced water availability can lead to the decline of biodiversity, harm to wildlife habitats, and increased risk of wildfires, among other environmental concerns. Socially, drought can lead to social tensions and conflicts as different sectors of society compete for limited water resources, with the most vulnerable communities hit the hardest.

The threat of drought is expected to persist in California, including the City, for the foreseeable future. Most drought events are heavily influenced by global meteorological phenomena, which vary from year to year, making it challenging to predict the frequency and severity of future drought episodes.

Climate Change Considerations

Climate change is also expected to increase the average temperature and could cause increased evaporation and water loss from soils and plants, exacerbating drought conditions and reducing water availability for agriculture, urban areas, and ecosystems. Changes in precipitation patterns can also result in less frequent but more intense rainfall events, increasing the risk of flash floods and soil erosion. However, this may not necessarily alleviate drought conditions. Declining snowpack in the Sierra Nevada Mountain range can also reduce water availability during the summer months, further exacerbating drought conditions and limiting water availability for urban areas and agriculture. During these events, water supplies may be diverted for cooling functions in the City. Hotter temperatures may also lead to increased surface water evaporation which could lead to greater water consumption. Additionally, rising sea levels can also cause saltwater intrusion, contaminating freshwater sources and reducing water availability.

SLOPE FAILURE / LANDSLIDE

Description

Landslides are a general term for the movement of rock, soil, or other materials down a slope. They can be caused by a variety of factors including heavy rain, earthquakes, drought, and human activities such as logging and mining. Landslides can range in size from small, localized events to large devastating events that can impact entire communities.

Landslides can occur suddenly and without warning, making them particularly dangerous. When a landslide occurs, it can cause significant damage to homes, businesses, roads, bridges, and other infrastructure. In addition, landslides can lead to loss of life and injury, as well as displacement of residents. The effects of landslides can be particularly devastating in areas with steep slopes or loose soils. In these areas, even small amounts of rainfall can trigger a landslide. In addition, areas that have been impacted by natural disasters such as earthquakes or wildfires are also at increased risk of landslides as the ground can become unstable due to the loss of vegetation or other factors.

Location and Extent

The steeper areas in the foothills of the Santa Ana Mountains to the northeast and the San Joaquin Hills to the southwest of the City are at risk of experiencing landslides. These areas have steep topography and geologic formations that can become unsteady. Despite this, these areas are considered to have a low to moderate risk of landslides due to seismic conditions. The likelihood of a landslide occurring under other circumstances is low (as per the Department of Conservation, 1976). Although no standard method for measuring landslides exists, the magnitude of these events is often assessed by the amount of material that has shifted (i.e., cubic feet of earth).

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

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

Past Events

The City of Lake Forest has been fortunate enough to not have been significantly impacted by this threat. Unfortunately, nearby communities located in the unincorporated County area and other local cities have experienced significant land movement. The following landslide accounts comprise only a fraction of the landslide history throughout Orange County and Southern California over the past 20 years. These are provided as a sample for mitigation planning.

2005 Bluebird Canyon Landslide - The Bluebird Canyon landslide in Laguna Beach, California, consisted of a bedrock mass that was 60 to 80 feet deep. Five injuries were confirmed, and 28 homes were either destroyed or severely damaged; over 375 homes were directly affected. Rainfall in typical years leading up to the landslide averaged about 12.6 inches of rain, but from July 1, 2004, up until the landslide, there was twice as much rainfall—27.85 inches. Additionally, there were allegations that a home under construction at the time may have contributed to the landslide. Private property damage was estimated between $15 million and $23 million. Over 500 feet of roadway and parallel utilities were destroyed. Waterlines, sewers and storm drains were destroyed.

2007-2008 Post-Santiago Fire Debris Flows - After the Santiago Fire stripped the vegetation bare in the canyon communities of Orange County, a debris flow task force was convened to address the potential impact that post-fire winter storms could have on the slopes in the burn areas. There were several cases of mudflows that damaged homes in the Modjeska Canyon area.

2008-2009 Post Freeway Complex Fire Debris Flows - After the Freeway Complex fire stripped the vegetation bare in the communities of Yorba Linda and Brea, a debris flow task force was convened to address the potential impact that post-fire winter storms could have on the slopes in the burn areas. There were several cases of debris flows in the following winters in Yorba Linda and Brea.

2010 Winter Storm Mud Flows - In December 2010, a series of storms passed over Orange County, dropping several inches of rain and triggering a series of mud and debris flows in Orange County canyon and coastal areas. While not specifically associated with a fire or other event, these slides tended to occur in areas already identified as being prone to such activity.

2014-2016 Post Silverado Fire Debris Flows - Following the Silverado Fire in 2014, similar conditions were generated in the Silverado Canyon area of Orange County. There were several cases of small debris and mud flows in canyon areas for the next two winters.

2017-2018 Post Canyon 2 Debris Flows - Following the Canyon 2 Fire in 2017, a debris flow task force was convened to address the potential impact that post-fire winter storms could have on the slopes in the burn areas and impacts to Anaheim, Orange and unincorporated areas. There were several cases of small debris and mud flows over the next two winters.

2018-2019 Post Holy Fire Debris Flows - Following the Holy Fire in 2018, a debris flow task force was convened to address the potential impact that post-fire winter storms could have on the slopes in the burn areas and impacts to the Trabuco canyon areas. Several significant debris flows occurred in the winter months of 2018-2019 in the area of Trabuco Creek.

2020-2021 Post Bond Fire Debris Flows - Following the Bond Fire in 2020, a debris flow task force was convened to address the potential impact that post-fire winter storms could have on the slopes in the burn areas and impacts to the Silverado, Williams, and Modjeska Canyon areas. A few small debris and mud flows occurred in the canyon areas from subsequent storms.

Hazard Declarations – Between 1991 and 2023, specific data on the number of landslide-related federal disaster and emergency declarations in the State of California is not readily availble. Generally, these disasters is a consequence of a larger natural hazards that cover a wide region of the state; therefore, they may have impacted many counties. Orange County was included in six of the federal declarations for California, therefore the City has been included in six declarations (FEMA 2023); refer to **Table 14**.

Table14: LANDSLIDE DECLARATIONS INCLUDING ORANGE COUNTY BETWEEN 1991 AND 2023

Designation Number	Date Declared	Event Name
DR-935-CA	February 10, 1992	California Snow Storm, Heavy Rain, High Winds, Flooding, Mudslide
DR-979-CA	February 03, 1993	California Severe Storm, Winter Storm, Mud & Landslides, Flooding
DR-1005-CA	October 28, 1993	California Fires, Mud & Landslides, Soil Erosion, Flooding
DR-4305-CA	March 16, 2017	Severe Winter Storms, Flooding, and Mudslides
DR-3591-CA	January 09, 2023	California Severe Storms, Flooding, and Mudslides
DR-3592-CA	March 10, 2023	California Severe Winter Storms, Flooding, Landslides, and Mudslides
Source: FEMA 2023		

Risk of Future Events

In the City of Lake Forest, the risk of future landslides is closely tied to distinct environmental conditions and landscape features. The city, nestled against the foothills of the Santa Ana Mountains and San Joaquin Hills, is characterized by steep slopes and loose and expansive soil, which are particularly prone to instability under certain conditions. This inherent vulnerability is compounded by factors like the region's susceptibility to heavy rainfall events, the frequency of wildfires that strip vegetation and destabilize soil, and the occasional seismic activity associated with the area's geology.

These conditions converge to create a landscape where landslides are a significant concern. For instance, in areas with steep terrain, heavy rain can lead to rapid soil saturation, increasing the likelihood of soil and rock movement. Similarly, in regions recovering from wildfires, the absence of root systems, which normally help to bind and stabilize the soil, makes these slopes particularly susceptible to landslides during rainstorms. Additionally, seismic events, even those of moderate intensity, can weaken already precarious hillside areas, setting the stage for future landslides.

The combination of these specific environmental factors – steep and varied terrain, soil types prone to instability when wet or destabilized, patterns of heavy rainfall, post-wildfire landscapes, and seismic activity – creates a situation in Lake Forest where the potential for landslides is an ongoing concern.

Climate Change Considerations

While there is no known link between climate change and seismic activity, such as earthquakes, due to the variety of factors that lead to landslides, it is possible that climate change could indirectly affect the conditions for landslides. Specifically, on moisture-induced and fire-induced landslides.

As a consequence of climate change, atmospheric river storms are expected to become more intense, leading to increased precipitation that can destabilize hillsides and increase the frequency of landslide events. Furthermore, warmer temperatures and more frequent drought conditions may lead to more fires, which could destabilize soils and make future landslide events more likely.

CHAPTER 4
THREAT AND VULNERABILITY ASSESSMENTS

The previous chapter of the LHMP evaluated various hazards and their impacts on Lake Forest, including people, structures, ecosystems, services, and other community assets. The frequency and scope of these hazards also determine their effects on the area. While **Chapter 3** analyzed the risks of these hazards, this chapter assesses their overall threat and identifies specific populations and physical assets that may be at risk. Additionally, this chapter examines the vulnerability of Lake Forest based on the risk and threat assessments.

THREAT ASSESSMENT PROCESS

The threat assessment conducted within this chapter rigorously evaluates three fundamental aspects of each hazard. Specifically, the assessment considers the potential physical threat posed to critical facilities and facilities of concern, the associated social threats[4] to vulnerable populations, as well as the overall threat to any other community assets that may be affected by the hazard.

CRITICAL FACILITIES AND FACILITIES OF CONCERN

Critical facilities represent integral properties that are essential to the efficient functioning of the municipal government and the well-being of the Lake Forest community. This category encompasses various assets, such as City administration buildings, public safety structures (e.g., police and fire stations), water tanks and pumps. Conversely, facilities of concern, while less vital to the safety and well-being of the City, can serve as assembly points, temporary shelters, or support systems in the event of a hazard. Facilities of concern can play a critical role in facilitating evacuations and overall preparedness and recovery efforts. It is noteworthy that both critical facilities and facilities of concern may be owned by the City, other agencies, or private entities.

The Working Group identified 25 critical facilities and 2 facilities of concern for incorporation into the threat and vulnerability assessment. **Table 15** and **Figure 10** provide amplifying information to the facility's ownership, location, and classification.

[4] Social threat: Encompasses the socioeconomic and demographic elements that have an impact on the resilience of communities.

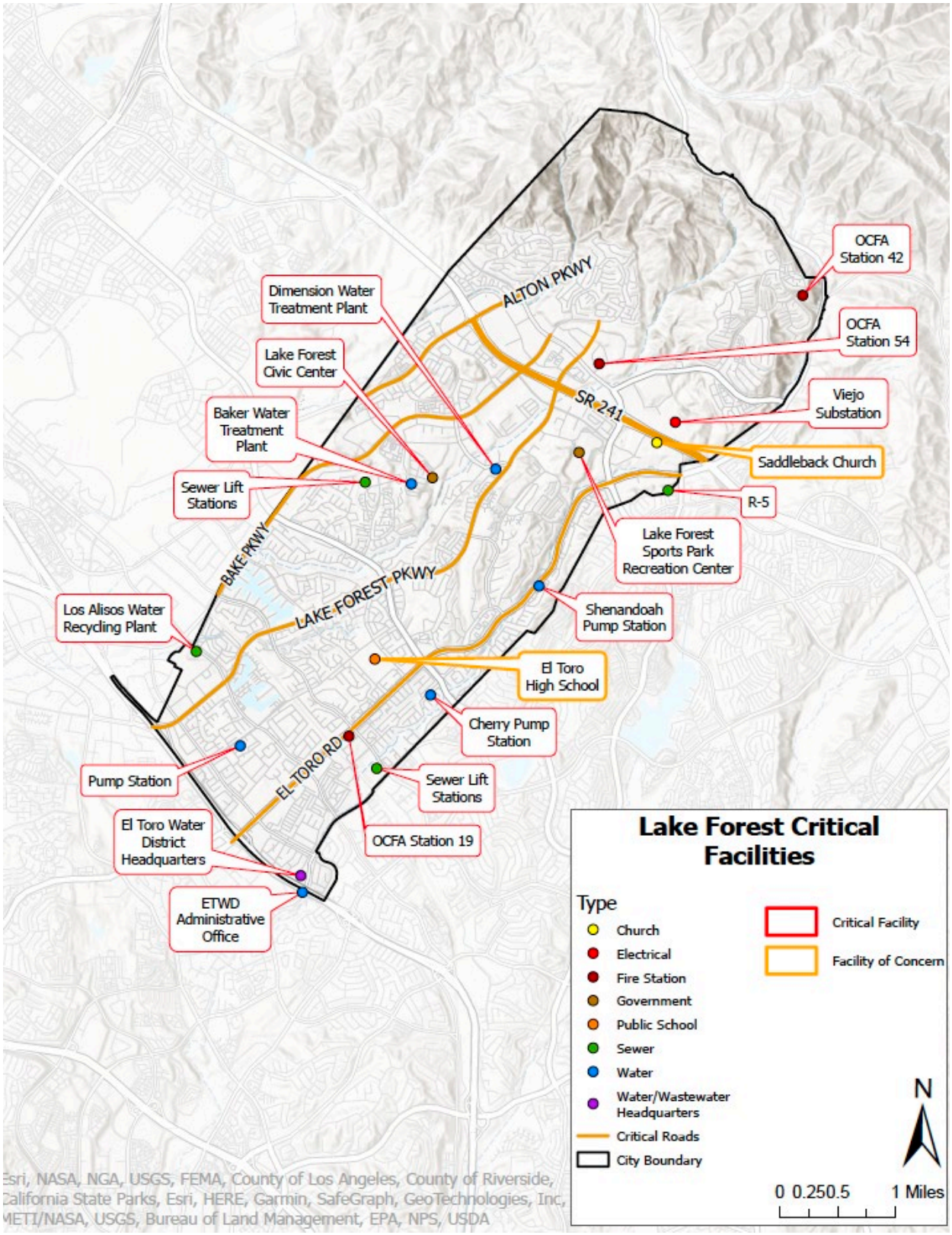
Table 15: CRITICAL FACILITIES AND FACILITIES OF CONCERN

Map ID	Name	Type	Owner/ Responsible Agency	Location	Critical Facility	Facility of Concern
Response and Services Infrastructure						
1	Lake Forest Civic Center (City Hall, Police Services, EOC, Senior Center, and Community Center)	Government	City	100 Civic Center Dr. Lake Forest	X	
2	Lake Forest Sports Park Recreation Center	Government	City	28000 Vista Terrace Lake Forest	X	
3	OCFA Station 19	Fire Station	OCFA	23022 El Toro Road Lake Forest	X	
4	OCFA Station 42	Fire Station	OCFA	19150 Ridgeline Road Trabuco Canyon	X	
5	OCFA Station 54	Fire Station	OCFA	19811 Pauling Avenue Lake Forest	X	
6	El Toro High School	Public School	SVUSD	25255 Toledo Way Lake Forest		X
7	Saddleback Church	Church	Saddleback Church	1 Saddleback Parkway Lake Forest		X
8	El Toro Water District Headquarters	Water / Wastewater Headquarters	ETWD	24251 Los Alisos Blvd. Lake Forest	X	
Utility Infrastructure						
9	Baker Water Treatment Plant	Water	IRWD	21082 Wisteria, Lake Forest	X	
10	Los Alisos Water Recycling Plant	Sewer	IRWD	22312 Muirlands Boulevard, Lake Forest	X	
11	Dimension Water Treatment Plant	Water	TCWD	20904 Dimension Drive, Lake Forest	X	
12	Sewer Lift Station	Sewer	TCWD	19862 El Toro Rd, Silverado, CA 92676	X	
13	Ridgeline Pump Station	Water	TCWD	19121 El Toro Rd, Silverado, CA 92676	X	
14	El Toro Pump Station	Water	TCWD	19061 Live Oak Canyon Rd	X	
15	Sewer Lift Stations	Sewer	City	25420 Jeronimo Rd, Lake Forest, CA	X	
16	Sewer Lift Stations	Sewer	City	22001 Tamarisk Lake Forest, CA	X	
17	Irrigation Pump	Water	City	23102 Ridge Rte Dr, Lake Forest	X	
18	R-5 (Reservoir at the Pheasant Creek apartments off of El Toro and Portola)	Sewer	ETWD	20732 El Toro Road, Lake Forest	X	
19	Shenandoah Pump Station	Water	ETWD	21808 El Toro Road, Lake Forest	X	
20	Cherry Pump Station	Water	ETWD	22711 Brookhaven Dr, Lake Forest	X	
21	ETWD Administrative Office	Water	ETWD	25241 Los Alisos Blvd, Lake Forest	X	
22	Viejo Substation	Electrical	Edison	88 Icon	X	
Transportation Infrastructure						
23	State Route 241 (SR 241)	Transportation	Caltrans and TCA	Alton/Exit 23 South to Aliso Creek Bridge (55-0704)	X	
24	Alton Parkway	Transportation	City	Portola Parkway to Commercentre Drive	X	

25	Bake Parkway	Transportation	City	Portola Parkway to Jeronimo Road	X	
26	Lake Forest Drive	Transportation	City	Bake Parkway/Rue De Valore to Interstate 5	X	
27	El Toro Road	Transportation	City	Marguerite Parkway to Interstate 5	X	

The evaluation of the danger posed to critical facilities and facilities of concern examines the quantity and categories of establishments situated in regions that are exposed to heightened risks from various hazards. Such hazards have the potential to cause harm or destruction to these facilities, resulting in their inability to operate normally or with restricted capacity. Repair or reconstruction efforts may be required to restore these facilities to full functionality. While facilities located outside of the hazard-prone areas may still be impacted by such hazards, the likelihood of damage is lower due to the reduced risk.

Figure 11 - Critical Facilities Map



SUSCEPTIBLE POPULATIONS

Various factors (age, physical and/or mental health status, socioeconomic status, and access to essential services) can influence individuals' ability to prepare for and safeguard themselves and their assets from hazardous events. Although some hazardous events may equally affect all regions of Lake Forest, the impact experienced by individuals can differ based on their circumstances. For instance, higher-income households are more likely to afford the cost of retrofitting their homes to withstand flooding or move to a less flood-prone area than lower-income households. Therefore, during a flood event, higher-income households are less likely to suffer significant damage than their lower-income counterparts, even if both receive the same amount of rainfall.

A social threat analysis entails a comprehensive evaluation of the potential impact of hazardous events on diverse demographic groups and their distribution within the City. This assessment involves scrutinizing whether individuals in high-risk areas are more likely to be classified as vulnerable populations than the general populace. The social threat analysis employs specific criteria to determine the level of risk to susceptible populations:

- Disability status: Persons with disabilities may often have reduced mobility and experience difficulties living independently. As a result, they may have little or no ability to prepare for and mitigate hazard conditions without assistance from others.
- Income levels: Lower-income households are less likely to have the financial resources to implement mitigation activities on their residences. They may also struggle with having the necessary time to find and access educational resources discussing hazard mitigation strategies. Furthermore, lower-income households are less likely to be able to afford to move to areas that are safer or less at risk of being impacted by a hazard.
- Seniors (individuals at least 65 years of age): Seniors are more likely to have reduced mobility, physical and/or mental disabilities, and lower income levels, all of which may decrease their ability to prepare for and mitigate a hazard event.

The evaluation of social threats also considers the vulnerability of other at-risk groups, such as homeless individuals, those lacking access to transportation or communication, and undocumented immigrants. However, due to the lack of readily available data, it is difficult to accurately estimate the number of people in high-risk areas. Therefore, this assessment will provide a more general overview of how these vulnerable populations may be impacted.

ADDITIONAL ASSETS

Apart from the critical facilities/facilities of concern and vulnerable populations, other assets in Lake Forest may also be susceptible to damage from hazardous events. These assets could encompass crucial services, infrastructure networks, ecosystems, and local economic activities.

THREAT PROFILES

WILDFIRE

Physical Threat

Several critical facilities and facilities of concern are situated on the perimeter or within the high-risk wildfire hazard zone. While these facilities may be built from non-flammable materials such as metal and concrete, the intense heat generated by a wildfire can result in significant damage to the structures and equipment housed within. **Table 16** provides a breakdown of the number of critical facilities and facilities

of concern within the wildfire hazard zone, categorized by type.

Table 9: FACILITIES IN WILDFIRE HAZARD ZONE

Category	Facility Type	Category
OCFA Station 42	Fire Station	Critical Facility
Viejo Substation	Water	Critical Facility
Sewer Lift Station	Water	Critical Facility

Social Threat

The City is vulnerable to a significant social threat posed by a wildfire hazard zone located in the northeastern region, just adjacent to State Route 241 (SR 241). The wildfire hazard zone is characterized by a unique combination of open areas and pockets of single and multifamily housing, making it particularly susceptible to wildfire spread that can rapidly trap hundreds of residents. The open areas, coupled with wind and other variables, create conditions that have the potential to facilitate unimpeded wildfires, leading to a catastrophic event.

The high-risk zone poses significant challenges to the population, particularly to those who lack access to transportation. During a wildfire event, people without access to transportation are at an increased risk since wildfires can spread rapidly, often necessitating immediate evacuation. Such individuals may have limited time to arrange alternative transportation or make other arrangements, putting them at an elevated risk of harm.

The wildfire hazard zone in Lake Forest is a critical concern that requires continuous monitoring and management to ensure the safety and well-being of the residents. It is essential to develop effective response plans that cater to the unique challenges posed by this region to minimize the impact of any potential wildfire hazard.

Other Threats

The City is no stranger to the impact of wildfire events. These events can cause severe disruptions to the energy services in the community as power lines may be destroyed and natural gas supplies shut off. Emergency responders may face difficulties accessing the affected areas, and roadways can become blocked by flames, making it challenging to move around. In the worst-case scenario, one or more wildfires could block all roads in and out of the community, creating a significant challenge for emergency management.

While the ecosystems in Southern California are largely adapted to wildfires, a major wildfire event could cause extensive damage to the surrounding habitat, resulting in a long recovery period. Additionally, significant wildfire damage to the community could lead to a long-term decrease in business activity. Therefore, it is critical to continue monitoring and developing effective response plans to minimize the impact of wildfire events on the energy infrastructure, transportation, and ecosystems of Lake Forest.

Vulnerable Populations

In the City of Lake Forest, social vulnerability to natural hazards like wildfires is a critical concern. This vulnerability encompasses the susceptibility of various social groups to adverse impacts, including the disproportionate experience of harm, loss, or disruption. Key factors contributing to this vulnerability in Lake Forest include economic status, language barriers, and housing situations. For instance, low-

income communities, non-English speaking populations, and families living in high-rent areas where multiple households share a single dwelling face unique challenges. These groups may struggle with access to emergency information, adequate evacuation means, and recovery resources post-disaster. The situation is further complicated for undocumented residents who may fear seeking help due to immigration status concerns.

Additionally, the City's homeless population is particularly susceptible to the direct and indirect effects of wildfires. The lack of shelter and access to resources puts them at a heightened risk of exposure to environmental hazards, including poor air quality caused by fires. The aftermath of a wildfire can exacerbate homelessness, as individuals may return to find their homes destroyed. Addressing these vulnerabilities requires a multifaceted approach in Lake Forest's disaster preparedness and response plans, ensuring that all community members, especially the most vulnerable, have the support and resources they need during and after natural hazards.

Facility and Infrastructure Impact

OCFA Station 42 and the Viejo Substation are both critical facilities located within the northeastern region's Very High Fire Hazard Severity Zone. In the event of a major wildfire, these structures risk sustaining significant fire and smoke damage. Wildfires can release massive heat energy, potentially resulting in exterior wall damage, broken windows, compromised roofs and collapsed ceilings. The intense smoke permeation during a wildfire event may irreparably harm sensitive computers, medical equipment, vehicles, and other essential apparatus relied upon by first responders and utility providers.

Furthermore, wildfire events have previously disabled fire stations across California for extended periods due to the tremendous restoration efforts required. In 2003, the Old Fire ravaged 91,000 acres across California and forced the complete shutdown of a San Bernardino County fire station for over 3 months. The closure severely hampered emergency response capabilities for the entire district.

A comparable outcome in Lake Forest, stemming from wildfire-inflicted destruction to OCFA Station 42 or the Viejo Substation, would dramatically reduce critical public safety and electrical infrastructure provision -- necessitating the diversion of resources from neighboring locales to uphold adequate standards of operation.

Land Use and Population Pattern Impacts

As Lake Forest continues to grow and develop, changes in land use and population patterns are expected to occur. These changes can significantly affect the impact of wildfires on critical facilities, the general population, and vulnerable populations. For instance, new residential developments in areas prone to wildfires will increase the number of people and structures at risk. Similarly, changes in land use, such as the conversion of natural areas to developed land, can alter the behavior and spread of wildfires.

It is essential for the City to consider these factors when assessing the threat of wildfires and developing mitigation strategies. This may involve implementing stricter building codes in wildfire-prone areas, promoting fire-resistant landscaping, and educating residents about wildfire preparedness. Additionally, as the population grows and demographics change, the City must ensure that emergency response plans and resources are adequate to protect all residents, especially vulnerable populations

Climate Change

Climate change could exacerbate the risk and impact of wildfires in Lake Forest by extending the duration of fire seasons, decreasing moisture levels, and increasing the frequency of extreme heat

events. These conditions not only threaten the safety and health of populations, especially the elderly and those with respiratory issues. Additionally, the local environment, including native vegetation and wildlife habitats, faces increased susceptibility to fire damage and subsequent ecosystem disruptions, such as soil erosion and loss of biodiversity.

EARTHQUAKE

Physical Threat

All structures within the City, encompassing both critical facilities and facilities of concern, are vulnerable to seismic shaking. The level of threat they face varies, largely dependent on which fault line triggers the seismic event. The Elsinore Fault Zone, found approximately 8 miles east of the City's boundary, extends for 180 miles north of Chino Hills running southeast ending near the Salton Sea and poses a significant risk due to its history of producing moderate to large earthquakes. A clear illustration of its potential occurred in 1987 when it generated a 6.0 magnitude earthquake that reverberated throughout Southern California. Despite its capacity for unleashing considerable force, it's noteworthy that the Elsinore Fault Zone, one of the largest fault zones, has not yet inflicted damage on the City. However, this does not diminish the looming risk it represents due to its substantial seismic activity potential.

The San Andreas Fault, located about 45 miles to the east, is another major fault line capable of producing significant earthquakes, including the infamous 1906 San Francisco earthquake. While it is not immediately adjacent to Lake Forest, it remains a potential seismic threat that requires continued monitoring and preparedness.

Several other active fault lines in the region, such as the Newport-Inglewood Fault and the Rose Canyon Fault, could also pose a significant seismic threat to the City and surrounding areas.

Social Threat

Given the potential impact of earthquakes on the region, it is crucial to recognize that all members of the Lake Forest community may face risks associated with such events. Senior citizens and individuals with disabilities may face additional challenges evacuating weakened buildings, thereby increasing their susceptibility to harm from falling debris.

In the event of an earthquake triggering a liquefaction event, these factors may exacerbate the vulnerability of those living in these areas, underscoring the importance of proactive risk management strategies to safeguard the community's well-being.

Other Threats

Earthquakes and seismic hazards can have severe consequences on the infrastructure networks within the City. In the event of an earthquake, critical infrastructure such as electricity, water and wastewater, transportation, natural gas, and communication services may be severely disrupted or even completely interrupted, leading to significant economic and societal repercussions. The damage to government facilities may hinder essential public services and administrative operations, while seismic damage to medical clinics could impede medical care and exacerbate health issues.

Vulnerable Populations

In the City of Lake Forest, earthquake vulnerability is particularly pronounced among socially vulnerable populations, including the very young, the elderly, and those experiencing poverty. These groups are more susceptible to the adverse impacts of earthquakes due to factors like their physical and financial limitations in responding to and recovering from such incidents. Additionally, these populations may reside in structures not up to seismic building codes, increasing the risk of damage and injury during earthquakes. Homeless individuals face a heightened risk as well, due to their lack of stable shelter and potential proximity to hazardous structures like bridges.

The City of Lake Forest, recognizing the widespread risk of earthquakes, emphasizes the importance of preparedness and resilience. This includes strict enforcement of building codes to ensure seismic safety, public education initiatives, and support for vulnerable populations before, during, and after an earthquake. Ensuring that all community members, particularly those most at risk, have access to information, resources, and support is crucial in mitigating the impact of earthquakes and enhancing the city's overall resilience to such natural disasters.

Facility and Infrastructure Impact

Every critical facility and area of concern in Lake Forest is at risk of harm or interruption due to earthquakes. This includes all residents. Earthquakes can cause structural damage, break gas and water pipelines, cut off electricity, and disrupt communication systems.

Specifically, structures like the City Hall/Police building, OCFA fire stations, and water/wastewater facilities, as well as the transportation network located in seismic hazard areas, are expected to experience moderate to severe damage in the event of a powerful earthquake. Previous seismic incidents, such as the 1994 Northridge earthquake, have led to partial or complete destruction of similar structures in the area. Such damage would greatly hinder emergency response efforts, utility services, and transportation throughout Lake Forest.

Land Use and Population Pattern Impacts

As Lake Forest continues to grow and develop, changes in land use and population patterns can significantly affect the impact of earthquakes on critical facilities, the general population, and vulnerable populations. New developments, particularly in areas with higher seismic risk, can increase the number of people and structures vulnerable to earthquake damage. Changes in building codes and construction practices over time can also influence the resilience of structures to seismic events.

Population growth and demographic shifts can alter the distribution of vulnerable populations within the City. For example, an increase in the elderly population or a concentration of low-income households in certain areas may require additional resources and targeted mitigation strategies to ensure their safety during an earthquake.

It is crucial for the City to consider these evolving factors when assessing earthquake threats and developing mitigation plans. This may involve regular updates to seismic hazard maps, stringent enforcement of earthquake-resistant building codes, and public education campaigns that reach all segments of the population. As the City grows and changes, it is essential to adapt emergency response plans and allocate resources accordingly to protect the entire community, especially the most vulnerable, from the impacts of earthquakes.

Climate Change

Although earthquakes are primarily influenced by tectonic activities rather than climate change, the secondary effects of a changing climate could compound the risks and impacts associated with seismic events. Earthquakes have the potential to cause widespread structural damage, disrupt utilities like gas and water pipelines, and lead to electricity and communication breakdowns. Critical facilities, including the City Hall/Police building, OCFA fire stations, and water/wastewater facilities, are particularly vulnerable, especially those located in seismic hazard zones. The transportation network also faces significant risk, as earthquake damage could severely limit mobility and access, crucial for emergency response and recovery.

Given historical precedents, such as the 1994 Northridge earthquake, the city recognizes the potential for

moderate to severe damage to its infrastructure and facilities in the event of a major seismic event. Such incidents have previously resulted in extensive destruction of similar facilities, highlighting the need for enhanced structural resilience and emergency preparedness. In light of climate change, heightened precipitation and subsequent events like landslides may further exacerbate these vulnerabilities, particularly in post-earthquake scenarios.

FLOOD

Physical Threat

Certain areas of the City are situated within the 100-year and 500-year Flood Hazard Zones (reference Figures 6 & 7), corresponding to a 1.0% and 0.2% Annual Chance of Flooding, respectively. Within these delineated boundaries, physical assets may be susceptible to inundation if precipitation surpasses the capacity of the storm drain infrastructure. Electronic or mechanical equipment situated on the ground may become waterlogged and rendered inoperative. Table 17 shows the critical facilities and facilities of concern by category in the flood hazard zones.

Table 10: FACILITIES IN FLOOD HAZARD ZONE

Category	Facility Type	Category
Dimension Water Treatment Plant	Water	Critical Facility
Sewer Lift Station	Water	Critical Facility
Cherry Pump Station	Water	Critical Facility

Social Threat

The greater part of the Flood Hazard Zone lies to the south of SR 241, spanning through vast areas of single and multi-family residences. Individuals with limited financial means residing in flood hazard zones may encounter difficulties in covering the cost of flood insurance premiums or implementing flood-proofing measures, leading to disproportionate adversity in the event of a flood. Moreover, individuals with mobility impairments or limited access to transportation may experience complications evacuating, particularly during a flash flood.

Other Threats

Floodwaters in Lake Forest have the potential to block roadways due to the relatively low threshold of water required to stall vehicles. Even shallow waters as little as a few inches can immobilize cars, and rushing water as shallow as one foot can sweep away small vehicles. Moreover, floodwaters may contain debris that can obstruct roadways, creating difficulties in transportation, hindering emergency response efforts, and impeding evacuations. Although rare, severe floods may erode the soil surrounding critical infrastructure such as water, wastewater, and natural gas pipes, which could lead to service disruptions.

Vulnerable Populations

In the City of Lake Forest, the impact of flooding is particularly severe for vulnerable populations, including the elderly, individuals with disabilities, and low-income residents. These groups may face heightened risks during flood events, such as limited access to clean water, increased exposure to disease vectors like mosquitoes, and challenges in evacuating safely. The aftermath of floods often

exacerbates these issues, leading to longer-term public health concerns and difficulties in accessing essential services and resources. Addressing these vulnerabilities requires targeted outreach and support to ensure that these populations are adequately prepared for, and can effectively respond to, flooding emergencies.

Moreover, families living in areas more prone to flooding, such as Aliso creek, in may encounter unique challenges, especially in securing their properties and finding temporary shelter during evacuations. The City's approach to flood risk management for vulnerable populations includes proactive communication strategies, ensuring that warnings and safety information are accessible to all residents, including those who might not have access to conventional communication channels.

Facility and Infrastructure Impact

Critical facilities situated within mapped flood hazard zones in Lake Forest, such as the Dimension Water Treatment Plant, Sewer Lift Station, and Cherry Pump Station, are vulnerable to flooding. Although these facilities are elevated, floodwaters can still impair the operation of their electrical and mechanical equipment and restrict workforce access.

Past flood incidents in the region, such as the 2005 California Floods, have inundated water infrastructure, leading to drinking water contamination and wastewater overflows across Southern California. Compromises to the water supply and sanitation abilities of these crucial Lake Forest facilities would have severe impacts on public health and regular economic activity.

Land Use and Population Pattern Impacts

Land use changes and population patterns can significantly influence the City of Lake Forest's vulnerability to floods and the potential impacts on critical facilities, the general population, and vulnerable groups. As the City continues to grow and develop, changes in land use and the built environment can alter the natural landscape and affect the way water moves through the watershed. The conversion of natural areas, such as wetlands, forests, and grasslands, to urban or suburban developments can reduce the land's ability to absorb and store water, leading to increased surface runoff and a higher risk of flooding. The expansion of impervious surfaces, such as roads, parking lots, and buildings, can further exacerbate this problem by preventing water from infiltrating into the ground and increasing the speed and volume of runoff.

Population growth and the development of new residential and commercial areas can also put more people and structures at risk of flooding. As the population increases, there may be greater pressure to develop land in flood-prone areas, such as floodplains or low-lying regions near water bodies. This can increase the potential for property damage and loss of life in the event of a flood.

Moreover, changes in population demographics can affect the City's vulnerability to flooding. For example, an increase in the elderly population or a growth in low-income households may require special considerations in terms of emergency response and evacuation planning, as these groups may face unique challenges in the face of a flood event.

Climate Change

Climate change could increase the severity and frequency of flooding in Lake Forest, posing significant risks to both vulnerable populations and essential infrastructure. Heightened unpredictability and intensity of rainfall, a consequence of changing climate patterns, can lead to more frequent and severe flooding. This especially impacts families in flood-prone areas, such as those near Aliso Creek, who face considerable challenges in safeguarding their homes and finding safe shelters during flood events.

Regarding the impact on facilities and infrastructure, key utilities like the Dimension Water Treatment Plant, Sewer Lift Station, and Cherry Pump Station, situated within Lake Forest's designated flood hazard zones, are particularly susceptible to the effects of climate-enhanced flooding. Despite measures like elevation, these vital facilities face the risk of operational disruptions, with floodwaters potentially compromising their electrical and mechanical systems and restricting access for essential personnel.

DROUGHT

Physical Threat

Although there is not a method to assess drought's impact on infrastructure, it is important to note that drought conditions in the City can cause soil to become dry, which can result in cracks and shifting. This phenomenon can have adverse effects on infrastructure such as buildings, roads, and bridges, particularly when they are built on expansive clay soils that are vulnerable to shrink and swell cycles. Structural damage and safety hazards may ensue as a result of the propagation of cracks in the soil into the foundation of these structures.

In addition, during a drought, trees and vegetation may become dry, increasing their susceptibility to falling, and posing hazards to infrastructure such as power lines, buildings, and roads. This can cause power outages and disruptions to transportation, with additional safety concerns.

Social Threat

The occurrence of droughts in the City is unlikely to pose significant social threats to households. However, residents and business owners in the City may experience financial costs as a result of water conservation efforts. These might include higher water rates due to scarcity, costs for upgrading to water-efficient systems, increased maintenance, regulatory compliance, and education costs. Industries such as hospitality or landscaping could potentially lose business due to water restrictions. Additionally, vulnerable populations such as low-income households or seniors with limited access to financial resources may be disproportionately affected if higher water fees are imposed during a severe drought event.

Drought conditions can also lead to poor air quality as dry conditions can increase the amount of dust and other particles in the air. This can cause respiratory problems, particularly for those with pre-existing health conditions.

Other Threats

A typical drought is not anticipated to lead to any outages of services in the City. An exceptional drought, however, may lead to restricted water use for residents or businesses in the City. Trees that are not properly adapted to lower levels of irrigation could perish, which would alter the City's aesthetic appearance and may contribute to poor air quality and the creation of heat islands.

Vulnerable Populations

In the City of Lake Forest, droughts pose distinct challenges for socially vulnerable groups, including the very young, the elderly, and those experiencing poverty. These groups are particularly susceptible to the adverse impacts of drought due to factors like physical limitations, financial constraints, and the inability to stockpile essential supplies. During droughts, which often coincide with extreme heat, densely populated areas in Lake Forest may experience even higher temperatures, exacerbating the risk for

vulnerable populations. These groups may also lack access to emergency warning systems and social media alerts due to economic disparities, hindering their ability to receive timely information and guidance.

The homeless population in Lake Forest is especially vulnerable during drought conditions. Without stable shelter, they are at an increased risk of heat-related illnesses and face difficulties in accessing potable water and food, as droughts can affect local food supply chains. Traditional cooling methods, such as seeking shelter near waterways, are less effective during droughts, as reduced water flow diminishes natural cooling effects. The city's response to these challenges involves ensuring that cooling centers, shelters, and food distribution centers are accessible and adequately equipped to meet the needs of these populations, providing essential resources to help them cope with the compounded challenges of drought and extreme heat.

Facility and Infrastructure Impact

Prolonged drought conditions can damage critical facilities and infrastructure in Lake Forest through soil shrinkage and expanding vegetation dryness. Drought-related soil contraction can propagate extensive foundation cracks in civic buildings, water tanks, and bridges if constructed atop expansive clay substrates. Furthermore, an exceptional drought may compromise the integrity of power lines due to nearby forest overgrowth experiencing broadened vegetation mortality. These impacts can substantially impair building stability, spark wildfires, obstruct transportation pathways, and amplify electrical network vulnerability throughout the City.

Land Use and Population Pattern Impacts

Land use changes and population patterns in Lake Forest can significantly influence the City's vulnerability to drought and its impacts on critical facilities, the general population, and vulnerable groups. As the City continues to grow and develop, the demand for water resources is likely to increase, putting additional strain on the water supply during drought periods.

Changes in land use, such as the conversion of natural areas to urban or suburban developments, can alter the local water cycle and reduce the land's ability to absorb and retain water. This can lead to increased surface runoff and reduced groundwater recharge, exacerbating the effects of drought. Furthermore, the expansion of impervious surfaces, such as roads and buildings, can contribute to the urban heat island effect, which can intensify the impacts of drought by increasing evaporation rates and water demand for cooling and irrigation purposes.

Population growth and demographic shifts can also affect the City's vulnerability to drought. As the population increases, so does the demand for water resources, both for residential and commercial purposes. This increased demand can put additional pressure on the water supply system, particularly during prolonged periods of drought. Moreover, changes in population demographics, such as an increase in the elderly population or a growth in low-income households, may require targeted strategies to ensure that these vulnerable groups have access to adequate water resources during drought conditions.

Climate Change

During drought periods, often accompanied by extreme heat, densely populated areas in Lake Forest may face increased heat stress. This heightened heat stress poses significant health risks, particularly to vulnerable groups such as the elderly, children, and those with chronic health conditions, who are more susceptible to heat-related complications.

For Lake Forest's homeless population, drought conditions exacerbate their vulnerability. They face increased heat exposure, and the effectiveness of conventional cooling methods, like seeking shade near water bodies, is significantly diminished due to the unreliability of these natural cooling sources. This leaves them with limited options to find relief from the oppressive heat.

In terms of facilities and infrastructure, prolonged droughts pose substantial risks to the city. Notably, the augmented dryness of vegetation in the northeastern sector of the city, above Highway 241 in the Very High Wildfire Severity Zone, substantially increases the likelihood of wildfires. These conditions not only raise the potential for wildfire outbreaks but also threaten the integrity of critical infrastructure like power lines.

LANDSLIDE AND MUDFLOW

Physical Threat

Landslides and mudflows pose a risk to buildings located on hillsides or directly above or below slopes. Since an assessment regarding this hazard's impact on the City's critical facilities and facilities of concern has not been conducted, information on the number of affected facilities cannot be provided.

Social Threat

Due to the City's geography and environment (referenced in Chapter 2) the community is more prone to landslides and mudflows. One of the primary social threats associated with landslides and mudflows in the City is the potential for loss of life. These natural disasters can cause fatalities, especially if they occur in densely populated areas. The loss of life resulting from landslides and mudflows can have far-reaching social implications, causing grief and trauma to the families and friends of the victims, and disrupting the social fabric of communities.

In addition to loss of life, landslides and mudflows can cause significant property damage, leading to the displacement of individuals and communities. This can result in social and economic disruptions, especially if the displaced individuals are unable to find alternative housing or employment.

Vulnerable populations such as low-income households or seniors with limited access to financial resources may be disproportionately affected by these natural disasters. These individuals may be unable to afford adequate insurance coverage or to make necessary repairs to their homes, making them more vulnerable to the social and economic impacts of landslides and mudflows.

Other Threats

Landslides and mudflows can disrupt transportation and communication systems, leading to further social and economic disruptions. In many cases, landslides and mudflows can block roads, making it difficult for people to access essential services such as medical facilities and emergency response services. In addition, landslides and mudflows can damage communication systems, making it difficult for individuals to communicate with each other or with emergency services. These threats can damage natural habitats, destroy vegetation, and alter the landscape. This can have significant social and economic implications, especially if the affected areas are used for recreational or commercial purposes.

Vulnerable Populations

Landslides are often secondary events, triggered by preceding natural disasters such as wildfires, heavy rainfall, or earthquakes. This cascading effect poses a heightened risk to socially vulnerable groups,

including the elderly, individuals with disabilities, low-income families, and the homeless. After such primary events, these groups find themselves disproportionately affected by landslides due to their existing vulnerabilities. For instance, wildfires can destabilize slopes, making areas where vulnerable populations reside more prone to subsequent landslides. Heavy rainfall and seismic activities similarly exacerbate the risk, especially in areas already weakened by other environmental factors.

The aftermath of primary events like wildfires or earthquakes often leaves these populations with diminished resources and resilience, making the additional threat of landslides more challenging to manage. The elderly and disabled may struggle with rapid evacuation needs, while low-income residents might lack the means to reinforce or repair their homes against landslide risks.

Facility and Infrastructure Impact

Landslides triggered by earthquakes or anomalous weather events are likely to inflict severe infrastructural harm within Lake Forest. Critical transportation routes could be fully blocked, obstructing mobility and isolating neighborhoods. El Toro Road, for instance, constitutes a crucial roadway at high landslide risk providing access to essential retail amenities and public park spaces in the community. Any activity rendering this route impassable would sensationally hamper daily life and emergency responder access.

Land Use and Population Pattern Impacts

Land use changes and population patterns can significantly influence the City of Lake Forest's vulnerability to landslides and mudflows, as well as the potential impacts on critical facilities, the general population, and vulnerable groups. As the City continues to grow and develop, changes in land use and the built environment can alter the natural landscape and affect the stability of slopes and hillsides.

The conversion of natural areas to urban or suburban developments, particularly in hilly or mountainous regions, can increase the risk of landslides and mudflows. The removal of vegetation, which helps to stabilize slopes and absorb water, can make the land more susceptible to erosion and failure during heavy rainfall events. Additionally, the construction of roads, buildings, and other infrastructure can alter natural drainage patterns and contribute to the destabilization of slopes.

Population growth and the expansion of residential areas into landslide-prone regions can put more people and structures at risk. As the population increases, there may be greater pressure to develop land in areas that are more susceptible to landslides and mudflows, such as steep hillsides or areas with a history of slope instability. This can increase the potential for property damage and loss of life in the event of a landslide or mudflow.

Moreover, changes in population demographics can affect the City's vulnerability to these hazards. For example, an increase in the elderly population or a growth in low-income households may require special considerations in terms of emergency response and evacuation planning, as these groups may face unique challenges in the face of a landslide or mudflow event.

Climate Change

Landslides often occur as secondary events, triggered by primary natural disasters such as wildfires, heavy rainfall, or earthquakes. These incidents, amplified by the effects of climate change, pose increased risks to socially vulnerable groups.. Events like wildfires can destabilize slopes, increasing the likelihood of landslides in areas where these vulnerable groups reside. Additionally, heavy rainfall, intensified by climate change, can further elevate the risk in already compromised areas.

Landslides induced by earthquakes or extreme weather events, could occur more frequently due to climate change. Crucial transportation routes, such as El Toro Road, a key access point to vital retail amenities and public spaces, would be at an increased risk. A landslide blocking this route would not only disrupt daily life but also significantly hinder emergency response efforts.

CHAPTER 5
HAZARD MITIGATION STRATEGY

STRATEGY DEVELOPMENT PROCESS

Lake Forest's hazard mitigation plan consists of a comprehensive collection of steps known as “mitigation actions” that are designed to lessen the effects of hazard events by enhancing the safety and well-being of residents and visitors, safeguarding critical facilities and facilities of concern, protecting various buildings and structures, securing key services, bolstering the local economy, and preserving other substantial community assets. These efforts will also aid in emergency preparedness, enabling a more effective community response to disasters. Preparedness actions are not a required component of an LHMP, but they support and complement mitigation activities. The Hazard Mitigation Working Group (“Working Group”) chose to include them as part of the overall hazard mitigation strategy.

USE OF HAZARD AND THREAT ASSESSMENT

The input of the community was critical in shaping the development of the mitigation strategy. The Steering Group engaged in various community engagement activities, including public meetings, surveys, and outreach to local organizations and stakeholders. Through these efforts, the group obtained valuable insights into the needs and concerns of the community, which helped guide the development of mitigation actions.

The Working Group relied in part on the hazard profiles and threat assessments in this Plan to develop the actions in the mitigation strategy. The Working Group prepared a comprehensive set of mitigation actions that respond to the relevant hazard situations and provide protection to residents, businesses, and community assets in Lake Forest. The Working Group took care to ensure that the mitigation actions will help to reduce damage from the most frequent types of hazard events, the most significant that may reasonably occur, and those with the greatest potential to harm the community. The Steering Group drafted initial mitigation actions that are intended to help protect the most vulnerable members of the community and the most vulnerable local assets. These were reviewed and added to by members of the Working Group.

CAPABILITIES ASSESSMENT

The planning team in Lake Forest performed a comprehensive inventory and analysis of existing authorities and capabilities, known as a “capability assessment.” This assessment is crucial in creating an inventory of the jurisdiction’s codes, programs, policies, and evaluating its capacity to implement them effectively. It serves as a toolkit for implementing the hazard mitigation plan and identifies opportunities to enhance the City’s core capabilities to support mitigation actions. Additionally, this assessment helps in pinpointing potential gaps in core capabilities, which, when addressed, may become key mitigation actions in the plan.

Findings from the capability assessment were shared with various City departments, facilitating the development of recommended mitigation actions. Opportunities for adding or expanding capabilities identified by departments have been recognized as crucial mitigation actions. The adaptability of each

core capability to meet the evolving needs and best interests of the City is a significant overarching capability, acknowledged by this reference.

Specific Capability Categories and Improvement Strategies:

- Planning and Regulatory:
  - Current Status: Lake Forest currently implements various plans, policies, codes, and ordinances that mitigate impacts from hazards.
  - Improvement Strategies: The City aims to improve upon these by updating zoning laws, revising building codes for enhanced resilience, and integrating climate change projections into planning documents.
- Administrative and Technical:
  - Current Status: The City possesses skilled staff and technical tools for hazard mitigation.
  - Improvement Strategies: Strategies include staff training in advanced mitigation techniques, investment in technological tools, and forming partnerships for technical guidance.
- Financial:
  - Current Status: Lake Forest has access to various funding sources for mitigation strategies.
  - Improvement Strategies: The City plans to explore additional funding avenues, such as state and federal grants, and public-private partnerships, as well as optimize budget allocations.
- Education and Outreach:
  - Current Status: Current programs in place focus on fire safety, earthquake awareness, and other hazard-related education.
  - Improvement Strategies: Expanding these programs to wider audiences, incorporating interactive educational methods, and regularly updating community information are key planned improvements.

Table 18 shows the capabilities assessment for Lake Forest, clearly presenting the current status and proposed improvements for each capability.

Table 11: CAPABILITIES ASSESSMENT

Planning and Regulatory				
Document Title	**Year**	**Does the document address or identify projects/updates for hazards or mitigation strategies?**	**How can the document be used to implement mitigation strategies**	**Website**
Annual Budget Plan	2023-2024	Yes. The current budget plan identifies the drafting of the Local Hazard Mitigation Plan ("LHMP"). The General Fund included $75,000 in the FY 2022-23 budget. Mitigation strategies in the LHMP will be included in the financial breakdown for City projects outlined in future budget plans.	The City of Lake Forest has several planning and regulatory documents that address hazards and mitigation strategies. The Annual Budget Plan for FY 2023-2024 identifies the drafting of the Local Hazard Mitigation Plan (LHMP) and includes $75,000 in the General Fund for its preparation. The LHMP preparation was also included as part of the FY 2022-2023 budget. The City will continue to seek grants to allocate funds towards the implementation of approved mitigation strategies, with funding to be added during year four of the adopted LHMP in preparation for the 5-year update. Mitigation strategies in the LHMP will be included in the financial breakdown for City projects outlined in future budget plans.	Budgets and Financial Statements | Lake Forest, CA - Official Website (lakeforestca.gov)
Building Code	2023	Yes. The City's Building Standards Code, including the Building Code, Mechanical Code, Electrical Code, and Plumbing Code, have been designed to mitigate against known hazards for new construction. The LHMP will be reviewed during the next scheduled update of City building codes, along with the General Plan Goal PS-1 (Seismic and Geologic Hazards), to update the codes as related to identified hazards and mitigations.	The City's Building Standards Code, including the Building Code, Mechanical Code, Electrical Code, and Plumbing Code, have been designed to mitigate against known hazards for new construction. These codes, required to construct buildings to safe standards, are part of triennial building code updates. These code updates may include measures to better resist damage during a hazard event. The LHMP will be reviewed during the next scheduled update of City building codes, along with the General Plan Goal PS-1 (Seismic and Geologic Hazards), to update the codes as related to identified hazards	Community Development | Lake Forest, CA - Official Website (lakeforestca.gov)

			and mitigations.	
Capital Improvement Projects Plan	2022-2023	Yes. The Capital Improvement Projects Plan outlines construction projects for City-owned buildings, facilities, and infrastructure. It is updated annually as part of the budget, covering the next 10 years but with funding only for the first two. The plan currently includes sidewalk repairs and street safety to support hazard mitigation.	The Capital Improvement Projects Plan outlines construction projects for City-owned buildings, facilities, and infrastructure. It is updated annually as part of the budget, covering the next 10 years but with funding only for the first two. The plan currently includes sidewalk repairs and street safety to support hazard mitigation. Future updates may include capital improvements that support identified mitigation factors as listed in the LHMP.	Budgets and Financial Statements | Lake Forest, CA - Official Website (lakeforestca.gov)
Emergency Operation Plan (EOP)	2023	Yes. The current EOP describes the structure and processes used during an emergency event and utilizes an all-hazards approach.	The current Emergency Operation Plan (EOP) describes the structure and processes used during an emergency event and utilizes an all-hazards approach. During the next scheduled EOP update, Lake Forest will consider how the LHMP mitigation strategies support EOP goals and Emergency Support Functions (ESF's).	
General Plan	2020	Yes. The Lake Forest General Plan provides general guidance for future land use, transportation, infrastructure, environmental and resource decisions; hazards include seismic, fire, flooding, and climate change.	The Lake Forest General Plan provides general guidance for future land use, transportation, infrastructure, environmental and resource decisions. Hazards addressed include seismic, fire, flooding, and climate change. Public Safety Goals (Goal PS 1-7) identify policies and actions the City may deploy to mitigate risk. During the next update in 2040, the City will ensure the General Plan includes and maintains reference to the LHMP to inform future budget priorities.	Lake Forest General Plan (excluding Housing Element)_20211005121255885 2.pdf (lakeforestca.gov)
Strategic Business Plan	2021-2028	Yes. Strategic Plan Initiative number 30 (SP#30), titled 'Local Hazard Mitigation Plan,' aims to identify risks and vulnerabilities linked to natural disasters and formulate long-term strategies to protect people and property. Initiatives SP#31 and SP#32 focus on establishing	The Strategic Business Plan's Initiative number 30 (SP#30), titled 'Local Hazard Mitigation Plan,' aims to identify risks and vulnerabilities linked to natural disasters and formulate long-term strategies to protect people and property. Initiatives SP#31 and SP#32 focus on establishing	Strategic Business Plan - Final (004) (lakeforestca.gov)

		the City's AM 1690 radio transmission and a Comprehensive Emergency Management Plan, respectively, bolstering the City's readiness for unpredictable events. Goal A, under the priority area "Safe" seeks to further enhance comprehensive emergency management strategies, ensuring an effective response to unforeseen incidents.	the City's AM 1690 radio transmission and a Comprehensive Emergency Management Plan, respectively, bolstering the City's readiness for unpredictable events. Goal A, under the priority area "Safe," seeks to further enhance comprehensive emergency management strategies, ensuring an effective response to unforeseen incidents. The Strategic Business Plan can be used to forecast future funding of identified mitigation projects in alignment with SP#30, SP#31, and SP#32.	
Water Efficient Landscape Ordinance	2016	No. The purpose of the Water Efficient Landscape Ordinance ("WELO") is to promote the conservation and efficient use of water and to prevent the waste of this valuable resource. The intent is to establish alternative regulations that are at least as effective as the model ordinance established by the State Department of Water Resources. The WELO was not specifically intended to mitigate against hazards.	The Water Efficient Landscape Ordinance (WELO) establishes regulations that relate to outdoor water use. While intended for the conservation and efficient use of water, approved permits for projects located in a flood or land movement area may include mitigation strategies. The Zoning Code is an implementation tool for the City's General Plan. It establishes regulations for land uses throughout the community, including where different types of development and land use activity can occur, how these developments can look, and how they may be operated. As part of a future comprehensive update to the Zoning Code and planned community documents, hazards and mitigations listed in the LHMP shall be reviewed as part of the approval and submission package. Mitigation actions that relate to the siting, construction, and operation of new developments may be implemented through the Zoning Code to ensure these projects address risks identified in the plan.	Water Efficient Landscape Ordinance (9.146.110).pdf (lakeforestca.gov)
Zoning Code	2023	Yes. The Zoning Code is an implementation tool for the City's	As part of a future comprehensive update to the Zoning Code and planned	Community Development | Lake Forest, CA - Official Website

		General Plan. It establishes regulations for land uses throughout the community, including where different types of development and land use activity can occur, how these developments can look, and how they may be operated.	community documents, hazards and mitigations listed in the LHMP shall be reviewed as part of the approval and submission package. Mitigation actions that relate to the siting, construction, and operation of new developments may be implemented through the Zoning Code to ensure these projects address risks identified in the plan.	(lakeforestca.gov)
County of Orange General Plan	2015-2022	Yes. The Orange County General Plan is the long-term blueprint for growth and development primarily in the unincorporated areas of Orange County; hazards include: seismic, fire, flooding, dam, watercourses and generating nuclear power.	The Orange County General Plan is the long-term blueprint for growth and development primarily in the unincorporated areas of Orange County. Hazards addressed include seismic, fire, flooding, dam, watercourses and generating nuclear power. Mitigation actions that require coordination with the County may be supported by including these actions in the Orange County General Plan.	General Plan | OC Development Services California (ocpublicworks.com)
County of Orange Hazard Mitigation Plan		The Orange County Hazard Mitigation Plan identifies and describes the hazard events that may occur in the unincorporated areas of Orange County and provides a suite of mitigation actions to help decrease the potential damage from these hazards.	The Orange County Hazard Mitigation Plan identifies and describes the hazard events that may occur in the unincorporated areas of Orange County and provides a suite of mitigation actions to help decrease the potential damage from these hazards. Mitigation actions for Lake Forest that may involve the County may require additional coordination with the County's Hazard Mitigation Program. This can help create a more unified approach to hazard mitigation in the region, as similar actions may be included in both plans, making them more effective together.	2021 County of Orange and Orange County Fire Authority Local Hazard Mitigation Plan.pdf (ocsheriff.gov)
California State Hazard Mitigation Plan		The California State Hazard Mitigation Plan assesses the types of hazards that may be present in California. It includes descriptions of these hazards, summaries of past hazard events, descriptions of how these hazards may occur in the future, and how these	The California State Hazard Mitigation Plan assesses the types of hazards that may be present in California. It includes descriptions of these hazards, summaries of past hazard events, descriptions of how these hazards may occur in the future, and how these	Hazard Mitigation Planning | California Governor's Office of Emergency Services

		hazards may harm the people and assets of California. Like a local hazard mitigation plan, the State Hazard Mitigation Plan is updated every five years.	hazards may harm the people and assets of California. Like a local hazard mitigation plan, the State Hazard Mitigation Plan is updated every five years. The City can use the State Hazard Mitigation Plan as a source of information to refine the hazard profiles and vulnerability assessments in future Lake Forest's LHMPs.	

Administrative and Technical		
Administration	**Skills/Tools**	**Ability to Support Mitigation**
Hazard Mitigation Working Group	The Hazard Mitigation Working Group was formed in 2022 and consists of core City departments: Management Services, City Manager's Office, Community Development, Community Services, Economic Development, Finance, and Public Works. External partnerships also include representatives of public utilities, public safety agencies, fire services, school district, neighboring cities, etc.	The City of Lake Forest has several administrative and technical capabilities that can support mitigation efforts. The Hazard Mitigation Working Group, formed in 2022, consists of core City departments, including Management Services, City Manager's Office, Community Development, Community Services, Economic Development, Finance, and Public Works. External partnerships also include representatives of public utilities, public safety agencies, fire services, school district, neighboring cities, etc. Comprised of subject matter experts, this group provides current and relevant insights on capabilities within the City to inform mitigation planning and implementation efforts.
Steering Group	The Steering Group was formed in 2022 and consists of core members of the City's Community Development department alongside consultants that serve as a SME in Emergency Management and local government.	The Steering Group, formed in 2022, consists of core members of the City's Community Development department alongside consultants that serve as subject matter experts in Emergency Management and local government. This group also provides current and relevant insights on capabilities within the City and Hazard Mitigation planning.
Community Development	The Community Development Department plays a	The Community Development Department plays a crucial

	crucial role in managing the physical development of the community by overseeing the approval of building permits and ensuring that all buildings and properties comply with appropriate standards. These standards may include fire codes, building codes, and zoning regulations. To carry out its duties, the department conducts current and long-range planning activities, including land use planning, which involves developing comprehensive plans that determine the appropriate use of land within a community. The department also enforces all land use regulations, which include zoning regulations that determine where certain types of structures can be built within the community.	role in managing the physical development of the community by overseeing the approval of building permits and ensuring that all buildings and properties comply with appropriate standards, including fire codes, building codes, and zoning regulations. The department conducts current and long-range planning activities, including land use planning, which involves developing comprehensive plans that determine the appropriate use of land within a community. The department also enforces all land use regulations. Mitigation actions related to the construction of structures, or retrofits or improvements to existing structures, may be implemented through planning processes by Community Development Department staff.
Community Emergency Response Team (CERT)	CERT is a group of trained volunteers who specialize in disaster preparedness, public safety, traffic control, and emergency response. They are capable of performing light emergency response activities and conducting disaster preparedness activities when a disaster situation arises. The program is run by the Management Services staff and falls under the jurisdiction of the Federal Emergency Management Agency and is standardized across the nation.	The City's CERT (Community Emergency Response Team) program is a group of trained volunteers who specialize in disaster preparedness, public safety, traffic control, and emergency response. They are capable of performing light emergency response activities and conducting disaster preparedness activities when a disaster situation arises. The program is run by the Management Services staff and falls under the jurisdiction of the Federal Emergency Management Agency and is standardized across the nation. Expanding the CERT program can be an effective strategy for implementing mitigation actions related to community training and education. This can help to improve the overall level of disaster preparedness in the community and increase the capacity for emergency response in the event of a disaster.
Finance	The Finance Department is responsible for managing the City's financial affairs. This includes preparing the annual budget, managing the receipt and distribution of City funds, and generating various financial reports.	The Finance Department is responsible for managing the City's financial affairs, including preparing the annual budget, managing the receipt and distribution of City funds, and generating various financial reports. Based on City Council's Direction and the adopted Strategic Plan, the Finance Department can incorporate mitigation actions into the City's budget, ensuring that sufficient resources are allocated towards mitigation efforts. Additionally, staff can provide support in administering grant funding related to mitigation activities.

Human Resources	Human Resources is responsible for recruiting and training City staff.	Mitigation actions that relate to staff training may be implemented through the Human Resources Division. The City is a member of the Orange County Operation Area and the Orange County Emergency Management Organization. Also, Public Works holds an agreement with the County of Orange. The agreement has set pricing for essential equipment rentals during an emergency. Both the Orange County Operation Area and the Orange County Emergency Management Organization provide mutual aid to communities via the Orange County Sheriff's Department, Orange County Fire Authority and the State of California Office of Emergency Services..
Mutual Aid Agreements, Joint Power Authority, Inter-local Agreements, etc.	The City is a member of the Orange County Operation Area and the Orange County Emergency Management Organization. Also, Public Works holds an agreement with the County of Orange. The agreement has set pricing for essential equipment rentals during an emergency.	Forming partnerships with neighboring jurisdictions, state and federal agencies, and community organizations could also strengthen the City's mitigation capabilities. For example, collaborating with the Orange County Fire Authority on wildfire mitigation efforts, working with the Orange County Sheriff's Department on evacuation planning, and partnering with local businesses and nonprofits on community outreach and education programs.
Public Safety	The Orange County Sheriff's Department (OCSD) is contracted to provide police services. OCSD is responsible for protecting citizens, enforcing laws, and crime prevention. Law enforcement services include patrol, traffic enforcement, accident analysis and investigation, parking enforcement, general and special investigations, a School Resource Officer, and a Homeless Liaison Officer.	Mitigation actions that relate to the safe movement of traffic (e.g., during evacuations), the public safety of residents during emergency events, and terrorism-related activities may be implemented through OCSD staff. They can also widely implement other types of mitigation actions through coordination with the City and other agencies.
Public Works	The Public Works Department is responsible for the oversight of constructing and maintaining City-owned facilities and infrastructure, including roadways, sidewalks, parks, and open space areas. The department also handles the contract for solid waste collection activities in the community.	The Public Works Department is responsible for the oversight of constructing and maintaining City-owned facilities and infrastructure, including roadways, sidewalks, parks, and open space areas. The department also handles the contract for solid waste collection activities in the community. Mitigation actions that involve constructing or retrofitting City-owned facilities and infrastructure may be implemented through Public Works Department staff.
Fire Services	The Orange County Fire Authority (OCFA) provides contracted fire services to the community, encompassing	The Orange County Fire Authority (OCFA) provides contracted fire services to the community, encompassing

	fire protection, suppression, inspection, paramedic emergency medical assistance, and hazardous material response.	fire protection, suppression, inspection, paramedic emergency medical assistance, and hazardous material response. Fire-related mitigation actions that require coordination with the County may be implemented in collaboration with OCFA staff.
The California Department of Transportation (Caltrans), Orange County Transportation Authority (OCTA), and Transportation Corridor Agencies (TCA)	CalTrans is the state agency with jurisdiction over designated highways. The Orange County Transportation Authority (OCTA) is a public agency responsible for planning, financing, and coordinating transportation services in Orange County. OCTA oversees a variety of transportation options, including bus service, Metrolink commuter rail, and the planning and implementation of road improvements and freeway projects. The organization's mission is to enhance the mobility, accessibility, and quality of life for the residents of Orange County by delivering efficient, reliable, and safe transportation solutions. Transportation Corridor Agencies (TCA) are two public agencies, the Foothill/Eastern Transportation Corridor Agency and the San Joaquin Hills Transportation Corridor Agency, operating in Orange County. TCA's primary responsibility is to plan, finance, construct, and manage toll roads in the region.	Mitigation measures related to ensuring the resiliency of state-designated freeways will be implemented through coordination with Caltrans, OCTA and TCA. City staff can work with Cal OES and FEMA to obtain future funding to implement LHMP mitigation strategies and to receive guidance on future updates.
The California Governor's Office of Emergency Services (Cal OES)	CalOES is the state agency responsible for reducing hazards in the state through mitigation activities, conducting emergency planning, supporting emergency response and recovery activities, and acting as a liaison between local and federal agencies on emergency-related issues.	Cal OES is the state agency responsible for reducing hazards in the state through mitigation activities, conducting emergency planning, supporting emergency response and recovery activities, and acting as a liaison between local and federal agencies on emergency-related issues. City staff can work with Cal OES to obtain future funding to implement LHMP mitigation strategies and to receive guidance on future updates. This could involve applying for grants through Cal OES's Hazard Mitigation Grant Program or Pre-Disaster Mitigation Program, which provide funding for a wide range of mitigation projects. Cal OES also offers technical assistance and training to local governments on hazard mitigation planning and project implementation, which the City could take advantage of to build its internal capacity.
The Federal Emergency	FEMA is the federal agency responsible for hazard	City staff can work with FEMA to obtain future funding to

Management Agency (FEMA)	mitigation, emergency preparedness, and emergency response and recovery activities. It provides guidance to state and local governments on hazard mitigation activities, including best practices and how to comply with federal requirements.	implement LHMP mitigation strategies and to receive guidance on future updates. This could involve applying for grants through FEMA's Building Resilient Infrastructure and Communities (BRIC) program, which provides funding for a wide range of mitigation projects, or the Flood Mitigation Assistance (FMA) program, which focuses specifically on flood mitigation. FEMA also offers technical assistance and training to local governments on hazard mitigation planning and project implementation, similar to Cal OES. In addition to these grant programs, the City could also work with FEMA to access other resources and tools, such as the National Risk Index, which provides data on natural hazard risk across the United States, and the Community Lifelines framework, which helps communities to identify and prioritize critical services and infrastructure. By leveraging these resources and collaborating closely with FEMA, the City can enhance its overall mitigation capabilities and better protect the community from future hazards.
Southern California Edison (SCE)	SCE is the electrical service provider for the community.	Mitigation actions relating to the resiliency of the electrical grid will be implemented through coordination with SCE. Southern California Edison - SCE
Southern California Gas Company (SoCalGas)	SoCalGas is the natural gas provider and also owns the natural gas infrastructure in the community.	Mitigation actions that address the resiliency of natural gas infrastructure will be implemented through coordination with SoCalGas. Home | SoCalGas
Irvine Ranch Water District (IRWD)	IRWD is an independent government agency that provides water services. Water and sewer services are provided by separate public agencies and not by the City. Most Lake Forest residents are served by the Irvine Ranch Water District (formerly the Los Alisos Water District).	Mitigation actions related to water use may be implemented with support and collaboration with IRWD. IRWD
El Toro Water District (ETWD)	ETWD is an independent government agency that provides water services. Water and sewer services are provided by separate public agencies and not by the City. A portion of Lake Forest residents are served by El Toro Water District.	Mitigation actions related to water use may be implemented with support and collaboration with ETWD. ETWD Home Page
Trabuco Canyon Water District (TCWD)	TCWD is an independent government agency that provides water services. Water and sewer services are provided by separate public agencies and not by the City. A small number of Lake Forest residents in the north part of the City are served by the Trabuco Canyon Water	Mitigation actions related to water use may be implemented with support and collaboration with TCWD. Trabuco Canyon Water District | Home

	District.	

Financial		
Funding Resource	**Has funding been leveraged for hazard mitigation? If so, how?**	**Can this resource be leveraged for future mitigation projects?**
Capital Improvement Project Funding	Yes. CIP funds are regularly budgeted for design and construction of improvements such as Citywide traffic signal management.	The City of Lake Forest has leveraged funding for hazard mitigation through various sources. CIP funds are regularly budgeted for design and construction of improvements such as Citywide traffic signal management. Future CIP funds will be budgeted and utilized on an annual basis.
Authority to levy taxes for specific purposes	Yes. In accordance with Prop 218.	In accordance with Prop 218, the City has the authority to levy taxes for specific purposes. The City applied for and received funding from FEMA's Hazard Mitigation Grant Program to fund the development of this plan. This resource can be leveraged for future mitigation projects.
FEMA Hazard Mitigation Grant Program	The City applied for and received funding from FEMA's Hazard Mitigation Grant Program to fund the development of this plan.	To expand and improve the City's financial capabilities for mitigation, the City could explore additional grant opportunities, such as the Building Resilient Infrastructure and Communities (BRIC) program and the Flood Mitigation Assistance (FMA) program, both administered by FEMA. Pursuing partnerships with private sector entities and nonprofits could also open up new funding streams for mitigation projects. For example, collaborating with a local business on a flood control project that benefits both the City and the business, or working with a community foundation to establish a mitigation grant program for local organizations.
Other fees such as M2, gas tax, city sales tax, etc.	Yes, property tax revenue from the General Plan.	Other fees such as M2, gas tax, city sales tax, etc., are utilized annually for funding. Some new development projects require a development agreement wherein public

		improvements are paid for by developers. These public improvements may include roadway and traffic control infrastructure, proposed as a component of a project and paid for by the developer. For example, the Opportunities Study was a comprehensive planning process that the City of Lake Forest undertook to rezone nearly 838 acres of land zoned for business and industrial use on 5 properties. The zoning changes allowed for a new plan with residential uses and public improvements and facilities such as a sports park and community / civic center which were paid for by the developers. A development agreement is required for any General Plan Amendment. Development agreements are intended to strengthen the public planning process, to encourage private participation in comprehensive planning and to reduce the economic costs of development by providing earlier vesting than otherwise available under California law.
Developer Fees	Yes. Some new development projects require a development agreement wherein public improvements are paid for by developers. These public improvements may include roadway and traffic control infrastructure, proposed as a component of a project and paid for by the developer. For example, the Opportunities Study was a comprehensive planning process that the City of Lake Forest undertook to rezone nearly 838 acres of land zoned for business and industrial use on 5 properties. The zoning changes allowed for a new plan with residential uses and public improvements and facilities such as a sports park and community / civic center which were paid for by the developers.	To expand the use of developer fees for hazard mitigation, the City could consider updating its development agreement requirements to specifically address mitigation needs. This could involve requiring developers to contribute funds to a mitigation project or program as part of their agreement or mandating that certain mitigation measures be incorporated into the design and construction of new developments. For example, the City could require that all new developments in flood-prone areas be built with elevated foundations or that developers install green infrastructure to manage stormwater runoff.

Education and Outreach			
Program/Organization	**Year**	**Describe the program and how it relates to resiliency and mitigation**	**Describe the process**
CERT	Since 2019	CERT is a group of trained volunteers who specialize in disaster preparedness, public safety, traffic control, and emergency response. They are capable of performing light emergency response activities and conducting disaster preparedness activities when a disaster situation arises.	The City of Lake Forest has several education and outreach programs that relate to resiliency and mitigation. The CERT program, which has been active since 2019, is a group of trained volunteers who specialize in disaster preparedness, public safety, traffic control, and emergency response. They are capable of performing light emergency response activities and conducting disaster preparedness activities when a disaster situation arises. Residents complete the FEMA CERT Basic Training Course. Upon completion, residents have an option to become a certified Lake Forest CERT Volunteer. Requirements include completing 2 FEMA Classes, completing a City Volunteer application and background process.
The Great Shake Out		The Great Shake Out is an annual earthquake preparedness drill held on the third Thursday of October. It is the world's largest earthquake drill, and participants all over the world use this opportunity to practice what they would do in case an earthquake occurred suddenly. The City participates annually, raising awareness among City staff and residents	The Great Shake Out is an annual earthquake preparedness drill held on the third Thursday of October. It is the world's largest earthquake drill, and participants all over the world use this opportunity to practice what they would do in case an earthquake occurred suddenly. The City participates annually, raising awareness among City staff and residents. The City conducts an annual test of the Alert OC system to provide awareness to the community. Information is also shared on social media sites.
Emergency Preparedness Month		National Preparedness Month is an observance each September to raise awareness about the importance of preparing for disasters and emergencies that could happen at any time. The City Council proclaims September as National Preparedness Month	National Preparedness Month is an observance each September to raise awareness about the importance of preparing for disasters and emergencies that could happen at any time. The City Council proclaims September as National Preparedness Month during the first meeting in September. Preparedness tips and recommendations are shared on social media.
Disaster Service Worker		All full-time City employees are designated Disaster Service Workers.	All full-time City employees are designated Disaster Service Workers. Upon hiring, all full-time employees take an oath as Disaster Service Workers. When a disaster affects the City or County, employees are required to report to the City.

Pop Up Events		Neighborhood Improvement Task Force works to assist with improving neighborhoods.	The Neighborhood Improvement Task Force works to assist with improving neighborhoods. A pop-up event is held in the neighborhood to gain better insight into local issues and disburse resource information. Representatives from OCFA, OCSD and City Code Enforcement representatives also share information as it relates to resiliency and mitigation.

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EVALUATION OF POTENTIAL HAZARD MITIGATION ACTIONS

The Hazard Mitigation Working Group ("Working Group") has created a variety of potential mitigation measures based on the identified hazard profiles, threat, and capability evaluations, as well as the findings of community surveys. The Working Group then assessed these acts using predetermined standards.

Per FEMA guidelines, local governments are required to assess both the monetary and nonmonetary costs and benefits of proposed mitigation actions. While it is not mandatory to assign specific dollar values to each action, a general estimation of costs and benefits should be provided. The Working Group may consider measures with high costs or low benefits, but only if they are deemed to be of clear benefit to the community and an appropriate use of local resources. Furthermore, FEMA stipulates that local governments should consider the following questions as part of the financial analysis:

- What is the frequency and severity of the hazard type to be addressed by the action and how vulnerable is the community to this hazard?
- What impacts of the hazard will the action reduce or avoid?
- What benefits will the action provide to the community?
- What critical facilities, if any, will benefit from the action? How many facilities will benefit, and how important are they to the community?
- What are the environmental benefits or impacts of the action?

The Working Group elected to conduct a review and revision of the potential hazard mitigation actions based on a third set of criteria called STAPLE/E (Social, Technical, Administrative, Political, Legal, Economic, and Environmental). While the Working Group did not carry out a formal assessment of every potential mitigation action under all STAPLE/E criteria, they utilized these criteria as a reference and a basis for discussion. Furthermore, the group deliberated on how the criteria could be used to evaluate grant applications submitted by the City for the purpose of funding LHMP implementation. Please refer to **Table 19** for the STAPLE/E criteria.

Table 12: STAPLE/E CRITERIA

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

PRIORITIZATION

As a component of the hazard mitigation action review, the Working Group placed emphasis on prioritizing the actions. The prioritization endeavors entailed examining risks and threats associated with each hazard, financial costs and benefits, technical feasibility, and community values, among other considerations. Working Group members were requested to indicate their priority actions via a voting exercise. Actions that obtained prioritization from at least four members are classified as high priority, while those prioritized by one to three members are deemed medium priority. Actions that did not obtain prioritization from any Working Group member are classified as low priority.

COST ESTIMATES

To comply with the cost estimation requirements of the hazard mitigation planning process, the Steering Group determined relative cost estimates by drawing on their comprehension of the intent of the mitigation action and their prior involvement in developing identical or similar programs/implementing projects. For budgeting purposes, three cost categories were adopted, which were in line with the City's usual cost criteria:

- Low cost ($): $100,000 or less
- Medium cost ($$): $100,001 to $250,000
- High cost ($$$): Greater than $250,000

HAZARD MITIGATION GOALS

The overarching goals identified in Chapter One were pivotal in laying the foundation for the hazard mitigation plan. These goals not only guided the formulation of policies aimed at protecting community members, ecosystems, and other vital assets from hazard events but also ensured alignment with the broader objectives of the City's General Plan Safety Element. The incorporation of these goals by reference in this process underscores their significance.

Moreover, these established goals were integral to the development of targeted mitigation actions. They provided critical benchmarks for City staff, enabling consistent evaluation and tracking of the progress in implementing these actions. By serving this dual purpose – guiding policy formulation and acting as a measure of progress – the goals in Chapter One have been essential in shaping a robust and cohesive hazard mitigation strategy for the City.

Outlined below are the key mitigation goals that have been established based on the foundational objectives discussed in Chapter One. These goals are essential for guiding the City's efforts in hazard mitigation and ensuring a resilient and safe community.

1. Minimize loss of life, injuries, and property damage due to earthquakes, wildfires, floods, droughts, and landslides.
2. Maintain functionality of critical services and government operations by safeguarding infrastructure against earthquakes, wildfires, floods, droughts, and landslides.
3. Preserve and adapt natural systems to be resilient against earthquakes, wildfires, floods, droughts, and landslides.
4. Enhance coordinated efforts among City departments and neighboring jurisdictions

for mitigation against earthquakes, wildfires, floods, droughts, and landslides.

5. Strengthen the City's resilience through community partnerships, focusing on preparedness and response to earthquakes, wildfires, floods, droughts, and landslides.

HAZARD MITIGATION ACTIONS

In the development of this Plan, the Working Group conducted a comprehensive review and analysis of a wide array of potential mitigation actions and projects for Lake Forest. This thorough evaluation process included considering the full spectrum of possibilities, ranging from education and outreach initiatives to infrastructure projects. The criteria for selection encompassed various factors such as financial feasibility, administrative and technical capacity, and overall effectiveness in enhancing community resilience. **Table 20** in the Plan encapsulates this comprehensive assessment, listing all the mitigation actions that were considered and selected to pursue for the City of Lake Forest.

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Table 20: MITIGATION ACTIONS

Mitigation Action		Potential Funding Sources	Responsible Agency / Department	Timeframe
Multiple hazards				
1.1	Capitalize on City-sponsored events to inform and educate the public regarding hazards with the potential to affect the community and ways they can protect themselves and reduce impacts from the hazards. Information will be gathered, then disseminated via handouts and other methods.	General Fund / HMGP / BRIC	Community Development / PIO / Economic Development	(Ongoing) The City will capitalize on City-sponsored events to inform and educate the public regarding hazards with the potential to affect the community and ways they can protect themselves and reduce impacts from the hazards. Information will be gathered, then disseminated via handouts and other methods.
1.2	Continue to update emergency related planning documents to ensure consistency with state and federal law, best practices, local conditions, and recent information and advances.	General Fund / HMGP / BRIC	Public Works / Community Development / Management Services	(Ongoing) The City will continue to update emergency related planning documents to ensure consistency with state and federal law, best practices, local conditions, and recent information and advances. This action will be the responsibility of the Public Works, Community Development, and Management Services departments.
1.3	Coordinate with the water districts on an as-needed basis to install and harden emergency backup generators at water pump stations and sewer lift stations.	General Fund / FMA	Water Districts / Public Works / Community Development	(Ongoing) The City will continue to coordinate with the water districts on an as-needed basis to install and harden emergency backup generators at water pump stations and sewer lift stations.
1.4	Facilitate the deployment/expansion of fiber optic network throughout the City.	General Fund / HMGP / PDM	Public Works / IT	1 - 5 Years

1.5	Work with Caltrans, OCTA, TCA, and neighboring jurisdictions to ensure emergency transportation routes are maintained, repaired, and strengthened, as necessary.	Capital Improvement Projects / General Fund	Public Works	(Ongoing) The City will continue to work with Caltrans, OCTA, TCA, and neighboring jurisdictions to ensure emergency transportation routes are maintained, repaired, and strengthened, as necessary.
1.6	Determine equipment deficiencies or extra requirements for the City's backup EOC if the main facility at City Hall becomes inoperable or inaccessible.	General Fund	Management Services	1 - 2 Years
1.7	Expand the City's comprehensive educational campaign for residents and businesses that describes the hazards present in the community and emphasizes cost-effective mitigation efforts, such as proper construction techniques, bracing of furniture and appliances, and purchase of additional insurances. Distribute information through social networking, websites, print media, radio, television, at special events and in City facilities, and/or other media as appropriate.	General Fund / BRIC	Management Services	(Ongoing) The City will expand its comprehensive educational campaign for residents and businesses that describes the hazards present in the community and emphasizes cost-effective mitigation efforts, such as proper construction techniques, bracing of furniture and appliances, and purchase of additional insurances. Information will be distributed through social networking, websites, print media, radio, television, at special events and in City facilities, and/or other media as appropriate.
1.8	Closely monitor changes to the boundaries of hazard-prone areas and adopt new mitigation activities or revise existing ones as appropriate to protect health, safety, property, and overall community well-being.	General Fund / HMGP / PDM	Community Development	(Ongoing) The City will continue to closely monitor changes to the boundaries of hazard-prone areas and adopt new mitigation activities or revise existing ones as appropriate to protect health, safety, property, and overall community well-being.
1.9	Reference policy direction and other information from this LHMP into other City documents, including the General Plan Safety Element and Capital Improvements Program.	General Fund	Community Development	1 - 5 Years
1.10	Continue to partner with the American Red Cross, the County, neighboring cities, public and private schools, and HOAs to provide evacuation and reunification locations and shelters in an emergency.	General Fund / HMGP / PDM	Public Safety Division	(Ongoing) The City will continue to partner with the American Red Cross, the County, neighboring cities, public and private schools, and HOAs to provide evacuation and reunification locations and shelters in an emergency.

1.11	Seek funding to hire a consultant to assist in the implementation of mitigation strategies.	General Fund / HMGP / PDM / BRIC	Community Development / Management Services	1 - 2 Years
Wildfires				
2.1	Partner with OCFA to expand outreach regarding home fire safety inspections for residents and businesses in fire-prone areas. Provide information about ways to retrofit homes and maintain landscapes to improve resiliency to wildfires.	FMAG/ PDM / NFPA	Fire / Community Development / PIOs	1 - 5 Years
2.2	Encourage HOAs and property owners in high fire threat districts to replace vegetation with those listed on the OCFA approved plant list.	California Climate Investments Fire Prevention Grant	Community Development, Public Works, in coordination with OCFA	1 - 2 Years
2.3	Coordinate with the HOAs and property owners to ensure the creation of defensible spaces and fuel modification around homes and neighborhoods to reduce vulnerability and increase the success potential of fire fighters in the case of a wildfire emergency. Partner with the OCFA to ensure enforcement.	HMGP	Community Development (Code Enforcement) in coordination with OCFA	1 - 5 Years
2.4	Coordinate with Cal Fire, OCFA, and OCSD during wildfire events to ensure areas of evacuation are clearly articulated to the community through social media, radio, television, and other platforms as necessary.	FEMA Public Assistance Fund / EMPG	Management Services/Police Services/ PIO / in collaboration with OCFA	(Ongoing) The City will coordinate with Cal Fire, OCFA, and OCSD during wildfire events to ensure areas of evacuation are clearly articulated to the community through social media, radio, television, and other platforms as necessary.
2.5	Develop a fire response time analysis that determines the key factors that affect emergency response issues, such as street width, type of response apparatus, and parking restrictions. Outcomes from this analysis should be incorporated into new City policy and standards, if necessary.	AFG	OCFA	1 - 5 Years
Earthquake				
3.1	Prepare an inventory of seismically vulnerable City-owned facilities. Explore feasible solutions to mitigate vulnerable buildings and structures to be retrofitted.	BRIC / HMGP / Earthquake	Public Works	1 - 5 Years

		Brace and Bolt Program		
3.2	Monitor changes/updates to building codes and seismic regulations to determine if City owned critical facilities may need seismic retrofits as they age and building codes are updated.	PDM	Community Development	(Ongoing) The City will continue to monitor changes/updates to building codes and seismic regulations, including the California Existing Building Code, Appendix A, which provides guidelines for upgrading the seismic-resistance capacity of different types of existing buildings. The City will assess whether these guidelines have been adopted by the relevant state agency or local enforcing agency and determine if City-owned critical facilities may need seismic retrofits as they age and building codes are updated.
3.3	Encourage owners of Critical Facilities as outlined in Chapter 4 to ensure facilities are evaluated for seismic safety. If any critical facilities are determined to be seismically vulnerable, work with the owner to identify potential funding sources to implement seismic retrofits.	HMGP / CSMIP	Community Development / Public Works	1 - 3 Years
3.4	Improve local understanding of the threat of a major earthquake by conducting a City-wide scenario modeling potential loss of life and injuries, destroyed and damaged structures, and interruptions to key services.	NEHRP	OCFA / Management Services	(Ongoing) The City will improve local understanding of the threat of a major earthquake by conducting a City-wide scenario modeling potential loss of life and injuries, destroyed and damaged structures, and interruptions to key services.
3.5	Encourage the installation of resilient (seismically appropriate) piping for new or replacement pipelines, in close coordination with local water, natural gas, and other utility service providers.	General Fund	Public Works	1 - 5 Years
3.6	Conduct an educational campaign to encourage the use of reinforced chimneys, anchored rooftop-mounted equipment, window film, and other preventative measures to reduce damage at private buildings.	General Fund / BRIC	Community Development	1 - 3 Years

3.7	Educate community groups and industry representatives and assist in outreach to residents and businesses to obtain earthquake insurance through the California Earthquake Authority	General Fund	Public Safety / Management Services	1 - 3 Years
Flood				
4.1	Encourage the use of porous surfaces on new and significantly retrofitted residential and commercial developments to reduce runoff.	FMA / PDM	Community Development / Public Works	1 - 5 Years
4.2	Conduct periodic cleanings of City owned storm drain intakes in accordance with the City's NPDES permits. Similarly encourage HOAs and other property owners to proactively remove debris from their drainage systems.	FMA / PDM	Public Works	(Ongoing) The City will continue to conduct periodic cleanings of City owned storm drain intakes in accordance with the City's NPDES permits. Similarly, the City will encourage HOAs and other property owners to proactively remove debris from their drainage systems.
4.3	Educate citizens about safety during flood conditions, including the dangers of driving on flooded roads.	FMA / PDM	Management Services/ Public Works/ Public Safety	(Ongoing) 1 - 5 Years
4.4	Retrofit roadway medians to capture storm water during rain events.	FMA / PDM	Public Works / Community Development	3 - 5 Years
4.5	Prioritize retrofit improvements along major arterials/ roadways throughout the City.	FMA / PDM	Public Works / Community Development	1 - 5 Years
4.6	Encourage all property owners within 100-year and 500-year floodplains to obtain flood insurance and flood proof their structures.	FMA / PDM	Community Development / Management Services	1 - 5 Years
Drought				
5.1	When installing new landscapes or significantly redoing existing landscaping on City property, use drought-tolerant plants or xeriscaping. On City property, limit turf that is not drought-tolerant to recreational fields and lawns, and only if no feasible drought-tolerant alternative exists.	HMGP / PDM	Public Works / Water Districts	1 - 5 Years

5.2	Coordinate with the City's water providers to make drought education materials available and other related incentives for residents and businesses to conserve water.	HMGP / PDM	Management Services / Water Districts	1 - 3 Years
5.3	Encourage low-flow water fixtures and daytime watering restrictions on properties throughout the City to reduce water consumption.	HMGP / PDM	Management Services / Community Development / Water Districts / PIO	(Ongoing) 1 - 3 Years
5.4	Educate the community on drought-tolerant landscaping and xeriscaping methods.	HMGP / PDM	Community Development	1 - 3 Years
Landslides / Mudflows				
6.1	Maintain slope stabilization measures on publicly owned hillsides above roads, buildings, and other facilities.	HMGP / PDM	Public Works	(Ongoing) The City will continue to maintain slope stabilization measures on publicly owned hillsides above roads, buildings, and other facilities.
6.2	Educate private property owners on inspection and maintenance of effective drainage systems and stabilizing vegetation on and above landslide-prone slopes.	HMGP / PDM	Public Works / Community Development	1 - 3 Years
6.3	Following wildfire events, continue to partner with Cal Fire, Orange County Office of Emergency Preparedness, OCFA, and OCSD, to identify the potential and location for landslide and/or mudflow events associated with heavy rainfall.	HMGP / PDM	Public Works / Management Services and Public Information Officer, in coordination with OCSD	(Ongoing) Following wildfire events, the City will continue to partner with Cal Fire, Orange County Office of Emergency Preparedness, OCFA, and OCSD, to identify the potential and location for landslide and/or mudflow events associated with heavy rainfall.
6.4	Maintain and update local regulations regarding building and development as needed in landslide-prone areas.	HMGP / PDM	Public Works	1 - 5 Years

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CHAPTER 6
PLAN MAINTENANCE

This LHMP must be kept up to date to remain functional and relevant to the City. An updated LHMP will continue to guide hazard mitigation actions in the City and will help the City remain eligible for state and federal hazard mitigation funds. The LHMP was created by the Steering Group and Local Hazard Mitigation Working Group with the intention of allowing the City to readily update specific parts as new information becomes available and new requirements arise, hence keeping this Plan up to date.

This chapter describes how to maintain this Plan to comply with applicable state and federal obligations. This chapter also discusses how the City may incorporate the mitigation efforts (indicated in Chapter 5) into current programs and planning procedures, as well as how public input will continue to play a vital role in Plan monitoring and future update activities.

PLAN MAINTENANCE AND UPDATE METHODOLOGY

PURPOSE AND AUTHORITY

Section 201.6.(d)(3) of Title 44 of the Code of Federal Regulations requires that local hazard mitigation plans be reviewed, revised if appropriate, and resubmitted for approval in order to remain eligible for benefits awarded under DMA. To support maintenance and implementation, this Plan is supported by the Lake Forest Mitigation Implementation Worksheet, provided in **Appendix C** for reference. The worksheet is intended to function as a stand-alone document that gives concise and accessible guidance to jurisdiction staff for implementing the Plan.

The City plans to review the plan every five years and incorporate updates as needed from the date of initial adoption. The update process will typically commence at least one year before the existing plan expires. City staff will continue to be in charge of maintaining and updating the Plan, as well as reviewing its efficacy as needed. This will be done in coordination with the Steering and Working Groups referenced in Chapter 1. In future years, personnel from the following City departments and contract agencies (existing members or others) should be included in maintenance and update activities:

- Lake Forest Community Development Department
- Orange County Fire Authority
- Orange County Sheriff's Department
- Lake Forest Public Works Department (including Environmental Compliance and Traffic Divisions)
- Lake Forest Management Services (including Community Services, Public Safety Division and PIO)
- Lake Forest City Manager

As appropriate, staff from other organizations who sat on the Working Group during the preparation of this Plan should be invited to participate in future maintenance and update activities. Other organizations that should be asked to participate in this process are:

- Trabuco Canyon Water District
- El Toro Water District
- Irvine Ranch Water District
- Emergency managers from neighboring jurisdictions
- Orange County Transportation Authority
- Southern California Edison
- South Orange County Wastewater Authority
- Southern California Edison
- Southern California Gas Company

The Director of Community Development is responsible for future LHMP updates and shall coordinate the Steering Group and Working Group as necessary. The Director and his/her designee will serve as the project manager. The Working Group may alternatively be coordinated by the acting Emergency Manager or Emergency Services Coordinator. The Director of Community Development or his/her designee will organize Plan maintenance, lead formal Plan review and evaluation processes, direct Plan updating, and delegate duties to other Working Group members to execute these efforts. Collecting data, establishing new mitigation activities, updating mitigation actions, providing presentations to City personnel and community groups, and rewriting portions of the Plan document are examples of such responsibilities. Details on Plan monitoring, maintenance update, approval, and adoption are outlined in the process below.

ANNUAL PLAN MONITORING AND MAINTENANCE

As described below, monitoring the progress of the mitigation actions will be ongoing throughout the five-year period between the adoption of the LHMP and the next update effort. The Steering Group will meet on an annual basis to monitor the status of the implementation of mitigation actions and develop updates as necessary. Although FEMA guidance does not outline a monitoring schedule, the City will adopt an annual review model predicated on best practices modeled throughout the nation. In the event of a significant disaster within Lake Forest, the Steering Group will convene within 30 days of the disaster to review and update the LHMP as needed. In addition to City staff, partner agencies, organizations, and stakeholders, may be identified for participation.

These meetings should:

- Discuss the timing of implementing mitigation actions.
- Evaluate the actions that are being implemented and determine if these actions are succeeding.
- Revise, as needed, the prioritization of mitigation actions.
- Integrate the mitigation actions into other mechanisms as needed.

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

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

- What hazard events, if any, have occurred in Lake Forest in the past year? What were the impacts of these hazards on the community? Were the impacts mitigated, and if so, how?

- What mitigation actions have been successfully implemented? Have any mitigation actions been implemented but not successfully, and if so, why?
- What mitigation actions, if any, have been scheduled for implementation but have not yet been implemented?
- What is the schedule for implementing future mitigation actions? Is this schedule reasonable? Does the schedule need to be adjusted for future implementation, and are such adjustments appropriate and feasible?
- Have any new issues of concern arisen, including hazard events in other communities or regions, that are not covered by existing mitigation actions?
- Are new data available that could inform updates to the Plan, including data relevant to the hazard profiles and threat assessments?
- Are there any new planning programs, funding sources, or other mechanisms that can support hazard mitigation activities in Lake Forest?

PLAN UPDATE

Title 44, Section 201.6(d)(3) of the Code of Federal Regulations requires that LHMPs be reviewed, revised, and resubmitted for approval every five years to remain eligible for federal benefits. As factors change, including technologies, community demographics and characteristics, best practices, and hazard conditions, it is necessary to update the Plan, so it remains relevant.

The 5-year update process should begin no later than four years after this Plan is adopted, allowing a year for the update process before the Plan expires. The Director of Community Development may also choose to begin the update process sooner, depending on the circumstances. Reasons for accelerating the update process may include:

- A Presidential disaster declaration for the City of Lake Forest or for an area that includes part or the entire city.
- A hazard event that results in one or more fatalities in the City of Lake Forest.

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 Director will determine the best process for updating the Plan, which should include the following steps:

- Involve at least one member from each City department in the Working Group or as a supporting role to contribute as needed.
- Contact non-City organizations that sat on the Working Group during preparation of the Plan or other relevant entities to gauge their interest and involve them in the update process.
- 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, cancelled, 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 Cal OES and FEMA for review and

approval.

- City Council will adopt the final updated Plan within one year of beginning the update process and within five years of the adoption of the previous plan.

ADOPTION

The Lake Forest City Council is responsible for adopting this Plan and all future updates. As previously mentioned, adoption should occur every five years, within one year of the commencement of the update process and before the current Plan expires. The adoption should take place after FEMA notifies the City that the Plan is “Approved Pending Adoption”. Once the City Council adopts the Plan following its approval by FEMA, the Community Development Department will transmit a copy of the adopted Plan to FEMA.

PLAN INCORPORATION

The Local Hazard Mitigation Plan (LHMP) is integral to the City’s strategic planning, underscoring our commitment to reducing hazard risks through well-coordinated, actionable measures. These measures are meticulously crafted to dovetail with the City's existing planning documents, policies, and regulatory frameworks. The LHMP's implementation is a multi-faceted process, keenly focused on weaving its recommendations into the operational fabric of the City's ongoing and forthcoming plans.

In alignment with the Safety Element of the City's General Plan, the LHMP serves as an actionable extension, detailing specific mitigation actions that build upon the General Plan’s broader safety strategies. To articulate the integration of the LHMP into the City’s planning mechanisms more explicitly, we will establish procedural links that ensure the seamless incorporation of LHMP insights into the Safety Element revisions, zoning regulations, and other planning documents.

The project manager tasked with the LHMP’s stewardship will ensure these connections are not merely theoretical but are actively pursued and reinforced through continuous inter-departmental collaboration. This includes, but is not limited to, the translation of LHMP's mitigation strategies into language and actions within the City's General Plan updates, Safety Element enhancements, and other related planning efforts.

Furthermore, the LHMP's actions, as identified in **Table 19** of Chapter 5, will inform and shape the direction of City initiatives. This approach ensures a strategic alignment with resources as they become available, fostering a resilient community structure. Regular updates, through annual reviews and progress reports, will highlight the integration milestones achieved and will be made accessible to the public through the City’s communication channels.

By interlacing the LHMP with the City's General Plan and Safety Element, we reinforce a cohesive approach to hazard mitigation. This synthesis of plans fortifies the City's resiliency, actively safeguarding Lake Forest’s residents, businesses, visitors, infrastructure, and environmental treasures against the specter of hazards.

PUBLIC INVOLVEMENT

The City will persist in its efforts to inform the public about updates to the LHMP, with particular attention to enhancing participation from vulnerable communities in Lake Forest. The development of a revised community engagement strategy will reflect the City’s updated needs and capabilities, ensuring that outreach efforts are inclusive and accessible. This strategy will include a detailed schedule for public

meetings, tailored to accommodate and actively engage all segments of the community, especially those most at risk. Recommendations will be formulated for effective use of the City website and social media accounts to reach diverse audiences, along with the creation of public outreach materials that are clear and readily understood by all community members. The content of these materials will be sensitive to the needs of vulnerable populations, providing them with relevant information and opportunities for active participation in the planning process. Annual reviews, summarizing mitigation actions, upcoming plans, funding secured, and forthcoming updates, will be made more accessible. These reports will be disseminated through multiple channels, ensuring transparency and encouraging feedback, with the aim of fostering a more resilient community through collaborative effort. All annual progress reports will be made available on the City's website, with considerations for alternative formats to ensure information is reachable to those in vulnerable circumstances.

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CITY OF LAKE FOREST

APPENDICES

LOCAL HAZARD MITIGATION PLAN

APPENDIX A
Meeting Materials

1. Hazard Mitigation Working Group Meeting #1 materials and sign-in sheet
2. Hazard Mitigation Working Group Meeting #2 materials and sign-in sheet
3. Hazard Mitigation Working Group Meeting #3 materials and sign-in sheet
4. Hazard Mitigation Working Group Meeting #4 materials and sign-in sheet
5. Hazard Mitigation Working Group Meeting #5 materials and sign-in sheet

1. Hazard Mitigation Working Group Meeting #1 materials and sign-in sheet

City of Lake Forest LHMP Kick-Off Agenda

HMWG Meeting #1
Wednesday, November 16, 2022, 3:00 – 4:00 pm (PST)
Location: Remote (Zoom)

Purpose/Expectations

- Purpose, Goals, and Opportunities
- FEMA Expectations
- Participant Expectations

Introductions

- Position
- Years in Service
- Prior LHMP Experience

Plan Overview

- Lake Forest LHMP Components
- Involvement

Timeline

- Estimated Milestones/Completion Date

Community Outreach Discussion

- Brainstorm Community Outreach Methods & Locations

Due Outs/Next Meeting

- Document Locations
- Expectations Moving Forward
- Demographics, Community Profiles, and Updates

Meeting ID	Topic	Start Time	End Time
8.4368E+10	Lake Forest Hazard Mitigation Working Group Meeting 1	##########	######### #

Name (Original Name)	User Email	Total Duration (Minutes)	Guest
William Simmons (Jacob Green and Associates Specialist)		59	No
Raymond Cheung		57	Yes
fmarzara1		57	Yes
Cheryl Kuta - Rancho Santa Margarita		54	Yes
Robert Craven		54	Yes
Jonathan Volzke		54	Yes
City of Lake Forest - Tom Wheeler		53	Yes
Amy Stonich# AICP		52	Yes
ArFord		52	Yes
VBlethen		52	Yes
Steve Choi		52	Yes
chrisl		52	Yes
Kevin Robertson		51	Yes
Rob Stauffacher (#3 Rob Stauffacher)		51	Yes
Connor Musler		50	Yes
Joe Ames# City of Laguna Hills		49	Yes
Zoran Falkenstein		47	Yes
1.7144E+10		44	Yes
Sherri Seitz# ETWD		44	Yes
So Kim (So Kim)		42	Yes

2. Hazard Mitigation Working Group Meeting #2 materials and sign-in sheet

City of Lake Forest LHMP Agenda
14 December 2022

HMWG Meeting #2
Wednesday, December 14, 2022, 3:00 – 4:00 pm (PST)
Location: Remote (Zoom)

Previous Meeting Recap

- Community Outreach
- Progress
- Roadblocks

Demographics

- Current Data
- Committee Feedback (additions or requests)
- Roadblocks

Community Profile Overview

- Progress
- Committee Input
- Roadblocks

Close

- Due outs by next meeting (11 January 3pm PST)
- Next Meeting Topic

Meeting ID	Topic	Start Time	End Time
8.4368E+10	Lake Forest Hazard Mitigation Working Group Meeting 2	##########	######### #

Name (Original Name)	User Email	Total Duration (Minutes)	Guest
William Simmons (Jacob Green and Associates Specialist)		48	No
Baryic Hunter		44	Yes
Darrell Hill (Darrell Hill)		42	Yes
Raymond Cheung		42	Yes
Amy Stonich# AICP		40	Yes
fmarzara1		40	Yes
Simon Shin		39	Yes
Nick Gates		39	Yes
Connor Musler		37	Yes
City of Lake Forest - Tom Wheeler		36	Yes
Jeremy Albrecht (Jeremy)		37	Yes
ArFord		37	Yes
Rose Rivera		37	Yes
Jennifer Mansur# AICP		36	Yes
Jonathan Volzke# Lake Forest		36	Yes
Tran Tran		33	Yes
Robert Craven		28	Yes
Joe Ames# City of Laguna Hills		31	Yes
1.9494E+10		20	Yes
Peter Meier		17	Yes
Cheryl Kuta - Rancho Santa Margarita		5	Yes

3. Hazard Mitigation Working Group Meeting #3 materials and sign-in sheet

City of Lake Forest LHMP Agenda
11 January 2023

HMWG Meeting #3
Wednesday, January 11, 2023, 3:00 – 4:00 pm (PST)
Location: Remote (Zoom)

Community Outreach
- ☐ Spreadsheet Review
- ☐ Progress
- ☐ Needs

Community Profile Component Review
- ☐ Progress
- ☐ Needs

Risk and Vulnerability Assessment
- ☐ Hazard Identification
- ☐ Community Assets & Critical Infrastructure
- ☐ Needs

Close
- ☐ Due outs
- ☐ Next Meeting Timing & Topic
- ☐ Closing Thoughts

Meeting ID	Topic	Start Time	End Time
8.4368E+10	Lake Forest Hazard Mitigation Working Group Meeting 3	##########	######### #

Name (Original Name)	User Email	Total Duration (Minutes)	Guest
William Simmons (Jacob Green and Associates Specialist)		123	No
Amy Stonich# AICP		77	Yes
Raymond Cheung		76	Yes
rabasal		7	Yes
ArFord		72	Yes
Connor Musler		72	Yes
Darrell Hill# Lake Forest		71	Yes
Jonathan Volzke# Lake Forest		60	Yes
Baryic Hunter		60	Yes
Sara Sperazza (Sara Sperazza)		59	Yes
VBlethen		59	Yes
fmarzara1		29	Yes
Mary V		51	Yes
Jeremy Albrecht# Applied Medical		57	Yes
City of Lake Forest - Tom Wheeler		57	Yes
City of Mission Viejo - Paul Catsimanes		1	Yes
CHRIS LOPEZ		55	Yes
Tran Tran		56	Yes
Joe Ames# City of Laguna Hills		55	Yes
1.7144E+10		55	Yes
Devin Slaven		55	Yes
So Kim		55	Yes
Paul's iPhone		29	Yes
Sherri Seitz# ETWD		53	Yes
Zoran Falkenstein		52	Yes
Jennifer Mansur# AICP		51	Yes
Gayle Ackerman		50	Yes
Simon Shin		43	Yes

4. Hazard Mitigation Working Group Meeting #4 materials and sign-in sheet

City of Lake Forest LHMP Agenda
08 February 2023

HMWG Meeting #4
Wednesday, February 08, 2023, 3:00 – 4:00 pm (PST)
Location: Remote (Zoom)

Welcome Items
- Congratulations
- Introductions

Community Outreach
- Progress
- Community Outreach Meeting Discussion
  - Timeline
  - Agenda
  - Supplies

Hazard Identification & Critical Infrastructure Review & Ranking
- Progress
- Needs

HMP Review
- Chapters 1-3 Discussion

Close
- Due outs
- Next Meeting Timing & Topic
- Closing Thoughts

Meeting ID	Topic	Start Time	End Time
8.4368E+10	Lake Forest Hazard Mitigation Working Group Meeting 4	##########	######### #

Name (Original Name)	User Email	Total Duration (Minutes)	Guest
William Simmons (Jacob Green and Associates Specialist)		55	No
Raymond Cheung		55	Yes
fmarzara1		54	Yes
Cheryl Kuta - Rancho Santa Margarita		54	Yes
Robert Craven		54	Yes
Jonathan Volzke		54	Yes
City of Lake Forest - Tom Wheeler		53	Yes
Amy Stonich# AICP		52	Yes
ArFord		52	Yes
VBlethen		53	Yes
Steve Choi		52	Yes
chrisl		52	Yes
Kevin Robertson		51	Yes
Rob Stauffacher (#3 Rob Stauffacher)		51	Yes
Connor Musler		51	Yes
Joe Ames# City of Laguna Hills		49	Yes
Zoran Falkenstein		48	Yes
1.7144E+10		44	Yes
Sherri Seitz# ETWD		43	Yes
So Kim (So Kim)		41	Yes

5. Hazard Mitigation Working Group Meeting #5 materials and sign-in sheet

City of Lake Forest LHMP Agenda
22 March 2023

HMWG Meeting #5
Wednesday, March 22, 2023, 3:00 – 4:00 pm (PST)
Location: Remote (Zoom)

Progress to Date

- ☐ Outreach
- ☐ Hazards
- ☐ Vulnerabilities

Mitigation Planning

- ☐ Goals
- ☐ Risk Assessment
  - o Hazards
  - o Vulnerabilities
- ☐ Mitigation Actions Discussed
- ☐ Additional Actions

Close

- ☐ Due outs
  - o Capabilities
- ☐ Upcoming Events
  - o Public Review
  - o CAL OES
- ☐ Questions

Meeting ID	Topic	Start Time	End Time
8.4368E+10	Lake Forest Hazard Mitigation Working Group Meeting 5	##########	######### #

Name (Original Name)	User Email	Total Duration (Minutes)	Guest
William Simmons		81	No
Amy Stonich# AICP		64	Yes
Connor Musler		58	Yes
Sara Sperazza# SOCCCD (Sara Sperazza)		56	Yes
ArFord		56	Yes
Raymond Cheung		52	Yes
Katrina Faulkner		48	Yes
Sherri Seitz		43	Yes
Jeremy Albrecht (Jeremy)		33	Yes
Faye Yuan		41	Yes
So Kim		39	Yes
Joe Ames# City of Laguna Hills		40	Yes
Simon Shin		40	Yes
Darrell Hill		39	Yes
CHRIS LOPEZ		39	Yes
Zoran Falkenstein		37	Yes
Tran Tran		28	Yes
Jennifer Mansur# City of Lake Forest		26	Yes

APPENDIX B
COMMUNITY OUTREACH MATERIALS

1. Local Hazard Mitigation Plan (LHMP) Website
2. Social Media Outreach Information
3. Community Outreach Meeting Presentation 2.22.2023
4. Community Outreach Flyers (English and Spanish)
5. Community Outreach Survey (English)
6. Community Outreach Survey (Spanish)
7. Community Outreach Survey Results (English)
8. Community Outreach Survey Results (Spanish)
9. Community Outreach Survey Results (Senior Event)
10. City e-Newsletter

1. Local Hazard Mitigation Plan (LHMP) Website

The City of Lake Forest recently began the development of a Local Hazard Mitigation Plan (LHMP). The LMHP presents strategies for reducing the City's vulnerability to the impacts of events that could threaten lives, property, or the environment. This plan and the process of developing it will identify opportunities for the City to become more resilient to hazards and help alleviate risks to our community.

What is a Hazard Mitigation Plan and Why is it Important?

A Hazard Mitigation Plan is prepared by local governments in response to the Disaster Mitigation Act of 2000 (Public Law 106-390).

What is the Purpose of a Local Hazard Mitigation Plan?

The LHMP is created drawing on the expertise of City leaders, nearby cities, the County, and outside organizations. After identifying risks, long-term strategies are developed to protect the community and its assets. The LHMP specifies how the Plan will be followed, assessed, and revised on a five-year cycle.

Three Primary Elements of the LHMP:

1. **Hazard Identification:** Profile potential hazards by type, previous occurrences, and probability.
2. **Vulnerability Assessment**: Identify the potential impact of the hazards profiled, vulnerability to each hazard, and potential loss to life, environment, and economy.
3. **Mitigation Actions**: Develop overarching strategies, specific goals, and prioritize those actions to reduce hazard impacts.

What Can I Do to Help?

Opportunities to contribute feedback, ask questions, and review/comment on draft papers are available throughout the process. Your comments, questions, suggestions, and concerns will play an important role in the Plan's development.

Public engagement in the Plan's development is crucial because it raises awareness of the threats Lake Forest faces and the initiatives that must be taken to reduce those threats. By taking part in the process, you will be taking the time to think about the threats in our community, the impact of those threats on life and property, the measures that must be taken to mitigate that impact, and the priority of these mitigation efforts.

One easy way to participate is to take the Local Hazard Mitigation Plan Community Survey:

Survey in English Survey in Spanish

The survey closes on April 15, 2023. The LHMP will include the survey results.

Community Outreach Meeting

February 22, 2023, from 6 p.m. - 7 p.m. in the Maple Room at the Lake Forest Civic Center, 100 Civic Center Drive. The meeting discussed potential local hazards.

Draft Documents

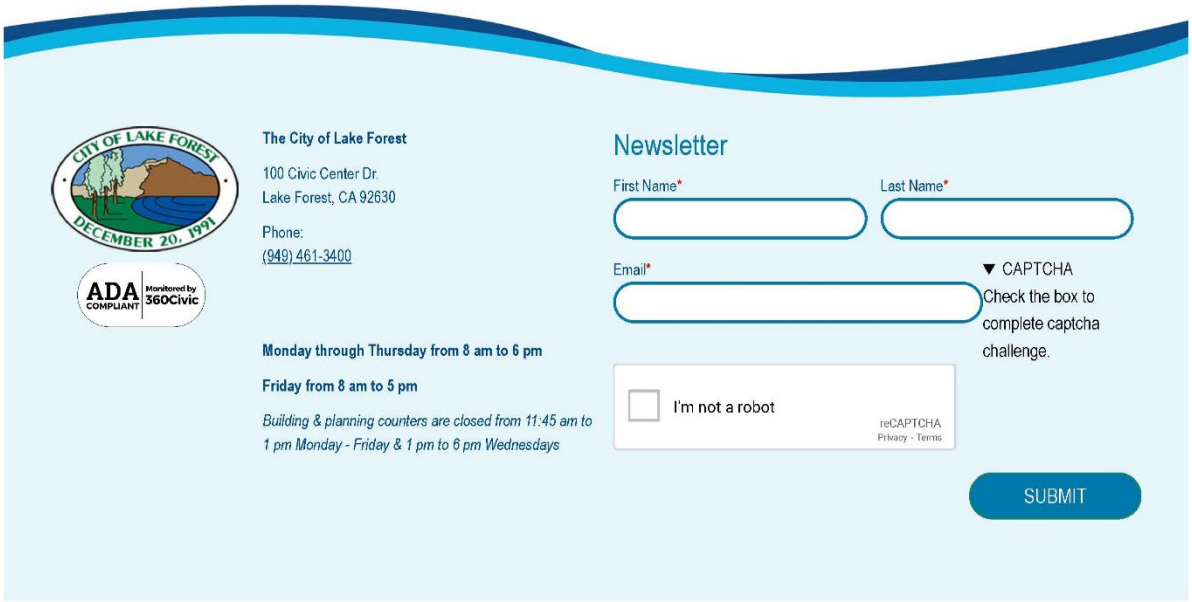
The City will post draft documents on this page for review and comment as they become available.

Contact Us

Please contact Assistant Community Development Director Amy Stonich with questions at 949-461-3479 or astonich@lakeforestca.gov.

Funding for this project is provided by CAL FIRE's Wildfire Prevention Grants Program.

This project is part of California Climate Investments, a statewide initiative that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment — particularly in disadvantaged communities.



2. Social Media Outreach Information

DATE	PLATFORM	INTERACTION	LINK
7 February '23	Facebook	3 likes / 3 shares / 11k followers	https://www.facebook.com/photo/?fbid=549078673917894&set=a.468826348609794
13 January '23	Facebook	5 likes / 1 share / 11k followers	https://www.facebook.com/photo/?fbid=532375825588179&set=a.468826348609794
7 February '23	Twitter	2 retweets / 2 like / 512 views / 7,111 followers	https://twitter.com/LakeForestCA/status/1623019720646569985
13 January '23	Twitter	1 retweet / 2 likes / 545 views / 7,111 followers	https://twitter.com/LakeForestCA/status/1614059694225604609
17 January '23	Nextdoor	26,871 subscribers	https://nextdoor.com/agency-post/ca/lake-forest/city-of-lake-forest/we-want-your-input-254131744/
7 February '23	Instagram	6 likes / 8,177 followers	https://www.instagram.com/cityoflakeforestca/
13 January '23	Instagram	17 likes / 8,177 followers	https://www.instagram.com/cityoflakeforestca/

3. Community Outreach Meeting Presentation 2.22.2023

Agenda Items

- LHMP Introduction
- Hazard Identification & Discussion
- Future Opportunities

Introduction

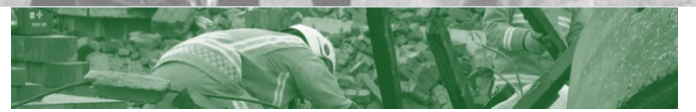
The What

A plan that assesses hazard vulnerabilities and identifies mitigation actions that the City will pursue in order to reduce the level of injury, property damage, and community disruption that might otherwise result from such events.



The Why

To promote discussion among community members about creating a safer, more resilient community that reflects the City's values.



Hazard Identification

Local Hazard History

Federal Disaster Declarations for Orange County since 1969		
Disaster Type	Frequency	Amplifying Data
Fire	18	(13 since 2006)
Flood	9	(2 in the past 10 years)
Severe Storm	6	(Most recent 2005)
Other	4	2x Earthquakes 1x Hurricane 1x Biological

Federal Disaster Declarations for Lake Forest		
(Fiscal) Year	Incident Type	Incident Title
2020	Fire	Silverado Fire
2020	Biological	COVID-19
2007	Fire	SANTIAGO FIRE
1998	Severe Storm	SEVERE WINTER STORMS AND FLOODING
1995	Severe Storm	SEVERE WINTER STORMS, FLOODING, LANDSLIDES, MUD FLOWS
1993	Flood	SEVERE WINTER STORM, MUD & LAND SLIDES, & FLOODING



Hazard Identification Discussion

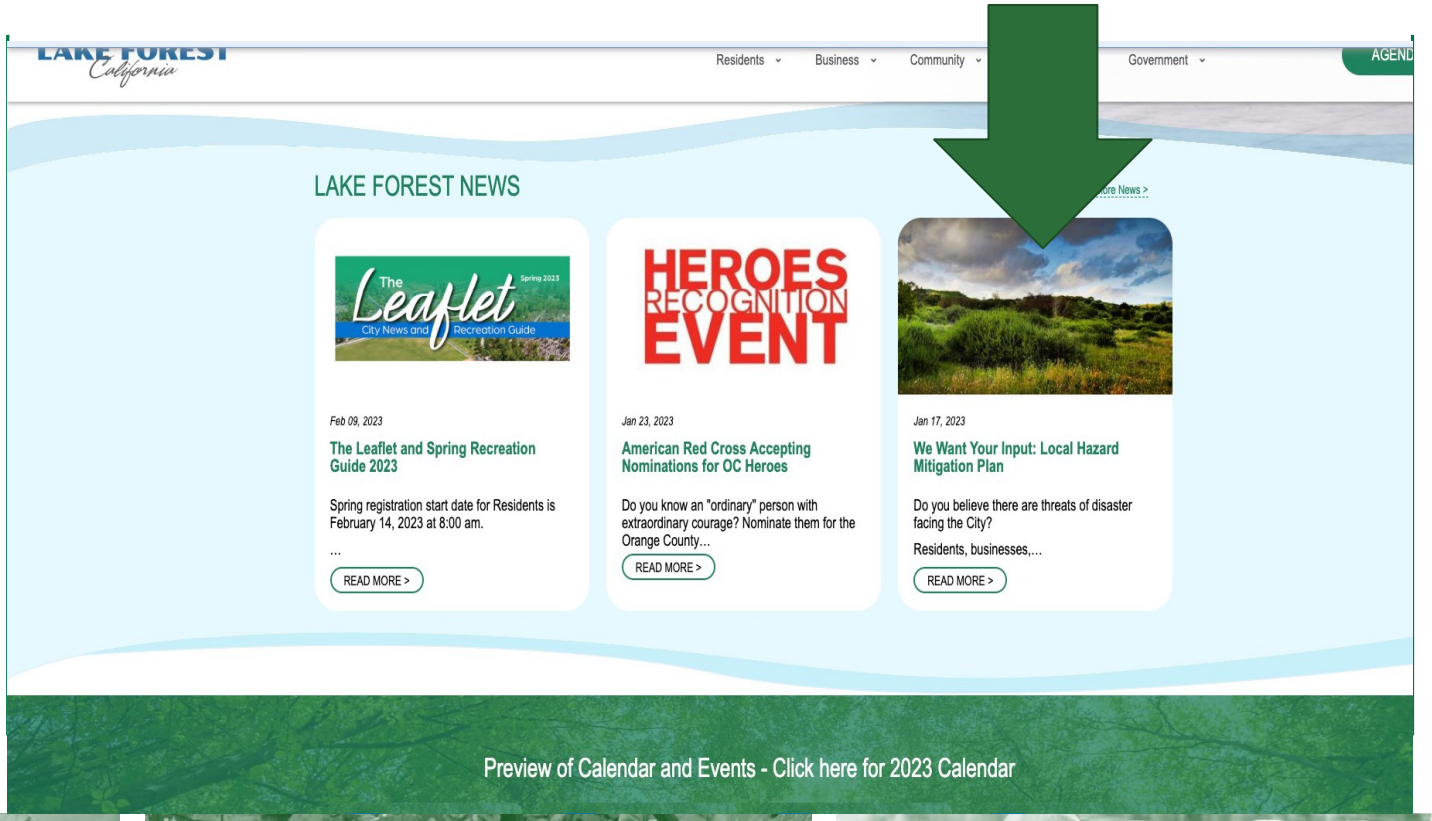
Low Impact

medium Impact

High Impact

Future Opportunities

Draft Review www.lakeforestca.gov



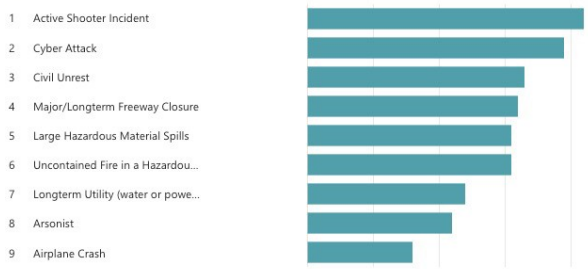
Survey

. Please rank the following **natural hazards** according to the degree of threat that you believe the community faces. (One (1) is the greatest threat to the community and Six (6) is the lowest threat to the community.)

More Details

. Please identify the top three (3) following **manmade hazards** according to the degree of threat that you believe the community faces.

More Details



SCAN ME

Completion

-JANUARY-

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

-FEBRUARY-

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

-MARCH-

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27					

-APRIL-

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

-MAY-

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

-JUNE-

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
	26	27	28	29	30	

-JULY-

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

-AUGUST-

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24		
27	28	29	30	31		

-SEPTEMBER-

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
					22	23
24	25					

-OCTOBER-

S	M	T	W	T	F	
1	2	3	4	5	6	
8	9	10	11	12	13	
15	16	17	18	19	20	
22	23	24	25	26	27	28
29	30	31				

-NOVEMBER-

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
	27	28	29	30		

-DECEMBER-

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Questions?

4. Community Outreach Flyers (English and Spanish)

WE WANT YOUR INPUT:

Local Hazard Mitigation Plan

What are the threats of disaster facing the City? Share your thoughts at a Community Meeting on February 22. The feedback provided will be considered when developing the City's disaster mitigation plan. The City's outreach meeting is on:

Wednesday, February 22 | 6 - 7 p.m.

Maple Room at the Lake Forest Civic Center, 100 Civic Center Dr.

More information at: lakeforestca.gov/LHMP

Those who cannot attend can take the 5-minute online survey here

bit.ly/lakeforestsurvey
Survey ends March 17

WE WANT YOUR INPUT:

Local Hazard Mitigation Plan

What are the threats of disaster facing the City? Share your thoughts at a Community Meeting on February 22. The feedback provided will be considered when developing the City's disaster mitigation plan. The City's outreach meeting is on:

Wednesday, February 22 | 6 - 7 p.m.

Maple Room at the Lake Forest Civic Center, 100 Civic Center Dr.

More information at: lakeforestca.gov/LHMP

Those who cannot attend can take the 5-minute online survey here

bit.ly/lakeforestsurvey
Survey ends March 17

WE WANT YOUR INPUT:

Local Hazard Mitigation Plan

What are the threats of disaster facing the City? Share your thoughts through an online survey. The feedback provided will be considered when developing the City's disaster mitigation plan.

More information at: lakeforestca.gov/LHMP

Take the online 5 minute survey here

bit.ly/lakeforestsurvey
Survey ends April 15

QUEREMOS SU OPINIÓN:

Plan Local de Mitigación de Peligro

¿Cuáles son las amenazas de desastre que enfrenta nuestra Ciudad? Comparta sus pensamientos a través de una encuesta en línea. Los comentarios recogidos se consideraran para crear planes de gestion de desastres en la Ciudad.

Más información en: lakeforestca.gov/LHMP

Tome la encuesta de 5 minutos aqui.

ESCANÉAME

bit.ly/ComunidadDeLakeForest
La encuesta finaliza el 15 de abril

5. Community Outreach Survey (English)

Lake Forest Community Hazard & Risk Assessment Survey

The City of Lake Forest is in the process of developing a Local Hazard Mitigation Plan. The purpose of this assessment is to better understand the natural and manmade hazards that pose a threat to the community and to further develop actions to reduce the risks associated with these hazards. As a component of this process a community survey has been developed. The information that you provide through this survey will help the City better understand the hazards that could potentially impact the community and help to formulate proactive strategies to minimize and mitigate the impact to the community. Responses and comments will remain anonymous. Thank you for your participation.

Funding for this project is provided by CAL FIRE's Wildfire Prevention Grants Program.

This project is part of California Climate Investments, a statewide initiative that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment — particularly in disadvantaged communities.

* Required

1. While living or working in the City of Lake Forest have you ever been affected by an emergency event or disaster? *

- ◯ Yes
- ◯ No

2. Please identify the type of emergency or disaster that affected you. *

- [ ] Fire
- [ ] Flooding
- [ ] Other

3. Please rank the following **natural hazards** according to the degree of threat that you believe the community faces. (One (1) is the greatest threat to the community and Six (6) is the lowest threat to the community.) *

- Flood
- Wildfire
- Drought
- Earthquake
- Extreme Heat
- High Winds

4. Please identify the top three (3) following **manmade hazards** according to the degree of threat that you believe the community faces. *

- Civil Unrest
- Active Shooter Incident
- Large Hazardous Material Spills
- Uncontained Fire in a Hazardous Facility
- Cyber Attack
- Airplane Crash
- Longterm Utility (water or power) Outage
- Major/Longterm Freeway Closure
- Arsonist

5. Is there a significant hazard that you believe is a threat to your community that is not listed above? *

- ◯ Yes
- ◯ No

6. Please identify the threat *

7. Please rank the following Public Education Community Events the City should offer based upon what you believe to be the highest and lowest priority to the community. (One (1) being the most important to you and the community and Seven (7) being the least Important to you and the community.) *

- Stop the Bleed Active Shooter Training
- Disaster Preparedness
- Hands Only CPR/Basic CPR
- Building Community Fire Resiliency in Wildland Urban Interface
- Youth Fire Prevention Education
- Community Emergency Response Team (CERT) Training

8. How concerned are you that your neighborhood could be impacted by a natural or manmade disaster? *

- ◯ Very Concerned
- ◯ Somewhat concerned
- ◯ Neither concerned nor unconcerned
- ◯ Not Concerned
- ◯ Very unconcerned

9. As a resident, business owner, or visitor have you ever had the opportunity to work with the City of Lake Forest or the Lake Forest first responders either prior to, during, or following an emergency event that occurred in your home or neighborhood? *

- ◯ Yes
- ◯ No

10. If "Yes", please explain *

11. Do you have any other comments, questions, or concerns relating to the City's Emergency Preparation that you would like to share? *

12. What is the most effective way for you to receive information on how to protect you and your family and also how to prepare for a potential hazard? *

- ◯ Television
- ◯ Internet
- ◯ Radio
- ◯ Mail
- ◯ Email
- ◯ Public Meetings
- ◯ NIXLE (Public safety notification system)
- ◯ Social Media
- ◯ Other

13. If Social Media is the preferred method of contact, please specify the platform. *

14. Please describe any actions you have taken as a private citizen to become more resistant to hazards. *

15. Would you like to learn more about our Local Hazard Mitigation Plan? *

- ◯ Yes
- ◯ No

16.

1. If "yes", please provide your information below:
    1. Name (First, Last)
    2. Email Address

*

6. Community Outreach Survey (Spanish)

Encuesta de Evaluación de Peligros y Riesgos de la Comunidad de Lake Forest

La ciudad de Lake Forest está en el proceso de desarrollar un Plan Local de Mitigación de Riesgos. El propósito de esta evaluación es comprender mejor los peligros naturales y provocados por el hombre que representan una amenaza para la comunidad y desarrollar aún más acciones para reducir los riesgos asociados con estos peligros. Como componente de este proceso, se ha desarrollado una encuesta comunitaria. La información que usted proporcione a través de esta encuesta ayudará a la Ciudad a comprender mejor los peligros que podrían afectar a la comunidad y ayudará a formular estrategias proactivas para minimizar y mitigar el impacto a la comunidad. Las respuestas y comentarios permanecerán anónimos. Gracias por su participación.

Fondos para este proyecto seran procuraros debajo el programa de CAL FIRE, Wildfire Prevention Grants Program.

Este proyecto es parte de California Climate Investments, una iniciativa estatal que destina miles de millones de dólares de Cap-and-Trade a trabajar para reducir las emisiones de gases de efecto invernadero, fortalecer la economía y mejorar la salud pública y el medio ambiente, particularmente en las comunidades desfavorecidas.

1. Mientras vivía o trabajaba en la ciudad de Lake Forest, ¿alguna vez se ha visto afectado por un evento de emergencia o desastre? *

- ◯ Si
- ◯ No

2. Por favor, identifique el tipo de emergencia o desastre que le afectó. *

- ☐ Fuego
- ☐ Inundación
- ☐ Other

3. Por favor, clasifique los siguientes **peligros naturales** de acuerdo con el grado de amenaza que cree que enfrenta la comunidad. (Uno (1) es la mayor amenaza para la comunidad y Seis (6) es la amenaza más baja para la comunidad). *

Inundación
Reguero
Sequía
Terremoto
Calor Extremo
Fuertes Vientos

4. Identifique los tres (3) principales **peligros provocados por el hombre** de acuerdo con el grado de amenaza que cree que enfrenta la comunidad. *

- Disturbios Civiles
- Incidente de Tirador Activo
- Grandes Derrames de Materiales Peligrosos
- Incendio no Contenido en una Instalación Peligrosa
- Ciberataque
- Accidente de Avión
- Interrupción a Largo Plazo de la Empresa de Servicios Públicos (Agua o Energía)
- Cierre de Autopistas Mayores/a Largo Plazo
- Incendiario

5. ¿Hay algún peligro significativo que usted cree que es una amenaza para su comunidad que no se menciona anteriormente? *

- ◯ Si
- ◯ No

6. Por favor, identifique la amenaza *

7. Por favor, clasifique los siguientes Eventos Comunitarios de Educación Pública que la Ciudad debe ofrecer en función de lo que usted cree que es la prioridad más alta y baja para la comunidad. (Uno (1) es el más importante para usted y la comunidad y Siete (7) es lo menos importante para usted y la comunidad). *

- Entrenamiento de Tirador Activo - Detenga el Sangrado
- Preparación para Desastres
- RCP Solo Con las Manos/RCP Básica
- Construyendo Resiliencia Comunitaria Contra Incendios en la Interfaz Urbana de Tierras Silvestres
- Educación para la Prevención de Incendios para Jóvenes
- Entrenamiento del Equipo Comunitario de Respuesta a Emergencias (CERT)

8. ¿Qué tan preocupado está de que su vecindario pueda verse afectado por un desastre natural o provocado por el hombre? *

- ◯ Muy preocupado
- ◯ Algo preocupado
- ◯ Algo preocupado
- ◯ No interesado
- ◯ Muy despreocupado

9. Como residente, propietario de un negocio o visitante, ¿alguna vez ha tenido la oportunidad de trabajar con los equipos de respuesta a emergencias de la Ciudad de Lake Forest o Lake Forest antes, durante o después de un evento de emergencia que ocurrió en su hogar o vecindario? *

- ◯ Si
- ◯ No

10. En caso afirmativo, por favor, explica *

11. ¿Tiene algún otro comentario, pregunta o inquietud relacionada con la Preparación para Emergencias de la Ciudad que le gustaría compartir? *

12. ¿Cuál es la forma más efectiva de recibir información sobre cómo protegerlo a usted y a su familia y también cómo prepararse para un peligro potencial? *

- ◯ Televisión
- ◯ Por Internet
- ◯ Radio
- ◯ Correo
- ◯ Correo Electrónico
- ◯ Reuniones Públicas
- ◯ NIXLE (Sistema de Notificación de Seguridad Pública)
- ◯ Redes Sociales
- ◯ Other

13. Si las redes sociales son el método preferido de contacto, especifique la plataforma. *

14. Describa cualquier acción que haya tomado como ciudadano privado para ser más resistente a los peligros. *

15. ¿Le gustaría obtener más información sobre nuestro Plan Local de Mitigación de Riesgos? *

- ◯ Si
- ◯ No

16. En caso afirmativo, proporcione su información a continuación:
1.Nombre (Nombre, Apellido)
2.Dirección de Correo Electrónico *

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Microsoft Forms

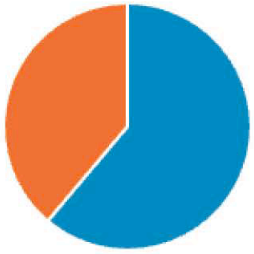
7. Community Outreach Survey Results (English)

Lake Forest Community Hazard & Risk Assessment Survey

139	40:24	Active
Responses	Average time to complete	Status

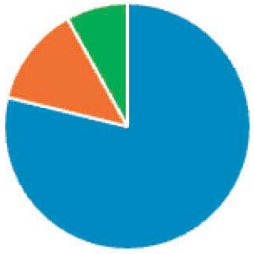
1. While living or working in the City of Lake Forest have you ever been affected by an emergency event or disaster?

Yes	85
No	54



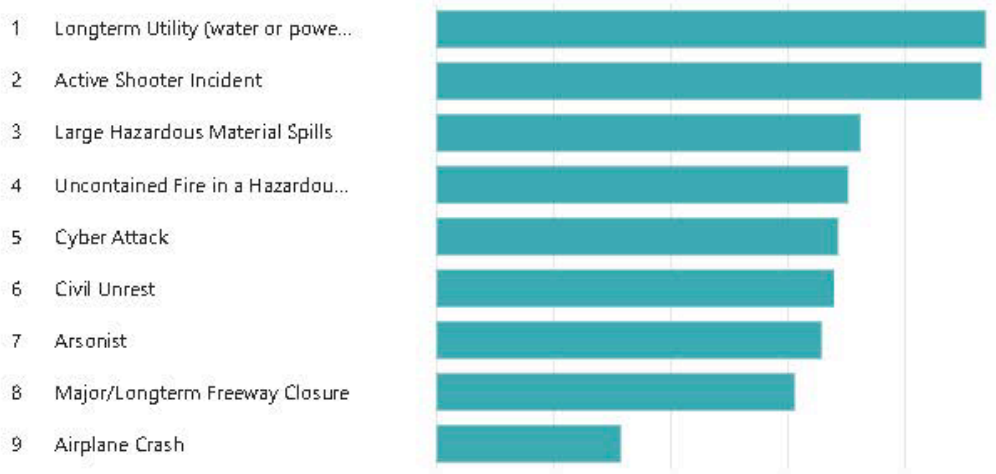
2. Please identify the type of emergency or disaster that affected you.

Fire	78
Flooding	13
Other	8



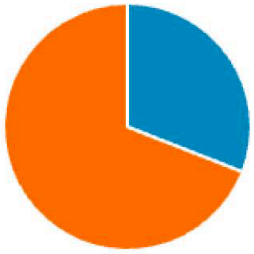
3. Please rank the following **natural hazards** according to the degree of threat that you believe the community faces. (One (1) is the greatest threat to the community and Six (6) is the lowest threat to the community.)

4. Please identify the top three (3) following **manmade hazards** according to the degree of threat that you believe the community faces.



5. Is there a significant hazard that you believe is a threat to your community that is not listed above?

Yes	43
No	96



6. Please identify the threat

43
Responses

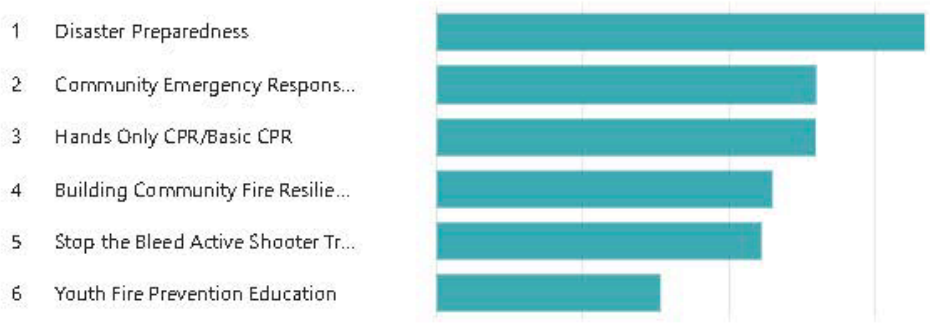
Latest Responses

"Nuclear war "

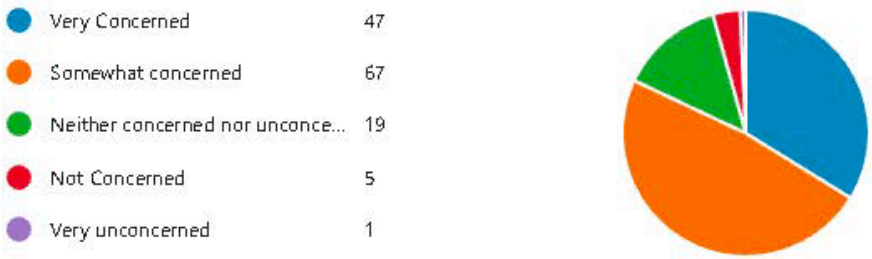
"GLOBAL WARMING - Causes ~half of the weather/ environm...

3 respondents (**7**%) answered **Lake Forest** for this question.

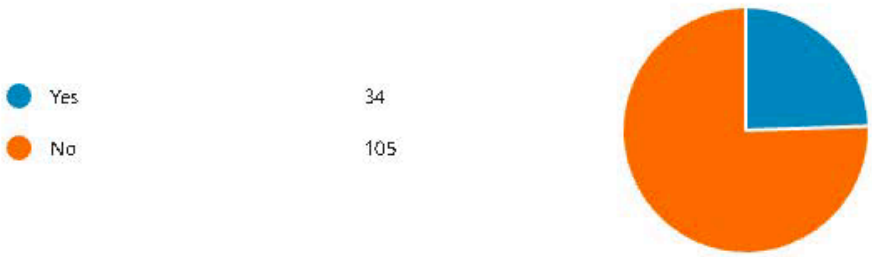
7. Please rank the following Public Education Community Events the City should offer based upon what you believe to be the highest and lowest priority to the community. (One (1) being the most important to you and the community and Seven (7) being the least Important to you and the community.)



8. How concerned are you that your neighborhood could be impacted by a natural or manmade disaster?



9. As a resident, business owner, or visitor have you ever had the opportunity to work with the City of Lake Forest or the Lake Forest first responders either prior to, during, or following an emergency event that occurred in your home or neighborhood?



10. If "Yes", please explain

33
Responses

Latest Responses
"Car accident"

Update

12 respondents (**35**%) answered **fire** for this question.

11. Do you have any other comments, questions, or concerns relating to the City's Emergency Preparation that you would like to share?

138
Responses

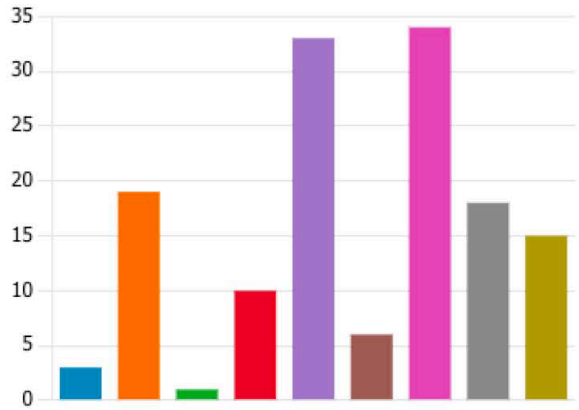
Latest Responses
"No"
"none, very long time ago"
"No"

Update

11 respondents (**8**%) answered **cities** for this question.

12. What is the most effective way for you to receive information on how to protect you and your family and also how to prepare for a potential hazard?

Television	3
Internet	19
Radio	1
Mail	10
Email	33
Public Meetings	6
NIXLE (Public safety notification ...	34
Social Media	18
Other	15



13. If Social Media is the preferred method of contact, please specify the platform.

136
Responses

Latest Responses
"Twitter"
"N/A"
"Facebook "

Update

35 respondents (**25**%) answered **Facebook** for this question.

14. Please describe any actions you have taken as a private citizen to become more resistant to hazards.

135
Responses

Latest Responses

"I have fire extinguishers and a small reserve of food saved for...

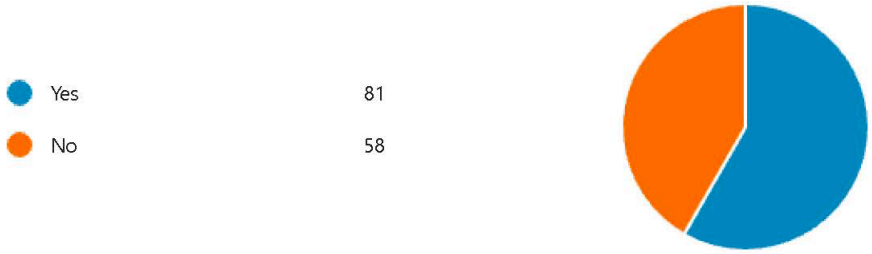
"I have a personal go bag and food stock with emergency ite...

"No"

Update

26 respondents (**19**%) answered **emergency** for this question.

15. Would you like to learn more about our Local Hazard Mitigation Plan?



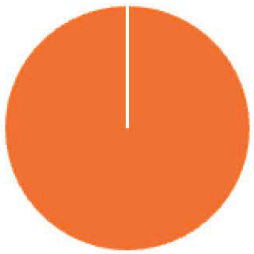
8. Community Outreach Survey Results (Spanish)

Encuesta de Evaluación de Peligros y Riesgos de la Comunidad de Lake Forest

2	15:47	Active
Responses	Average time to complete	Status

1. Mientras vivía o trabajaba en la ciudad de Lake Forest, ¿alguna vez se ha visto afectado por un evento de emergencia o desastre?

Si	0
No	2



2. Por favor, identifique el tipo de emergencia o desastre que le afectó.

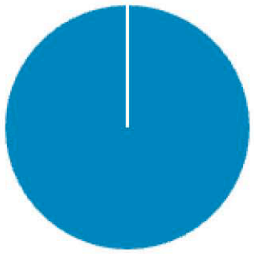
Fuego	0
Inundación	0
Other	0

3. Por favor, clasifique los siguientes **peligros naturales** de acuerdo con el grado de amenaza que cree que enfrenta la comunidad. (Uno (1) es la mayor amenaza para la comunidad y Seis (6) es la amenaza más baja para la comunidad).

4. Identifique los tres (3) principales **peligros provocados por el hombre** de acuerdo con el grado de amenaza que cree que enfrenta la comunidad.

5. ¿Hay algún peligro significativo que usted cree que es una amenaza para su comunidad que no se menciona anteriormente?

Si	2
No	0



6. Por favor, identifique la amenaza

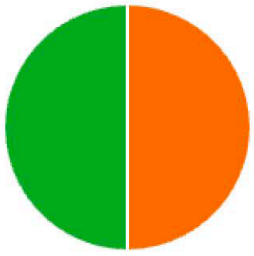
2
Responses

Latest Responses
"Fentanyl "
"Terremoto"

7. Por favor, clasifique los siguientes Eventos Comunitarios de Educación Pública que la Ciudad debe ofrecer en función de lo que usted cree que es la prioridad más alta y baja para la comunidad. (Uno (1) es el más importante para usted y la comunidad y Siete (7) es lo menos importante para usted y la comunidad).

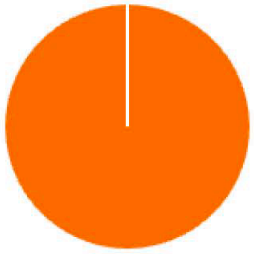
8. ¿Qué tan preocupado está de que su vecindario pueda verse afectado por un desastre natural o provocado por el hombre?

Muy preocupado	0
Algo preocupado	2
Algo preocupado	2
No interesado	0
Muy despreocupado	0



9. Como residente, propietario de un negocio o visitante, ¿alguna vez ha tenido la oportunidad de trabajar con los equipos de respuesta a emergencias de la Ciudad de Lake Forest o Lake Forest antes, durante o después de un evento de emergencia que ocurrió en su hogar o vecindario?

Si	0
No	2



10. En caso afirmativo, por favor, explica

0
Responses

Latest Responses

11. ¿Tiene algún otro comentario, pregunta o inquietud relacionada con la Preparación para Emergencias de la Ciudad que le gustaría compartir?

2
Responses

Latest Responses
"No"
"No"

12. ¿Cuál es la forma más efectiva de recibir información sobre cómo protegerlo a usted y a su familia y también cómo prepararse para un peligro potencial?

Televisión	0
Por Internet	1
Radio	1
Correo	0
Correo Electrónico	0
Reuniones Públicas	0
NIXLE (Sistema de Notificación ...	0
Redes Sociales	0
Other	0

13. Si las redes sociales son el método preferido de contacto, especifique la plataforma.

2
Responses

Latest Responses
"Facebook '
"Facebook'

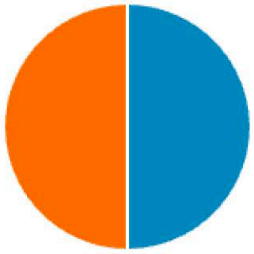
14. Describa cualquier acción que haya tomado como ciudadano privado para ser más resistente a los peligros.

2
Responses

Latest Responses
"Vigilante "
"Nada"

15. ¿Le gustaría obtener más información sobre nuestro Plan Local de Mitigación de Riesgos?

Si	1
No	1



16. En caso afirmativo, proporcione su información a continuación:
1.Nombre (Nombre, Apellido)
2.Dirección de Correo Electrónico

1
Responses

Latest Responses
"N/A"

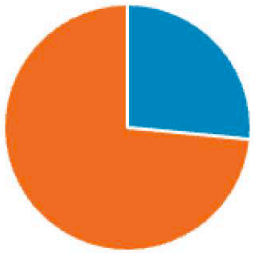
9. Community Outreach Survey Results (Senior Event)

Lake Forest Community Hazard & Risk Assessment Survey Senior Results

98	02:13	Active
Responses	Average time to complete	Status

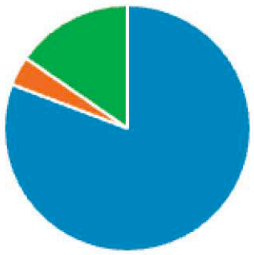
1. While living or working in the City of Lake Forest have you ever been affected by an emergency event or disaster?

Yes	26
No	72



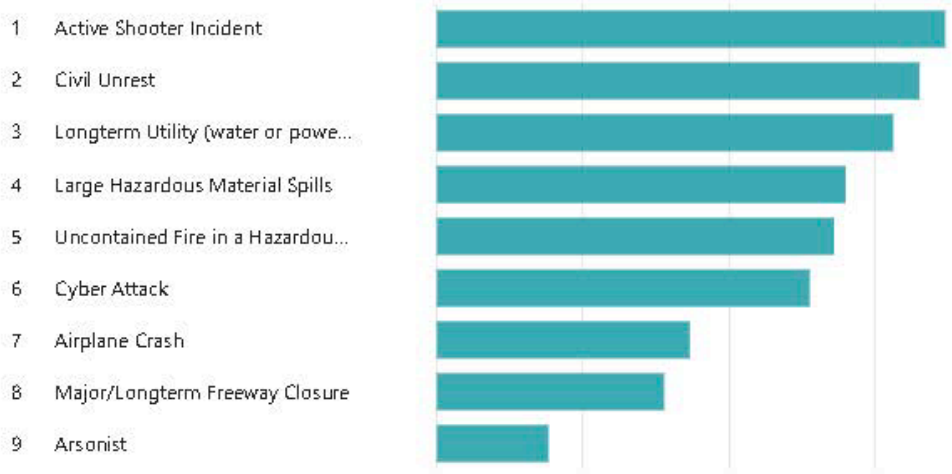
2. Please identify the type of emergency or disaster that affected you.

Fire	21
Flooding	1
Other	4



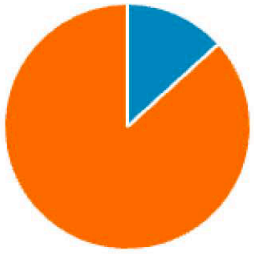
3. Please rank the following **natural hazards** according to the degree of threat that you believe the community faces. (One (1) is the greatest threat to the community and Six (6) is the lowest threat to the community.)

4. Please identify the top three (3) following **manmade hazards** according to the degree of threat that you believe the community faces.



5. Is there a significant hazard that you believe is a threat to your community that is not listed above?

Yes	13
No	85



6. Please identify the threat

12
Responses

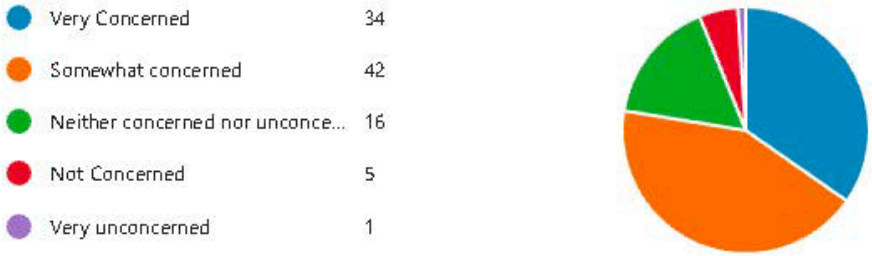
Latest Responses

Update

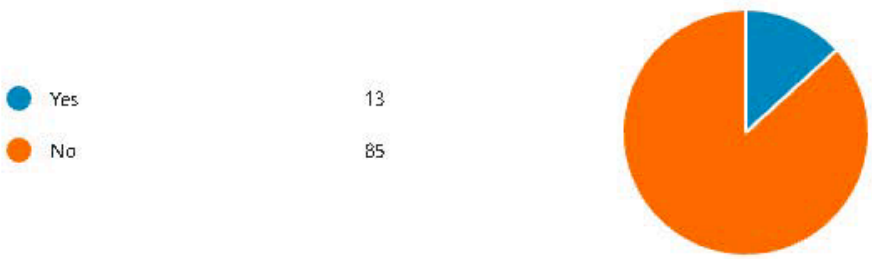
3 respondents (**23**%) answered **HOMELESS** for this question.

7. Please rank the following Public Education Community Events the City should offer based upon what you believe to be the highest and lowest priority to the community. (One (1) being the most important to you and the community and Seven (7) being the least Important to you and the community.)

8. How concerned are you that your neighborhood could be impacted by a natural or manmade disaster?



9. As a resident, business owner, or visitor have you ever had the opportunity to work with the City of Lake Forest or the Lake Forest first responders either prior to, during, or following an emergency event that occurred in your home or neighborhood?



10. If "Yes", please explain

7
Responses

Latest Responses
" "

Update

1 respondents (**8**%) answered **EMS and Firefighters** for this question.

11. Do you have any other comments, questions, or concerns relating to the City's Emergency Preparation that you would like to share?

15
Responses

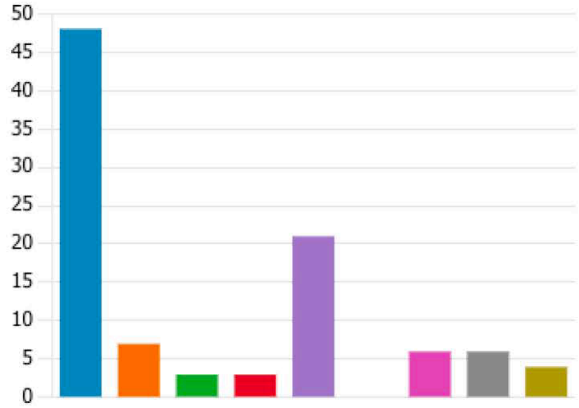
Latest Responses
" "
" "
" "

Update

4 respondents (**4**%) answered **no** for this question.

12. What is the most effective way for you to receive information on how to protect you and your family and also how to prepare for a potential hazard?

Television	48
Internet	7
Radio	3
Mail	3
Email	21
Public Meetings	0
NIXLE (Public safety notification ...	6
Social Media	6
Other	4



13. If Social Media is the preferred method of contact, please specify the platform.

13
Responses

Latest Responses

Update

5 respondents (**5**%) answered **Facebook** for this question.

14. Please describe any actions you have taken as a private citizen to become more resistant to hazards.

29
Responses

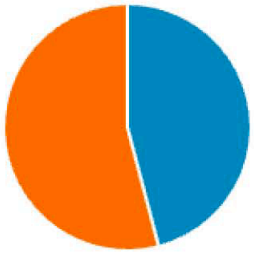
Latest Responses
" "
"watch the area"
" "

Update

3 respondents (**3**%) answered **water** for this question.

15. Would you like to learn more about our Local Hazard Mitigation Plan?

Yes	45
No	53



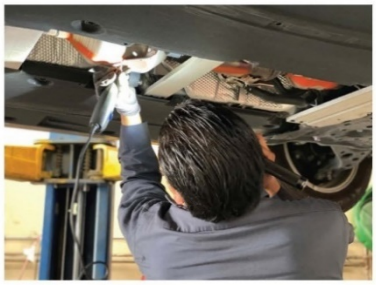
10. City e-Newsletter

City of Lake Forest est. 1991

City of Lake Forest e-Newsletter

February 2023

Lake Forest Launches Catalytic Theft Deterrent Programs



The City aims to reduce catalytic converter thefts by paying local repair shops to paint and etch identifying information onto the smog-reducing devices on residents' cars or shield them entirely with metal plates.

Repair shops in Lake Forest can get $125 to paint and etch the Vehicle Identification Number (VIN) onto the catalytic converter for residents' vehicles, making it possible for authorities to prosecute anyone who steaks the device. Residents can also get a $250 gift card to help cover the costs of having a local shop install a shield to block access to their catalytic converter.

Only vehicles registered to a Lake Forest address via DMV registration are eligible to participate in the programs. Visit the program's webpage to apply or learn more.

Affordable Housing Project Set for 2023 Finish

Drywall is up, windows and balcony railings are in, and siding installation is underway at the 71-unit Mountain View affordable housing project off Raymond Way.

Construction has been ongoing since the groundbreaking in March 2022, allowing the project to be on track to finish in the summer of 2023.

Mountain View will offer one-, two-, and three-bedroom homes to individuals and families with a household income ranging from 30-60 percent of the area median income. Eight units will be reserved for those experiencing or at risk of homelessness in the region.

The application process for Mountain View will begin in February/March. National Community Renaissance (National CORE) will handle all housing inquiries and applications.

Visit bit.ly/MountainViewLF to sign-up for the property mailing list and be notified when the development nears completion.

We Want Your Input: Local Hazard Mitigation Plan

Do you believe there are threats of disaster facing the City?

Residents, businesses, and those who work in Lake Forest can share their thoughts at the City's outreach meeting on February 22. The feedback shared will be considered when the City develops its Local Hazard Mitigation Plan.

The City's outreach meeting will be in the Maple Room at the Lake Forest Civic Center Campus from 6- 7 p.m. on Wednesday, February 22.

Those who cannot attend the meeting can take a short survey at bit.ly/lakeforestsurvey. The survey closes on March 17.

Visit the Local Hazard Mitigation Plan web page for more information.

Lake Forest BOGO Program Enters Round 2

The Community Gift Card Program continues to grow in popularity with Lake Forest residents. The City sold out of its first buy-one-get-one (BOGO) gift card funding round of $150,000 and has added another $175,000 in funds for its second BOGO round.

Not only can residents purchase up to two gift cards, but now those who work or go to school in Lake Forest can also purchase two $25, $50, or $100 gift cards and receive two bonus cards of equal value from the City.

Over 40 restaurants, retail, automotive, and personal care businesses have enrolled - and the list continues to grow. Local businesses can participate in the program if they qualify and accept MasterCard credit card payments.

Click here to purchase your BOGO gift card or learn more about the program.

City and Sheriff's Department Launching Neighborhood Watch Meetings

Does your community have an active Neighborhood Watch? Would you like to jump start an old program or launch a new one?

Neighborhood Watch launched in 1972, building strength and security in neighborhoods through neighbors working with neighbors. Lake Forest has a few active programs, but wants to reinvigorate Neighborhood Watch in older neighborhoods and launch new programs.

Interested? Go to https://www.lakeforestca.gov/en/departments/public-safety/neighborhood-watch and click the "Click Here to Register" button. A City representative will contact you.

See https://www.nnw.org/ for more information about the National Neighborhood Watch and the group's history.

Other News

Fire Safety

OC Health Care Agency Prepares to Transition COVID-19 Response Out of a State of Emergency

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Join Team Lake Forest

Enable your career to take root - Join Team Lake Forest! The City of Lake Forest is looking to attract bright, innovative, talented people who care about impacting the community they serve.

Join the team. Apply at bit.ly/TeamLakeForest.

It's Time to Put Your Trash on a Diet

Tossing food scraps into your trash carts leads to larger landfills and more methane gases that heat our climate. It's time to reduce landfill waste and rethink what we toss in the trash bin!

Food waste recycling is easy:

1. Set up a container in your kitchen.
2. Place food scraps - eggshells, meats, dairy, food-soiled paper products - in your bin. To help with odor, sprinkle baking soda inside.
3. Empty your kitchen bin into your organics cart before your trash pick-up.

Do your part and recycle smart. Click here for more tips on food waste recycling!

Volunteer for the 4th of July Parade Committee

Are you a fan of the City's annual 4th of July Parade?

Take part in the planning process and join the parade committee! Meetings are held on the first Monday of the month at 6 p.m. at the Senior Clubhouse, 100 Civic Center Drive. The first meeting is on February 6.

Please email Courtney Wysocki for more information.

Claim Unclaimed Property in California

Are you aware you may have unclaimed property in California?

California's Unclaimed Property Law requires financial institutions, insurance companies, corporations, businesses, and other entities to report and submit their customers' property to the State Controller's Office when there has been no activity for three years.

Common types of unclaimed property are bank accounts, stocks, wages, uncashed checks, insurance benefits, and safe deposit box contents. Property does not include real estate.

Click here to see if you have unclaimed property. There is no deadline for claiming property from the State's Controller's Office.

Lake Forest Videos

The City releases frequent videos with the Mayor or City staff covering all things Lake Forest.Subscribe to the City's YouTube Channel or Like the City's Facebook page to see the latest videos.

Mayor Cirbo Introduction
January 18, 2023

Upcoming City Meetings

City Council meetings are held on the first and third Tuesday of every month at the Civic Center Campus,

100 Civic Center Dr. The public session starts at 6:30 p.m. All Commission meetings also start at 6:30 p.m.

The agendas are available at **Lake Forest Agendas** 72 hours before the meeting. Residents can also watch the meeting through the City's Facebook Live stream at facebook.com/lakeforestca. For ways to provide the City with public comments, see the City's Agendas page.

- Tuesday, February 7: City Council Meeting
- Thursday, February 9: Planning Commission Meeting
- Tuesday, February 21: City Council Meeting

City Council Wrap-Up

NOTE: City Council Wrap-Ups are a summary of meeting topics and events provided by the Management Services Department as a public service. This wrap-up is not an official record of Council action. The official record is posted by the City Clerk at www.lakeforestca.gov/129/Agendas after the meeting.

January 3: The City Council approves the "Safe Lake Forest" program.

The Safe Lake Forest program aims to increase public safety within Homeowner Associations (HOAs) via community partnership. The program would allow the City and the Orange County Sheriff's Department to advise HOAs on where to install license plate reader cameras within the HOA communities.

Mayor Doug Cirbo took his Oath of Office during the January 3 City Council meeting. He was nominated as Mayor for 2023.

City of Lake Forest | @lakeforestca | /lakeforestca | nextdoor.com

@cityoflakeforestca | For SMS updates, text Lakeforest to 888777 | City of Lake Forest *Alexa Skill*

WEBSITE | BUSINESS | SPORTS PARK AND RECREATION CENTER | ETNIES SKATEPARK

City of Lake Forest | 949-461-3400
Monday through Thursday 8:00 a.m. - 6:00 p.m.
Friday 8:00 a.m. - 5:00 p.m.

APPENDIX C
ADOPTION RESOLUTION

City Council resolution of adoption

RESOLUTION NO. 2024-36

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LAKE FOREST APPROVING AND ADOPTING THE LOCAL HAZARD MITIGATION PLAN OF THE CITY OF LAKE FOREST

WHEREAS, the City of Lake Forest (City) recognizes the threat that natural and manmade hazards pose to people and property within our community; and

WHEREAS, the City recognizes that undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

WHEREAS, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards; and

WHEREAS, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and

WHEREAS, an adopted Local Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple Federal Emergency Management Agency (FEMA) pre- and post-disaster mitigation grant programs; and

WHEREAS, the Disaster Mitigation Act requires local governments to develop and submit hazard mitigation plans to the California Governor's Office of Emergency Services (Cal OES) and FEMA every five years; and

WHEREAS, the City fully participated in the FEMA-prescribed mitigation planning process to prepare this local hazard mitigation plan; and

WHEREAS, adoption of the Local Hazard Mitigation Plan by the City Council demonstrates the City's commitment to fulfilling the mitigation goals and objectives outlined in the Local Hazard Mitigation Plan; and

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF LAKE FOREST HEREBY FINDS, RESOLVES, AND ORDERS AS FOLLOWS:

SECTION 1. The recitals above are true and correct and incorporated as a basis for the findings.

SECTION 2. The City Council of the City of Lake Forest approves and adopts the City's Local Hazard Mitigation Plan ("Plan"), attached hereto and incorporated herein by reference as Exhibit "A". While content related to the City's Plan may require revisions to meet the Plans approval requirements, changes occurring after adoption will not require the City to re-adopt any further iterations of the Plan in accordance with the new FEMA Adoption process. Subsequent Plan updates following the approval period for this Plan will require separate adoption Resolutions.

SECTION 3. This Resolution shall be submitted to Cal OES and FEMA Region 9 officials to enable the Plan's final approval in accordance with the requirements of the Disaster Mitigation Act.

SECTION 4. If any section, subsection, subdivision, sentence, clause, or phrase in this Resolution or any part thereof is for any reason held to be unconstitutional, invalid, or ineffective by any court of competent jurisdiction, such decision shall not affect the validity or effectiveness of the remaining portions of this Resolution or any part thereof. The City Council hereby declares that it would have adopted each section irrespective of the fact that any one or more subsections, subdivisions, sentences, clauses, or phrases be declared unconstitutional, invalid, or ineffective.

SECTION 5. This Resolution shall take effect immediately upon adoption.

SECTION 6. The City Manager or designee is hereby authorized to take all actions necessary to implement this Resolution.

SECTION 7. The City Clerk shall certify the passage and adoption of this Resolution.

PASSED, APPROVED, AND ADOPTED by the City Council of the City of Lake Forest at a regular meeting held this 3rd day of September, 2024 by the following vote:

MARK TETTEMER,
MAYOR

ATTEST:

LISA BERGLUND
CITY CLERK

APPROVED AS TO FORM:

MATTHEW RICHARDSON
CITY ATTORNEY