CITY OF LAGUNA BEACH

LOCAL HAZARD MITIGATION PLAN

CITY COUNCIL ADOPTED VERSION

DECEMBER 12, 2023

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Chapter 1 – Introduction

Plan Purpose and Authority

Hazard events can lead to injuries or death, affect a community's overall health and safety, damage or destroy public and private property, harm ecosystems, and disrupt key services. Although the hazard event itself often gets the most attention, it is only one part of a larger emergency management cycle.

Emergency planners and responders can take steps during the response, recovery, mitigation, and preparedness phases of the cycle to minimize the harm caused by a disaster. This Local Hazard Mitigation Plan (LHMP) focuses on optimizing the mitigation phase of the cycle. Mitigation involves making a community more resilient to disasters so that when hazard events do ultimately occur, the community suffers less damage and can recover more effectively. It differs from preparedness, which involves advanced planning for how best to respond when a disaster occurs or is imminent. For example, a policy to make homes structurally stronger so they suffer less damage during an earthquake is a mitigation action, while fully equipping shelters to accommodate people who lose their homes in an earthquake is a preparedness action. Some activities may qualify as both.

HAZARD EVENT: an emergency due to a natural or human-caused event that has the potential to cause harm.

HAZARD MITIGATION: any sustained action taken to reduce or eliminate long-term risk to people and property from natural or human-caused hazards and their effects.

RESILIENCE: the capacity of any entity (an individual, a community, an organization, or a natural system) to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.

Like other communities, the City of Laguna Beach (City) could potentially suffer severe harm from hazard events. Although large disasters may cause widespread devastation, even smaller disasters can have substantial effects. The City cannot make itself completely immune to hazard events, but this LHMP can help make the community a safer place to live, work, and visit. This LHMP provides a comprehensive assessment of the threats that the city faces from natural and human-caused hazard events and a coordinated strategy to reduce these threats. It identifies resources and information that can help community members, City staff, and local officials understand local threats and make informed decisions. The LHMP can also support increased coordination and collaboration between the City, other public agencies, local employers, service providers, community members, and other key stakeholders.

Federal Authority

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

Federal Laws

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

Federal Regulations

44 CFR Part 201 Mitigation Planning

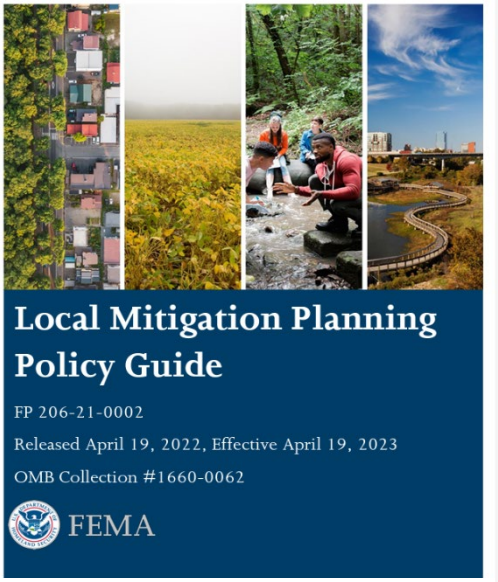
44 CFR, Part 60, Subpart A, including § 60.3 Flood plain management criteria for flood-prone areas

44 CFR Part 77 Flood Mitigation Grants

44 CFR Part 206 Subpart N. Hazard Mitigation Grant Program

Federal Guidance

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



FEMA Local Mitigation Planning Policy Guide provides the official policy and interpretation of the applicable statutes and mitigation planning regulations in 44 Code of Federal Regulations

State Authority

California Government Code Sections 8685.9 and 65302.6

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

All cities and counties in California must prepare a general plan, including a safety element that addresses various hazard conditions and other public safety issues. The safety element may be a stand-alone chapter or incorporated into another section, as the community wishes. California Government Code Section 65302.6 indicates that a community may adopt an LHMP into its safety element if the LHMP meets applicable state requirements. This allows communities to use the LHMP to satisfy state requirements for safety elements. As the General Plan is an overarching long-term plan for community growth and development, incorporating the LHMP into it creates a stronger mechanism for implementing the LHMP.

California Government Code Section 65302 (g)(4)

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

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

This LHMP is consistent with current standards and regulations, as outlined by the California Office of Emergency Services (Cal OES) and FEMA. It uses the best available science, and its mitigation actions/strategies reflect best practices and community values. It meets the requirements of current state and federal guidelines and makes the City eligible for all appropriate benefits under state and federal law and practices. Note that while FEMA is responsible for reviewing and certifying this LHMP, and Cal OES is responsible for conducting a preliminary review, it does not grant FEMA or Cal OES any 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 Laguna Beach LHMP is both a reference document and an action plan. It has information and resources to educate readers and decision-makers about hazard events and related issues and a comprehensive strategy that the City and community members can follow to improve its resilience. It is divided into the following chapters:

- **Chapter 1: Introduction**. This chapter describes the background of the Plan, its goals and objectives, and the process used in its development.

- **Chapter 2: Community Profile**. This chapter discusses the history of Laguna Beach, its physical setting and land uses, demographics, and other important community characteristics.
- **Chapter 3: Hazard Assessment and Vulnerability Assessment.** This chapter identifies and describes the hazards that pose a threat to Laguna Beach and discusses past and future events and the effects of climate change. The chapter also describes the threat of each hazard on Laguna Beach's key facilities and community members, including socially vulnerable individuals.
- **Chapter 4: Mitigation Strategy**. This chapter lists the mitigation actions to reduce Laguna Beach's vulnerability to hazard events and provides an overview of the community's existing capabilities to improve hazard resilience.
- **Chapter 5: Plan Maintenance**. This chapter summarizes the process for implementing, monitoring, and updating the LHMP and opportunities for continued public involvement.

Previous Laguna Beach LHMP

The Laguna Beach City Council adopted the 2018 Laguna Beach LHMP on August 28, 2018. This plan expired on August 9, 2023. An active plan allows the City to maintain its eligibility for FEMA hazard mitigation grant funding sources, which occur annually through FEMA Hazard Mitigation Grant Programs budgeted by Congress or periodically as a part of a federally declared disaster.

During the previous implementation period, the City of Laguna Beach prepared or finalized a variety of studies and standards that integrate some of the findings from the 2018 LHMP. The following list identifies the key efforts conducted by the City that integrate information from the 2018 LHMP:

- Integrated into the 2021 General Plan Safety Element Update
- Wildfire Mitigation and Fire Safety Report
- Landscape/Fuel Modification Standards and Maintenance
- Evacuation Time Estimate/Wildfire Egress Study

Key updated elements from the previous Laguna Beach LHMP include the following:

- Updated hazard profiles and vulnerability assessment that integrates the recently adopted General Plan Safety Element.
- Incorporation of updated demographics and development trends into the Community Profile.
- Updated hazard profiles with additional historic events information.
- Updated Capabilities Assessment to meet new FEMA requirements and guidance.
- Updated Mitigation Actions and Strategies **(Table 4-3)**, which includes progress on previous actions **(Table 4-4)**.

Plan Goals

This Plan was developed to broadly increase resilience in Laguna Beach. The following key goals were developed for the City's LHMP:

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

These goals have not changed from the 2018 LHMP.

Planning Process

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

For the City of Laguna Beach, the planning process used to create this plan is described below.

Hazard Mitigation Planning Committee

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

Table 1-1: Laguna Beach HMPC Members

Name	Title	Department
Aggie Nesh	HR Manager	Human Resources
Brendan Manning	Emergency Operations Coordinator	Fire Department
Crissy Teichmann	Deputy Chief	Fire Department
Kai Bond	Captain	Marine Safety
Marc Wiener	Director	Community Development
Mike Peters	Captain	Police Department
Nabila Guzman	Senior Administrative Analyst	Transit & Community Services
Pierre Sawaya	Senior Project Manager	Public Works
Richard Gonzales	Deputy Director	Public Works, Wastewater Division
Robert Montaghami	Fire Marshal	Fire Department

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

HMPC Meeting #1 (June 28, 2023): The HMPC members confirmed the project goals and responsibilities. They revised the community engagement and outreach strategy, confirmed and prioritized the hazards to be included in the Plan, and identified critical facilities for the threat assessment.

HMPC Meeting #2 (September 11, 2023): Members of the HMPC, Emergency and Disaster Preparedness Committee (EDPC), and public discussed the Draft Local Hazard Mitigation Plan and provided opportunities for feedback and discussion regarding plan updates.

Invitations to HMPC meetings, as well as agendas/materials, were provided via email and standard publication protocols for public meetings. **Appendix A** contains copies of these meeting materials, including meeting agendas, sign-in sheets, and other relevant materials distributed to attendees for these meetings.

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 HMPC chose to go beyond minimum standards and conduct more extensive community outreach to help ensure that the LHMP reflects community values, concerns, and priorities. A community engagement and outreach strategy was developed to guide all public engagement activities. To ensure all residents were aware of the project, Laguna Beach staff promoted and included a description of the project and ways to get involved on the City's website; this is discussed in more detail in the online engagement section.

Stakeholder Engagement

To ensure stakeholders were involved in the planning process, the City conducted a virtual stakeholder meeting inviting representatives from surrounding cities, water districts, school districts, and utility providers. The following were invited to attend this meeting:

- Cities: Newport Beach, Aliso Viejo, Huntington Beach, Dana Point, and Irvine
- Water/Wastewater Districts: South Coast Water District, Laguna Beach County Water District, South Orange County Wastewater Authority
- Utilities: Southern California Gas, Southern California Edison, San Diego Gas & Electric
- School: Laguna Beach Unified School District

Additionally, the City individually invited the following stakeholders via email to provide feedback on the updated LHMP:

- Laguna Beach County Water District
- San Diego Gas & Electric
- Southern California Edison
- South Coast Water District
- Laguna Beach Unified School District
- South Orange County Wastewater Authority

A copy of the email invitation as well as a list of the Agency contact are included in **Appendix B**.

Vulnerable Populations Outreach

The City of Laguna Beach has a significant population over the age of 65 (~25%). This is considered one of the most vulnerable populations within the city and is a key focus of City departmental programming. A key support organization is the Laguna Beach Seniors, which operates out of the Susie Q Community Center. With such a high percentage of residents over 65, City staff anticipates this population is the most vulnerable to the myriad of hazards within the city. As a result, much of the emergency planning and preparation that occurs focuses on how to best support this population and ensure City communications are effectively shared with this population. The following key outreach activities occurred:

- Shared information with Laguna Beach Seniors to distribute to their eBlast, which is distributed to over 3,000 seniors in the City.
- Laguna Beach Seniors shared the survey link/information with their distribution list, which includes over 3,000 recipients (> 50% of the City's senior population).

- Conducted an In Person Emergency Management Meeting on September 18, 2023 at the Susie Q Community Center that discussed the Hazard Mitigation Plan. Invites were sent to the Laguna Beach Senior eBlast distribution of over 3,000 recipients and 15 attendees participated in the event.
- Displayed flyers and a QR code at the Susie Q Community Center to take the online survey

This is greatest vulnerable population within the City due to their age, limited mobility, and lower socioeconomic status due to their fixed incomes and long tenure within the City that limits their affordability based on the current home prices in comparison to their income levels.

Future Outreach Opportunities

Recognizing that other vulnerable populations do exist in the City, this update focused on the one of greatest concern. For the next update, the City intends to focus on expanding outreach to daily workers employed within the City but do not live in the City to better inform them of the risks and challenges that could impact their lives.

Public Engagement Opportunities

In-person engagement opportunities were a central component of the City's engagement efforts. These meetings allowed members of the public to learn about the hazards of concern identified by the HMPC during this update. City staff presented the LHMP planning process and relevant information at two public engagement meetings early on in the process. Additionally, City staff advertised the public survey at various public events and through e-blasts and alerts shared throughout the city.

Public Engagement Opportunity #1&2 (June 28, 2023, 12 pm and 5 pm) - City staff conducted two meetings on the same day. These meetings were held in the City Council chambers at 12:00 pm and 5:00 pm in hopes that different times would provide more opportunity for attendance. Zero members of the public attended the 12:00 pm meeting and one member of the public attended the 5:00 pm meeting. During the meeting, the City shared an overview of the planning process, the key hazards of concerns and asked for feedback from attendees.

Key feedback received included: progress made on undergrounding power utilities and concerns regarding evacuation of residents and visitors since the City's population grows during special events like the Sawdust Festival and Pageant of the Masters.

The following is the information that was posted to the City's website announcing these meetings and other ways to get involved in the process.

How can I get involved?

You can get involved in preparing our LHMP in different ways.

- The City will have public engagement opportunities to share information about our LHMP and obtain community feedback. **Public meetings will be held on June 28, 2023, from 12 pm – 1 pm and 5 pm - 6 pm at City Council Chambers (505 Forest Ave, Laguna Beach, CA 92651).**
- The City is conducting an online survey to members of the public, asking for information about past experience with natural hazards and how our LHMP can be the most useful. Please take our survey here, and encourage your friends and family to do the same.
- The City will release a draft of the completed LHMP for public review. Please review and provide comments on this document, either at in-person meetings or in writing.
- Encourage members of the Laguna Beach City Council to adopt the plan and begin implementing it.
- Reach out to the project team leader, Brendan Manning, at bmanning@lagunabeachcity.net for more ways to stay involved.

Appendix B includes a copy of the materials shared at the outreach meetings.

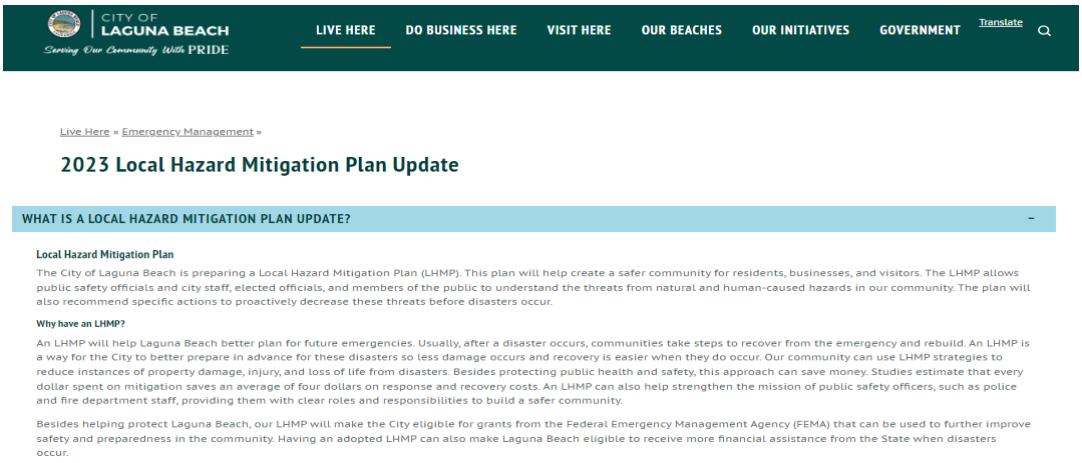
Online Engagement

The City recognized that not all community members are able to attend public meetings and conducted public engagement through social media and online platforms. To assist with engagement, the City set up a project website as a simple, one-stop location for community members to learn about the LHMP. The website included information about what an LHMP is and why the City prepared one. It had links to materials and Plan documents as they became available and allowed members of the public to receive notifications about upcoming events.

The City also promoted the planning process through the following online methods:

- Laguna Beach's City Website (see below)
- Community Newsletter sent out weekly via Nixle (SMS and email depending on their preference) to approximately 15,700 community members (approximately 65% of the City)

- Social Media – LHMP information was posted on the City's Facebook account which has approximately 11,504 followers
- Distribution of information to their extensive CERT Member List (over 300 members)



Online Survey

A central part of the engagement strategy was an online survey. This survey 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. The survey was distributed to over 17,000 individuals from the City's notification lists and had responses from 78 individuals. The survey was sent out in the July Susi-Q (a senior citizens organization) eblast, reaching over 3,000 senior citizens. The City also included the survey in its newsletter that is sent to over 14,000 residents.

A summary of these responses is provided here:

- Nearly 74% of respondents live in Laguna Beach, with an additional 23% that live and work in Laguna Beach.
- Approximately 64% of respondents have been impacted by a disaster in their current residence. Understanding this drove the City to expand outreach to residents as part of their emergency management preparedness.
- The top three hazards of concern for respondents were Wildfire, Seismic Hazards, and Extreme Weather. This survey response confirmed that the survey respondents and City staff had the same concerns regarding hazards affecting the city.
- Approximately 51% of respondents showed concern regarding climate change affecting future hazards.

As part of the outreach strategy, a QR code was created that could be used on promotional materials and handouts used by City staff at community events. This QR Code provided quick access to the City's Online website and survey.

Radio Announcement

The City also announced the online survey on the local FM radio station (KXFM 104.7) when the survey was made available. Various DJs would encourage residents to go to the City's website to take the survey and why it was important in doing so.

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

Public Review Draft

On September 7, 2023, the City released a draft copy of the LHMP for public review and comment. This release occurred as part of the regularly scheduled Emergency and Disaster Preparedness Committee (EDPC) meeting that is held on a monthly basis. The document was included in the September 11, 2023, EDPC agenda packet, posted electronically on the City's website, and hard copies were printed and placed at the following City locations:

- Laguna Beach City Hall (Planning Counter) – 505 Forest Avenue, Laguna Beach, CA 92651
- Susie Q Community Center - 380 Third Street, Laguna Beach Ca 92651

Notifications about the public review draft were provided through the same social media accounts and distribution lists used for other outreach efforts during the planning process.

During the public review period, the City conducted an emergency preparedness meeting at the Susie Q Community Center on September 18, 2023. A flyer for this meeting is included in **Appendix B**.

Public Review Comments

During the public review period, the City received two comments from members of the public. These comments were provided through an online form that asked questions about how respondents heard about the public review draft, if it was easy to access, and if the plan was easy to read and understand. **Appendix B** includes the results from respondents answers. Revisions to the document were made in response to this feedback as well feedback received at the EDPC by commission members. All revisions were minor in nature and focused on grammar errors or minor corrections to better reflect community conditions.

Plan Revision and Adoption

Following public comment, the City submitted the plan to Cal OES 9/25/2023 and FEMA 11/15/2023. The City then made additional revisions to incorporate comments from state and federal agencies, as appropriate, and submitted the final draft to City decision-makers. The Laguna Beach City Council adopted the final LHMP on 12/12/2023. **Appendix C** contains a copy of the adoption resolution.

Plan Resources

The City used several different plans, studies, technical reports, datasets, and other resources to prepare the hazard assessment, mapping, threat assessment, and other components of this Plan. **Table 1-2** provides some of the primary resources the HMPC used to prepare this Plan.

Table 1-2: Key Resources for Plan Development

Section	Key Resources Reviewed	Data Incorporated from Resource
Multiple	• Cal-Adapt • California Department of Conservation • California Geological Survey • California Office of Emergency Services • California State Hazard Mitigation Plan • 2018 City of Laguna Beach Hazard Mitigation Plan • 2021 Laguna Beach General Plan (Housing Element)	• Science and background information on different hazard conditions • Records of past disaster events in and around Laguna Beach • Current and anticipated climate conditions in and around Laguna Beach • Projections of future seismic conditions and events

	• FEMA Local Hazard Mitigation Plan Guidance • National Oceanic and Atmospheric Administration • National Weather Service • US Geological Survey	
Community Profile	• 2020 US Census Bureau Decennial Census • US Census Bureau 2016-2020 American Community Survey • 2021 Laguna Beach General Plan (Housing Element) • 2022 Laguna Plan General Plan (Land Use Element) • California Energy Commission	• Demographic information for Laguna Beach and Orange County • History of the region • Economic trends in Laguna Beach • Commute patterns in Laguna Beach • Local land-use patterns • Background information on utilities serving Laguna Beach
Hazard Assessment (Coastal Hazards)	• Intergovernmental Panel on Climate Change • Cal-Adapt	• History and future projections of sea level rise
Hazard Assessment (Disease and Pest Management)	• California Department of Health • World Health Organization • Centers for Disease Control	• Science and historical records of disease outbreaks
Hazard Assessment (Extreme Weather Hazards)	• Cal Adapt • NOAA • National Weather Service • US Drought Monitor •	• Historical drought information • Current drought conditions • Science and background information on extreme weather events • Historical Records of extreme weather events in and around Laguna Beach
Hazard Assessment (Flood Hazards)	• FEMA Map Service Center • Orange County Flood Control District	• Records of past flood events in and around Laguna Beach • Locations of flood-prone areas in Laguna Beach
Hazard Assessment (Hazardous Materials Release)	• Department of Toxic Substances and Control • Environmental Protection Agency	• Location and dates of past hazardous materials release • Effects of hazardous materials release
Hazard Assessment (Human-Caused Hazards)	• Global Terrorism Database • Cyber Security Index	• Historical records of terrorism • Rate of Cyber Attacks over a period of time
Hazard Assessment (Landslide/Mudflow)	• California Geological Survey • United State Geological Survey •	• Areas of landslide susceptibility
Hazard Assessment (Seismic Hazards)	• California Geological Survey • United State Geological Survey	• Science and background information on seismic hazards • Historical record of seismic hazard events in and around Laguna Beach
Hazard Assessment (Wildfire)	• California Dept. of Forestry and Fire Prevention	• Historical fire records • Location of Fire Hazard zones in and around Laguna Beach
Note: Sections not individually identified in this table relied primarily on sources identified in multiple sections.		

Chapter 2 – Community Profile

The Community Profile section of the LHMP is a summary of Laguna Beach, including information about the community's physical setting, history, economy and demographics, current and future land uses, and key infrastructure. The Community Profile helps to establish the baseline conditions in Laguna Beach, which informs the development of the hazard mitigation actions in Chapter 4.

Laguna Beach Quick Facts
Elevation:
19.69 ft above sea level
Area:
8.84 square miles
Incorporated:
1927
Government Type:
City Council/City Manager
Population (2021 ACS estimate):
23,121
Nearest cities:
Aliso Viejo, CA – 3.59 miles
Laguna Niguel, CA – 4.56 miles
San Joaquin Hills, CA – 5.7 miles
Laguna Woods, CA – 5.8 miles
Laguna Hills, CA – 6.0 miles
Dana Point, CA – 7.1 miles
San Juan Capistrano, CA – 7.5 miles
Mission Viejo, CA – 7.5 miles
Nearest city with population 200,000+*:
Irvine, CA (14 miles, pop. 305,688)
Nearest city with population 1,000,000+*:
Los Angeles, CA (52 miles, pop. 3.820 million)
* California Department of Finance

Setting and Location

Laguna Beach is in southern Orange County between the Pacific Ocean and the San Joaquin Hills. It is approximately 45 miles southeast of downtown Los Angeles. The cities of Laguna Woods, Aliso Viejo, Laguna Niguel, and Dana Point lie along Laguna Beach's eastern border. Beyond the San Joaquin Hills, the cities of Newport Beach and Irvine are to the north. The Pacific Ocean borders Laguna Beach to the southwest.

The coastal areas of Laguna Beach sit on a series of coastal terraces of varying height, from a few feet high to close to 140 feet tall, with a flat coastal plain below Laguna Canyon. Laguna Beach's winding coastline forms numerous coves and beaches. Away from the coast, the city rises quickly into the ridges and canyons of the San Joaquin Hills. Although most of Laguna Beach is near the coast, the city also extends approximately five miles inland along the east side of Laguna Canyon. In the inland hillside areas, parts of the community reach elevations above 1,000 feet.[1]

History[2]

Human settlement in what is now Laguna Beach dates back to 6,000 BCE, or potentially earlier. These early residents were largely nomadic, depending primarily on hunting, fishing, and gathering plants for survival. Eventually the Tongva (Gabrielino) Native American culture developed across much of the Los Angeles Basin, with Laguna Beach near the southern border of Tongva lands. The Tongva were one of the largest Native American groups in southern California, with as many as 5,000 to 10,000 members at the time of contact with Europeans.

[1] 2018 City of Laguna Beach Local Hazard Mitigation Plan
[2] Ibid.

The Spanish explorer Juan Rodriguez Cabrillo and the English privateer Sir Francis Drake both sailed along the coast of California in the 1500s, but the first permanent European settlement in the area did not occur until Spanish explorers and priests established the missions along much of the California coast, beginning in 1769. The nearest mission to modern-day Laguna Beach, Mission San Juan Capistrano, was established in 1776. After Mexico (including California) became independent from Spain in 1821, the missions were secularized, and large portions of land were granted to prominent figures. The area north of Laguna Canyon became part of Rancho San Joaquin, although the rest of the community was not granted.

The area south of Laguna Canyon was open to homesteading in the 1870s, approximately 20 years after the United States conquered California in the Mexican-American war, and Rancho San Joaquin became part of the Irvine Ranch. The first American settler arrived in 1871, and by 1888 there were 15 families living permanently in the area. At this time, the town was two separate settlements, Laguna Beach (called “Lagona” until 1904) near the mouth of Laguna Canyon, and South Laguna. Even at this time, the town was a popular visitor destination, particularly during the summer, and tourism quickly became a major industry. The area became a center for artists beginning in 1903, when the artist Norman St. Clair made sketches of the coast that quickly raised the town’s profile. At this time, a group of investors purchased North Laguna (then called Laguna Cliffs) from the Irvine Ranch and developed it, expanding the town north of Laguna Canyon.

Art galleries have been a feature of Laguna Beach since the early 1900s. Image from the Orange County Archives.

Laguna Beach continued to grow, particularly with the arrival of the Pacific Coast Highway in 1926. Incorporated in 1927, it was the first city in southern Orange County, with a population of approximately 1,900. Despite growing to a size of over 23,000 people at the present, Laguna Beach has retained its distinction as an artistic community and popular vacation spot. In 2016, an estimated over 6 million people visited Laguna Beach.

Demographics

The data used in this section comes from the most comprehensive American Community Survey (ACS 5-Year Estimates 2016-2020), administered by the United States Census Bureau (US Census) completed in 2020, the 2020 Decennial Census, and 2022 Census estimates. Based on these datasets, Laguna Beach's 2020 population was estimated to be 23,121, with a median age of 52.5, which is 14 years older than the rest of Orange County (38.5 years old). The number of senior residents aged 65 and older is higher than the rest of Orange County, while Laguna Beach residents are wealthier. In addition, a slightly higher proportion of Laguna Beach residents rent compared to Orange County. **Table 2-1** shows the basic demographics for Laguna Beach and Orange County. According to the 2022 Orange County Continuum of Care Homeless Count and Survey, the city has a homeless population of 83 people (28 unsheltered and 55 sheltered). The 2022 count shows a 44% decrease in the homeless population from 2019. It can be assessed that the number of homeless people in the city is likely to be higher than reported, as it is extremely difficult to count people living in cars, abandoned buildings, and other deserted places. Additionally, some of the homeless population may not wish to be found.

Table 2-1: Basic Demographics – Laguna Beach and Orange County		
Demographics	Laguna Beach	Orange County
Total Population	23,121	3,182,923
Percent of children who are less than 10 years old	5.8%	11.4%
Percent of residents who are senior citizens (65+)	27.0%	16.0%
Median Age	52.5	38.5
Total households	10,536	1,057,592
Median household income	$135,976	$100,559
Percent of rental households	18.8%	17.0%
Note: Percentage values are rounded to the nearest tenth decimal. Source: 2020 US Decennial Census, US Census ACS Survey 2021		

In terms of its racial and ethnic composition, 86% percent of all Laguna Beach residents identify as white. The second-largest population is Latinx, with 8.2% percent of all residents identifying as such. This population makeup mirrors greater Orange County due to a high proportion of white and Latinx populations. **Table 2-2** shows the racial and ethnic composition of all groups in Laguna Beach and Orange County.

A lower percentage of Laguna Beach residents have completed a high school diploma or equivalent when compared to the County. However, a higher proportion of the population has attained bachelor's and professional degrees, 37.6% of the City's residents versus roughly 26.8% of the County's residents. **Table 2-3** shows all levels of educational attainment of residents 25 years of age or older in both Laguna Beach and Orange County.

Laguna Beach has a wide range of non-English languages spoken at home among its residents, with varying proficiency levels. Generally, Indo-European is the most spoken language at home other than English in Laguna Beach, with approximately 16% who are not fluent in English and speak it less than "very well." This is approximately 8% lower than the countywide population of Indo-European language speakers. Spanish is the third most spoken language in Laguna Beach, with 30% of these speakers unable to speak English fluently. This is lower than the rest of Orange County, where approximately 36% of Spanish language speakers cannot speak English fluently. **Table 2-4** shows the most spoken languages in Laguna Beach and the levels of fluency among speakers aged five and older in Laguna Beach and Orange County.

Table 2-2: Racial and Ethnic Composition – Laguna Beach and Orange County				
Race or Ethnicity	Laguna Beach		Orange County	
	Population	Percentage	Population	Percentage
White	19,938	86.2%	1,707,592	53.6%
Black	115	0.5%	55,075	1.7%
American Indian and Alaskan Native	13	0.1%	18,581	0.6%
Asian	742	3.2%	678,436	21.3%
Native Hawaiian and Other Pacific Islander	0	0.0%	9,138	0.3%
Some Other Race Alone	706	3.1%	412,012	12.9%
Two or more races	1,607	7.0%	302,089	9.5%
Lantinx (of any race) *	1,890	8.2%	1,083,093	34.0%
Total	23,121	100%	3,182,923	100%
* The US Census Bureau does not currently count persons who identify as Latinx as a separate racial or ethnic category. Persons who identify as Hispanic or Latinx are already included in the other racial or ethnic categories. Note: Percentage values are rounded to the nearest tenth decimal. Source: 2020 US Decennial Census, US Census ACS Survey 2021				

Table 2-3: Educational Attainment of Residents 25+ Years of Age				
Educational Attainment	Laguna Beach		Orange County	
	Number	Percentage	Number	Percentage
Less than 9th grade	230	1.3%	154,500	7.0%
9th grade to 12th grade (no diploma)	219	1.2%	126,092	5.7%
High school graduate or equivalent	1,366	7.4%	384,709	17.4%
Some college (no degree)	2,993	16.3%	422,969	19.1%
Associate's degree	1,143	6.2%	169,883	7.7%
Bachelor's degree	6,901	37.6%	592,907	26.8%
Graduate or professional degree	5,502	30.0%	361,397	16.3%
Total	18,354	100%	2,212,457	100%

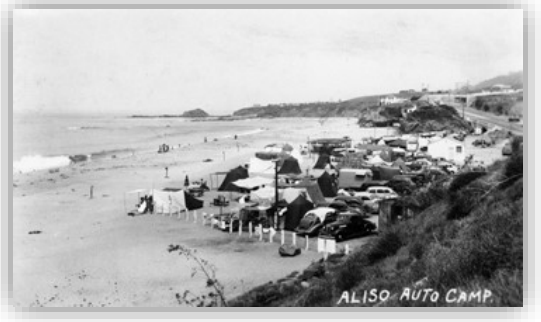
Note: Percentage values are rounded to the nearest tenth decimal.
Source: 2020 US Decennial Census, US Census ACS Survey 2021

Table 2-4: English Proficiency and Languages Spoken at Home (2021)				
Languages	Laguna Beach		Orange County	
	Number of Speakers	Speak English Less Than "Very Well"	Number of Speakers	Speak English Less Than "Very Well"
English only	19,510	-	1,622,013	-
Spanish	950	30.4%	735,651	36.2%
Indo-European*	1,582	16.1%	137,312	24.3%
Asian and Pacific Islander*	273	39.9%	456,836	51.4%
All other languages	226	74.8%	43,241	30.0%
Total	22,541	**	2,995,053	**

*Census data does not break down the specific languages for languages spoken in these regions
**Due to these figures only being a percentage of the overall number of speakers, they will not add up to 100%.
Note: Percentage values are rounded to the nearest tenth decimal.
Source: 2020 US Decennial Census, US Census ACS Survey 2021

Economy and Commute Patterns

Laguna Beach is known as a vacation and tourism destination, as evidenced by the estimated over 6 million visitors annually, and this is reflected in the local economy. According to the US Census, almost a third of jobs (approximately 30 percent) in the community are in food services and accommodation. Other major economic sectors are education (approximately 13 percent), health care (approximately 11 percent), retail trade (approximately 9 percent), and various professional and technical services (approximately 9 percent). Most of Laguna Beach's largest employers are in food services and accommodation, along with local government agencies and institutional organizations. **Table 2-5** shows the top employers in Laguna Beach in 2022.



This image from the 1930s shows an auto camp for visitors at the mouth of Aliso Creek. Image from the Orange County Archives.

As of 2020, 9,159 Laguna Beach residents are employed, with approximately 1,080 (12.0%) working within the city. **Table 2-6** shows the top five cities that contribute to Laguna Beach's workforce, which accounts for 32% of those employed within the city.

Table 2-5: Top Employers in Laguna Beach	
Employer	Number of Employees
Montage Laguna Beach Hotel	780
Laguna Beach School District	300
Mission Hospital, Laguna Beach	565
City of Laguna Beach	250
Surf and Sand Resort	306
Laguna College of Art & Design	225
Las Brisas Restaurant	150
Pacific Edge Hotel	230
Anneliese Schools	-
Mozambique Restaurant	130
Whole Foods Market	86
*Per EDD, employment numbers are confidential; therefore, only the data for the range of numbers of employees is available. Source: City of Laguna Beach Annual Comprehensive Financial Report Fiscal Year Ended June 30, 2022	

Table 2-6: Top Five Cities-of-Origin for Laguna Beach's Workforce (2020)		
Cities-of-Origin for Laguna Beach's Workforce	Number of Employees	Percentage
Laguna Beach	1,080	12.0%
Laguna Niguel	559	6.1%
Aliso Viejo	444	5.0%
Irvine	410	4.5%
Dana Point	392	4.3%
Total	2,885	32.0%
Source: https://onthemap.ces.census.gov/		

While the majority of Laguna Beach's residents commute outside the city for work, most of those residents (67.0%) travel less than 25 miles to reach their place of employment. Approximately 33% of commuters traveled 50 miles or more, with most of those trips heading into the Los Angeles area. **Table 2-7** shows the outflow of workers from Laguna Beach to other regional worksites.

Laguna Beach residents are mostly commuters—approximately 87 percent of employed residents travel outside of the community for work. Residents who commute mostly travel to Irvine, Newport Beach, and other Orange County communities. Similarly, approximately 88 percent of people who work in Laguna Beach come from other communities, predominantly from Laguna Niguel, Aliso Viejo, Irvine, and Dana Point, and other communities in Orange County.

The highest concentration of jobs in Laguna Beach is in the downtown area near the intersection of Coast Highway and Laguna Canyon Road. Other job centers include the area around Treasure Island Park, south Laguna Beach near Table Rock Beach, and the commercial and institutional areas in Laguna Canyon.

Table 2-7: Work Commute Distances for Laguna Beach Residents (2020)		
Work Destinations for Laguna Beach Residents	Number	Percentage
Less than 10 miles	3,103	37.2
10 to 24 miles	2,486	29.8
25 to 50 miles	1,436	17.2
Greater than 50 miles	1,315	15.8
Total	8,340	100.0
Source: https://onthemap.ces.census.gov/		

Development Trends Vulnerability and Risk Reduction

Laguna Beach's coastal regions are mostly developed. Some developed areas extend into the hills and canyons, although most of the city's inland areas are undeveloped and designated for open space or recreational uses. These undeveloped areas comprise more than half of Laguna Beach's land area. Residential land uses, predominantly low-density residential, make up most of the city's developed area. Commercial, industrial, and institutional land uses contribute smaller fractions.

Based on the recent Housing Element update, the City recognized that the majority of vacant land within the City is environmentally sensitive due to the location of high value habitat and/or steep topographic conditions. Some of these environmentally sensitive lands have been purchased by the City, and most of them have been zoned as Open Space to preclude environmentally damaging development, or Residential/Hillside Protection (R/HP), which limits residential development opportunities. However, all of the proposed sites identified to meet the City's housing needs requirements (**see Figure 2-1**) are developed (except Site 3). For these developed sites, no new environmental constraints exist that would not be addressed through the development review process. However, Site 3 is approximately 1.89 acres and has the ability to accommodate some of the environmental constraints (sensitive habitats) by preserving these portions of the site and consolidating development in areas without these conditions.

A recent development along Laguna Canyon Road included 28 units on a 0.55-acre site was approved at a density of 52 du/acre, which indicates that the new sites proposed to meet the City's housing needs are feasible under current regulations and standards. For many of the sites, wildfire and landslide conditions have been identified, triggering requirements to ensure these new developments address these hazard conditions as part of the development process. As a result, the City anticipates that the overall risk of wildfire and landslides will be reduced with these anticipated developments both at the site level and city-wide scale.

The updated Housing Element also assumes a total of 120 Accessory Dwelling Units will be developed over the next housing element cycle (8 years). The specific locations of these units are unknown; however, the regulations that apply to these improvements will ensure that these new structures will comply with the latest standards and requirements, reducing overall risk to existing development within the community. A key opportunity for the City is the ability to guide property owners towards other proactive improvements to existing structures that can further reduce risks to hazards throughout the community.

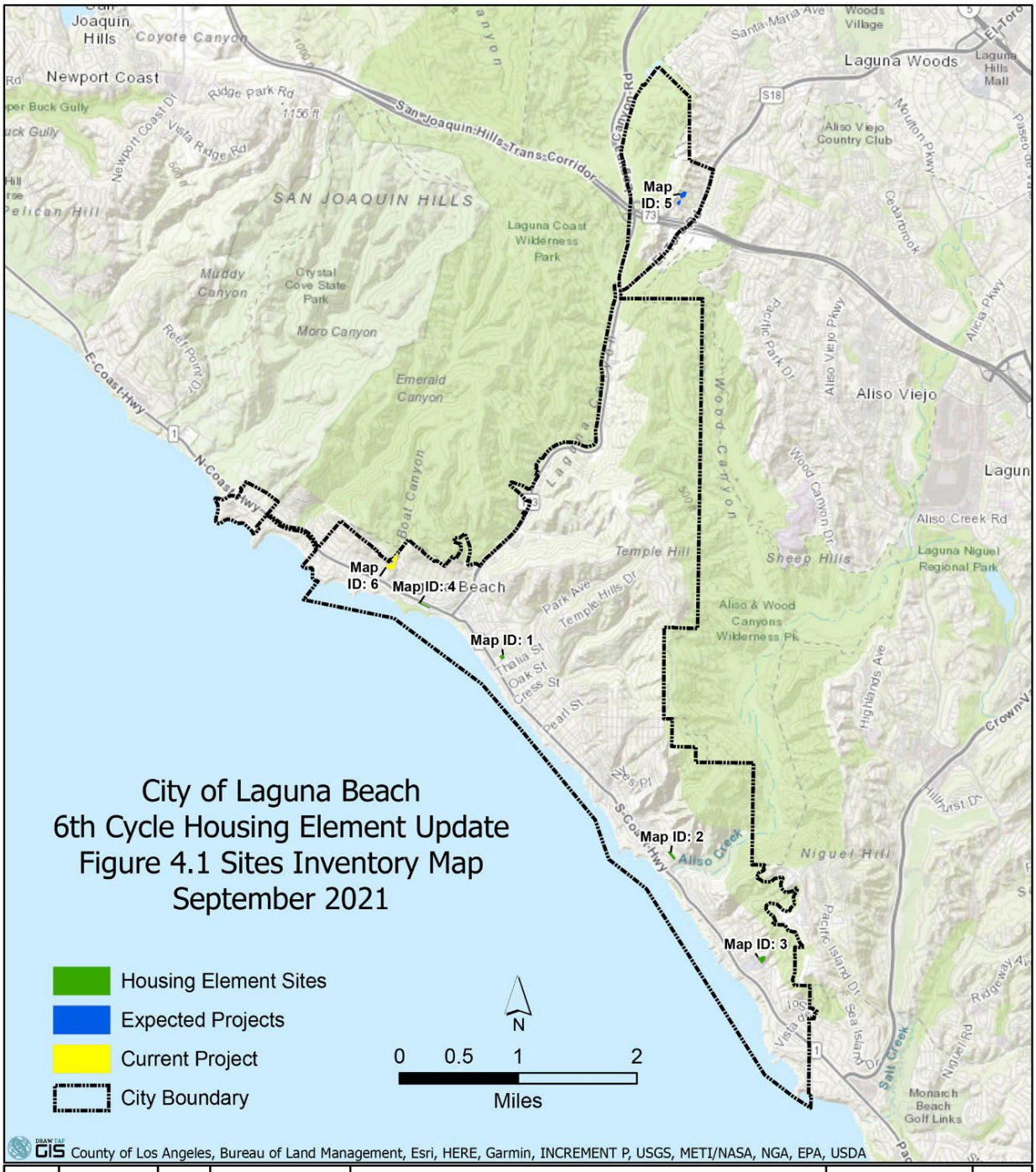
Overall implementation of the housing element coupled with the existing standards and requirements adopted by the City over the past few years should result in risk reduction, decreased vulnerability, and an increase in resilience towards the hazard conditions that can impact the City.

Major Community Elements

Heisler Park

Stretching along the bluffs on Cliff Drive from Aster Street to Diver's Cove, this oceanfront park has walking trails, gardens, a marine refuge with tide pools, picnic tables, barbecues, lawn bowling greens. Popular park wedding sites include a Gazebo and Monument Point.

Figure 2-1: Laguna Beach Sites Inventory Map



Map ID	Type	Zoning	General Plan Landuse	APN	Address	Acreage
1	New Site	LBP	LBP	644-034-05, 644-034-09	340 St. Anns	0.85
2	New Site	I	PI	656-214-07	21632 Wesley Dr	0.84
3	New Site	I	PI	056-130-47	31778 Sunset Ave	1.89
4	New Site	C-1	CTC	496-082-01, 496-082-02, 496-082-03, 496-082-04, 496-082-05, 496-082-06, 496-082-07	305-397 North Coast Hwy	1.02
5	Expected Project	R-3	VHD	622-121-06, 622-121-05	350 Artisan Dr.	2.21
6	Current Project	R-3	VHD	496-071-34	770 Hillcrest	0.43

Beaches

As the only marine reserve in Southern California, Laguna Beach is renowned for its pristine waters, abundant sea life and of course, perfect beaches. Laguna Beach offers various beaches that are known to be good for swimming, surfing, snorkeling/diving, and stand-up paddle boarding. The following beaches are located in Laguna Beach:

- Agate Street Beach
- Aliso Beach
- Bluebird Beach
- Brooks Street Beach
- Christmas Cove
- Cleo Street Beach
- Crescent Bay Beach
- Cress Street Beach
- Diver's Cove
- Fisherman's Cove
- Goff Cove
- Main Beach
- Moss Cove
- Mountain Street Beach
- Oak Street Beach
- Pearl Street Beach
- Picnic Beach
- Rockpile Beach
- St. Ann's Beach
- Sleepy Hollow Beach
- Table Rock
- Thalia Street Beach
- Thousand Steps
- Totuava
- Treasure Island
- Victoria Beach
- West Street Beach

Open Space

Laguna Beach's open space is made up of three parks that make up what we call the "Laguna Green Belt." The Green Belt added together consists of nearly **20,000 acres** of open space. Within the Laguna Green Belt is the Laguna Coast Wilderness Park. The Laguna Coast Wilderness Park is home to more than 40 trails across 7,000 acres of coastal wilderness preserve.

Source: visitlagunabeach.com

Infrastructure Assessment

Infrastructure plays a vital role in mitigating the effects of hazard events. When infrastructure fails, it can exacerbate the extent of certain hazards or create complications for rescue workers trying to reach victims. For example, because of strong winds or seismic activity, fallen utility poles can obstruct roadways and prevent emergency vehicles from reaching affected areas. The following are electrical, fossil fuel, hydrologic, and transportation infrastructure networks in Laguna Beach.

Electricity

Most of Laguna Beach receives its electricity from Southern California Edison (SCE), which is one of California's three major investor-owned utility companies and the largest electrical supplier in the state. The southern part of Laguna Beach, approximately south of 2nd Avenue, is serviced by San Diego Gas and Electric (SDG&E), another investor-owned utility and the fourth-largest electrical supplier in California. These companies source electricity from power plants throughout California and neighboring states and deliver it through a network of large-scale power lines and substations.

Electrical substations are vital facilities to ensure that electrical service is safe and reliable. Image from Paul Chernikhowsky.

There are no registered commercial power plants in Laguna Beach, although numerous homes and other buildings in the community have small-scale solar energy panels or backup generators. Laguna Beach has one substation, the Borrego substation, which is on El Toro Road near the border

with Laguna Woods. A second substation, the Morro substation, sits on Laguna Canyon Road, although technically it is just outside of the city limits on unincorporated land. The primary transmission line in Laguna Beach runs along Laguna Canyon Road between the two substations, with connections to other substations outside of the city. The section of Laguna Beach served by SDG&E receives its electricity through the Laguna Niguel substation, approximately a mile and a half east of Laguna Beach. These external connections provide Laguna Beach with some redundancies against power outages in the event that individual power lines are damaged, although damage to a substation or more widespread damage to power lines could result in a greater loss of power. The Borrego and Morro substations and all transmission lines in Laguna Beach are owned by SCE, and SDG&E owns the Laguna Niguel substation.

Natural Gas

Natural gas service in Laguna Beach is provided by the Southern California Gas Company (SoCalGas). There is a major transmission line running the length of Laguna Beach underneath Pacific Coast Highway, but no other large pipelines are present. Various facilities in Huntington Beach, Dana Point, and other surrounding communities help to keep the natural gas flowing safely and reliably. Damage to the transmission line in Laguna Beach or to facilities in surrounding communities could reduce natural gas service in Laguna Beach. Because natural gas is highly flammable and potentially combustible, any rupture in a natural gas pipeline or an accident that causes a spark around natural gas could lead to a fire or explosion.

Public Safety Power Shutoff

Under California law, the State's investor-owned utilities have general authority to shut off electric power to protect public safety. Utilities exercise this authority during severe wildfire threat conditions as a preventative measure of last resort through Public Safety Power Shutoffs (PSPS).

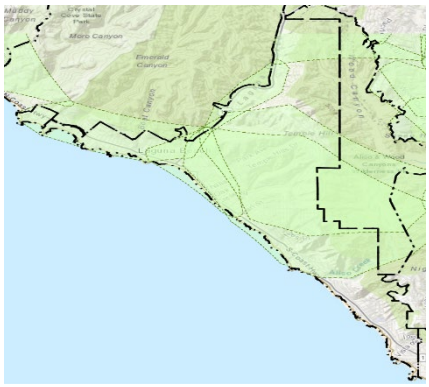


Figure 2-2: SCE Public Safety Power Shutoff Circuits surrounding the City

The City began preparation for PSPS events by understanding the potential circuits that could be impacted (**Figure 2-2**) and the city needs and special populations that may be affected by these events. These incidents typically occur during high fire threat conditions (i.e., dry conditions and strong winds) and may affect communities located far away from any actively occurring fires. Although not all SCE circuits in the city have been de-energized during past PSPS events, the city must be prepared if a future PSPS event affects one of those circuits. Residents and businesses in these areas are sure to feel the impacts of these events if they do not have alternative options for electricity at their homes and places of business.

These events are also anticipated to affect City resources since some City facilities rely on electricity to function. As a result, the City has prioritized back up power generation at City facilities in these affected areas to ensure residents have a safe place to seek refuge, if needed, during these events.

Water and Wastewater

There are two water providers in Laguna Beach: the Laguna Beach County Water District and the South Coast Water District, both of which are public agencies. South Coast Water District provides service to south Laguna Beach, generally south of Cardinal Drive, and the Laguna Beach County Water District serves the remainder of the community. Both districts receive their water from a variety of sources, including local and county groundwater, and imported water from the Sierra Nevada, Colorado River, and Owens River.

Both districts are members of the Municipal Water District of Orange County (MWDOC), which is in turn a member of the Metropolitan Water District of Southern California (MWD). MWDOC supplies the districts with surface water and groundwater from elsewhere in Orange County. MWD provides MWDOC with water from the Owens Valley, Colorado River, and State Water Project. MWDOC then distributes this water to individual districts.

The South Coast Water District obtains approximately 20% of its water from local groundwater basins, while the Laguna Beach County Water District receives approximately 60% of its water from groundwater basins elsewhere in Orange County. The remaining supply for most agencies is made up of imported MWD water. A majority of this

water comes from the Colorado River, and a smaller part from the Sierra Nevada through the State Water Project. A very small portion of imported water comes from the Owens River through the Los Angeles Aqueduct.

As most of the water used in Laguna Beach does not come from sources within the community, there is a risk that damage to local pipelines and pumping stations may interrupt the districts' ability to deliver water. Supplies of water from MWD, or groundwater pumped from elsewhere in Orange County may be affected by damage to water treatment plants and delivery infrastructure in the county. The districts are also vulnerable to water infrastructure damage in the Los Angeles Basin or the major aqueducts that supply the region, as this may affect MWD supplies.

The Laguna Beach County Water District maintains 21 storage reservoirs with a total capacity of 33.5 million gallons, enough to meet approximately 10 days of demand. The South Coast Water District, working collectively with several other regional agencies, has enough storage capacity to meet demand for approximately seven days (SCWD 2016). Both agencies have connections to a regional pipeline network that allows them to receive water from other Orange County water suppliers in the event of a short-term emergency.

Wastewater service in the community is supplied by the City of Laguna Beach and the South Orange County Wastewater Authority (SOCWA). The City operates the sewer lines and pump stations that collect wastewater from buildings and facilities in Laguna Beach and conveys it to a regional network operated by SOCWA for treatment. The nearest treatment facility is the Coastal Treatment Plant just outside of Laguna Beach in the unincorporated area of Aliso Canyon. Other treatment facilities are in Dana Point and Laguna Niguel. Damage to the City-owned sewer system or to SOCWA facilities may reduce treatment capacity or cause a leak, which in turn may pose a hazard to human and environmental health.

Transportation

The two major roadways in Laguna Beach are the Coast Highway (State Route 1) and Laguna Canyon Road (State Route 133). The Coast Highway runs the length of Laguna Beach near the coast, with two lanes in both directions, and connects to Newport Beach to the northwest and Dana Point to the southeast. Laguna Canyon Road runs from Coast Highway through Laguna Canyon to eastern Irvine, with two lanes in both directions south of Canyon Acres Drive and one lane beyond. State Route 73 runs from Costa Mesa to Laguna Niguel through a short portion of the City's northern border and is only accessible to most of the community through Laguna Canyon Road. Major regional freeways include Interstates 5 and 405, which are northeast of the city.

California's famed State Route 1 is a primary route through Laguna Beach. Image from Tony Hisgett.

In the event of an emergency, most community members would likely evacuate in either direction along the Coast Highway, and Laguna Canyon Road would serve as the evacuation route for residents in the canyon. If the Coast Highway is inaccessible, the only way out of Laguna Beach is through Laguna Canyon Road, which could easily become congested due to its limited capacity. Use of these evacuation routes will be based on the incident occurring and areas of the city impacted.

The City of Laguna Beach operates bus and trolley lines that run along Coast Highway and into city neighborhoods, with more-limited service outside of the summer tourism season. The Orange County Transportation Authority runs bus lines that connect to neighboring cities along Coast Highway and Laguna Canyon Road. The nearest train station is the Mission Viejo/Laguna Niguel station, served by the regional Metrolink commuter rail system. The nearest airport with commercial service is John Wayne Airport near Santa Ana and Costa Mesa.

Chapter 3 – Risk Assessment and Threat and Vulnerability Assessment

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

The threat assessment process looks at the potential harm of each hazard event discussed in each hazard profile.

Hazard Identification

FEMA guidance identifies several hazards that communities should evaluate for inclusion in a hazard mitigation plan. Communities may also consider additional hazards for their plans. The HMPC reviewed the previous hazards in the 2018 plan and discussed other potential hazards, excluding ones that do not pose a threat or are not a significant concern to Laguna Beach. **Table 3-1** lists the hazards considered and explains the reasoning for inclusion/exclusion. For context, this table also shows if a hazard is recommended for consideration by FEMA, is included in the 2018 California State Hazard Mitigation Plan (SHMP) and is included in the 2021 Orange County Hazard Mitigation Plan (OC HMP).

Table 3-1: Hazard Evaluation for Laguna Beach LHMP

Hazard	Source	Included in LHMP?	Reason for Inclusion or Exclusion
Agricultural Pests	SHMP	No	Laguna Beach has no agricultural uses within the city that contribute to the economy. Since agricultural resources aren't present, the City has not identified pests as a hazard of concern.
Air Pollution	SHMP	No	Air pollution is a state and regional issue addressed through plans and regulations administered by the South Coast Air Quality Management District and/or California Air Resources Board. Since the City does not regulate these resources, the HMPC did not identify this as a hazard of concern that could be addressed in this plan.
Aircraft Incident	SHMP	No	Given that there is no proximity to any major airports, the HMPC determined that this hazard should not be included in the plan.
Aquatic Invasive Species	SHMP	No	There are no major riparian environments in Laguna Beach where aquatic invasive species could endanger the community.
Avalanche	FEMA SHMP	No	Laguna Beach is not located within potential avalanche zones.
Civil Disturbance or Riot	SHMP	Yes	The HMPC determined that civil disturbances of the degree that could endanger property or the life of residents or visitors could occur, especially in locations of the City where large populations visit/congregate or city-owned facilities.
Climate Change	SHMP OC HMP	Yes	Climate change is discussed as a function of each relevant hazard and is mentioned throughout the Plan.
Coastal Flooding and Storm	FEMA SHMP	Yes	Laguna Beach is located along the coast of California. Coastal flooding and storms are anticipated to impact the community. These are discussed in the coastal hazards section.
Cyber Threats	SHMP	Yes	With the increase in cyber threats occurring throughout California and the nation, the HMPC is concerned about their effects on communications. This hazard is addressed as a function of communications failure.
Dam Failure	FEMA SHMP OC HMP	No	Laguna Beach is not located downstream of dams that could inundate the community; therefore, the HMPC did not identify dam failure as a hazard of concern.

Drought	SHMP OC HMP	Yes	The HMPC identified droughts as a recurring and potentially severe hazard in Laguna Beach.
Energy Shortage	SHMP	No	While energy shortage can potentially occur in Laguna Beach, the risk associated with this is similar to surrounding communities. While the loss of power could occur, the bigger concern for the city is the effects this could have on communications infrastructure.
Epidemic, Pandemic, Vector-Borne Disease	SHMP OC HMP	Yes	Laguna Beach is in Orange County, which has experienced several health-related incidents in the past. The city, along with the rest of the country, has dealt with the after effects of the global pandemic (COVID-19), which has impacted staff and resources.
Erosion	FEMA SHMP	Yes	Erosion occurs in certain areas of the city, especially in the bluff areas. This hazard was identified as a concern and is addressed in the Coastal Hazards section.
Expansive Soil	FEMA	No	The HMPC did not identify expansive soils as a hazard of concern. While they could exist, the City requires compliance with the California Building Code, which is intended to mitigate hazards associated with this condition.
Extreme Cold	FEMA SHMP	No	Temperatures in Laguna Beach do not fall to a level that would be considered a danger to public safety. As a result, the HMPC did not identify this as a hazard of concern.
Extreme Heat	FEMA SHMP	No	Extreme heat has occurred in Laguna Beach, but due to its location along the coast, the HMPC determined it isn't expected to be a future recurring issue.
Fault Rupture	FEMA SHMP	No	Although Laguna Beach is in a seismically active area, there are no known active faults located within an Alquist-Priolo Special Study Zone located within the city. As a result, the HMPC did not identify this as a hazard of concern.
Flooding	FEMA SHMP OC HMP	Yes	Flooding occurs in the city during storms and wet weather events. Given the presence of FEMA flood hazard zones and areas of local ponding, the HMPC is concerned about the potential for future flooding hazards.
Fracking	SHMP	No	Fracking does not occur in Laguna Beach.
Hail	FEMA	No	Hail that is severe enough to pose a threat to people and property is too rare in Laguna Beach to be included.
Hazardous Materials release	SHMP	Yes	The presence of uses for storing, manufacturing, disposing, and transporting hazardous materials was identified as a concern for the HMPC. In addition, several major roadways within the City are used for transporting these materials, which could endanger the community if a release into the environment were to occur.
Hurricane	FEMA SHMP	No	The occurrence of hurricanes within Laguna Beach is uncommon and not deemed a hazard of concern by the HMPC.
Infrastructure Failure	SHMP	No	Infrastructure failure can pose a threat to people and property in Laguna Beach. A discussion of infrastructure failure is discussed as a function of other hazards.
Landslide	FEMA SHMP OC HMP	Yes	Areas within the city are considered to have a high potential for landslides. As a result, the HMPC determined that inclusion of this hazard in the plan was essential.
Levee Failure	SHMP	No	Levees are not located within the city. Based on this, the HMPC did not identify levee failure as a hazard of concern.
Lightning	FEMA	No	Although lightning occasionally occurs in Laguna Beach, it does not pose a significant threat to people or property.
Liquefaction	FEMA SHMP	Yes	According to mapping prepared by the California Geological Survey, portions of the city are located within liquefaction-prone areas. Based on this, the HMPC identified liquefaction as a hazard of concern

Methane-containing Soils	SHMP	No	The city does not have methane-containing soils that pose a threat to the public health and safety of residents and businesses. The HMPC did not identify this as a hazard of concern.
Natural Gas Pipeline Hazards	SHMP	No	There are natural gas pipelines running through Laguna Beach that could pose a danger to people and property if they were to breach and release their contents into the community. However, The HMPC felt this was not a hazard of concern,
Oil Spills	SHMP	No	There is no history of oil drilling and extraction within the city. Based on this, the HMPC did not identify this as a hazard of concern.
Power Failure	SHMP	No	While power loss events can occur in the city, the HMPC determined that this hazard shouldn't be addressed within the LHMP and is better suited as a hazard addressed in the City's EOP.
Radiological Accidents	SHMP	No	There are no known major sources of radiation in Laguna Beach or the immediate surrounding area that could pose a serious threat to the community.
Sea-level Rise	FEMA SHMP	Yes	Given the proximity to the coast and the presence of low-lying areas, sea-level rise is a hazard of concern to the City. It is discussed in the coastal hazards section of the plan.
Seiche	FEMA SHMP	No	There are no major bodies of water in Laguna Beach that could be subjected to seiche.
Seismic Shaking	FEMA SHMP OC HMP	Yes	Laguna Beach is in a seismically active area where shaking can be severe enough to damage property or cause loss of life. For this reason, the HMPC determined it should be addressed in this plan.
Severe Wind	FEMA	Yes	Extreme Weather includes discussions regarding wind, severe storm, and drought, which are the most common weather-related hazards in Laguna Beach.
Severe Weather and Storms	FEMA SHMP	Yes	Extreme Weather includes discussions regarding wind, severe storm, and drought, which are the most common weather-related hazards in Laguna Beach.
Storm Surge	FEMA	No	The HMPC did not identify this as a hazard of concern.
Subsidence	FEMA	No	Subsidence is not a significant concern identified by the HMPC.
Terrorism	SHMP	Yes	The HMPC is concerned about terrorism incidents threatening public safety. A discussion of this is included in the Human-Caused Hazards profile.
Thunderstorm	SHMP	No	Thunderstorms that cause damage and endanger public safety are rare in Southern California. The HMPC did not identify this as a hazard of concern.
Tornadoes	FEMA SHMP	No	No tornadoes are known to have occurred in Laguna Beach. The HMPC did not identify this as a hazard of concern.
Transportation Accidents	SHMP	No	While transportation accidents can occur within the city, this hazard was not identified as a key hazard of HPMC concern.
Tree Mortality	SHMP	Yes	The HMPC noted that the city has a significant number of trees and due to active pests, the HMPC determined this was a hazard of concern.
Tsunami	FEMA SHMP OC HMP	Yes	Laguna Beach is a coastal community and is located in a tsunami inundation zone, which is covered in the Coastal Hazards profile.
Urban Fire	SHMP OC HMP	No	The HMPC did not identify urban fires as a risk to property and life in Laguna Beach. While fires can occur in developed portions of the community, this type of hazard is typically associated with more urbanized development patterns.
Volcano	SHMP	No	There are no volcanoes near Laguna Beach to reasonably pose a threat. The HMPC did not identify this as a hazard of concern to the City.

Wildfire	FEMA SHMP OC HMP	Yes	The HMPC identified wildfire as a major threat to the developed and undeveloped areas of the city and is a topic included in the document.

After hazard evaluation and the organizational changes made by the HMPC, this Plan discusses seven broad hazard types with their respective sub-categories:

Hazard Type	Sub-Categories	Climate Change Addressed in All Categories
Coastal Hazards	Coastal Erosion Sea Level Rise Tsunami	
Disease and Pest Management		
Extreme Weather	Drought Severe Storm Wind	
Flood		
Hazardous Materials Release		
Human-Caused Hazards	Terrorism/Mass Casualty Incident Civil Unrest Cyber Threat	
Landslide/Mudflow		
Seismic Hazards	Liquefaction Seismic Shaking	
Wildfire		

Table 3-2 also identifies the changes HMPC made to the hazards addressed in this updated plan in comparison to the hazards covered in the 2018 LHMP:

Table 3-2: Change in Identified Hazards from the 2018 LHMP

Hazards Removed	Hazards Added
Infrastructure Failure	Cyber Threat
Nuclear Hazards	Civil Unrest
	Hazardous Materials Release

Hazard Scoring and Prioritization

The HMPC conducted a simple prioritization exercise to identify hazards of concern to the City. The HMPC determined the greatest hazards that are a threat to the City of Laguna Beach are extreme weather, landslide/mudflow, wildfires, and seismic hazards. The following hazard profiles and risk assessment describes these hazards in-depth, reviews the exposure of assets to these hazards, and estimates losses or assesses risk for significant events associated with these hazards.

In addition to the simple prioritization exercise, the HMPC followed FEMA guidance (**see Table 3-3)** for hazard mitigation plans and prioritized each of the hazards identified. In the initial step, it assigned a score of 1 to 4 for each of the hazards for the following criteria:

• **Probability:** The likelihood that the hazard will occur in Laguna Beach 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 Laguna Beach.	• **Secondary impacts:** The severity of indirect damage of the hazard to Laguna Beach.

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

- Probability: 2.0

- Location: 0.8
- Maximum probable extent: 0.7
- Secondary impacts: 0.5

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

After calculating the total impact score for each hazard (sum of the location, maximum probable extent, and the secondary impact). FEMA guidance recommends multiplying the total impact score by the overall probability 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.

In compliance with the Disaster Mitigation Act (and as further specified by Interim Final Rule 44 CFR Section 206.401(c)(2)(i)), this LHMP addresses, in substantial detail, the primary hazards facing the City. Lower priority hazards are addressed at a lesser level of detail due to their relatively reduced impacts, as identified in the hazard assessment discussion.

Disaster Declaration Connections

Since the previous update the following major disasters, emergency declarations, and fire management events have been issued by the FEMA. Past events identified in this plan have been identified in connection with these event in the “Past Events” sections within each Hazard Profile.

Disaster Declaration - Orange County (2018-2023)					
Year	**Declaration Number**	**Declaration Title**	**Incident Type**	**Affected the City**	**Activated EOC / Requested PA**
2023	EM-3591-CA	Severe Winter Storms, Flooding, and Mudslides	Flood	Yes	No
2023	EM-3592-CA	Severe Winter Storms, Flooding, Landslides, and Mudslides	Flood	Yes	No
2022	FM-5439-CA	Coastal Fire	Fire	Yes	Yes
2021	FM-5383-CA	Bond Fire	Fire	No	No
2021	FM-5381-CA	Blue Ridge Fire	Fire	No	No
2021	FM-5380-CA	Silverado Fire	Fire	No	No
2020	EM-3428-CA	Covid-19	Biological	Yes	Yes
2020	DR-4482-CA	Covid-19 Pandemic	Biological	Yes	Yes
2018	FM-5223-CA	Canyon 2 Fire	Fire	No	No
2018	DR-4344-CA	Wildfires	Fire	Yes	Yes

DR	Major Disaster
EM	Emergency Declaration
FM	Fire Management

Table 3-3: Laguna Beach Hazard Prioritization Worksheet

Hazard Type	Probability	Impact			Total Score	Hazard Planning Consideration
		Location	Primary Impact	Secondary Impacts		
Coastal Hazards	3	2	3	2	28.20	Medium
Disease and Pest Management	3	4	2	3	36.60	Medium
Extreme Weather	4	4	4	4	64.00	High
Flood	4	2	3	1	33.60	Medium
Hazardous Materials Release					0.00	Low
Human-caused Hazards	3	2	3	3	31.20	Medium
Landslide/Mudflow	3	3	4	4	43.20	High
Seismic Hazards	3	4	4	4	48.00	High
Wildfire	4	4	4	4	64.00	High

* Climate Change considerations discussed as appropriate within this hazard.

Probability	Importance
Based on estimated likelihood of occurrence from historical data	**2.0**
Probability	Score
Unlikely - less than 1% chance each year	1
Occasional - a 1 to 10% chance each year	2
Likely - a 10 to 90% chance each year	3
Highly Likely - more than 90% chance each year	4

Secondary Impacts	Importance
Based on estimated secondary impacts to community at large	**0.5**
Impact	Score
Negligible - no loss of function, downtime, and/or evacuations	1
Limited - minimal loss of function, downtime, and/or evacuations	2
Moderate - some loss of function, downtime, and/or evacuations	3
High - major loss of function, downtime, and/or evacuations	4

Location	Importance
area of community affected by hazard	**0.8**
Affected Area	Score
Negligible	1
Limited	2
Significant	3
Extensive	4

Maximum Probable Extent (Primary Impact)	Importance
Based on percentage of damage to typical facility in community	**0.7**
Impact	Score
Weak - little to no damage	1
Moderate - some damage, loss of service for days	2
months	3
Extreme- catastrophic damage, uninhabitable	4

Total Score = Probability x Impact, where:
Probability = (Probability Score x Importance)
Impact = (Affected Area + Primary Impact + Secondary Impacts), where:
Affected Area = Affected Area Score x Importance
Primary Impact = Primary Impact Score x Importance
Secondary Impacts = Secondary Impacts Score x Importance

Hazard Planning Consideration			
Total Score	Range	Distribution	Hazard Level
0.0	12.0	7	Low
12.1	42.0	7	Medium
42.1	64.0	6	High

The probability of each hazard is determined by assigning a level, from unlikely to highly likely, based on the likelihood of occurrence from historical data. The total impact value includes the affected area, primary impact and secondary impact levels of each hazard. Each level's score is reflected in the matrix. The total score for each hazard is the probability score multiplied by it's importance factor times the sum of the impact level scores multiplied by their importance factors. Based on this total score, the hazards are separated into three categories based on the hazard level they pose to the communities: High, Medium, Low.

Threat Assessment Process

The threat assessment process analyzes the harm Laguna Beach may experience from a hazard event but does not consider its likelihood, thus giving equal consideration to hazards that are more likely (e.g., earthquakes, flood) and less probable hazards (e.g., dam failure).

The threat assessment examines three aspects of each hazard: the physical threat to facilities, the social threat to vulnerable populations, and the threat to any other assets that may be affected.

Critical Facilities and Facilities of Concern

Critical facilities (CF) consist of properties and structures that play important roles in government operations and the services they provide to the community. Examples of CFs include local government offices and yards, community centers, public safety buildings like police and fire stations, schools, and other properties a city has deemed essential for its operations. Critical Facilities may also serve dual roles if a city designates them as public assembly points during an emergency. Critical Facilities are often owned by the City, but some may also be owned and operated privately, such as some utilities and telecommunication infrastructure. Facilities of concern (FOC) are similar to critical facilities; however, they may not be owned by the City, or their purpose and function is not as important to the function of the City after a disaster. These facilities are identified to ensure the City understands their potential vulnerability to the hazards of concern.

The HMPC identified a total of 111 facilities [85 CFs and 26 FOC] in Laguna Beach that fall into 5 categories based on their function or characteristics. **Table 3-4** shows the number of CFs and FOC in each category, the total estimated replacement value for these facilities, and examples of the type of facility in each category. **Appendix D** has a complete list of the CFs and FOC used in this analysis.

The potential loss values identified in subsequent tables are based on the City's total insured value using the City's Insured Asset Inventory. It is intended to provide an estimate of the replacement cost if the property/ structure is completely or severely damaged. The actual costs of repair could be smaller or larger than the provided estimate. Since the data comes from the City's Insured Asset Inventory, any facilities not owned by the City will not have a replacement value listed. Where this occurs, "N/A" has been used within the table.

Based on the available data provided by the City, a minimum of $268,129,466 worth of City-owned assets were analyzed. The total potential loss value of all City-owned and non-City-owned assets is much higher but is unknown due to data limitations.

The greatest potential for loss among City-owned assets comes from the Education category, which includes schools and school district facilities located throughout the city. The next critical facility category with the greatest potential for loss is Infrastructure and Utilities, which includes lift stations, water tanks, and substations, while Government Facilities are the third highest potential loss among critical facilities.

To better understand the magnitude of impacts, this plan identifies representative percentages of potential impact based on the total valuation of City assets. For planning purposes, we identified different tiers of impact that could occur. It is reasonable to assume that impacts would not exceed 50% of the total asset value city-wide during a single event. The following are parameters to help understand how much a proposed investment/improvement compares to the existing assets within the city:

- 1% Impact - $2,681,294
- 5% Impact – $13,406,473
- 10% Impact – $26,812,946
- 20% Impact - $53,625,893
- 50% Impact - $134,064,733
-

The possibility that all facilities will be completely damaged simultaneously is extremely rare. Based on the hazard, most impacts are anticipated to be isolated to certain locations. This estimate does not include the value of the City's underground infrastructure and surface drainage facilities.

Table 3-4: Critical Facilities and Facilities of Concern in Laguna Beach				
Category	Number of Facilities		Examples	Potential Loss
	Critical	Concern		
Community Services	1	4	Senior Center, Hospital, Transit Center, Lodging	$10,869,452
Education	0	11	Schools	$123,511,582
Government Facilities	8	1	Fire Stations, City Hall, Marine Safety	$40,086,404
Public Assembly and Recreation	0	3	Festival Areas, Main Beach	$27,000,000
Infrastructure and Utilities	76	7	Lift Stations, Water Tanks, Substations	$66,662,028
Total	85	26	-	$268,129,466
* Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table. ** No potential loss estimates are available for federal and county facilities within the city.				

Vulnerable Populations

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

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

Disability status: Persons with disabilities may 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 move to safer areas that are less at risk of being impacted by a hazard. The national poverty limit standard for the U.S. for a four-person family is approximately an income of $30,000 or less. Orange County's FY 2022 Low-Income Limit for a four-person family is $108,400.[3]

Seniors (individuals at least 65 years of age): Seniors are more likely to have reduced mobility, physical and/or mental disabilities, and lower-income levels, all of which may decrease their ability to prepare for and mitigate a hazard event.

Table 3-5 shows the amounts of people in Laguna Beach who meet at least one of the criteria for threatened, vulnerable populations. For more detailed demographic information, please refer to **Chapter 2**.

The social threat analysis also shows the threat other populations may encounter. For example, people experiencing homelessness or without access to lifelines (vehicles or communication networks) may experience greater hardship in evacuating or recovering from a disaster. Since data for these groups are not readily available, there is no

[3] California State Income Limits for 2022

definitive way to determine the amount of these people in areas of elevated risk, so this assessment will discuss how these other threatened groups may be affected on a general level.

Table 3-5: Laguna Beach Threatened-Population Metrics

Threatened Population Metric	Community-Wide Data
Population	23,121
Area Median Income	$135,976
Households	10,536
Percentage of households under the poverty limit	5.7%
Percentage of people who are senior citizens	27%

Source: US Census Bureau, 2020 Decennial Census, 2021 ACS 5-Year Estimates

Data Limitations and Notes on Vulnerability Tables

Due to data limitations, the data comparing the hazard zone population with the citywide population comes from two separate sources. The citywide data comes from the US Census Bureau's American Community Survey, and the hazard zone population data comes from ESRI's Business Analyst reports. As a result, there may be minor discrepancies in comparing the two data sets. The data that should be considered correct for this plan is the ACS data reported in Chapter 2.

Other Assets

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

FEMA National Risk Index

FEMA's National Risk Index (NRI) is a dataset and online tool that leverages available source data to develop a baseline risk measurement for each county and census tract based on natural hazard and community risk factors. One factor that the NRI identifies is social vulnerability. The degree to which a community exhibits certain social conditions, including high poverty, low percentage of vehicle access, or crowded households, may affect that community's ability to prevent human suffering and financial loss in the event of disaster. These factors describe a community's social vulnerability.[4] Social vulnerability scores are based on the following variables:[5]

- Socioeconomic Status
- Below 150% Poverty
- Unemployed
- Housing Cost Burden
- No High School Diploma
- No Health Insurance
- Household Characteristics
- Aged 65 & Older
- Aged 17 & Younger
- Civilian with a Disability
- Single-Parent Households
- English Language Proficiency
- Racial & Ethnic Minority Status
- Hispanic or Latino (of any race); Black and African American, Not Hispanic or Latino; American Indian and Alaska Native, Not Hispanic or Latino; Asian, Not Hispanic or Latino; Native Hawaiian and Other Pacific Islander, Not Hispanic or Latino; Two or More Races, Not Hispanic or Latino; Other Races, Not Hispanic or Latino
- Housing Type & Transportation
- Multi-Unit Structures
- Mobile Homes
- Crowding
- No Vehicle
- Group Quarters

[4] FEMA. https://hazards.fema.gov/nri/learn-more
[5] Agency for Toxic Substances and Disease Registry. https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI_documentation_2020.html

Hazard Profiles

Coastal Hazards

Description

Coastal Erosion

Coastal erosion is the gradual or sudden wearing away of coastal bluffs and beaches by wind, rain, high surf, tides, and other events. If buildings and facilities on a beach or bluff have poor drainage, this can make erosion worse. Bluff erosion weakens the edges of the coastal terraces and causes parks or yards built on top of the bluffs to shrink over time. Erosion also weakens or hollows out areas under any structures, which may lead to a partial or complete collapse of the structure if the erosion progresses far enough. If the risk of collapse is high enough, the structure may be closed to prevent a potential disaster. Beach erosion causes beaches to become narrower, which can decrease their recreational use or limit coastal access. A narrower beach is also less able to act as a buffer from wave action and coastal flooding, so beach erosion can increase the risk to beachfront properties or increase the rate of bluff erosion when the beach is at the base of a cliff.

Sea Level Rise

Sea level rise is the increase in the height of the ocean's surface and is driven by changes in the Earth's climate. Global temperatures are increasing and causing land ice (i.e., glaciers) to melt. The meltwater runs into the oceans, raising the sea level surface. Warmer temperatures also cause the water in the oceans to expand (as water, like many other materials, expands when warmed), further raising surface heights. Although it occurs globally, various forces and changes in the ocean's composition cause sea level rise at different rates in different locations. Sea level rise can happen naturally at the end of an ice age, although current sea level rise is very likely (at least a 90 percent chance) the result of human-caused climate change.

Currently and in the near future, sea level rise is not a direct threat, but it exacerbates various coastal flooding hazards, such as storms, high surf, or exceptionally high tides. Sea level rise makes beaches narrower and less effective as buffers between the ocean and waterfront development. As a result, when coastal flooding occurs, floodwaters can advance farther inland. Higher ocean levels can also increase the rate of erosion of beaches and bluffs. In the long term, ocean levels may rise high enough to permanently or semi-permanently flood low-lying coastal areas.

Tsunami

A tsunami is a type of sea wave typically created by a geologic event underwater or along the shore. Earthquakes are the most common cause of tsunamis, but they may also be triggered by landslides, volcanic eruptions, and (in extremely rare instances) meteor strikes. A large and sudden change in atmospheric pressure can also trigger a rare type of tsunami called a meteotsunami. Such events can suddenly displace a large volume of water, which creates a tsunami. In the open ocean the wave travels at 500 to 600 miles per hour (mph) but is only a few feet high and often unnoticed by passing ships. As the wave approaches the shore, the shallow depth to the sea floor forces the wave to slow down and grow up to 100 feet tall as it comes ashore. Tsunamis can inundate coastal areas, causing widespread flooding, and the force of the water can cause significant damage. A typical tsunami event involves multiple waves of varying height, and the initial wave is not always the tallest.

Part of the danger of tsunamis is that they can cause damage far away from the event that triggers them. Although tsunamis weaken as they travel and typically do the greatest damage near the displacement event, large ones can retain enough energy to be destructive hundreds or thousands of miles away. For example, the tsunami from the Indian Ocean earthquake in 2004 caused measurable waves over 8,000 miles away in California. Meteotsunamis have a more localized effect and generally do not cause damage across distances of more than 300 miles.

Location and Extent

Coastal Erosion

The entire shoreline of Laguna Beach—both beach and bluffs—is subject to coastal erosion. Depending on the orientation of the shoreline and differences in geology, erosion has different rates in different locations. The average 70-year cliff-retreat rate for Southern California is approximately 0.3 meters per year, with erosion rates of approximately 0.2 meters per year within the Laguna Beach area. Erosion is often worse during the rainy season, when severe storms can cause substantial erosion.

Sea Level Rise

All beaches in Laguna Beach are at risk of sea level rise. Coastal bluffs are high enough to protect most development in the community from sea level rise, but Main Beach Park and buildings with their lower levels at or close to beach level may be exposed to sea level rise in the future. **Figure 3-1** depicts areas of the city that would be inundated by 66 inches of sea level rise, expected by 2100.

Tsunami

All beaches in Laguna Beach could be inundated by a tsunami. In the low-lying coastal areas near Main Beach, the water from a tsunami could reach inland between Broadway and Forest Avenue, as far as the current Wells Fargo Bank building. A tsunami could also travel up Aliso Creek as far as The Ranch (formerly the Laguna Beach Country Club). Approximately 0.13 square miles of Laguna Beach is in the tsunami hazard zone. **Figure 3-2** depicts the tsunami inundation hazard areas for the city.

Past Events

Coastal Erosion

Although coastal erosion is more or less continuous throughout Laguna Beach, there have been some significant erosion events in the past. In September 2022, Hurricane Kay caused significant erosion (around five feet of vertical displacement of sand) along several Orange County beaches, including Laguna Beach.[6] Three rare events contributed to the erosion: a spring high-tide, a storm surge, and a rush of wave energy. Strong storms and high tides during the winter of 2015–2016 caused enough erosion at Treasure Island Beach that the stairs no longer reached the sand, making the beach inaccessible. During the winter of 2010–2011, winter storms caused similar erosion at multiple community beaches.

Sea Level Rise

Since the 1920s, water level gauges in southern California have measured a steady increase in the average height of the ocean, although the amount of increase varies by location. At the Port of Los Angeles, the sea has risen approximately 1 millimeter per year, or slightly less than 4 inches in 100 years. At La Jolla, sea levels have increased by approximately 2.2 millimeters annually, or approximately 8.5 inches in 100 years. The Coastal Commission has often used an estimate of 6.6 feet by 2100 for planning purposes, but notes there's only a 0.5% chance of that happening. It has put a 2-foot rise by then at 58%, and a 1-foot increase at 92%. Orange County damages that would result from 6 feet of sea-level rise: 11 square miles of land and 20 miles of roads would be underwater, affecting 50,000 residents.[7] In Laguna Beach, high tides already swallow up beaches in some coves. No specific hazard event has been directly linked to sea level rise, although it may have made coastal flood events somewhat worse.

Tsunami

Multiple tsunami events have affected Laguna Beach in the past. In these cases, the tsunami was triggered by an event thousands of miles away, and the waves had enough energy to reach Laguna Beach, although the community has generally escaped damage. These events include the 2011 Tōhoku earthquake in Japan, the 2004 Indian Ocean earthquake, the 1964 earthquake in Alaska, and the 1960 earthquake in Chile. Some recent tsunami events have resulted in beach closures in Laguna Beach as a precaution. While the City has not suffered direct damage, past tsunamis have resulted in damage elsewhere in California.

Risk of Future Events

Coastal Erosion

All expectations are that coastal erosion will continue to affect the beaches and bluffs of Laguna Beach. The rate of future erosion will depend on a variety of factors, including sea level rise, the frequency and intensity of storms, and the drainage practices of blufftop and beachside development.

Sea Level Rise

As climate change continues, the rate of sea level rise is expected to increase. Sea levels could increase up to one foot above historic levels by 2030, two feet by 2050, and up to 66 inches by 2100. At these levels, independent of all other factors, most of Laguna Beach is projected to remain unaffected, although beaches could face occasional

[6] Staff, KCAL-News. "Experts Concerned with Increased Beach Erosion in Wake of Hurricane Kay." CBS News, September 16, 2022. https://www.cbsnews.com/losangeles/news/experts-concerned-with-increased-beach-erosion-in-wake-of-hurricane-kay/.

[7] Wisckol, Martin. "Sea-Level Rise Threatens Orange County's Coast from Top to Bottom." Orange County Register, September 14, 2019. https://www.ocregister.com/2019/09/13/sea-level-rise-threatens-orange-countys-coast-from-top-to-bottom/.

inundation. At seven feet or more of sea level rise, however, Main Beach Park and areas further inland could be permanently or semi-permanently flooded. This degree of sea level rise could happen after 2100—or sooner if the sea level rises at faster rates than expected. Knowing the rate of sea level rise influences how to protect existing facilities in the sea level rise hazard zone, and how to address future construction within the hazard-prone area.

Tsunami

The geologic events that trigger most tsunamis cannot be predicted. It is possible that meteotsunamis could be forecast because they are triggered by weather events, but there is no accurate means of forecasting meteotsunamis yet. It is expected that tsunamis will continue at the same rate as in the past and at similar intensities. The California Geological Survey has identified 6 local fault lines and 12 distant locations that could potentially cause a tsunami in Laguna Beach.

The most damaging tsunamis are mostly triggered by earthquakes at an offshore fault called a subduction zone. Earthquakes at these faults cause the ocean floor to move up or down along the fault boundary, causing a large vertical displacement of water that can become a major tsunami. Most of California lacks these subduction zones, so the chance of a major tsunami being triggered by a local event is remote, but not impossible.

Future tsunamis will likely be triggered by local fault lines or distant subduction zones. California's local offshore faults mostly move side to side and so do not create the large vertical displacements of a subduction zone, although they still could cause enough displacement to generate tsunamis that are several feet high. A tsunami of this size is potentially capable of causing substantial damage and could arrive in Laguna Beach in less than 10 minutes. The nearest subduction zone is the Cascadia Subduction Zone, which reaches as far south as Cape Mendocino (approximately 600 miles northwest of Laguna Beach). This subduction zone recently achieved notoriety for being reported as "overdue" for an earthquake, and tsunamis have accompanied its major earthquakes in the past. Other potential subduction zones that could create tsunamis include the Japan Trench (the source of the 2011 Tōhoku earthquake), the Kuril-Kamchatka Trench in the northwest Pacific Ocean, and the Atacama Trench off the coast of Peru and Chile (the source of the 1960 Valdiva earthquake, the strongest ever recorded). A meteotsunami in Laguna Beach is possible, but such events are rare.

Climate Change Considerations

Coastal Erosion

Although coastal erosion is a constant process, the most significant erosion is often caused by wind and rain from storms. Most of California's major storms result from a meteorological phenomenon called an "atmospheric river," and studies forecast that atmospheric river storms that affect southern California will become more intense as a result of climate change (Oskin 2014b). This means that these storms could have stronger winds and produce more rain, which could increase beach and cliff erosion.

Sea Level Rise

Sea level rise is only a concern in Laguna Beach because of climate change, and it is very likely that this hazard would not exist without climate change. There are no particular climate change considerations for sea level rise, because it is a direct consequence of climate change. However, sea level rise will contribute to coastal erosion as the increase in the height of the ocean allows water to penetrate further inland. As a result, sea level rise will have the potential to increase the eroding effect of the waves and tides farther inland than currently anticipated.

Tsunami

There is no known link between climate change and the geologic events that trigger most tsunamis. Climate change may affect meteotsunamis, but these events are already rare and have not happened in Laguna Beach as far as anyone knows, so any effects of climate change on these events would be difficult to identify. Climate change is expected to have an indirect effect on tsunamis by raising sea levels and allowing ocean water to reach farther inland, which would also allow tsunamis to inundate areas farther inland.

Figure 3-1: Sea Level Rise Hazard Zones

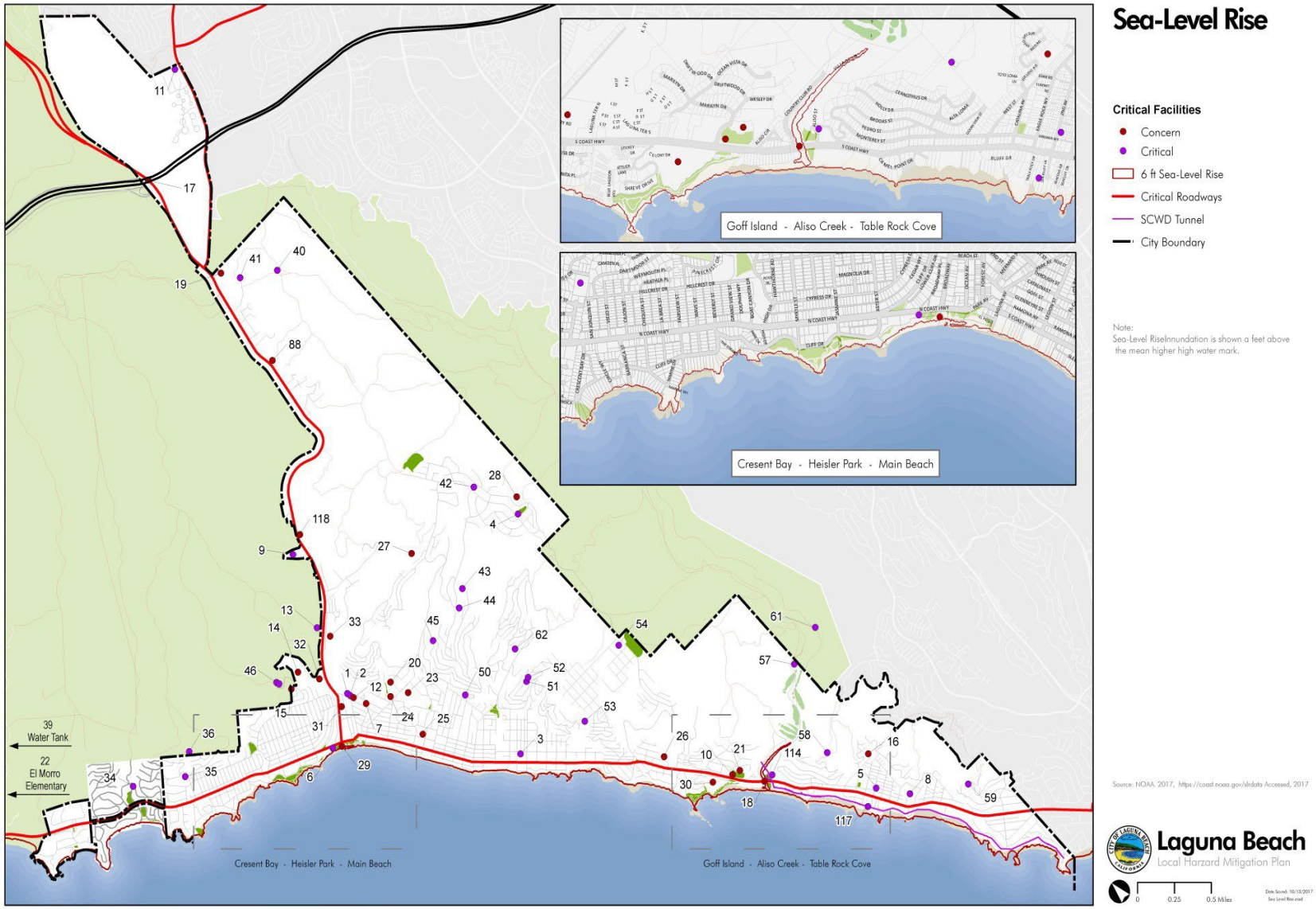
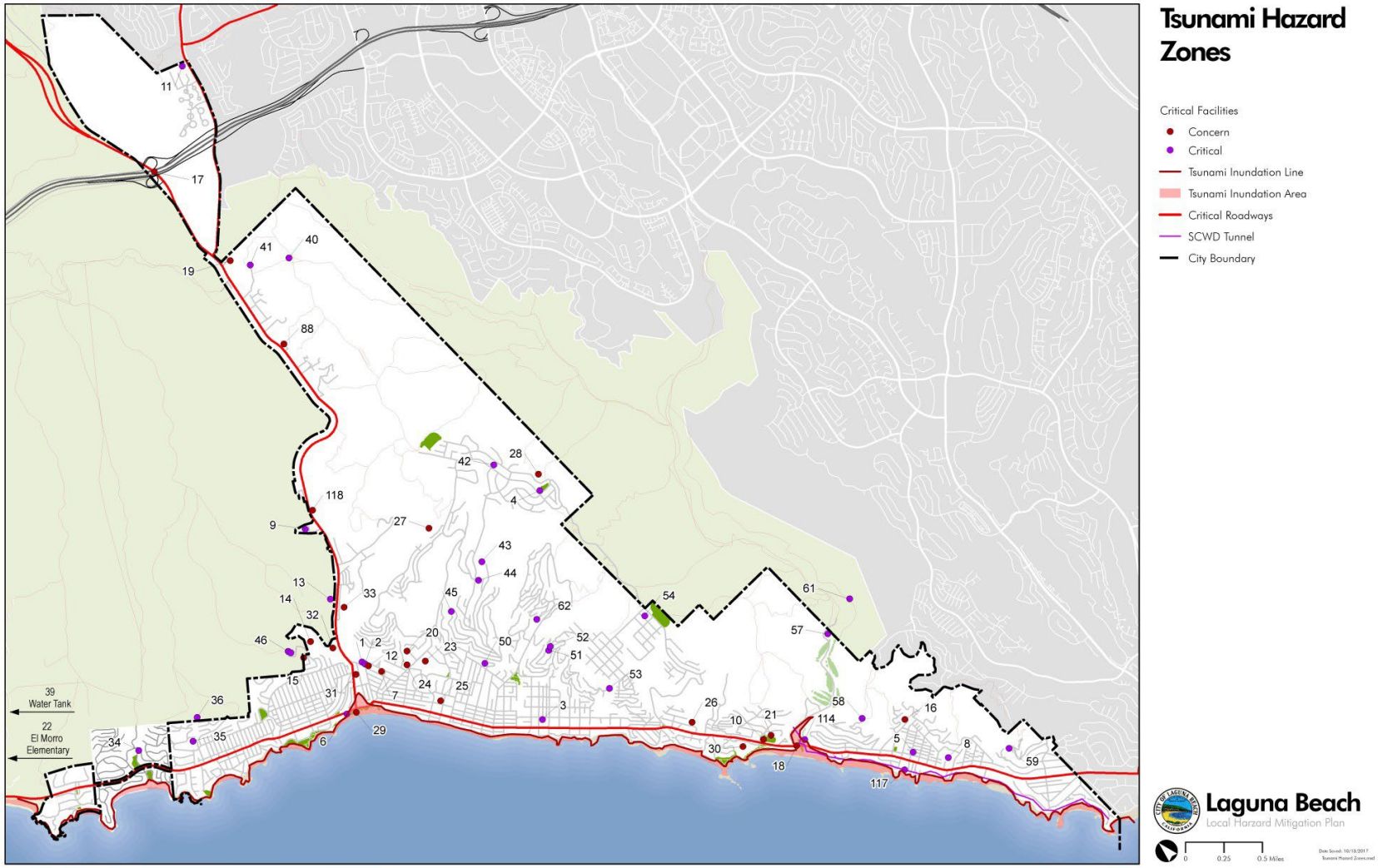


Figure 3-2: Tsunami Hazard Zones



Physical Threat

Coastal Erosion

There is no defined hazard zone for cliff and bluff erosion, but in general, facilities on top of the cliffs may face the threat of erosion. These facilities are wastewater lift stations and stormwater outlets, which may break and release wastewater in the event of significant clifftop erosion, potentially causing an environmental and human health hazard.

Sea Level Rise

There are six critical facilities and facilities of concern in the sea level rise hazard zone. Only one facility, Main Beach, is vulnerable at one foot of sea level rise. A stormwater outlet at Divers Cove is vulnerable to damage at three feet of sea level rise. Three wastewater lift stations and a stormwater outlet at Fisherman's Cove are vulnerable at six feet of sea level rise. **Table 3-6** shows the types of critical facilities in the sea level rise zone and the potential loss if these facilities are damaged by sea level rise.

Tsunami

There are 37 critical facilities and facilities of concern within Laguna Beach's 0.13-square-mile tsunami hazard zone, including the Montage lift station and the City's Marine Safety Headquarters building. Several stormwater outlets and wastewater lift stations are in the tsunami hazard zone, and the wastewater lift stations could potentially cause a release of sewage in the event of a tsunami. The Aliso Bridge is also in this hazard zone. Since this is the only roadway across Aliso Creek, a tsunami could sever the connection between south Laguna Beach and the rest of the community. **Table 3-7** shows the types of critical facilities in the tsunami hazard zone and the potential loss if these facilities are damaged by a tsunami.

Table 3-6: Critical Facilities and Facilities of Concern (Sea Level Rise)

Category	Number of Facilities		Potential Loss**
	Critical	Concern	
Community Services	0	0	-
Education	0	0	-
Government Facilities	0	0	-
Public Assembly and Recreation	0	1	$3,000,000
Infrastructure and Utilities	5	0	$6,000,000
Total	5	1	$9,000,000

*Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.
** Based on the City of Laguna Beach insured replacement values

Table 3-7: Critical Facilities and Facilities of Concern (Tsunami)

Category	Number of Facilities		Potential Loss**
	Critical	Concern	
Community Services	0	1	?
Education	0	0	-
Government Facilities	1	0	$6,364,840
Public Assembly and Recreation	0	1	$3,000,000
Infrastructure and Utilities	32	2	$22,500,000
Total	33	4	$31,864,840

*Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.
** Based on the City of Laguna Beach insured replacement values

Social Threat

Coastal Erosion

Because there is no defined cliff erosion hazard zone, there is no count of how many people may be threatened by erosion. People who live in houses at the top of cliffs, particularly cliffs that are already unstable or have a history of erosion, are vulnerable to this hazard. Substantial cliff erosion can force individuals to leave their homes and resettle elsewhere, which can be difficult for persons with limited incomes.

Sea Level Rise

Sea level rise is not expected to cause any social vulnerability in Laguna Beach, because there are no homes in the inundation zone for the foreseeable future.

Tsunami

According to the NRI, the social vulnerability for the tsunami inundation zone ranges from very low to relatively low. Residents in the tsunami hazard zone are not uniquely socially vulnerable compared to other community members, although they may still be harmed by a tsunami. People who are linguistically isolated or lack access to lifelines may not receive notification of potential or impending tsunamis. Elderly or disabled persons, or those without access to vehicles, may be unable to evacuate if a tsunami does occur. **Table 3-8** identifies threatened populations in the tsunami inundation zone.

Table 3-8: Tsunami Threatened Populations

Threatened Population Metric	Tsunami Hazard Zone	City of Laguna Beach (2017 ACS Data)	City of Laguna Beach (2021 ACS Data)
Population	146	23,095	23,121
Area Median Income	$103,160	$112,609	$135,976
Households	89	11,308	10,536
Percentage of households under the poverty limit	10.1%	7.6%	5.7%
Percentage of people who are senior citizens	21.2%	23.5%	27%

Source: Laguna Beach 2018 LHMP; US Census Bureau, 2020 Decennial Census, 2021 ACS 5-Year Estimates
Note: Although the city's population change is negligible, based on updated census data calculations, the total number of households has significantly decreased. The Census now only includes primary residences as households.

Other Threats

Both coastal erosion and sea level rise are "permanent" hazards because once an area is affected by that hazard it is very difficult to restore it to a prehazard state. In the long term, both hazards are expected to result in a loss of beach areas and cliff-top parks, which could affect tourism rates and thus have an impact on the local economy. A significant tsunami event can cause similar damage to beaches and other recreational or tourism sites, potentially also causing economic harm. There are numerous wastewater lift stations in the sea level rise and tsunami hazard zones, and damage to these facilities may decrease the quality of wastewater service in the community. A significant tsunami could inundate portions of Pacific Coast Highway, limiting access to parts of the community and forcing people to take secondary routes that are more likely to become congested. This in turn could affect response times for police, fire, and emergency medical services.

Changes in Population Patterns and Land Use and Development

The areas within Laguna Beach affected by coastal hazards primarily contain public amenities or are areas identified as open space; therefore, these hazards are not expected to cause a change in population patterns or land use and development.

Disease and Pest Management

Description

Diseases and pests are a pair of closely related hazards that can affect humans, animals, and plants. Foreign bodies that cause disease, called pathogens, include germs (i.e., bacteria and viruses), fungi, and a host of other agents. Other diseases may be caused by internal conditions, such as a genetic abnormality. This Plan only examines diseases caused by pathogens, with an emphasis on those that are affected by environmental conditions.

Pests are organisms whose presence is unwelcome. Pests often include insects and rodents, but may include many others (e.g., birds that eat fruit in an orchard before it is harvested may be considered pests). They can cause direct bodily harm (e.g., mosquitos by biting) or physical or economic damage (e.g., termites), or they may be considered unclean and cause concerns about hygiene (e.g., rats). Some pests can cause diseases, such as ticks that can transmit Lyme disease, or act as hosts to other pests that cause diseases, such as rats that harbor disease-carrying fleas.

In Laguna Beach, disease and pests primarily pose a risk to human health and comfort, although some diseases and pests could also be harmful to buildings and landscaping. Diseases and pests of concern in Laguna Beach include:

- **Influenza (the flu)** is an infectious disease caused by a virus. Common symptoms include fever, cough, headache, sore throat, muscle and joint pain, and a runny nose. There are annual outbreaks worldwide of varying severity. On average, influenza kills between 250,000 and 500,000 people globally each year, although rapid global outbreaks that infect large numbers of people, known as pandemics, can have much higher death rates.
- **COVID-19** is the common name used for the Novel Coronavirus Disease 2019, first identified in Wuhan, China, in December 2019. The particular coronavirus strain associated with COVID-19 is called SARS-CoV-2. Coronaviruses are a large family of viruses common in people and many different species of animals, including camels, cattle, cats, and bats. A wide range of COVID-19 symptoms have been reported – ranging from mild symptoms to severe illness that can appear 2-14 days after exposure to the virus. Symptoms reported include coughing, shortness of breath or difficulty breathing, fever, chills, muscle pain, sore throat, and/or new loss of taste or smell[8]
- **West Nile Virus** is a disease originally from Africa that was first reported in the U.S. in 1999. West Nile Virus is a vector-borne disease, with transmission occurring because of mosquito bites from the aedes aegypti. Most people who are infected do not display symptoms or feel sick. Those who display symptoms most often experience high fever, headache, neck stiffness, tiredness, or tremors. More severe symptoms include coma and paralysis. Vulnerable populations, primarily the elderly, may die as a result of their infections. There is currently no vaccine for the virus.[9]
- **Zika Virus** is a disease originally from Uganda that began spreading globally in 2016. Zika is a vector-borne disease that is primarily transmitted from person to person via mosquito bites. Most infected people do not experience symptoms; when symptoms occur, they potentially include fever, headache, or muscle pain. Zika rarely results in death. Researchers have discovered that Zika virus infections in pregnant women can sometimes result in microcephaly, a condition where babies are born with small heads. Babies born with microcephaly may die as a result of their physical condition.[10]
- **Mosquitos** are insects known for causing bites that develop irritating rashes. Mosquitos can also carry various diseases that they pass on to the humans and animals that they bite. Many of these diseases are more common in tropical areas, although some may occur in temperate areas such as Laguna Beach.
- **Mice and rats** are highly adapted to urban areas. They often eat discarded food and live in abandoned or dirty areas, so they are frequently considered unclean. Mice and rats can transmit diseases—the most infamous of which are bubonic plague (transmitted by fleas that live on rodents) and hantavirus (which causes a lung infection that is often fatal).
- **Ticks** are small arachnids that feed on blood. Although the bite itself is generally painless, ticks can transmit diseases to the animals that they bite. The most well-known disease, Lyme disease, can cause rash, fever, and headache. If left untreated, Lyme disease can lead to neurological complications.

An Asian Tiger Mosquito, which may attack during the day, bites its host. Image from San Diego County News Center.

Tree Mortality

The entirety of a city's trees is generally referred to as an urban forest. These trees may be publicly owned or maintained, such as trees in a public park or street median, or privately owned, such as the ornamental trees found in a property owner's landscaping. Urban forests represent important assets for a city as they provide shade, which helps keep the community cool. They also provide aesthetic beauty to a community and help humans feel calm and less stressed. Tree mortality refers to the death of numerous tree specimens in a forest, including urban forests. The death of a tree represents a significant loss since trees are expensive and require

[8] Coronavirus Disease 2019 (COVID-19)
https://wwwn.cdc.gov/nndss/conditions/coronavirus-disease-2019-covid-19/case-definition/2020/08/05/
[9] Center for Disease Control and Prevention. December 2018. West Nile Virus: https://www.cdc.gov/westnile/index.html
[10] Center for Disease Control and Prevention. March 2019. Zika Virushttps://www.cdc.gov/zika/about/overview.html

extensive time and care to be properly raised. Tree mortality may result from numerous causes, including but not limited to extreme heat, uprooting from severe weather, over-or under-irrigation, or chemical contamination. Like other living beings, trees are also subject to vector-borne diseases spread by pests. These diseases can cause the tree to produce misshapen fruit or discolored leaves. The disease can also kill the tree over an extended period. Pests that cause tree mortality are of concern since they may be difficult to detect and quarantine.

Invasive Shot Hole Borer. Image courtesy of Arborjet.com

The **Invasive Shot Hole Borer** (ISHB) is currently afflicting the city's trees. The pest bores into the trees, creating galleries in which it lays eggs. This activity introduces a deadly fungus that causes a tree disease called Fusarium dieback (FD). The ISHB-FD pest-disease complex is responsible for the death of thousands of trees in Southern California and poses an imminent threat to the integrity of the city's urban and natural forests.

Location and Extent

While any location in Laguna Beach is susceptible to experiencing the spread of disease, locations where many people gather are more likely to facilitate the spread of disease. These include large employment centers, educational institutions, medical facilities, and shopping centers. Laguna Beach has several smaller medical facilities (urgent care, family medicine, etc.) but is located within five miles of several large hospitals (Kaiser, Fountain Valley Regional, and Hoag), where high populations of individuals with infectious diseases could congregate. In addition, large commercial and employment areas like South Coast Plaza, the Orange County Fairgrounds, and various educational institutions are highly trafficked by many different people, which could increase the spread of disease.

Vector-borne diseases can only be spread where there is a link between the pest and the human population that could be infected. Areas where pests gather could pose a greater danger to humans who live nearby or visit regularly. Mosquitoes, for example, are known to congregate around pools of standing water as this is where they lay their eggs. Any pools or other bodies of standing water in Laguna Beach likely pose an increased risk to anyone who regularly spends time near these locations of being bitten by a mosquito and potentially being infected by a mosquito-borne disease.

Few diseases have a formal measuring scale to evaluate their severity or extent. Influenza, more commonly known as the flu, is measured by the Pandemic Influenza Phases scale established by the World Health Organization (WHO). **Table 3-9** describes the various phases of Influenza infection over time.

Tree Mortality

Any tree has the potential to be infested by pests that could result in the tree's death. This means all areas of Laguna Beach that are landscaped with trees could experience tree mortality. These areas include parks, landscaped parkways, street medians, schools, and private homes or businesses. Trees could also die because of other hazards. For example, an exceptionally severe drought that dramatically reduces the amount of water available for landscaping in Laguna Beach could deprive trees of the irrigation they require for their survival. Non-native or non-drought adapted specimens would most likely be the first trees affected; however, native species could also be affected, depending on the severity of the conditions. Multiple hazards could also combine to cause tree mortality. For instance, a prolonged drought coupled with a significant windstorm could damage or destroy trees if their root systems could no longer withstand the windspeeds exerted.

Regarding the ISHB pest, of particular concern is that the California Sycamore (*Platanus racemosa)* is widely planted across the region and in Laguna Beach. There are 269 California Sycamore trees in the City's public tree inventory. This is over 9 percent of the total public tree canopy. The number of California Sycamore trees in the city is much higher than that if you include private trees, and trees in the open space and natural areas.

Table 3-9: Pandemic Influenza Phases	
Phase	**Description**
Phase 1	No animal influenza virus is known to have caused infection in people.
Phase 2	An animal influenza virus has caused infection in people. There is a potential pandemic threat.
Phase 3	An animal influenza virus has caused occasional infections or infections in small groups. There may be limited human-to-human transmission, but nothing large enough to sustain community-level outbreaks.
Phase 4	Human-to-human transmission is able to sustain community-level outbreaks. There is a significantly higher risk of a pandemic.
Phase 5	Human-to-human transmission in at least two countries in the same region. A pandemic is likely imminent.
Phase 6	Human-to-human transmission in at least two countries in the same region and in at least one other country outside of the region. A pandemic is underway.
Post-peak	Transmission levels are declining below peak levels, although second waves may occur, and transmission could return to previous levels or higher.
Post-pandemic	Transmission levels have returned to normal levels for seasonal influenza outbreaks.

There is no universally accepted scale for measuring tree mortality, but the U.S. Forest Service identifies a general model that compares the aggregate number of tree deaths in relation to the aggregate number of trees surviving over a specified period. Additionally, a meta-analysis of tree mortality studies reveals that most trees in urban forests have an average lifespan lasting between 19 to 28 years and that the mortality rate among these trees is 3.5 to 5.1 percent per year. If tree mortality rates occur at a higher rate than this or if newly planted specimens are dying before 19 years, it could indicate that the City's trees are afflicted by disease, pests, or other issues. For trees affected by shot hole borer pests, **Table 3-10** identifies the damage rating metrics used by the University of California Integrated Pest Management guidelines.

Table 3-10 UC Integrated Pest Management Guidelines for Shot Hole Boring Pests	
Damage	**Invasive Pest Quantity**
Minor	Under 25 Hits
Moderate	Under 75 Hits
High	76+ Hits

Past Events

While local information on diseases and pests for Laguna Beach is not available, Orange County has been impacted by localized disease outbreaks. The following are notable instances of diseases and pests that have occurred within Orange County:

H1N1 (Swine flu): The 2009 H1N1 pandemic spread around the world and caused deaths worldwide. Within the context of Orange County, there were 226 cases requiring intensive care and 57 cases where the infection resulted in the patient's death.[11]

West Nile Virus: In 2014, all of California experienced a sudden outbreak of West Nile Virus infections, with most cases occurring within Orange County. By the end of the year, the California Department of Public Health reported more than 263 cases, though Orange County reports an even higher number of 280.[12] One middle-aged man and two seniors died as a result of being infected. The number of cases decreased dramatically in 2015 to 97 cases, though this was still high compared to the rest of the 2013-2017 period. In 2017, the number

[11] Orange County Health Care Agency. 2009. "Summary Report of the Orange County Health Care Agency." http://www1.ochca.com/ochealthinfo.com/docs/public/h1n1/2009-H1N1-summary.pdf
[12] Westnile.ca.gov. 2014. 2014 WNV by County. http://westnile.ca.gov/case_counts.php?year=2014&option=print

of cases had decreased further to 38, and by 2018, the number of cases continued to fall to 12, the lowest number of West Nile Virus infections since 2012.[13]

Zika Virus: In 2016, there were 30 reported cases of Zika Virus infections and 12 cases in 2017, an infection rate of 0.9% and 0.4%, respectively.[14] All these cases resulted from residents traveling to foreign countries where the virus was active and then was diagnosed with the infection upon their return. There has never been any locally acquired Zika infection that occurred within California itself.[15]

COVID-19: In December 2019, COVID-19 was identified in Wuhan, China. As of August 2023, COVID-19 has spread throughout the globe, with over 769 million confirmed cases and approximately 6.9 million deaths worldwide. There are over 90 million confirmed cases within the United States and over 1 million deaths resulting from the virus.[16] For Orange County, over 688,000 confirmed cases and over 7,000 deaths have been attributed to this virus.[17] [18] This event was included in DR 4482.

Tree Mortality

The ISHB was first reported active in Southern California in 2012 and quickly spread across several counties. This pest first emerged in coastal areas and then spread inland, with the first specimens at the University of California campus, Irvine, identified in 2015. By 2018, ISHB spread throughout all the County.

The ISHB leaves behind small tunnels bored through the trunk of the host tree. Image from Monica Dimson.

Risk of Future Events

All expectations are that diseases and pests will continue to be a hazard in Laguna Beach because completely eradicating pest organisms and pathogens is impossible. The most common disease- and pest- related hazard is influenza, and it is likely to remain so, although other diseases and pests are also expected to remain. It is possible that new diseases or more virulent forms of other diseases will emerge, or that hardier pest organisms will evolve or migrate into the area, increasing the risk of disease- and pest- related hazards. Similarly, it is possible that improvements in medical science and hygienic practices will decrease the risk of such hazards. These changes are unknown and unknowable.

Climate Change Considerations

Climate change is expected to bring warmer average temperatures to Laguna Beach. This may cause existing pests, including those that can carry diseases, to remain active for longer periods of the year, increasing the risk of exposure. It may also result in pest species or pathogens that are not currently active in Laguna Beach to migrate into the area. For example, changes in temperature and precipitation have already increased the range of mosquitoes known to carry diseases that originated in tropical areas, including yellow fever, dengue fever, and the Zika virus. At the same time, studies remain uncertain on how climate change will specifically affect a number of individual diseases.

Physical Threat

Although a few pests (e.g., termites) can cause harm to physical structures—and potentially significant damage with a serious infestation—most disease and pest management hazards have little to no impact on physical structures. Some diseases and pests can affect landscapes, seriously damaging or killing plants. Such damage

[13] Health Care Agency. 2018. Reportable Diseases & Conditions by Year, 2013-2017. http://www.ochealthinfo.com/civicax/filebank/blobdload.aspx?BlobID=76272
[14] Health Care Agency. 2018. Reportable Diseases & Conditions by Year, 2013-2017. http://www.ochealthinfo.com/civicax/filebank/blobdload.aspx?BlobID=76272
[15] California Department of Public Health. 2019. *What Californians Need to Know: Don't Bring Zika Home*. https://www.cdph.ca.gov/Programs/CID/DCDC/pages/zika.aspx
[16] Johns Hopkins University & Medicine. 2020. "Coronavirus Resource Center". https://coronavirus.jhu.edu/map.html
[17] Orange County Health Care Agency. 2020. "COVID-19 Case Counts and Testing Figures". https://occovid19.ochealthinfo.com/coronavirus-in-oc
[18] These numbers are accurate for 2021. Orange County and Johns Hopkins have both removed their COVID-19 trackers. Additionally, the Americas have stopped reporting COVID-19 numbers to the World Health Organization.

may be aesthetically harmful and expensive to replace, but it does not affect the operations of critical facilities, facilities of concern, or other buildings or structures in Laguna Beach.

Social Threat

Diseases and pests affect everyone in Laguna Beach to some degree, from a mild inconvenience to a fatal condition. The specific social vulnerability depends on the disease or pest infestation, although in general, senior citizens, young persons, and people with weakened immune systems face the greatest threat. Persons who live alone and become significantly ill—especially senior citizens and persons with disabilities—could face an elevated threat if they are unable to take care of themselves. Lower-income individuals also face a high threat from disease and pest management hazards if they are unable to afford the necessary treatment.

Other Threats

A major outbreak of a disease could stress health care facilities and systems in and around Laguna Beach, causing a decline in medical services. Such an outbreak could also prevent many people from going to work, which would harm the economy and affect the quality of many local services. Substantial damage to local ecosystems could occur if a disease or pest outbreak affects important plant or animal species.

Changes in Population Patterns and Land Use and Development

Disease

Changes in population patterns may occur if vulnerable populations within the city are impacted by a disease incident. Unfortunately, the change would most likely be caused by vulnerable individuals succumbing to the disease. Disease will not have a foreseeable impact on land use and development patterns.

Tree mortality

Tree mortality will not cause a change in population patterns. Tree mortality may impact the approach the city takes regarding which types of vegetation is planted throughout the city, or mechanisms for replacing vegetation if pests start to significantly impact existing tree inventory.

Extreme Weather (Drought, Severe Storm, Wind)

Description

Drought

A drought is a long period with substantially less precipitation than usual. The primary direct impact of a drought is the reduction of available water supplies. This is particularly concerning in agricultural areas and natural environments but can also affect urban areas. Droughts can harm landscapes because plants do not get the water they need to survive. In severe cases, droughts may lead to a human health risk if available water supplies are insufficient to meet basic needs.

Indirectly, drought causes soils to dry out, making them harder and less able to absorb water. When precipitation returns, the soil absorbs less water, increasing runoff, which can lead to flooding. Dry soils are more susceptible to erosion, especially if plants have died or no longer provide stability due to loss of roots and soil composition changes. Drought causes many plants in natural areas to dry out, making them more susceptible to pests/diseases and increasing the risk of wildfires.

Severe Storm

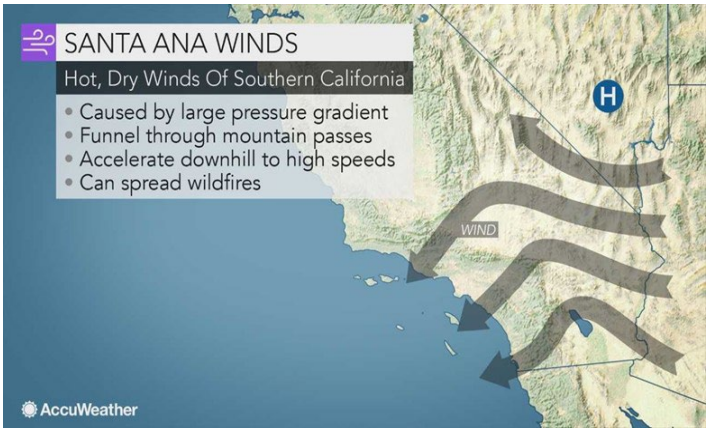
Like much of California, most of the storm systems that pass over Laguna Beach arrive between mid-autumn and mid-spring, especially from December to March. The strength of these storms can vary widely, and sometimes can be particularly intense. Although there is no specific definition of a severe winter storm, these systems often include strong winds and heavy rainfall. Some may include lightning, hail, and on rare occasions tornadoes.

Severe storms are often the result of a meteorological phenomenon called an “atmospheric river,” which is a band of very moist air. Such storms are a minority of all the storms that affect California, but they are responsible for up to 50 percent of all precipitation. Severe winter storms are also linked to the El Niño Southern Oscillation (ENSO, also known as El Niño), a natural cycle of winds and water temperatures in the eastern tropical areas of the Pacific Ocean that causes global shifts in weather conditions. ENSO has three phases—a warm phase (called El Niño), a neutral phase, and a cool phase (called La Niña). Severe storms and precipitation in California generally increase during the warm phase, particularly in Southern California.

Severe storms can have a range of impacts on the community. Intense rains can cause floods, which can damage buildings and create a risk of personal injury or drowning. Floodwaters can also cause erosion and saturate the soil, potentially sparking landslides and mudflows.

Wind

Wind is simply the movement of air caused by differences in atmospheric temperature. High-pressure air will naturally move to areas of low pressure. Usually, the distance between these high- and low-pressure zones is far; however, on occasion, these low- and high-pressure zones may be near one another. When this happens, air will flow dramatically, creating high-speed winds. The most common wind events in southern California are the "Santa Ana" wind conditions that typically occur in the fall and winter.



Santa Ana Wind Events

When winds are fast enough, they can cause property damage to homes, public facilities, utilities, and other infrastructure. They can also uproot or topple mature trees or pick up debris and send it careening through the air. This debris can injure or even kill bystanders who may find themselves stranded outside. High-speed winds can also deposit this debris in the middle of rights-of-way, such as roads, freeways, and railways, blocking exit routes for would-be evacuees or impeding access to first responders trying to reach wounded people.

Location and Extent

Drought

Droughts are somewhat frequent in California and typically occur when precipitation is limited for an extended period. Rain arrives in California via atmospheric rivers (channels of moist air located high in the atmosphere) and the El Niño Southern Oscillation (ENSO) cycle (a regional meteorological phenomenon in the southern Pacific Ocean). This cycle typically gives rise to two distinct phases: El Niño, the warm and wet phase, and La Niña, the dry and cold phase. When California experiences a drought, it is typically the result of fewer atmospheric rivers or an active La Niña phase, resulting in lower-than-average precipitation levels. Drought may also occur when conditions in areas where water sources are located experience drought conditions, even though the local region does not. **Table 3-11** identifies the drought classifications used by the US Drought Monitor program. This classification system synthesizes multiple different scales into a descriptive index. Communities that rely on water supplies from other parts of the State versus communities that source their water supplies locally may experience drought differently.

Droughts are regional events, so all parts of San Laguna Beach face the same drought risk. However, urban areas will likely experience different effects than open-space areas. It is also possible for communities to experience a "long-distance drought" since many urban areas in California receive water supplies from great distances. If these distant areas experience drought, it may cause water shortages in the urban areas that rely on them, even if these areas are experiencing normal precipitation levels.

Severe Storm

There is an equal chance of a severe winter storm affecting any part of Laguna Beach, although variations in intensity throughout the storm system may result in somewhat more or less severe weather in different neighborhoods. Severe winter storms are not measured on any particular scale.

Wind

Winds may occur anywhere in Laguna Beach. Areas at the bottom of larger passes and canyons, which include large sections of the coastal terraces in the community, may be particularly at risk from Santa Ana winds.

In Southern California, the most common type of severe wind event is called the Santa Ana winds. During the fall and winter months, high pressure over Nevada and Utah forces air down from the high desert toward the

ocean. As the winds descend, they heat up and increase in speed, sometimes carrying particulate matter and aggravating the respiratory health of those who have allergies [19]

Laguna Beach is often affected by Santa Ana winds blowing through the Santa Ana Mountain range. Santa Ana winds are a major contributor to accelerating the spread of wildfires in California.

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

Table 3-11: 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 use 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.

Source: US Drought Monitor
* D0 areas are those under "drought watch," but not technically in a drought. They are potentially heading into drought conditions or recovering from drought but are not yet back to normal.

Table 3-12: Beaufort Scale

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

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

Past Events

Drought

Like the rest of California, Laguna Beach has experienced drought events throughout its history. Each event has been distinct, with varying lengths, severity, and frequency. One of the earliest recorded major droughts in state history is known as the "Great Drought," which occurred in 1863 and 1864. This drought killed 46 percent of the

[19] UCSD (University of California, San Diego). 2016. "Santa Ana." http://meteora.ucsd.edu/cap/santa_ana.html

cattle in the state and ultimately led to the decline of cattle ranching. The "Dustbowl Droughts," lasting from 1928 to 1935, caused great impacts on the state's agriculture. The effects of this drought were so severe that it sparked the movement to create some of California's modern water irrigation infrastructure, such as the California Aqueduct. Another drought occurred in 1976 and 1977, leading to nearly $1 billion in agricultural losses. Implementation of water-saving practices resulted from this drought, which is still in effect today across the state. Further water conservation practices were enacted during a drought lasting from 1987 to 1993, which caused an estimated $250 million in agricultural damages each year.

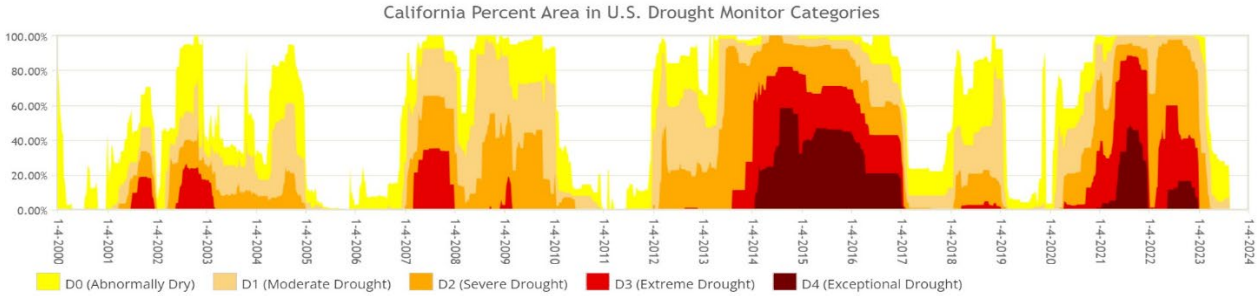
California experienced its most recent drought beginning in 2012 and lasting until 2017. All areas of the state were impacted, and by 2014 it was reported as the most severe drought in 1,200 years. **Figure 3-3** illustrates the severity of the drought conditions experienced over the past 23 years.

By the summer of 2014, almost all of California was experiencing D2 (Severe Drought) conditions. More than 75 percent of California was reported as experiencing the most intense level of drought conditions, D4 (Exceptional Drought). By 2015, emergency water-saving mandates were enacted, requiring all jurisdictions to reduce water use by at least 25 percent. In late 2016 and early 2017, successive heavy rains helped end the drought conditions in the state. The following winter, in late 2017 and early 2018, rains did not return in the same quantity, and slight drought conditions returned across California. This moderate drought was again abated in late 2018 and early 2019 in the winter season when heavy rains ended any existing drought conditions.

In November 2022, the majority of the state was in D2 (Severe Drought) and D3 (Extreme Drought) conditions, with Central California falling into the D4 (Exceptional Drought) category. A series of atmospheric rivers that swept through California from December 2022 to March 2023, bringing more than 78 trillion gallons of water, eliminated the drought for most of the state.[20] In August 2023, Tropical Storm Hilary brought enough rain to nearly eliminate all drought in the state.

As of April 2023, most of California is no longer in a drought. Currently, Orange County is experiencing no drought conditions. **Figure 3-4** identifies current drought conditions as of August 22, 2023.

Figure 3-3: Drought History (2000-2023)



Severe Storm

Severe winter storms have occasionally affected Laguna Beach, most recently during the winter of 2022-2023. In March 2023, a state of emergency was issued due to winter storms that occurred in the first few months of 2023. These storms caused at least $6.4 million in damage across several Orange County towns, including Laguna Beach. This event was included in EM 3591. In Laguna Beach, the storms caused a sinkhole to open up in South Laguna. A car fell into the sinkhole and a water main break and gas line were broken.[21] Multiple strong storms dropped more than three inches of rain in less than six hours, causing flash flooding and mudflows. A series of intense winter storms in December 2010 washed mud into the downtown area and caused significant erosion along city beaches. Other major storms affected Laguna Beach in the winters of 2004–2005 (which ultimately led to a major landslide in June 2005), 1997–1998, and 1982–1983, which were linked to the warm period of the ENSO cycle. A storm in January 1949 caused an inch of snowfall in Laguna Beach and widespread damage along the Southern

[20] Rice, Doyle. "Trillions of Gallons Have Soaked California. Is This the State's Wettest Winter Ever?" USA Today, March 29, 2023. https://www.usatoday.com/story/news/nation/2023/03/29/californias-snow-rain-totals-explained/11525451002/.

[21] Ceja, Miranda. "State of Emergency Extended to Orange County as Rainstorms Pummel Beach Towns." Laguna Beach, CA Patch, March 15, 2023. https://patch.com/california/lagunabeach/state-emergency-extended-oc-rain-storms-pummel-beach-towns.

California coast. A storm in 1934 dropped over three and a half inches of rain in Laguna Beach and the ensuing flood killed 45 people across Southern California.

Wind

Since 1955, the National Weather Service has measured 27 individual high wind events in Orange County, 4 of them in Laguna Beach or in its immediate vicinity. None of these events caused any injuries or deaths, although there were financial damages. The most recent recorded event was in January of 2010, when winds up to 80 mph were measured between Laguna Beach and Mission Viejo. This event caused approximately $407,500 in damage, or approximately $462,000 in 2017 dollars. A high wind event in April of 2005 had wind speeds up to 69 mph measured in Dana Point. Earlier that year, winds up to 80 mph were measured nearby in Laguna Woods. In 2001, wind speeds of 75 mph were measured near Emerald Bay. Several other high wind events have been connected with storm systems or Santa Ana events in Laguna Beach.

Remnants of hurricanes have affected Laguna Beach at times in the past, resulting in rains, high winds, and thunderstorms. Three times, tropical storms with wind speeds between 39 and 84 mph, have affected the region. In 1939 a tropical storm made landfall at Long Beach, resulting in 45 deaths and causing extensive flooding throughout southern California. In 1976 Tropical Storm Kathleen made landfall along the California-Mexico border and caused widespread damage throughout the region. In August 2023, Tropical Storm Hilary made landfall in the region; the damage in Laguna Beach was minimal, with downed branches and trees, wires down and a wide-spread power outage, and some localized flooding Only one storm system with hurricane-force winds has come to the region. On October 2, 1858, a Category 1 hurricane came very close to making landfall near San Diego before swerving along the coast and disappearing past Catalina. The storm caused heavy rains and intense winds across the Los Angeles and San Diego regions.

Risk of Future Events

Drought

It is expected that drought conditions will continue to recur in Laguna Beach, as they do throughout California. The Laguna Beach County Water District and the South Coast Water District receive a mixture of local groundwater and recycled water; county surface water, groundwater, and recycled water; surface and groundwater from the wider Los Angeles/Orange County region; and imported water from the Sierra Nevada, Colorado River, and Owens River.

Recycled water is highly drought resistant because it is produced by processing wastewater—as long as some water is available, there will be wastewater and, by extension, recycled water. Groundwater is also resilient to drought because groundwater basins can hold large volumes of water that have built up over an extended time. Groundwater basins are refilled by local precipitation that filters through the ground (a process called recharge). Orange County has further enhanced the resiliency of groundwater supplies in the county with the Groundwater Replenishment System, which pumps extra water into the groundwater basin to supplement natural processes. However, a prolonged drought slows natural recharge, which can reduce groundwater supplies. Drought conditions can also increase the likelihood that water suppliers will increase groundwater pumping to compensate for the loss of other supplies. However, new legislation to regulate groundwater can help prevent this.

Surface supplies, including those imported from other regions, are more vulnerable to drought conditions. Although groundwater supplies can potentially last forever if properly managed, surface supplies can run dry after a few years of drought conditions. In most droughts in California, surface water sources can typically supply only a reduced amount of water, and in some cases, supply may be depleted entirely.

The risk that future drought conditions would substantially affect Laguna Beach is to some degree lessened by the large volume of groundwater in local water supplies. However, a substantial portion of the community's water is imported, and these supplies are more vulnerable to drought. Overall, Laguna Beach may be relatively unaffected by short-term droughts, but longer-term droughts that affect groundwater supplies will have more significant effects. Climate Change Considerations

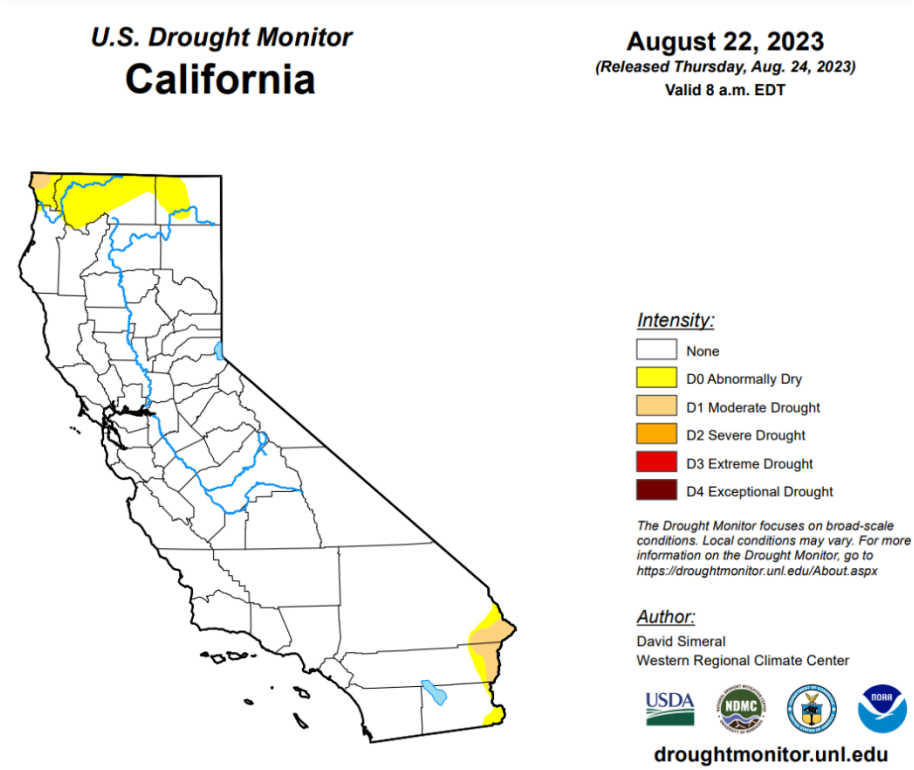
Severe Storm

There is no indication that rainfall or severe storms will abate either in Laguna Beach or the greater region of Southern California in the future. While Laguna Beach may experience prolonged periods of dry or wet years, all expectations are that the probability they will occur again in the future is highly likely and anticipated to increase in the future.

Wind

Given Laguna Beach's history of severe wind events, it is very likely that wind events will continue to impact the city. The most probable source of wind events in the future will likely originate from the Santa Ana winds or extreme storms. All expectations are that the probability they will occur again in the future is highly likely.

Figure 3-4: U.S. Drought Monitor - California



Climate Change Considerations

Drought

Overall, climate change is likely to decrease precipitation levels throughout the state, although there will likely be significant variation in year-to-year rainfall, and some studies point to a minor increase in precipitation levels. In Laguna Beach, which historically receives about 12.6 inches of rainfall a year, annual precipitation levels are expected to range between 2.9 and 32.9 inches toward the end of the century.[22]

Although changes to precipitation levels may be unclear, climate change is projected to result in more frequent and severe droughts, partly due to the greater variability in precipitation levels. Warmer temperatures mean that less precipitation will fall as snow, and that any snow that does fall will melt faster. The accumulated snow of the winter (known as snowpack) is a major source of water in California's dry season, but climate change is expected to reduce the water available from this source, particularly at the end of the dry season.

Severe Storm

Climate change is expected to alter rainfall patterns in Southern California, including Laguna Beach. As the climate warms, rain events are predicted to become more intense. Laguna Beach will likely experience more rain inundation events that lead to flooding and erosion and increase the threat of potential hazards.

[22] Cal Adapt - https://cal-adapt.org/tools/annual-averages

Wind

It is anticipated that the atmospheric rivers that deliver storms to Southern California may intensify because of climate change. While the average number of storms in Southern California will remain the same, storms are expected to increase in strength by 10 to 20 percent. This increase in storm intensity may also bring more intense winds to the Southern California region, including Laguna Beach. It is not yet known if climate change will affect the frequency or intensity of Santa Ana wind events.

Regarding Santa Ana winds, however, studies indicate that these events may be affected in varying ways. According to one study that examined two global climate models, there is a projected increase in future Santa Ana events. However, other studies have found that the number of Santa Ana events may decrease by about 20% in the future.[23] Given the anticipated increases in temperatures throughout the region, future events are anticipated to become more severe in some cases, even if the number of events decreases.

Physical Threat

Drought

Since the primary threat from drought is reduced water supply and availability, there are no foreseeable threats to any of the City's physical assets. It is possible that any water delivery infrastructure not used or used less than usual may fall into some degree of disrepair if maintenance is deferred. Lower water pressures may cause some aged water pipes to release rust particles into the water supply. Amenities within facilities, like water features and landscaping, could be affected by reduced watering. If dead or dying vegetation becomes a nuisance, the City may have to replace or retrofit locations affected.

Severe Storm

There is no indication that rainfall or severe rain hazards will abate either in Laguna Beach or the greater region of Southern California in the future. While Laguna Beach may experience prolonged periods of dry or wet years, all expectations are that they will continue and increase severity. Rain could damage any structures with poorly constructed roofs and could also erode the soil around building foundations. Heavy rain could also lead to flooding, which would damage unelevated structures in flood zones. Landslides triggered by heavy rains would damage any structures located below the landslide's starting point.

Wind

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

Another physical threat associated with severe wind is wildfire impacts and the recent practice of electric utilities conducting Public Safety Power Shutoff activities. During high wind events, these shutoffs may impact structures that rely on electricity for normal operations.

Social Threat

Drought

According to the NRI, the social vulnerability for drought ranges from very low to relatively low. Droughts are unlikely to cause serious social threats to households in Laguna Beach, though residents and business owners in the city may experience financial impacts associated with water conservation efforts. Those with less access to financial resources, such as low-income households or seniors, could be harder hit if higher water rates or additional fees are imposed during a severe drought event.

Severe Storm

Severe storms can harm people throughout Laguna Beach. Homeless persons and persons who work outdoors are more likely to be exposed to these hazards, increasing the threat of injury or mortality. Lower-income households, who may not be able to afford homes built to more rigorous standards or retrofit their homes, may be at greater risk for harm. Lower-income individuals may have difficulty maintaining trees on their property, which increases the threat from weak or diseased branches.

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

Wind

According to the NRI, the social vulnerability for severe wind ranges from very low to relatively low. Events such as severe winds and winter weather can harm people throughout Laguna Beach but have a greater effect on the safety of homeless persons and persons who work outdoors. Lower-income households, who may not be able to afford homes built or retrofitted to withstand powerful winds, could also have difficulty coping or recovering from wind events. This can be further compounded by the threat of Public Safety Power Shutoff events.

Other Threats

Drought

A typical drought is not anticipated to lead to any outages in service in Laguna Beach. However, an exceptional drought may lead to restricted water use for residents or businesses in the city. Trees that are not adequately adapted to lower irrigation levels could perish, altering the City's aesthetic appearance and long-term air quality. Any open spaces with extensive lawns may start to die, turning brown, which could discourage residents from using these parks and open spaces. In addition, long-term drought conditions can change and reduce soil's ability to absorb water. When this occurs, water runoff from these areas may increase, which could cause downstream flooding and erosion in some areas.

Severe Storm and Wind

Debris from high winds and other severe weather events can block roadways, disrupting the local transportation network. This in turn can affect transit and emergency response personnel, who may be unable to reach certain areas of the community or may have to take alternative routes. The chaparral, scrub, and grassland ecosystems in and around Laguna Beach are well adapted to drought conditions, but much more frequent and/or intense drought events may harm these natural environments. In addition to the direct damage to the local ecosystems, this may have economic impacts on the community.

Changes in Population Patterns and Land Use and Development

Drought

Unless there is a significant drought resulting in no water for the population, this hazard is unlikely to cause changes in population patterns. The most likely changes to land use and development would be changes in landscaping and efficient water use to address the impacts associated with more frequent or severe droughts.

Severe Wind

Severe winds occur periodically (primarily during the Fall months) and generally do not affect populations to the degree that they would need to migrate in and out of the city. It is unlikely that severe wind will affect land use and development because the development review process will take steps to mitigate or minimize the impacts of severe wind. There is the potential that older structures may be impacted more severely than newer structures.

Severe Rainstorms

Based on the recent update to the General Plan, it is not anticipated that population patterns will change over the next 20 years.

It is unlikely that severe rainstorms will affect land use and development because the development review process will take steps to mitigate or minimize impacts from severe rainstorms. The City has invested significantly in its stormwater management infrastructure, which should protect much of the city from the effects of severe rainstorms.

Earthquake / Geologic Hazards

Earthquake and geologic hazards of concern in Laguna Beach include seismic shaking and liquefaction.

Description

An earthquake is a sudden slip on an active fault, and the resulting shaking and radiated seismic energy are caused by the slip. The major active fault in the Laguna Beach area is a strike-slip fault. For this type of fault, during an earthquake event, one side of a fault line slides past the other. The rupture from this type of fault extends almost vertically into the ground.

Earthquakes are a significant concern to the City of Laguna Beach. The area around Laguna Beach is seismically active due to the regional fault lines that run near the city. Earthquakes can cause serious structural damage to

buildings, overlying aqueducts, transportation facilities, and utilities and can lead to loss of life. In addition, earthquakes can cause collateral emergencies, including dam and levee failures, fires, and landslides.

Seismic Shaking

Seismic shaking is the shaking felt on the surface caused by an earthquake. In most cases, earthquakes are not powerful enough to feel the shaking. However, powerful earthquakes can generate significant shaking, causing widespread destruction and property damage. As previously discussed, earthquakes are considered a threat to the City of Laguna Beach due to the proximity of several regional fault zones. The major fault zone near the city is the Newport-Inglewood fault. This fault stops in Newport Beach, before shifting offshore, and does not reach Laguna Beach. Although the probability is small, the Newport-Inglewood fault has a chance of producing an earthquake of magnitude 6.7 or greater. A significant earthquake along a major fault could cause substantial casualties, extensive damage, and other threats to life and property. The shaking of the ground can also damage or destroy underground utilities or pipelines, potentially leading to a loss of power, conceivable fires should any natural gas pipelines be damaged, and possible release of hazardous materials and flooding if water lines are breached.

Liquefaction

Liquefaction occurs when seismic energy shakes an area with low-density, fine-grain soil, like sand or silt, that is also saturated with water. When the shaking motion reaches these areas, it can cause these loosely packed soils to suddenly compact, making the saturated sediment behave more like a liquid than solid ground. During liquefaction events, the liquified soil can lose most of its stability, which can cause damage to buildings and infrastructure built upon it. In severe cases, some buildings may completely collapse. Pipelines or other utility lines running through a liquefaction zone can be breached during an event, potentially leading to flooding or releasing hazardous materials.

Location and Extent

Seismic Shaking

All of Laguna Beach is at risk of seismic shaking from local and regional faults. The intensity of seismic shaking occurs in relation to the amount of energy discharged by the seismic event, which is dictated by the length and depth of the fault. The longer and nearer the surface the fault rupture is the greater the seismic shaking. In most cases, areas nearest to the fault rupture experience the greatest seismic shaking, while areas more distant experience less shaking. Seismic shaking can damage or destroy structures leading to partial or total collapse. The shaking of the ground can also damage or destroy underground utilities or pipelines, potentially leading to the release of hazardous materials and flooding if water lines are breached.

Southern California is a highly seismic area because of the major faults that run through the region and the frequency of seismic events in the region. The intensity of seismic shaking is usually measured with the Modified Mercalli Intensity (MMI) scale based on the amount of observed damage. Seismic shaking may also be measured using the more widely known moment magnitude scale (MMS, denoted as M_w or sometimes M), which measures the amount of energy the earthquake releases. The MMS begins at 1.0 and increases as more energy is released. This scale is based on a logarithmic scale, meaning that the difference in energy between two measurements is substantially greater than the difference between the measurements themselves. For example, a M_w 6.5 earthquake releases approximately 1.4 times as much energy as a M_w 6.4 earthquake and 1,000 times as much energy as a M_w 4.5 earthquake. The MMS replaces the Richter scale, which is similar but less reliable when measuring large earthquakes. Since the degree of shaking and consequential damage generally decreases as the seismic energy travels farther away from the event's point of origin, different sections of a city or region can report different MMI measurements in different locations. Given Laguna Beach's size, it is likely that different sections of the city would report different MMI measurements. The MMI scale depicted in **Table 3-13** uses Roman numerals on a 12-point scale to measure and describe the effects of the shaking event. **Figure 3-5** shows seismic shaking potential within the city caused by the Newport-Inglewood Fault (the closest major fault to the city).

Table 3-13: Modified Mercalli Intensity Scale[24]		
Intensity	Description	Description
I	Instrumental	Felt only by very few people under especially favorable conditions.
II	Feeble	Felt only by a few people at rest, especially on the upper floors of buildings.
III	Slight	Noticeable by people indoors, especially on upper floors, but not always recognized as an earthquake.
IV	Moderate	Felt by many indoors and by some outdoors. Sleeping people may be awakened. Dishes, windows, and doors are disturbed.
V	Slightly Strong	Felt by nearly everyone, and many sleeping people are awakened. Some dishes and windows broken, and unstable objects overturned.
VI	Strong	Felt by everyone. Some heavy furniture is moved, and there is slight damage.
VII	Very Strong	Negligible damage in well-built buildings, slight to moderate damage in ordinary buildings, and considerable damage in poorly built buildings.
VIII	Destructive	Slight damage in well-built buildings, considerable damage and partial collapse in ordinary buildings, and great damage in poorly built buildings.
IX	Ruinous	Considerable damage to specially designed structures. Great damage and partial collapse in substantial buildings, and buildings are shifted off foundations.
X	Disastrous	Most foundations and buildings with masonry or frames and some well-built wood structures are destroyed. Rail lines are bent.
XI	Very Disastrous	Most or all masonry structures are destroyed, along with bridges. Rail lines are greatly bent.
XII	Catastrophic	Damage is total. The lines of sight are distorted, and objects are thrown into the air.

LIQUEFACTION

Soils must be saturated with water for liquefaction to occur. Areas with high water tables generally have saturated soil since the distance between the shallowest aquifer and the surface is minimal. Areas with alluvial soils—soft sands, silts, and clays—are also susceptible to liquefaction as these soils are fine grain and generally do not bond together well. Liquefaction events do not have a scale of measurement; however, other factors can be used to assess the extent of damage associated with a liquefaction event, such as:

- Soil type
- Strength of shaking near liquefaction
- Size of the affected area
- Destruction due to liquefaction

Liquefaction caused by the 1964 Niigita, Japan earthquake caused these apartment blocks to experience severe leaning. Image from the University of Washington.

Multiple areas in Laguna Beach are at risk of liquefaction, primarily the beaches and the canyon areas, because the soils in these areas are sand or loose sediment washed down the canyons by floods and creeks, and such material is prone to liquefaction. Specific risk areas are where the Pacific Coast Highway crosses below Emerald Canyon as well as the roads and properties of Laguna, Bluebird, and Aliso Canyons. There is no standardized scale for measuring liquefaction events. **Figure 3-6** depicts the areas of the city susceptible to liquefaction.

[24] United States Geological Survey. 2023. The Modified Mercalli Intensity Scale. https://www.usgs.gov/programs/earthquake-hazards/modified-mercalli-intensity-scale

Past Events

Seismic Shaking

In seismically active coastal California, small earthquakes are common. One of the larger of these was a 4.3 Mw event in 1969 that was felt widely throughout Laguna Beach. Laguna Beach has also experienced some significant seismic shaking events, the strongest of which was the 1933 Long Beach earthquake, approximately 14 miles northwest of Laguna Beach off the shore of Huntington Beach. This event measured 6.4 Mw and had a Mercalli intensity of VI (Strong) in Laguna Beach. It killed 120 people and caused over $50 million in damage (approximately $1 billion in 2023 dollars), including some damage to unreinforced masonry buildings in Laguna Beach. Other significant earthquakes felt in Laguna Beach are the 1994 Northridge earthquake and the 1987 Whittier Narrows earthquake.

Although other earthquakes have caused extensive regional damage, none of them caused substantive damage in Laguna Beach in recorded history. **Table 3-14** shows major earthquakes (at least 6.0 Mw) within 100 miles of downtown Laguna Beach.

Table 3-14: Significant Earthquakes (6.0+Mw) Within 100 Miles of Laguna Beach

Event Name	Distance (Miles)*	Magnitude
1812 Wrightwood earthquake	54 (approximately)	7.5
1910 Elsinore earthquake	24	6.0
1918 San Jacinto earthquake	54	6.8
1923 North San Jacinto Fault earthquake	44	6.3
1933 Long Beach earthquake	14	6.4
1937 Terwilliger Valley earthquake	88	6.0
1948 Desert Hot Springs earthquake	89	6.0
1954 San Jacinto Fault earthquake	100	6.4
1968 Borrego Mountain earthquake	100	6.6
1971 San Fernando earthquake	69	6.6
1992 Joshua Tree earthquake	90	6.1
1992 Landers earthquake	90	7.3
1992 Big Bear earthquake	72	6.4
1994 Northridge earthquake	64	6.7
2019 Ridgecrest Earthquake	169 (greater than 100 miles; large event)	7.1

Source: 2018 Laguna Beach LHMP
*Distance between epicenter and downtown Laguna Beach

Orange County was included in disaster declarations for the 1994 Northridge earthquake and the 1987 Whittier Narrows earthquake, although there was no substantive damage in Laguna Beach from either event.

Liquefaction

Despite experiencing multiple earthquakes, Laguna Beach has no record of liquefaction. A number of communities nearby and in the wider region have experienced liquefaction during significant earthquakes.

Risk of Future Events

Seismic Shaking

Laguna Beach is in a seismically active area. Given the significant seismic shaking events in the past, it is almost certain that such events will continue. The region has many fault lines, some of them major faults, and it is almost inevitable that a regional fault line will rupture in the foreseeable future and cause a major seismic shaking event. The Third Uniform California Earthquake Rupture Forecast (UCERF3) was released in 2015 and is the most recent assessment of the probability of a major earthquake on various faults between 2015 and 2044. **Table 3-15** shows the results of UCERF3 for key fault lines near Laguna Beach. The U.S. Geological Survey scenarios show that the largest magnitude events are anticipated to come from the San Jacinto and San Andreas faults. As noted in **Table 3-15**, the likelihood of a powerful earthquake occurring along these faults within the next 25 years is low.

Figure 3-5: Seismic Shaking Potential (Newport-Inglewood Fault)

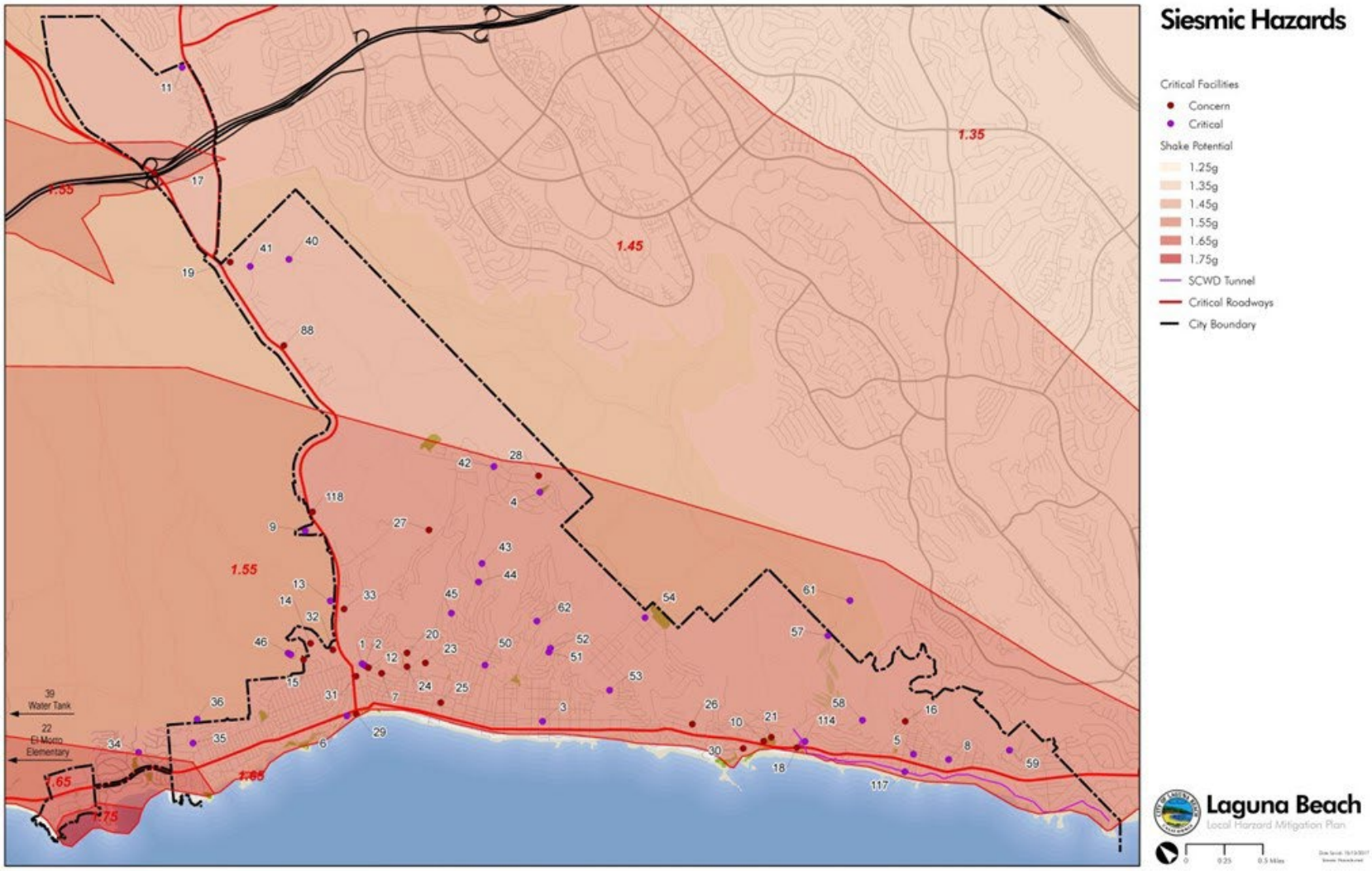


Figure 3-6: Liquefaction Zones within Laguna Beach

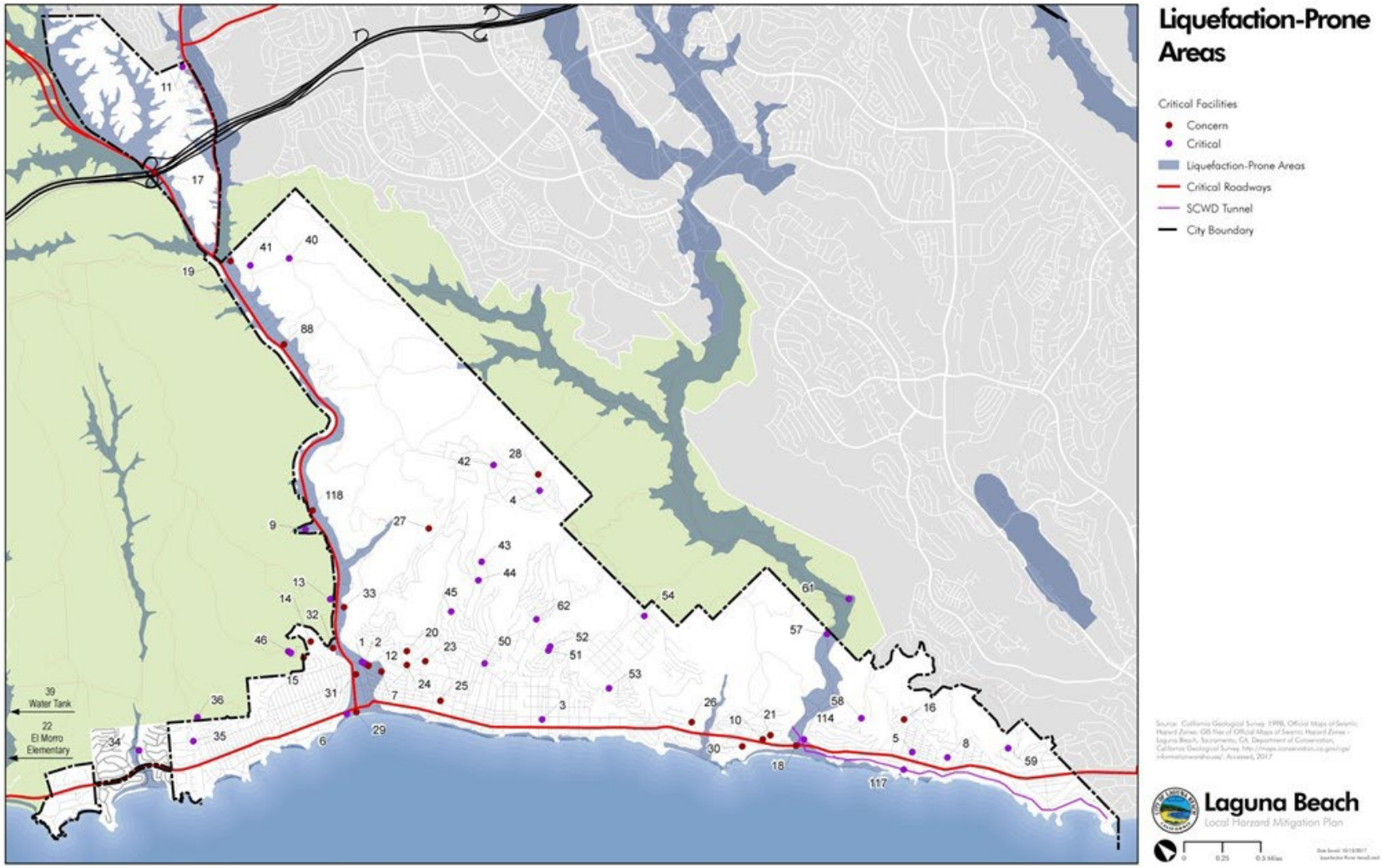


Table 3-15: Earthquake Probabilities for Key Faults near Laguna Beach (2015-2044)					
Fault	Distance (Miles)*	Probability			
		6.7+ M*	7.0+ M*	7.5+ M*	8.0 M*
Newport-Inglewood	2	.92%	0.88%	0.43%	Negligible
Oceanside	3	0.72%	0.59%	0.23%	Negligible
San Joaquin Hills	7	0.44%	0.41%	0.24%	Negligible
Palos Verdes	17	3.17%	2.84%	0.92%	Negligible
Whittier	23	1.64%	1.47%	0.81%	0.01%
Elsinore	23	3.83%	1.95%	1.08%	0.01%
Sierra Madre	40	1.43%	1.12%	0.78%	0.03%
San Jacinto	45	6.71%	6.43%	5.29%	2.77%
San Andreas†	52	25.87%	22.06%	18.74%	6.91%

Source: USGS 2015
*Distance between downtown Laguna Beach and the nearest point of the fault. All distances are approximate.
† Southern California segments only.
Note: UCERF3 results consist of two individual models (3.1 and 3.2), each of which provides rupture probabilities for each segment of the fault. This table shows the maximum probability for a section of the fault in either model.

In addition to the UCERF3 forecasts, which project the odds of a major earthquake on local and regional faults, the US Geological Survey forecasts the severity of seismic shaking in different locations for various plausible earthquake scenarios. **Table 3-16** shows the anticipated shaking in Laguna Beach from some of these scenarios.

Table 3-16: Selected Shaking Scenarios for Laguna Beach			
Fault	Magnitude	Distance to Epicenter (Miles)*	MMI Range in Laguna Beach
Newport-Inglewood	7.0 7.2 7.5	2 14 75	VIII (Destructive) VII (Very Strong) VIII (Destructive)
Palos Verdes	7.3 7.7	19 50	VII (Very Strong) VII (Very Strong)
Elsinore	7.0 7.3 7.7	25 23 110	VI (Strong) VI (Strong) – VII (Very Strong) VII (Very Strong)
Sierra Madre	7.3	46	VI (Strong)
San Jacinto	7.7	51	VI (Strong)
San Andreas	8.0	89	VI (Strong)

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

The US Geological Survey scenarios show that the Newport-Inglewood fault could cause the strongest seismic shaking in Laguna Beach, and the Palos Verdes and Elsinore faults could cause the next-strongest shaking. The more distant Sierra Madre, San Jacinto, and San Andreas faults could cause strong shaking, but due to their distance from Laguna Beach, it would not be as significant as the closer faults. Although there are no shaking scenarios for the Oceanside, San Joaquin Hills, or Whittier faults, the Oceanside and San Joaquin faults could likely cause strong shaking due to their proximity to Laguna Beach, and shaking from the Whittier fault would be somewhat weaker. However, according to the UCERF3, the faults closest to Laguna Beach are less likely to rupture within the next few decades than regional faults such as the San Jacinto and San Andreas.

The primary faults of concern for Laguna Beach are the Newport-Inglewood, Palos Verdes, and Elsinore. Although the chance of a major earthquake on these three faults is somewhat low, they all have the potential to

cause significant damage in Laguna Beach. Earthquakes from regional faults are more likely but are expected to cause less damage (although not inconsequential).

Liquefaction

Although there is no record of liquefaction events in Laguna Beach, the presence of liquefaction-prone soils means that future earthquakes could trigger liquefaction in the community. Earthquakes on the nearest faults, including the Newport-Inglewood, Oceanside, and San Joaquin Hills faults, could cause sufficient ground shaking to trigger liquefaction, although the chance of an earthquake on these faults is relatively low. Larger, more-distant faults are more likely to cause significant earthquakes, although the shaking from these earthquakes may not be strong enough in Laguna Beach to trigger liquefaction.

Climate Change Considerations

Seismic Shaking

There is no direct link between climate change and seismic activity that could impact Laguna Beach; therefore, climate change is not expected to cause any changes to the frequency or intensity of seismic shaking. Some research indicates that climate change could result in "isostatic rebounds," or a sudden upward movement of the crust because of reduced downward weight caused by glaciers.[25] As glaciers are known to melt when overall global temperatures increase, climate change could indirectly lead to increased seismicity in Laguna Beach and the Southern California region.

Liquefaction

Climate change is anticipated to change the usual precipitation patterns in Southern California. Periods of both rain and drought are anticipated to become more intense and frequent. Therefore, more precipitation will likely occur during rainy periods, and drought is expected to last even longer. As a result, the groundwater aquifer beneath Laguna Beach and Orange County could rise during intense precipitation periods. Alternatively, a longer-lasting drought may lead to more groundwater withdrawal and could lower groundwater elevations. Consequently, depending on the circumstances, climate change could increase or decrease the future risk of liquefaction in Laguna Beach.

Physical Threat

Seismic Shaking

Many physical assets in the city are estimated to experience the same seismic shaking intensity, ranging from 145%g to 165% g (shaking intensity in relation to the earth's gravity). Therefore, all facilities could be damaged during a significant seismic event, which would be extremely costly for the city. If all facilities were damaged at the same time during a seismic shaking event, it can be assumed that the City would incur a percentage of the maximum potential loss of its physical assets. Assuming 20% of the City's assets are impacted, this potential loss could amount to over $53 million. Underground physical assets, like pipelines or utilities, could be damaged if seismic shaking were strong enough to cause a rupture. In such a scenario, natural gas and water delivery service to Laguna Beach homes and businesses would be incapacitated until repairs are completed. **Table 3-17** displays these potential scenarios and losses that could be incurred should shaking reach the described threshold. **Figure 3-5** displays the CFs and FOCs within the city's seismic shaking potential hazard zones.

Table 3-17: Critical Facilities and Facilities of Concern (Seismic Shake 1.45G to 1.65G)

Category	Number of Facilities		Potential Loss**
	Critical	Concern	
Community Services	1	3	$10,869,452
Education	0	10	$101,409,432
Government Facilities	8	1	$40,086,405
Public Assembly and Recreation	0	2	$24,000,000
Infrastructure and Utilities	55	5	$48,662,028
Total	64	21	$225,027,316

*Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.
** Based on the City of Laguna Beach insured replacement values

[25] Ibid., 47.

Liquefaction

Due to the City's location near active faults capable of generating large earthquakes, the potential for CFs and FOC to be affected by liquefaction is a concern. **Table 3-18** identifies the CFs and FOC in these areas, accounting for over $105 million in potential losses affecting 41 CFs and 14 FOC. **Figure 3-6** shows the CF and FOC within the designated liquefaction zone.

Table 3-18: Critical Facilities and Facilities of Concern (Liquefaction)

Category	Number of Facilities		Potential Loss**
	Critical	Concern	
Community Services	0	4	$10,869,452
Education	0	3	?
Government Facilities	4	0	$27,485,805
Public Assembly and Recreation	0	3	$27,000,000
Infrastructure and Utilities	37	4	$40,254,043
Total	41	14	$105,609,300

*Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.
** Based on the City of Laguna Beach insured replacement values

Social Threat

The risk of a seismic event is a danger to all groups in Laguna Beach though some are more threatened than others.

Seismic Shaking

Since all of Laguna Beach could be affected by earthquakes, all community members could be threatened by these events. Seniors, pregnant women, and persons with disabilities are more threatened by seismic shaking since they may have limited mobility and may be unable to reach shelter in time. Even if these groups reach shelter in time, they may be trapped if furniture or building components have fallen around them. Renters and low-income people are also more threatened by seismic shaking since these groups may live in homes that are not properly retrofitted to survive the stresses of a seismic event. These groups may be unable to absorb the costs associated with repairing their homes or looking for new housing should their existing one be too damaged for occupancy. **Table 3-19** displays the threatened populations in Laguna Beach associated with the seismic shaking scenarios.

Table 3-19: Seismic Shaking Threatened Populations

Threatened Population Metric	Seismic Shake Households	City of Laguna Beach (2017 ACS Data)	City of Laguna Beach (2021 ACS Data)
Population	23,095	23,095	23,121
Area Median Income	$112,609	$112,609	$135,976
Households	11,308	11,308	10,536
Percentage of households under the poverty limit	7.6%	7.6%	5.7%
Percentage of people who are senior citizens	23.5%	23.5%	27%

Source: Laguna Beach 2018 LHMP; US Census Bureau, 2020 Decennial Census, 2021 ACS 5-Year Estimates
Note: Although the city's population change is negligible, based on updated census data calculations, the total number of households has significantly decreased. The Census now only includes primary residences as households.

Liquefaction

Approximately 30% of the City's population is located within a designated liquefaction zone. Much of the liquefaction zone is located in the downtown and older part of the city. Lower-income residents and residents located in older construction areas may be impacted more due to the lack of financial resources needed to make repairs and/or the cost associated with retrofitting older buildings.

Table 3-20 compares the populations within the liquefaction hazard zones with citywide populations. Households located in these areas have a median household income of approximately $5,000 lower than the Citywide median. Persons living with a disability is lower than the city average, and households with a member aged 65+ is lower than the city average.

Table 3-20: Liquefaction Threatened Populations

Threatened Population Metric	Liquefaction Hazard Zone	City of Laguna Beach (2017 ACS Data)	City of Laguna Beach (2021 ACS Data)
Population	326	23,095	23,121
Area Median Income	$100,730	$112,609	$135,976
Households	188	11,308	10,536
Percentage of households under the poverty limit	10.6%	7.6%	5.7%
Percentage of people who are senior citizens	24.8%	23.5%	27%

Source: Laguna Beach 2018 LHMP; US Census Bureau, 2020 Decennial Census, 2021 ACS 5-Year Estimates
Note: Although the city's population change is negligible, based on updated census data calculations, the total number of households has significantly decreased. The Census now only includes primary residences as households.

Other Threats

Seismic Shaking

As early earthquake warning systems become operational soon, it can be expected that utilities will take advantage of these advanced warnings to shut off gas, water, and power transmission to control any potential leaks following the seismic shaking. Authorities may have enough time to halt the use of infrastructure or move workers to safe locations away from hazardous conditions. Workers could cease their activity and take shelter until they can be safely evacuated. Therefore, all services could be non-operational during the shaking event and remain inactive until authorities are confident that it is safe to reactivate utilities and return employees to their workplaces. The length of this time would vary depending on the magnitude of the event. A significant earthquake would likely put utilities out of commission and halt any employment activity in the city for a few hours or several days. The city and the region would experience reduced economic activity during the outage period, which would not be felt for weeks, months, or years later. Structures such as telephone poles or power transmission towers felled by the shaking could block roadways and prevent emergency response teams from reaching victims or evacuees who need assistance.

Liquefaction

Services and mobility may be disrupted during and following a liquefaction event. Due to the liquefying soils, sidewalks, roadways, and pipelines may become fractured and disjointed. Roads and sidewalks may be usable in some form, but a severe liquefaction event may render them impassible until they are repaired. Broken gas and water pipelines would result in utility outages, with services delayed until this infrastructure is repaired/replaced. Damage to power lines is unlikely since they are not rigid structures and can move if any transmission towers experience slight leaning. Homes and mid-rise office buildings may be damaged if the soils beneath lose strength rendering these locations unsafe for occupancy.

Changes in Population Patterns and Land Use and Development

Seismic Shaking

Based on the recent update to the General Plan, it is not anticipated that population patterns will change over the next 20 years. While this may also be true concerning land use and development, if a strong earthquake impacts the city, there is the potential that older structures in the city may be impacted more severely than newer structures.

Liquefaction

The liquefaction hazard zones run along Aliso Creek and Laguna Canyon Rd. The majority of Aliso Creek is open space and so land use and development patterns will not be affected. Laguna Canyon Rd. may have some buildings that are damaged and so there may be a change in land use and dev patterns as rebuilding occurs or

those areas transition to uses better aligned with hazard conditions. These changes would only happen post-event.

Liquefaction will not cause a change in population patterns as areas in the hazard zone do not contain a significant population.

Flood

Description

Floods are a common hazard in many parts of California, including Laguna Beach. Ultimately, a flood occurs when there is too much water on the ground to be held within local water bodies, causing water to accumulate in naturally dry areas. They are often caused by heavy rainfall, though floods can also occur after a long period of moderate rainfall or if unusually warm weather causes mountain snow to melt faster than expected. Floods that develop quickly, known as flash floods, are especially dangerous because there may be little warning that one is occurring, but floods can also build over a more extended period.

A flood, as defined by FEMA's National Flood Insurance Program (NFIP), is: "A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is the policyholder's property) from:

- Overflow of inland or tidal waters, or
- Unusual and rapid accumulation or runoff of surface waters from any source, or
- Mudflow, or
- Collapse or subsidence of land along the shore of a lake or a similar body of water due to erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels."

Floods can be slow or fast rising but generally develop over a period of hours or days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation measures now, such as: engaging in floodplain management activities, constructing barriers such as levees, and purchasing flood insurance, will help reduce the amount of structural damage and financial loss from other types of property damage should a flood or flash flood occur.

Although flooding may occur anywhere in a community, some types of flooding are limited to coastal areas. Intense storms can create large waves and strong winds that push ocean water onshore in an event known as a storm surge. Very high tides, sometimes called king tides, can also cause flooding in low-lying coastal areas. These events sometimes work in concert to create stronger floods (such as a storm surge that arrives during a king tide).

Floods are dangerous for several reasons. The floodwaters can be deep enough for people to drown and moving fast enough to sweep people away. The moving water can damage buildings with its force (in extreme cases, it may move entire structures) or carry large debris that damages objects with which it collides. When water gets into buildings, it can cause extensive damage to personal property, ruining building materials, furniture, electronics, and numerous other items. Standing and moving water can be barriers to movement, isolating people and hindering evacuation, rescue, or relief efforts.

Location and Extent

Flood events are measured by their likelihood of occurrence. For instance, a 100-year flood is a flood that has a 1 in 100 (1.0 percent) chance of occurring in any given year. A 500-year flood is a flood that has a 1 in 500 (0.2 percent) chance of occurring in any given year. The 100-year flood has been designated as the benchmark for major flood events. Thus 100-year floods are referred to as "base floods."

Floodplains are areas that are prone to flooding and often experience frequent flooding. While it is possible for areas outside of these designated floodplains to experience flooding, the most likely locations to experience future flooding are low-lying areas near bodies of water. FEMA is the governmental body responsible for designating which areas of the United States can be classified as floodplains.

The three most common designations are:

- Special Flood Hazard Area: The area within a 100-year floodplain.
- Moderate Flood Hazard Area: The area outside the 100-year floodplain but within the 500-year floodplain.
- Minimum Flood Hazard Area: The area outside of the 500-year floodplain.

FEMA has multiple floodplain categories for each unique environment within these three designations. **Table 3-21** shows these detailed floodplain categories. FEMA classifies Laguna Beach under the following floodplain categories: AE, A1-30, AO, AH, A, B, C, and X; the location of these floodplains can be seen on the FEMA Flood Hazard Zone Map depicted in **Figure 3-7**.

Flooding hazards can potentially impact a significant amount of the community; however, less than 10% of this area is subject to a 100-year event. Development within flood hazard areas is expected to comply with flood protection standards that reduce vulnerability to flood impacts and ensure safe use and occupation of structures.

Table 3-21: FEMA Floodplain Categories

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

Source: 24 CFR, Section 64.3

In Laguna Beach, the 100-year flood plains include the areas around creeks and below major canyons. The largest 100-year flood plain covers Laguna Canyon and the area of downtown Laguna Beach that sits directly below it. Other 100-year flood plains are Emerald Canyon, Bluebird Canyon, Aliso Canyon, and the areas below these canyons.3 The 500-year flood plains are along the edges of the 100-year flood plains. Most of the beaches lie within coastal flood hazard zones, as does the low-lying area on the landward side of the Pacific Coast Highway by Main Street Beach. The rest of Laguna Beach is designated Zone X (minimal hazard area). FEMA has mapped the flood height for Laguna Canyon and the area below it, along with some of the beaches.

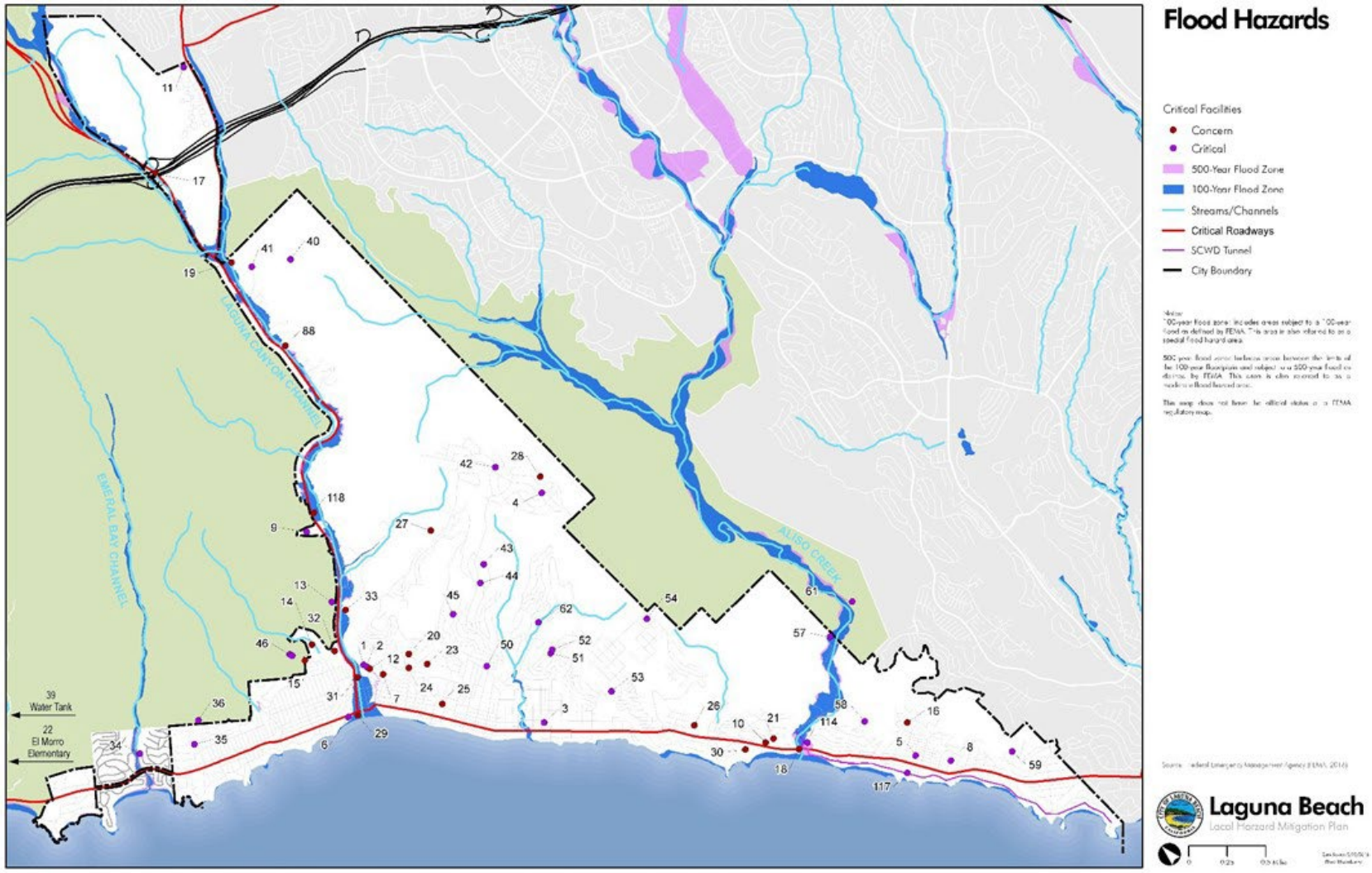
Past Events

Table 3-22 identifies past events of flooding in the city.

Table 3-22: History of Flooding in Laguna Beach	
Date	Description and Effect
1929	A strong storm in 1929 caused extensive coastal flooding in the downtown area.
Feb 1937	A strong storm dropped 5.59 inches of rain on Laguna Beach in two days, causing significant flooding in Laguna Canyon and downtown.
Mar 1938	Over 5 inches of rain fell in 2 days, causing over $20,000 damage in Laguna Canyon (approximately $430,400 in 2023 dollars). This was part of a larger series of storms that inundated Southern California in early 1938, causing flooding as far as San Luis Obispo, and prompted construction of flood control channels in Laguna Canyon.
Feb 1941	A storm dropped 2.63 inches of rain and caused one home to collapse.
Dec 1966	A storm lasted 6 days, resulting in 4.76 inches of rainfall, flooding Laguna Canyon and causing over $263,000 of damage throughout Orange County (approximately $2.5 million in 2023 dollars).
1969	A series of storms in early 1969 overwhelmed drainage channels, causing flooding in downtown, mudslides in Laguna Canyon, and widespread flooding in the lowland areas of Orange County. Overall, state and federal disasters were declared in 40 of California's 58 counties. Statewide, the 1969 storms killed 47 people, injured 161, and caused $300 million in damages (almost $2.5 billion in 2023 dollars). In Orange County, damage exceeded $2.5 million (over $20 million in 2023 dollars).
Jan 1978	A storm dropped 3.43 inches of rain, inundating Laguna Canyon as far north as Interstate 405 and causing severe damage to homes and business in Laguna Canyon and downtown. The storm also caused coastal flooding along Main Beach Park. State and federal disaster declarations were issued as a result.
Winter 1982-1983	Storms caused the Laguna Lakes at the north end of Laguna Canyon to overflow, washing out Laguna Canyon Road and flooding downtown. State and federal disasters were declared in 44 counties, including Orange County. The storms caused approximately $524 million in damage statewide (approximately $1.6 billion in 2023 dollars).
1993	A storm caused flooding in Laguna Canyon and downtown, damaging many homes and small businesses, and prompted a state and federal disaster declaration.
Jan 1995	Storms damaged an estimated 50 businesses and dozens of homes and destroyed a large section of the boardwalk. Flooding was widespread throughout California, prompting a disaster declaration that included Orange County. Total damage from the storm in Orange County was approximately $55 million (close to $110 million in 2023 dollars).
Jan 1997	A storm resulted in one death and flooding along Sun Valley Drive in Laguna Canyon. This was part of a series of storms that caused over $194 million ($366 million in 2023 dollars) in damage statewide and prompted state and federal disaster declarations in 48 counties, although not in Orange County.
Dec 1997	A storm dropped 7.2 inches of rain; the heaviest rainfall recorded in Laguna Beach in 100 years. The storm resulted in flooding and landslides that destroyed 2 homes and damaged an additional 20 homes, City Hall, and other public buildings. This storm prompted a state disaster declaration in Orange County and caused $17.7 million in damage (approximately $33 million in 2023 dollars).
Winter 2004-2005	A series of storms caused approximately $36.7 million in damages (almost $57 million in 2023 dollars) throughout Orange County and resulted in one injury.
Dec 2010	Storms damaged over 90 homes and 70 businesses as well as the Main Beach boardwalk and other public infrastructure. The storms also caused multiple breaks in sewer lines and destabilized others, causing widespread beach closures and prompting the need for emergency repairs. The storms inundated communities in southern and central California. Orange County and 11 other counties in the state were declared state and federal disaster areas. Total damage in Orange County came to $48.3 million (approximately $67 million in 2023 dollars).
Jan 2017	Storms caused beach closures and flooding along the Main Beach boardwalk. Most of California, including Orange County, was declared a disaster area in response.
Mar 2023 included in EM 3591	A state of emergency was issued due to winter storms that occurred in the first few months of 2023. The storms caused at least $6.4 million in damages across several Orange County towns, including Laguna Beach. In Laguna Beach, the storms caused a sinkhole to open up in South Laguna. A car fell into the sinkhole and a water main break and gas line were broken.[26]
Source: 2018 City of Laguna Beach LHMP	

[26] Ceja, Miranda. "State of Emergency Extended to Orange County as Rainstorms Pummel Beach Towns." Laguna Beach, CA Patch, March 15, 2023. https://patch.com/california/lagunabeach/state-emergency-extended-oc-rain-storms-pummel-beach-towns.

Figure 3-7: Flood Hazard Zones in Laguna Beach



Risk of Future Events

There is no indication that the severe rainfall that leads to flooding will abate in the future, either in Laguna Beach or the greater region of Southern California. While Laguna Beach may experience prolonged periods of dry or wet years, flood events will likely continue to impact the city. For areas within the 100-year and 500-year flood hazard zones, the likelihood of flooding occurring annually is 1% and 0.2%, respectively.

Because the City is vulnerable to flooding during the winter storm season, it is an active participant in the FEMA National Flood Insurance Program (NFIP). Through this program, "Special Flood Hazard Areas" within the city are identified and mapped on Flood Insurance Rate Maps (FIRMs), identifying the areas that require flood insurance. FIRMs generally describe flooding in terms of a 100- or 500-year flood event, which translates into the probability (1.0% or 0.2%, respectively) that flooding could occur within the designated zone in any given year. In addition to the federal requirements within the NFIP, the City has adopted flood protection standards requiring minimum building elevation, flood-proofing, and anchoring of buildings in areas prone to flooding. **Figure 3-7** identifies the FEMA Flood Hazard Zones mapped within the city.

Climate Change Considerations

Climate change is expected to affect California's precipitation patterns, likely influencing future flood events. A 2017 study found that the number of very intense precipitation days in California is projected to more than double by the end of the century, increasing 117 percent, making it likely that flood events will become more frequent.[27] More flood events could increase the frequency of maintenance and repair activities and require operational changes to City function. Much of the City's infrastructure may require modification and retrofit to better accommodate changes anticipated from climate change. As a result, significant investment in future infrastructure may be necessary.

Physical Threat

The primary flood-prone areas in Laguna Beach are the canyons and the areas directly below them, which includes parts of downtown. **Table 3-23** identifies that there are 19 critical facilities and facilities of concern in the community's mapped flood plains—13 facilities in the 100-year flood plain and 6 in the 500-year flood plain. In total, these facilities are valued at over $46 million. The Anneliese's School and a warehouse owned by the Laguna Beach Unified School District are both in the 100-year flood plain, as is the Laguna Beach Transit Center and the site used for the Sawdust Festival. The Laguna Beach County Water District headquarters and the site used for the Festival of Arts are among the facilities in the 500-year flood plain. **Figure 3-7** depicts the locations of CFs and FOCs located in FEMA-designated flood zones, which include the 100-Year Flood Hazard (blue), and the 500-Year Flood Hazard (pink).

Table 3-23: Critical Facilities and Facilities of Concern in FEMA Flood Zones

Category	Number of Facilities 100 Year Floodplain		Potential Loss*	Number of Facilities 500 Year Floodplain		Potential Loss*
	Critical	Concern		Critical	Concern	
Community Services	0	2	$357,386	0	0	-
Education	0	2	?	0	0	-
Government Facilities	0	0	-	0	0	-
Public Assembly and Recreation	0	1	?	0	1	$24,000,000
Infrastructure and Utilities	6	2	$19,081,014	3	2	$3,000,000
Total	6	7	$19,438,400	3	3	$27,000,000

*Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.
** Based on the City of Laguna Beach insured replacement values

[27] Polade, S.D., Gershunov, A., Cayan, D.R., Dettinger, M.D., & Pierce, D.W. 2017. Precipitation in a warming world: Assessing projected hydro-climate changes in California and other Mediterranean climate regions. *Scientific Reports*. https://www.nature.com/articles/s41598-017-11285-y

Social Threat

An estimated 98 residents live in the flood hazard areas in Laguna Beach, primarily in the 100-year flood plain. The residents in the flood hazard areas do not appear to be socially vulnerable compared to the average resident of Laguna Beach, although residents in these zones have a lower median income and a higher percentage live under the poverty limit compared to the entire community. Lower-income persons in flood-prone areas may be unable to afford flood insurance premiums or flood-proofing improvements to their homes, so they may face disproportionate harm from flood events. Persons with mobility challenges or lack of access to vehicles may have difficulty evacuating from a serious flood event, particularly a flash flood. Due to the small number of residents in the hazard zone, some demographic information is missing.

Persons experiencing homelessness who are outside during flood conditions may experience property damage or cannot access shelter. Though floodwaters in Laguna Beach are not expected to exceed a depth of one foot in many areas, six inches of floodwater may render any makeshift structures uninhabitable during a flood event. Possessions such as sleeping bags or electronic devices may be damaged or swept away by these floodwaters. **Table 3-24** identifies the city's flood threatened populations.

Table 3-24: Flood Threatened Populations

Threatened Population Metric	Flood Hazards (100 years)	Flood Hazards (500 years)	City of Laguna Beach (2017 ACS Data)	City of Laguna Beach (2021 ACS Data)
Population	93		23,095	23,121
Area Median Income	$102,486		$112,609	$135,976
Households	49		11,308	10,536
Percentage of households under the poverty limit	12.2%		7.6%	5.7%
Percentage of people who are senior citizens	22.6%		23.5%	27%

Source: Laguna Beach 2018 LHMP; US Census Bureau, 2020 Decennial Census, 2021 ACS 5-Year Estimates
Note: Although the city's population change is negligible, based on updated census data calculations, the total number of households has significantly decreased. The Census now only includes primary residences as households.

Other Threats

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

Changes in Population Patterns and Land Use and Development

Flooding could affect population patterns within the city as the median household income in both the 100-year and 500-year flood zones is lower than the citywide average. If, after a flood, homeowners in these flood zones cannot afford to fix their homes they will potentially move out of the area. If homes in the low flood-risk areas within the city are more expensive, a person looking to move out of the flood zone may consider leaving the city altogether.

It is unlikely that flooding will affect land use and development patterns because the development review process ensures flood related impacts are mitigated or minimized.

Human-caused hazards (Terrorism/Mass Casualty Incident, Cyber Threat, Civil Unrest)

Description

Terrorism/Mass Casualty Incident

Terrorism is the use or threat of force to achieve a particular social or political outcome. The goals of terrorism may sometimes be overturning a government, reversing a public policy, releasing political prisoners, and other such motives. Acts of terror may overlap with acts of war or hate crimes. Generally, terrorism involves an attempt to kill or seriously harm people or disrupt civil society by destroying property or infrastructure, attacking

government operations at all levels, interrupting essential public services, creating chaos, or a combination of some or all these goals. Firearms and explosives are the most common weapons used among terrorists. In extreme situations, terrorists may gain access to mass destruction weapons, including bioweapons, chemical agents, radioactive materials, or high-yield explosives. It should be noted that these events are infrequent. While incidents of terror caused by foreign individuals or groups receive significant media and public attention, most acts of terror in the United States have been caused by domestic terrorists.

A mass casualty incident describes an incident within the United States where emergency medical services resources, such as personnel and equipment, are overwhelmed by the number and severity of casualties. The more commonly recognized events of this type include building collapses, train and bus collisions, plane crashes, earthquakes, and other large-scale emergencies. The most common types are generally caused by terrorism, mass transportation accidents, or natural disasters. Events such as the Oklahoma City bombing in 1995, the September 11 attacks in 2001, and the 2017 Las Vegas Shooting are well-publicized examples of mass casualty incidents.

Cyber Threat

Cyber threats are when an individual or a group threatens or attempts to disrupt the operations and functioning of computer systems belonging to private citizens, religious groups, educational institutions, government agencies, or businesses. These threats include online harassment, hacking, or in-person tampering with electronic equipment. Successful cyber threats can lead to service disruptions, infrastructure damage, and theft and may cause injury or death in severe instances.

Civil Unrest

Civil unrest is an event when the normal operations of the city are either threatened or temporarily interrupted by violent protests, riots, shootings, and armed standoffs. Civil unrest can occur at a single time or be a string of related events. Property damage to businesses, government facilities, or homes can occur during these events. In extreme situations, death and injury may result from civil unrest.

Location and Extent

Terrorism/Mass Casualty Incident

Mass Casualty Incidents can occur anywhere, although public spaces and locations where many people congregate (parks, schools, places of worship, government facilities, shopping centers, and public gathering areas) are most common. Critical locations in Laguna Beach may be event centers (i.e., Festival of the Arts, the Sawdust Festival), government facilities (i.e., City Hall), schools, medical facilities (Providence Mission Hospital Laguna Beach), parks, and large employers within the city.

Acts of terrorism may be located at the locations listed above; however, the perpetrators may also choose high-value targets such as electric-generating facilities, water treatment plants, dams or reservoirs, railroads, highways, and other facilities that could impact governmental operations and services. Mass Casualty Incidents and acts of terrorism are typically measured by the fatalities, injuries, and destruction they cause, but there is no universally used scale for measuring these events.

Cyber Threat

Since computers are so ubiquitous, a cyber threat could appear in virtually any part of the city. In extreme circumstances, a threat could impact the entire city. Cyber threats vary in their length and severity of impact. A minor threat could cause computer systems to slow down for a few minutes and not behave as responsively. On the other hand, a major cyber threat could cause a complete shutdown of critical systems, including those used by banks, healthcare institutions, universities, major businesses, and city governments.

Cyber threats are not measured on any scale, but they can be assessed by determining:

- The type of incident (website defacement, denial of service, unauthorized surveillance)
- The use of malicious software
- The level of security countermeasures that failed to prevent the cyber threat
- The duration of the cyber threat (a few hours, a few days, several weeks, etc.)[28]

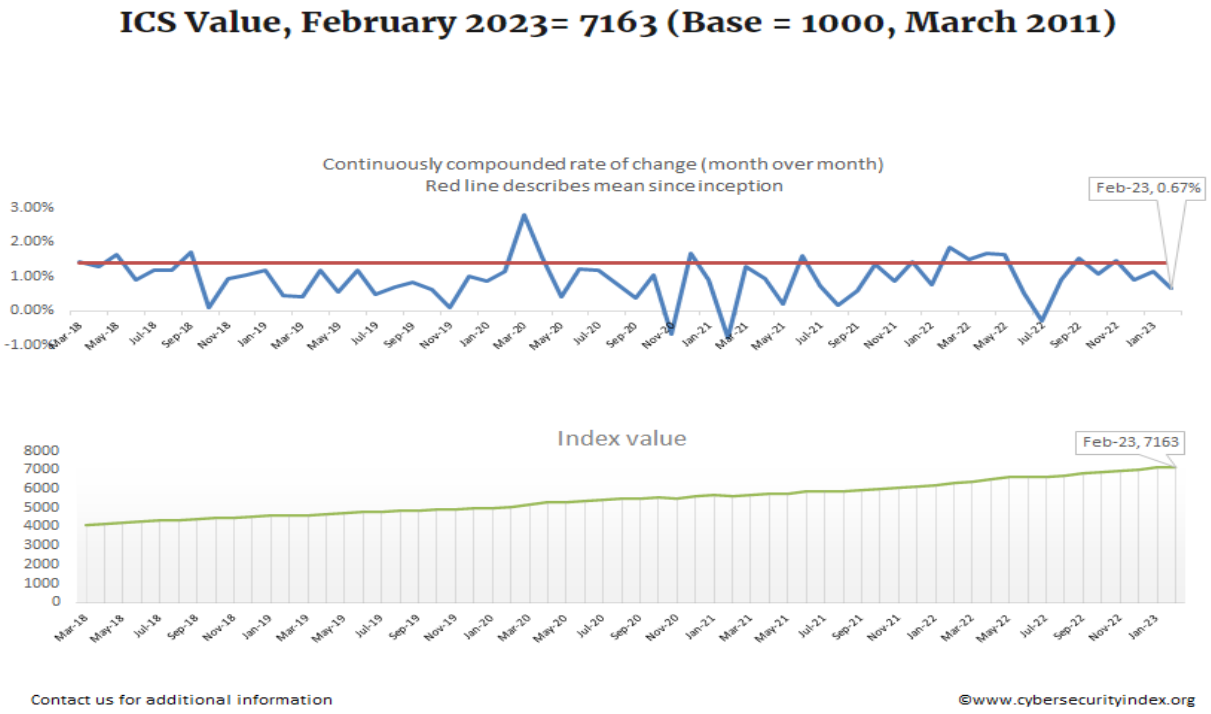
[28] Mateski, M., C. Trevino, C. Veitch, J. Michalski, J. Harris, S. Maruoka, and J. Frye. 2012. “Cyber Threat Metrics.” *Sandia National Laboratories*. https://fas.org/irp/eprint/metrics.pdf.

Globally, cyber threats are increasing and becoming more sophisticated. The most common types of attacks include:

- Phishing
- Ransomware
- Intellectual Property Theft
- Spyware/Malware
- Unpatched Software

The Index of Cyber Security **(Figure 3-8)** can be referenced to understand the status of cyber threats, which identifies the measure of perceived risk. Since 2015, this index has trended upward and appears to have doubled in this timeframe.

Figure 3-8: Index of Cyber Security



Civil Unrest

Civil unrest can arise at any time and place for a variety of reasons. There are, however, some places where such events are more likely to emerge, including local, state, and federal government centers, jails, police stations, major businesses, university campuses, and places of public assembly. Many of the locations listed in the Terrorism/Mass Casualty Incident description above would be locations for these types of incidents as well.

No definitive scale for measuring civil disturbance events exists, but several metrics may be used individually to determine a civil unrest event's impact. These measures include:

- Number of facilities affected
- Number of fatalities
- Monetary loss
- Interruptions to communications infrastructure
- Number of people protesting
- Impacts to certain socioeconomic groups[29] [30]

[29] Renn, O., et al. 2011. "Social Unrest." Organization for Economic Co-operation on Development. 14 January.
[30] Cal OES (California Office of Emergency Services). 2018. 2018 State of California Multi-Hazard Mitigation Plan. https://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/hazard-mitigation-planning/state-hazard-mitigation-plan

Past Events

Terrorism/Mass Casualty Incident

Laguna Beach has not experienced any known acts of terrorism or mass casualty incidents. The following are other acts of terrorism/mass casualty incident events that have occurred within Orange County, California, and the Country:

- **1970** - Bombing of the Stanford Research Institute facility, which caused approximately $500,000 in property damage. No injuries or deaths occurred during this incident.[31]
- **1970** - Bombing of a Bank of America Branch, which caused approximately $500,000 in property damage. No injuries or deaths occurred during this incident.[32]
- **April 1995** - Timothy McVeigh detonated a bomb outside the Alfred P. Murrah Federal Building in Oklahoma City, OK. The blast was so powerful that the Federal Building was destroyed, and more than 300 nearby buildings were damaged or destroyed. The bombing killed 168 people, including 19 children. Timothy McVeigh's motive for bombing the Federal Building was to inspire a revolution against the federal government.[33]
- **September 11, 2001** -Terrorists hijacked four commercial airliners. The hijackers flew two planes into the twin towers at the World Trade Center in New York City and one into the Pentagon in Arlington, VA. The fourth plane crashed in a field in rural Pennsylvania. The attacks on 9/11 killed 2,976 people and injured thousands more.[34]
- **April 15, 2013** - Two bombs detonated near the finish line of the Boston Marathon. The explosion killed 3 spectators and wounded more than 264 other people. Police captured 19-year-old Dzhokhar Tsarnaev in connection with the bombing; the second suspect, Tamerlan Tsarnaev, died following a shootout with law enforcement. Investigators concluded that the Tsarnaev brothers planned and carried out the attack independently and were not connected to any specific terrorist group.[35]
- **2014** - A teenager who had reportedly threatened terrorist action against the U.S. Open of Surfing event attendees was arrested.[36]
- **May 2015** - Two Anaheim-based men were arrested at a Transportation Security Administration checkpoint at the Los Angeles International Airport who had reportedly sworn allegiance to the Islamic State of Iraq and Syria (ISIS). One of these men, Muhanad Badawi, was a student at Fullerton College.[37]
- **October 2017** - Stephen Paddock opened fire on the Route 91 Harvest Festival concert from an elevated position at the Mandalay Bay Hotel in Las Vegas. The attack resulted in 58 people killed and 851 injured. Paddock shot and killed himself before responding officers reached him. The FBI Behavioral Analysis Unit determined no clear motivation for the attack. Although this attack did not occur in California, many California residents were affected, as more than half of the 58 people killed were from California.[38]
- **May 2022** – Payton S. Gendron opened fire with an illegally modified semi-automatic rifle at the Tops grocery store in Buffalo, New York. Ten people were killed, and three were wounded in the attack. Gendron pleaded guilty to terrorism and murder charges in the attack and was sentenced to life without the chance of parole. According to a document written by Gendron, the shooting was racially motivated, and he chose the location because it was in a particular area of the city that had the highest percentage of African Americans[39]

Cyber Threat

The City of Laguna Beach has not experienced cyber incidents directly. However, several jurisdictions in Southern California and across the country have. Several recent incidents local to the city include:

[31] Global Terrorism Database. 2020. "1970-10-18". https://www.start.umd.edu/gtd/search/IncidentSummary.aspx?gtdid=197010180001
[32] Global Terrorism Database. 2020. "1970-10-26". https://www.start.umd.edu/gtd/search/IncidentSummary.aspx?gtdid=197010260001
[33] Federal Bureau of Investigation. Famous Cases and Criminals. https://www.fbi.gov/history/famous-cases/oklahoma-city-bombing
[34] Federal Bureau of Investigation. Famous Cases and Criminals. https://www.fbi.gov/history/famous-cases/911-investigation
[35] History.com Editors. June 2019. Boston Marathon Bombing. https://www.history.com/topics/21st-century/boston-marathon-bombings
[36] Connelly, L., and S. Emery. 2014. "Teen Arrested for Terrorist Threats Toward US Open." Orange County Register. July 26.
[37] Winton, R. 2016. "Two O.C. Men Convicted of Conspiring to Fight with Islamic State." Los Angeles Times. June 21.
[38] Los Angeles Times Staff. "Las Vegas Shooting Victims: Portraits of the Fallen." October 2017. https://www.latimes.com/projects/la-na-las-vegas-shoot
[39] Morales, M., Levenson, E., and Sgueglia, K. "Buffalo Grocery Store Mass Shooter Pleads to Terrorism and Murder Charges in Racist Attack." CNN. November 2022. https://www.cnn.com/2022/11/28/us/buffalo-tops-grocery-shooting-payton-gendron-plea/index.html

- On December 24, 2019, the City of Seal Beach was the victim of a ransomware attack that affected City computer systems. The attack was targeted at the City's Information Technology service provider, which allowed the hackers to encrypt City computers with the malware, primarily impacting city email and voicemail functions.

- On December 4, 2019, the Cucamonga Valley Water District disclosed a data breach that occurred between August 26, 2019, and October 14, 2019. The breach occurred on a server used to accept one-time credit card payments from customers.

- On March 11, 2019, the Orange County Sanitation District was the victim of a phishing data breach. Over 1,000 employee records were accessed as part of the breach through the District deferred compensation plan.

In addition to these, recent, notable cybersecurity events in the US include the Colonial Pipeline incident, JBS (the world's largest meatpacker), and the Washington DC Metropolitan Police Department. These attacks have resulted in the shutdown or delay in critical services and functions that have increased the cost of goods/services, financial losses, and operational delays.

Civil Unrest

There have been no significant past events of civil unrest within the city.

Risk of Future Events

Terrorism/Mass Casualty Incident

Given that mass casualty incidents and acts of terrorism stem from a variety of factors: economics, societal pressures, mental health, global geopolitics, warfare, religion, etc.—it is impossible to predict when and where an incident could occur. It is anticipated that any future incidents would likely originate domestically and are less likely to attract the attention of international terrorist groups. Incidents of these types are more likely to be conducted by smaller organizations or individuals aligned with greater-known organizations, although the effects may be no less significant. Given the presence of this facility as well as a convention center, sports arena, large shopping center, numerous schools, and large employers within the city, the potential does exist for mass-casualty incidents/acts of terrorism.

Cyber Threat

Due to the integrated nature of technology into the everyday lives of Laguna Beach's residents, businesses, and government operations, it is possible that a cyber threat could emerge in the future. While no cyber threats are publicly known to have disrupted the City's normal operations in the past, the likelihood of a cyber threat affecting the residents, businesses, and/or governmental operations in the future is increasing.

Civil Unrest

While there have been no civil unrest events within the city, there is still a possibility that they could occur in the future. Given that several recent civil disturbance events have occurred in other jurisdictions near the city, it is safe to say that locations within the city may be areas where such events could emerge in the future.

Climate Change Considerations

Terrorism/Mass Casualty Incident

The link between mass casualty incidents/terrorism and climate change is not well understood. It has been suggested, however, that the impacts of a changing climate may exacerbate existing social, political, religious, and ethnic tensions. For example, longer, more intense droughts may restrict food supply or place limits on economic growth for cities, regions, or even whole countries. Nevertheless, the likelihood of climate change impacting mass casualty incidents/acts of terrorism in Laguna Beach is negligible since these changes are more likely to impact developments on the national or international level.

Cyber Threat

Climate change is not likely to impact cyber threats in the future within Laguna Beach.

Civil Unrest

Climate change is not likely to impact future civil unrest in Laguna Beach.

Physical Threat

Terrorism/Mass Casualty Incident

There is no way to predict which of Laguna Beach's facilities or assets may be impacted by an act of terrorism since the motivation behind the incident is often complex and not easily understood. Generally, these incidents occur at places of political, economic, or cultural importance. If the perpetrator's motives are to shut down city or regional government activity for a period, they may instead target pieces of infrastructure, like water systems, utility delivery systems, or transportation networks. The financial losses that may result from this type of incident would depend on the degree of destruction associated with the activity. If the incident involves the destruction of physical assets, the cost to the City or property owners in Laguna Beach could be significant.

Cyber Threat

Cyber threats would have a limited impact on physical assets. The extent of this impact would focus on City-owned computer and network infrastructure.

Civil Unrest

Like mass-casualty incidents, civil unrest threats to physical assets are hard to predict. Typically, these incidents involve protests, marches, or celebrations that can turn into destructive or violent incidents (i.e., riots), causing property damage. Impacts associated with these incidents would likely initiate at the site of origin, which usually occurs at places of political, economic, or cultural importance.

Social Threat

Terrorism/Mass Casualty Incident

Since mass casualty incidents/acts of terrorism could occur anywhere in Laguna Beach, all groups are potentially threatened by the impacts of these incidents; however, the extent of the threat would depend upon the type and magnitude of the event. For example, an active shooter situation may be isolated to a single location, whereas a larger-scale incident may affect multiple locations. Some locations are more likely to be targeted than others, including but not limited to medical facilities, government buildings, and financial institutions. Populations that frequently visit these areas may face a greater threat than the average person. Seniors, pregnant women, and persons with disabilities, for instance, are more likely to frequently visit the local hospitals than other subpopulations in the city. If an incident occurs at the hospital or within the community (overwhelming hospital resources), these groups are expected to face an increased impact from the incident.

An incident at a government building or financial institution may be more likely to threaten seniors or lower-income individuals relying on in-person transactions instead of online options. As such, their use of these in-person services may place them in harm's way. An incident at Laguna Beach City Hall or bank locations in the city can be expected to be more of a threat to these groups. Seniors and persons with limited income may be challenged if there is a need to shelter in place or evacuate during an incident requiring additional services, assistance, and/or medical treatment.

Cyber Threat

Cyber threats may have an impact on residents and businesses throughout the city. While most cyber threats focus on large entities like major corporations and/or government agencies, all residents could become victims of cyber threats. If services affected by cyber incidents become delayed or are impacted, populations that rely on those services may be negatively impacted if no alternatives exist.

Civil Unrest

Since civil unrest could occur anywhere in Laguna Beach, all groups are potentially threatened by the impacts of these incidents. While most residents affected by civil unrest would be able to recover from the incident, residents on fixed incomes or living below the poverty limit may have difficulty doing so if damage to their residence or property were to occur.

Other Threat

Cyber Threats

The greatest impact a cyber threat could present to the city itself would be a complete shutdown of city services and programs. Electricity, gas lines, and water could be shut off for extended periods if a cyber threat compromised the control systems. Additionally, control over streetlights, traffic lights, and railroad crossings could be lost. To the average citizen, personal information, identity, and financial records could be stolen. As society

becomes more and more technologically ingrained/dependent, the ever-evolving category of cyber threats will continue to change and grow in possible impact.

Changes in Population Patterns and Land Use and Development

The hazards identified under human-caused hazards will not affect population patterns or land use and development, as no connection can be drawn between these hazards and changes in population patterns or land use and development.

Landslide and Mudflow

Description

When a hillside or other slope becomes unstable, the soil and rocks that make up the slope slide toward the bottom. Landslides are often sudden, although some are very slow over a very long time. Loose and fractured materials are more likely to slide than compact materials or solid rock, and steep slopes are at greater risk than gentle rises. Areas that have been recently burned by wildfires are more susceptible to sliding because the fire destroys the plant cover that helps stabilize slopes.

Landslides are usually induced by either earthquakes or moisture. The shaking of an earthquake can decrease slope stability or in a more severe instance, can fracture the earth's material enough that it slides. Moisture-induced landslides can occur when the ground soaks up so much water that it becomes loose and unstable. This is often the result of intense or long-lasting rainfall but can also result from broken pipes or overwatering landscapes. In some cases, hillside erosion from rainfall can induce instability and cause landslides. If the slide is wet enough to become mud, the event is known as a mudslide or mudflow.

Regardless of the cause or specific form, a landslide can damage or destroy any structures built on the sliding material or in its path. Infrastructure built into the soil, such as water pipes or telecommunication lines, may be severed by landslides. This could potentially lead to infrastructure-induced flooding if water pipes are broken. In addition to property damage, landslides can crush or bury people, creating a risk of serious injury or death. The loose material deposited by a landslide can also block roads and waterways.

Location and Extent

The parts of Laguna Beach at risk of landslides are the areas at the bottom of canyons and along the canyon slopes. According to studies of landslide susceptibility in Orange County, the areas that face a high or very high risk of sliding under normal conditions include the slopes on either side of Laguna, Bluebird, and Aliso canyons; the area north of the Temple Hill neighborhood; and many of the coastal bluffs. Additional areas face a high risk of landslides in the event of an earthquake, including the hills above Irvine Cove, Boat Canyon, and the Skyline Drive neighborhood.

The severity of a landslide is often measured by the amount of material that slid (e.g., in cubic feet). There is no scale for measuring individual landslides. **Figure 3-9** depicts the areas of existing landslides and areas of landslide susceptibility in the event of an earthquake. This map does not depict areas at risk of moisture- induced landslides, which may realistically occur on any sufficiently steep and loose hill and may spread from the base of the slope into flatter areas of Laguna Beach.

Past Events

Multiple substantial landslides, primarily moisture-induced slides, have occurred in Laguna Beach's history. **Table 3-25** identifies past landslides in Laguna Beach.

Table 3-25: History of Landslides in Laguna Beach

Date	Description and Effect
10/2/1978	The most damaging landslide in Laguna Beach's history. Heavy rain in March of 1978 is believed to be the ultimate cause of the landslide. The landslide damaged or destroyed 50 homes in the Bluebird Canyon neighborhood. Ten days later after the initial slide, a small section at the top of the slope collapsed, destroying another home. The slide was approximately 3.5 acres in size, although geologists suspected that the slope on which the slide occurred was in fact debris from a larger and much older landslide. The slide caused over $20 million in damage ($93 million in 2023 dollars), and Laguna Beach was declared a state and federal disaster area as a result.
1980	A landslide destroyed 2 homes near the intersection of Del Mar Avenue and Baja Street.

1993	A landslide on Mystic Lane destroyed 3 homes and part of the street.
Spring 1995	A pair of landslides on Dunning Drive damaged homes and forced evacuations.
12/6/1997	Following intense rains, 2 beachside homes were destroyed by sliding bluffs, and another 20 homes were damaged.
2/23/1998	Following intense rains, a landslide damaged 2 homes in the Canyon Acres neighborhood. The following day a landslide damaged 14 homes and several businesses throughout Laguna Canyon, killing 1 person and injuring 9. Another landslide the next day damaged 2 homes, killed 1 person, and injured 10.
2000	A landslide destroyed a home on Cerritos Drive.
6/1/2005	The slopes above Bluebird Canyon, weakened by strong winter rains, slid in the early morning. The landslide injured 5 people (although not significantly), destroyed 17 houses, and damaged another 11, causing approximately $27 million in damages, or $33 million in 2023 dollars.
12/27/2019	Caltrans closed Laguna Canyon Road to clear debris from a cliff that was disturbed by a previous storm. Geotechnical crews assessed that a boulder broke through a heavy-duty chain-link fence and landed on a ledge near Milligan Drive.
8/11/2022	A water main break occurred between two water tanks at the Top of the World and West Ridge Trails. Twelve homes were evacuated as a precaution. The water main break also caused a mudslide as water traveled down a ravine onto Laguna Canyon Road, shutting down parts of El Toro Road and Canyon Acres Drive.

Source: 2018 City of Laguna Beach LHMP

Risk of Future Events

All expectations are that landslides will continue in Laguna Beach because the factors that cause landslides remain in the community. Given that earthquake-induced landslides have not occurred in Laguna Beach's recorded history, it is likely that such events will remain rare, although substantial earthquake events may cause future landslides. Moisture-induced landslides have been somewhat more frequent, usually as a consequence of intense storms or winters with heavy rainfall. All expectations are that most landslides in Laguna Beach will continue to be moisture-induced.

Climate Change Considerations

Climate change may increase the frequency and/or intensity of moisture-induced landslides. As discussed more extensively in the Extreme Weather section, atmospheric river storms are expected to become more intense as a result of climate change. This will likely cause more precipitation to be absorbed by the soil of slopes in Laguna Beach, which may help destabilize hillsides and cause an increase in the frequency of landslide events. It is also possible that the increase in precipitation could destabilize areas that were mostly stable under less intense storms, which could mean that landslides could become larger. There are other potential changes to precipitation patterns in Laguna Beach that may affect moisture-induced landslides, but additional research is necessary to clearly identify these changes.

Physical Threat

Landslides and mudflows may affect buildings on hillsides or directly above or below slopes. There are 61 critical facilities and facilities of concern in areas that face elevated landslide risks. **Table 3-26** shows the number of key facilities and facilities of concern in the landslide hazard zones as well as the potential loss resulting from damage to these structures from a landslide.

Figure 3-9: Landslide Hazard Areas

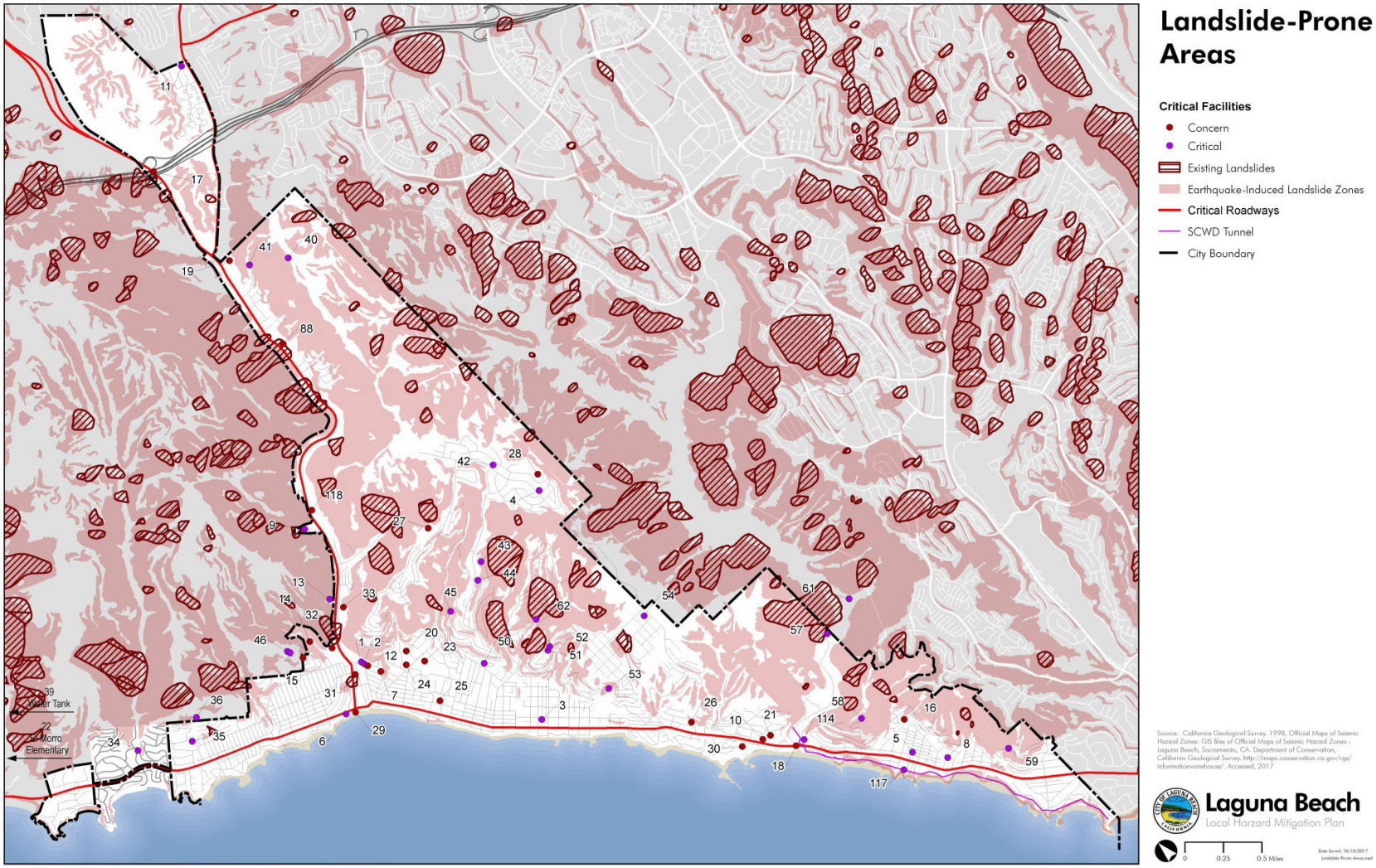


Table 3-26: Critical Facilities and Facilities of Concern (Landslide)			
Category	Number of Facilities		Potential Loss**
	Critical	Concern	
Community Services	1	4	$10,869,452
Education	0	5	$48,421,186
Government Facilities	4	0	$21,120,965
Public Assembly and Recreation	0	2	$24,000,000
Infrastructure and Utilities	40	5	$29,581,014
Total	45	16	$133,992,617

*Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.
** Based on the City of Laguna Beach insured replacement values

Social Threat

According to the NRI, the social vulnerability for landslide ranges from very low to relatively low. Large sections of Laguna Beach are hilly, so a substantial portion of the community's population lives in landslide-prone areas. An estimated 7,613 people live in a landslide hazard zone, or approximately 33 percent of all residents. The social vulnerability in the landslide-prone areas is not substantially different from the social vulnerability in the wider community. Low-income persons may not be able to make structural retrofits to their homes that make them more resilient to landslide events. Persons with disabilities, senior citizens, and others who may have mobility challenges may not be able to rapidly get out of their homes if they live in the path of slide, increasing the risk of injury or death. **Table 3-27** shows the social vulnerability of residents in the landslide hazard zone.

Table 3-27: Landslide Threatened Populations			
Threatened Population Metric	Landslide Hazard Zone	City of Laguna Beach (2017 ACS Data)	City of Laguna Beach (2021 ACS Data)
Population	7,613	23,095	23,121
Area Median Income	$126,143	$112,609	$135,976
Households	3,363	11,308	10,536
Percentage of households under the poverty limit	7.7%	7.6%	5.7%
Percentage of people who are senior citizens	25.0%	23.5%	27%

Source: Laguna Beach 2018 LHMP; US Census Bureau, 2020 Decennial Census, 2021 ACS 5-Year Estimates
Note: Although the city's population change is negligible, based on updated census data calculations, the total number of households has significantly decreased. The Census now only includes primary residences as households.

Other Threats

Landslides may block roadways for weeks or even months. Such an event in Laguna Beach could cause long-term disruptions to the roadway network, hindering emergency response services. A landslide that blocks Laguna Canyon Road could cause additional complications because Pacific Coast Highway would then be the only roadway in and out of Laguna Beach, increasing vulnerability to the community. Underground utility lines built in slide-prone areas, or above-ground lines built on or above them, can be damaged in a landslide, causing service outages. Landslides could affect sensitive ecological areas around the community, causing localized harm to the region's ecosystem, although widespread disruptions are unlikely.

Changes in Population Patterns and Land Use and Development

The only changes in population patterns and land use and development would be in reaction to a significant landslide event causing areas to be uninhabitable or requiring significant mitigation. While this has happened in the past, the City is taking proactive steps to monitor and mitigate these situations. As a standard practice, new developments are required to mitigate where high landslide potential exists.

Wildfire

Description

Wildfires are fires that burn in largely undeveloped and natural areas and are a regular feature of ecosystems throughout California. These fires help to clear brush and debris from natural areas and are necessary for the

health of many ecosystems and various species' life cycles. However, since the early twentieth century, the common practice was to suppress naturally occurring fires in wildland areas, allowing dry plant matter and other fuels to build up.

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

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

Location and Extent

Wildfires are not measured on a specific scale and are usually classified by size (e.g., acres burned) or impact (buildings destroyed or damaged, injuries or deaths, cost of damage, etc.). The California Department of Forestry and Fire Protection (Cal Fire) classified the wildfire hazard on a three-tier scale of fire hazard severity zones (FHSZs): very high, high, and moderate. These zone classifications do not correspond to a specific risk or intensity of the fire but are qualitative terms that consider many factors. Fire-prone areas are also classified by the agency responsible for fire protection. Federal Responsibility Area (FRA) falls to federal agencies such as the US Forest Service, the Bureau of Land Management, and the National Park Service. State Responsibilities Area (SRA), which includes unincorporated land within counties with statewide watershed value, falls to the Cal Fire. Local Responsibility Area (LRA), which includes portions of incorporated cities with identified wildfire hazard zones, falls to local governments.

The topography of Laguna Beach is extremely conducive to wildfires. The community is bordered by natural, undeveloped hillsides, and the developed areas are very narrow, so much of the community is very close to these hillsides. All the canyon and hillside areas in Laguna Beach, as well as some parts of the coastal terraces, are classified Very High Fire Hazard Severity Zones (VHFHSZ). In some places, the VHFHSZ extends south of Pacific Coast Highway and even to the beach. The hillsides that border the community are also classified VHFHSZs. All of Laguna Beach is an LRA, as are the hillsides that are part of neighboring incorporated communities, and unincorporated areas that border Laguna Beach are SRAs. **Figure 3-10** depicts the VHFHSZs mapped throughout Laguna Beach.

Past Events

Several other wildfires have burned in Orange County and in the wider region, although these events have not caused damage in Laguna Beach. There have also been occasional brush fires in the area, many of which were caused by damaged electrical lines or transformers. There were such fires in Laguna Canyon in 2007, 2011, and 2015, as well as a 2012 fire near Laguna Terrace.

Table 3-28 describes past wildfire events affecting Laguna Beach.

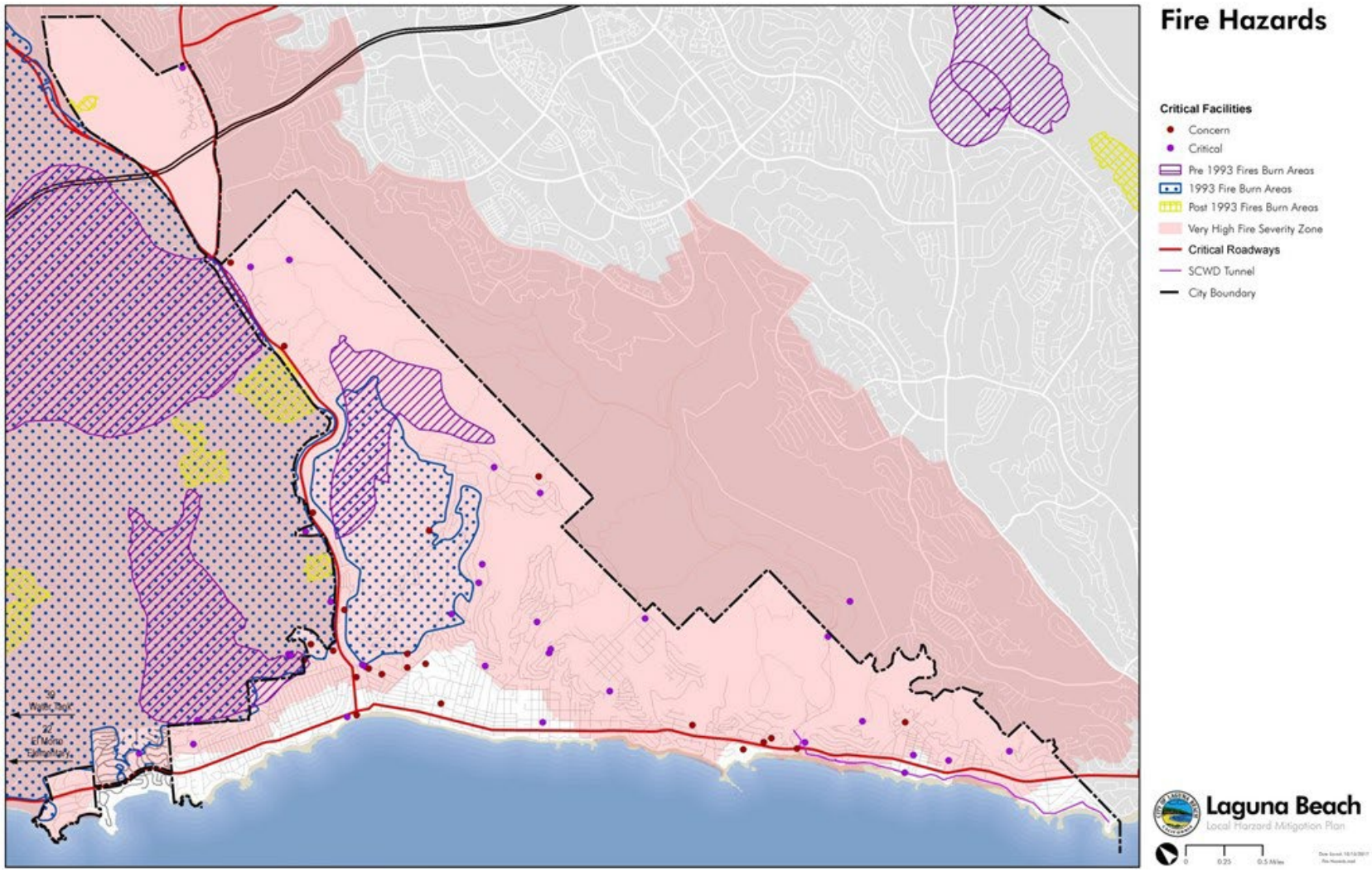
Risk of Future Events

The past history of wildfires in Laguna Beach and the presence of VHFHSZs in and around the community mean that such events are very likely in the future. The risk is expected to remain highest in the hills, canyons, and sections of the coastal terraces near the hillsides, although all of Laguna Beach faces a threat from wildfires.

Table 3-28: Historic Wildfires in Laguna Beach			
Year	Name	Acres Burned	Description
10/27/1993	Laguna Canyon Fire	14,440	The biggest wildfire in Laguna Beach's history was the Laguna Canyon Fire of 1993, which began on October 27. The fire began by arson and quickly moved toward the community, assisted by extremely high winds (approximately 92 mph) and hot, dry temperatures. The fire burned homes in the Canyon Acres, Mystic Hills, and Emerald Bay neighborhoods as well as the El Morro neighborhood northwest of the city. Although damage was mostly limited to Laguna Beach, the fire spread as far as Newport Coast Drive in Irvine and almost as far north as Interstate 405. The fire was contained by October 28 and declared under control three days later. Although there were no fatalities, the Laguna Canyon Fire injured 37 people, damaged or destroyed 441 structures, burned approximately 14,440 acres, and caused approximately $530 million in damage (over $12 billion in 2023 dollars). It ranks among the 20 most damaging wildfires in California's history and was declared a state and federal disaster.[40]
6/2/2018	Aliso Fire included in DR 4344	175	The Aliso Fire was first reported in Wood Canyon behind Soka University. Approximately 1,500 residents in Laguna Beach's Top of the World and Old Top of the World neighborhoods were forced to evacuate. The OCFA determined that the fire was accidentally started by a juvenile. The fire consumed approximately 175 acres.[41]
2/10/2022	Emerald Fire*	154	The Emerald Fire burned 154 acres near the Emerald Bay neighborhood and forced the evacuation of thousands of residents. Based on an investigation by the OCFA, it was determined that the cause of the fire was overhead powerlines. According to OCFA, the Emerald Fire's most probable heat source was sparks from electrical arcing. High wind conditions and an unspecified electrical event among the three high voltage power lines caused sparks to be blown into a receptive fuel bed of vegetation.[42]
5/11/2022	Coastal Fire included in FM 5439	200	The Coastal Fire started as a brush fire between Laguna Niguel and Laguna Beach. The fire consumed 200 acres, and 900 Laguna Niguel residents were under evacuation orders. Approximately 20 homes were burned in the fire.[43]

[40] 2018 Laguna Beach LHMP
[41] "Brush Fire Forces Thousands to Evacuate Parts of Southern California." CBS News, June 3, 20118. https://www.cbsnews.com/news/aliso-fire-evacuations-southern-california-orange-county-laguna-beach-wood-canyon-latest-updates-2018-06-02/
[42]"Laguna Beach, CA." City of Laguna Beach News. Accessed August 30, 2023. https://www.lagunabeachcity.net/Home/Components/News/News/543/.
[43] Dakss, Brian, Sophie Reardon, and Jordan Freiman. "Wildfire near Laguna Beach Destroys 20 Homes and Forces 900 Residents to Evacuate." CBS News, May 13, 2022. https://www.cbsnews.com/news/laguna-beach-fire-nigel-homes-destroyed/.

Figure 3-10: Very High Fire Hazard Severity Zones



Climate Change Considerations

Climate change is expected to cause an increase in temperatures as well as more frequent and intense drought conditions. This will likely increase the amount of dry plant matter available for fuel, increasing the risk of wildfire statewide. In the hills of Orange County, which are already highly prone to wildfires, climate change is not expected to substantially increase the number of acres burned annually.

However, increases in fuel supplies could cause wildfires to move faster or spread into more-developed areas, which could increase the threat to Laguna Beach.

Physical Threat

More than half of the critical facilities and facilities of concern in Laguna Beach are in the wildfire hazard zone, including eight schools, two fire stations, City Hall, Mission Hospital, and the Montage Laguna Beach (a hotel and major employment center). Several water tanks and wastewater lift stations are also in the wildfire hazard zone. Although these facilities may be constructed of metal, concrete, and other materials that are unlikely to burn, the high temperatures of a wildfire can still cause extensive damage to these structures and the machinery they contain**. Table 3-29** shows the number of critical facilities and facilities of concern by type in the wildfire hazard zone.

Table 3-29: Critical Facilities and Facilities of Concern (Wildfire)

Category	Number of Facilities		Potential Loss**
	Critical	Concern	
Community Services	1	4	$10,869,452
Education	0	8	$49,783,393
Government Facilities	4	1	$26,541,401
Public Assembly and Recreation	0	2	$24,000,000
Infrastructure and Utilities	38	7	$64,081,014
Total	43	22	$175,275,260

*Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.
** Based on the City of Laguna Beach insured replacement values

Social Threat

According to the NRI, the social vulnerability for wildfire ranges from very low to relatively low. Outside of the property owners directly impacted by a wildfire event, wildfires can also impact seniors and persons with disabilities. These groups may have limited mobility, be immuno-compromised, and/or not receive notifications regarding current conditions and evacuation requirements. For example, a senior who lives alone may not be aware that a wildfire is burning close to their residence, and they have been ordered to evacuate if those notifications were sent in a manner that does not reach them. Persons with disabilities may require special mobility devices or caregiver assistance to go outside, which may not arrive as quickly as needed. Other groups with increased threat levels include people with lower incomes, renters, and the homeless. These groups may not have enough financial resources to rebuild or search for new homes after a fire. **Table 3-30** identifies the populations threatened by wildfire. The wildfire hazard zone covers a large section of Laguna Beach—70 percent of the residents live in this zone. The demographics of the wildfire hazard zone closely match that of Laguna Beach at large, so there is no elevated social vulnerability risk. People without access to transportation are often at higher risk during a wildfire event because wildfires can move at very rapid speeds, sometimes requiring immediate evacuation. People who are unable to drive or do not have a vehicle have little time to make other arrangements.

The health effects associated with wildfires can also be very detrimental to a community. As wildfires in California become larger and more intense, there is a greater potential for smoke production. Chronic exposure to particulates generated during a wildfire can cause health outcomes ranging from eye and respiratory tract irritation to more serious disorders, including reduced lung function, bronchitis, asthma and heart failure exacerbation, and premature death. Children, pregnant women, and the elderly are especially vulnerable to smoke exposure. Emissions from wildfires are known to cause increased visits to hospitals and clinics by those exposed to smoke.

A study of the 2003 wildfires in southern California concluded that wildfire-related PM(2.5) led to increased respiratory hospital admissions, especially asthma, suggesting that better preventive measures are required to reduce morbidity among vulnerable populations. With the expectation that wildfire incidents will increase in size and severity in the future, it will be important to understand how the City can assist residents with poor air quality during wildfires occurring throughout the region.

Table 3-30: Wildfire Threatened Populations

Threatened Population Metric	Wildfire Hazard Zone	City of Laguna Beach (2017 ACS Data)	City of Laguna Beach (2021 ACS Data)
Population	16,177	23,095	23,121
Area Median Income	$121,262	$112,609	$135,976
Households	7,507	11,308	10,536
Percentage of households under the poverty limit	7.3%	7.6%	5.7%
Percentage of people who are senior citizens	26.0%	23.5%	27%

Source: Laguna Beach 2018 LHMP; US Census Bureau, 2020 Decennial Census, 2021 ACS 5-Year Estimates
Note: Although the city's population change is negligible, based on updated census data calculations, the total number of households has significantly decreased. The Census now only includes primary residences as households.

Other Threats

Wildfire events can destroy power lines and force the shut-off of natural gas supplies, disrupting energy services in the community. Roadways can be blocked by flames or closed to provide access for emergency responders, making it more difficult to get around. Critically, Pacific Coast Highway at both ends of Laguna Beach and Laguna Canyon Road are all in the wildfire hazard zone. In an extreme scenario, one or more wildfires could block all roads in and out of the community. Although the ecosystems in southern California are largely adapted to wildfires, a major event could cause extensive damage to the surrounding habitat, leading to a long recovery period. Significant wildfire damage to the community may cause a long-term decrease in business activity and tourism visits, affecting the local economy.

Ecosystems around Laguna Beach, such as the Laguna Coast Wilderness Park, are at risk of damage from wildfires. Image from Tristan Schmurr.

Changes in Population Patterns and Land Use and Development

Over 90% of the city is located in the very high fire hazard severity zone. A majority of the city is built out and new developments will incorporate firesafe designs and adhere to changes in building requirements. No significant change in population patterns is anticipated.

Hazardous Materials Release

Description

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

The threat that hazardous materials pose to human health depends on the type of material, frequency, and duration of exposure, and whether chemicals are inhaled, penetrate the skin, or are ingested, among other factors. Exposure to hazardous materials can result in short- or long-term effects, including major damage to organs and systems in the body or death. Hazardous waste is any material with properties that make it dangerous or potentially harmful to human health or the environment. Hazardous materials can also cause health risks if they contaminate soil, groundwater, and air, potentially posing a threat long after the initial release.

Location and Extent

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

In severe situations, Laguna Beach may also be at risk of hazardous materials release events regionally. With the right prevailing wind conditions, airborne toxic material could spread to and impact various parts of the air basin, including the Laguna Beach area.

Past Events

Laguna Beach has experienced an average of 17 hazardous materials spills annually (2010-2023), reported to the Cal OES Spill Release Reporting database. Most of these incidents involve sewage and petroleum products. **Table 3-31** identifies the yearly releases reported to Cal OES during this period.

Table 3-31: Laguna Beach Spill Release Reporting

Year	Reported Releases
2010	13
2011	26
2012	16
2013	23
2014	22
2015	23
2016	18
2017	21
2018	8
2019	18
2020	18
2021	9
2022	17
2023	5
Annual Avg	16.93

Source: https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting

Risk of Future Events

Most release events within Laguna Beach have occurred due to human error, malfunctioning equipment, or deliberate acts. Given this, future events within the city are anticipated to include incidents like the past occurrences identified. Based on the historical average data provided by Cal OES in **Table 3-31**, the City can expect approximately one to two reported spills per month.

Climate Change Considerations

Climate-related natural hazard events, such as an intense flood, could cause hazardous material releases. These releases could occur due to traffic accidents associated with inclement weather, flooded roadway conditions, or leakage from storage containers due to intense weather events. Climate-related hazards could also exacerbate the effects and impacts of such events. For example, heavier rains could lead to more runoff from contaminated sites. Extreme heat could affect the storage of hazardous materials and is also a concern for the combustibility of these materials. These issues should be monitored during the 5-year implementation period of this plan.

Physical Threat

Hazardous materials can cause damage to physical assets in Laguna Beach if they are released into the environment. Corrosive hazardous materials can damage the exteriors of buildings or structures. Flammable hazardous materials can be ignited and cause damage to nearby structures. Generally, sites closer to the origin of the release of the hazardous materials are more at risk than those further away.

Social Threat

The threat of a hazardous materials release event affects those closest to a source of hazardous materials, including industrial sites, gas stations, gas transmission lines, or sewer mains. Laguna Beach residents living next to major transportation infrastructure such as highways or major roadways also face a greater risk of being affected by a hazardous materials release if vehicles transporting these materials accidentally release their contents into the environment. Groups such as the elderly, low-income, and renters face a greater risk of exposure since they may not have the financial resources necessary to retrofit their homes against infiltration by hazardous materials or relocate to a home farther from the potential sources of hazardous materials.

Other Threats

Hazardous materials release could threaten the city and regional transportation networks. Portions of the local road or rail networks may be closed to prevent people from entering areas contaminated with hazardous materials to allow remediation and cleanup activities to occur. If a highly corrosive hazardous material is released, it could potentially cause significant damage to the exteriors of homes or businesses in the area or require evacuation. The City may experience additional personnel-related costs to coordinate the evacuation of a large area.

Changes in Population Patterns and Land Use and Development

Hazardous materials releases are not expected to cause a change in population patterns or land use and development.

Chapter 4 – Hazard Mitigation Strategy

Strategy Development Process

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

Use of Hazard and Threat Assessment

The HMPC relied in part on the hazard profiles and threat assessments in this Plan, as well as prior progress from the previous plan implementation to develop new or modified actions in the mitigation strategy. A comprehensive set of mitigation actions that respond to the relevant hazard situations and protect Laguna Beach residents, businesses, and community assets were prepared or refined from the previous process. The HMPC ensured that the mitigation actions would help reduce damage from the most frequent types of hazard events, the most significant that may reasonably occur, and those with the greatest potential to harm the community. The HMPC also drafted mitigation actions that will help protect the community's most vulnerable members and local assets.

Capabilities Assessment

As part of the effort to draft mitigation actions, the City completed an updated capabilities assessment, which included a review of existing policies, personnel, and technical resources that can support hazard mitigation activities in Laguna Beach. The hazard mitigation actions build off the existing success of these resources and leverage their capabilities to support improved resiliency in the community. The capabilities assessment looked at the following types of resources:

- **Personnel resources:** City employees and volunteers, and employees and volunteers at other agencies
- **Plan resource:** Advisory or enforceable plans adopted by the City or other agencies.
- **Policy resource:** Policies adopted and implemented by the City or other agencies
- **Technical resource:** Data and tools available to the City
- **Financial resource:** Funding mechanisms available to the City that support mitigation activities

Capabilities Improvement/Expansion

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

1. Actively identifying, adopting, and enforcing the most current set of development codes and standards available. Strongly encouraging new development to be constructed to higher standards than currently required increases community resilience.
2. Engaging parts of the community that may not be actively involved in mitigation efforts.
3. Expanding the number and types of organizations involved in mitigation planning and implementation increases efficiency and bandwidth.
4. Fostering new relationships to bring underrepresented populations and partners to the hazard mitigation planning process.

5. During the annual LHMP review, the HMPC should look for opportunities to fund and expand/enhance the effectiveness of current mitigation actions.
6. During annual budgeting processes, the City should identify new funding sources (bonds, grants, assessment districts, etc.) that can be used to support existing capabilities enhancements.

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

Table 4-1A: Local Legal and Regulatory Capabilities			
Name	**Version/ Date**	**Hazards Addressed**	**Description (Effect on Hazard Mitigation)**
CITY			
2021 Laguna Beach General Plan Safety Element	2021	All	The 2021 General Plan Safety Element includes the following components: • Provides background on the history of hazards and the likelihood of future changes to these hazards. • Provides policies that increase resilience of residents, businesses, workers, and visitors. • Provides policies to reduce the level of property loss due to a potential disaster. • Provides a framework for emergency management activities within the city. Details of the Safety Element including a discussion of process to reduce the loss of life, injury, private property damage, infrastructure damage, economic losses and social dislocation can be found at: https://www.lagunabeachcity.net/home/showpublisheddocument/10276/637762035102970000 Expansion and Improvement: The Safety Element incorporates the LHMP by reference and this update incorporates updated goals and policies that improve City capabilities. To ensure AB 2140 compliance, the City will adopt the updated HMP as part of the General Plan Safety Element.
2022 General Plan Land Use Element	2022	All	The Land Use Element functions as a guide to the ultimate pattern of development for the city. The original update for the element was completed in 2012, however minor updates occurred in 2022 to assist with the update and future implementation of the Housing Element. The Land Use Element: • Designates the distribution, location, and balance of land uses. • Describes the desired build-out of Laguna Beach • Describes building intensity standards for each land use. • Communicates population density. • Ensures compatibility between land uses. The entire Land Use Element may be found at the following link: https://www.lagunabeachcity.net/home/showpublisheddocument/8146/638001338428230000

			Expansion and Improvement: The HMP will be informed by the goals and policies within the General Plan Land Use Element. Key goals that help reinforce hazard mitigation efforts include: • Goal 1 – Create a community that is sustainable, resilient, and regenerative. • Goal 7 – Protect, preserve, and enhance the community's natural resources. • Goal 9 – Provide comprehensive public services and infrastructure. • Goal 10 – Ensure that proposals for new development, subdivisions, and major remodels are sufficiently evaluated to protect public health and safety and natural resources. The policies and actions supporting these goals will ensure better alignment of the Land Use Element and LHMP which will ensure potential development in hazard areas is minimized and risks are managed more effectively.
California Standards Building Code	2022	Seismic, Fire, Flood, Wind	The California Building Standards Code is a compilation of three types of building standards from three different origins: • Building standards that have been adopted by state agencies without change from building standards contained in national model codes; • Building standards that have been adopted and adapted from national model codes to address California's ever-changing conditions; and • Building standards, authorized by the California legislature, that constitute amendments not covered by national model codes, that have been created and adopted to address California concerns. Expansion and Improvement: Adherence to building codes including local code and regulates growth and controls land use patterns. Addressing known hazards, as codes are updated, results in lowered risk and potentially less losses.
Capital Improvement Program	2023	All	The Capital Improvement Program (CIP) is the City's plan for addressing major public facility improvements. The plan considers the repair, replacement or construction of new portions of the City's physical infrastructure system, such as streets, buildings, parks, streetlights, and storm drains. Expansion and Improvement: Integration of this Plan into the CIP can assist in mitigation efforts by identifying new funding sources for future improvements. As new grant opportunities become available, the CIP may already have projects consistent with the LHMP (Currently being developed), that can easily be used for grant submittals once the LHMP is completed and adopted. Leveraging these two plans can help secure needed funds to reduce vulnerabilities throughout the City.
City of Laguna Beach Building Code	2023	Seismic, Fire, Flood, Wind	The Laguna Beach Building Code and associated standards (Residential Code, Mechanical Code, Electrical Code, etc.) are a set of regulations that govern how new buildings are constructed and existing buildings are modified. These standards are published by the state and are adopted by local communities, sometimes with amendments to make the codes more locally applicable. Mitigation actions to construct buildings to a safer standard, allowing them to better resist damage during a hazard event, may be made part of future building code updates. The full code can be found at: https://library.qcode.us/lib/laguna_beach_ca/pub/municipal_code

			Expansion and Improvement: Adherence to building codes including local codes regulates growth and controls land-use patterns. Addressing known hazards, as codes are updated, reduces risk, which can lead to fewer losses of life and property.
City Emergency Operations Plan	2019	All	Explains how the City will respond to a major emergency or disaster and coordinate between the Emergency Operations Center (EOC) and field level Incident Commanders; includes the hazards with a description of each; the concept of operations during a major emergency or disaster; the role of the EOC, and the coordination that occurs between the EOC and City's departments and other local, state, and federal governments in times of disaster. Expansion and Improvement: The hazards section of the Emergency Operations Plan (EOP) is informed by the HMP as the two are closely correlated.
Evacuation Time Estimate Study	2021	All	The Evacuation Time Estimate/Wildfire Egress Study was born out of the Wildfire Mitigation and Fire Safety Report to better understand the evacuation times, impaired access concerns, and overall recommended actions to further inform the City's emergency planning and decision making. As part of the Study, roadway and demographics data was gathered, as well as the location of access impaired neighborhoods. Using this data and information, the analysis looked at travel patterns, car ownership, and household size specific to Laguna Beach. The results of the Study were presented to City Council in 2021 and serves as a planning resource document to guide emergency planning moving forward. Expansion and Improvement: This study was developed based on the prior hazard mitigation planning process. Based on the analysis and recommendations from the study, future implementation is anticipated to rely on hazard mitigation grant funding opportunities.
Laguna Beach Fire Dept, Landscape/ Fuel Modification Standards and Maintenance Program	2019	Wildfire	All new construction and major remodels (as defined by Municipal Zoning Code) projects that are within the FM Zone (as designated by the City) are required to comply with the 2019 Laguna Beach Fire Department Landscape/Fuel Modification Standards and Maintenance Program (L/FMSMP). The document is a guideline on firewise planting to provide protection for occupants and the structure from an approaching wildfire. Expansion and Improvement: This capability was added to the City's mitigation-related actions regarding wildfire since the last LHMP update. Through the implementation of this program, the City anticipates reducing overall fire risk within the developed portions of the community.
Water Efficient Landscape Ordinance	2016	Climate Change, Drought	The Laguna Beach Water Efficient Landscape Ordinance establishes water efficiency standards for new or rehabilitated landscapes in the community. Mitigation measures that relate to outdoor water use may be integrated into the Water Efficient Landscape Ordinance and implemented through enforcement activities. Expansion and Improvement: Alignment between the Water Efficient Landscape Ordinance and HMP ensure the City is addressing water use and changes in water demands resulting from climate change and drought. Future updates should consider landscape regulations that also contribute to fire risk reduction. Enhancement and expansion of water demand reduction regulations should be considered for inclusion as mitigation activities in the HMP.

Wildfire Mitigation and Fire Safety Report	2019	Wildfire	The report is the product of six months of intense study and analysis which has led to two conclusions: (1) it is not possible to reduce the risk of wildfire in the City to the point of insignificance, and (2) there are many tangible steps that we can take to make our community more resistant to wildfire and better able to respond in case disaster strikes and we need to alert and evacuate the City. The report includes 47 possible actions to be taken to mitigate the risk of a wildfire occurring in the City and to minimize the impact should one occur. Expansion and Improvement: Review of this report and inclusion of new (modification of existing) mitigation actions and strategies within this update ensure future implementation of the recommended actions can occur.
Zoning Code	2023	Wildfire, Flood, Coastal Erosion, Sea Level Rise, Tsunami	The Laguna Beach 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. Mitigation actions that relate to the siting, construction, and operation of new developments in Laguna Beach may be implemented through the Zoning Code to ensure these locations address risks identified in the plan. Expansion and Improvement: Mitigation actions related to the siting, construction, and operation of new developments in Laguna Beach may be implemented through the Zoning Code to ensure these locations address risks identified in the plan.
COUNTY			
County-wide Community Wildfire Protection Plan (CWPP)	2017	Wildfire	The CWPP provides a positive, solutions-oriented approach to addressing wildfire prevention and mitigation and identifies mutual concerns of various jurisdictions within the CWPP area. It also establishes pre-fire management strategies; fire management plans, programs and land use policies, and proposed projects and action plans that focus on ignition prevention, fuel management and community education and outreach. The purpose of the CWPP is to provide stakeholders and those living within the CWPP boundaries with an overview of wildland fire risks, hazards and resources within the area, recommendations for possible actions to reduce wildfire impacts, and an action plan to mitigate and respond to fire. Expansion and Improvement: As the CWPP is updated, the City can provide additional details on current mitigation efforts and offer potential funding opportunities to collaborate with other jurisdictions as part of regional risk reduction activities (Fuel breaks, regional capabilities enhancements).
Orange County General Plan		All	The Orange County General Plan is the long-term blueprint for growth and development in the unincorporated areas of Orange County, including Emerald Bay and the hills surrounding Laguna Beach. Mitigation actions that require coordination with the county may be supported by including these actions in the Orange County General Plan. Expansion and Improvement: The updated LHMP anticipates that the area outside of the City (under the purview of the County) may pose a threat to properties within the City. As part of the LHMP update process, the City looks to identify potential opportunities to support risk reduction activities within these areas that assist in keeping City residents and businesses safer as well.

Orange County Hazard Mitigation Plan	2021	All	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 Laguna Beach that require coordination with the county may be integrated into the County's Hazard Mitigation Plan. Similar mitigation actions in both the county's and Laguna Beach's hazard mitigation plans can lead to a more regionally unified hazard mitigation strategy, which may improve effectiveness. Expansion and Improvement: Mitigation actions for Laguna Beach that require coordination with the county may be integrated into the County's Hazard Mitigation Plan. Similar mitigation actions in both the county's and Laguna Beach's hazard mitigation plans can lead to a more regionally unified hazard mitigation strategy, improving effectiveness.
REGIONAL, STATE, AND FEDERAL AGENCIES			
California State Hazard Mitigation Plan	2018	All	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 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 Committee can use the State Hazard Mitigation Plan as a source of information to refine the hazard profiles and vulnerability assessments in future Laguna Beach LHMPs. Expansion and Improvement: The Committee can use the updated State Hazard Mitigation Plan as a source of information to refine the hazard profiles and vulnerability assessments in future Laguna Beach LHMPs.

Table 4-1B: Administrative and Technical Capabilities

Lead Organization	Hazards Addressed	Relation to Hazard Mitigation
CITY		
Community Development Department	All	The Laguna Beach Community Development Department is responsible for approving building permits, ensuring that buildings and private property comply with appropriate standards, and conducting short- term and long-term planning activities in the community. As part of these duties, the department enforces the Laguna Beach Building Code and all land use regulations. Mitigation actions related to the construction of new structures or retrofits or improvements to existing structures may be implemented through future plan processing by Community Development Department staff. Expansion and Improvement: Provide opportunities for continued education to Community Development staff to maintain state of the art knowledge for new code and regulatory requirements.

Table 4-1B: Administrative and Technical Capabilities		
Lead Organization	**Hazards Addressed**	**Relation to Hazard Mitigation**
Emergency Management Division	All	The Emergency Management Division operates within the Fire Department. This office develops, coordinates, and manages programs that prevent, prepare for, respond to, recover from, and mitigate natural and human-caused disasters and emergencies. Expansion and Improvement: Since the last LHMP, this office has been moved from the Police Department to the Fire Department. The move is intended to better align resources, increase coordination and collaboration with other City departments, especially during annual budgeting and mitigation grant funding opportunities. With the City's acquisition of St. Catherine's School, now the Laguna Beach Community and Recreation Center, a dedicated full-time Emergency Operations Center (EOC) will be established by 2024.
Finance & Technology Department	All	The Laguna Beach Finance & Technology Department is responsible for preparing the City's annual budget, as well as other financial reports, and handles the receipt and distribution of City funds. The Department is also responsible for all IT-related functions for the City. The Finance & Technology Department may not directly implement mitigation actions but can support successful implementation by incorporating mitigation actions into the City budget and administration of grant support. Expansion and Improvement: Financial management and strategic planning functions (and personnel) within the City can assist with key mitigation activities associated with tracking hazard events and disaster costs, identifying grant funding opportunities, grant reporting and administration, and establishing financial risk calculations that can help assist with budgeting of operations, maintenance, and capital improvements.
Fire Department	All	The Laguna Beach Fire Department provides fire protection and firefighting services in Laguna Beach. The department's responsibilities include taking preparatory steps to prevent fires or limit their destruction. Mitigation actions related to reducing the likelihood of fires or minimizing injury and damage from fires may be implemented through fire department staff. Expansion and Improvement: The Fire Department is the division with the most direct connection to mitigation activities since they develop and enforce local fire, life safety, property, and environmental protection standards; enforce State adopted fire codes; review construction plans; conduct inspections; investigate citizen complaints; provide training; and conduct community education and preparedness activities. Their primary focus embraces community risk reduction, relying on fire prevention measures, which are incorporated into new and existing developments.

Table 4-1B: Administrative and Technical Capabilities		
Lead Organization	**Hazards Addressed**	**Relation to Hazard Mitigation**
Floodplain Administrator	Flood	The duties and responsibilities of the Floodplain Administrator shall include, but not be limited to: • Permit review • Flood hazard reduction • NFIP program administration • Construction inspections • Expansion and Improvement: The Floodplain Administrator supports compliance with NFIP requirements, advocates for appropriate development in areas prone to flood hazards and provides technical expertise on effective flood mitigation activities that can support City-wide mitigation activities.
Human Resources and Risk Management Department	All	The Laguna Beach Human Resources and Risk Management Department, part of the City's Administrative Services Department, is responsible for recruiting and training City staff. Expansion and Improvement: Mitigation actions that relate to staff training may be implemented through the Human Resources and Risk Management Department as part of staff onboarding or annual trainings conducted by the City.
Marine Safety Department	Tsunami, Sea Level Rise, Coastal Erosion, Flood, Landslide/ Mudflow, Severe Storms	The Laguna Beach Marine Safety Department is responsible for ensuring the safety of residents and visitors at the community's beaches. This includes closing beaches or restricting beach access when conditions are unsafe. Mitigation actions related to the safety of beachgoers and the protection of beach areas may be implemented through Marine Safety Department staff. Expansion and Improvement: Staff may integrate the results of the LHMP analysis and mitigation strategies into Departmental operations protocols to ensure unsafe conditions are identified early on and corrective action can be taken to reduce the threats to life and property.
Police Department	All	The Laguna Beach Police Department is charged with maintaining public safety in the community. As part of this work, the police department is responsible for investigating criminal activity, and directing traffic. 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 police department staff.

Table 4-1B: Administrative and Technical Capabilities		
Lead Organization	**Hazards Addressed**	**Relation to Hazard Mitigation**
		Expansion and Improvement: Provide training to Officers to better enable them to see potential hazards and take action to report them.
Public Works Department	All	The Laguna Beach Public Works Department is responsible for constructing and maintaining City-owned facilities and infrastructure, including roadways, sidewalks, parks, and open space areas. The department also handles 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. Expansion and Improvement: Support for mitigation activities from this department may include assessing mobility options for residents with Access and Functional Needs and identifying future transportation projects that can reduce evacuation vulnerabilities or enhance the roadway network, so it is less prone to damage during hazard events.
Wastewater Division within Public Works	Tsunami, Flood, Landslide/ Mudflow, Severe Storms	The Wastewater Division is responsible for constructing, maintaining, and operating the community's wastewater and storm drain systems. These systems include pipelines, manholes, lift stations, and storm water outlets. Mitigation actions that involve construction of new wastewater or storm drain infrastructure or retrofits of existing wastewater or storm drain infrastructure may be implemented through Water Quality Department staff. Expansion and Improvement: The Wastewater Division can expand and improve support for mitigation activities by upgrading and enhancing physical assets within the City that support wastewater services as well as provide opportunities for other Departments or Public Agencies to benefit from these investments through co-location of assets or enhancements that ensure more resilient operability.
Planning Commission	All	The Planning Commission is responsible for reviewing proposed residential and commercial development projects, subdivisions, and land use requests on private property, to determine their compliance with applicable City regulations. The Commission has the authority to approve various development projects that comply with City requirements. In addition, the Commission makes recommendations to the City Council with respect to the City's General Plan, Zoning Code, Specific Plans and other matters related to development within the City. The Commission may be responsible for implementing mitigation items pertaining to the Commissions scope.

Table 4-1B: Administrative and Technical Capabilities		
Lead Organization	**Hazards Addressed**	**Relation to Hazard Mitigation**
		Expansion and Improvement**:** Provide opportunities for continued education to members of the Planning Commission to maintain state of the art knowledge for new code and regulatory requirements.
Emergency and Disaster Preparedness Committee	All	Members of the Emergency and Disaster Preparedness Committee (EDPC) advise the City Council on ways for the community to best prepare for an emergency or disaster. Expansion and Improvement**:** since the previous LHMP was prepared the EDPC has played a critical role in the development of the General Plan Safety Element update, and many of the hazard focused reports and analyses that have been developed. As an appointed body of volunteer citizens, this committee can continue to provide critical feedback, knowledge, and experience that informs mitigation strategy implementation.
COUNTY		
Laguna Beach County Water District	Drought	The Laguna Beach County Water District (LBCWD) is an independent government agency that provides water services to the area of Laguna Beach north of Cardinal Drive. Expansion and Improvement: Mitigation actions related to water use and water supply may be implemented in collaboration with LBCWD staff.
Municipal Water District of Orange County	Drought, Climate Change	The Municipal Water District of Orange County (MWDOC) is a public agency that is the wholesale water provider for large sections of Orange County, including both water providers in Laguna Beach. As part of these responsibilities, it provides education and financial resources for water supply and water conservation activities. Expansion and Improvement: Mitigation actions related to water use may be implemented with support and assistance from MWDOC.
Orange County Fire Authority	Wildfire	The Orange County Fire Authority (OCFA) provides fire protection and firefighting services to the unincorporated areas of Orange County and many incorporated communities. Expansion and Improvement: Fire-related mitigation actions that require coordination with the county may be implemented in collaboration with OCFA staff. Efforts undertaken by Laguna Beach Fire may also include OCFA and neighboring Cities to enhance the effects or regional risk reduction projects.

Table 4-1B: Administrative and Technical Capabilities		
Lead Organization	**Hazards Addressed**	**Relation to Hazard Mitigation**
Orange County Parks	All	OC Parks encompasses regional, wilderness and historical facilities, as well as coastal areas throughout the County of Orange in California. Featuring 60,000 acres of parkland, open space and shoreline, Orange County's award-winning parks and programs are enjoyed by millions of residents and visitors each year, in ways as diverse as the parks themselves. Expansion and Improvement: Coordination with OC Parks for additional care and shelter facilities, should the City's own facilities be overwhelmed or rendered unusable.
Orange County Public Works – Infrastructure Programs	All	OC Infrastructure Programs provides engineering services for roadways in unincorporated areas and regional flood control programs throughout Orange County. This includes programming, design, legislation tracking, project management, traffic safety, and development support services. Expansion and Improvement: Additional resource sharing between the City and OC Public Works can enhance City capabilities and reduce future risks to residents and businesses.
Orange County Water District	Drought, Climate Change	The Orange County Water District (OCWD) is the agency responsible for managing groundwater supplies in Orange County, which is a source of some of the water supply for Laguna Beach. Expansion and Improvement: Mitigation actions related to groundwater supplies, including groundwater recharge, may be implemented with support and assistance from OCWD. OCWD can assist with mitigation efforts when addressing drought conditions within the City. OCWD can effectively manage and monitor water use and ensure adequate water supplies during times of severe drought.
South Coast Water District	Drought, Climate Change	The South Coast Water District (SCWD) is an independent government agency that provides water services to the area of Laguna Beach south of Cardinal Drive. Mitigation measures related to water use and water supply may be implemented in collaboration with SCWD staff. Expansion and Improvement: Mitigation actions related to groundwater supplies, including groundwater recharge, may be implemented with support and assistance from SCWD. SCWD can assist with mitigation efforts when addressing drought conditions within the City. SCWD can effectively manage and monitor water use and ensure adequate water supplies during times of severe drought.

Table 4-1B: Administrative and Technical Capabilities		
Lead Organization	**Hazards Addressed**	**Relation to Hazard Mitigation**
South Orange County Wastewater Authority	Flood, Drought, Climate Change	SOCWA was created on July 1, 2001, to facilitate and manage the collection, transmission, treatment and disposal of wastewater for more than 500,000 homes and businesses across South Orange County. SOCWA also manages production of recycled water for irrigation and commercial uses, which saves approximately 1.6 billion gallons of domestic water each year that otherwise would be used for those purposes, which is equivalent to 16,259-acre feet of water. SOCWA is a Joint Powers Authority with ten member agencies, consisting of local retail water agencies and cities that provide water to their residents. It operates three treatment plants and two ocean outfalls, in addition to multiple programs to meet the needs of its member agencies and the requirements of the Clean Water Act and applicable National Pollutant Discharge Elimination System (NPDES) permits. Expansion and Improvement: Mitigation actions related to surface water and groundwater management may be implemented with support and assistance from SOCWA. Given that drought conditions within the City may impact wastewater management, SOCWA and the City can look to better coordination during drought conditions and collaboration on drought-oriented projects that may impact City residents and businesses.
The Water Emergency Response Organization of Orange County (WEROC)	Drought, Climate Change	The Water Emergency Response Organization of Orange County (WEROC), administered by the Municipal Water District of Orange County (MWDOC), supports and manages countywide emergency preparedness, planning, response, and recovery efforts among Orange County water and wastewater utilities. Expansion and Improvement: Mitigation actions within this plan should align with overall actions undertaken by WEROC (MWDOC) during their hazard mitigation planning process. A key outcome of WEROC's planning and preparedness activities is better coordination amongst the water service providers within Orange County.
REGIONAL, STATE, AND FEDERAL AGENCIES		
Cal-Adapt	Climate Change, Extreme Weather, Drought, Wildfire	Cal-Adapt is an online tool that provides detailed projections for future climate-related conditions in California, including factors such as temperature, precipitation, and sea level rise. Expansion and Improvement: These projections can help inform future hazard events and explain how hazard conditions are expected to change. The Committee can use Cal-Adapt

Table 4-1B: Administrative and Technical Capabilities		
Lead Organization	**Hazards Addressed**	**Relation to Hazard Mitigation**
		to monitor anticipated changes in future climate conditions and adjust mitigation actions accordingly.
California Department of Transportation	All	The California Department of Transportation (Caltrans) is the state agency with jurisdiction over designated highways, including the Pacific Coast Highway (State Route 1) and Laguna Canyon Road (State Route 133). Mitigation measures related to ensuring the resiliency of state-designated freeways will be implemented through coordination with Caltrans. Expansion and Improvement: Mitigation actions related to ensuring the resiliency of state-designated routes will be implemented through coordination with Caltrans.
California Governor's Office of Emergency Services	All	The California Governor's Office of Emergency Services (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. It provides guidance on hazard mitigation planning activities, shares best practices, and distributes funding opportunities. Expansion and Improvement: The Committee can work with Cal OES to obtain funding to implement LHMP mitigation strategies and receive future updates.
Federal Emergency Management Agency	All	The Federal Emergency Management Agency (FEMA) is the federal agency responsible for hazard 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. Expansion and Improvement: FEMA also provides funding for hazard mitigation actions through grant programs.
Metropolitan Water District of Southern California	Drought, Climate Change	The Metropolitan Water District of Southern California (MWD) is a public agency that supplies water to various water providers throughout the southern California region, many of whom in turn distribute the water to more localized water suppliers. Water used in Laguna Beach that comes from outside Orange County is supplied by MWD.

Table 4-1B: Administrative and Technical Capabilities		
Lead Organization	**Hazards Addressed**	**Relation to Hazard Mitigation**
		Expansion and Improvement: Mitigation actions that involve local water supplies may be implemented through coordination with MWD. The agency may also provide technical support and other resources for mitigation actions involving water use.
PRIVATE AGENCIES		
San Diego Gas & Electric Company	Coastal Hazards, Extreme Weather, Floods, Human-Caused Hazards, Landslide and Mudflow, Seismic Hazards, Wildfire	The San Diego Gas & Electric Company (SDG&E) is the electrical service provider for the part of Laguna Beach south of 2nd Street. SDG&E also owns the electrical distribution grid in this part of the community. Expansion and Improvement: Mitigation actions that relate to the resiliency of Laguna Beach's electrical grid will be implemented through coordination with SDG&E.
Southern California Edison	Coastal Hazards, Extreme Weather, Floods, Human-Caused Hazards, Landslide and Mudflow, Seismic Hazards, Wildfire	Southern California Edison (SCE) is the electrical service provider for the part of Laguna Beach north of 2nd Street. SCE also owns the electrical distribution grid in this part of the community. Expansion and Improvement: Mitigation actions relating to the resiliency of Laguna Beach's electrical grid will be implemented through coordination with SCE.
Southern California Gas Company	Coastal Hazards, Extreme Weather, Floods, Human-Caused Hazards, Landslide and Mudflow, Seismic Hazards, Wildfire	The Southern California Gas Company (SoCalGas) is the natural gas provider for Laguna Beach and also owns the natural gas infrastructure in the community. Expansion and Improvement: Mitigation actions that address the resiliency of natural gas infrastructure and services in Laguna Beach will be implemented through coordination with SoCalGas.

Table 4-1C: Financial Resources		
Financial Resource	**Administrator**	**Purpose**
General Fund	Department Specific	Program operations and specific projects. Consists of property tax, sales tax, transient occupancy tax, and franchise tax that can be used for general purposes. Expansion and Improvement: Hazard mitigation projects may be considered during the annual budgeting process for funding from the general fund.

Table 4-1C: Financial Resources		
Financial Resource	**Administrator**	**Purpose**
Community Development Block Grants (CDBG)	Fund specific	The CDBG program provides funding for eligible senior activities such as in-home care, art classes, counseling and home delivered meals. HUD also provides Disaster Recovery Assistance in the form of flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations. Expansion and Improvement: Where applicable, CDBG grants should be used to fund mitigation projects that enhance the resiliency of low income and underserved communities.
Hazard Mitigation Grant Program (HMPG)	Emergency Management	Provides support for pre- and post-disaster mitigation plans and projects. Expansion and Improvement: Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.
Building Resilient Infrastructure and Communities (BRIC)	Grant Funding	Provides support for pre-disaster mitigation plans and projects. Expansion and Improvement: Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.
Flood Mitigation Assistance grant program (FMA)	Grant Funding	Mitigates structures and infrastructure that have been repetitively flooded. Expansion and Improvement: Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.
Special Use Funds	Department Specific	Program operations and specific projects. The City has various funds within its budget that support a variety of activities. Funding from these sources assist with transit services, wastewater infrastructure, capital improvements, and other city needs. Expansion and Improvement: Hazard mitigation projects may be considered during the annual budgeting process for funding from these special use funds.

Table 4-1D: Education and Outreach Resources		
Name	**Lead Organization**	**Description (Effect on Hazard Mitigation)**
Laguna Beach Emergency Management Webpage https://www.lagunabeachcity.net/live-here/emergency-management	Fire Department – Emergency Management Division	The Laguna Beach Emergency Management webpage has educational material on making an emergency plan, stocking supplies, staying informed, and getting involved. In addition to plans and reports, the site includes links to evacuation planning information, and other resources available to help residents, visitors, and businesses.

Table 4-1D: Education and Outreach Resources		
Name	**Lead Organization**	**Description (Effect on Hazard Mitigation)**
		Expansion and Improvement: Use the web page as a primary information source in community outreach and engagement efforts.
Laguna Beach Community Emergency Response Team (CERT) https://www.lagunabeachcity.net/live-here/emergency-management/community-emergency-response-team-cert	Fire Department – Emergency Management Division	The Laguna Beach Community Emergency Response Team (CERT) is a group of volunteers trained in disaster preparedness, public safety, traffic control, and emergency response. CERT members can conduct disaster preparedness activities as well as light emergency response activities when disaster situations occur. The program is managed by the Laguna Beach Police Department. Mitigation actions related to community training and education may be further implemented through expansion of the CERT program. Expansion and Improvement: Include material in CERT Newsletter that provides updates to progress in the mitigation action plan and contains links to the appropriate website page.
City Evacuation Planning https://www.lagunabeachcity.net/live-here/emergency-management/evacuation-planning	Fire Department – Emergency Management Division	A one-stop shop for emergency evacuation information developed by the City to assist residents, businesses, and visitors understand the critical information needed to effectively evacuate. The public can learn about what to do in an emergency, what types of evacuation communications are used by the City and places that are deemed a last resort safe location during an incident. Expansion and Improvement: Expands the types of locations deemed safe through hazard mitigation activities that make these facilities more resilient to future hazards.
Laguna Beach National Night Out	Police Department	National Night Out is a community-oriented program themed as a block party to increase awareness of the job of first responders. Expansion and Improvement: Include booths and events at National Night Out that focus on family and individual preparedness and advertise mitigation activity success stories.
Laguna Beach Alert and Warning System https://www.lagunabeachcity.net/live-here/emergency-management/alert-and-warning-system	Fire Department – Emergency Management Division	The City has partnered with Genasys Inc. to install an array of speakers and sirens throughout town. These speakers/sirens can be activated to provide emergency alerts and warnings to individuals within the alert areas and provide instructions to the community to take safety actions (i.e., shelter in place, evacuation, etc.).

Table 4-1D: Education and Outreach Resources		
Name	**Lead Organization**	**Description (Effect on Hazard Mitigation)**
		Expansion and Improvement: Enhancements to the system could include increasing the number of speakers within the community and the variety of uses for it to expand citizen understanding of community issues.
Nixle & Emergency Alerts https://www.lagunabeachcity.net/live-here/emergency-management/nixle-emergency-alerts	Fire Department – Emergency Management Division	**Nixle:** Nixle is the City of Laguna Beach's community alert system which is typically used for emergency notifications, community event information, or traffic issues which are sent by text messages, mobile app, and/or e-mail. **Alert OC:** AlertOC is a mass notification system designed to keep Orange County residents and businesses informed of emergencies. By registering with AlertOC, time-sensitive voice messages from the City may be sent to residents' home, mobile, or business phone. **Wireless Emergency Alert (WEA):** The City of Laguna Beach is an authorized sender of Wireless Emergency Alerts (WEA) — an alert system that uses the same technology to transmit Amber Alerts for missing children. WEA is a text warning which is delivered directly to mobile devices which are within the notification zone. WEA messages target individual cell sites; however, some bleed over is expected. The public does not need to register for this service. WEA geo-locates individuals so messages will reach all WEA-capable devices within the specified area, including visitors. Expansion and Improvement: Integration of these alerts into the City's alert and warning system.

Hazard Mitigation Strategies and Actions

Hazard Mitigation Goals

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

Evaluation of Potential Hazard Mitigation Actions

Based on the hazard profiles, threat assessment, capabilities assessment, community survey results, discussions among HMPC members, existing 2018 mitigation strategies, and existing best practices, a set of updated mitigation actions was developed and then evaluated based on the following criteria:

- FEMA requires local governments to evaluate potential mitigation actions' monetary and non-monetary costs and benefits. Although local governments are not required to assign specific dollar values to each action, they should identify the general size of costs and benefits.
- The HMPC may elect to include measures with a high cost or low benefits, but such measures should be clearly beneficial to the community and appropriate use of local resources.

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

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

The HMPC also chose to review and revise the potential hazard mitigation actions using a third set of criteria (**Table 4-2**), known as STAPLE/E (Social, Technical, Administrative, Political, Legal, Economic, and Environmental). The HMPC did not formally assess every potential mitigation action under all STAPLE/E criteria but used the criteria to guide and inform the discussion. A discussion also occurred regarding how the criteria might be used to evaluate grant applications the City may submit in the future as part of plan implementation.

Table 4-2: STAPLE/E Criteria

Issues	Criteria
Social	• Is the action socially acceptable to community members? • Would the action mistreat some individuals? • Is there a reasonable chance of the action causing a social disruption?
Technical	• Is the action likely to reduce the risk of the hazard occurring, or will it reduce the hazard's effects? • Will the action create new hazards or make existing hazards worse? • Is the action the most useful approach for the City to take, given the City and community members' goals?
Administrative	• Does the City have the administrative capabilities to implement the action? • Are there existing City staff who can lead and coordinate the measure's implementation, or can the City reasonably hire new staff for this role? • Does the City have enough staff, funding, technical support, and other resources to implement the action? • Are there administrative barriers to implementing the action?
Political	• Is the action politically acceptable to City officials and other relevant jurisdictions and political entities? • Do community members support the action?
Legal	• Does the City have the legal authority to implement and enforce the action? • Are there potential legal barriers or consequences that could hinder or prevent the implementation of the action? • Is there a reasonable chance that the implementation of the action would expose the City to legal liabilities? • Could the action reasonably face other legal challenges?

Economic	• What are the monetary costs of the action, and do the costs exceed the monetary benefits? • What are the start-up and maintenance costs of the action, including administrative costs? • Has the funding for action implementation been secured, or is a potential funding source available? • How will funding the action affect the City's financial capabilities? • Could the implementation of the action reasonably burden the City's economy or tax base? • Could there reasonably be other budgetary and revenue impacts on 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?

Table 4-3 identifies the 2023 mitigation strategies and actions proposed by the City as part of this LHMP update process. In addition to the list of actions, the table also identifies potential funding sources, responsible departments, relative cost estimates, timeframes, and priorities for these actions, which are described further below. In addition to mitigation action and strategies, several preparedness activities were identified and denoted with the letter "P."

The HMPC and its members brought together a range of ideas and options, and discussed various mitigation strategies and reflected on those set in the 2018 LHMP. A comprehensive review of the progress, need, and future for each previous mitigation strategy was undertaken. The city and its partners have completed a number of mitigation projects, and believes that many items should remain on our strategies in the 2023 LHMP. Therefore, the committee determined those in Table 4-3 are the best strategies to work toward a more resilient community. Some items are a continuation of those set forth in 2018, while others bring new ideas. Table 4-3 below highlights those actions that are new or substantially modified from the 2018 LHMP (highlighted in yellow).

Potential Funding Sources

Table 4-3 identifies the potential funding sources that may be used to implement mitigation strategies. These funding sources include the following federal and state sources:

Building Resilient Infrastructure and Communities (BRIC): A competitive FEMA grant program to support states, local communities, tribes, and territories.

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

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

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

1. Climate Adaptation Planning Sustainable Transportation Planning Grant Program - Department of Transportation
2. Sustainable Communities Competitive – Department of Transportation
3. CAL FIRE Wildfire Prevention Grants Program – Department of Forestry and Fire Protection
4. Integrated Climate Adaptation and Resiliency Program's Climate Adaptation Planning Grant – Office of Planning and Research
5. Small Community Drought Relief Program – Department of Water Resources
6. Addressing Climate Impacts – Department of Fish and Wildlife

7. Cleanup Loans and Environmental Assistance to Neighborhoods (CLEAN) Program – Department of Toxic Substances Control
8. Clean Water State Revolving Fund (CWSRF) Program Construction – State Water Resources Control Board
9. Drinking Water State Revolving Fund (DWSRF) Construction – State Water Resources Control Board
10. Water Recycling Funding Program (WRFP) Construction Grant – State Water Resources Control Board
11. Equitable Community Revitalization Grants (ECRG) – Department of Toxic Substances Control
12. Water Recycling Funding Program (WRFP) Planning Grant – State Water Resources Control Board
13. Infrastructure State Revolving Fund (ISRF) Program - Infrastructure and Economic Development Bank

Responsible Department

Table 4-3 includes the identification of key responsible departments that will be focused on future implementation of mitigation strategies and actions identified by the City.

Relative Cost Estimates

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

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

Timeframes

Table 4-3 includes timeframes that provide specific years (2024, 2025, etc.) as well as general timing durations based on the nature of the mitigation actions identified by the City. For general timing durations the following describe the conditions for their use:

- **Ongoing (Annually):** Actions that identify this timeframe are the types of actions that City staff would conduct on an annual basis.
- **Ongoing (As Needed):** Actions that identify this timeframe include activities that City staff would conduct in response to a request by internal (City Departments) or external (Property Owners) forces.

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

Prioritization

As part of the mitigation actions development and review, the HMPC also prioritized the actions. The prioritization efforts looked at the risks and threats from each hazard, financial costs and benefits, technical feasibility, and community values, among others. HMPC members were asked to identify their priority actions through a voting exercise. Items prioritized by at least three HMPC members are considered a high priority, and those prioritized by one or two members are considered a medium priority. Actions not prioritized by any HMPC member are considered a low priority.

Connection to 2018 Mitigation Actions

Actions depicted with a (*) in **Table 4-3** include detailed information in **Table 4-4, 2018 Mitigation Actions Progress** regarding implementation progress. These actions were identified in both tables because the City is continuing to rely on the actions for implementation of mitigation projects.

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
Preparedness Activities						
P1	In coordination with the Orange County Transportation Authority, the Laguna Beach Trolley, School Districts, and private transportation companies ensure that there is a sufficient supply of vehicles available to evacuate Laguna Beach residents and visitors who do not have access to private vehicles or are otherwise unable to drive. As part of this action, emergency transportation locations should be designated and identified. *Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire*	General Fund, Homeland Security Grants FEMA Grants (BRIC), Other Grants	Emergency Management Division	$	Ongoing (Annually)	N/A
P2	Conduct outreach to the hospitality industry to provide information about avoiding hazards and dangerous conditions to visitors. *Relevant hazards:* Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Other Grants	Emergency Management Division	$	Ongoing (Annually)	N/A
P3	Expand participation in the Laguna Beach Community Emergency Response Team (CERT) program for local residents and businesses. *Relevant hazards:* Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Homeland Security Grants	Emergency Management Division	$	Ongoing	N/A
P4	Develop a backup energy supply program for critical facilities to ensure a sufficient supply of batteries or a reliable source of backup electricity. Relevant hazards: Coastal hazards, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Homeland Security Grants, FEMA Grants (BRIC), Other Grants	Emergency Management Division, Public Works	$$	2025	N/A
P5	Expand the community-wide emergency notification system using telephones, text messaging, social media, television, radio, and other media as appropriate. Ensure that information is clear, accurate, and provided in commonly spoken languages. Relevant hazards: Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Homeland Security Grants, FEMA Grants (BRIC), Other Grants	Emergency Management Division	$	2024	N/A

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
P6	Pre-stage adequate supplies of sandbags for local residents and businesses, including pre-filled sandbags for individuals who may be unable to fill them on their own. Relevant hazards: Coastal hazards, extreme weather, flood, landslide and mudflow, wildfire	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Public Works	$	Ongoing (As needed)	N/A
P7	Conduct regular emergency preparedness drills and training exercises for City staff.	General Fund, Homeland Security Grants	Emergency Management Division	$$	Ongoing	N/A
Multiple Hazards						
1.01	Underground power lines and other electrical grid equipment, in close coordination with Southern California Edison and San Diego Gas and Electric. Prioritize undergrounding high-capacity power lines along evacuation routes and in areas of elevated hazard risk. Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC, HMGP), Other Grants	Public Works	$$$	2026	High
1.02	Install and harden emergency backup generators at water pump stations and sewer lift stations. Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC, HMGP), Other Grants	Water Quality/Water Districts	$$$	2026	Medium
1.03*	Expand fiber optic communication systems throughout the city, through the following strategies: • Connect key critical facilities with fiber optic communications. • Improve emergency communications between critical facilities and key infrastructure through the use of a “dark fiber” network. • Install fiber optic systems or conduit for fiber optic infrastructure in coordination with undergrounding infrastructure projects or projects that include subsurface excavation within public streets.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works/IT	$$$	2025	High

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		Potential Funding Sources	Responsible Department	Relative Cost*	Time frame	Priority
	• Require installation of underground conduit in association with private developments proposed throughout the city. • Pursue conversion of existing overhead utilities to underground along key evacuation routes to improve fire safety and facilitate emergency egress. Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire					
1.04	Replace or supplement larger emergency response equipment with smaller vehicles that are better able to navigate narrow community streets without sacrificing response effectiveness. Relevant hazards: Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC, HMGP), Other Grants	Fire Dept.	$$$	2026	Medium
1.05	Establish a primary and alternative Emergency Operations Center in areas outside of major hazard zones to the extent feasible. Consider collocation with other City buildings/facilities as potential options. Relevant hazards: Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Homeland Security Grants, FEMA Grants (BRIC), Other Grants	Emergency Management Division	$$$	2024	High
1.06	Explore the feasibility of connecting key critical facilities, including City Hall/Police Station, Marine Safety HQ, and community fire stations, to a microgrid power-supply network. Relevant hazards: Coastal hazards, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$$$	2026	Medium
1.07	Coordinate closely with water and natural gas providers to add isolation valves at key locations along their pipeline networks. Identify locations and corridors necessary to isolate wastewater from human contact due to overflows caused following catastrophic service failures. Improve sewer lift stations and facility upgrades to mitigate service failures.	General Fund, Other Grants	Public Works/Water Districts/Utility Providers	$$	2026	Medium

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
	Relevant hazards: Coastal hazards, flood, human-caused hazards, landslide and mudflow, seismic hazards					
1.08	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, in utility bills, at special events and in City facilities, and/or other media as appropriate. Relevant hazards: Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Other Grants	Emergency Management Division	$	Ongoing (Annually)	Medium
1.09*	Identify areas in need of slope stabilization and stabilize with deep-rooted vegetation, geotextile fabric, and other slope stabilization techniques. Prioritize the following locations: • Wendt Terrace Retaining Wall Repairs • Lower Alta Vista Retaining Wall Replacement • Dog Park Slope Stabilization • St. Ann's Drive Retaining Wall Replacement • Wendt Terrace Retaining Wall Repairs • Cerritos Drive Slope Stabilization	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$$	Ongoing (As needed)	Low
1.10	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. Relevant hazards: Coastal hazards, flood, landslide and mudflow, seismic hazards, wildfire	General Fund, Other Grants	Community Development	$	Ongoing (As needed)	Low

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
1.11	Establish greater setbacks for siting new City critical facilities in mapped flood hazard, coastal hazard, and landslide hazard zones to the extent feasible. Ensure critical facilities sited within the wildfire hazard zone, exceed the minimum mitigation standards as defined by the Fire Code. Relevant hazards: Coastal hazards, flood, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC, HMGP), Other Grants	Community Development/ Public Works/ Fire Dept.	$	2026	Low
1.12*	As opportunities arise, explore the feasibility of relocating critical City facilities outside of mapped hazard zones. If not possible, retrofit facilities to reduce hazard risks. Relevant hazards: Coastal hazards, hazardous materials, flood, landslide and mudflow, seismic hazards, wildfire	General Fund, Other Grants	City Manager's Office	$$$	Ongoing (As needed)	Low
1.13	Identify appropriate sites for community shelters, ideally located outside of mapped hazard zones, to the extent feasible. Ensure that there is sufficient space for residents and visitors, and stock shelters with necessary supplies. Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC), Other Grants	Transit and Community Services	$	2024	High
1.14	Integrate policy direction and other information from this Plan into other City documents, including the General Plan Safety Element and Capital Improvements Program. Relevant hazards: Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund	Community Development	$	2025	Low
Coastal Hazards						
2.01	Develop criteria for clifftop properties to estimate when erosion may begin to cause structural damage or pose a safety risk.	General Fund, FEMA Grants (BRIC), Other Grants	Community Development	$	2029	Low
2.02	Expand the city's TsunamiReady designation and pursue certification as a TsunamiReady Tier Two community.	General Fund, FEMA Grants	Emergency Management Division/Marine Safety	$	2026	Low

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		Potential Funding Sources	Responsible Department	Relative Cost*	Time frame	Priority
		(BRIC), Other Grants				
2.03*	Explore modifications to City beaches to the extent feasible to protect bluffs and adjacent properties from coastal (tsunami, wave run-up, etc.) and inland flooding conditions.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$	2029	Low
2.04	Expand the beachfront mass notification siren and public address network to alert residents and visitors of potential coastal hazard events (tsunami, high surf, etc.).	General Fund, FEMA Grants (BRIC), Other Grants	Emergency Management Division/Marine Safety	$	2026	Medium
Disease and Pest Management						
3.01	Coordinate with health care providers to ensure rapid and accurate distribution of information about disease conditions.	General Fund Other Grants	Emergency Management Division	$	Ongoing (As needed)	Low
3.02	Work with the Orange County Vector Control to distribute information about mosquito-proofing property and mosquito bite avoidance for residents and visitors.	General Fund Other Grants	Emergency Management Division	$	Ongoing (Annually)	Low
3.03	Update City landscape standards to incorporate disease-resistant plant species as part of landscaping projects/ improvements.	General Fund Other Grants	Community Development	$	2028	Low
Extreme Weather						
4.01	Reduce potable water use through close coordination with the Laguna Beach County Water District and the South Coast Water District.	General Fund, Other Grants	Water Quality/ Water Districts	$$$	Ongoing	Medium
4.02	Aggressively search for and repair leaks in water infrastructure through close coordination and cooperation with the Laguna Beach County Water District and South Coast Water District.	General Fund, Other Grants	Water Quality/ Water Districts	$$	Ongoing (As needed)	Medium
4.03	Increase the use of recycled water sources for City residents and businesses through close coordination and collaboration with the Laguna Beach County Water District and South Coast Water District.	General Fund, Other Grants	Water Quality/ Water Districts	$$	2030	Low

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		Potential Funding Sources	Responsible Department	Relative Cost*	Time frame	Priority
4.04	Incentivize indoor and outdoor water efficiency through community-wide education and rebate programs and continue to maintain these programs and other restrictions on water use in the absence of drought conditions. This activity requires close coordination with local water providers and the Municipal Water District of Orange County.	General Fund, Other Grants	Water Emergency Response Organization of Orange County (WEROC)	$	Ongoing (Annually)	Low
4.05	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.	General Fund, Other Grants	Public Works	$	Ongoing	Low
4.06	Work with local electricity providers to continue to maintain a clear space around all power lines, and to underground existing power lines and poles to be more resistant to severe winds.	General Fund, Other Grants	Public Works	$	Ongoing (As needed)	High
Flood						
5.01*	Use landscaped swales in new and replacement City-owned hardscape, to the extent feasible.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Public Works	$$	Ongoing	Medium (1)
5.02	Require new construction and significant redevelopment projects not required to prepare a Water Quality Management Plan to reduce runoff through the use of landscaped swales, permeable paving, and other applicable low-impact development strategies.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Community Development	$	Ongoing	Low
5.03	Increase the capacity of storm drains, particularly in areas with known ponding during rain events.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Public Works	$$$	2025	Medium
5.04	Conduct frequent cleanings of storm drain intakes, especially before and during the rainy season.	General Fund, FEMA Grants (BRIC, HMGP,	Public Works	$	Ongoing (As needed)	Low

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
		FMA), Other Grants				
5.05	Encourage all property owners within 100-year and 500-year floodplains to obtain flood insurance and floodproof their structures.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Community Development	$	Ongoing	Medium
5.06	Continue to require new construction and significant retrofits in flood-prone areas to comply with the City's Floodplain Management Ordinance and encourage construction activities adjacent to floodplains to meet similar requirements.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Community Development	$	Ongoing	Low
5.07	Discourage new buildings or facilities intended to house or provide critical services to persons with functional needs (e.g., senior citizens and persons with disabilities) from being constructed in or immediately adjacent to the 100-year or 500-year floodplain.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Community Development	$	Ongoing	Low
5.08	Explore opportunities to acquire land in or near floodplains to act as buffers or water infiltration sites.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	City Manager's Office	$$$	Ongoing	Low
Human-Caused Hazards						
6.01	Conduct proactive community policing during special events. Ensure that all staff involved in community police are trained to engage with and respect community members while maintaining security.	General Fund, Homeland Security Grants, Other Grants	Police Dept.	$	Ongoing	Low
6.02	Conduct regular inspections of key infrastructure and promptly repair all substantial deficiencies.	General Fund, Homeland Security Grants, Other Grants	Public Works	$	Ongoing	Low

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		Potential Funding Sources	Responsible Department	Relative Cost*	Time frame	Priority
Landslide/Mudflow						
7.01	Install and maintain slope stabilization measures on publicly owned hillsides above roads, buildings, and other facilities.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$$$	2030	Low
7.02	Work with private property owners to install, inspect, and maintain effective drainage systems and stabilizing vegetation on and above landslide-prone slopes.	General Fund, FEMA Grants (BRIC), Other Grants	Community Development	$	2027	Low
7.03	Conduct a community-wide moisture-induced landslide and mudslide risk analysis, including the potential for building destruction/damage, deaths, and injuries. Consider the anticipated changes to precipitation patterns, wildfires, and other factors that may influence mudslide events.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$$	2027	Medium
Seismic Hazards						
8.01*	Retrofit City Hall and all fire stations based on recommendations and results from the seismic study currently underway.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works/ Community Development	$$$	2027	High
8.02	To the extent feasible, construct all new and significantly retrofitted City-owned facilities to remain operational in the event of a major earthquake.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works/ Community Development	$$	Ongoing	Medium
8.03	Prepare an inventory of seismically vulnerable buildings and structures in Laguna Beach. Explore feasible solutions to mitigate vulnerable buildings and structures to be retrofitted.	General Fund, FEMA Grants (BRIC), Other Grants	Police/Community Development	$	2030	Low
8.04	Work with service providers and other owners of facilities of concern to identify seismically vulnerable structures and conduct seismic retrofit activities.	General Fund, FEMA Grants (BRIC), Other Grants	Community Development	$	2027	Low
8.05	Improve local understanding of the threat of a major earthquake by conducting a city-wide scenario modeling potential loss of life	General Fund, FEMA Grants	Community Development	$	Ongoing	Medium

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
	and injuries, destroyed and damaged structures, and interruptions to key services.	(BRIC), Other Grants			(Annually)	
8.06	Encourage the installation of resilient (seismically appropriate) piping for new or replacement pipelines in close coordination with local water, natural gas, and other providers.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$$	2027	Low
8.07	Conduct an educational campaign and incentives to encourage the use of reinforced chimneys, anchored rooftop-mounted equipment, window film, and other preventative measures to reduce damage at private buildings.	General Fund, FEMA Grants (BRIC), Other Grants	Community Development	$	Ongoing (Annually)	Low
8.08	Encourage community groups and industry representatives to assist in outreach to residents and businesses to obtain earthquake insurance.	General Fund, FEMA Grants (BRIC), Other Grants	Community Development	$	Ongoing	Low
Wildfire						
9.01	Create a streamlined permitting process with Coastal Commission for fuel removal activities that are consistent with the Natural Community Conservation Plan and Habitat Conservation Plan for Orange County's Central and Coastal Subregion.	General Fund, FEMA Grants (BRIC), Other Grants	Fire Dept.	$$	2027	Medium
9.02	Conduct enhanced vegetation management activities that reduce fuels and increase clearance zones around developed areas of the wildland urban interface.	General Fund, FEMA Grants (BRIC), Other Grants	Fire Dept.	$$	2024	High
9.03	Expand outreach regarding home fire safety inspections and home hardening techniques for residents and businesses in fire-prone areas. Provide information about ways to retrofit homes and maintain landscapes to improve resiliency to wildfires.	General Fund, FEMA Grants (BRIC), Other Grants	Fire Dept.	$	Ongoing	Low
9.04	Expand outreach to discourage landscaping that uses plants with a high sap or resin content, that accumulate dead vegetation, very low moisture content, or other features that make the plants more vulnerable to fires.	General Fund, FEMA Grants (BRIC), Other Grants	Fire Dept.	$	Ongoing	Low

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
9.05	Update the Laguna Beach Community Wildfire Protection Plan and other natural resource plans to incorporate the mitigation actions of this plan and goals and policies of the General Plan.	General Fund, FEMA Grants (BRIC), Other Grants	Fire Dept./Community Development	$	2025	High
9.06	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.	General Fund, FEMA Grants (BRIC), Other Grants	Fire Dept.	$$	2024	High
9.07	Develop a vegetation management pilot program that assists abatement activities for homeowners that meet low-income requirements.	General Fund, FEMA Grants (BRIC), Other Grants	Fire Dept.	$	2030	Low
Hazardous Materials						
10.01*	Discourage new sensitive land uses, including schools, parks, childcare centers, adult and senior assisted living facilities, and community centers, from locating near identified hazardous material facilities. Discourage or prohibit new hazardous material facilities from locating near sensitive land uses.	General Fund	Community Development	$	Ongoing	High
10.02*	Continuously inspect businesses and other properties storing hazardous materials and create an inventory of storage locations that require updates, maintenance, or renovation.	General Fund, Other Grants	Fire Dept.	$	Ongoing (Annually)	Low
10.03*	Continue to work with solid waste service contractors to educate residents and businesses on the safe disposal of small quantities of hazardous materials.	General Fund, Other Grants	Public Works	$	Ongoing	Low
10.04*	Coordinate with hazardous materials generators/operators (So Cal Gas, Edison, etc.) regularly to understand changes to operations within the city.	General Fund, Other Grants	Emergency Management Division, Fire Dept.	$	Ongoing (As needed)	Low

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

2018 Mitigation Action Progress

Based on the HMPCs review of the 2018 mitigation actions, staff recognized that several actions had been completed or required some refinement. As a result, **Table 4-4** includes both a summary of how previous actions from 2018 plan were incorporated into the proposed actions in **Table 4-3** or were removed from the plan because they were completed. The 2018 mitigation actions that are shown as completed in **Table 4-4** are not included in the 2023 mitigation actions.

Table 4-4: 2018 Mitigation Actions Progress

Action #	Mitigation Action	Description / Background	Status
Preparedness Activities P.1	Develop a Major Event Evacuation and Shelter Plan, as a stand-alone plan or an appendix to the City's Emergency Operations Plan, in coordination with local hotels and major event coordinators. This plan should include information on how to safely and rapidly evacuate visitors, shelter in place locations, and to provide shelter and important supplies to visitors, if a major hazard occurs during peak tourism times. Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	The City completed a Care and Shelter Annex to supplement the EOP.	Complete
Multiple Hazards 1.4	Evaluate the community-wide road network to identify potential bottlenecks during a major evacuation and establish a plan to prioritize capital improvements that focus on reducing barriers to effective evacuations. Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire.	Provides evacuation zones, routes, and last resort shelter locations in parts of the city. The study can be found here.	Complete
Coastal Hazards 2.2	Explore the feasibility of long-term acquisition for properties that have been made unsafe or unsuitable for development due to erosion.	Regularly monitor unsafe conditions along the coastline.	Complete
Coastal Hazards 2.4	Explore modifications to the berm at Main Beach Park as necessary and modify the design of the barrier to the extent feasible to protect the park and adjacent properties from coastal (tsunami, wave run-up, etc.) and inland flooding conditions.	Upgrades to the boardwalk along Main Beach protect City assets from coastal hazards	Complete
Multiple Hazards 1.03*	Expand fiber optic communication systems throughout the city, through the following strategies: • Connect key critical facilities with fiber optic communications. • Improve emergency communications between critical facilities and key infrastructure through the use of a "dark fiber" network.	The City completed the following projects that support action implementation: • Inclusion of additional empty conduits into utility undergrounding projects	Action still Active Projects Completed

	• Install fiber optic systems or conduit for fiber optic infrastructure in coordination with undergrounding infrastructure projects or projects that include subsurface excavation within public streets. • Require installation of underground conduit in association with private developments proposed throughout the city. • Pursue conversion of existing overhead utilities to underground along key evacuation routes to improve fire safety and facilitate emergency egress.	currently being designed and constructed. • Rule 20A Coast Hwy (Agate to Arch) • Rule 20A Coast Hwy (Cajon to Agate) • Rule 20A Bluebird Cyn Dr (Cress to Saling Way) • Park Ave Utility Undergrounding (St. Ann's Drive to Wendt Terrace) • Laguna Canyon Road (Canyon Acres to El Toro Road)	
Multiple Hazards 1.09*	Identify areas in need of slope stabilization and stabilize with deep rooted vegetation, geotextile fabric, and other slope stabilization techniques.	The City completed the following projects that support action implementation: • Bluebird Cyn Dr Evacuation Route Widening. New retaining wall, hydroseeding, and planting of 16 new Oak trees on the hillside. • Bluebird Drive Slope Repair • Bluebird Scarp Repair • Summit Drive Slope Repair • Queda Way Retaining Wall	Action still Active Projects Completed
Coastal Hazards 2.03*	Explore modifications to City beaches to the extent feasible to protect bluffs and adjacent properties from coastal (tsunami, wave run-up, etc.) and inland flooding conditions.	The City completed a slope stabilization project at the Peral Street Beach Access that supports action implementation.	Action still Active Projects Completed
Flood 5.01*	Use landscaped swales in new and replacement City-owned hardscape, to the extent feasible.	The City completed a project at the entrance to the Village that supports action implementation.	Action still Active Projects Completed

National Flood Insurance Program

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

Initial Flood Hazard Boundary Map	06/21/1974
Initial Flood Insurance Rate Map	09/28/1979
NFIP Participation Date	09/28/1979
Current Effective Map Date	03/21/2019

Although participation is not a dedicated hazard mitigation action, Laguna Beach will continue to participate in NFIP and comply with the program's requirements through continued enforcement of the City's Floodplain Management Ordinance (Title 25, Chapter 25.38 of the Laguna Beach Municipal Code).

Laguna Beach NFIP Resources	
Adoption of Minimum Floodplain Management Criteria, and Implementation and Enforcement of Floodplain Management Regulations	**Chapter 25.38: Floodplain Management**
Designee to Implement NFIP	**Article 4. Administration, Sec. 25.38.040. Designation of the Floodplain Administrator.** The Laguna Beach Community Development Department Director fulfills this role.
Implementation of Substantial Improvement/ Substantial Damages Provisions	**Article 5. Provisions for Flood Hazard Reduction**
*Ordinances are hyperlinked	

These regulations apply to all areas of special flood hazards, areas of flood-related erosion hazards, and areas of mudslide (i.e., mudflow) hazards within the City. These regulations aim to promote public health, safety, and general welfare and minimize public and private losses due to flood conditions. This chapter also includes methods of reducing flood losses, the basis for establishing flood hazard areas, development permit requirements, duties and responsibilities of the City's Floodplain Administrator, the development standards that apply in flood-prone areas and required documentation and analysis for construction within these areas. As part of the City's efforts to comply with NFIP, Laguna Beach will make updates and revisions to these regulations periodically to ensure they are most effective at minimizing the threat of harm from flood events. These updates and revisions may be promoted by changes in local demographics, shifts in land use, changes to flood regimes such as frequency and intensity of flood events, and other factors that may warrant municipal action. The City will also continue to incorporate any changes to the locations and designations of mapped floodplains into future planning documents, including future updates to this Plan.

The City of Laguna Beach contains Special Flood Hazard Areas with 501 policies in force, with approximately 232,685 in premiums. Total insurance coverage for these policies amounts to $151,010,000. According to FEMA, a total of 340 closed paid losses have occurred, totaling 5,212,922. There were 105 repetitive loss properties resulting in nearly $3.2 million, and no severe repetitive loss properties were identified by FEMA. The City does not know the types of properties that are currently identified as repetitive loss properties by FEMA.

Chapter 5 – Plan Maintenance

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

This chapter discusses updating this Plan to comply with applicable state and federal requirements. This chapter also describes how the City can incorporate the mitigation actions described in Chapter 4 into existing programs and planning mechanisms and how public participation will remain an important part of Plan monitoring and future update activities.

Coordinating Body

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

- Community Development
- Fire Department
- Human resources
- Marine Safety
- Police Department
- Public Works
- Transit and Community Service

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

Plan Implementation

The effectiveness of the Plan depends on the successful implementation of the mitigation actions. This includes integrating mitigation actions into existing City plans, policies, programs, and other implementation mechanisms. The mitigation actions in this Plan are intended to reduce the damage from hazard events, help the City secure funding, and provide a framework for hazard mitigation activities.

HMPC members prioritized the hazard mitigation actions in **Table 4-3** in Chapter 4. These priorities will guide implementation of these actions through new or existing City mechanisms as resources are available. The LHMP project manager is responsible for overseeing this Plan's implementation, promotion, and maintenance, as well as facilitating meetings and other coordinating activities related to Plan implementation and maintenance.

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

The Laguna Beach Safety Element – Content from the LHMP incorporated into the Safety Element will ensure the goals and policies of this plan are reinforced throughout future developments and projects proposed within the city.

Laguna Beach Emergency Operations Plan – This plan focuses on the effective preparedness and response to hazard events that occur within the city. Incorporating relevant content from this plan into the EOP ensures consistency regarding the hazards addressed in both plans.

Laguna Beach Capital Improvements Program – This program identifies key infrastructure investments throughout the city that may include hazard mitigation elements. Incorporating this plan into the CIP may enhance infrastructure investment through additional funding and/or modification of improvements to include hazard mitigation elements.

This integration of the LHMP into the Laguna Beach Safety Element also allows the City to comply with AB 2140 requirements, as identified in Chapter 1 of this plan.

Plan Maintenance Process

The City's plan maintenance process will rely on the Laguna Beach Mitigation Implementation Handbook, located in **Appendix E**. The handbook is intended to function as a stand-alone document that gives a concise and accessible guide to jurisdiction staff for implementing and maintaining the Plan. A key component of the handbook is the specific mechanisms the jurisdiction can use to integrate this plan into other City planning mechanisms.

Plan Monitoring and Evaluation

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

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

The first of these meetings will be held in the 2024-2025 fiscal calendar year. To the extent possible, HMPC meetings should be scheduled at an appropriate time in the City's annual budgeting process, which will help ensure that funding and staffing needs for mitigation actions are considered.

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

- What hazard events, if any, have occurred in Laguna Beach in the past year? What were the impacts of these events on the community? Were the impacts mitigated, and if so, how?
- What mitigation actions have been successfully implemented? Have any mitigation actions been implemented but not successfully, and if so, why?
- What mitigation actions, if any, have been scheduled for implementation but have not yet been implemented?
- What is the schedule for implementing future mitigation actions? Is this schedule reasonable? Does the schedule need to be adjusted for future implementation, and are such adjustments appropriate and feasible?
- Have any new 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 Laguna Beach?

Plan Updates

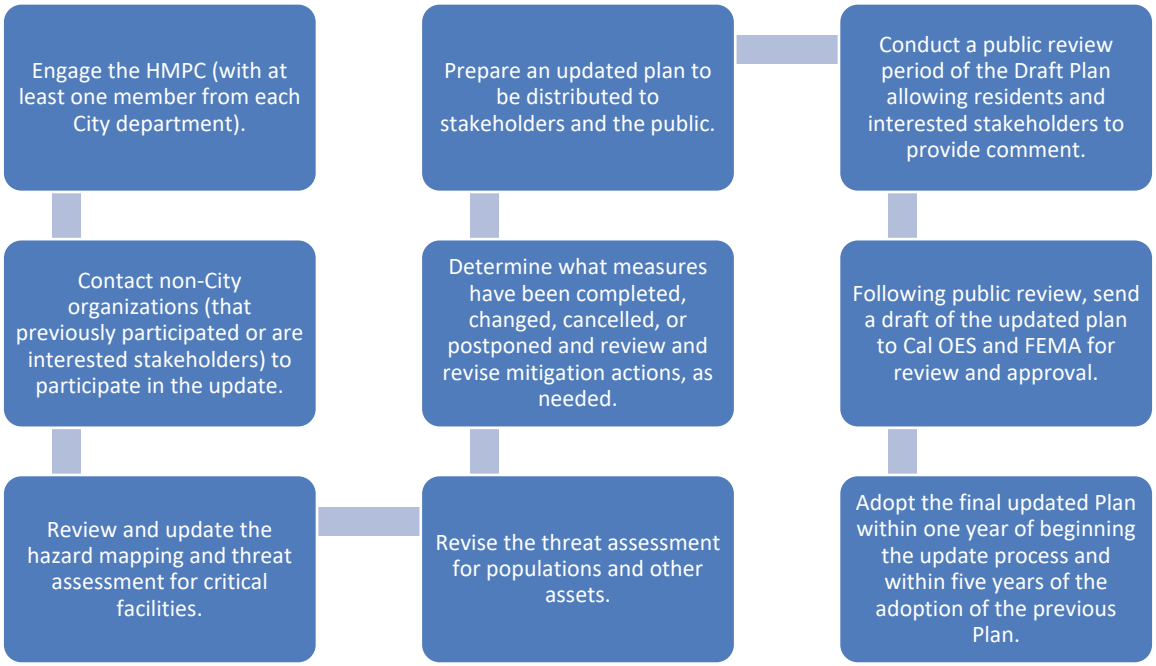
The information in this Plan, including the hazard profiles, threat assessments, and mitigation actions, is based on the best available information, practices, technology, and methods available to the City and HMPC at the time this Plan was prepared. As factors change, including technologies, community demographics and characteristics, best practices, and hazard conditions, it is necessary to update the plan to remain relevant. Additionally, Title 44, Section 201.6(d)(3) of the Code of Federal Regulations requires that LHMPs be reviewed, revised, and resubmitted for approval every five years to remain eligible for federal benefits.

Update Method and Schedule

The update process should begin no later than four years after this Plan is adopted, allowing a year for the update process before the Plan expires. Depending on the circumstances, the LHMP project manager or their designee may also choose to begin the update process sooner. Some reasons for accelerating the update process may include the following:

- A presidential disaster declaration for Laguna Beach or an area that includes part or the entire city
- A hazard event that results in one or more fatalities in Laguna Beach

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 helps keep the Plan relevant and current. The HMPC will determine the best process for updating the Plan, which should include the following steps:



Update Adoption

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

Continued Public Involvement

The City will continue to keep members of the public informed about the HMPC's actions to review and update the LHMP. The HMPC will develop a revised community engagement strategy that reflects the City's updated needs and capabilities. The updated strategy should include a tentative schedule and plan for public meetings, recommendations for using the City website and social media accounts, and content for public outreach documentation. The HMPC will also incorporate content into the annual progress updates that are currently provided to the EDPC and City Council and provide this information on the LHMP Webpage upon release. **Appendix F** includes the latest version of the Safety Element Implementation Plan. This matrix currently identifies the progress made on Safety Element policies and actions, and future updates will include a column that identifies connections to the LHMP ensuring greater consistency. When this update becomes available the City will use its existing social media platforms and mailing lists used to engage community members. These outreach opportunities will describe the actions taken by the City and ways that residents and businesses can help further

the City's goals. These updates are anticipated to occur after the annual HMPC meeting is conducted by the City. During the annual HMPC meeting, the City will also develop a short (3-5) question online survey that can be shared with the community to gather additional input during the implementation period.

Point of Contact

The HMPC leader for Laguna Beach is the primary point of contact for this Plan and future updates. At the time of writing, the HMPC leader is Brendan Manning (Emergency Operations Coordinator), available at bmanning@lagunabeachcity.net | (949) 497-0350.

Plan Continuity

If the Emergency Operations Coordinator position is vacant at the time of the next LHMP update, the point of contact (Project Manager) for the updated plan and/or plan implementation and maintenance would be identified by the City's Fire Chief that oversees the Emergency Management Division.

Appendix A – HMPC Meeting Materials

Table 1-1: Laguna Beach HMPC Members		
Name	**Title**	**Department**
Aggie Nesh	HR Manager	Human Resources
Brendan Manning	Emergency Operations Coordinator	Fire Department
Crissy Tiechmann	Deputy Chief	Fire Department
Kai Bond	Captain	Marine Safety
Marc Wiener	Director	Community Development
Mike Peters	Captain	Police Department
Nabila Guzman	Senior Administrative Analyst	Transit & Community Services
Pierre Sawaya	Senior Project Manager	Public Works
Richard Gonzales	Deputy Director	Public Works, Wastewater Division
Robert Montaghami	Fire Marshal	Fire Department

Location: City Council Chambers
Date: June 28, 2023
Time: 1:00 PM – 1:45 PM

City of Laguna Beach

Local Hazard Mitigation Plan Update
HMPC Meeting #1 Agenda

I. **Team Introductions**

II. **Local Hazard Mitigation Plan Overview**

III. **Follow-up Items**

Hazard Mitigation Planning Process	**June 2023 – September 2023**
Community Outreach	Ongoing
Administrative Draft LHMP	Summer 2023
Public Review Draft LHMP Document	Fall 2023
Cal OES/FEMA Review Draft Document	Fall 2023

Follow-up Items

- What is the level of development the City is expecting to occur. Within that development, how much of it is expected to be ADUs?

- Get information from Arborist regarding pest impacts on trees and is pest management a problem that should be addressed in the LHMP.

- Ask PD for civil unrest information (dates of rallies, estimated number of attendees, any issues/violence/property destruction that occurred).

- Get a copy of the City's Insured Asset Inventory.

- Verify information regarding water tanks and lift stations listed on the critical facilities/facilities of concern spreadsheet.

Mitigation Actions follow-up

Follow up with Public works in the following Mitigation Actions:

- 1.3 - Expand fiber optic communication systems throughout the City through the following strategies:
    - Connect key critical facilities with fiber optic communications.
    - Improve emergency communications between critical facilities and key infrastructure through the use of a "dark fiber" network.
    - Install fiber optic systems or conduits for fiber optic infrastructure in coordination with undergrounding infrastructure projects or projects that include subsurface excavation within public streets.
    - Require installation of underground conduit in association with private developments proposed throughout the City.

- 1.7 - Explore the feasibility of connecting key critical facilities, including City Hall/Police Station, Marine Safety HQ, and community fire stations, to a microgrid power-supply network.

- 1.8 - Coordinate closely with water and natural gas providers to add isolation valves at key locations along their pipeline networks. Identify locations and corridors necessary to isolate wastewater from human contact due to overflows caused by catastrophic service failures.

- 1.10 - Identify areas in need of slope stabilization and stabilize with deep-rooted vegetation, geotextile fabric, and other slope stabilization techniques. (Has this been documented?)

- 2.4 - Explore modifications to the berm at Main Beach Park as necessary and modify the design of the barrier to the extent feasible to protect the park and adjacent properties from coastal (tsunami, wave run-up, etc.) and inland flooding conditions.

- 5.1 - Use permeable paving and landscaped swales in all new and replacement City-owned hardscapes to the extent feasible.

- 7.3 - Conduct a community-wide moisture-induced landslide and mudslide risk analysis, including the potential for building destruction/damage, deaths, and injuries. Consider the anticipated changes to precipitation patterns, wildfires, and other factors that may influence mudslide events.

Follow up with Community Development on the following Mitigation Actions:

- 1.12 - Establish greater setbacks for siting new City critical facilities in mapped flood hazard, coastal hazard, and landslide hazard zones to the extent feasible. Ensure critical facilities sited within the wildfire hazard zone exceed the minimum mitigation standards as defined by the Fire Code. (Is this feasible?)

- 2.1 - Develop criteria for clifftop properties to estimate when erosion may begin to cause structural damage or pose a safety risk.

- 5.2 - Require new construction and significant redevelopment projects not required to prepare a Water Quality Management Plan to reduce runoff through the use of landscaped swales, permeable paving, and other applicable low-impact development strategies.

Follow up with WEROC/MWDOC on the following Mitigation Action:

- 4.4 - Incentivize indoor and outdoor water efficiency through community-wide education and rebate programs and continue to maintain these programs and other restrictions on water use in the absence of drought conditions. This activity requires close coordination with local water providers and the Municipal Water District of Orange County.

Follow up with Fire Chief on the following Mitigation Actions:

- 1.5 - Replace or supplement larger emergency response equipment with smaller vehicles that are better able to navigate narrow community streets without sacrificing response effectiveness. (Remove?)

- 9.6 - 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.

- 9.7 - Develop a vegetation management pilot program that assists abatement activities for homeowners that meet low-income requirements. (Do you want to keep?)

Follow up with the Fire Marshal on the following Mitigation Action:

- 9.1 - Create a streamlined permitting process with Coastal Commission for fuel removal activities that are consistent with the Natural Community Conservation Plan and Habitat Conservation Plan for Orange County's Central and Coastal Subregion.

Follow up with Water Quality/Water Districts on the following Mitigation Actions:

- 1.2 – Install and harden emergency backup generators at water pump stations and sewer lift stations. (is more work necessary, or can we mark it as complete?)

- 4.2 - Aggressively search for and repair leaks in water infrastructure through close coordination and cooperation with the Laguna Beach County Water District and South Coast Water District.

- 4.3 - Increase the use of recycled water sources for City residents and businesses through close coordination and collaboration with the Laguna Beach County Water District and South Coast Water District.

Follow up with Arborist on the following Mitigation Action:

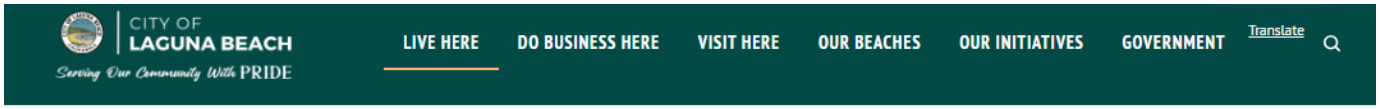
- 3.4 - Update City landscape standards to incorporate disease-resistant plant species as part of landscaping projects/ improvements.

Follow up with City Manager's Office on the following Mitigation Action:

- 2.2 - Explore the feasibility of long-term acquisition for properties that have been made unsafe or unsuitable for development due to erosion. (Done for landslides, not sure about erosion).

City of Laguna Beach	LHMP Meeting # 1 Sign In Sheet	Date: June 28, 2023
Name	**Title or Position**	**Department/Agency**
KAI BOND	MS. CAPTAIN	CITY OF LAGUNA BEACH
Crissy Teichmann	Deputy Chief	City of LB
MIKE PETERS	CAPTAIN	CITY OF LB
PIERRE SAWAYA	SR. PROJECT MGR	PW - LB
Nabila Guzman	Sr. Administrative Analyst	Transit and Community Services
Marc Wiener	DIRECTOR	COMMUNITY DEVELOPMENT

Appendix B – Outreach Engagement Materials



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2023 Local Hazard Mitigation Plan Update

WHAT IS A LOCAL HAZARD MITIGATION PLAN UPDATE?

Local Hazard Mitigation Plan

The City of Laguna Beach is preparing a Local Hazard Mitigation Plan (LHMP). This plan will help create a safer community for residents, businesses, and visitors. The LHMP allows public safety officials and city staff, elected officials, and members of the public to understand the threats from natural and human-caused hazards in our community. The plan will also recommend specific actions to proactively decrease these threats before disasters occur.

Why have an LHMP?

An LHMP will help Laguna Beach better plan for future emergencies. Usually, after a disaster occurs, communities take steps to recover from the emergency and rebuild. An LHMP is a way for the City to better prepare in advance for these disasters so less damage occurs and recovery is easier when they do occur. Our community can use LHMP strategies to reduce instances of property damage, injury, and loss of life from disasters. Besides protecting public health and safety, this approach can save money. Studies estimate that every dollar spent on mitigation saves an average of four dollars on response and recovery costs. An LHMP can also help strengthen the mission of public safety officers, such as police and fire department staff, providing them with clear roles and responsibilities to build a safer community.

Besides helping protect Laguna Beach, our LHMP will make the City eligible for grants from the Federal Emergency Management Agency (FEMA) that can be used to further improve safety and preparedness in the community. Having an adopted LHMP can also make Laguna Beach eligible to receive more financial assistance from the State when disasters occur.

City of Laguna Beach - Government
June 26 ·

Share Your Thoughts on the Laguna Beach Hazard Mitigation Plan

The City of Laguna Beach has begun updating our Local Hazard Mitigation Plan. The plan helps public safety officials and city staff, elected officials, and members of the public understand the threats from natural and human-caused hazards in our community and recommends specific actions to proactively decrease these threats before disasters occur.

We are seeking input from the community on hazard risks and areas of concern. Please complete our survey and attend our open forum on Wednesday, June 28th from 12:00 to 1:00 p.m. or 5:00 to 6:00 p.m. in Council Chambers (505 Forest Ave).

Click the link below to take the survey:
https://bit.ly/3NLMhfq

2023 City of Laguna Beach Hazard Mitigation Plan Survey

I. Local Hazard Mitigation Plan Survey

Dear Community Member,

The City of Laguna Beach is preparing an update to the Local Hazard Mitigation Plan or LHMP. Like all other communities, Laguna Beach could potentially face widespread devastation in the event of a natural disaster. While no community can completely protect itself against all potential hazardous situations, this plan will help identify those situations, assess our current provisions, and outline a strategy to lessen the vulnerability and severity of future disasters.

Your responses to this survey will inform the preparation of the plan. Thank you for your time and cooperation.

* Indicates required question

1. Email *

II. Hazard Awareness

2. 1. Please indicate whether you live or work in the City of Laguna Beach. *

Mark only one oval.

- a. I live in the City of Laguna Beach.
- b. I work in the City of Laguna Beach.
- c. I live and work in the City of Laguna Beach.
- d. Neither applies to me, but I am interested in the City's resiliency

3. 2. What is the Zip Code of your home? *

4. 3. Have you been impacted by a hazard event in your current residence? *

Mark only one oval.

- a. Yes
- b. No

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

Check all that apply.

- Coastal Hazards (Coastal Erosion, Sea Level Rise, Tsunami)
- Disease and Pests
- Extreme Weather (Drought, Severe Storm, Wind)
- Flood
- Hazardous Materials Release
- Human-Caused Hazards (Terrorism/Mass Casualty Incident, Civil Unrest, Cyber Threat)
- Landslide/Mudflow
- Seismic Hazards (Liquefaction, Seismic Shaking)
- Wildfire
- Other

6. If you selected "Other" above, please list any additional hazards that have previously impacted your neighborhood or home.

7. 5. The following hazards could potentially impact the city. Please mark the THREE (3) hazards that are of most concern to your neighborhood or home. *

Check all that apply.

- [ ] Coastal Hazards (Coastal Erosion, Sea Level Rise, Tsunami)
- [ ] Disease and Pests
- [ ] Extreme Weather (Drought, Severe Storm, Wind)
- [ ] Flood
- [ ] Hazardous Materials Release
- [ ] Human-Caused Hazards (Terrorism/Mass Casualty Incident, Civil Unrest, Cyber Threat)
- [ ] Landslide/Mudflow
- [ ] Seismic Hazards (Liquefaction, Seismic Shaking)
- [ ] Wildfire
- [ ] Other

8. If you selected "Other" above, please list any additional hazards that have previously impacted your neighborhood or home.

_____

_____

_____

_____

_____

9. 6. The planning team is using various data sources to identify hazards in your community; however, some of these data sources do not provide data at a general citywide level. Are there any small-scale issues, such as ponding at a specific intersection during rain, that you would like the planning team to consider? *

Mark only one oval.

- ( ) a. I am not aware of local hazards
- ( ) b. I am aware of local hazards

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

11. 7. How concerned are you that climate change may create new hazardous situations in Laguna Beach or make existing natural hazards worse? *

Mark only one oval.

- a. Very concerned.
- b. Somewhat concerned.
- c. Somewhat unconcerned.
- d. Not at all concerned.
- e. Unsure.

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

Mark only one oval.

- a. It already is.
- b. Within the next five years.
- c. In five to twenty years.
- d. Not for at least another twenty years.
- e. Never, or not in my lifetime

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

Mark only one oval.

- a. Very confident.
- b. Somewhat confident.
- c. Somewhat unconfident.
- d. Not at all confident.
- e. Unsure.

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

Mark only one oval.

- a. Yes, my insurance coverage should be adequate.
- b. No, I don't believe my insurance coverage would be adequate for a major disaster.
- c. Unsure.
- d. I do not have an insurance policy.
- e. Not applicable; I rent my current residence.

15. 11. If you rent your residence, do you have renters' insurance? *

Mark only one oval.

- a. Yes
- b. No
- c. Not applicable; I own my residence.

16. 12. Do you have flood insurance for your home? *

Mark only one oval.

- a. Yes, I own my home and have flood insurance.
- b. Yes, I rent my home and have flood insurance.
- c. No, but I am interested in reviewing flood insurance options (https://www.floodsmart.gov).

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

Mark only one oval.

- a. Yes
- b. No
- c. Not applicable; I rent my residence.

18. If not, do you plan to?

19. 14. If a severe hazard event occurred today such that all services were cut off from your home (power, gas, water, sewer) and you were unable to leave or access a store for 72 hours, which of these items do you have readily available? *

Check all that apply.

- [ ] a. Potable water (3 gallons per person)
- [ ] b. Cooking and eating utensils
- [ ] c. Can opener
- [ ] d. Canned / nonperishable foods (ready to eat)
- [ ] e. Gas grill / camping stove
- [ ] f. Extra medications and contact lenses (if applicable)
- [ ] g. First aid kit / supplies
- [ ] h. Portable AM/FM radio (solar powered, hand crank, or batteries)
- [ ] i. Important family photos / documentation in a water- and fireproof container
- [ ] j. Extra clothes and shoes
- [ ] k. Blanket(s) / sleeping bag(s)
- [ ] l. Cash
- [ ] m. Flashlight (with batteries)
- [ ] n. Gasoline
- [ ] o. Telephone (with batteries)
- [ ] p. Pet supplies
- [ ] q. Secondary source of heat
- [ ] r. Handheld "walkie-talkie" radios (with batteries)

20. What else do you have in your emergency kit?

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

Mark only one oval.

- a. Yes
- b. No

22. 16. Are you a trained member of your Community Emergency Response Team (CERT)? *

Mark only one oval.

- a. Yes
- b. No, but I would like to learn more about CERT.
- c. No, I am not interested in being a trained CERT member.

23. For more information about CERT, please visit: www.lagunabeachcity.net/CERT

24. 17. How can the City help you become better prepared for a disaster? (Choose all that apply) *

Check all that apply.

- [ ] a. Provide effective emergency notifications and communication.
- [ ] b. Provide training and education to residents and business owners on how to reduce future damage.
- [ ] c. Provide community outreach regarding emergency preparedness.
- [ ] d. Create awareness of special needs and vulnerable populations.
- [ ] e. Other (please specify)

25. If you selected "Other" above, please describe.

_____

_____

_____

_____

_____

If you do NOT work in the City of Laguna Beach, please skip to question 22.

26. 18. What is the ZIP code of your workplace?

_____

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

Mark only one oval.

- ◯ a. Yes
- ◯ b. No
- ◯ c. I don't know

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

Mark only one oval.

- a. Yes
- b. No

III. Recommendations and Future Participation

29. 21. Would you like to be contacted when the Draft 2023 Laguna Beach Hazard Mitigation Plan is available for review? *

Mark only one oval.

- a. Yes, please notify me using my contact information in the next question.
- b. No

30. 22. If you would like to be notified of future opportunities to participate in hazard mitigation and resiliency planning, please provide your name and e-mail address. If you do not have an e-mail address, please provide your mailing address. This information will be kept confidential.

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

Thank you for taking the time to complete this survey. If you have any questions, or if you know of other people/organizations that should be involved, please contact Brendan Manning, at bmanning@lagunabeachcity.net.

2023 City of Laguna Beach Hazard Mitigation Plan Survey

79 responses

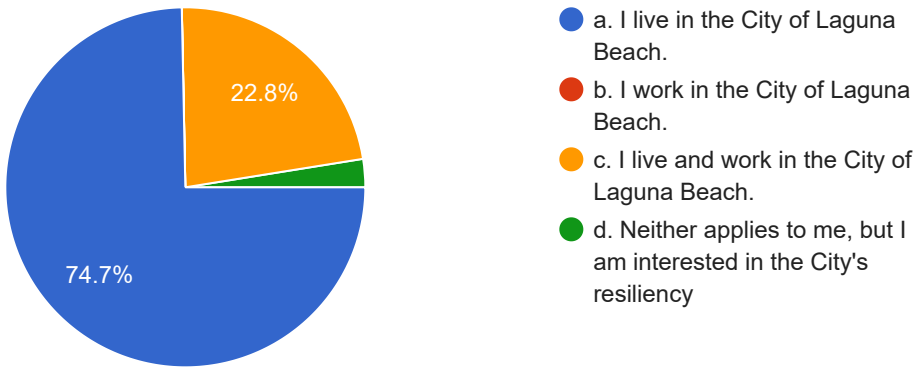
Publish analytics

II. Hazard Awareness

1. Please indicate whether you live or work in the City of Laguna Beach.

Copy

79 responses



2. What is the Zip Code of your home?

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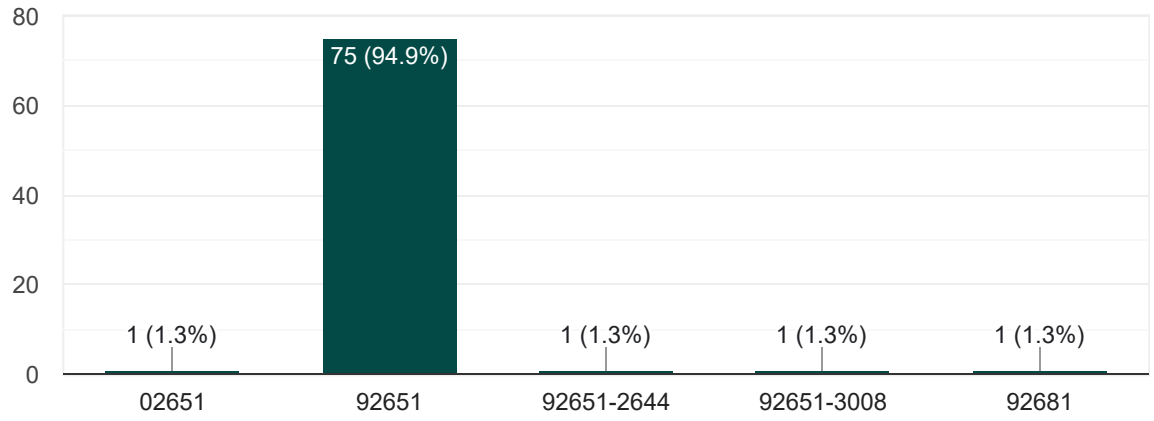
79 responses



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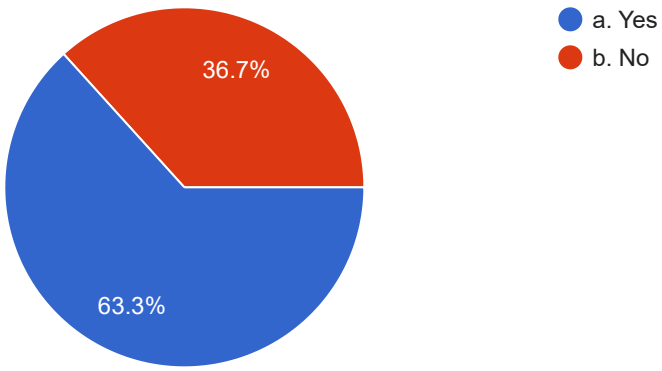
3. Have you been impacted by a hazard event in your current residence?

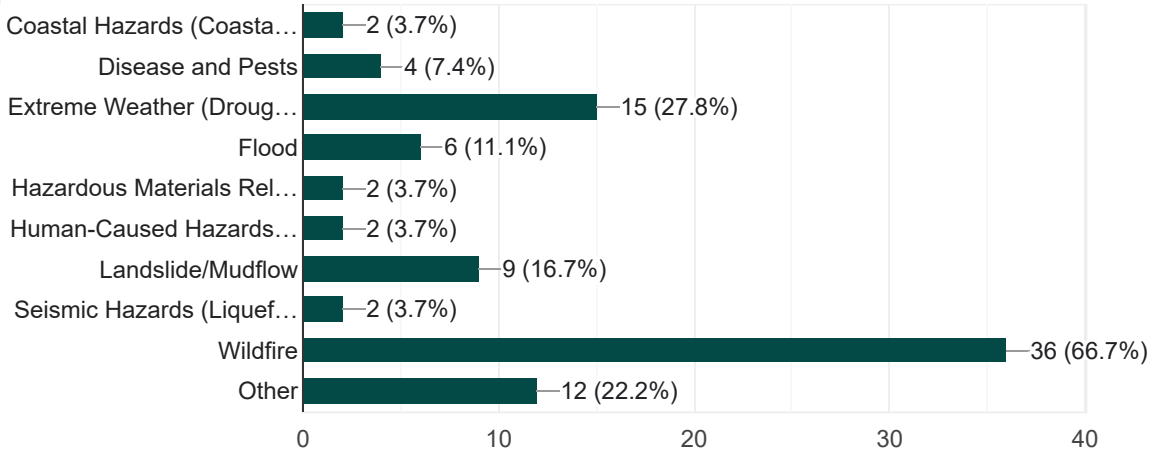
79 responses



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

Copy

54 responses



If you selected “Other” above, please list any additional hazards that have previously impacted your neighborhood or home.

14 responses

Downed electrical wires in combination with fire (2015) so we were trapped and couldn't move away from the fire, and had no landline or cell communication. And downed wires in addition to mudslides in 1995 prevented/delayed help from getting to us when we were trapped in mud.

Tar and oil leakage issues.

Expansive soil requiring "piers” to be installed (10) around a corner of the house to stabilize it. Approximately a $30k project

Ocean pollution at Aliso Beach from illegal breaching go the sand berm

Laguna Canyon Rd is extremely dangerous. Dense vegetation near and around electric and telephone poles, excessive traffic, poor traffic control.

Smoke from nearby wildfires

Hillside street pavement sunk/broken pipe/flooded homes/streets required limited access in neighborhood. Providence Hospital chemicals spills.

large tree branch from neighbor fell during windstorm and damaged my roof and gutter

Horrible Sewer Smell coming up from the street, flumes smelling toxic

Dangerous area on Hiking Trail off Valido. The steep part before creek with no stairs. Very easy to fall down. Lots of poop left on trail often too

Downed power lines / utility pole hazards.

Overgrowth of the greenbelt, fire hazard

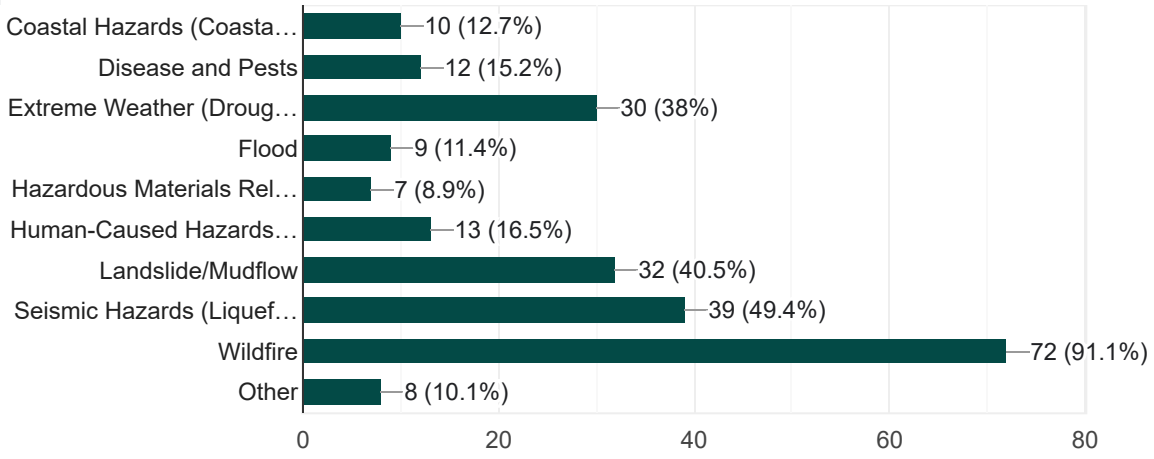
Mass traffic jams in the downtown area where I live block fire trucks and ambulances and also escape routes

Two fires the first when they evacuated Alta laguna the second I lived at TOW

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

Copy

79 responses



If you selected “Other” above, please list any additional hazards that have previously impacted your neighborhood or home.

10 responses

Runoff from storm drains polluting the ocean

Downed power lines

I have a neighbor below my home that is a “horder” & he smokes cigarettes This is where the land has slid due to extreme storing of rotting wood & materials that will burn 🔥

Ocean pollution from urban runoff

Last fire above my development

Horrible Sewer Smell coming up from the street, flumes smelling toxic

So. Cal Edison lines coming down in a storm or earthquake.

Fireworks for July 4th or other special events pose an unnecessary wildfire and injury risk to residents and animals (domestic/wild). They cause an unacceptable level of pollution to our ocean, air, and city. Given Laguna's much-touted reputation as being water wise, a Marine Protected Area (MPA) and good steward toward fire mitigation, it is COMPLETELY SENSELESS to continue to use the outdated, dangerous, pollution creating, traumatizing, fiscally irresponsible technology of pyrotechnic displays. Laguna needs to step up and be a leader once again in Orange County! If we replace pyrotechnics with other means of celebration such as hiring a responsible drone entertainment company with a "show" it may not please everyone, but it would go a LONG way toward responsible civic duty to protect our citizens, land, air, ocean and living creatures - human and other. And if such a move is less popular and attracts less big crowds to our city and beaches - EVEN BETTER! The trash, noise, pollution, traffic congestion the fireworks attract is more of a detriment to our community than a few days' of heightened revenue for some businesses. What if a disaster struck during the fireworks celebrations? Either mass casualty/human created, or wildfire, or earthquake? How would the vastly overwhelmed first and citizen responders cope with the clogged egress/ingress? And again - the ridiculous amount of trash strewn on our land and beaches is not acceptable. I could go on... obviously... and have barely touched on the toll that fireworks has on our citizens who have PTSD or other ill affects from traumatic noise experiences. Many of these citizens put their lives at risk to protect our country. We do them no good by showing fleeting "patriotism" by causing them undue, unnecessary HARM. Brendan, I implore you to work with our LBPD, City Council, City Manager and perhaps our great Arts Commission and City Arts Leadership to explore forward thinking alternatives to fireworks, and putting an end to that outdated, dangerous, costly, pollution causing practice. I'm willing to help this cause if there is something I can do to help!

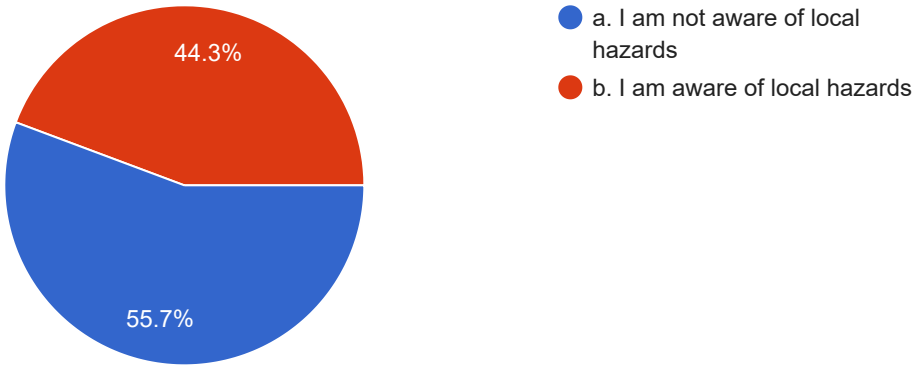
Downed power lines/ utility pole hazards.

Mass traffic jams in the downtown area where I live block fire trucks and ambulances and also escape routes

6. The planning team is using various data sources to identify hazards in your community; however, some of these data sources do not provide data at a general citywide level. Are there any small-scale issues, such as ponding at a specific intersection during rain, that you would like the planning team to consider?

Copy

79 responses



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

32 responses

I live at 940 Bluebird Canyon Dr, Land Slide victim. The hill behind my home has never been cleared of overgrown brush, shrubs or other wild fire vegetation. I think it must be private property as the city has been good about prevention. Please help!.

City installed drainage facilities on privately owned as well as City-owned parcels at site of 1980 Del Mar Landslide, which have not been repaired or even inspected in > 40 years!

Water flow down Skyline from homes with mostly hardscape rounds the corner at Park Ave and flows into our garages during storms

Previous well documented fires, obvious repercussions of drought, occasional gophers, squirrels and rats.

Fast careless traffic (and noise) on Park Avenue, cars/trucks MOTORCYCLES on way up and down from scenic lookout at end of Alta Laguna.

Canyon Acres is a box canyon - slow to evacuate in case of flood or fire. The narrow street gets additionally congested by visitors parking to hike or mountain bike the trails at the end of Canyon Acres.

the weed abatement is not enforced. Many homeowners on Rimrock and and the streets surrounding area are not clearing burnables.
Big fire hazard here in Temple Hills

Reckless driving by tourists. Hazardous intersection at PCH/Cliff/Aster (Urth Caffe) with jaywalking and cars parking to block traffic in front of Urth Caffe.

Human caused hazards from driving; running red lights & stop signs , speeding, reckless driving, stopping vehicles in the road or not specified parking spots. Especially cars parked directly in front of Earth Cafe on PCH in non parking spots. These cars block cars going North on Cliff Dr. trying to merge onto PCH.

ocean pollution at Aliso Beach from inland urban runoff to Laguna's MPAs. Increased wildfire risk caused by stripping hillsides of vegetation to expose soil mantle and elevate the urban heat sink.

Commercial area across from Montage Resort is a concern due to a lot of traffic and pedestrians and no stop signs

We had quite a lot of ponding and flooding between the Big Bend and El Toro on the 133.

The traffic back up onto Coast Highway during morning drop off at El Morro Elementary School. The cross walk lights are NOT enough to protect pedestrians. Traffic lights timed correctly at all intersections where the flashing lights are currently would help. I honk daily at cars who don't stop when the lights are flashing for a pedestrian to cross the street. Thank you.

1. Historic flooding on Laguna Canyon Rd water from the park sheets over the road in some places
It meets the rising water coming from Laguna Creek
2. Extreme wildfire hazard sue to heavy brush on hills and Canyon areas. Areas that have not burned in 50+ years
3. Mudslides in Laguna Canyon , some hillsides are extremely unstable in heavy rain years
4. Post fire mud and debris flows from burned hillsides as seen subsequent to 1993 fires

Properties along both sides of PCH are crumbling. Example 8th/pch in South Laguna and pct near Aliso Beach. Private property hillsides and drainage systems along pch must be maintained, especially near Aliso Beach.

Overgrown vegetation (Brazilian pepper tree) causing potential wildfire hazard (backyard 425 Seaview Street)

Buena Vista way curvature and slope, after Canyon View split, tends to flood residences (eg, 817, 807 Buena Vista Way) during heavy rains

Ponding occurs on Cress St near the park dip and on Glennyre between Bluebird and Calliope

limited evacuation routes

Teenagers accessing fire roads (between Moulton Meadows and TOW) and setting off fireworks

North Laguna Sewer Smell, the city has done everything to fix the south Laguna sewer problems but has done nothing about the north Laguna problems, the smell coming out of the sewer has never stopped and has been happening for the 10 years. I live on Mcknight dr and PCH, that screech from McKnight to Circle K smells 50% of the year.

North coast Hwy road dips - floods in heavy rain (by trailer park used to be)

Flooding

Powerlines in the canyon between Bridge Rd/Hillview Dr. and Temple Hills Dr.

The very old, dry vegetation fuel for potential wildfires behind our home in the Aliso/Wood Canyon area. Recently the area experienced a wildfire. Winds shifted and caused devastating losses for residents in Laguna Niguel, just east of us. If another wildfire occurs in the area and prevailing winds are from the east, our neighborhoods are at high risk. Some hand clearing has

occurred in our area, immediately behind our homes, but this would do little to save our structures, and lives, from flying embers especially during a Santa Ana wind event. I am in the Wesley District at the end of Ocean Vista Drive, overlooking Aliso Creek/Beach.

Please see my concern about Fireworks displays above. I clicked "Submit" prematurely on my previous survey, and intended to include this in my thoughts and feedback. Thank you!

Section of dense brush in wildland very close to neighboring houses

People consistently swimming in the runoff from Aliso Creek to Aliso Beach

We live on Glenneyre.
Resurfacing the street in front of our home over time has raised the street higher and higher causing more water to runoff onto our property which is an older home. I have raised this issue with Public Works. Before adding additional layers to streets, the City needs to remove some of the existing asphalt. Otherwise, over years, the City is significantly raising the level of the street and needs to do an analysis of the impact of that for water flow, particularly in neighborhoods like ours where the City has not constructed gutters to capture the water.

Main beach and canyon flooding

Massive traffic jams when there are streets shut down in the area will prevent emergency response vehicles from reaching people and fires in a timely manner and possible escape routes.

Park Avenue and TOW when it's rainy and windy. I also think you should add lights to the two crosswalks on park Ave the one at Thurston and the next one up before the stop sign.

7. How concerned are you that climate change may create new hazardous situations in Laguna Beach or make existing natural hazards worse?

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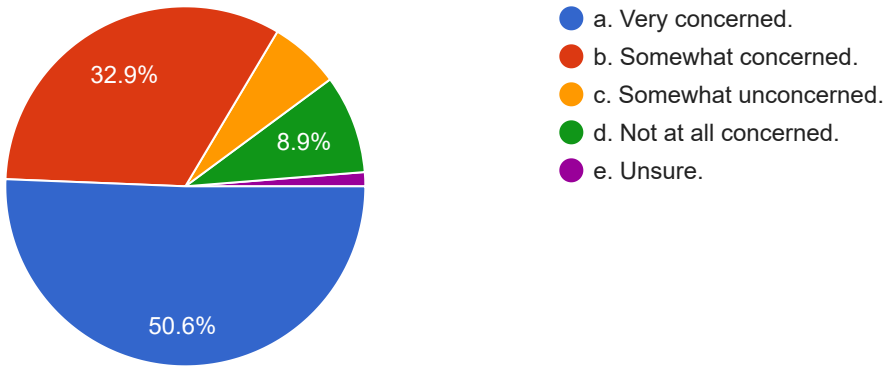
79 responses



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

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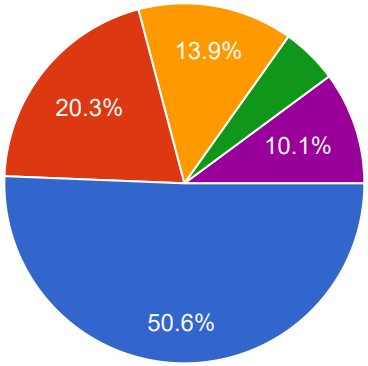
79 responses



- a. It already is.
- b. Within the next five years.
- c. In five to twenty years.
- d. Not for at least another twenty years.
- e. Never, or not in my lifetime

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

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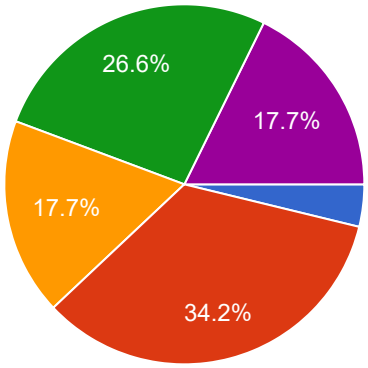
79 responses



- a. Very confident.
- b. Somewhat confident.
- c. Somewhat unconfident.
- d. Not at all confident.
- e. Unsure.

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

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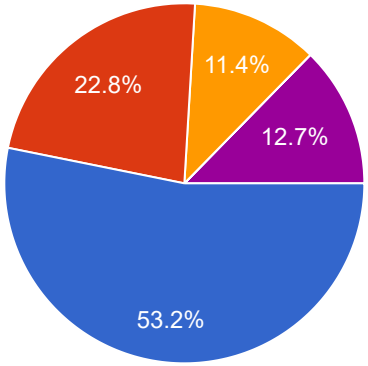
79 responses



- a. Yes, my insurance coverage should be adequate.
- b. No, I don't believe my insurance coverage would be adequate for a major disaster.
- c. Unsure.
- d. I do not have an insurance policy.
- e. Not applicable; I rent my current residence.

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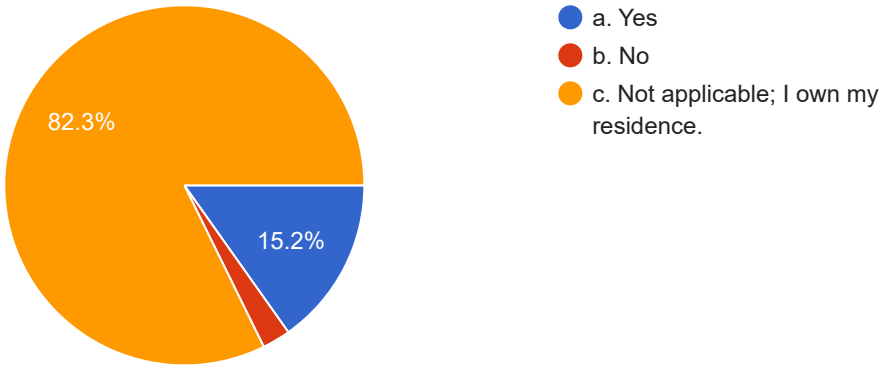
11. If you rent your residence, do you have renters' insurance?

79 responses



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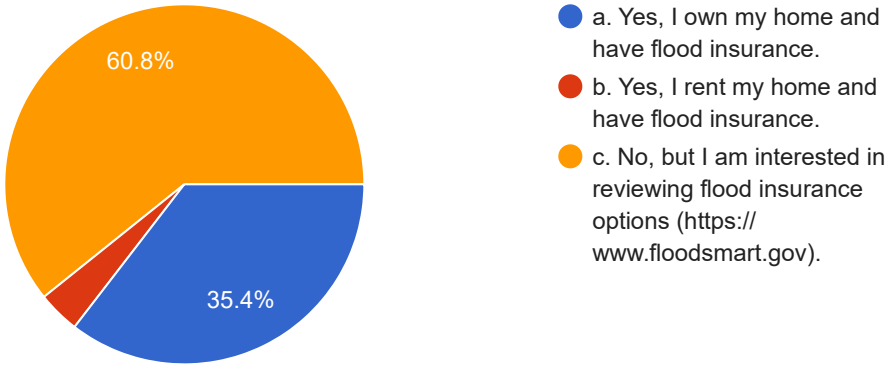
12. Do you have flood insurance for your home?

79 responses



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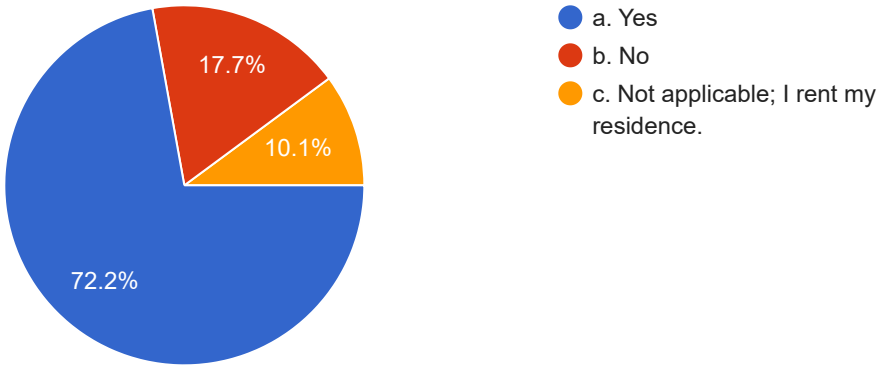
13. Have you done anything to your home to make it less vulnerable to hazards such as earthquakes, floods, and fires?

79 responses



If not, do you plan to?

10 responses

My apartment complex is currently in the process of making improvements to water flow at increased volumes.

No

Plan to install rainbird sprinklers for wildfire prevention/suppression

Not applicable. Home not at any unusual hazard.

Not much I can do. Neighbors trees touching my home and they won’t cut them. Unsure what else we can do. Neighbor has wood chip in their flower beds.

Yes

no

Not sure what to do - will not cutdown all trees

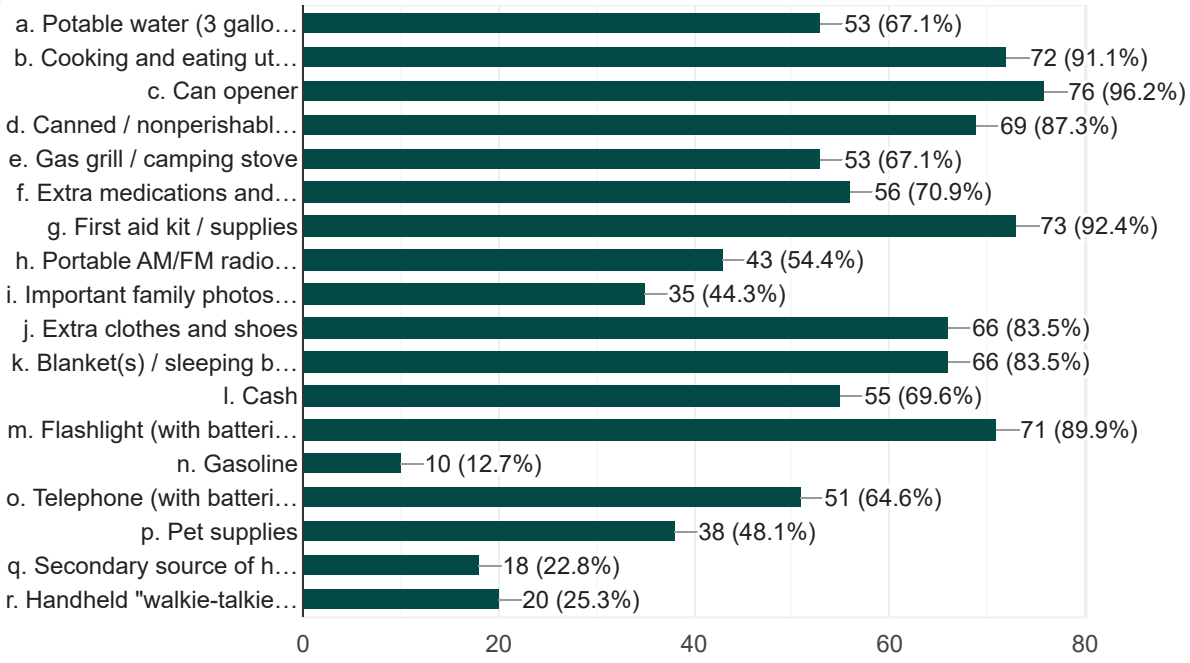
Filters in the attic

We try our best but one of neighbors has trees that drop slot of dry leaves and they don't maintain their Property therefore during a fire we definitely worry about how easy it would be to catch fire. Also the trees up here seen to be touching power lines I would say I have seen at least 5 trees along Alta laguna all the way throughout the end of top of the world that need trimming.

14. If a severe hazard event occurred today such that all services were cut off from your home (power, gas, water, sewer) and you were unable to leave or access a store for 72 hours, which of these items do you have readily available?

Copy

79 responses



What else do you have in your emergency kit?

28 responses

Active CERT volunteer: gas shut off tool, rope, bungee cords, emergency kits, candles w waterproof matches, etc.

flash drive with important documents

Solar cellphone charger, trash bags, water purifier, Leatherman, crow bar

Guns, portable generator.

Personal protection systems.

Solar powered lanterns.

Space blankets, CERT supplies for the neighborhood

Experience

We have solar panels with battery which would keep us in light and power for 72 hrs.

Thermal blanket, trash bags, cleaning wipes

Toilet paper

Gas/water shut off tool; water purification tablets; military rations

important papers

Generator

alternative transportation - bicycle

Important finance and insurance documents

Solar battery charger

Small generator

Backpack with emergency needs, sunglasses, car has: bottled water, tennis shoes, duct tape, blanket.

Water filter, tent, cots, portable toilet

solar panel to recharge cell phone.

Solar chargers, heavy tools, extra propane

Stop the bleed kit/Utility tools/solar panel/water purification unit&straws/protective clothing

Gloves, mylar blanket

Tents, portable heating unit.

Second home

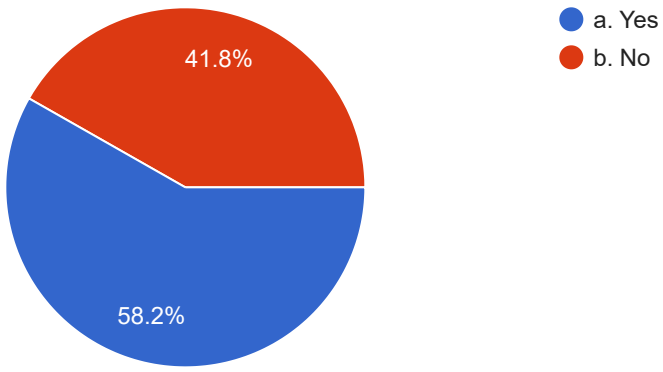
Bandaids, antibiotic gel

Turn a kit, solar panel, we each have a go backpack pens, paper, water filter, crank radio, glow sticks, whistle,hand warmers,screw drivers, set of l keys.....

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

Copy

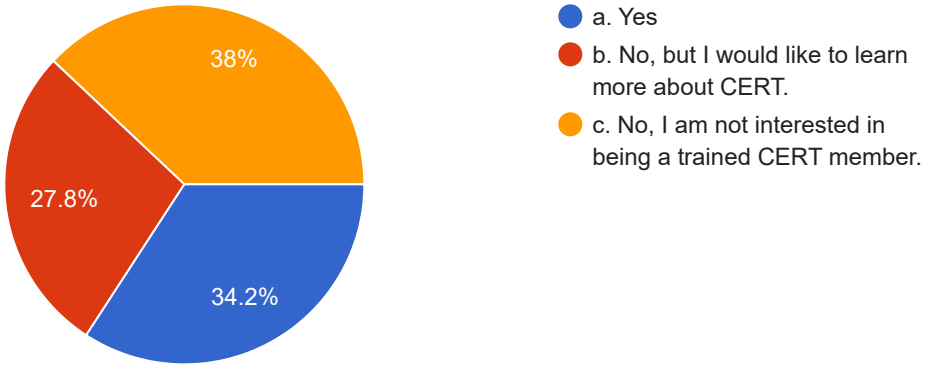
79 responses



16. Are you a trained member of your Community Emergency Response Team (CERT)?

Copy

79 responses



For more information about CERT, please visit:
www.lagunabeachcity.net/CERT

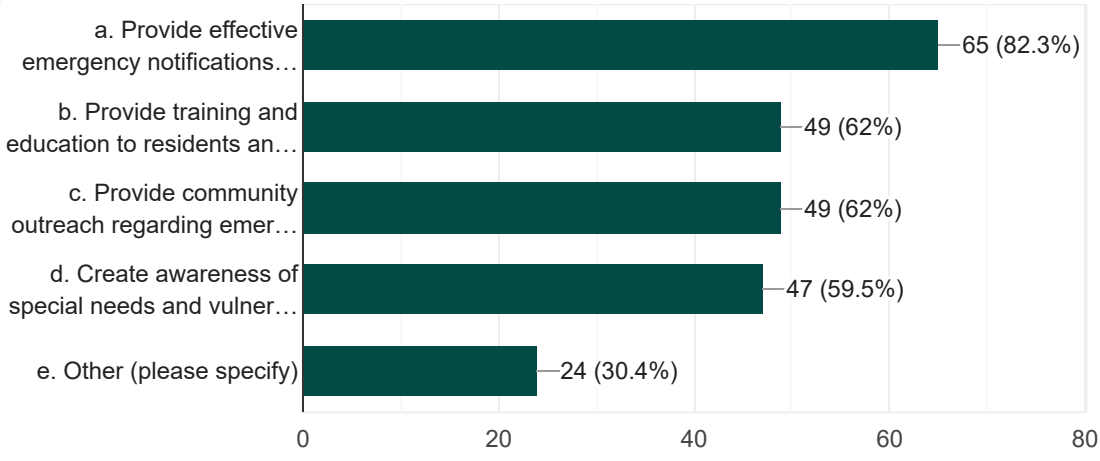
1 response

I think we're too old? (84)

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

Copy

79 responses



If you selected “Other” above, please describe.

24 responses

I’m old and not very strong or healthy anymore. I’d like to learn more about staying on my property, even in a tent if necessary since I can’t move very well and have no family or friends left.

Build four new fire stations and a police station/emergency dispatch/EOC to current seismic standards + adequately staff FD for fire fighting per NFPA standards!

The city is doing an ecxcellant job of emergency preparedness. Residents have to be responsible and self reliant. The city can’t protect residents in all situations

Provide evacuation information and timely notification. Maybe you do this.

Update evacuation maps so the place names are current/make sense.

enforcement of weed abatement

Make sure ER speakers can be heard by every home. You can’t necessarily hear the one in Arch Beach Heights. If wind is blowing (and it usually is) sound is drowned out.

Install a citywide perimeter high purity wildfire prevention & suppression system to lower homeowners insurance rates. Laguna dumps about 2 million gallons of secondary sewage each day just 1.5 miles offshore since the city has no recycled water program.

Better code enforcement via periodic inspections, e.g., for private property owner encroachment into City wilderness, inadequate property and vegetation maintenance.

What is your consultant work costing us just a number

Educate the population on the availability and affordability of flood insurance.

Continue to provide and assist with fuel
Modification in canyon areas
Force CalTrans to reduce fuel /brush on both doses of Laguna Canyon Rd

The rental market and tenant turn-over rate is extremely high. The City should work wiht all RE agencies to ensure all new residents are provided emergency information upon lease signing. People who move in to our neighborhood have no idea about the City, emergency needs or even trash pick up. This seems irresponsible and easily solved by working with the agents being paid for filling these homes.

A PR campaign to trim trees and vegetation. Most of my neighbors do NOT trim their trees and don't maintain vegetations

Evacuation by car during high visitor times will make it impossible to safely evacuate in a timely manner. We need the City to develop a plan to evacuate visitors as well as residents safely. 2-3 hours sitting in a car on 1 or 2 evacuation routes will increase the risk of fatalities. (we can assume at least 1 of the 3 evacuation routes will be compromised in an emergency). We have finite routes and a narrow geographic region, and yet we keep increasing visitors without thought as to how their numbers will put them and residents at risk. Those of us who are strong swimmers have an additional escape option, but what about the rest of the people?

City policies should de-emphasize promotion of tourists considering Laguna already knows it will take over 4 hours to evacuate the city in the event of an emergency. I am not saying we should shun tourists. Tourists are welcome to come to Laguna, and they will, but it is irresponsible to encourage more tourism when we know that on busy hot summer days the city will be challenged to evacuate everyone if necessary. At a minimum, we need an effective tourist management plan.

Prevent obvious hazards (power lines overground).

The city is already providing adequate communication.

When the wildfire occurred you could hear the siren on summit and a police officer was driving around announcing the evacuation.

Education on what insurance we should have

Provide residents with emergency supplies or the option to buy complete kits

The City needs to focus on undergrounding utility poles/power lines on key corridors including Laguna Canyon Road to mitigate fire risk and guarantee accessible exit routes for an evacuation.

Have a plan for keeping some routes open during a massive traffic jam incident

Encourage community to meet their neighborhood bin holders or at least encourage for neighbors to have a plan incase of evacuation is put in place and the have pets or family members that don't drive. I would like to start a program to help the elderly during hot days. In two different occasions I've given a lift to two different elderly ladies because the walked to the store and on their way back the temp had risen. They both stated that they had no A/c and needed either ice or food but they did not drive. The second was actually very concerning because they seemed delirious from being exposed to the extreme heat.

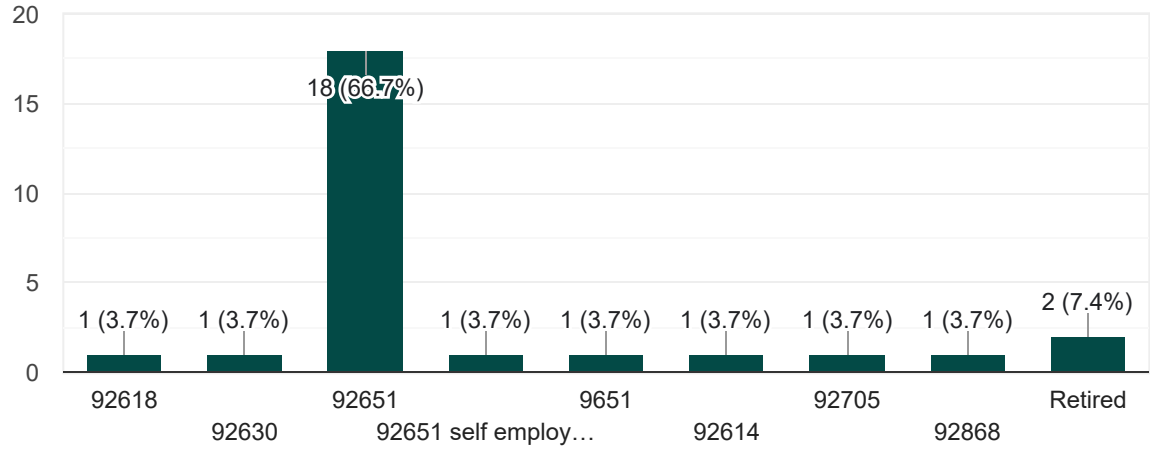
Send public service workers to help elderly with some heavy or difficult to access items that can be hazardous. Also making all the electricity posts and cables underground.

If you do NOT work in the City of Laguna Beach, please skip to question 22.

18. What is the ZIP code of your workplace?

Copy

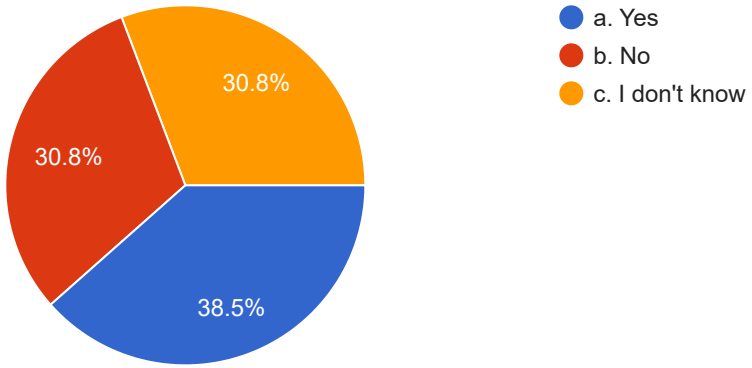
27 responses



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

Copy

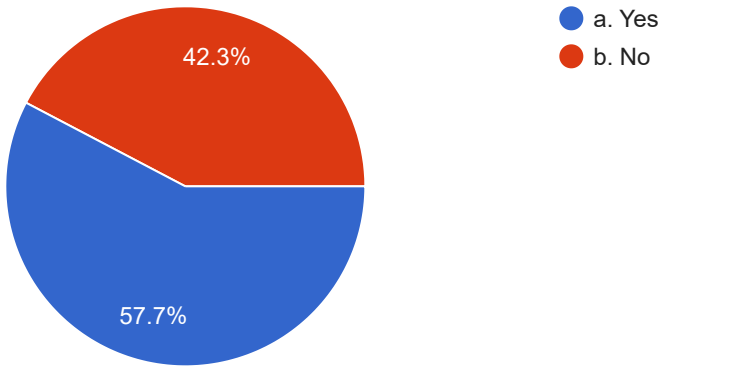
26 responses



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

Copy

26 responses

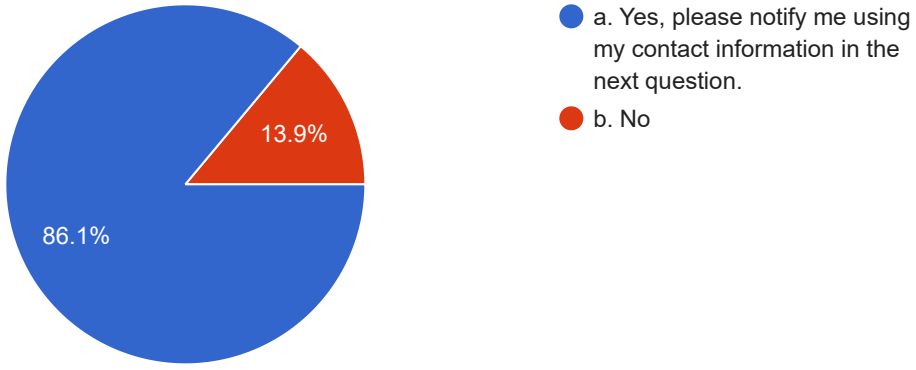


III. Recommendations and Future Participation

21. Would you like to be contacted when the Draft 2023 Laguna Beach Hazard Mitigation Plan is available for review?

Copy

79 responses



22. If you would like to be notified of future opportunities to participate in hazard mitigation and resiliency planning, please provide your name and e-mail address. If you do not have an e-mail address, please provide your mailing address. This information will be kept confidential.

54 responses

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

21 responses

The forward-thinking is very much appreciated.

I'm most concerned about fire. When the big earthquake happens most of Laguna will be toast and I'll most likely die in my home.

Hold neighborhood meetings to ask about risks.

please have more police patrols in Temple Hills area, and Fire department needs to fine neighborhoods who don't clean up their fire hazards. But highly doubt anything will be unforced

I live on top of a hill so there is no need for flood insurance in addition to my regular insurance.

Thank you for your attention to these important matters.

concerned about communication during power outages

Thank you.

Water puts out fire. Why is Laguna the only South County city without recycled water for wildfire protection?

What is your consultant fee for this ?

Continue to remind residents to clear brush and prepare for flooding and slides

A huge issue is traffic bottlenecks during hazard events. The plan must address this.

Like he "Waterwise" campaign, City needs an all out campaign to trim trees annually and vegetation.

Car fatalities and land slides have cost more lives in Laguna than fires. What are the plans to mitigate those risks? Second, sewage spills have lead to skin, ear, and eye infections for swimmers and surfers months after the event. Prevention strategies for these regular events need to be developed in addition to fire risks that get all the attention.

Thanks for doing this. Please take the evacuation risk seriously. The City should develop emergency evacuation routes such as through the Ranch Resort linking to the road system in the Aliso Woods park. Consider what would happen if the bridge over Aliso Creek - built nearly 100 years ago - were lost thereby closing South Coast Highway as an escape route for

everyone north of the creek - during an earthquake event accompanied by a fire like in 1993 where LCR and North Coast Highway were closed.

Fire risk is obvious and a few events this past year show how real these are. I feel the city is not taking enough preventative actions. Feels highly likely a fire event will happen again in the next few months as a result of the power lines. Teenagers letting off fireworks on the fire road… call city police and no one came, simple things like that feel should be a priority for the city rather than parking or banning some other type of plastic.

Replace Fireworks with alternatives. Ban ALL fireworks from our city including those provided by the city. I was appalled to recently learn they are set off from the monument area of Heisler Park. This is irresponsible, dangerous, pollution causing, trauma causing... please see my full commentary entered above. Thank you!

I am concerned that our city, which puts a high priority on the reduction of ocean pollution and the health of our marine mammals and other sea life, continues to hold a fireworks show each July 4th. While I realize that the display is over the ocean and that our city has done a good job alerting people that fireworks are not allowed here, I wonder if holding a fireworks show indirectly encourages personal fireworks use, creating a potential for devastating wildfires. With many cities across the nation turning to drone and similar displays in place of fireworks, it seems that Laguna Beach could investigate these types of alternatives. https://www.google.com/search?q=cities+turning+to+non-fireworks+displays&rlz=1C1VIQF_enUS1040US1040&oq=cities+turning+to+non-fireworks+displays&aqs=chrome..69i57j33i160j33i402l6.14794j0j7&sourceid=chrome&ie=UTF-8

Please see my notes above regarding resurfacing streets and undergrounding utilities/poles.

Our city evacuation routes are established but are they even realistic in an event, we need to reevaluate out evacuation protocols and get more in-depth feedback from residents.

Fire is my main concern, I believe that the city could have some of the responsibility taken over by home owners that are near the Aliso/the Ranch and laguna canyon areas. Those who's backyards are open to large areas of wildlife and or vegetation. As well as tree maintenance.

Thank you for taking the time to complete this survey. If you have any questions, or if you know of other people/organizations that should be involved, please contact Brendan Manning, at bmanning@lagunabeachcity.net.

Manning, Brendan FD

From: Manning, Brendan FD
Sent: Wednesday, September 20, 2023 5:05 PM
To: slee@scwd.org
Subject: Local Hazard Mitigation Plan - review request

Greetings,

I got your contact information from Vicki Osborn with WEROC. As SCWD is an important stakeholder, I am writing to solicit feedback on the City's draft Local Hazard Mitigation Plan. This is an update to our 2018 version as required by FEMA (update every 5 years). We are collecting feedback through Monday 9/25. Please feel free to share feedback on the below Google Forms link, or send me the comments directly.

If you'd like to discuss any comments directly, please let me know and we'll find a time to chat.

Link to draft document: City of Laguna Beach LHMP_Public Review Draft (lagunabeachcity.net)

Link to provide comments: 2023 Laguna Beach Local Hazard Mitigation Plan (LHMP) Public Review Draft Comments (google.com)

Thank you for your continued support.
-Brendan

Brendan Manning | Emergency Operations Coordinator
Laguna Beach Fire Department
Phone: 949-497-0350
bmanning@lagunabeachcity.net
505 Forest Avenue – Laguna Beach, CA 92651

Additional Stakeholder Outreach

The above email was sent to the following Stakeholders:

Laguna Beach 2023 LHMP Update		
Planning Team - Stakeholder		
Leo Lopez	LBCWD	Risk and Resiliency Analyst
Duane Cave	SDG&E	External Relations Manager
Christian Torres	SCE	Key Accounts Advisory
Sunny Lee	SCWD	Compliance and Risk Program Manager
Ryan Zajda	LBUSD	Director of Facilities and Sustainability
Sean Peacher	SOCWA	Environmental Compliance Safety Risk Manager

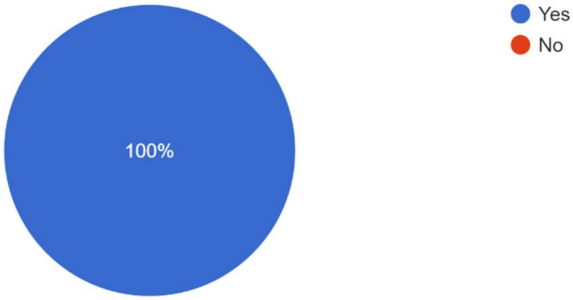
Laguna Beach Public Review Draft Feedback Form Results

1. How did you learn about the 2023 Laguna Beach LHMP Public Review Draft?

2 responses

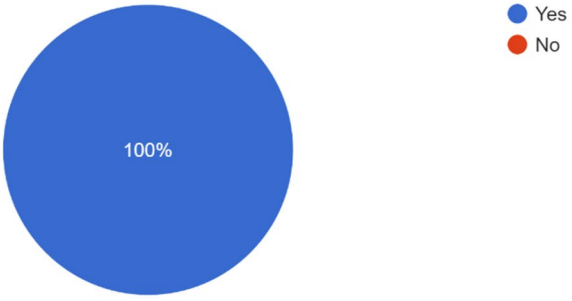
2. Was the 2023 Laguna Beach LHMP Public Review Draft easy to access?

2 responses



3. Was the 2023 Laguna Beach LHMP Public Review Draft easy to read and understand?

2 responses



Appendix C - Resolution of Adoption

RESOLUTION NO. 23.079

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LAGUNA BEACH, CALIFORNIA, ADOPTING THE CITY OF LAGUNA BEACH LOCAL HAZARD MITIGATION PLAN

WHEREAS, the City has prepared a Local Hazard Mitigation Plan in compliance with the Disaster Mitigation Act of 2000; and

WHEREAS, this Local Hazard Mitigation Plan, (LHMP), has been prepared in compliance with California Government Code Sections 8685.9 and 65302.6, which integrates this plan with the Laguna Beach General Plan Safety Element; and

WHEREAS, the City has received a letter from the Federal Emergency Management Agency identifying the City's LHMP as eligible for approval pending final adoption; and

WHEREAS, the City Council adoption of the LHMP will make the City eligible to receive earmarked mitigation grant funding, as well as eligible to apply for additional federal mitigation grants.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF LAGUNA BEACH DOES RESOLVE, that the Laguna Beach Local Hazard Mitigation is hereby adopted.

ADOPTED this 12th day of December, 2023.

Sue Kempf, Mayor

ATTEST:

Ann Marie McKay, City Clerk

I, Ann Marie McKay, City Clerk of the City of Laguna Beach, certify that the foregoing Resolution No. 23.079 was duly adopted at a regular meeting of the City Council of said City held on December 12, 2023, by the following vote:

AYES: COUNCILMEMBERS: Orgill, Weiss, Whalen, Rounaghi, Kempf

NOES: COUNCILMEMBERS: None

ABSENT: COUNCILMEMBERS: None

City Clerk, City of Laguna Beach, California

Appendix D- List of Key Facilities

Facility Type	Sector	Site Description
Concern	Government Facility	OC Comm. Moorhead Site
Concern	Community Services	Main Beach
Concern	Government Facility	OC Comm. Moorhead Site
Concern	Other Facilities	
Critical	Utility	Morro Substation
Concern	Community Services	MAIN BEACH (SOUTH)
Concern	Park	BLUEBIRD PARK
Critical	Utility	Bluebird SOCWA LIft Station #26
Critical	Government Facility	Lifeguard Headquarters
Critical	Government Facility	City Corporate Yard
Concern	Education	Anneliese School (Willowbrook)
Concern	Other Facilities	DEWITT HOUSE
Critical	Community Services	ANIMAL SHELTER
Concern	Community Services	PACIFIC MARINE MAMMAL CENTER
Concern	Community Services	Alternate Sleeping Location
Concern	Education	Thurston Middle School
Concern	Community Services	Lang Park
Concern	Community Services	COMMUNITY CENTER
Concern	Education	Top of the World Elementary
Concern	Other Facilities	Hortense Miller House
Concern		RESTROOM
Critical	Government Facility	FIRE STATION #2
Critical	Government Facility	FIRE STATION #3
Concern	Community Services	MOULTON MEADOWS PARK
Critical	Government Facility	Laguna Beach Community and Recreation Center
Critical	Utility	Laguna Beach County Water
Concern	Other Facilities	Montage Laguna Beach
Concern	Road	Aliso Bridge/ Aliso Beach Park
Concern	Utility	South Coast Water District
Critical	Government Facility	FIRE STATION #4
Concern	Other Facilities	Parking Lot
Critical	Other Facilities	Mission Hospital Laguna Beach/ OC Comm.
Concern	Community Services	ALTA LAGUNA PARK
Concern	Education	Montessori School of Laguna
Concern	Other Facilities	Laguna Beach Transit Center
Critical	Community Services	COMMUNITY AND SENIOR CENTER
Concern	Community Services	Susi Q Center - Shelter
Concern	Community Services	HEISLER PARK
Critical	Government Facility	PUBLIC WORKS BUILDING

Concern	Other Facilities	PARKING LOT
Critical	Government Facility	Laguna Beach Fire Station #1
Concern	Other Facilities	PARKING STRUCTURE
Critical	Government Facility	CITY HALL COMPLEX
Concern	Education	Laguna Beach School District
Concern	Community Services	RIDDLE FIELD
Concern	Community Services	MOULTON PLAYHOUSE
Concern	Education	Laguna Beach High School
Concern	Public Assembly	FESTIVAL OF ARTS COMPLEX
Concern	Road	73/133
Concern	Education	Anneliese School (Manzanita)
Concern	Education	El Morro Elementary
Concern	Public Assembly	Sawdust Festival
Critical	Government Facility	MAIN BEACH - Includes Restrooms
Concern	Community Services	RESTROOM
Concern	Other Facilities	BUS TERMINAL
Concern	Community Services	CRESCENT BAY
Critical	Utility	Borrego Substation
Concern	Community Services	BOARDWALK
Critical	Utility	VARIOUS LIFT STATIONS
Critical	Utility	VARIOUS LIFT STATIONS 1-24
Critical	Utility	Animal Shelter Lift Station #10
Critical	Utility	Anita Lift Station #8
Critical	Utility	Arch BeachLift Station #22
Critical	Utility	Bernard Court Lift Station #19
Critical	Utility	Bluebird Canyon Lift Station #6
Critical	Utility	Bluebird SOCWA Lift Station #26
Critical	Utility	Bonn Drive Lift Station #20
Critical	Utility	Bonn Drive Lift Station #21
Critical	Utility	Brooks Street Lift Station #7
Critical	Utility	Cleo Street Lift Station #9
Critical	Utility	Coastal Treatment Plant - SOCWA
Critical	Utility	Cresent Bay Lift Station #15
Critical	Government Facility	Fire Station 11 (County)
Critical	Utility	Fisherman's Cove Lift Station #13
Critical	Utility	Former Location of Bluebird Cyn ByPass Lift Station
Critical	Utility	Heisler Park Lift Station #12
Critical	Utility	Irvine Cove Lift Station #17
Critical	Utility	Laguna SOCWA Lift Station #25
Critical	Utility	Main Beach Lift Station #11
Critical	Utility	McKnight Drive Lift Station #16
Critical	Utility	Miller's Lift Station #4

Critical	Utility	Moorhead SCADA Radio Tower
Critical	Utility	Nyes Place Lift Station #24
Critical	Utility	Outlet 10
Critical	Utility	Outlet 11
Critical	Utility	Outlet 12
Critical	Utility	Outlet 13
Critical	Utility	Outlet 15
Critical	Utility	Outlet 15a
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Critical	Utility	Outlet 5
Critical	Utility	Outlet 6
Critical	Utility	Outlet 9a
Critical	Utility	Outlet 9b
Critical	Utility	Outlet X
Critical	Utility	Outlet X
Critical	Utility	Outlet X
Critical	Utility	Pearl Street Lift Station #5
Critical	Utility	Rockledge Lift Station #3
Critical	Utility	Santa Cruz Lift Station #18
Critical	Utility	Shaw's Cove Lift Station #14
Critical	Utility	Thousand Steps Lift Station
Critical	Utility	Top of the World Lift Station #22
Critical	Utility	Top of the World Lift Station #23
Critical	Utility	Victoria I Lift Station #1
Critical	Utility	Victoria II Lift Station #2
Critical	Utility	Water Tank
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Appendix E – Hazard Mitigation Implementation Handbook

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Local Hazard Mitigation Plan Implementation Handbook

August 2023

What Is This Handbook?

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

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

How do I Use This Handbook?

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

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

Who Maintains This Handbook?

The Hazard Mitigation Planning Committee (HMPC) leader is responsible for maintaining this Handbook. At the time of writing, the current HMPC leader is Brendan Manning from the Laguna Beach Fire Department. The HMPC may delegate this responsibility to someone else should they choose.

What to do when a disaster has been proclaimed or declared

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

The Laguna Beach City Council

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

- ☐ Update **Attachment** 1 with information about the disaster. Include information about cumulative damage, including any damage outside of Laguna Beach.
- ☐ Discuss opportunities for local assistance with the representatives from the California Office of Emergency Services (Cal OES).
- ☐ If the disaster damages local infrastructure or City-owned facilities, repair or rebuild the structure to be more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included in **Attachment 4**.
- ☐ **Chapter 5** of the Laguna Beach LHMP states that the City should consider updating the LHMP if a disaster causes a loss of life in the community, even if there is no state disaster proclamation or federal disaster declaration that includes part or all of the city. If there is a loss of life in Laguna Beach, consider updating the LHMP. Consult the section on updating the LHMP in this Handbook for details.

The State of California

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

- ☐ Update **Attachment 1** with information about the disaster. Include information about cumulative damage, including any damage outside of Laguna Beach.
- ☐ Collaborate with representatives from Cal OES to assess the damage from the event.
- ☐ Discuss opportunities for local assistance with representatives from Cal OES.
- ☐ If the disaster damages local infrastructure or City-owned facilities, repair or rebuild the structure to be more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included in **Attachment 4.**
- ☐ If the disaster may escalate into a federal disaster declaration, begin any necessary coordination with representatives from the Federal Emergency Management Agency (FEMA).
- ☐ **Chapter 5** of the Laguna Beach LHMP states that the City should consider updating the LHMP if a disaster leads to a state disaster proclamation or federal disaster declaration that includes part or all of Laguna Beach, even if there is no loss of life. Consider updating the LHMP. Consult the section on updating the LHMP in this Handbook for details.

The Federal Government

If the federal government declares a disaster for Laguna Beach or any area that includes part or

all of Laguna Beach, take the following steps:

- ☐ Update **Attachment 1** with information about the disaster. Include information about cumulative damage, including any damage outside of Laguna Beach.
- ☐ Collaborate with Cal OES and FEMA representatives to assess the damage.
- ☐ Determine if Laguna Beach will be eligible for public assistance funds related to the federal disaster declaration. These funds can be used to reimburse the City for response and recovery activities. If the City is eligible, work with FEMA and Cal OES representatives to enact the necessary requirements and receive funding.
- ☐ If the disaster damages local infrastructure or City-owned facilities, repair or rebuild the structure to be more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included in **Attachment 4**.
- ☐ The Hazard Mitigation Grant Program (HMGP) is a FEMA program that helps fund hazard mitigation activities after a disaster event. Laguna Beach may be eligible for funding because of the federal disaster declaration, although not all activities may meet the program's requirements. If Laguna Beach is eligible, work with FEMA to apply for this funding.
- ☐ **Chapter 5** of the Laguna Beach LHMP states that the City should consider updating the LHMP if a disaster leads to a state disaster proclamation or federal disaster declaration that includes part or all of Laguna Beach, even if there is no loss of life. Consider updating the LHMP. Consult the section on updating the LHMP in this Handbook for details.

I Want to Apply for Mitigation Grant Funding

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

Building Resilient Infrastructure and Communities (BRIC)

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

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

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

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

TAKE THE FOLLOWING STEPS TO APPLY FOR BRIC FUNDING:

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

Flood Mitigation Assistance

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

TAKE THE FOLLOWING STEPS TO APPLY FOR FMA FUNDING:

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

Laguna Beach is going through the budgeting process

Laguna Beach's budget process is an ideal opportunity to secure funding for hazard mitigation actions and to ensure that hazard mitigation efforts are incorporated into the City's fiscal priorities. Laguna Beach currently operates on an annual budget cycle that runs from July 1 to June 30. During this process, City staff should take the following steps to incorporate hazard mitigation into Laguna Beach's annual budget:

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

Laguna Beach is Conducting its Annual meeting of the Hazard Mitigation Planning Committee

The hazard mitigation planning process brings together representatives from multiple City departments as well as other relevant stakeholders. It provides a forum to discuss the hazards in Laguna Beach and how to mitigate them effectively. As mentioned in **Chapter 5** of the LHMP, the Planning Committee should meet at least once each year, beginning a year after the LHMP is adopted. During these meetings, the Planning Committee should discuss implementation progress and integration of hazard mitigation actions in other City documents. At these meetings, the Planning Committee can review the status of the hazard mitigation actions and discuss whether completed or in-progress actions are working as expected. These meetings also allow the Planning Committee to strategically plan for the upcoming year.

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

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

Table 1-1: Laguna Beach HMPC Members		
Name	Title	Department
Aggie Nesh	HR Manager	Human Resources
Brendan Manning	Emergency Operations Coordinator	Fire Department
Crissy Tiechmann	Deputy Chief	Fire Department
Kai Bond	Captain	Marine Safety
Marc Wiener	Director	Community Development
Mike Peters	Captain	Police Department
Nabila Guzman	Senior Administrative Analyst	Transit & Community Services
Pierre Sawaya	Senior Project Manager	Public Works
Richard Gonzales	Deputy Director	Public Works, Wastewater Division
Robert Montaghami	Fire Marshal	Fire Department

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

Laguna Beach is updating its policy and regulatory documents

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

Local Hazard Mitigation Plan

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

The update process for the LHMP takes approximately one year. To ensure that a new LHMP comes into effect before the previous one expires, the update process should begin no later than four years after the plan is adopted. Updates may occur sooner at the City's discretion. Potential reasons for updating the LHMP sooner may include a state disaster proclamation or federal disaster declaration that covers part or all of Laguna Beach or if a disaster leads to a loss of life in Laguna Beach (see the "What to Do When a Disaster Has Been Proclaimed or Declared" section), as discussed in **Chapter 5** of the LHMP.

Take the following steps to update the LHMP:

ASSEMBLE THE HAZARD MITIGATION PLANNING COMMITTEE

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

UPDATE THE RISK AND THREAT ASSESSMENTS

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

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

UPDATE THE MITIGATION ACTIONS

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

REVIEW AND ADOPT THE UPDATED PLAN

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

to reflect any comments by Planning Committee members.

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

The Safety Element of the General Plan

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

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

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

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

The Housing Element of the General Plan

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

The Housing Element is not required to contain any information or policies related to hazards, although it may include policies that address retrofitting homes to improve resiliency. However,

state law links the regular schedule of Housing Element updates to mandatory revisions to other General Plan elements. For example, Section 65302(g)(2) of the California Government Code requires that communities that update their Housing Element on or after January 1, 2009, also update their Safety Element to include specific information and policies related to flood protection. As the LHMP is incorporated into the Safety Element, updates to the Housing Element may indirectly trigger updates to the LHMP.

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

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

The Laguna Beach Municipal Code

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

All communities in California are required to adopt the minimum state Building Standard Code (BSC), which includes some hazard mitigation requirements for new or significantly renovated structures. The BSC is generally updated every three years, with supplemental code updates halfway into each update cycle. Title 14, "Buildings and Construction," of Laguna Beach's Municipal Code contains building regulations and incorporates the BSC. Other sections of the Code adopt additional standards as desired by the City that adapts the BSC to Laguna Beach's local context.

As a participant in the National Flood Insurance Program (NFIP), Laguna Beach is required to incorporate Floodplain Management Requirements in its Zoning Code, which is located in Title 25, Chapter 25.38 – Floodplain Management. These regulations establish standards for developing and operating facilities within mapped flood-prone areas. Other sections of the

Laguna Beach Municipal Code may include additional standards related to hazard mitigation activities.

With the exception of the Floodplain Management Regulations and the minimum standards in the BSC, Laguna Beach is not required to incorporate hazard-related requirements in the Municipal Code. However, the Municipal Code is an effective tool for implementing hazard mitigation measures related to the siting, construction, and operation of new buildings and other structures. Substantial updates to the Municipal Code, including the Buildings and Construction and Zoning Code sections, should be done in a way that is consistent with the LHMP.

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

Attachment 1: Disaster Information Table

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

Date	Location	Damages *	Declaration Details †

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

Attachment 2: Plan Maintenance Table

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

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

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

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

ITEM 1: RECENT HAZARD EVENTS

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

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

ITEMS 2: MITIGATION ACTION ACTIVITIES

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

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

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

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

ITEM 3: INFORMATION SHARING

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

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

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

jurisdictions and agencies?

ITEM 4: BUDGETARY PLANNING

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

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

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

ITEM 5: STRATEGIC PLANNING

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

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

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

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

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

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

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

ITEMS 6: NEW BUSINESS

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

Attachment 4: Hazard Mitigation Strategy

Table 4-3: Mitigation Action Implementation Plan						
Mitigation Action		Potential Funding Sources	Responsible Department	Relative Cost*	Time frame	Priority
Preparedness Activities						
P1	In coordination with the Orange County Transportation Authority, the Laguna Beach Trolley, School Districts, and private transportation companies, ensure that there is a sufficient supply of vehicles available to evacuate Laguna Beach residents and visitors who do not have access to private vehicles or are otherwise unable to drive. As part of this action, emergency transportation locations should be designated and identified. *Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire*	General Fund, Homeland Security Grants FEMA Grants (BRIC), Other Grants	Emergency Management Division	$	Ongoing (Annually)	N/A
P2	Conduct outreach to the hospitality industry to provide information about avoiding hazards and dangerous conditions to visitors. *Relevant hazards:* Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Other Grants	Emergency Management Division	$	Ongoing (Annually)	N/A
P3	Expand participation in the Laguna Beach Community Emergency Response Team (CERT) program for local residents and businesses. *Relevant hazards:* Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Homeland Security Grants	Emergency Management Division	$	Ongoing	N/A
P4	Develop a backup energy supply program for critical facilities to ensure a sufficient supply of batteries or a reliable source of backup electricity. Relevant hazards: Coastal hazards, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Homeland Security Grants, FEMA Grants (BRIC), Other Grants	Emergency Management Division, Public Works	$$	2025	N/A
P5	Expand the community-wide emergency notification system using telephones, text messaging, social media, television, radio, and other media as appropriate. Ensure that information is clear, accurate, and provided in commonly spoken languages. Relevant hazards: Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Homeland Security Grants, FEMA Grants (BRIC), Other Grants	Emergency Management Division	$	2024	N/A
P6	Pre-stage adequate supplies of sandbags for local residents and businesses, including pre-filled sandbags for individuals who may be unable to fill them on their own. Relevant hazards: Coastal hazards, extreme weather, flood, landslide	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other	Public Works	$	Ongoing (As needed)	N/A

	and mudflow, wildfire	Grants				
P7	Conduct regular emergency preparedness drills and training exercises for City staff.	General Fund, Homeland Security Grants	Emergency Management Division	$$	Ongoing	N/A
Multiple Hazards						
1.01	Underground power lines and other electrical grid equipment, in close coordination with Southern California Edison and San Diego Gas and Electric. Prioritize undergrounding high-capacity power lines along evacuation routes and in areas of elevated hazard risk. Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC, HMGP), Other Grants	Public Works	$$$	2026	High
1.02	Install and harden emergency backup generators at water pump stations and sewer lift stations. Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC, HMGP), Other Grants	Water Quality/Water Districts	$$$	2026	Medium
1.03	Expand fiber optic communication systems throughout the city, through the following strategies: • Connect key critical facilities with fiber optic communications • Improve emergency communications between critical facilities and key infrastructure through the use of a “dark fiber” network • Install fiber optic systems or conduit for fiber optic infrastructure in coordination with undergrounding infrastructure projects or projects that include subsurface excavation within public streets. • Require installation of underground conduit in association with private developments proposed throughout the city. • Pursue conversion of existing overhead utilities to underground along key evacuation routes to improve fire safety and facilitate emergency egress. Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC), Other Grants	Public Works/IT	$$$	2025	High
1.04	Replace or supplement larger emergency response equipment with smaller vehicles that are better able to navigate narrow community streets without sacrificing response effectiveness. Relevant hazards: Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC, HMGP), Other Grants	Fire	$$$	2026	Medium
1.05	Establish a primary and alternative Emergency Operations Center in areas outside of major hazard zones to the extent feasible. Consider collocation with other City buildings/facilities as potential options. Relevant hazards: Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Homeland Security Grants, FEMA Grants (BRIC), Other Grants	Emergency Management Division	$$$	2024	High

1.06	Explore the feasibility of connecting key critical facilities, including City Hall/Police Station, Marine Safety HQ, and community fire stations, to a microgrid power-supply network. Relevant hazards: Coastal hazards, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$$$	2026	Medium
1.07	Coordinate closely with water and natural gas providers to add isolation valves at key locations along their pipeline networks. Identify locations and corridors necessary to isolate wastewater from human contact due to overflows caused following catastrophic service failures. Relevant hazards: Coastal hazards, flood, human-caused hazards, landslide and mudflow, seismic hazards	General Fund, Other Grants	Public Works/Water Districts/Utility Providers	$$	Ongoing (As needed)	Medium
1.08	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, in utility bills, at special events and in City facilities, and/or other media as appropriate. Relevant hazards: Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, Other Grants	Emergency Management Division	$	Ongoing (Annually)	Medium
1.09	Identify areas in need of slope stabilization and stabilize with deep rooted vegetation, geotextile fabric, and other slope stabilization techniques.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$$	Ongoing (As needed)	Low
1.10	Closely monitor changes to the boundaries of hazard-prone areas and adopt new mitigation activities or revise existing ones as appropriate to protect health, safety, property, and overall community well-being. Relevant hazards: Coastal hazards, flood, landslide and mudflow, seismic hazards, wildfire	General Fund, Other Grants	Community Development	$	Ongoing (Annually)	Low
1.11	Establish greater setbacks for siting new City critical facilities in mapped flood hazard, coastal hazard, and landslide hazard zones to the extent feasible. Ensure critical facilities sited within the wildfire hazard zone, exceed the minimum mitigation standards as defined by the Fire Code. Relevant hazards: Coastal hazards, flood, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC, HMGP), Other Grants	Community Development/ Public Works/ Fire	$	Ongoing	Low
1.12	As opportunities arise, explore the feasibility of relocating critical City facilities outside of mapped hazard zones. If not possible, retrofit facilities to reduce hazard risks. Relevant hazards: Coastal hazards, hazardous materials, flood, landslide and mudflow, seismic hazards, wildfire	General Fund, Other Grants	City Manager's Office	$$$	Ongoing (As needed)	Low

1.13	Identify appropriate sites for community shelters, ideally located outside of mapped hazard zones to the extent feasible. Ensure that there is sufficient space for residents and visitors, and stock shelters with necessary supplies. Relevant hazards: Coastal hazards, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund, FEMA Grants (BRIC), Other Grants	Community Services	$	Ongoing	High
1.14	Integrate policy direction and other information from this Plan into other City documents, including the General Plan Safety Element and Capital Improvements Program. Relevant hazards: Coastal hazards, disease and pest management, extreme weather, flood, human-caused hazards, landslide and mudflow, seismic hazards, wildfire	General Fund	Community Development	$	Ongoing (Annually)	Low
Coastal Hazards						
2.01	Develop criteria for clifftop properties to estimate when erosion may begin to cause structural damage or pose a safety risk.	General Fund, FEMA Grants (BRIC), Other Grants	Community Development	$	2029	Low
2.02	Expand the city's TsunamiReady designation and pursue certification as a TsunamiReady Tier Two community.	General Fund, FEMA Grants (BRIC), Other Grants	Emergency Management Division/Marine Safety	$	2026	Low
2.03	Explore modifications to City beaches to the extent feasible to protect bluffs and adjacent properties from coastal (tsunami, wave run-up, etc.) and inland flooding conditions.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$	2029	Low
2.04	Expand the beachfront mass notification siren and public address network to alert residents and visitors of potential coastal hazard events (tsunami, high surf, etc.).	General Fund, FEMA Grants (BRIC), Other Grants	Emergency Management Division/Marine Safety	$	Ongoing	Medium
Disease and Pest Management						
3.01	Coordinate with health care providers to ensure rapid and accurate distribution of information about disease conditions.	General Fund Other Grants	Emergency Management Division	$	Ongoing (As needed)	Low
3.02	Work with the Orange County Vector Control to distribute information about mosquito-proofing property and mosquito bite avoidance for residents and visitors.	General Fund Other Grants	Emergency Management Division	$	Ongoing	Low
3.03	Update City landscape standards to incorporate disease-resistant plant species as part of landscaping projects/ improvements.	General Fund Other Grants	Community Development	$	2028	Low

Extreme Weather						
4.01	Reduce potable water use through close coordination with the Laguna Beach County Water District and the South Coast Water District.	General Fund, Other Grants	Water Quality/ Water Districts	$$$	Ongoing	Medium
4.02	Aggressively search for and repair leaks in water infrastructure through close coordination and cooperation with the Laguna Beach County Water District and South Coast Water District.	General Fund, Other Grants	Water Quality/ Water Districts	$$	Ongoing (As needed)	Medium
4.03	Increase the use of recycled water sources for City residents and businesses, through close coordination and collaboration with the Laguna Beach County Water District and South Coast Water District.	General Fund, Other Grants	Water Quality/ Water Districts	$$	2030	Low
4.04	Incentivize indoor and outdoor water efficiency through community-wide education and rebate programs and continue to maintain these programs and other restrictions on water use in the absence of drought conditions. This activity requires close coordination with local water providers and the Municipal Water District of Orange County.	General Fund, Other Grants	WEROC	$	Ongoing (Annually)	Low
4.05	When installing new landscapes or significantly redoing existing landscaping on City property, use drought-tolerant plants or xeriscaping. On City property, limit turf that is not drought-tolerant to recreational fields and lawns, and only if no feasible drought-tolerant alternative exists.	General Fund, Other Grants	Public Works	$	Ongoing	Low
4.06	Work with local electricity providers to continue to maintain a clear space around all power lines, and to underground existing power lines and poles to be more resistant to severe winds.	General Fund, Other Grants	Public Works	$	Ongoing (As needed)	High
Flood						
5.01	Use landscaped swales in new and replacement City-owned hardscape, to the extent feasible.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Public Works	$$	Ongoing	Medium (1)
5.02	Require new construction and significant redevelopment projects not required to prepare a Water Quality Management Plan to reduce runoff through the use of landscaped swales, permeable paving, and other applicable low-impact development strategies.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Community Development	$	Ongoing	Low
5.03	Increase the capacity of storm drains, particularly in areas with known ponding during rain events.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Public Works	$$$	2025	Medium
5.04	Conduct frequent cleanings of storm drain intakes, especially before and during the rainy season.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Public Works	$	Ongoing (As needed)	Low

5.05	Encourage all property owners within 100-year and 500-year floodplains to obtain flood insurance and flood proof their structures.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Community Development	$	Ongoing	Medium
5.06	Continue to require new construction and significant retrofits in flood-prone areas to comply with the City's Floodplain Management Ordinance and encourage construction activities adjacent to floodplains to meet similar requirements.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Community Development	$	Ongoing	Low
5.07	Discourage new buildings or facilities intended to house or provide critical services to persons with functional needs (e.g., senior citizens and persons with disabilities) from being constructed in or immediately adjacent to the 100-year or 500-year floodplain.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	Community Development	$	Ongoing	Low
5.08	Explore opportunities to acquire land in or near floodplains to act as buffers or water infiltration sites.	General Fund, FEMA Grants (BRIC, HMGP, FMA), Other Grants	City Manager's Office	$$$	Ongoing	Low
Human-Caused Hazards						
6.01	Conduct proactive community policing during special events. Ensure that all staff involved in community police are trained to engage with and respect community members while maintaining security.	General Fund, Homeland Security Grants, Other Grants	Police	$	Ongoing	Low
6.02	Conduct regular inspections of key infrastructure and promptly repair all substantial deficiencies.	General Fund, Homeland Security Grants, Other Grants	Public Works	$	Ongoing	Low
Landslide/Mudflow						
7.01	Install and maintain slope stabilization measures on publicly owned hillsides above roads, buildings, and other facilities.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$$$	2030	Low
7.02	Work with private property owners to install, inspect and maintain effective drainage systems and stabilizing vegetation on and above landslide-prone slopes.	General Fund, FEMA Grants (BRIC), Other Grants	Community Development	$	Ongoing (As needed)	Low
7.03	Conduct a community-wide moisture-induced landslide and mudslide risk analysis, including the potential for building destruction/damage, deaths, and injuries. Consider the anticipated changes to precipitation patterns, wildfires, and other factors that may influence mudslide events.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$$	2027	Medium

Seismic Hazards						
8.01	Retrofit City Hall and all fire stations based on recommendations and results from the seismic study currently underway.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works/ Community Development	$$$	2027	High
8.02	To the extent feasible, construct all new and significantly retrofitted City-owned facilities to remain operational in the event of a major earthquake.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works/ Community Development	$$	Ongoing	Medium
8.03	Prepare an inventory of seismically vulnerable buildings and structures in Laguna Beach. Explore feasible solutions to mitigate vulnerable buildings and structures to be retrofitted.	General Fund, FEMA Grants (BRIC), Other Grants	Police/Community Development	$	2030	Low
8.04	Work with service providers and other owners of facilities of concern to identify seismically vulnerable structures and conduct seismic retrofit activities.	General Fund, FEMA Grants (BRIC), Other Grants	Community Development	$	Ongoing	Low
8.05	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.	General Fund, FEMA Grants (BRIC), Other Grants	Community Development	$	Ongoing (Annually)	Medium
8.06	Encourage the installation of resilient (seismically appropriate) piping for new or replacement pipelines, in close coordination with local water, natural gas, and other providers.	General Fund, FEMA Grants (BRIC), Other Grants	Public Works	$$	Ongoing (Annually)	Low
8.07	Conduct an educational campaign and incentives to encourage the use of reinforced chimneys, anchored rooftop-mounted equipment, window film, and other preventative measures to reduce damage at private buildings.	General Fund, FEMA Grants (BRIC), Other Grants	Community Development	$	Ongoing (Annually)	Low
8.08	Encourage community groups and industry representatives assist in outreach to residents and businesses to obtain earthquake insurance.	General Fund, FEMA Grants (BRIC), Other Grants	Community Development	$	Ongoing	Low
Wildfire						
9.01	Create a streamlined permitting process with Coastal Commission for fuel removal activities that are consistent with the Natural Community Conservation Plan and Habitat Conservation Plan for Orange County's Central and Coastal Subregion.	General Fund, FEMA Grants (BRIC), Other Grants	Fire	$$	2027	Medium
9.02	Conduct enhanced vegetation management activities that reduce fuels and increase clearance zones around developed areas of the wildland urban interface.	General Fund, FEMA Grants (BRIC), Other Grants	Fire	$$	2024	High
9.03	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	General Fund, FEMA Grants (BRIC), Other	Fire	$	Ongoing	Low

	wildfires.	Grants				
9.04	Expand outreach to discourage landscaping that uses plants with a high sap or resin content, that accumulate dead vegetation, very low moisture content, or other features that make the plants more vulnerable to fires.	General Fund, FEMA Grants (BRIC), Other Grants	Fire	$	Ongoing	Low
9.05	Update the Laguna Beach Community Wildfire Protection Plan and Other Natural Disasters to incorporate the mitigation actions of this plan and goals and policies of the General Plan.	General Fund, FEMA Grants (BRIC), Other Grants	Fire/Community Development	$	2025	High
9.06	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.	General Fund, FEMA Grants (BRIC), Other Grants	Fire	$$	2024	High
9.07	Develop a vegetation management pilot program that assists abatement activities for homeowners that meet low-income requirements.	General Fund, FEMA Grants (BRIC), Other Grants	Fire	$	2030	Low
Hazardous Materials						
10.01	Discourage new sensitive land uses, including schools, parks, childcare centers, adult and senior assisted living facilities, and community centers, from locating near identified hazardous material facilities. Discourage or prohibit new hazardous material facilities from locating near sensitive land uses.	General Fund	CED	$	Ongoing	High
10.02	Continuously inspect businesses and other properties storing hazardous materials and create an inventory of storage locations that require updates, maintenance, or renovation.	General Fund, Other Grants	FD	$	Ongoing (Annually)	Low
10.03	Continue to work with solid waste service contractors to educate residents and businesses on the safe disposal of small quantities of hazardous materials.	General Fund, Other Grants	CM, PW	$	Ongoing	Low
10.04	Coordinate with hazardous materials generators/operators (So Cal Gas, Edison, etc.) regularly to understand changes to operations within the city.	General Fund, Other Grants	EM, FD	$	Ongoing (As needed)	Low
Relative Cost Categories: Low cost ($): $100,000 or less Medium cost ($$): $100,001 to $250,000 High cost ($$$): Greater than $250,000						

Appendix F – Safety Element Implementation Plan

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
Emergency Preparedness Goal 1: Promote a culture of preparedness among all Laguna Beach community members through comprehensive emergency management practices.					
Policy S-1.1: Periodically review and update the Laguna Beach Emergency Operations Plan (EOP) to incorporate the region's latest information and best practices.					
S-1.1a	Promote public awareness of emergency preparedness, and hazard mitigation conducted by the City through public outreach and engagement activities.	Fire Department	Ongoing	General Fund	Expanded FD social media outreach. Conduct periodic outreach events (multiple times per year) to various stakeholders including community groups, schools, and business community.
S-1.1b	Periodically update the Laguna Beach EOP to incorporate updated information regarding evacuation, mass care and sheltering, continuity of operations, and disaster recovery.	Fire Department	Annually	General Fund	Current Emergency Management Plan (EOP) is from 2011. Operational annexes and guides are updated annually. An updated EOP should be considered to incorporate best practices and changes.
S-1.1c	Coordinate with key stakeholders (OCFA, OCSD, American Red Cross) regarding evacuation resources and capabilities within the City.	Fire Department	Ongoing	General Fund	Regularly coordinate with stakeholders on evacuation best practices, lessons learned, available resources, and updated plans.
S-1.1d	Annually conduct NIMS/SEMS compliant trainings and exercises with City staff on emergency preparedness and response.	Fire Department	Annually	General Fund	Conduct at least 1 exercise per year and ensure city staff are trained in NIMS/SEMS to ensure FEMA compliance.
S-1.1e	Ensure the EOP identifies up to date information regarding Continuity of Operations and Continuity of Government.	Fire Department	As needed	General Fund	An updated EOP will include Continuity of Operations and Continuity of Government.
S-1.1f	Develop an all-hazards Post Disaster Recovery Framework for use after a major incident or event.	Fire Department	As needed	General Fund	An updated EOP will include a Disaster Recovery Framework, or the City will consider a separate comprehensive recovery plan.

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
Policy S-1.2: Periodically participate in Operational Area trainings and exercises and include City staff and stakeholders (EDPC, Water Agencies Laguna Beach Unified School District, Mission Hospital Laguna Beach, etc..) when appropriate.					
S-1.2a	Coordinate with neighboring jurisdictions on focused trainings and exercises specific to local community issues and concerns.	Fire Department	Ongoing	General Fund	Regularly participate in trainings and exercises with stakeholders, including the water district, school district, and hospital. Participated in the 2022 regional water emergency exercise and participating in the 2023 Mission Hospital Laguna Beach exercise.
Policy S-1.4: Periodically update the City's Evacuation Analysis and EOP to better identify constraints to emergency access and evacuation.					
S-1.4a	Regularly evaluate State Fire Safe Regulations regarding emergency access and evacuation.	Fire Department PD	As needed	General Fund	Operationally Proceeding
S-1.4b	Identify deficient roadways and require upgrade/modification to meet emergency access and evacuation needs.	Public Works Fire Department	TBD	Gas Tax, Road Funds, General Funds	Pending. Working to incorporate as part of Pavement Management Plan or other process.
S-1.4c	Identify additional evacuation routes using unpaved trails and privately maintained roads, where possible.	Public Works Fire Department	TBD	General Fund	Pending
Policy S-1.5: Require upgrades to road widths considered substandard, where feasible as part of new developments/major remodels to ensure adequate evacuation and emergency vehicular access is available. For existing building sites, improvements will only be limited to the property frontage only.					
S-1.5a	Conduct a feasibility study that identifies potential mitigation funding sources and strategies to upgrade existing substandard roadways. This study should also identify mitigation fees for new development to help pay for Citywide evacuation roadway deficiencies.	City Manager, Public Works, Community Development, Fire Department	TBD	General Fund, potential grant funds	Pending

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
S-1.5b	Establish and maintain no parking/tow away zones along critical evacuation routes and turn around locations to ensure effective emergency vehicle access and evacuation. Coordinate this with the City's impaired access and evacuation planning efforts.	Public Works, Police Department	TBD	General Fund	Pending
S-1.5c	Conduct a feasibility study to analyze access improvements beyond new development/major remodels in impaired access neighborhoods and locations with single ingress/egress concerns.	Public Works, Fire Department	TBD	General Fund, potential grant funds.	Pending
Policy S-1.6: Require upgrades to road widths considered substandard, where feasible as part of new developments/major remodels to ensure adequate evacuation and emergency vehicular access is available. For existing building sites, improvements will only be limited to property frontage.					
S-1.6a	Any existing parcel that is considered a legal building site shall be exempt from this policy standard for the purposes of development on the parcel as one building site, but shall be observed for the creation of new building sites.	Community Development, Public Works	Ongoing	Private development funds.	Implemented.
S-1.6b	If the secondary emergency access route uses a public access easement on private property, the route must be paved, may be restricted to emergency access uses only, and must be certified as a functional access route during an emergency by the Fire Department during an emergency.	Fire Department, Community Development	Ongoing	General Fund, potential grant funds	Current Practice. Requirements applied during plan check and building approvals.
S-1.6c	The City shall not approve a variance from Policy S-1.6 and Actions S-1.6a and S-1.6b unless findings are made that:	Community Development, Fire Department	Ongoing		Implemented

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
	1. The Fire Department has reviewed the variance application and certified that long-term public health and safety has been established for emergency access through the provision of additional safeguards, including but not limited to, adequate fire flow and hydrants, requiring sprinklers, additional street width, additional turnarounds and maintained fuel modification zones; and 2. The road leading up to any road or driveway extension complies with City access standards regarding width and grade. The proposed structure does not rely on impaired roadways, as identified in the City's evacuation plan.				
Policy S-1.7: Periodically update the City's Local Hazard Mitigation Plan and, through this process, evaluate the location of critical facilities in relation to hazard exposure.					
S-1.7a	Relocate critical facilities outside of recognized hazard zones. If alternate locations are not available or feasible, retrofit these facilities to reduce vulnerability to potential hazards.	FD, PD, PW/WQ, CM	Need time frame? Ten years after identified?	General Fund, Sewer Fund, potential grant funds	Will be included as part of ongoing updated Local Hazard Mitigation Plan.
S-1.7b	Continuously update the seismic vulnerability assessment of the LHMP as new data and information becomes available from CGS and USGS.	Fire Department	As needed	General Fund	Will be included as part of ongoing updated Local Hazard Mitigation Plan.

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
S-1.7c	Incorporate updated risk assessment information from the LHMP into the City's Capital Improvements Program.	Public Works	As needed	General Fund	Will be included as part of ongoing updated Local Hazard Mitigation Plan.
Policy S-1.10: Inform utility companies of potential conflicts between the location of their facilities and identified hazard areas.					
S-1.10a	Encourage utility companies to program the relocation or undergrounding of facilities potentially impacted by hazards, especially along designated primary emergency routes.	City Manager, Public Works, Fire Department	Ongoing		Operationally proceeding
S-1.10b	Continue to pursue relocation and/or undergrounding of utility infrastructure that serves local emergency services within the City. This effort should include exploring potential future funding sources to help pay the City's fair share costs.	City Manager, Public Works, Fire Department	Ongoing	General Funds, Gas Tax, Rule 20A, Potential grant funds	Operationally proceeding
Policy S-1.11: Underground utilities throughout the City.					
S-1.11a	Encourage undergrounding utilities in existing developed areas of the City where overhead powerlines are located.	Public Works, Fire Department	Ongoing	General Fund assistance, Rule20A, Direct assessment	Operationally proceeding
S-1.11b	Require any new development/major remodels to underground overhead utilities to reduce future fire threats.	Community Development	Ongoing	Private development funding	Operationally proceeding.
S-1.11c	Leverage state and federal funding sources to develop incentives and streamlining opportunities for utility undergrounding throughout the City.	City Manager, Fire Department	Ongoing		Operational proceeding

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
Policy S-1.12: Develop an all-hazards oriented public awareness effort that identifies relevant information for residents and businesses regarding emergency preparedness, hazard mitigation, and tips and tools for homeowners and businesses within the City.					
S-1.12a	Identify topics and themes for the public awareness effort that coincide with national and state outreach campaigns (i.e. Great Shakeout) on emergency management and hazard mitigation topics.	Fire Department, Communications	Ongoing and specific dates (i.e.., Disaster Preparedness Month)	General Fund (Grants & General fund)	List website information if available FD works with communications team on public awareness campaigns and maintains an annual schedule Defensible space /Fuel Mod as hazard mitigation (home risk assessment/CCR)
S-1.12b	Develop earthquake preparedness outreach materials that integrate the latest earthquake mitigation information from the California Earthquake Authority.	Fire Department, Communications	Ongoing	General Fund	List website information if available Available on city website: https://www.lagunabeachcity.net/live-here/emergency-management/prepare-for-an-emergency
S-1.12c	Continue efforts on developing educational information on ways to protect lives and properties from flood hazards.	Fire Department, Communications	Ongoing	General Fund	List website information if available Available on city website: https://www.lagunabeachcity.net/live-here/emergency-management/prepare-for-an-emergency
S-1.12d	Develop outreach materials for residents and businesses focused on wildfire preparedness and evacuation.	Fire Department, Communications	Ongoing	General Fund	List website information if available Available on city website: https://www.lagunabeachcity.net/live-here/emergency-management/prepare-for-an-emergency *(Ready Set Go Program on City's website)*

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
Fire Hazards Goal S-2: Reduce the threat of wildfire hazards for Laguna Beach residents, businesses, and visitors.					
Policy S-2.1: Ensure that the City maintains adequate facilities and fire service personnel in conformance with the Fire Department Strategic Plan.					
S-2.1a	Develop and periodically review a Fire Department Strategic Plan that identifies department positions, facilities, equipment, and standards of care and response, and any potential deficiencies to be identified and promptly addressed.	Fire Department	Annually	General Fund	This is done annually as part of the budget process. Additional review with Standards of Cover report and with Wildfire Mitigation and Fire Safety Report update.
Policy S-2.2: Maintain and regularly update the City's vegetation management practices to be consistent with Resolution 89.104, State regulations, and regionally appropriate practices while recognizing the importance of landscaping to the character of the City.					
S-2.2a	Periodically update the Wildfire Mitigation and Fire Safety Report and incorporate recommended updates into the City's fuel modification program.	Fire Department	Every 3 years	General Fund, Potential Grant Funds	Wildfire Mitigation and Fire Safety Report and Fuel Modification Program update to City on October 4, 2022. Next update expected winter 2023 or spring 2024. (Latest fire codes are adopted by the FD and incorporated into fuel mod when changes do occur such as 4906.1/shrubbery spacing)
S-2.2b	Coordinate with adjacent jurisdictions and stakeholders regarding fuels treatment programs and projects.	Fire Department	Ongoing	General Fund, Potential Grant Funds	Operationally proceeding
S-2.2c	Coordinate with neighborhood associations regarding fuels treatment programs and projects associated with the City's fuel modification program.	Fire Department	Ongoing	General Fund, Potential Grant Funds	Operationally proceeding
S-2.2d	Develop long-term sustainable funding sources to fund and expand the City's fuel modification program.	Fire Department, City Manager	Ongoing		List grants and timelines used for fuel modification program (Obtaining new grant for fuel mod 10 & 11) City continues to look for all newly available funding through State & FEMA

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
S-2.2e	Educate residents and businesses on the City's fuel modification program, including fire safety, landscaping installation and maintenance, and fire hazard reduction strategies.	Fire Department	Ongoing	General Fund, Potential Grant Funds	Wildfire Mitigation / Vegetation Management | Laguna Beach, CA (lagunabeachcity.net)
S-2.2f	Locate access roads, trails or fire roads within fuel modification areas where feasible to minimize native vegetation removal.	Fire Department	As needed	General Fund, Potential Grant Funds	Operationally proceeding
Policy S-2.3: Work with governmental jurisdictions and agencies on the cooperative, integrated implementation of the Orange County Report of the Wildland/Urban Interface Task Force's recommendations and Resolution 89.104.					
S-2.3a	Coordinate with state and local jurisdictions and stakeholders on strategic fire plans in and around the City.	Fire Department	Ongoing	General Fund	Need to review relevancy of Reso 89.104 and update
Policy S-2.5: Promote development within the VHFHSZ's to incorporate fire-resistive construction and defensible space management strategies consistent with State requirements, municipal regulations, and requirements identified in Policy S-2.3.					
S-2.5a	All new development and major remodels, in applicable areas, will be responsible for preparation of a Fire Protection Plan, the creation, maintenance, and rehabilitation of fuel modification zones, which will include a recorded deed restriction acknowledging the fire hazard potential and maintenance responsibility by the developer or his successors and assigns.	Fire Department, Community Development	Ongoing	Private development funds	Current Practice. Requirements applied during plan check and Building Division approvals.
S-2.5b	Require property owners to create defensible space surrounding their homes, including providing access for firefighters, maintenance of plantings and	Fire Department	Ongoing	Private development funds	Defensible Space Ordinance effective 11/5/21.

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
	outdoor areas and minimizing combustible structures.				
S-2.5c	Require the use of "fire-wise" planting, especially in landscaped areas located within the wildland urban interface.	Fire Department	Ongoing	Private development funds	(City's Fuel Mod for development) has been in place and is regularly updated to meet the most current codes & standards.
S-2.5d	Conduct a feasibility study to develop permit expediting options such as permit fee reductions for the voluntary inclusion of fire safety mitigation actions incorporated into development projects.	Fire Department, Community Development	TBD.	General Fund	City Council approval is needed to implement as the reduction or waiving of City fees requires City Council approval.
Policy S-2.6: Periodically update local codes and requirements to be consistent with Resolution 89.104 and the current adopted State Building Codes and Fire Codes.					
S-2.6a	Expand implementation of the Fuel Modification Guidelines to the entire VHFHSZ within one year of Safety Element Adoption.	Fire Department	Ongoing (or completed, or timeline)	General Fund, Grant Funding	Actively pursuing grant for fuel mods 10 & 11. Obtaining permits
S-2.6b	Create and implement a Defensible Space Ordinance within one year of Safety Element Adoption.	Fire Department	Completed	General Fund	Ordinance 1664, Adopted 10-5-21. Ongoing implementation (adopted 11/05/2021)
Policy S-2.7: Ensure that existing and new developments have adequate water supplies and conveyance capacity to meet daily demands and firefighting requirements.					
S-2.7a	Coordinate with water districts to identify issues that may affect water supply and delivery.	Fire Department	Ongoing	General Fund, other agencies	LBCWD, SCWD
S-2.7b	Require new developments to expand water infrastructure capacity in areas where current improvements do not meet Fire Code requirements.	Community Development, Fire Department	Ongoing	Private development funds	Current Practice. City works with Water District.

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
S-2.7c	Map water pressure and capacity characteristics of the water infrastructure throughout the City to identify potential areas requiring upgrade and enhancement to meet future daily, peak, and fire flow requirements.	LBCWD	TBD	General Fund, Potential Grant Funds	Pending: Need to contact (LBCWD & SCWD) for review of flow-chart/rate
Seismic and Geologic Hazards Goal S-3: Reduce the threat of geologic hazards for Laguna Beach residents, businesses, and visitors.					
Policy S-3.1: Require the preparation of a geotechnical investigation for applicable development projects as specified in the Municipal Code.					
S-3.1a	Require onsite borings or subsurface investigations for applicable proposed developments in areas of the City where geologic hazards may be a concern.	Community Development, Fire Department, Public Works	Ongoing	General Fund, Private development funds	Based on development characteristics. Building requires soil reports as part of review process for development.
S-3.1b	Continue to require that all geotechnical investigations within the City be prepared by a Geotechnical Engineer or Certified Engineering Geologist and be peer-reviewed by the City's on-call geotechnical consultant.	Community Development	Ongoing	General Fund, Private development funds	Current Practice.
S-3.1c	Require that applicable grading activities be monitored by qualified geotechnical personnel.	Public Works	Ongoing		Current Practice.
S-3.1d	Continue to file, reference, and index geotechnical mapping and data within the City's Geographic Information System.	Community Development	TBD	General Fund	Pending implementation.
Policy S-3.2: Enforce bluff and hillside protection measures that control runoff and erosion.					
S-3.2a	Develop guidance for bluff and hillside protection that should include but not be limited to effective vegetation management, access control, site planning for new development and major	Fire Department, Community Development	Ongoing	General Fund/Private development funds.	Developing Bluff ordinance.

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
	remodels, direct water to areas with adequate storm drainage infrastructures, and compliance with blufftop setbacks. Reference 89.104				
Policy S-3.4: Ensure all drainage facilities are free of obstructions, maintained adequately, and mitigate storm flows on hillsides and bluffs.					
S-3.4a	Conduct periodic inspections on drainage facilities to ensure adequate operations and maintenance.	Private – CD Public - PW	Ongoing	General Fund	City has an inspection schedule and notifies property owners.
S-3.4b	Periodically notice owners of private drainage infrastructure about maintenance and operation needs and consider developing an annual inspection and enforcement program.	Community Development	Ongoing	General Fund	City has an inspection schedule and notifies property owners.
S-3.4c	Conduct a feasibility study to establish additional funding sources for drainage infrastructure improvements and modifications.	Public Works	TBD	General Fund or Capital Improvement or Measure LL Fund	Pending
Policy S-3.5: Require drought-resistant vegetation with deep root systems where appropriate in new developments and major remodels to reduce over-irrigation in areas of the City prone to slope instability.					
S-3.5a	Encourage the use of drought-resistant vegetation throughout the City through public education efforts.	Fire Department, Communications Manager	Ongoing	General Fund	Working on adding a page to the City website on drought resistant vegetation and recuring social media posts.
S-3.5b	Map areas of the City with steep hillsides to identify areas of potential slope instability that may require stabilization using vegetation or engineered solutions.	Fire Department Community Development	TBD	General Fund	Pending. City GIS site has "seismic hazard landslide areas" map layer
Policy S-3.8: Evaluate long-term risks and costs associated with retrofit and mitigation of critical facilities versus relocation when located in hazardous areas.					

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
S-3.8a	Relocate critical facilities when it is cost effective to do so, in comparison to mitigating hazard conditions.	City Manager	Ongoing	General Fund, Potential Grant Funds	Through budget and Capital Improvement Project process
S-3.8b	Conduct a feasibility study identifying funding mechanisms that can pay for mitigation enhancements to existing critical facilities identified within geologic hazard areas.	City Manager	TBD	General Fund, Potential Grant funding	Through budget and Capital Improvement Project process
Policy S-3.9: Coordinate with public and private utility providers and agencies (Caltrans, South Coast Water District, Laguna Beach County Water District, SCE, The Gas Company) on seismic enhancement and mitigation of infrastructure within the City.					
S-3.9a	Collect relevant geologic/geotechnical studies submitted as part of the development process and incorporate them into a master geologic map/inventory of the City.	Community Development	TBD	General Fund	Pending.
Policy S-3.10: Encourage seismic retrofits for existing homes within the City. Consistent with the current California Building Code and recommendations from the California Earthquake Authority.					
S-3.10a	Identify funding opportunities to assist homeowners with seismic retrofit improvements.	Communications	Ongoing	General Fund	Working to develop webpage identifying opportunities for homeowners
Flood Hazards Goal S-4: Reduce flood impacts and adapt to changing flood conditions within Laguna Beach.					
Policy S-4.1 – Ensure drainage infrastructure protects properties, conveys flood waters adequately, and enhances the built environment.					
S-4.1a	Use natural watercourses as primary flood control channels whenever feasible and safe to do so.	Public Works	Ongoing	General Fund	Orange County Flood Control District
S-4.1b	Minimize the threat of mudflows through the use of effective erosion control methods.	Public Works, Community Dev.	Ongoing	General Fund, Private funding	Operationally proceeding. Part of the City's project review process as required by Green Building Code.
Policy S-4.2: Require new developments and major remodels to retain onsite storm flows at or below existing conditions.					

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
S-4.2a	Onsite drainage improvements shall be consistent with the requirements of the Laguna Beach Municipal Code.	PW/Water Quality, Community Development	Ongoing	General Fund	Ensure required inspections are made and documented.
S-4.2b	Encourage properties that generate excessive storm flows to implement mitigation activities to reduce offsite flows through the use of detention, retention, and/or recharge strategies.	PW/Water Quality	Ongoing	General Fund	Ensure conditions of approval are up to date.
Policy S-4.3: Design drainage infrastructure to meet 100-year flood protection at a minimum.					
S-4.3a	Identify existing storm drains that require modification/retrofit to meet 100-year flood protection standards.	Public Works	TBD	General Fund	Pending
S-4.3b	Expand flood control capacity to accommodate impacts projected by sea-level rise.	Public Works	Ongoing		Coordination with OC Flood Control District
Policy S-4.5: Improve the flood control capacity in Laguna Canyon.					
S-4.5a	Promote flood protection measures like stream restoration, private property improvements, flood proofing, retention/detention basins and other strategies that reduce flood impact.	Public Works Community Development	Ongoing		
S-4.5b	Adhere to flood management requirements within the Laguna Beach Municipal Code.	CD, Public Works	Ongoing	General Fund	Operationally proceeding: New construction must comply with Floodplain Management Chapter of the Municipal Code, Chapter 25.38
S-4.5c	Continue the City's annual inspection program for public and private drainage facilities in the Canyon.	Community Development, Public Works	Ongoing	General Fund	Operationally proceeding
Policy S-4.6: Coordinate with local, state, and federal agencies on watershed management programs and projects.					

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
S-4.6a	Update the City's Storm Drain Master Plan.	Public Works	Pending	General Fund, Drainage in Lieu Fee	Pending,
S-4.6b	Integrate projects from the Storm Drain Master Plan into the City's Local Hazard Mitigation Plan and Capital Improvements Program.	Public Works, Fire Department	Pending	General Fund, Drainage in Lieu Fee	Will incorporate into updated hazard mitigation plan this year
S-4.6c	Track and monitor development activity and its impact on the City's watersheds.	Community Development	Ongoing		The City provides annual reporting to the State.
S-4.6d	Conduct proactive maintenance and monitoring activities leading up to storm events and the start of the rainy season.	Public Works	As needed	General Fund	
Climate Adaptation Goal S-5: Ensure that Laguna Beach is ready to address the impacts associated with climate change.					
Policy S-5.1: Coordinate with regional, state, and federal agencies to monitor the indicators and impacts of climate change.					
S-5.1a	Annually monitor king tide inundation and average high tide measurements to track inundation patterns.	Marine Safety Public Works	TBD		TBD, need to develop long term program.
S-5.1b	If inundation from king tide and high tide conditions begin to migrate further inland, identify thresholds for requiring new sea-level rise analyses and potential mitigation actions.	Marine Safety Public Works	TBD		TBD
Shoreline Protection Goal S-6: Protect shoreline environments and adapt to changing conditions along the Laguna Beach coastline.					
Policy S-6.1: Prohibit the construction of buildings and other human-made structures on the beach's sandy portion unless necessary for public health and safety.					
S-6.1a	Shoreline construction shall meet the *Guidelines for Shoreline Protection* criteria, including the effects of beach encroachment, wave reflection, reduction	Community Development	Ongoing.	General Funds.	Current Practice.

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
	in sea cliff sand contribution, and aesthetic criteria.				
S-6.1b	Periodically update and monitor the City's Guidelines for Shoreline Protection to include the latest guidance and best practices from the California Coastal Commission.	Community Development	Ongoing.	General Funds.	Operationally proceeding.
Policy S-6.2: Prohibit shoreline protective devices that may negatively affect sand supply or cause an adverse impact to shoreline processes.					
S-6.2a	Allow for shoreline protective devices under an emergency basis if an existing principal structure(s) is in imminent danger from erosion and is designed to mitigate adverse impacts on local shoreline sand supply.	Public Works	TBD	TBD	TBD
S-6.2b	Explore beach sand replenishment opportunities as an alternative to the construction of hard shoreline protection devices.	Public Works	Ongoing	TBD	Operationally proceeding
S-6.2c	Consider the impacts of flood control improvements on beach sand replenishment.	Public Works	Ongoing	TBD	Operationally proceeding
S-6.2d	Repair of damaged shoreline protection devices must be consistent with prevailing zoning regulations and general plan policies.	Public Works, Community Development	As needed	General Fund or emergency funds	Operationally proceeding
S-6.2e	Continue to require Coastal Development Permits consistent with the City's Local Coastal Program.	Community Development	Ongoing	General Fund, private development	Operationally proceeding
<u>Hazardous Materials and Wastes</u>					

Implementation Action Number	Implementation Action Description	Responsible Department	Time Frame	Funding Source	Notes
Goal S-7: Reduce the threat of exposure to hazardous materials for Laguna Beach residents, businesses, and visitors.					
Policy S-7.1: Coordinate with Federal, State, and County agencies to protect the public health, safety, and welfare of the City's built and natural environments from the release of hazardous materials.					
S-7.1a	Continue the City's Household Hazardous Waste (HHW) program that includes the use of County drop-off locations and door-to-door collections.	Public Works	Ongoing	General Fund	Webpage on the City Webiste is updated regularly:
S-7.1b	Continue to promote the City's HHW programs that include residential door-to-door collections, Small Business Program collections, and the use of County of Orange HHW Collection Centers for proper disposal of hazardous materials.	Public Works	Ongoing	General Fund, refuse fees	Webpage on the City Webiste is updated regularly:
S-7.1c	Conduct a feasibility study to see if a local disposal location is appropriate and if a fee should be established to construct a permanent location.	Public Works	TBD	TBD	Note: City of Irvine site is 11 miles away. Currenrly, not efficient for City to create a site and operate it.
Policy S-7.6: Prevent sewage flow into City storm drains by properly separating this infrastructure per state and local requirements.					
S-7.6a	Separate sewer and storm drain infrastructure through construction upgrades and operation and maintenance activities that eliminate cross-contamination of the two systems.	PW/Water Quality	As needed	Water Quality, grant funds	Consider change in language recognizing system are separate. However, overflows may occur and divert water to catch basins