City of Santa Monica

SAFETY ELEMENT

Acknowledgements

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Phil Brock, Mayor
Lana Negrete, Mayor Pro Tem
Gleam Davis
Oscar De LaTorre
Christine Parra
Caroline Torosis
Jesse Zwick

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Susan Mearns
Robert Lempert

Consultant – Earth Consultants International, Inc.

Tania Gonzalez

Community Development Department

David Martin, Director

City Planning Division

Jing Yeo, AICP, Planning Manager
Rachel Kwok, Environmental Planner
Cary Fukui, Senior Planner

Building and Safety Division

Ariel Socarras, Building & Safety Division Manager
Sia Poursabahian, Building Officer
Orville Sabado, Plan Check Officer

Office of Emergency Management

Lindsay Call, Chief Resilience Officer

Public Works Department

Engineering Division

Alex Nazarchuk, City Engineer
Joshua Carvalho, Principal Civil Engineer

Architectural Services Division

Amber Richane, Acting Chief Operations Officer

Airport Division

Stelios Makrides, Airport Director
Diana Hernandez, Airport Operations Administrator

Office of Sustainability and the Environment

Shannon Parry, Chief Sustainability Officer
Ariana Vito. Senior Sustainability Analyst

Fire Department

Joe Cavin, Fire Marshal
Deborah Bernhard, CUPA Administrator

City Attorney Office

Heidi Von Tongeln, Chief Deputy City Attorney
Michelle Hugard, Deputy City Attorney

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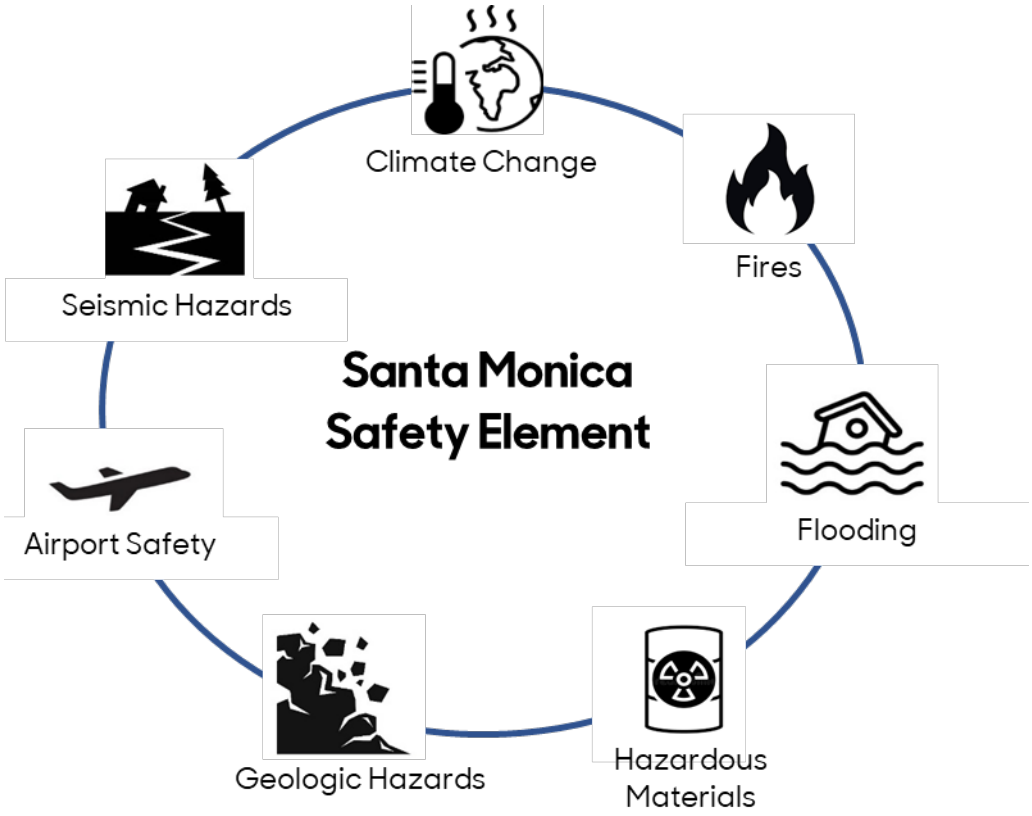
Chapter 1: Introduction

Background

The Safety Element of the City's General Plan establishes the City's framework for reducing the potential risk of death, injuries, property damage, and economic and social dislocation caused by natural and human-related hazards. The Safety Element aims to protect the community resulting from fires, floods, droughts, earthquakes, geologic hazards, climate change, hazardous materials, and airport hazards.



State Regulatory Requirements

California State law (Government Code Section 65300) requires that each county and city adopt a comprehensive, long term General Plan to guide future land use development and growth of that jurisdiction. Each General Plan must include eight "topics" or elements: land use, circulation, housing, conservation, open space, noise, safety, and environmental justice (required when 2 or more elements are updated).

California Government Code Section 65302(g)(1) establishes the minimum requirements for California's safety elements. Specifically, State law mandates that the Safety Element:

- Provide for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; and other seismic hazards; flooding; and wildland and urban fires.
- Include a mapping of known seismic and other geologic hazards.
- Address evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geological hazards
- Identify areas subject to flooding and wildland and urban fires, and establish goals, policies and objectives to address these issues
- Address climate change and resiliency strategies

The State has established new statutory requirements pertaining to the Safety Element, which include:

- SB 379 (2017): Requires the City to address climate adaptation and resiliency through the preparation of a vulnerability assessment or reliance on a Local Hazard Mitigation Plan that addresses climate adaptation risks and vulnerabilities.
- SB 1035 (2018): Requires the update of the Safety Element upon adoption of the Housing Element update, which shall be updated at least every eight years to address new requirements and incorporate updated information during this time.
- SB 99 (2019): Requires the Safety Element to identify residential developments in any hazard area that do not have at least two emergency evacuation routes.
- AB747 (2019): Requires Safety Element to be reviewed and updated as necessary to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios.

Community Context

The City of Santa Monica is an urban coastal city, located in western Los Angeles County along the coast of the Pacific Ocean and is surrounded on three sides by the City of Los Angeles, including the westside communities of Pacific Palisades to the north, Brentwood and West Los Angeles to the east, and Mar Vista and Venice to the south. The City of Santa Monica is directly accessible from the greater Los Angeles region via the Interstate (I-) 10 (Santa Monica Freeway) and I-405. The I-10 freeway terminates at its western end at State Route (SR-) 1 (Pacific Coast Highway), which links the City to Malibu and the Santa Monica Mountains.

The City comprises approximately 5,280 acres (approximately 8.25 square miles), which include the beach areas. Despite its relatively small size, the City contains a diverse range of urban land uses that are more commonly found in large cities. This urban quality can be seen in the City's many distinct neighborhoods and districts, which include:

- A traditional Downtown district with retail, restaurant, entertainment, office, and mixed-use residential;
- A Civic Center with government and institutional uses that include City Hall, Los Angeles County Court House, Tongva Park, and Santa Monica High School;
- Multiple mixed use commercial corridors that run primarily east-west, such as Wilshire Boulevard and Santa Monica Boulevard;
- Local smaller scale, mixed use commercial districts within residential neighborhoods, such as Main Street and Montana Avenue;
- Established residential neighborhoods with a diverse range of housing types and densities;
- Office areas within the Bergamot Area and the Office Campus areas;
- A light industrial district that runs partially parallel to the Interstate-10 freeway; and
- A public municipal airport, Santa Monica Municipal Airport

Scope of the Safety Element

In the context of State law on General Plans, the Safety Element addresses mainly natural hazards and human-made hazards in the built environment. This Safety Element has focused primarily on the hazards that are most cited in California State Laws pertaining to the Safety Element of the General Plan and to federal requirements for Local Hazard Mitigation Planning. Specifically, these topics include:

- Geologic and Soil Hazards
- Seismic Hazards
- Flooding
- Fire (wildfires and urban fires)
- Climate Change Effects (including Extreme Heat, Drought, Extreme Precipitation Severe Winds, Sea Level Rise)
- Hazardous Materials
- Airport Hazards

Appendix A, Technical Background Report, provides the detailed data and information utilized in the analysis of these existing hazards.

In the course of the Safety Element Update process, other hazards were identified by the community including:

- Cyber Attack
- Public Health Hazards, including vector borne diseases and pandemics
- Terrorism and Active Shooter Incidents
- Civil Unrest

While these hazards are not discussed in the Safety Element, they are considered in the formulation of disaster planning and management and their potential risks are reflected in the Goals, Policies, and Actions of this element. Additionally, goals, policies, and programs related to transportation safety are addressed in the City's Circulation Element, Bike Action Plan, and Pedestrian Action Plan.

Vulnerable Communities

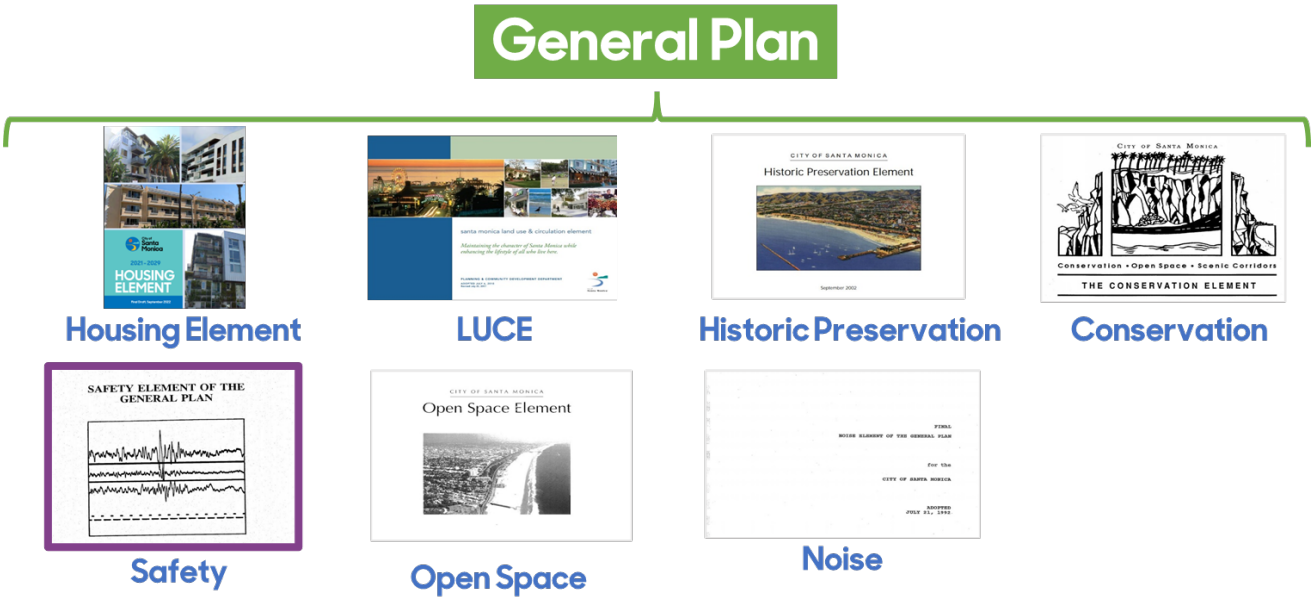
In alignment with the City's adopted 6th Cycle 2021-2029 Housing Element, the Safety Element applies an equity lens to its approach. The Safety Element assesses the effects of hazards and climate change on vulnerable communities. Vulnerable communities experience heightened risk and increased sensitivity to hazards, including climate change effects, and have less capacity and fewer resources to cope with, adapt to, or recover from these hazards. These disproportionate effects are caused by physical (built and environmental), social, political, and/or economic factor(s), which are exacerbated by climate change or other factors.

Which population groups are considered vulnerable communities will depend on the type of hazard. For example, those living in the coastal zone will be more vulnerable to the effects of flooding and tsunami than the people living inland. Similarly, the unhoused population and low-income households are vulnerable to extreme heat and adverse weather effects.

This Safety Element aims to improve the health, accessibility of community resources and services, and infrastructure of vulnerable communities so that they can be better protected from hazards and climate change effects. A vulnerability assessment is provided as Appendix B of the Safety Element.

Relationship to Other Plans

The Safety Element is one of the State-required components of the City's General Plan. State law requires that the Safety Element be consistent with other General Plan Elements, including the Housing Element and the Land Use and Circulation Elements. The Safety Element is intended to complement, and not compete with, the other General Plan Elements. As an example, the policies in the Safety Element establish the policies and programs necessary to ensure that new housing as planned for in the Housing Element will be designed to the latest State and local adopted seismic standards.



This Safety Element Update has been prepared concurrently with the City's Local Hazard Mitigation Plan (LHMP) update. The Local Hazard Mitigation Plan identifies local disaster hazards, assess the possibility of these hazards occurring and estimates potential costs, and identifies actions to mitigate disaster losses. The Disaster Mitigation Act of 2000 requires LHMP revisions to be reviewed and approved by the Federal Emergency Management Agency (FEMA) every five years. Updated LHMPs, revised every five years, serve as the City's mitigation plan with actions and programs that will guide how the City can effectively prepare for, respond to, and recover from emergencies and other hazards in the natural and built environment. The last LHMP was prepared in 2016, and an update of the LHMP is currently underway. The Safety Element aligns with the risk reduction and emergency response strategies identified in the forthcoming LHMP update. To ensure that the City will be considered for additional funding for eligible Public Assistance projects pursuant to AB 2140, the City incorporates by reference the LHMP and any future updated LHMP. The LHMP is posted online at the City's Office of Emergency website. If necessary, the City will amend the Safety Element to incorporate the LHMP, whenever an updated LHMP is approved by FEMA. The Safety Element provides a contextual framework and overview of the City's hazard mitigation strategy and emergency response operation. It is not intended to serve as an emergency operations plan insofar as the Safety Element is a guiding document rather than an operational document.

The Safety Element also builds upon and incorporates the City's 2019 Climate Action and Adaptation Plan (CAAP) [available online at https://www.santamonica.gov/climate-action-and-adaptation-plan] and will inform the Local Coastal Program (LCP) Land Use Plan (LUP) update and other relevant City plans. The Safety Element provides updated information and supplements the adaptation strategies in the CAAP and LUP to address climate change effects, (i.e., flooding, extreme heat, air quality, drought, and wildfires) as well as other hazards (i.e., geologic/seismic risks, hazardous materials, airport hazards, and urban fires). The Safety Element is intended to be consistent with and to help aid the implementation of the objectives and policies of the CAAP and LCP.

Community Engagement

Key to the preparation of this Safety Element Update is community engagement. Opportunities for public input on the plan included:

- Study Sessions at City Commissions including:
    - Planning Commission;
    - Building and Fire Life Safety Commission;
    - Commission on Sustainability, Environmental Justice, and the Environment
- Public Survey (available online and hard copy in English and Spanish)
- Stakeholder feedback from Local Hazard Mitigation Plan Update workshops (available both in English and Spanish)
- Public outreach events

Chapter 2: Existing Hazards

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Geologic and Seismic Related Hazards

The City of Santa Monica is located at the northwestern edge of the Los Angeles basin, with the Santa Monica Mountains forming an impressive backdrop to the north. The City is relatively flat, except for the steep Palisades Bluffs that line the western edge and the hillsides generally defining the northern City boundary. Ground surface elevations across the City vary from 0 to 10 feet above mean sea level (amsl) along the beach, to approximately 175 feet amsl at the eastern end of the airport and 340 to 370 feet amsl near the northeastern corner of the City.

Soil Conditions

Depending on the type and nature of the underlying soils, certain properties in the City could be subject to soil hazards such as compression, collapse, and expansion. Areas of the City that are underlain by engineered artificial fill include the former landfill and claypit areas in the eastern portion of the City. These pits were created during the process of mining clay used in the manufacturing of bricks until 1952, and the depressions were slowly backfilled over the next ten to 20 years. Several of these open clay pits, which were estimated to range between about 10 and 30 feet deep, were originally backfilled with uncertified fill or landfill materials. As a result, these backfilled areas would have been susceptible to differential settlement. Other hazards potentially associated with these areas include the presence of hazardous materials and explosive gases. Some of the City's critical infrastructure and facilities overlie these former landfill and claypit areas include the City Yards and the Santa Monica Fire Training Facility.

Santa Monica Clay Pits, 1939
Source: Santa Monica Public Library Image Archives

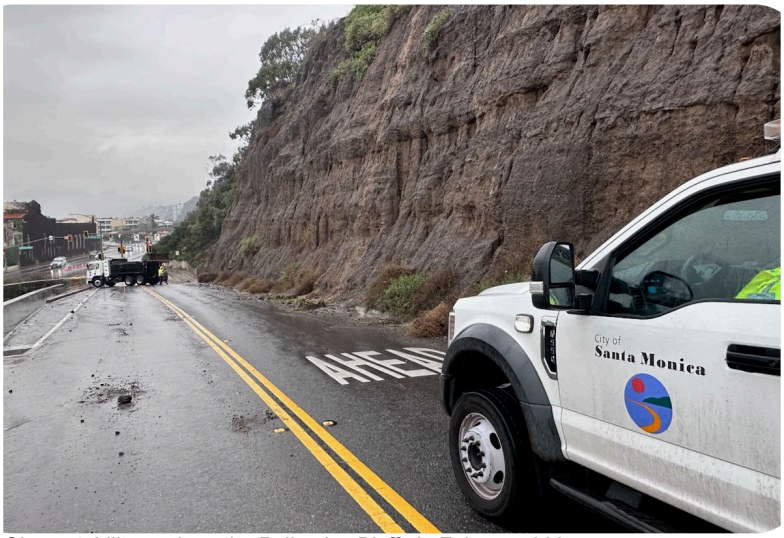
Other deposits of man-made fill, likely compacted, are known to occur and are expected to occur throughout the City. The most significant of these are related to grading resulting from the construction of roads and freeways, including Interstate 10 and Pacific Coast Highway. Reworked, compacted soils are also expected to underlie most structures built from about the 1950s onward when grading practices, including the compaction of soils under foundations, became common.

The claypit areas and other areas of the City with man-made fill could potentially experience soil compression and other hazards if appropriate mitigation is not taken during construction (Figure 1 - Former Claypit and Landfill Areas). In general, soil hazards can be mitigated as part of project design and construction. Most geologic and soil issues are addressed through compliance with State Building Code requirements. Additionally, developers of new buildings in the City are required to submit a design-level geotechnical report for review and approval prior to building permit issuance in accordance with the requirements of the City's Guidelines for Geotechnical Reports. All

recommendations and design features in the design-Level geotechnical Report must be incorporated into the building design to minimize geologic and seismic hazards. As of August 2024, the City is in the midst of updating its Guidelines for Geotechnical Reports to include the most recent and relevant information on geological hazards.

Slope Failures

Slope failure is often the result of increased pore water pressures after heavy rainfall or over-irrigation, but also could be caused by seismic activity. Within Santa Monica, the area that is the most susceptible to erosion and slope failure are the Palisades Bluffs. The Palisades Bluffs line the eastern edge of Pacific Coast Highway and rise to an elevation of approximately 50 to 150 feet above mean sea level. Farther north, in the Pacific Palisades area, the bluffs are approximately 200 feet high. Coastal storms characterized by strong winds, high waves, and significant runoff are particularly damaging to the bluffs.



Slope stability work on the Palisades Bluffs in February 2024

The City has implemented a number of stabilization projects for the Palisades Bluff, with an emphasis on redirecting surface runoff away from the slopes to prevent erosion of the top of the bluffs and limit the infiltration of surface water runoff. The area next to the bluffs with these special runoff considerations (Figure 2 - Areas of Infiltration Prohibition). In addition, horizontal subdrains drilled into the bluff face capture groundwater, reducing pore water pressures in the bluff materials. To ensure continued stability of the bluffs, the City recently contracted with an engineering firm to prepare a comprehensive updated survey of the bluffs that will include recommendations for ongoing maintenance of the bluffs.

Other areas where surficial slope failures are likely to occur during and following strong winter storms include the 1) the slopes flanking the I-10 freeway, 2) the slopes surrounding the southwestern corner of the Santa Monica airport, 3) several slopes on the south side of the city, between Ashland Avenue and Dewey Street, and 4) several slopes in the northeastern corner of the city, around the Brentwood Knoll. In these areas, slope failures may develop as water runoff erodes the slope faces that, if left unchecked, can eventually become earth or debris flows.

Although slope failures tend to impact a relatively small area, structural damage and economic costs can be high. Since insurance policies typically do not cover landslide damage, slope failures can cause both economic and emotional impacts to property owners in the impacted area. Even if a slope failure does not impact adjacent properties, the visual impact of a ruined slope can cause alarm among adjacent homeowners and can impact property values.

Slope failure of the Palisades Bluffs could have wide-spread effects on the City, particularly if it results in the closure of Pacific Coast Highway. Such a disaster would cut off vital access to the beaches, Santa Monica Pier, and the Downtown. The City's emergency response could be adversely affected,

and the City could suffer significant economic loss as tourists and visitors would not be able to access these coastal destinations.

Vulnerability Assessment for Geologic and Soils Hazards

Generally, properties that are located downslope of slopes are at the highest risk for impacts associated with landslides and slope failures. Within Santa Monica, this includes 189 parcels that are located beneath the bluffs, west of Pacific Coast Highway and north of the Pier. Household composition of these parcels is difficult to identify since these vulnerable parcels cross through small western portions of different Census blocks.

Hazards due to underlying soil conditions are typically site-specific and will vary across the City. In general, these hazards are not identified until a subsurface geotechnical investigation is prepared. However, some of the notable areas of the City that are known to contain artificial soils include the City's former landfill and claypit areas near the Bergamot Area and Pico Neighborhood. Approximately 69 parcels are located in these former landfill and claypit areas within Census Tract 701801. Based on Census data, these vulnerable properties are typically occupied by lower-income, and non-white households.

History of Palisades Bluffs Stabilization Projects

- In 2007, the City commissioned a study of the Palisades Bluffs along with groundwater monitoring, which recommended a series of stabilization measures for the bluffs
- Between 2008 to 2010, the City installed horizontal hydro-augers to direct subdrainage runoff from the bluffs
- In 2012, portions of Palisades Park were re-graded to mitigate water running off the upper edge and down bluff face.
- In 2015, as part of the rebuilding of the California Incline Project, approximately 1,000 soil nails were installed within the bluff face to mitigate global or catastrophic failures (i.e. landslides) by securing the weaker outer material to stronger, more stable material under Palisades Park.
- In July 2023, emergency work was done to stabilize a portion of the Santa Monica Bluffs just above the Pacific Coast Highway (PCH) between the California Incline and Moomat Ahiko Way that likely occurred due to runoff from the 2022-2023 winter storms.
- As part of its ongoing effort to ensure safety, the City is currently conducting a comprehensive updated survey that will analyze the stability of the bluffs.

Figure 1 - Former Claypit and Landfill Areas

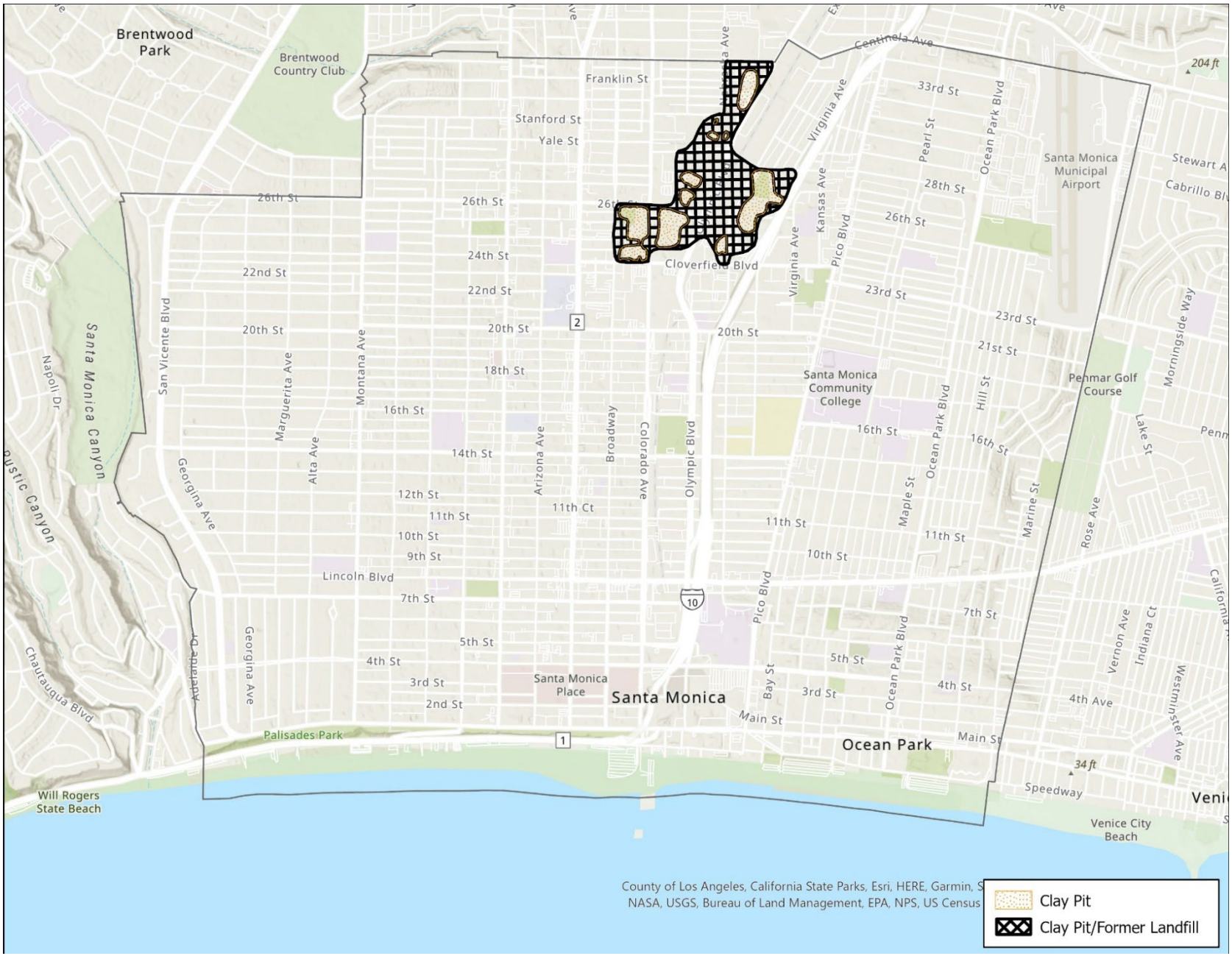
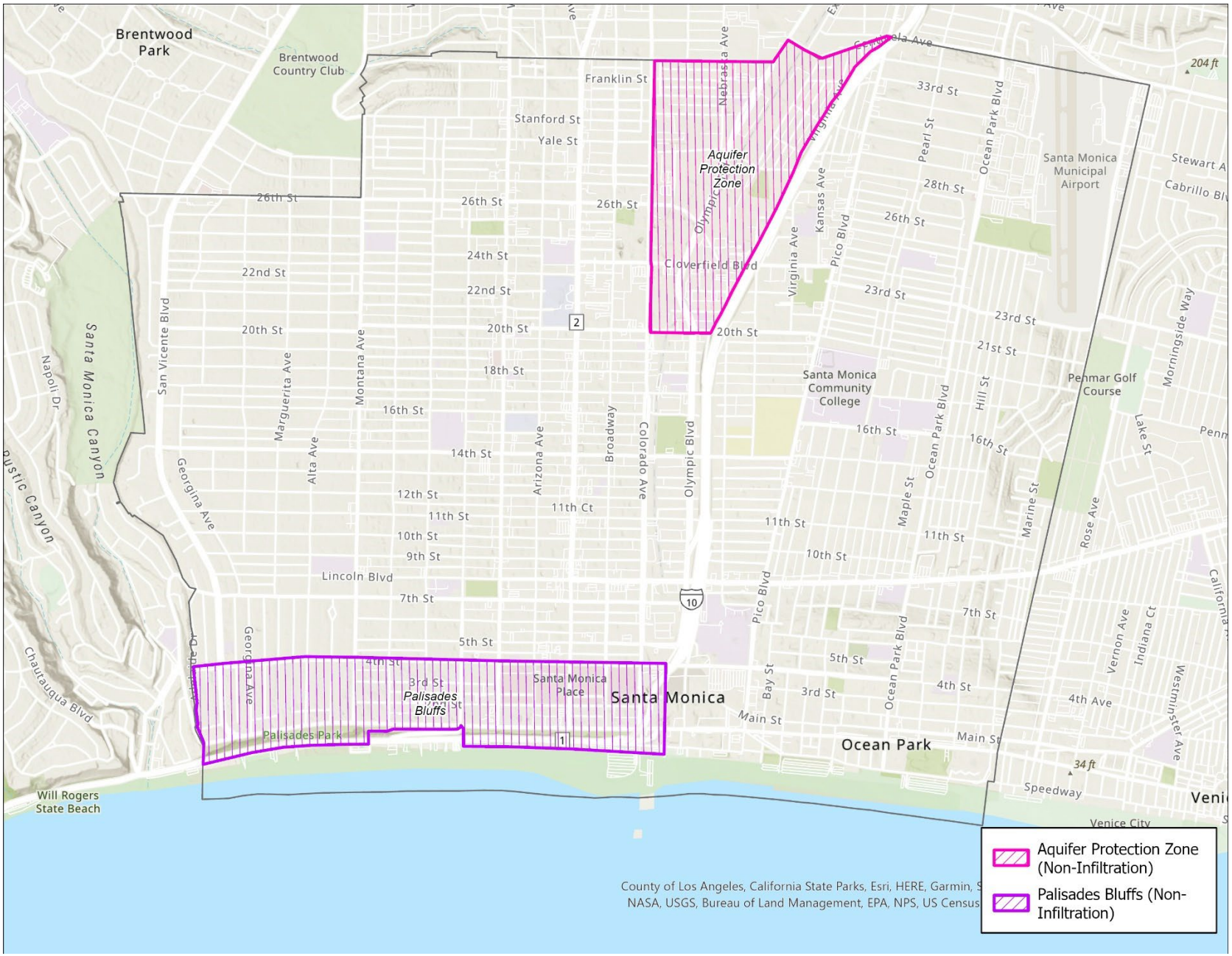


Figure 2 - Areas of Infiltration Prohibition



Seismic Hazards

Santa Monica lies within the seismically active region of Southern California. Earthquake activity in this region is dominated by the San Andreas Fault Zone, which separates the North American and Pacific tectonic plates. Movement between the two plates is the primary force behind fault ruptures in California.

Similar to other cities and communities in southern California, an earthquake has the potential to cause significant loss of life or property in the City of Santa Monica. Although large earthquakes are relatively infrequent, earthquakes can affect widespread areas, trigger many secondary effects, and can overwhelm emergency response systems and services. The most recent significant earthquake to hit the City and region was the 6.7 magnitude 1994 Northridge earthquake, which was centered in the northwest part of the City of Los Angeles.

Multiple fault zones pose a risk to the City. The highest risks originate from the Santa Monica Fault Zone, the Malibu Coast-Santa Monica-Hollywood fault zone, the Newport-Inglewood fault zone, the Palos Verdes fault zone, the Puente Hills fault zone, the Elysian Park fault zone, and the Whittier fault zone. In addition to the nearby faults mentioned above, there are many faults within the region that can generate large earthquakes affecting the City (such as the Mw 6.7 Northridge earthquake in 1994). This includes the San Andreas and San Jacinto faults which have a relatively high probability of rupturing in the next few years to few decades.

Earthquake Terminology

Tectonic plates - The outer 10 to 70 kilometers (6 to 44 miles) of the earth consisting of enormous blocks of moving rock

Fault – A break or fracture between moving blocks of rock.

Active faults – A fault that has shown evidence of movement within the past 11,700 years (i.e., Holocene, "ice age").

Surface Fault Rupture - The displacement that occurs when movement on a fault breaks through to the earth's surface.

Moment Magnitude (M_w) – A measure of earthquake energy release (aka "size" or strength). Each one-point increase in magnitude represents a ten-fold increase in amplitude of the waves as measured at a specific location, and a 32-fold increase in energy.

Peak ground acceleration (PGA) – The maximum ground acceleration that occurs during an earthquake at a location.

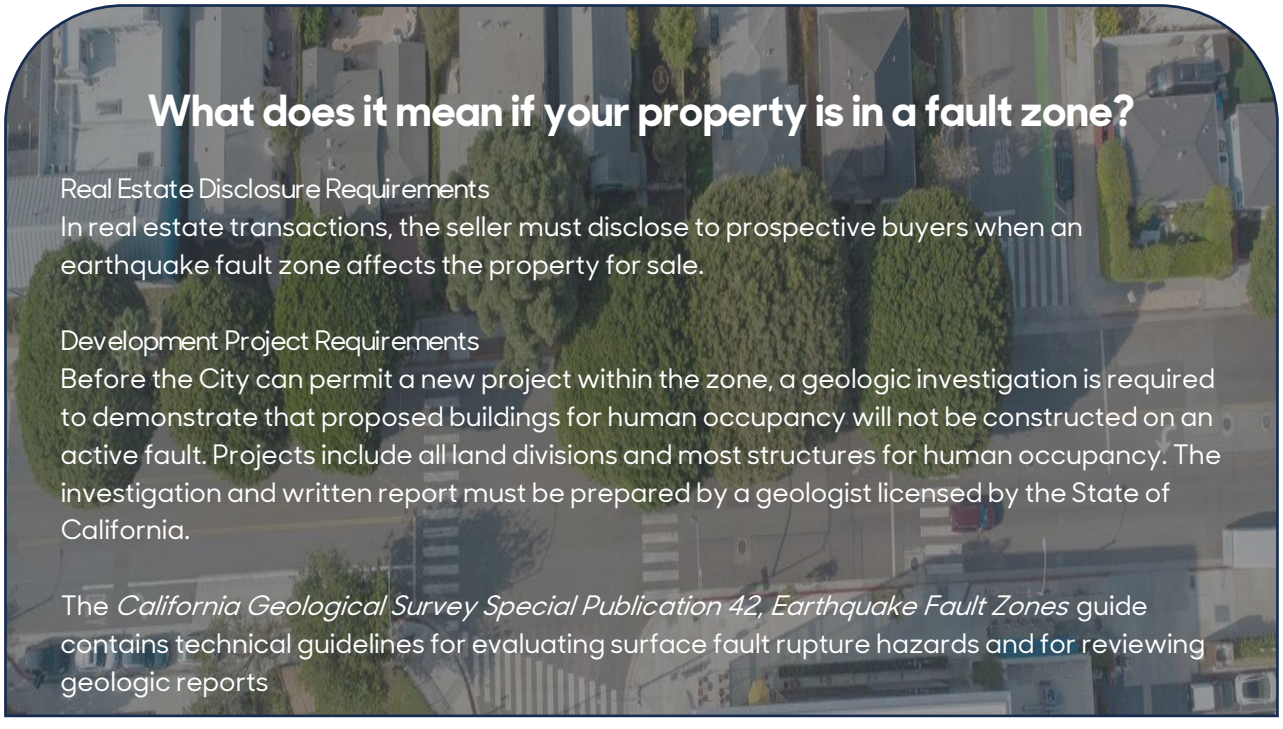
Surface Fault Rupture

Surface fault rupture is the result of fault movement that breaks to the surface of the earth and is the result of tectonic movement that originates deep in the earth. Surface fault rupture can severely damage buildings, and in some extreme cases, result in building collapse.

To address hazards due to potential surface fault rupture, the California Geological Survey designates Alquist-Priolo earthquake fault zones around the traces of active faults.[1] In 2017, the California Geological Survey (CGS) designated the Santa Monica earthquake fault zone (*Figure 3 - Santa Monica Fault Zone)*, which extends through the northeast portion of the City. A number of properties that are located in the North of Montana Avenue (NOMA), Northeast (Northeast Neighbors), and Mid-City neighborhoods are situated within the fault zone.

For new projects proposed within the Santa Monica Fault Zone, the CGS requires a geologic investigation be conducted to determine if the property is situated upon a trace of an active fault line. The State does not prohibit housing in an active fault zone, but instead requires that structures built for human occupancy be assessed for potential fault rupture risks. If the investigation finds evidence of an active fault, a setback distance is generally established for structures for human occupancy. Consistent with State requirements, the City's Building and Safety Division requires the submittal of a Fault Rupture Study during the building permit process to assess potential fault rupture.

Since the designation of the Santa Monica Fault Zone in 2017, approximately two dozen fault studies for the zone have been completed for properties within the City and several more have been conducted to the east, in the city of Los Angeles. Most of these studies have yet to find active traces of the fault, but the northern strands, including the Potrero fault and the strand that projects west-northwest from University High School appear to have moved most recently and extend to or near the ground surface.



What does it mean if your property is in a fault zone?

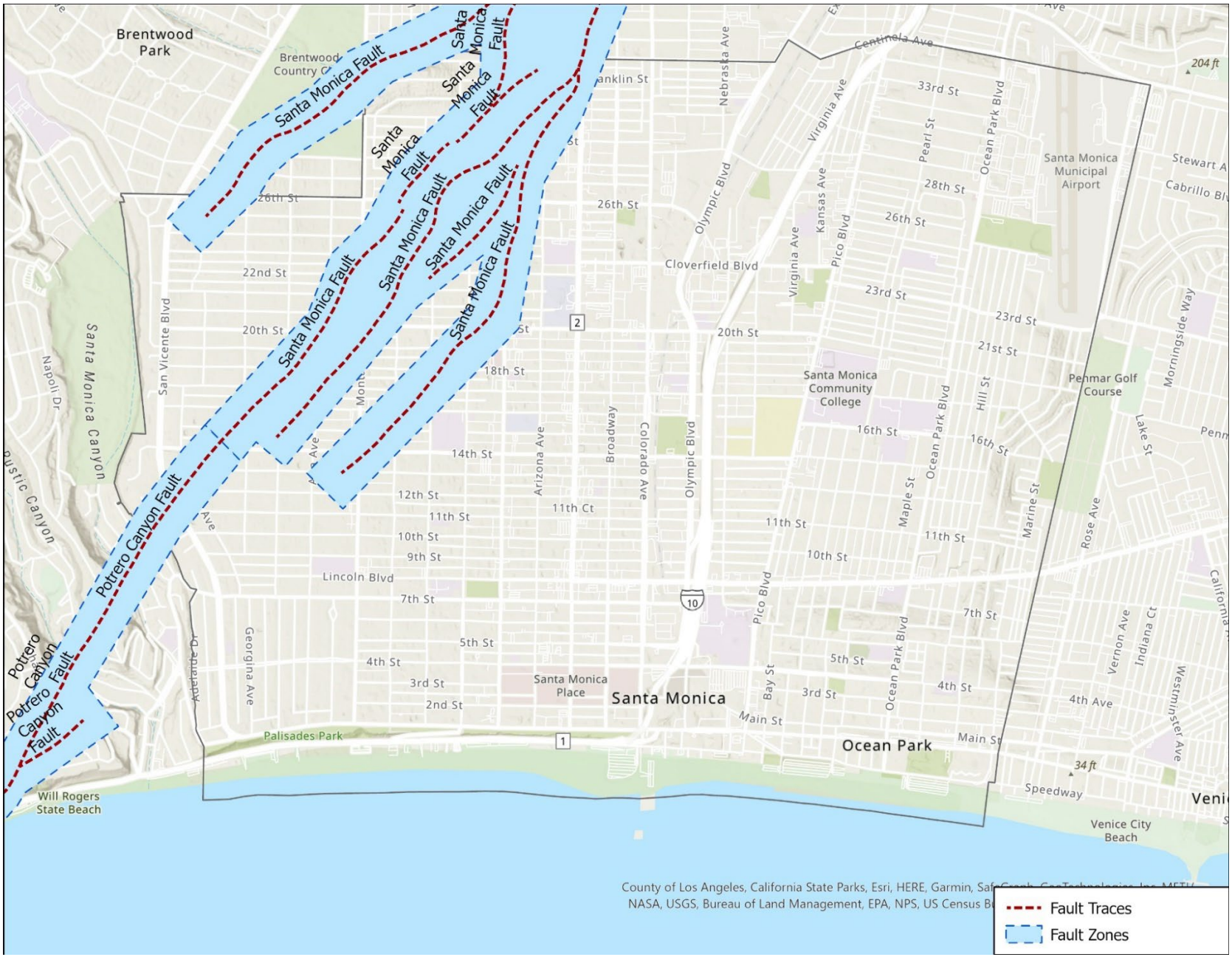
Real Estate Disclosure Requirements
In real estate transactions, the seller must disclose to prospective buyers when an earthquake fault zone affects the property for sale.

Development Project Requirements
Before the City can permit a new project within the zone, a geologic investigation is required to demonstrate that proposed buildings for human occupancy will not be constructed on an active fault. Projects include all land divisions and most structures for human occupancy. The investigation and written report must be prepared by a geologist licensed by the State of California.

The *California Geological Survey Special Publication 42, Earthquake Fault Zones* guide contains technical guidelines for evaluating surface fault rupture hazards and for reviewing geologic reports

[1] *Faults that have shown activity in the past 11,700 years*

Figure 3 - Santa Monica Fault Zone



Earthquakes

Damage from the 1994 Northridge earthquake

California experiences nearly constant seismic activity, with hundreds of magnitude 2 and smaller earthquakes every day. Most of these are too small to be felt by humans and are typically detected by scientific instruments. Earthquakes larger than magnitude 3 or 4 are a lot less common, but several dozens do occur every year. On the other end of the spectrum, a magnitude 8+ earthquake likely occurs only about once every 100 years or more.

Strong earthquakes can result in the collapse of buildings and infrastructure, the breakage of gas pipelines leading to urban fires, and toppling or failure of containers housing hazardous materials.

Santa Monica experienced significant damage and loss during the 1994 Northridge earthquake. The earthquake affected almost every building on the Santa Monica College campus with an estimated $80 million spent on the recovery effort. Santa Monica Hospital Medical Center also suffered about $15 million in immediate damage, forcing the tower building of the medical facility to close for nine months. Providence Saint John's Health Center also suffered significant damage: its north wing, the hospital nursery, and the neo-natal intensive care unit, were all immediately evacuated and moved to other parts of the facility. The hospital stayed open for three days before it was forced to shut down completely because of the extensive damage. On October 3, 1994, Saint John's was again fully operational minus its north wing, which was demolished. The cost of repairs totaled $32 million.

There is a **93%** chance that an earthquake of magnitude 6.7 or greater will strike in the southern California region within the next 30 years

Many nearby faults have the potential to generate severe to extreme ground shaking in the city of Santa Monica. Shaking intensity and PGA depend on the size of the earthquake, the proximity of the rupturing fault to the affected area, and local soil (or rock) conditions. An earthquake originating from the San Andreas fault (and other major regional earthquakes), could have significant regional impacts on trade and transportation disruptions, utility impacts, and ability to get mutual aid into Santa Monica, etc. Although the San Andreas Fault is considered the most likely source for a large earthquake in southern California, it is not the source of the potentially worst-case scenario of intense local ground shaking for the city of Santa Monica. Many nearby faults, such as the Santa Monica, Malibu Coast, Compton blind thrust, Hollywood, Palos Verdes, Newport-Inglewood, Anacapa-Dume, and Puente Hills blind thrust, have the potential to generate severe to extreme ground shaking in the City. The worst-case scenario event would likely result from rupture of the

Santa Monica Fault together with the Malibu Coast Fault to the west and the Hollywood Fault to the east in an estimated Mw 7.4 earthquake as shown in Table 1. This potential scenario would create extreme ground shaking in the Santa Monica area, causing significant damage to older structures, and moderate damage to even newer buildings constructed in accordance with the latest building code provisions. Earthquake effects will vary – one earthquake could have bigger immediate impact numbers (e.g, direct injuries, destruction of buildings, etc.) but another might have larger secondary impacts (e.g., injuries from lack of medication, power, etc.)

While earthquakes cannot be avoided or predicted, adaptation and mitigation strategies can be implemented to minimize potential loss and damage to life and property. The best mitigation technique in earthquake hazard reduction is the constant improvement of building codes with the incorporation of the lessons learned from past earthquakes. Most of the loss of life and injuries that occur during an earthquake are related to the collapse of hazardous buildings and structures, or from non-structural components, including contents, in those buildings.

Table 1 - Estimated Horizontal Peak Ground Accelerations and Seismic Intensities in the Santa Monica Area

Fault Name or Fault Zone	Distance to Santa Monica $^{\beta}$ (mi)	Magnitude of M_{max}*	PGA (g) from M_{max}*
Santa Monica rupturing together with the Malibu Coast and Hollywood faults	0 – 7.5	7.4	0.75^{+}– 0.3
Santa Monica	0 – 2.5	6.8	0.65 – 0.2
Malibu Coast	1 – 6	7.0	0.65 – 0.3
Anacapa-Dume	2 – 6.5	7.2	0.75^{+} – 0.2
Newport-Inglewood (Onshore)	3 – 10	7.2	0.75^{+} – 0.2
Hollywood	4 – 7.5	6.7	0.35 – 0.2
Compton Blind Thrust	6.8 – 11	7.5	0.63^{+}
Palos Verdes	7 – 14.5	7.7	0.75^{+} – 0.2
Upper Elysian Park Thrust	11 – 15	6.7	0.35^{+} – 0.1
Puente Hills (Los Angeles segment)	7 – 12	7.0	0.35^{+} – 0.1
Puente Hills (Santa Fe Springs segment)	19.5 – 24	6.7	0.2^{+} – 0.1
Puente Hills (Coyote Hills segment)	25 – 29	6.9	0.3 – 0.1
Raymond	13 – 17	6.8	0.2^{+} – 0.1
Verdugo	14 – 18	6.9	0.2^{+} – 0.1
Sierra Madre	23 – 26	7.2	0.2^{+} – 0.1
San Andreas; Shakeout2 Full Scenario	41 – 65	7.8	0.2 – 0.05
San Jacinto fault rupture consisting of San Bernardino + San Jacinto Valley + Anza + Clark Segments	63 – 67	7.7	0.2 – 0.05^{+}

Structures that are most vulnerable to seismic effects include unreinforced masonry buildings, soft-story buildings, tilt-up concrete structures, manufactured homes, and pre-1980 residential structures other than single-family homes (that is, multi-family residential buildings, including duplexes, condominiums, and apartments). The City's Seismic Retrofit Program, which was adopted in 2017, has resulted in the retrofitting of hundreds of buildings that were deemed vulnerable to earthquake collapse. This seismic retrofit program continues to be implemented in phases, with deadlines for the mandatory retrofits established based on building type.

City residents can also take advantage of various State programs and grants to voluntarily seismically retrofit their properties, such as the California Earthquake Authority's Brace and Bolt Program or the California Governor's Office of Emergency Services (Cal OES) Earthquake Soft Story Retrofit Grant program. Seismic resiliency in the City will also improve as older properties are turned over for redevelopment, given that new development will be designed in accordance with the most current building codes and the recommendations of a site-specific geotechnical investigation.

The City has also adopted local amendments to the State Building Code to incentivize new buildings to be electric, reducing the potential risk of gas line ruptures from earthquakes. This will allow the City to gradually decommission parts of the gas pipeline system, further increasing infrastructure safety during seismic events. Renovations of existing buildings are also required to include seismic gas shut off valves.

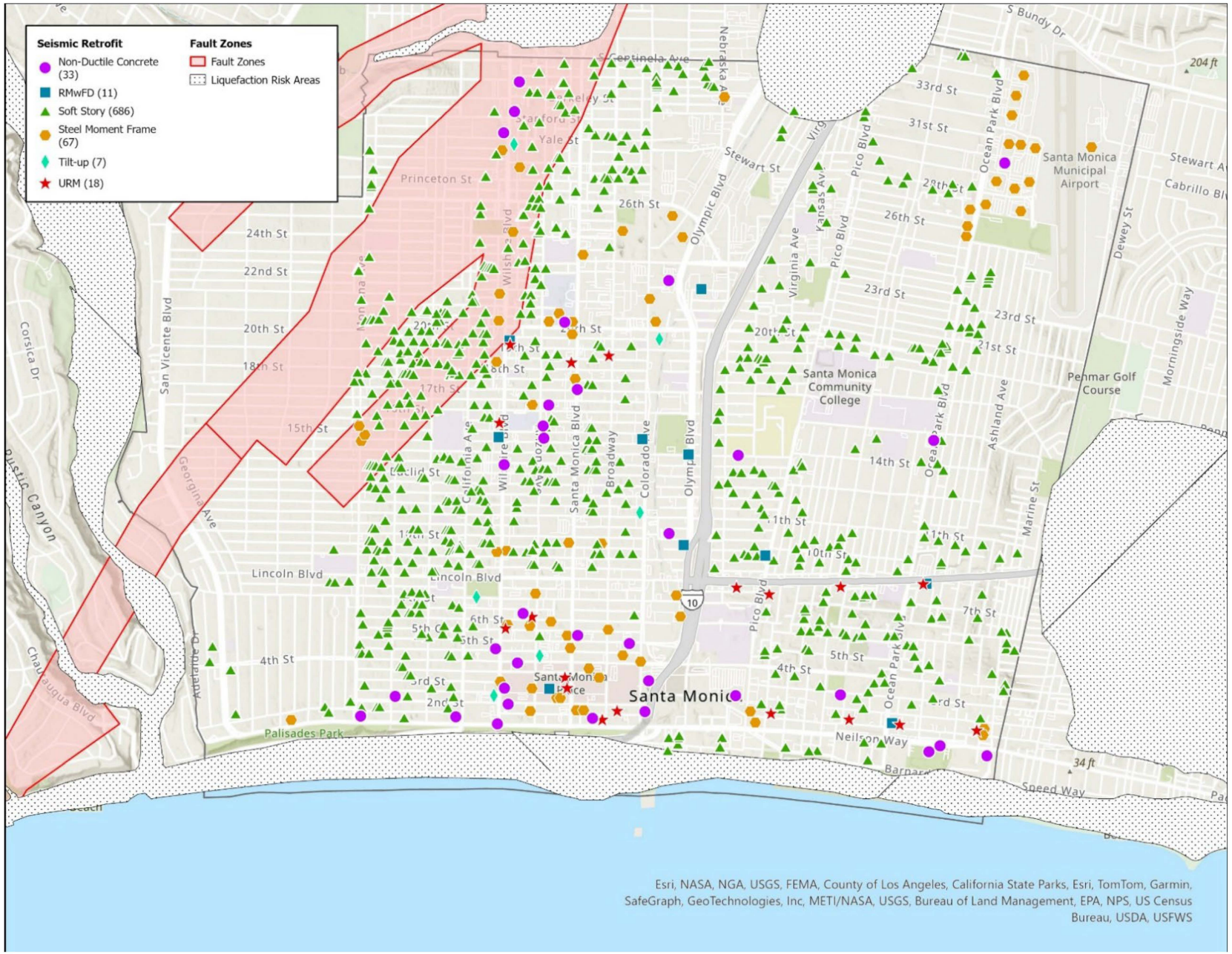
Santa Monica Seismic Retrofit Program

In 2017, the City of Santa Monica adopted the Seismic Retrofit Program, requiring the retrofitting of structural weak buildings, such as older wood-frame residential buildings that are not tied-down to their foundations, pre-cast concrete buildings, welded steel-frame buildings, and soft-story structures (Figure 4 - Open Seismic Retrofit Cases*)*. As of July 2023, 44% of mandatory seismic retrofits were completed.

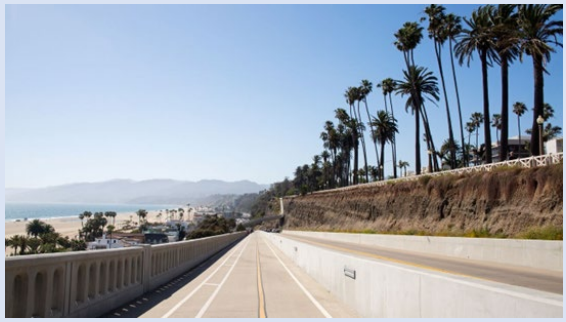
	Quantity	RFRs Closed*	Permits Finaled	No. Closed	% Closed
Tilt Up	42	5	17	22	52%
URM	90	56	16	72	80%
Soft Story	1686	495	462	957	57%
Non-Ductile Concrete	66	32	3	35	53%
Steel Moment Frame	80	11	2	13	16%

**RFRs (Request for Reconsiderations) – Application filed for determination that the property is exempt from the Seismic Retrofit Program for any reason (e.g. prior retrofit, year of construction, not a hazardous building type, etc)*

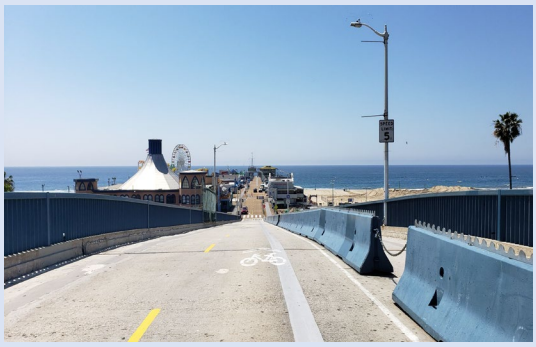
Figure 4 - Open Seismic Retrofit Cases as of July 2023



Seismic Improvements



In September 2016, the City completed the California Incline replacement project, which replaced the old seismically deficient structure with a new modern road leading from PCH to the intersection of Ocean Avenue and California Avenue.



The Santa Monica Pier Bridge is seismically deficient and has a sufficiency rating of 8.2 (on a scale of 100). The City will be replacing the Santa Monica Pier Bridge with a new structure designed and constructed to current standards. The replacement bridge is targeted for completion before the 2028 Los Angeles Olympics.

The City Hall Seismic Retrofit Project was recently completed and included significant building code upgrades and tenant improvements to ensure the safety of employees and the general public.

Liquefaction and Other Seismic-Related Hazards

Other hazards that could occur during an earthquake include liquefaction and landslides. Liquefaction is a form of earthquake-induced ground failure that occurs primarily in relatively shallow, loose, granular, and water-saturated soils. Liquefaction occurs when ground shaking transforms granular material from a solid state to a liquefied state due to earthquakes. According to the California Geological Survey, liquefaction risk in the City is primarily limited to a linear area along the coastline stretching from the waterline inland to Ocean Avenue and an area along the eastern boundary of the City (Figure 5 - Liquefaction Risk). This determination is based on groundwater depth records, soil type and distance to a fault capable of producing a substantial earthquake.

Earthquake-induced landslides can also occur, particularly in steep-sloped areas such as the Palisades Bluffs. These landslides can cause road closures and impede critical evacuation, firefighting, and relief operations within the area.

Vulnerability Assessment for Seismic Hazards

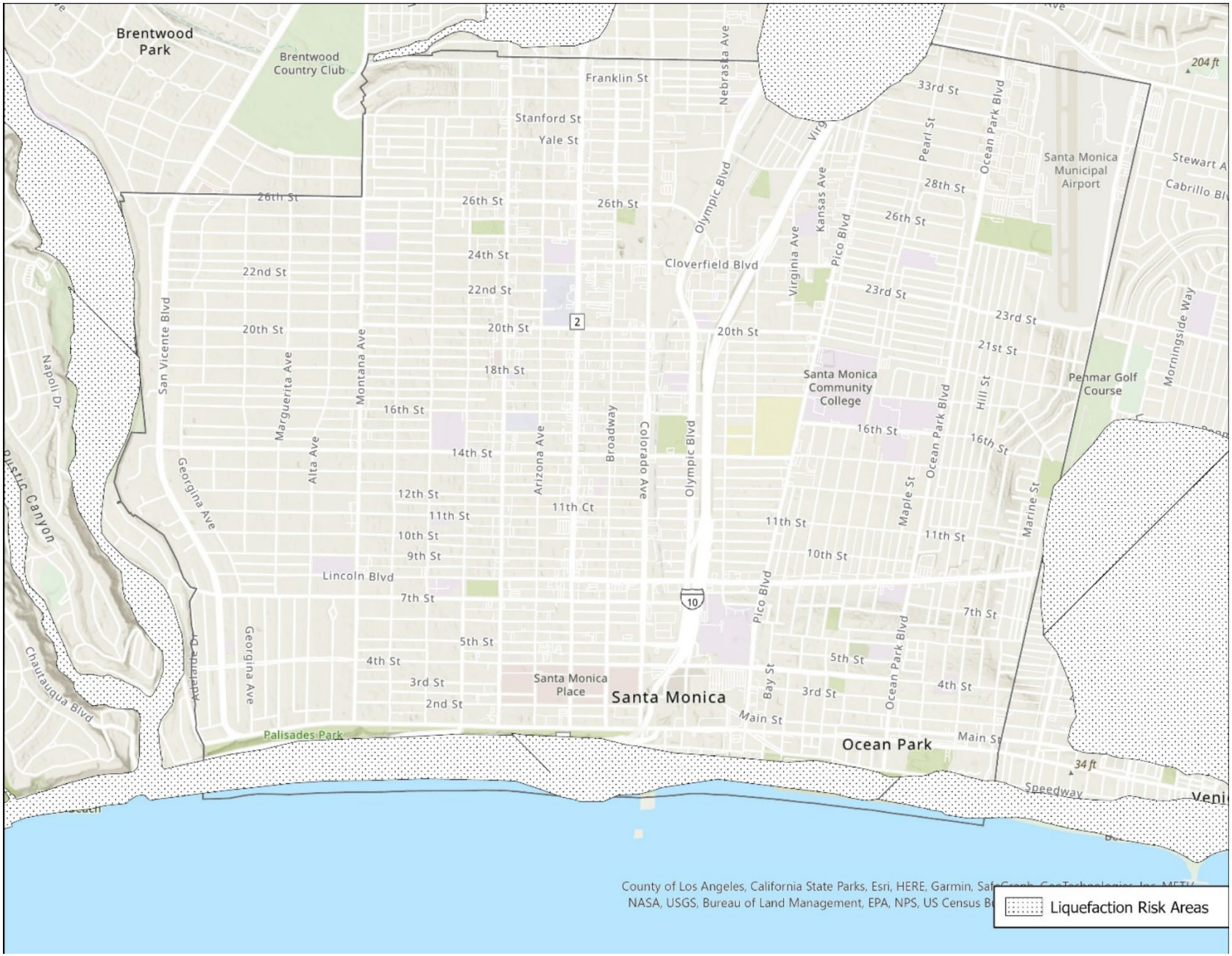
Based on the mapping of the Santa Monica Fault, approximately 2,694 parcels in the City covering 539 acres are located within the Santa Monica Fault Zone. These parcels are developed with single family homes, condos, and apartments, and tend to be occupied by ownership households that are higher income and white.

Due to the large-scale nature of seismic events, however, the entirety of Santa Monica is generally at risk of seismic hazards. Residents in older, apartment buildings that have not been seismically retrofitted, particularly soft-story buildings, are the most vulnerable to earthquake effects. These buildings could experience collapse during a strong earthquake, causing bodily injury, property damage, and even loss of life.

Populations with a disability (i.e., those with hearing, vision, cognitive impairments, and ambulatory impairments) and seniors are particularly vulnerable to seismic hazards, as they may have mobility challenges that can affect emergency evacuation in an earthquake. Review of Census data indicate that the Downtown areas and the Pico Neighborhood have a higher concentration of populations with a disability than the rest of the City. The City's population over 65 years of age are mostly located in the North of Montana neighborhood (Census Tract 701201) – where a portion of this area is designated as an earthquake fault zone.

Liquefaction risk has been identified in the coastline areas and a small eastern portion of the City in the Pico Neighborhood. The portion of the liquefaction zone located in the eastern portion of the City is located in Census Tract 701801 which has higher percentages of low income households, households with no vehicles, and non-white households (see Appendix B). Census blocks are the smallest geographic unit available for Census data, and the liquefaction areas near the coast crosses only through small western portions of different Census blocks. As such, it is difficult to obtain socioeconomic data that is accurately representative of the properties within the coastal liquefaction zone. In general, the portion of the liquefaction zone within the Downtown lie within Census tracts that have higher percentages of populations with a disability, lower income households, and households with no vehicles.

Figure 5 - Liquefaction Risk



Flooding

The City of Santa Monica lies at the western edge of the greater floodplain of the Los Angeles and San Gabriel Rivers. Like most of Southern California, the City and surrounding areas are subject to unpredictable seasonal rainfall. Average yearly precipitation in the Santa Monica area is about 13 inches, which is on average, less than inland areas.

Most years, the winter rains are scant, but every few years, the Los Angeles region is subjected to periods of intense and sustained precipitation that result in flooding. Flood events that occurred in the past, including most recently in 2023, have caused an increased awareness of the potential for losses to property and life from flooding, particularly in highly urbanized parts of floodplains and alluvial fans. Flooding is one of the most destructive natural hazards in the world, responsible for more deaths per year than any other geologic hazard.

Severe flooding in the region is often the result of a combination of topographic features, excessive rainfall, and poor drainage infrastructure. Stormwater flooding in urban areas is most likely to occur in places that lack pervious areas and where the drainage infrastructure is inadequate. In coastal Los Angeles County, including the Santa Monica area, flooding is difficult to predict, and thus plan for, because rainfall varies from year to year. The drainages in the Santa Monica area are typical of Southern California. Except for human-induced runoff (irrigation and industrial discharges, for instance) streamflow is negligible other than during and immediately after rains because climate and basin characteristics are not conducive to continuous flow.

When it rains, it pours.....

- **Atmospheric rivers** are weather patterns that are common on the West Coast that cause huge deluges of rain. California experienced 31 atmospheric rivers during the winter of 2022-2023.
- An **ARkStorm** is a hypothetical scenario consisting of repeated atmospheric rivers striking the west coast of California, similar in intensity to the 1861-1862 series of storms. "ARkStorm" stands for "Atmospheric River 1,000 years storm," or, the type of storm that would occur roughly every thousand years. Similar to the Great Shakeout, the ARkStorm represents a worst-case scenario, where Pacific jet streams essentially cause a series of back-to-back-to-back storms in which the rain rarely lets up.

Storm Drain Infrastructure

Santa Monica, like most of the coastal cities in the Los Angeles basin, is highly urbanized, with stormwater runoff largely controlled by streets, storm drains, catch basins, and flood control channels that drain directly into the Pacific Ocean. The City's drainage system consists of over 2,400 catch basins and 64 storm drain lines that discharge runoff at five outfalls within the city limits. The majority of the runoff in Santa Monica drains untreated into Santa Monica Bay via an underground storm drain system. Only a small section in the northeast corner of the city drains to Ballona Creek. The City's storm drain pipes range from 16 inches to 11 feet in diameter and are mainly constructed of reinforced concrete, while a few structures are brick arch drains, concrete open channels, or corrugated metal pipes. The City maintains and replaces aging storm drain infrastructure as part of the Capital Improvements Program. The City has also recently completed construction of the Sustainable Water Infrastructure Project (SWIP) at the Civic Center and Beach Parking Lot 1 (Deauville site), which is designed to capture millions of gallons of storm water runoff that once would have flown into the Santa Monica Bay.

Flood Zones

FEMA Flood Map Terms

Special Flood Hazard Areas are high-risk areas shown on the flood map as shaded zones beginning with the letters A or V. These areas have at least a 1%-annual-chance of being flooded (i.e., base flood or 100 year flood) with a 26% risk of flooding over the course of a 30-year mortgage.

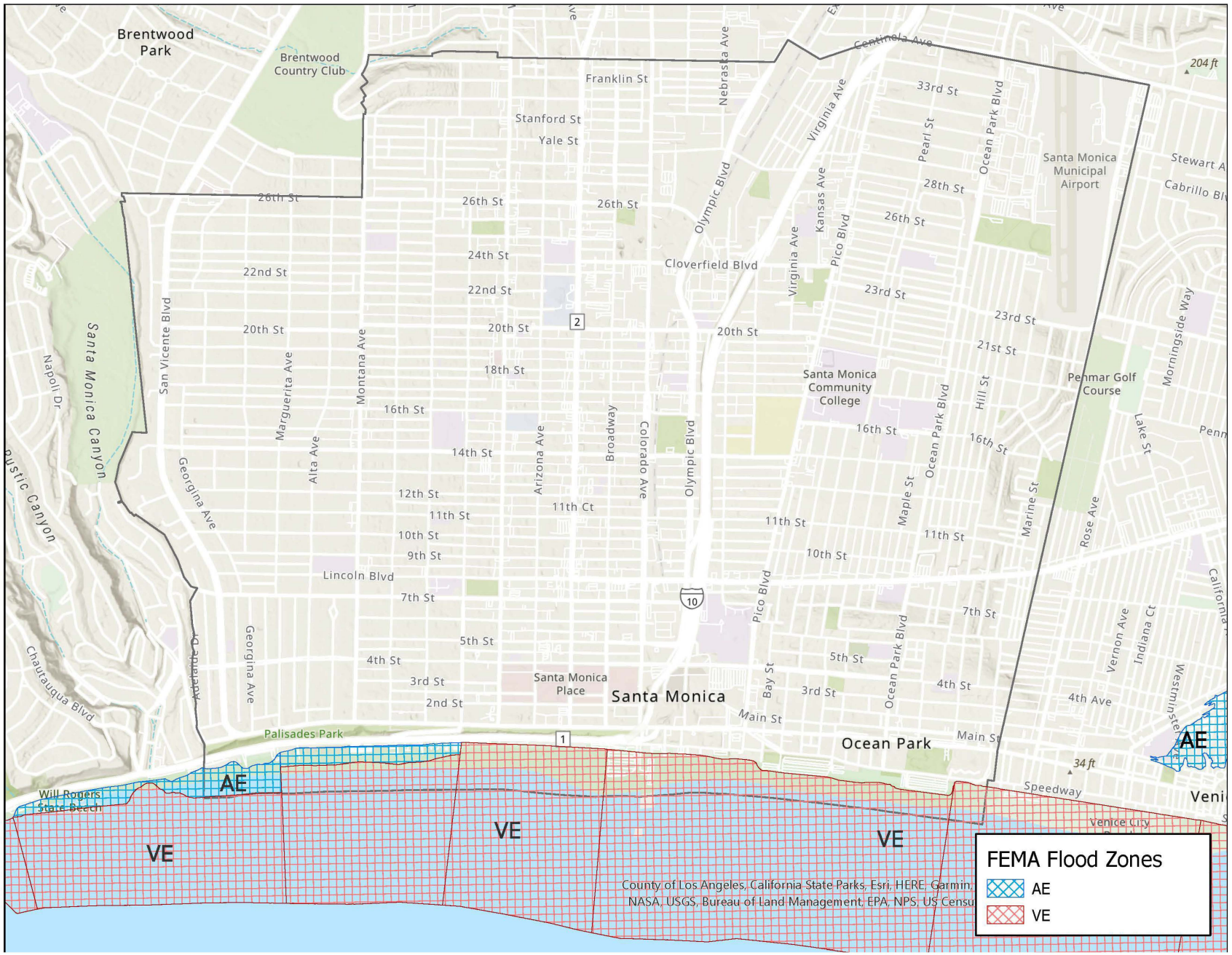
- *Zone VE* also known as a Coastal High Hazard Area, are coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves
- *Zone AE* indicates areas that would be inundated by the base flood.

Non-Special Flood Hazard Areas are moderate- to low-risk areas shown on the flood map as zones beginning with the letters B, C, or X.

The Federal Emergency Management Agency (FEMA) publishes Flood Insurance Rate Maps (FIRMs) depicting areas subject to flood hazards. These Special Flood Hazard Areas (SFHAs) or Flood Zones include different types and levels of flooding risks. To secure financing to buy, build, or improve structures in a Special Flood Hazard Zone, property owners are required to purchase flood insurance. This requirement and other safe building practices for flood zones are codified in Chapter 7.68 of the Santa Monica Municipal Code. The flood insurance and building permit requirements depend on the designated flooding risk at a property.

Figure 6 - Flood Zones shows that most of Santa Monica is mapped as having a minimal flood hazard, with the majority of the city located outside the 500-year flood zone (Zone X, unshaded). Only the coastal areas of the City are mapped as Special Flood Hazard Areas as a result of both storm flooding (AE zones in bright pink), and coastal flooding due to storm surges (VE zones in light purple). There are 132 beach front parcels (which include open space parcels) along Pacific Coast Highway identified within these Special Flood Hazard Areas. The section of the Santa Monica coastline that is approximately north of Wilshire Boulevard is classified as both Zone AE and Zone VE, whereas the coastline approximately south of Wilshire Boulevard is only classified as Zone VE.

Figure 6- Flood Zones

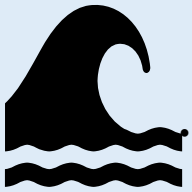


Tsunami

The most frequent causes of tsunamis are shallow underwater earthquakes and submarine landslides, but tsunamis can also be caused by underwater volcanic explosions, oceanic meteor impacts, and even underwater nuclear explosions. A local (or near source) tsunami could produce a tsunami that only provides 10 minutes for evacuation where distant-source tsunamis may provide hours of evacuation warning.

With its coastal location, the City is vulnerable to the impacts of a tsunami. The California Geological Survey prepares maps of tsunami hazard areas for the State's coastline, including Santa Monica (see Figure 7 - Tsunami Hazard). The maps identify areas that could be exposed to tsunami hazards during a tsunami event.[2]

A tsunami is a sea wave caused by any large-scale disturbance of the ocean floor that occurs in a short period of time and causes a sudden displacement of water. According to the Global Historical Tsunami Database, since 1900, over 80% of likely tsunamis were caused by earthquakes.



- *Local tsunami*–originates from within about 100 km or less than 1 hour tsunami travel time from the impacted coastline. Can result in a significant number of casualties since authorities have little time to warn/evacuate the population.
- *Regional tsunami*- generally within 1,000 km from its source. Can affect coastlines within 1-3 hours of being and cause destruction within a particular region.
- *Distant tsunami*– originates generally more than 1,000 km or more than 3 hours tsunami travel time. Less frequent, but more hazardous than regional tsunamis, as they usually start as a local tsunami that causes extensive destruction to a shoreline near the source, and the waves continue to travel across an entire ocean

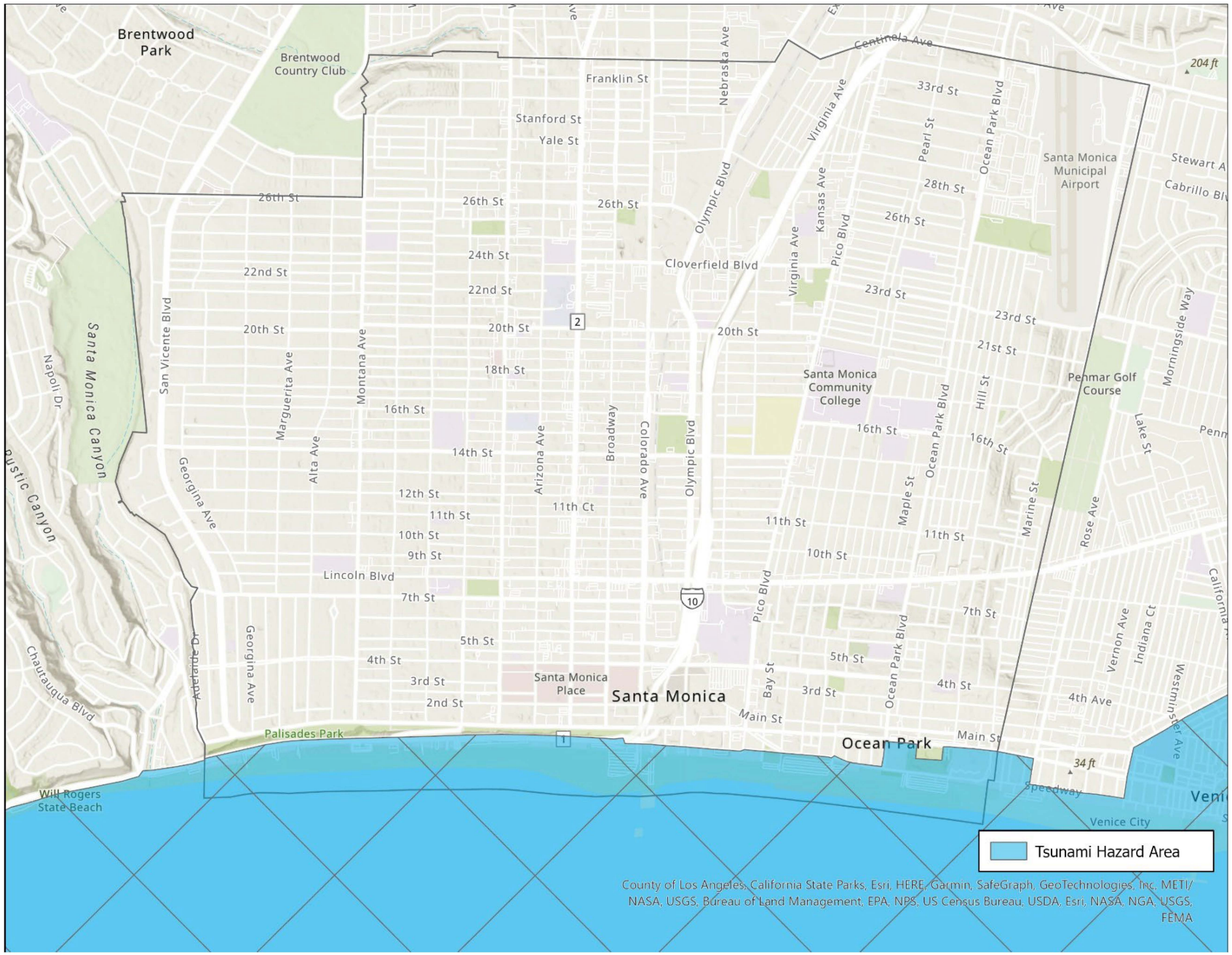
The State's tsunami hazard area for the City extends approximately 700 to 1,500 feet (215 to 460 meters) inland from the coast, and places 228 parcels west of the Pacific Coast Highway and Appian Way within the area susceptible to tsunami inundation. These parcels include low-lying residential and commercial buildings in the Oceanfront District and the Santa Monica Pier. North of the Pier, the inundation limits are defined by the base of the Palisades Bluffs, as the height of the bluffs provide a natural constraint to the inland advancement of the runup waves. In the southwestern portion of the city, the inundation limits extend locally to Neilson Way. In addition to the Pier, City-owned or managed facilities located in the inundation hazard zone include Beach Maintenance, Santa Monica Fire Station No. 7, the Santa Monica Harbor Office, and the Annenberg Community Beach House.

In the event of a tsunami, significant damage to the Santa Monica Pier, the beach, and coastal properties can be expected. Swimmers, surfers, and mariners within a tsunami hazard area are at risk because a tsunami causes strong currents that can sweep people and objects out to sea. Floating debris can also cause extensive damage.

Santa Monica has received and maintained a National Weather Service (NWS) TsunamiReady ® designation for its preparedness work related to tsunami events, including having tsunami hazard zone and evacuation route signs along the coastline.

[2] *Based on a tsunami inundation model with a 975-year average return period (equivalent to a 5% probability of exceedance in 50 years).*

Figure 7 - Tsunami Hazard



Dam Failure and Inundation

Dam failures can occur for a number of reasons. Natural events such as earthquakes, storm event, and landslide are common drivers of dam failures as are physical drivers such as piping/seepage (internal and underneath the dam), foundation failure, equipment failure/malfunction (gates, etc.), and structural failure.

No dams, levees, flood control channels, or above ground water storage reservoirs exist within the City boundaries. However, there are two above ground water reservoirs in the City of Los Angeles that could impact Santa Monica: Riviera and Stone Canyon Reservoirs (see Figure 8 - Dam Inundation Areas). Because of their size, these reservoirs are considered dams and are, therefore, under the purview of the California Division of Dam Safety.

- The **Riviera Reservoir**, located at 1252 Capri, about two miles north of the city in Santa Monica Canyon in the city of Los Angeles. The dam and reservoir are owned by the City of Santa Monica and managed by the City's Department of Public Works. The Riviera Reservoir was constructed in 1962, has a storage capacity of about 25 million gallons (approximately 76 acre-feet), and is an off-stream, covered storage reservoir built with vertical concrete walls with a dam height of 40 feet. As of 2022, this reservoir had been certified, meaning that the dam is considered to safely impound water to the elevation specified in the Certificate of Approval, and is considered satisfactory, meaning that no existing or potential dam safety deficiencies are recognized. This also means that the dam is expected to perform in an acceptable manner under all loading conditions in accordance with the minimum applicable state or federal regulatory criteria. If the east side of the reservoir fails during an earthquake, then the structures located immediately below the dam at the Riviera Country Club Golf Course will be in jeopardy. Moreover, flood waters released during the reservoir failure would empty onto the Riviera Country Club Golf Course, eventually flowing into the Santa Monica Canyon. Thus, inundation from Riviera Reservoir would mainly be confined to Santa Monica Canyon and not cross over into the city. Santa Monica Canyon is a concrete-lined channel that is dry most of the time; the flood control channel will likely contain the increased flow from the dam failure and direct it to the Pacific Ocean. Damage to any homes adjacent to the golf course is considered unlikely, and the travel time of the flood flows to the flood control channel is estimated at 15 minutes.

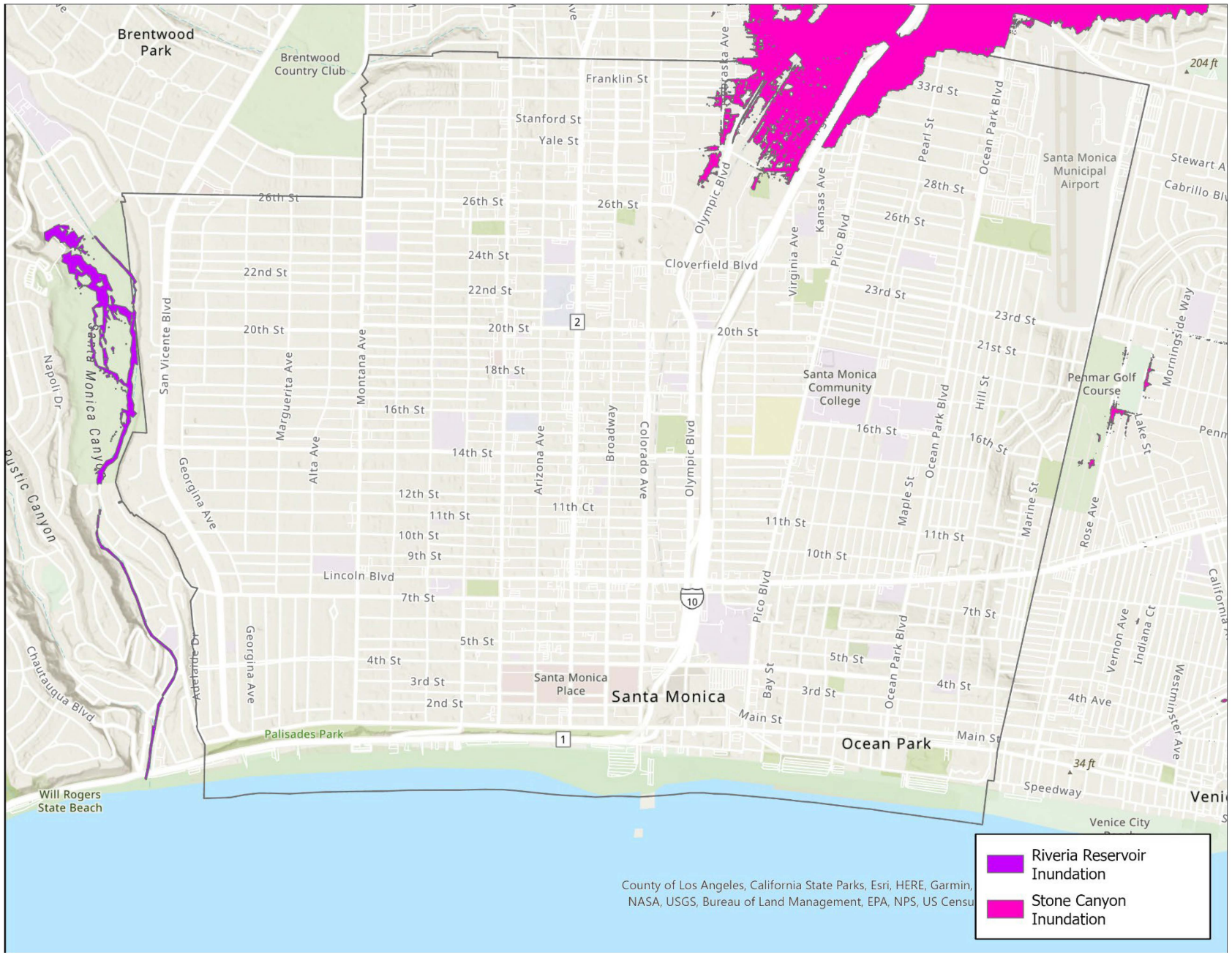
- The **Stone Canyon Reservoir**, which is located about 4.1 miles northeast of Santa Monica near the residential neighborhood of Bel Air, is owned and operated by the Los Angeles Department of Water and Power. This earthen embankment reservoir was constructed in 1924, has a storage capacity of about 3.4 billion gallons, is 188 feet tall and 1,150 feet long. Flooding from dam failure at the Stone Canyon Reservoir, while considered unlikely, could have catastrophic impacts on portions of West Los Angeles and the City. Based on the Division of Dam Safety, the inundation area could spread down to the eastern portion of the city of Santa Monica, in the area between about Olympic and Pico Boulevards. Approximately 386 Santa Monica parcels lie within the path of inundation of the Stone Canyon Reservoir. However, if the reservoir failed during a larger local earthquake, then the eastern portion of the city of Santa Monica, in the area between about Olympic and Pico Boulevards, would be inundated. Specifically, flood waters would be expected to have a peak velocity of 1 to 3 feet per second, have a maximum depth of 1 to 10 feet, and arrive in the eastern part of Santa Monica approximately 1 to 1.5 hour after the dam failure. Significantly more damage is expected to adjacent communities including Beverly Hills, Los Angeles, Culver City and Venice. As of 2022, the status of this reservoir is listed as certified, with a satisfactory assessment.

Vulnerability Assessment for Flooding Hazards

The low-lying properties located at the coastal edge of the City are at the highest risk for impacts due to flooding from storm surge and sea-level rise. A total of 132 parcels are identified within the FEMA flood zone. Many of the coastal properties within the FEMA Special Hazard Flood areas are also within the tsunami hazard zones. A total of 228 parcels are located within the tsunami zones and are comprised mostly of residential properties. Census blocks are the small geographic unit available for Census data, and the FEMA flood zone crosses only through small western portions of different Census blocks. As such, it is difficult to obtain socioeconomic data that is accurately representative of the properties within the FEMA flood zone. In general, the portion of the flood zone within the Downtown lie within Census tracts that have higher percentages of populations with a disability, lower income households, and households with no vehicles. Populations with a disability, lower income households, and households with no vehicles are more likely to face evacuation challenges during a natural disaster emergency such as a flood or tsunami.

In contrast, the properties within the dam inundation area of the Stone Canyon Reservoir comprise 386 parcels that are located inland, near the eastern central portions of the City in the Pico Neighborhood. These parcels are located within Census Tract 701801, which has a higher percentage of populations with a disability, lower income households, and households without access to a vehicle.

Figure 8 - Dam Inundation Areas



Fire

The Santa Monica Fire Department is responsible for fire suppression, pre-hospital emergency medical services, hazardous materials release oversight and response, and fire and life safety community outreach services for the City of Santa Monica. Fire-fighting and emergency response resources in Santa Monica are provided from five fire stations. Combined, these fire stations are staffed by 105 emergency response (suppression and rescue) personnel, with a combined minimum daily staffing for the five stations of 35 personnel.

Wildfires

A wildfire is an unplanned and uncontrolled fire in an area with combustible vegetation, typically on undeveloped land. While wildfires are, in some respects, essential to the health of many of California's ecosystems, they become an issue when they extend out of control into urbanized areas, with a resultant loss of property, and sometimes, loss of life. The scale, frequency and destructiveness in California has increased in the last two decades.

Wildfires can overwhelm local emergency response resources. Under the right wind conditions, multiple fires can ignite as a result of the wind transport of burning cinders over distances of a mile or more. Wildfires in those areas where the wildland approaches or interfaces with the urban environment (referred to as the wildland-urban interface area or WUI area) can be particularly dangerous and complex, posing a severe threat to public and firefighter safety, and causing devastating losses of life and property. This is because when a wildland fire encroaches onto the built environment, ignited structures can then sustain and transmit the fire from one building to the next.

In Los Angeles County, wildland fires generally occur in the undeveloped or slightly developed portions of the hills and mountains that surround the extensively developed basin. Areas in the County specifically known for their high to very high wildland fire susceptibility include the Santa Monica Mountains, Malibu, Calabasas, Glendale, Burbank, and the mountainous regions of Altadena, La Canada Flintridge and Pasadena. The State Fire Marshal is mandated to classify Fire Hazard Severity Zones (FHSZ) in the state. Fire Hazard Severity Zones fall into the following classifications:

- Moderate
- High
- Very High

Additionally, the California Public Utilities Commission (CPUC) maps high fire-threat areas where there is a higher risk for power line fires igniting and spreading rapidly due to high tree mortality. The City is highly urbanized and does not include any wildland fire hazard areas. There are no designated FHSZ or CPUC high fire threat areas within the City limits (see Figure 9 - Fire Hazard Zones and City Fire Stations).[3] However, the areas immediately to the northwest, north and northeast of the City (which encompass the Santa Monica Mountains and the nearby communities

[3] *https://egis.fire.ca.gov/FHSZ/*

of Pacific Palisades and Brentwood Heights), are designated as VHFHSZ. Although historically none of the wildland fires at the foothills of the Santa Monica Mountains have extended into the city, the combination of climate change, locally dense vegetation in the north-facing slope of Santa Monica Canyon, and the steep slopes along the north and northeastern portions of the City, could result in a wildfire spreading into the northern residential neighborhood portions of the City. The risk of wildfire rapidly spreading into the urban portions of Santa Monica is likely to increase in the face of climate change-induced effects such as extreme wind activity and dry weather.

In the event of a nearby wildfire(s), the entire City could be adversely impacted by disruption to infrastructure (e.g., power blackouts), and strain on local firefighting resources as the fire department is called to respond to fires across the region and state. In recent years, numerous nearby wildfires such as the Getty, Skirball, and Woolsey fires prompted massive evacuation through Santa Monica along PCH and required large mutual aid response by City emergency responders.

Wildfires will also produce smoke and ash that can pose a health hazard to Santa Monica residents and visitors. Nearby wildfires fires within the Santa Monica Mountains and surrounding areas, including the San Gabriel Mountains to the northeast, have previously negatively impacted local air quality by emitting large amounts of air pollutants (as had occurred during the May 2021 Palisades Fire). If large enough, smoke from distant and large wildfires up to 100 miles of the city can also severely increase air pollutants and prompt air quality alerts (e.g., 2017 Thomas Fire in Ventura).

Other secondary wildfire effects include the migration of wild animals into densely populated areas to avoid flames and smoke. Additionally, the lack of vegetation cover following a wildfire will typically result in soil erosion. If wildland fires are followed by a period of intense rainfall, the recently burned hillsides are at higher risk for mudflows and landslides.

Urban Fires

Urban fires usually result from sources within buildings themselves, though recently the region has also observed an uptick in fires originating in homeless encampments. In urban areas generally, cooking arson, faulty electrical wiring, and smoking are often the causes of structural fires.

The fire risk of structures are dependent upon a number of factors including, but not limited to building occupancy type (residential, commercial, manufacturing, etc.), building size, age of the building, density (high-occupancy vs low-occupancy), construction type, number of stories above ground level, required fire flow and available fire suppression water supply, proximity to other buildings, and built-in fire protections (such as fire resistant construction, fire alarms and fire suppression systems). For example, older buildings are generally more vulnerable to structure fires as they were constructed to older building standards, were constructed from non-fire resistive construction materials, and likely do not meet current electrical and fire code requirements. This includes approximately 7,400 units of the City's housing stock that were built in the 1930s or earlier, which have a much higher risk of collapse in fires due to their unreinforced construction.

Fires represent a small percentage of the incidents that the SMFD responds to on an annual basis. In 2022 alone, less than 3% of service calls to the SMFD were related to fires. This is in part, the result of multiple City regulations and programs that are in place to reduce potential urban fires. For instance, current standards in the City Fire Code (SMMC Chapter 8.40) require the installation of fire alarms, fire sprinklers, and fire communication systems; the use of more fire-resistant building materials; and the provision of adequate emergency access, fire hydrants, visible address signage, and minimum fire flow rates for water mains.

The SMFD also implements extensive fire prevention and public education programs, and the City has invested and continues to invest on infrastructure and equipment that help the Fire Department be as responsive as possible. As a result of these efforts, the City has earned an ISO rating of 1, the highest grade possible, a grade that they have held onto since 2012.

Vulnerability Assessment for Fire Hazards

Although there are no designated wildfire zones in the City, uncontrolled wildland fires in the Santa Monica Mountains could potentially spread beyond the wildland areas into urban areas. The higher-income households of the North of Montana neighborhood are the closest to these zones and therefore, are most likely to be directly impacted by wildfires and wildfire evacuation orders. The census tracts in the North of Montana neighborhood of Santa Monica have higher percentages of vulnerable senior populations. The indirect effects of wildfires, however, are more widespread and could impact all areas of Santa Monica. Wildfire smoke can greatly impact seniors, children, lower-income populations, unhoused populations, outdoor workers, and disabled or immunocompromised individuals.

Figure 9 - Fire Hazard Zones and City Fire Stations

Climate Change

Climate change-related hazards focus on natural hazards that can change in frequency and intensity due to climate change. Six climate change-related hazards are identified as relevant to the City's circumstances and selected for assessment.

- Extreme Heat
- Drought
- Extreme Precipitation
- Severe Winds
- Sea Level Rise
- Wildfires (discussed previously)

Extreme Heat

Extreme heat occurs when temperatures rise significantly above the average high for a particular region. "Extreme heat" is a relative term—temperatures of 100 degrees are normal in locations like the Coachella Valley, but almost unprecedented in coastal regions of Los Angeles County.

Extreme heat can exacerbate droughts, and hot, dry conditions can in turn create wildfire conditions and negatively impact the agriculture sector.

Santa Monica's mild Mediterranean climate is influenced by factors such as regional topography, marine layer, and offshore winds that create a cooling effect. In Santa Monica, annual temperature typically ranges from 49°F to 76°F and is rarely below 43°F or above 84°F. The historical annual average maximum temperature in Santa Monica is 69.1° F. Although residents and visitors generally experience pleasant and mild temperatures, warming due to climate change is still a concern particularly due to the urban heat island effect. As a result of its coastal location, Santa Monica tends to experience lower overall temperatures than the rest of Los Angeles region during a heat wave. The result is typically a significant increase in day-time visitors, with inland residents flocking to the beach to cool off.

Extreme heat increases electricity demand for cooling and can simultaneously lower the ability of transmission lines to carry power – possibly leading to electricity reliability issues like rolling blackouts during heat waves.

Depending on the trajectory of greenhouse gas emissions (in either a medium or high emissions scenario), climate change models indicate that Santa Monica could experience an annual average maximum temperature increase of 2.9°F (to 72°F) to 3.7°F (to 72.8°F) by mid-century (2035-2064), and 3.9°F (to 73°F) to 6.8°F increase (to 75.9°F) by end-century (2070-2100). Similarly, the annual number of extreme heat days is also projected to increase. For Santa Monica, the threshold for an extreme heat day is 86.7°F. Based on the historical average of 2 extreme days per year, the city's extreme heat days are projected to increase to 7-8 days per year by mid-century (2035-2064) and 9-21 days per year by end-century (2070-2100) depending on the GHG emissions scenario.

Table 2 - Projected Temperature Changes[1]

Baseline		30 Yr Average	30 Yr Range
Modeled Historical		69.1 °F	68.8 – 69.5 °F
Mid-Century			
Medium Emissions	*+2.9* °F	72.0 °F	70.3 – 73.9 °F
High Emissions	*+3.7* °F	72.8 °F	70.9 – 74.2 °F
End-Century			
Medium Emissions	*+3.9* °F	73.0 °F	71.4 – 75.4 °F
High Emissions	*+6.8* °F	75.9 °F	73.2 -78.6 °F

[1] Modeling based on RCP8.5 and RCP4.5 (Representative Concentration Pathway), two greenhouse gas concentration trajectory scenarios. RCP 8.5 represent high emissions (worst case) scenario; RCP 4.5 represent medium emissions scenario.

Source: Cal-Adapt Tool, Local Climate Change Snapshot Santa Monica, https://cal-adapt.org/tools/local-climate-change-snapshot; accessed 1/23/24.

Table 3 - Projected Heat Days[1]

Baseline		30 Yr Average	30 Yr Range
Modeled Historical		2 days	1 – 3 days
Mid-Century			
Medium Emissions	*+5 days*	7 days	4 – 13 days
High Emissions	*+6 days*	8 days	5 – 17 days
End-Century			
Medium Emissions	*+7 days*	9 days	6 – 23 days
High Emissions	*+19 days*	21 days	10 – 57 days

[1]Modeling based on RCP8.5 and RCP4.5 (Representative Concentration Pathway), two greenhouse gas concentration trajectory scenarios. RCP 8.5 represent high emissions (worst case) scenario; RCP 4.5 represent medium emissions scenario.

Source: Cal-Adapt Tool, Local Climate Change Snapshot Santa Monica, https://cal-adapt.org/tools/local-climate-change-snapshot; accessed 1/23/24.

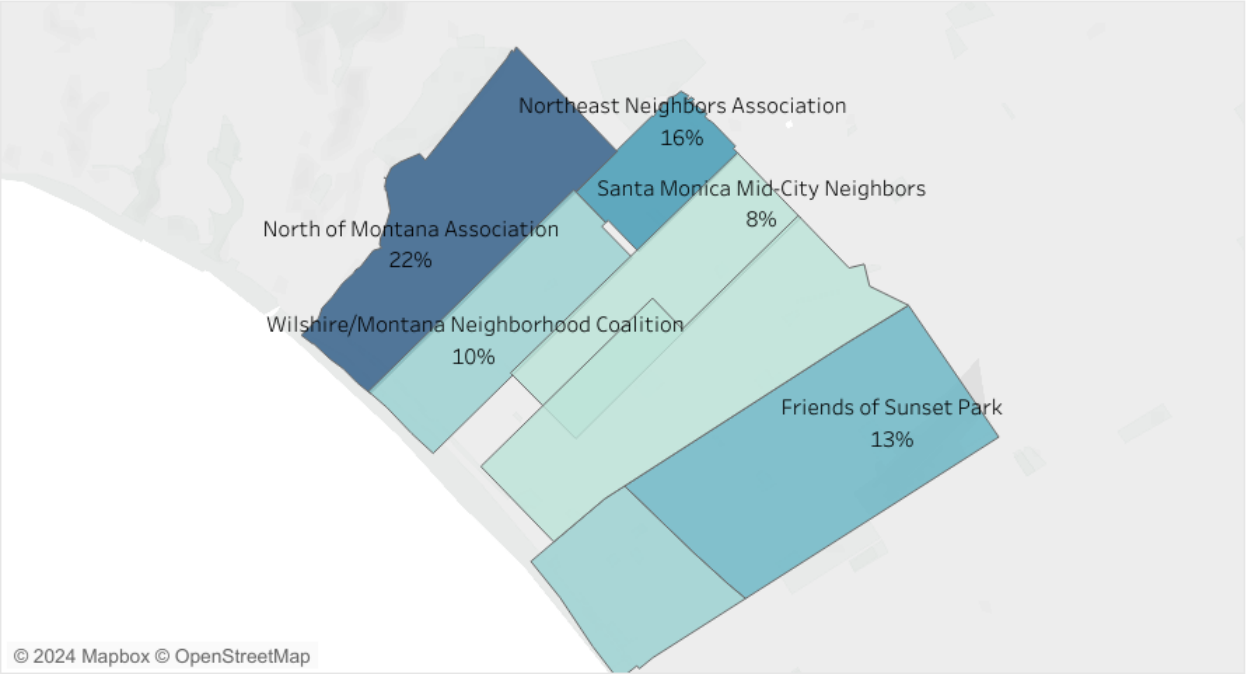
Extreme heat can have a number of adverse impacts on Santa Monica including but not limited to:

- Heat-related illness (such as heat cramps, heat exhaustion, and heat stroke), especially vulnerable populations, including the elderly, children, homeless, and those with chronic illnesses.
- Adverse health and safety effects on workers, especially for those working outdoors for long hours.
- Power outages due to regional energy supply-demand imbalances.
- Reduced water supply and quality regionally
- Unsafe and uncomfortable conditions for occupants in buildings without air conditioning or with insufficient air conditioning
- Inadequate power or power failure of critical equipment for sensitive populations, including those in residential care and nursing facilities
- Risk of instability and failure of critical infrastructure, including power lines and roadways
- Faster wear and tear of pavement, increasing safety hazards and maintenance costs.

Extended periods of extreme temperatures called "heat waves" are also projected to increase in frequency. Heat waves can exacerbate droughts and wildfires, which directly impact vegetation and wildlife, and crops and livestock. Persons sensitive to heat who lack effective cooling options may have greater heat risk and suffer health impacts during multi-day heatwaves, especially when nighttime temperatures remain high or is very unusual for that time of year. The homeless and others with inadequate shelter can be exposed to life-threatening heat. Heat waves can also compromise air quality. Hot and sunny days can increase the production of ground-level ozone, a harmful pollutant that is the main component of smog, which can damage the respiratory system and is particularly harmful for those with asthma and other respiratory conditions. The City typically utilizes the National Weather Service' HeatRisk to determine how impactful a heat event will be locally. When an extreme heat event occurs, the City will issue heat alerts and provide tips to the public on staying cool.

One long term strategy to minimize extreme heat and the urban heat island effect is the planting of trees to provide heat relief. The City's urban forest canopy is protected by the City's Tree Ordinance which generally prohibits the removal of trees in the public right of way. Additionally, the City's Urban Forest Master Plan guides management of the Santa Monica's urban forest and seeks to increase age and species diversity in the public tree population. Within the City, the northern section of the City has the greatest tree canopy coverage but is also experiencing the highest rate of canopy loss.

Public Trees By Neighborhood



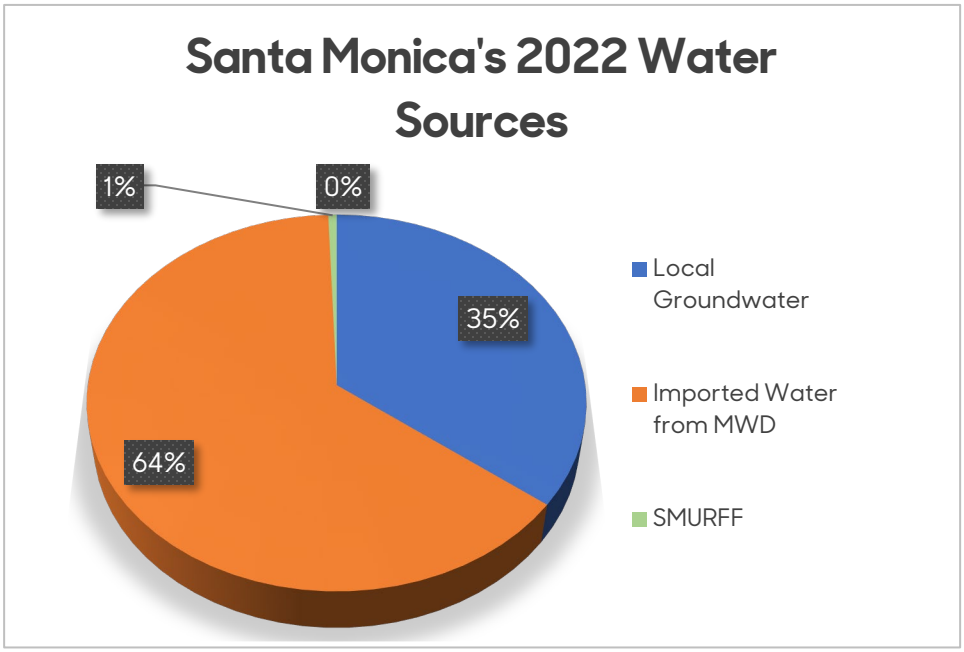
Drought

Southern California is prone to periods of extremely dry conditions due to historically warm temperatures, dry soils, precipitation deficits, and low snowpack in the Sierra Nevada Mountain Ranges. Climate change has increased the probability that low-precipitation years coincide with warm years, increasing the current risk and severity of droughts and low snowpack across the state.

Between 2012 and end of 2022, California experienced two historic droughts resulting in widespread agricultural, ecological, and wildfire-related impacts. By October 1, 2022 (the beginning of the state's

water year), all 58 counties in the State were under a drought emergency proclamation. The three-year period from 2020 to 2022 was the driest on record going back to 1896. As of this writing, the State is no longer in a drought, thanks to the heavy precipitation received during the 2022-2023 winter and Tropical Storm Hilary that occurred in August 2023.

Climate change is expected to continue to cause wide variability in precipitation, with fluctuations between wet years and dry years. Prolonged drought conditions would have negative consequences on the City's groundwater supply and consequently, could hamper the City's goal to reach water self-sufficiency. While drought cannot be controlled, drought can be managed through drought planning and in community-level, day-to-day management decisions while the drought is taking place.



Every 5 years, the City prepares an Urban Water Management Plan analyzing past, current, and future water demands on their systems and assessing their ability to reliably serve customers. The City's most recent 2020 Urban Water Management Plan (UWMP) includes Water Service Reliability and Drought Risk Assessments (DRA). The DRA assessed the city's water supply reliability under drought conditions for the years 2021 to 2025 and concluded that if projected imported and local supplies are developed or maintained as anticipated, no water shortages are anticipated in the City's service area during the 20-year planning period. The UWMP also includes a Water Shortage Contingency plan (WSCP) which serves as an action plan for the City during an actual or predicted drought or catastrophic water supply shortage.

Water Self Sufficiency

The City of Santa Monica takes a proactive multipronged approach to drought management with adoption of the goal to be water self-sufficient (i.e., using water only from local sources). Recent efforts to achieve self-sufficiency include:

- ***Recycled Water Ordinance*** (Section 7.12.170 of the SMMC) requires new development in a recycled water service area to utilize recycled water for surface irrigation and/or dual-plumbing systems.
- ***Water Neutrality Ordinance*** (Section 7.16.050 of the SMMC) limits new water demands for new construction projects. Fees paid in-lieu of reducing water demand onsite are used for water efficiency projects elsewhere in the community.
- ***Sustainable Water Infrastructure Project*** provides a drought resilient water supply for the City. The SWIP consists of three integral project elements:
    - Element 1: Stormwater, Dry Weather Urban Runoff Treatment and Reuse
    - Element 2: Stormwater and Municipal Wastewater Treatment and Potable Reuse
    - Element 3: Stormwater Harvesting

Together these elements will work together to produce to reduce the City's reliance on imported water supplies.

Extreme Precipitation

While climate change is expected to result in more frequent extreme weather events, such as severe storms and extreme drought, how higher temperatures due to climate change correlate to changes in precipitation remains uncertain. California's Fourth Climate Change Assessment found no clear trends in historical precipitation in the Los Angeles (LA) region, as precipitation is highly variable from year to year and only about five storms each year make up 50% of the annual precipitation total.[4] Although the amount of annual precipitation in California is not expected to change, the annual variability is expected to increase. By the late-21st century, the wettest day of the year is expected to increase across most of the LA region, with some locations experiencing 25-30% increases under a high GHG emissions scenario.[5]

Extreme precipitation events are expected to increase the intensity and frequency of flooding, one of the most damaging being atmospheric rivers. According to the Fourth Assessment, the frequency of atmospheric river storm events is projected to increase with precipitation also increasing by 40%.[6] While these extreme storm events can alleviate drought conditions, they can also overwhelm the City's infrastructure and cause severe damage from flooding and mudslides, leading potentially to:

- Injury or loss of life
- Damage to buildings, structures, and pavement due to inundation and erosion;
- Disrupted access to community or medical facilities and other infrastructure; and

[4] *California's Fourth Climate Change Assessment, Los Angeles Region.*
[5] *Ibid.*
[6] *Ibid*

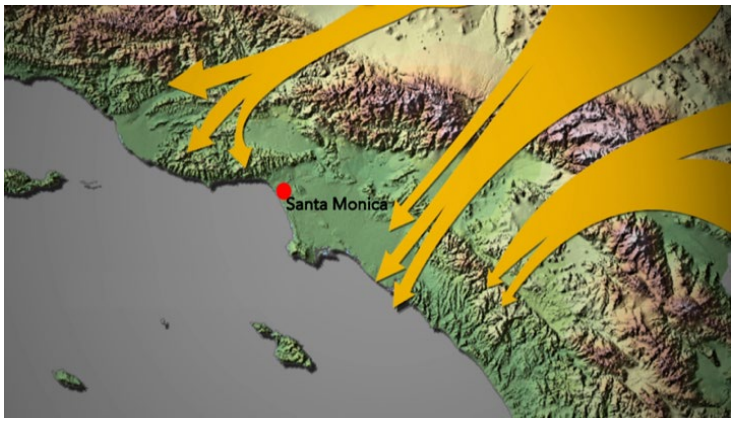
- Water pollution because of increased urban runoff and overflow wastewater released into beaches, swimming areas, streams, rivers, lakes, and reservoirs.

As was recently experienced during the winter of 2022-2023 and 2023-2024, these events typically result in flooded streets in urban areas, and induced mudslides on hillslopes of southern California.

California experienced 31 atmospheric rivers during the winter of 2022-2023
Source: LA Times

Severe Winds

Severe winds pose a risk to life and property in the region by creating conditions that damage property, topple trees and powerlines, and disrupt public utilities, telecommunications, and transportation routes. Strong winds can also ignite wildfires and spread existing ones. A high wind event can range from a tornado or short-term microburst lasting only a few minutes, to either a thunderstorm or Santa Ana wind event that can last several days.



Source*: USGS at https://www.usgs.gov/media/images/santa-ana-winds*

Wind gusts of 58 mph or greater (50 knots or greater) are considered severe winds. Severe winds are usually caused by intense storm systems such as thunderstorms and tropical storms, although certain types of strong winds can occur without a storm. Most high wind events in the City are the result of Santa Ana winds, which is a climatic condition unique to California characterized by strong northeasterly downslope and offshore wind flows during October to April. Santa Ana winds create hot, dry weather conditions due to compressional heating of the lower atmosphere.

On average, Santa Ana wind conditions occur five to ten times a year, with each event lasting up to a few days with an average wind speed of 40 miles per hour (mph), which are considered gale force winds. Santa Ana winds can reach speeds of up to 80-100 miles per hour in some areas, and consequently can damage or destroy buildings, knock over trees, and damage power lines and electrical equipment (potentially causing wildfires). While data on the effects of climate change on the Santa Ana winds is not yet clear, there is general consensus that climate change is anticipated to have an effect on wind patterns.

Sea Level Rise

Santa Monica is a renowned tourist destination due in part to its coastal setting. Unfortunately, the City's coastal zone faces ongoing and increasing threat from sea level rise (SLR) due to climate change. Miles of transportation infrastructure, beaches, residences, businesses and concessionaires including the world-famous Santa Monica Pier and Amusement Park, are at risk from sea level rise, coastal flooding and inundation. Coastal climate hazards could have significant impacts on the local economy, which generates more than $1.5 billion in tourist revenue.

The draft 2024 State of California Sea Level Rise Guidance, released by the California Ocean Protection Council (OCP), analyzed five sea level rise scenarios for the California coast. The Sea Level Scenarios are derived from the sets of probabilistic projections developed in the Intergovernmental Panel on Climate Change Sixth Assessment report (IPCC AR6) and reflect the most up to date scientific understanding of the physical drivers of sea level rise. The five scenarios span the plausible range of future sea level rise:

- **Low** – Aggressive emissions reductions leading to very low future emissions; the scenario is on the lower bounding edge of plausibility.
- **Intermediate Low** – A reasonable estimate of the lower bound of most likely sea level rise in 2100 based on support from sea level observations and current estimates of future warming.
- **Intermediate** - Based on sea level observations and current estimates of future warming, a reasonable estimate of the upper bound of most likely sea level rise in 2100.
- **Intermediate High** - Intermediate-to-high future emissions and high warming; this scenario is heavily reflective of a world where rapid ice sheet loss processes are contributing to sea level rise.
- **High** - High future emissions and high warming with large potential contributions from rapid ice-sheet loss processes; given the reliance on sea level contributions for processes in which there is currently low confidence in their understanding, a statement on the likelihood of reaching this scenario is not possible.

For local and regional land use and community planning efforts and projects, the Guidance recommends evaluation of the Intermediate, Intermediate High, and High scenarios is recommended to inform appropriate sea level rise planning and project decisions. As indicated in the Guidance, by 2050, sea levels in Santa Monica are most likely to rise 0.7 feet, 0.9 feet, and 1.2 feet in the Intermediate, Intermediate High, and High scenario respectively. By 2100, sea level rise increases to 2.9, 4.6, and 6.4 feet in the Intermediate, Intermediate High, and High scenario respectively. Beyond 2100, the range of possible sea level rise becomes increasingly large due to uncertainties associated with physical processes, such as earlier-than-expected ice sheet loss and resulting future sea level rise.

Table 4 - Sea Level Rise Scenarios for Santa Monica (in feet)

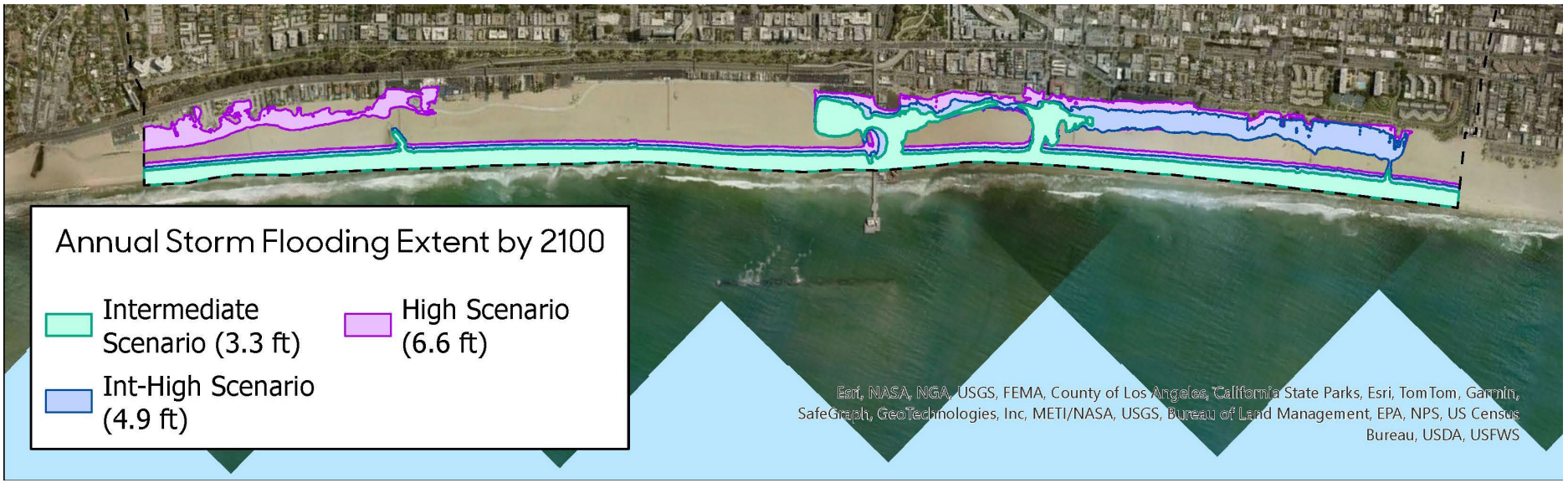
Year	Low	Int-Low	Intermediate	Int-High	High
2020	0.2	0.2	0.2	0.2	0.2
2030	0.3	0.3	0.4	0.4	0.4
2040	0.3	0.4	0.5	0.6	0.7
2050	0.4	0.6	0.7	0.9	1.2
2060	0.5	0.7	1.0	1.5	1.9
2070	0.6	0.9	1.3	2.1	2.8
2080	0.6	1.0	1.7	2.9	3.9
2090	0.7	1.2	2.3	3.7	5.2
2100	0.8	1.4	2.9	4.6	6.4
2110	0.8	1.6	3.6	5.5	7.7
2120	0.9	1.8	4.2	6.2	8.8
2130	0.9	1.9	4.7	6.8	9.7
2140	1	2.1	5.2	7.3	10.6
2150	1.1	2.3	5.7	7.9	11.5

Source: Draft 2024 State of California Sea Level Rise Guidance, January 2024, California Ocean Protection Council

As shown in Figure 10 - Sea Level Rise in Santa Monica, at 3.3 feet of SLR, flooding would primarily affect the sandy beach areas, the drainage area of the Pico Kenter Storm drain, and portions of the beach bike path south of the Pier. With approximately 4.9 feet of SLR, flooding would extend further inland onto the beach bike path, beach parking lots, beach recreational areas, and several private beach properties. At 6.6 feet of SLR, flooding would expand to even more properties, particularly the properties north of Wilshire Blvd and west of PCH.

In Santa Monica, sea level rise is anticipated to result not only in property damage and loss, as discussed above, but also disruption of schools, businesses, and transportation. The Santa Monica Pier, a major tourist destination and source of income for many, would be impacted by higher waves and a higher volume of water, which would damage the structure. In an effort to counteract some of these impacts, the City of Santa Monica is in the process of preparing a Local Coastal Program (LCP) that would establish coastal policies and adaptation strategies. These policies and strategies are to be implemented in three phases as changes due to sea level rise worsen. The LCP would outline policies for hazard zone properties, as well as a roadmap for adaptation programs to make the City's public and private assets more resilient to sea level rise. For instance, the LCP promotes the use of natural solutions to improve the biodiversity and resiliency of its beaches, while addressing the potential impacts of sea level rise. One such measure is the creation of natural dunes on Santa Monica Beach. The City has already created 3 acres of natural dunes as part of Phase 1 and Phase 2 of the Santa Monica Beach Dunes Restoration Project to build resiliency and restore habitat for sensitive species. Phase 3 is in process and will create up to approximately 40 acres of additional dunes on the beach.

Figure 10 - Sea Level Rise in Santa Monica



*Maps created using CoSMoS data downloaded from Our Coast, Our Future www.ourcoastourfuture.org; June 26, 2024

The Bay Foundation in coordination with the City is currently working on creating approximately 40 acres of dunes on Santa Monica Beach (Phase 3 Dunes Project). The dunes would build coastal resilience against the threats of sea level rise and intensifying storms and would also serve as important natural buffer between the ocean and beachfront homes and municipal infrastructure.

Vulnerability Assessment for Climate Change Effects

Vulnerable population groups to climate change related effects, such as extreme heat, floods, poor air quality, and other climate-related events generally include infants and young children, seniors, persons with chronic medical conditions, persons with disabilities, and certain occupational groups.

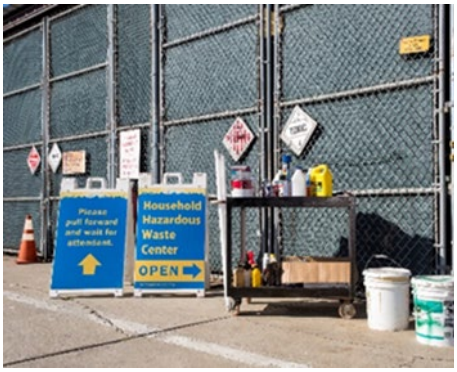
For example, the adverse impacts of extreme heat are felt most acutely by older adults, children, and those with pre-existing health conditions such as asthma and cardiovascular disease. Combining these characteristics with additional factors, such as poverty, occupation (outdoor workers), language barriers, lack of cooling systems, and housing insecurity can put individuals at disproportionately high risk of heat-related illness and death.

Some communities are more vulnerable to the effects of climate change than others. These disproportionate effects are due to physical (built and environmental), social, political, and/ or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality.

Additionally, lower income households are disproportionately affected as they may not be able afford to relocate or make necessary improvements to prepare for extreme climate related events. Seniors and adults with limited mobility as well as households without vehicles are also less likely to adapt to or evacuate from an extreme weather event. Within Santa Monica, the Downtown and Pico neighborhoods have the highest percentages of households that are lower income, populations with a disability, and households without access to a vehicle (see Appendix B).

Hazardous Materials

As an urban city, the day-to-day operations of human activity and commercial operations often necessitate the use, handling, and production of hazardous materials and waste. Although there are numerous Federal, State, and local laws in place to regulate and manage hazardous materials, there is an inherent potential risk of release of hazardous materials, particularly during an earthquake or other natural disasters.



The City of Santa Monica operates the Hazardous Waste Drop-off Center for Small Business allowing small generators to properly dispose of hazardous waste.

Household Hazardous Waste

The City of Santa Monica has adopted a Residential Household Hazardous Waste Door to Door Collections Program, which provides residents a pickup service for household hazardous waste such as paints, oils, electronic waste, and pesticides. Small businesses that are regulated by the City can drop off hazardous waste materials at the City Yards Facility located at 2500 Michigan Ave, Santa Monica, CA 90404.

Hazardous Materials Sites

The City of Santa Monica Fire Department (SMFD) is the designated enforcement agency for the management of hazardous materials. Federal, state and local regulations require spill mitigation and containment and securing of hazardous materials containers to prevent spills. The SMFD is responsible for conducting compliance inspections of regulated facilities in the City of Santa Monica.

Within the City, sites that currently generate large quantities of hazardous waste include automobile service/repair shops, pharmacies, hospitals, medical clinics/offices, the City Yards, and Santa Monica Airport.[7] The management of hazardous materials at these sites (which are listed in Table 5 - Registered Large Quantity Generators (LQG's) in the City) are subject to State and local regulations (see Figure 11- Known Hazardous Materials Sites)

[7] *The EPA defines a large-quantity generator as a facility that produces over 1,000 Kg (2,200 pounds or about 275 gallons) of hazardous waste, or 1 kg (2.2 pounds) of acutely hazardous waste per month.*

Table 5 - Registered Large Quantity Generators (LQG's) in the City

Facility Name	Address
CVS Pharmacy #3903*	3202 Wilshire Blvd.
CVS Pharmacy #9608*	2505 Santa Monica Blvd.
CVS Pharmacy #11178*	3202 Wilshire Blvd.
CVS Pharmacy #972*	1411 Lincoln Blvd.
Santa Monica - UCLA Medical Center*	1250 16th St.
Big Blue Bus Maintenance Facility	1660 7th St.
Bridgestone Retail Operations, LLC	1817 Lincoln Blvd
Fleet Maintenance - City Yard	2500 Michigan Ave Bldg 5
Henley Pacific - Valvoline Instant Oil Change	1757 Lincoln Blvd
Honda Santa Monica	1337 Euclid Street
Honda of Santa Monica – W.I. Simonson Preowned	1414 18th Street
Infiniti Beverly Hills	1717 Santa Monica Blvd
Jaguar Land Rover Santa Monica	3300 Olympic Blvd
Jiffy Lube #1379	2344 Pico Blvd
Lexus Santa Monica	1631 9th St
O'Reilly Auto Parts	2018 Lincoln Blvd.
Pep Boys #1672	2411 Pico Blvd
Santa Monica Audi	1020 Santa Monica Blvd
Santa Monica Audi Annex	1124 Santa Monica Blvd
Santa Monica Audi	1413 10th Street
Santa Monica Audi Annex	929 Olympic Blvd
Santa Monica City-Household Hazardous Waste	2500 Michigan Ave
Santa Monica Ford	1402 Santa Monica Blvd
Santa Monica Ford – Toyota	1230 Santa Monica Blvd
Santa Monica Ford Truck Station	1520 Broadway
Santa Monica Motor Group	3134 Santa Monica Blvd
Santa Monica Motor Group	3219 Santa Monica Blvd
Santa Monica Motors	2318 Pico
Southern California Edison	1721 22nd St
Southern California Gas Company	1701 Stewart St
Subaru of Santa Monica	1229 Santa Monica Blvd
Toyota – Hyundai of Santa Monica	801 Santa Monica Blvd
Volkswagen Santa Monica Inc.	2440 Santa Monica Blvd
Volvo Cars of Santa Monica	1631 Santa Monica Blvd
W.I. Simonson Mercedes Benz	1330 Colorado Ave

** Indicates LQG that are regulated under the Resources Conservation and Recovery Act (RCRA)*
Note: Per SMFD, EPA's database on RCRA LQG includes other listed sites that may have filed for RCRA permits proactively or in error but do not generate sufficient quantities of hazardous materials that trigger the LQG designation. Only sites that generate hazardous materials in quantities triggering RCRA are listed in this table.

There are also transporters of hazardous materials along freeways and roadways as well as small quantity generators of hazardous materials/wastes in the city such as gasoline stations, dry cleaners, schools, and, potentially, even home-based businesses. Many hazardous materials, if released by accident or catastrophic event, could cause severe damage to human life and health and to the facilities and could disrupt activities within a radius of several miles around the release site. One crude oil pipeline extends in a northwesterly direction across the city of Santa Monica, running beneath 23rd street then north to Cloverfield Boulevard, east along Colorado Boulevard, and to 26th Street. This pipeline is owned and operated by Crimson Midstream, LLC., and it crosses over sections of the Santa Monica fault zone in the northeast portion of the city (see Figure 11). If the Santa Monica

fault ruptures the ground surface during an earthquake, the pipeline can be expected to rupture where it crosses or overlies the fault. Crude oil would consequently be released.

Sites with Underlying Soil or Groundwater Contamination

Historically, Santa Monica's groundwater supply has been negatively impacted by leaking underground storage tanks which caused contamination of the Charnock and Olympic groundwater wells during the late 1990s to early 2000s. The contamination is being addressed using filtration with granular activated carbon to treat water from three contaminated wells, followed by additional treatment at the Reverse Osmosis (RO) facilities at the Santa Monica Water Treatment Plant.

Additionally, there are also sites in the City that are deemed to be potentially hazardous due to underlying soil and/or groundwater contamination that have occurred from current and/or past land uses. Leaking underground storage tanks (LUSTs) have been recognized since the early 1980s as the primary cause of groundwater contamination by gasoline compounds and solvents. The California State Water Resources Control Board (SWRCB), in cooperation with the City of Santa Monica Fire Department, provides oversight and conducts inspections of all underground tank removals and installation of new ones.

According to data from Geotracker, there are eight (8) open leaking underground storage tank (LUST) sites and 15 open cleanup program sites in the city of Santa Monica. These open sites, which are listed in Table 6 - Open Leaking Underground Storage Tanks and Cleanup Program Sites in the City, pose a risk to human health and the environment if the underlying soil or groundwater contamination is exposed. Additionally, while there are mitigation measures and monitoring requirements in place, the 34 permitted underground storage tank (UST) sites in the City could experience future leaks.

In addition to the identified sites, there could be other sites that have unknown underlying contamination due to current or past uses. Contamination at unidentified sites may not be discovered until a subsurface investigation is completed. For this reason, it is generally recommended that a Phase I Environmental Site Assessment be conducted prior to redevelopment of an urban site, particularly for residential projects located in areas that have historically had industrial uses such as the Bergamot Area and the Industrial Conservation District.

Table 6 - Open Leaking Underground Storage Tanks and Cleanup Program Sites in the City

Site Name	Address	Site Type	Case Type	Status
Arco #1946	332 Pico Blvd.	LUST	G	Remediation
Argo Realty Property	1661 Lincoln Blvd.	LUST	G	Remediation
Bonus Car Wash	2800 Lincoln Blvd.	LUST	G	Remediation
Snyder Diamond	1399 Olympic Blvd.	LUST	G	Remediation
Former Auto Repair Facility	1818-1824 Lincoln Blvd.	LUST	G	Site Assessment
Former Let Em' Eat Cake Facility	1804 Lincoln Blvd.	LUST	G	Site Assessment
World Oil Station No. 16 and Chevron #9-9266	1801 & 1732 Lincoln Blvd.	LUST	U	Site Assessment
Shell Service Station	1866 Lincoln Blvd.	LUST	G	Verification Monitoring
1501 Wilshire Blvd	1501 Wilshire Blvd	Cleanup Program	U	Site Assessment
Boeing Co.	3000 Ocean Park Blvd.	Cleanup Program	S, G	Assessment and Interim Remedial Action
Hallmark Cleaners	1907 Wilshire Blvd.	Cleanup Program	S	Assessment and Interim Remedial Action
Verizon Santa Monica Plant Yard (AKA Former Boeing/Douglas	2902 Exposition Blvd.	Cleanup Program	S, G, O	Assessment and Interim Remedial Action
Bergamot Property	2500 Olympic Blvd.	Cleanup Program	S, G	Open Inactive
Metropolitan Cleaners	2003 Lincoln Blvd.	Cleanup Program	G	Open Inactive
Neighborhood Storage Associates, LLC	1707 Cloverfield Blvd.	Cleanup Program	G	Open Inactive
Olympic Well Field Area	1681 26th St.	Cleanup Program	U	Open Inactive
Water Garden Phase I and II	2300 Olympic Blvd.	Cleanup Program	U	Open Inactive
CSHV Pen Factory LLC – Buildings I, III, & IV Reuse	1681 26th St.	Cleanup Program	S, G	Remediation
Bon Voyage Auto	2319 Michigan Ave.	Cleanup Program	U	Site Assessment
Centercal Property	1921-1933 Wilshire Blvd.	Cleanup Program	S	Site Assessment
Dry Clean Xpress	2611 Lincoln Blvd.	Cleanup Program	U	Site Assessment
House of Billiards	1901 Wilshire Blvd.	Cleanup Program	S	Site Assessment
Pacifica Equities, LLC	1639 11th St.	Cleanup Program	S	Site Assessment

Source: GeoTracker (https://geotracker.waterboards.ca.gov/) based on a search conducted on February 3, 2023.
*Abbreviations Used for Case Type: **S** = Soil contaminated, groundwater not impacted; **G** = Aquifer used for drinking water supply impacted; **O** = Other groundwater (uses other than drinking water); **U** = Under investigation.*

Potential Release of Hazardous Materials

The primary concern associated with a hazardous materials release are the short- and/or long-term effects to the public and the environment from exposure to the hazardous materials released. Geologic conditions have the potential to affect the structural integrity of storage containers and pipelines carrying hazardous materials, and could lead to potential release of hazardous materials.

For example, an earthquake can cause the rupture of a UST. During an earthquake on the Santa Monica fault zone, or on other significant faults near the City, the entire area will be subjected to intense ground shaking. Past earthquakes in urban areas have resulted in hazardous materials spills even when the building housing the materials does not suffer significant damage. Hazardous material containers not properly secured and fastened can easily be punctured and/or tipped over. Improperly segregated chemicals could react, forming a toxic gas cloud. In a worst-case scenario, several hazardous materials releases could occur simultaneously.

There are no permitted underground storage tank (UST) sites in Santa Monica within the 0.2-percent-annual-chance (or 500-year) flood zone, but there are four UST sites near this zone.

Moreover, several buildings along the coastline do have regulated above-ground storage tanks that contain fuel for backup power generators. It is recommended that future hazardous materials sites in Santa Monica not be located in the 100- or 500-year flood zone, unless very specific containment measures are implemented to reduce the potential for hazardous materials to leak during a flood. Furthermore, street flooding as a result of intense storms and inadequate storm drain capacity could result in the flooding of some of the hazardous materials facilities.

Santa Monica Fire Station 5, located adjacent to the Santa Monica Airport at 2450 Ashland Avenue, has trained HazMat technicians and equipment, allowing them to make quick assessments and provide resource and mitigation recommendations for incidents in the City. SMFD's HazMat team is capable of monitoring unknown atmospheres; identifying unknown chemicals; plugging, patching and intervening in large chemical leaks; conducting mass decontamination; and handling confined space entry rescue operations.

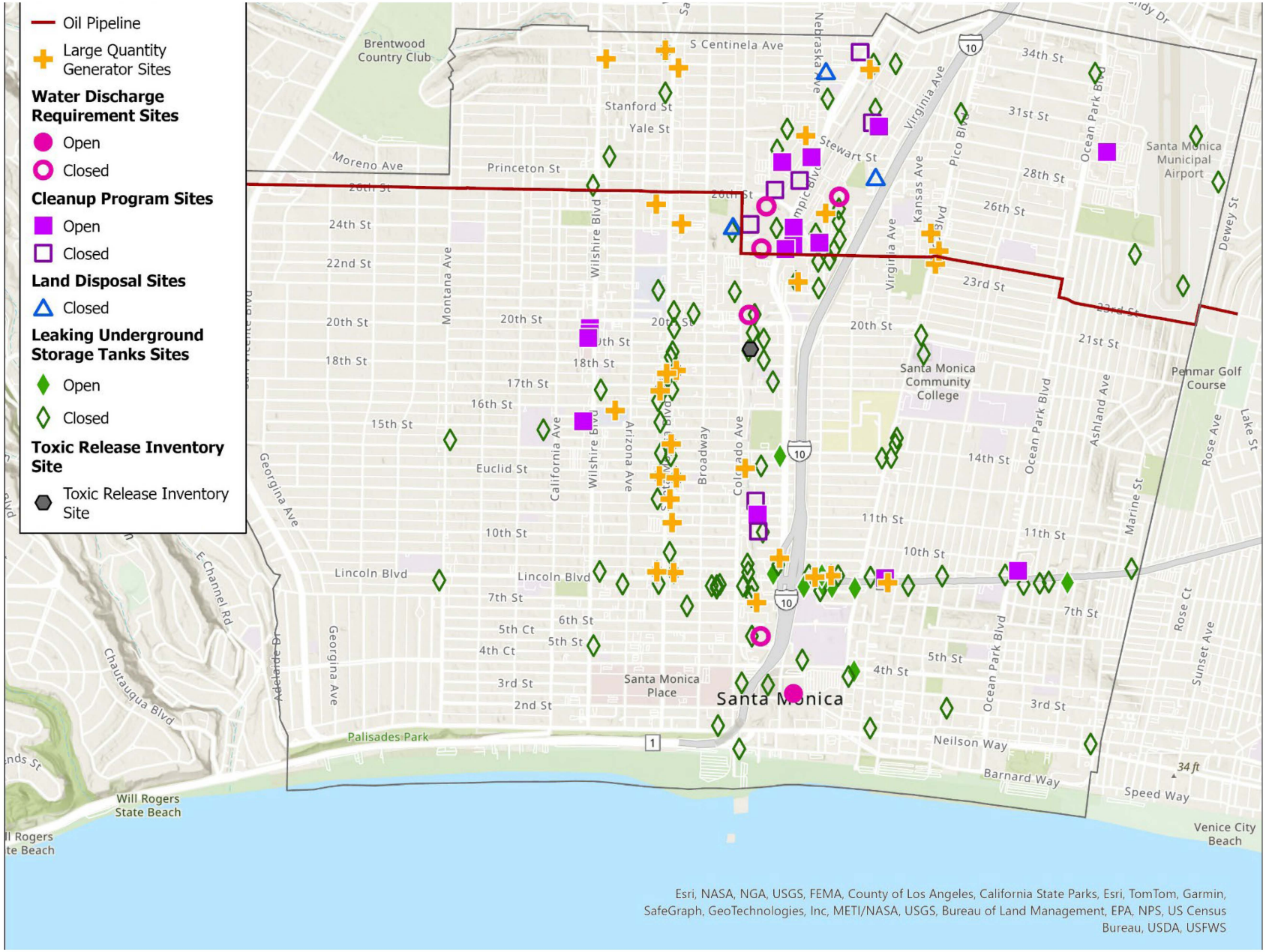
Vulnerability Assessment for Hazardous Materials

The City's large quantity generators (aka sites that currently handle large quantities of hazardous materials) include automobile service/repair shops, pharmacies, hospitals, medical clinics/offices, the City Yards, and Santa Monica Airport. Additionally, there are also sites in the City that are deemed to be potentially hazardous due to underlying soil and/or groundwater contamination that have occurred from current and/or past land uses. Most of these sites are located along Santa Monica Blvd's "Auto Row", along Lincoln Boulevard, and in the Bergamot Area which are predominantly occupied by lower income and non-white households based on Census block data (see Appendix B).

In addition to the identified sites, areas that have historically had industrial uses such as the Bergamot Area, and the Industrial Conservation District are likely to have unknown underlying contamination. Contamination at unidentified sites may not be discovered until a subsurface investigation is completed.

The properties at and near the Airport is also another area of concern for groundwater contamination duel to aviation fueling activities and prior use of hazardous materials. This area has a higher population of children 5 years of age and younger as compared to other census tracts in the City.

Figure 11- Known Hazardous Materials Sites



Airport Hazards

The Santa Monica Airport (SMO) is a public airport located on the southeast portion of the City. The airport property is currently approximately 192 acres, used for aviation activities and other non-aviation purposes, such as park space, educational facilities and art studios. SMO originally provided a lighted runway 5,000 feet long and 150 feet wide; in 2017, the runway was shortened to 3,500 feet.

In 2022, SMO recorded 72,039 flight operations (i.e., departures, arrivals), with propeller aircraft accounting for more than 87% of these. The rest of the operations include jet engines, helicopters and turboprops. No takeoffs or engine starts are permitted at SMO between 11pm and 7am Monday through Friday or until 8am on weekends. Exceptions are allowed for bona fide medical or public safety emergencies only.

Aircraft Safety

A variety of aircraft operations occur at SMO, including pilot training. Although uncommon, aircraft accidents from SMO aircraft have been documented. Accidents typically occur during takeoff or landing and occur on the runway or within a short radius of the airport. There are a variety of systems and procedures in place to mitigate aviation hazards, including air traffic control systems and operational safety requirements for pilots.

In the 30-year period between 1993 and 2023 inclusive, a total of 33 accidents were reported for SMO, 10 of them fatal (National Transportation Safety Board, 2024) or an average of about one accident per year occur. Many of the accidents reported at SMO resulted from a pilot error, or equipment failure. An inherent difficulty in managing safe airport operations is the unpredictability or uncertainty of future events that may occur with occasional aircraft operations. Since aircraft

accidents happen infrequently and the time, place, and consequences of their occurrence cannot be predicted, conceptualizing operational risks is difficult.

Leaded Fuel

Historically, aircraft at SMO have operated using leaded fuel – resulting in lead (Pb) emissions that may endanger public health. Lead exposure can have harmful effects on cognitive function, including reduced IQ, decreased academic performance, as well as increased risk for additional health concerns.

In March 2022, Santa Monica successfully transitioned the SMO self-serve fuel station located at the southwest corner of the airfield to unleaded aviation gasoline. In support of the national effort to reduce lead emissions from piston-engine aircraft, SMO is the first airport in the region to offer a viable fuel replacement option. On March 28, 2022, leaded aviation fuel was replaced with an unleaded alternative at the City's southside self-serve fuel tank. Since then, 100% of flight schools and almost all tenants have transitioned their compatible aircraft to the new unleaded fuel.

Airport Noise

The City has taken a pro-active approach to addressing community noise impacts associated with SMO and has worked to address the noise concerns of residents living near the airport via the Santa Monica Fly Neighborly Program[8], a program designed to help pilots avoid sensitive areas and reduce the impact of aircraft operations. The Fly Neighborly Program is one element in the City's Airport Noise Management Program[9], which is intended to minimize aircraft noise exposure to the greatest degree practicable. The Fly Neighborly Program includes the following set of voluntary procedures that help pilots avoid sensitive areas and reduce the impact of aircraft operations on the community.

- Voluntary Night Arrival Curfew: Pilots are requested to avoid operations between 11 P.M. and 7 A.M. Monday through Friday, or until 8 A.M. on weekends. Mandatory enforcement is disallowed by federal law.
- Visual Flight Rules (VFR) Departure Flight Paths: Aircraft departures to the west are requested to overfly the length of the Penmar Golf Course and initiate northerly turns at the shoreline, or southerly turns at Lincoln Boulevard. Departures to the east are requested to initiate crosswind turns over the 405 Freeway.
- Auxiliary Power Unit (APU) Limitations: Many jet aircraft utilize APUs to provide electricity to aircraft systems prior to, or after a flight. Pilots are requested to limit APU use to thirty minutes. Additionally, the APU is considered an engine start and shall comply with the Airport's curfew restrictions.
- Reverse Thrust Use: Due to the ground noise generated by aircraft utilizing reverse thrust upon landing, the Airport recommends minimum reverse thrust use except as necessary for safety, particularly during the nighttime hours.
- IFR Engine Start Procedures: To minimize ground delays between engine-start and takeoff, fixed wing turbine aircraft shall obtain approval from Air Traffic Control prior to starting up engines.

[8] *City of Santa Monica web site "Airport Noise Management". https://www.santamonica.gov/topic-explainers/airport-noise-management*

[9] *https://www.santamonica.gov/topic-explainers/airport-noise-management*

- Helicopter Arrival Procedures: The Letter of agreement between the City of Santa Monica and the FAA reflects the Airport Working Group's recommendation to route helicopters approaching Santa Monica Airport from the north or south at or above 900 feet elevation, and approach to land perpendicular to the runway heading.

The City's Airport Noise Code was grandparented in, is in effect, and remains one of the strictest in the country. The Airport Noise Management Program explains basic noise concepts and noise programs at the airport, allows residents to research flight operations, provides methods for filing noise complaints and facilitates contact with the Noise Operations Office. In 2022, the City received 158 noise complaints, significantly less than in the previous four years.

Soil and Groundwater Contamination Due to Aircraft Manufacturing

Aviation facilities and operations at SMO involve the routine use, transport and store potentially hazardous materials such as fuels, oils, and fluids for the maintenance and operation of aircraft. Currently, SMO includes refueling facilities along with underground storage tanks.

Given the airport's current operations and former use as the Douglas Aircraft manufacturing facility, it is highly likely that residual contamination exists beneath the ground surface of the airport property. The City is in the process of conducting site investigations to determine the presence and level of potential subsurface contamination. Past assessments at nearby properties such as the Santa Monica Business Park and the SMC Bundy Campus, have already had evidence of past groundwater and soil contamination. Due to existing building development and paving, it is not possible at this time to determine the extent of subsurface contamination.

Asbestos, Lead Based Paint, and other Building Materials

The transitioning of the airport to other land uses may include preserving and re-purposing existing building and the demolition of others. Two hazardous materials especially associated with buildings built before 1978 include asbestos containing materials (ACM) and lead-based paint (LBP). Each of these materials and their potential to pose a health risk. Friable ACMs must be removed and disposed of by licensed contractors that must adhere to the laws and regulations regarding ACMs. All LBP above regulatory thresholds require removal from structures and disposal in accordance with local, State, and federal regulations prior to renovation or demolition activities that would affect structures that contain LBP or adjacent soils.

Additionally, mercury, polychlorinated biphenyls (PCB), chlorofluorocarbons, and radioactive sources are contaminants that could also be found in buildings of any age or condition.

Airport Closure

The center of legal and political disputes for many years, the airport's fate was sealed with the approval of a settlement agreement with the FAA in 2017 requiring the City to maintain airport operations until December 31, 2028. The authorized closure after December 31, 2028 of SMO and the conversion of its lands to other uses, such as parks and open space, will require thoughtful and thorough consideration of the wide range of effects these changes will have on surrounding neighborhoods and infrastructure. Progressive urban development around the airport has already created a tight takeoff and landing pattern, which has been tightened further with the recent 1,500-foot reduction in runway length.

With 2028 approaching, the City is looking to past and current land use patterns, and future planning efforts to master plan new uses on the SMO property, focused on a "great park". In determining a

future for the Airport, a public process will be undertaken that engages the community in a discussion of the land's potential to address the future needs of the community. In 2014, City residents voted and approved Measure LC, which established land use regulations for the Airport land where recreational, educational, and cultural uses are allowed and focuses the project on a "great park." In addition, there are other internal and external pressures that will play a role in determining the site's future, such as park space type and availability, library locations, senior centers, municipal facilities, other community needs, and improved integration and navigation of the Airport land into the neighborhood network.

The Airport currently provides storage facilities for the City's emergency equipment and supplies. The airport planning process will need to take into consideration the need to support the City's emergency operations, such as emergency supply storage, communications control, and other emergency response capabilities. The airport decommissioning process will require several measured steps to ensure that on-site and nearby land uses are not adversely affected. Among other considerations, issues that must be addressed include assessing the vulnerability of proposed uses to the legacy of prior and current uses and conditions.

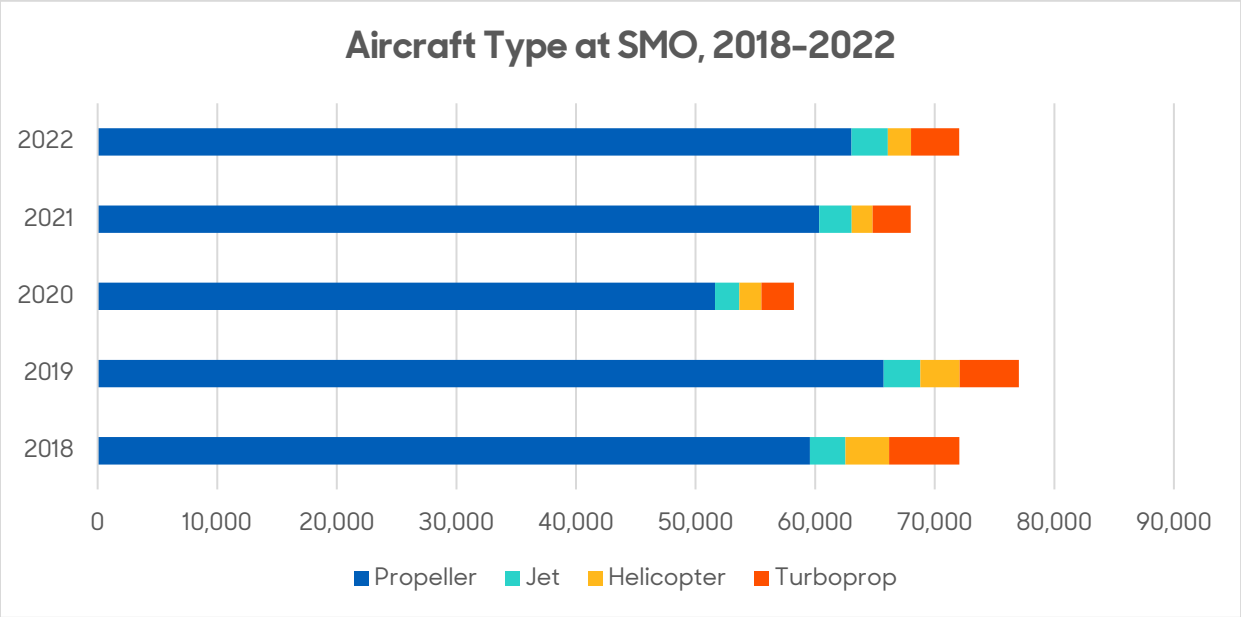


Figure 12 – Existing Uses at the Airport

LEGEND

- Retail / Restaurant
- Arts/Culture/Institutional
- Aviation Use
- Office
- Scheduled to be Demolished
- Other

4 Santa Monica College Airport Arts Campus

5 Spot Orange Design

6 Ruskin School of Acting

7 18th Street Arts Center

8 Car Dealer

9 The Barker Hanger

10 Autobahn Soccer Club
RADAR Stage

11 Museum of Flying

12 RealRyder
13 Attorney
Restaurant

14 Architect
Medical Supply
Art Gallery
School of Integrative Psycho-Structural Bodywork
Civic Air Patrol: Clover Field Composite Squadron 51

15 Public Restroom

16 Airport Administration

City of Santa Monica | Santa Monica Airport

Chapter 3: Disaster Preparedness, Emergency Response Operations and Recovery

Office of Emergency Management

The Office of Emergency Management (OEM) is responsible for disaster preparedness planning and coordinating emergency response efforts with other City of Santa Monica departments, as well as local, regional and State agencies. The goal is to improve public and private sector readiness, and to mitigate local impacts resulting from natural or man-made emergencies. OEM operates the Emergency Services & Preparedness and Public Safety Communications divisions of the City.

Emergency Services & Preparedness

Emergency Services & Preparedness implements extensive disaster planning, training and proactive community-based preparedness programs to ensure that the City is a disaster resilient community. Emergency Services & Preparedness also oversees the operation of the City's Emergency Operation Center (EOC). The EOC provides a central command center for all City Departments and external response stakeholders to work collaboratively to manage, plan, prevent, and recover from all planned and unplanned events and emergencies within the City of Santa Monica. The EOC designates a hierarchy of city staff from various internal City departments and outside agencies who have expertise in their respective fields and department operations and are trained to respond to emergencies and local disasters following pre-established procedures. The division consists of three staff members, including two specialized emergency managers.

Emergency Planning

The Federal Emergency Management Agency (FEMA) requires that jurisdictions prepare up-to-date Local Hazard Mitigation Plan (LHMP) every 5 years to be eligible for federal funding assistance.

In coordination with this Safety Element Update, the City is concurrently updating its LHMP which will provide a risk assessment of potential hazards, mitigation strategies for reducing short-term and long-term losses, and plan maintenance strategies to adapt to new information as they become available.

Public Safety Communications (PSC)

Public Safety Communications is responsible for operating Santa Monica's Public Safety Answering Point (PSAP). OEM's Public Safety Communications division provides joint communications services to the Police and Fire Departments, including answering 911 and non-emergency telephone calls, dispatching public safety resources, and providing emergency medical dispatch services and 911 education to the public. In 2023, PSC answered 78,791 911 calls and 129,123 non-emergency telephone calls. PSC is typically staffed by five to six public safety dispatchers, with a total of 28 dispatchers and supervisors facilitating 24/7 operations. PSC also plays an instrumental role in the distribution of Santa Monica's mass notification system, SMAlerts. SMAlerts are text, email, or call-based messages that are regularly distributed to opt-in groups during public safety and severe traffic incidents. OEM also has the capability to distribute information about imminent emergency or disaster events to geo-based contacts using "Reverse 911" and Wireless Emergency Alerts (WEAs). During a disaster event, PSC may be augmented to include a Disaster Hotline to answer non-emergency questions related to the emergency. The City's Communications Center and Emergency Operations Center are located at the City's Public Safety Facility at 333 Olympic Drive.

Santa Monica Fire Department

The Santa Monica Fire Department (SMFD) provides fire protection services as well as emergency medical services for the City. The SMFD employs approximately 134 total personnel, including 14 administrative, 105 Suppression and Rescue, 12 fire prevention, and 3 training staff. Staffing levels at the SMFD remain consistent throughout the day, although demand for fire and emergency services fluctuates based on the time of day. Peak activity for service demands spans mid-morning through late evening hours.

The SMFD is headquartered in the Public Safety Facility building at 333 Olympic Drive adjacent to City Hall. Fire-fighting and emergency response resources in Santa Monica are provided from five fire stations. Combined, these fire stations are manned by 105 emergency response (suppression and rescue) personnel, with a combined minimum daily staffing for the five stations of 35 personnel. SMFD's daily staffing per unit provides a minimum Effective Response Force (ERF) sufficient for a single emerging or serious fire and at least two other single-unit emergency responses.

The SMFD responds to a variety of medical and rescue calls, vegetation and structure fires, vehicle accidents, public assistance, and false alarms. The SMFD is also the City's Certified Unified Protection Agency (CUPA), providing hazardous materials response and remediation. The Fire Prevention Division of the SMFD has oversight for the management of hazardous waste, underground storage tanks, above ground storage tanks, hazardous materials, community right-to-know, and accidental release prevention programs. The Division maintains the records regarding location and status of hazardous materials sites in the City and administers programs that regulate and enforce the transport, use, storage, manufacturing, and remediation of hazardous materials. The division

conducts other hazardous materials site inspections through the CUPA Administrator and the City's CUPA program.

Santa Monica Police Department

The Santa Monica Police Department (SMPD) operates from the Public Safety Facility building at 333 Olympic Drive. There is also one SMPD substation located on the Santa Monica Pier. The SMPD contains four police divisions: Patrol Operations, Special Operations, Criminal Investigations, and Professional Services. These divisions are further divided into sections and units which include Traffic Services, Public Services Officers, the Animal Control, and the Harbor Unit, among others. The SMPD is staffed with approximately 211 sworn law enforcement positions and 254 non-sworn administrative and support personnel. As with all municipal police departments in Los Angeles County, the SMPD participates in the Mutual Aid Operations Plan for Los Angeles County.

Santa Monica Public Works

When an emergency or natural disaster strikes, the City's Public Works Department is also mobilized to ensure that the public infrastructure and facilities are safely managed and operated. In coordination with the City's OEM team and other first responders, Public Works staff perform important emergency response tasks such as:

- Assessing damage
- Removing debris such as fallen trees
- Securing facilities and establishing emergency protective measures
- Providing light/heavy construction equipment and fleet vehicles
- Maintaining/repairing roadways for emergency access
- Provide solid waste collection and disposal activities.
- Restoring vital utilities such as water

Coordination with Other Agencies

In large scale disasters or emergencies when additional resources are needed, agencies often team up and work together during emergencies. These teaming arrangements are handled through automatic and mutual aid agreements, which obligate fire departments and law enforcement agencies to help each other under pre-defined circumstances. Automatic aid agreements obligate the nearest fire company to respond to a fire regardless of the jurisdiction. Mutual aid agreements obligate fire department resources to respond outside of their district upon request for assistance. During disasters, law enforcement and fire mutual aid requests are handled independently by those departments. All other mutual aid requests for personnel or resources are facilitated by the Emergency Operations Center.

Santa Monica participates in the State's Standardized Emergency Management System (SEMS), which promotes effective disaster management, response and cooperation across jurisdictional boundaries. Santa Monica is part of the Los Angeles County Operational Area. The Operational Area is divided into eight Disaster Management Areas. Santa Monica is a part of Disaster Management Area A, whose other member agencies include Beverly Hills, Culver City and West Hollywood. As a result of being part of the same Operational Area group, all of these jurisdictions have mutual aid agreements that allow them to obtain additional emergency resources, as needed, from non-affected members in the group.

The SMFD also has an Automatic Aid and Mutual Aid agreement with the City of Los Angeles Fire Department, enabling a more efficient and/or effective initial response to an emergency incident. The SMFD can also call on other agencies for support. These include the City's Police Department and California Highway patrol, who, depending on the location of the incident, would provide support during evacuations and to discourage people from traveling to the incident area to watch their operations, as this can hinder fire suppression and emergency response efforts.

Additionally, when necessary in an emergency, the City will work with other regional utility providers such as Southern California Edison and Southern California Gas Company to assess damage, make repairs, restore service, and/or perform emergency shut offs.

Several other State and Federal agencies have roles in emergency response and recovery, depending on the type of incident and its location. These agencies include the California Governor's Office of Emergency Services, Office of Aviation Services, National Weather Service, the Department of the Interior, and, in extreme cases, the Department of Defense. Local hospitals play an integral role in the care of disaster survivors and maintaining regular local healthcare services. Furthermore, outside non-profit organizations such as the American Red Cross, Salvation Army, and churches often provide critical emergency support by supplying food, shelter, and clothing, health care, volunteer labor and other emergency services to disaster victims.

Emergency Preparedness and Resources

The City's OEM provides numerous resources to help the community prepare for and become more resilient to emergencies. The most direct means of access to emergency preparedness and response information is via online. The City's Emergency Preparedness website provides a wealth of resources related to earthquake, tsunamis, wildfire, extreme weather, and utility outages. Additionally, when natural disasters or inclement weather events do happen, the City will utilize social media (such as Instagram, X, Facebook) to disseminate important information.

OEM hosts also provides free information to the public on emergency preparedness at public outreach events, and regularly coordinates emergency preparedness trainings, drills, responses and communications between City departments and other agencies, like the American Red Cross, local hospitals, Santa Monica-Malibu Unified School District and Santa Monica College.

OEM also teaches Community Emergency Response Team (CERT) training to help City residents and business employees prepare for and respond to potential disasters. The training is free, and open to anyone over the age of 18 that lives or works in Santa Monica. CERT is a multi-day training, with training dates and times scheduled by the Santa Monica Office of Emergency Management. The program is certified by the Federal Emergency Management Agency (FEMA) and the State OES.

Emergency Response and Evacuation

Alert Systems

A crucial part of any emergency preparedness and response program is a public alert system to communicate accurate, reliable and timely alert and warning messages to people who are at risk from imminent life safety and property threatening emergencies. Timely and accurate alerts and warnings have the capacity to save lives during critical incidents, provide situational awareness, establish a common operating view, and ensure the City maintains the capacity to support essential services during times of uncertainty. Alerts and warnings are designed to inform the public about an incident or event and to empower individuals to make an informed decision on how to protect their health and safety. When an emergency happens in the City, a variety of alert systems are in place to notify the community and disseminate information.

SMAlerts

The City's OEM operates SMAlerts, the City's emergency alert system. Individuals can register for SMAlerts using the online platform or via text message. SMAlerts are sent out to registered users when a significant police or fire incident, natural disaster, or other major public safety incident requires members of the public to immediately take action. SMAlert recipients may receive texts, emails or phone calls depending on the type of incident and time of day. For large-scale incidents, SMAlerts will provide members of the public with vetted information and incident awareness updates to ensure each person is aware of City support services, evacuation routes, shelters, and more. Persons who live, work or visit Santa Monica may register for SMAlerts via the website or via text message.

Alert LA County

Alert LA County is an opt-in mass notification program utilized by the County of Los Angeles that allows individuals to receive emergency alerts by text, email and/or phone call. Individuals may register via online platform. Alert LA County has accessibility features for people with disabilities and others with access and functional needs.

E911 Notifications

The City operates the capability to send emergency messages to Santa Monica residents and businesses based on their permanent address. Messages are targeted to City residents and businesses based on geographic area. E911 data is maintained by OEM's SMAlerts platform, is used only by authorized personnel for the purpose of emergency notifications, and is regulated by the California Public Utilities Code (CPUC) sections 2872 and 2891.1.

Emergency Alert System

The Emergency Alert System (EAS) is a national public warning system designed for the President to address the American people during a national emergency via radio and television broadcast. Local, state, tribal, and territorial authorities work with broadcast, cable, and satellite operators to also use the EAS to distribute local emergency information, like weather alerts, to affected communities. The Federal Emergency Management Agency (FEMA), the FCC, and the National Oceanic and Atmospheric Administration's National Weather Service (NWS) is responsible for implementing, maintaining, and operating the EAS and Wireless Emergency Alerts, which are the two main components of the national public warning system and enable authorities at all levels of government to send urgent emergency information to the public.

Wireless Emergency Alerts (WEA)

WEAs are short emergency messages distributed by authorized federal, state, local, tribal, and territorial public alerting authorities. WEA messages, such as Amber Alerts, are sent to any WEA-enabled mobile device located in the targeted geographic area, regardless of permanent address. Santa Monica is an authorized public alerting authority with the capability to send a geo-targeted WEA to provide immediate, life-saving information during a natural or human-made disaster. The City of Santa Monica is an Alerting Authority, trained to alert and warn the public when there is an impending natural or human-made disaster or threat.

Weather Radio Alerts

In partnership with the National Weather Service, Weather Radio Alerts are used to expand alerts in hazard areas, especially in areas with poor cellphone coverage. Weather Radios that use Specific Area Message Encoding (S.A.M.E.) technology can be programmed for use in Los Angeles County and a limited number of pre-programmed radios have been distributed.

Essential Facilities and Emergency Shelters

Critical facilities are structures or other improvements that given their function or purpose, size, and service area can either cause extensive damage to property, bodily harm or disruption of vital socioeconomic activities or service to the community if destroyed or damaged (examples: hospitals, government facilities, power plants, water storage facilities and associated network of pipes, schools, telecommunication towers, hazardous materials facility, etc.). Types of critical facilities include:

- Facilities which are essential to government response activities and should continue functioning after being subjected to a disaster (examples: emergency operations center, fire station, hospital).
    - ❖ Essential facilities in the City include SMFD fire stations, the Santa Monica Public Safety Facility and Emergency Operations Center, Providence Saint John's Health Center, and Santa Monica UCLA Medical Center.
- Facilities that are critical to utility and transportation operations.
    - ❖ These facilities include the City Yards, the Big Blue Bus Yards, the Arcadia Treatment Plant, the City's water reservoirs, the Santa Monica Urban Runoff Recycling Facility, Sustainable Water Infrastructure Project, and the Santa Monica Airport.
- Facilities that if damaged could cause serious secondary impacts, such as hazardous materials facilities.
    - ❖ These facilities include the Santa Monica Airport and the City Yards.
- Public schools and libraries in the City also play an essential role in the event of an emergency or natural disaster event – they can serve as temporary shelters, mobile command centers, public information hubs, family reunification centers, etc.

Table 1 - Critical Facilities provides a listing of the City's critical facilities.

Table 1 - Critical Facilities

Facilities Essential to Government and Healthcare Response	
Police Station/Public Safety Facility/ Emergency Operations Center 333 Olympic Drive	Providence Saint John's Health Center 2121 Santa Monica Blvd.
Alternate Emergency Operations Center 2 Main Library 601 Santa Monica Blvd	City Hall East 1685 Main Street
Alternate Emergency Operations Center 3 3223 Donald Douglas Loop S	Santa Monica UCLA Medical Center 1250 16th Street
Fire Station #1 1337 7th Street	Fire Training Academy 2500 Michigan Avenue
Fire Station #2 222 Hollister Avenue	Fire Station #5 2450 Ashland Avenue
Fire Station #3 1302 19th Street	Fire Station #7 1100 Palisades Beach Rd
Harbor Patrol 402 Santa Monica Pier	LA County Court House 1725 Main Street W
Santa Monica Animal Shelter 1649 9th Street	
Facilities Critical to Utility and Transportation Operations	
Santa Monica City Yard 2500 Michigan Avenue	Arcadia Treatment Plant 1228 South Bundy Dr., Los Angeles

Mt. Olivette Reservoir 924 Franklin Street	Riviera Reservoir 1252 Capri Drive, Pacific Palisades
San Vicente Reservoir San Vicente Blvd. and 26th Street	Booster Pump Station San Vicente and 25th Street
Charnock Well Field/Treatment Plant 11375 Westminster Avenue, Los Angeles	Penmar Park Tank 1341 Lake St, Venice
Santa Monica Urban Runoff Recycling Facility 1623 Appian Way	Sustainable Water Infrastructure Project 1771 Main Street (includes Advanced Water Treatment Facility)
Southern California Edison (SCE) Colorado Substation, 1721 22nd Street	SCE Santa Monica Substation, 853 Colorado Avenue
SCE Ocean Park Substation 3110 2nd Street	SCE Facility 1425 Marine Street
Santa Monica Airport 3223 Donald Douglas Loop S	Big Blue Bus Yards 612 Colorado Ave
LA Metro Division 14 Facility 1955 Centinela Avenue, Los Angeles	
Public Schools (K-12, Community College, and Libraries)	
Edison Language Academy 2402 Virginia Ave	Ocean Park Library 2601 Main St
Franklin Elementary 2400 Montana Ave	Olympic High School 721 Ocean Park Blvd
Grant Elementary 2368 Pearl St	Pico Library 2201 Pico Boulevard
John Adams Middle 2425 16th St	Roosevelt Elementary 801 Montana Ave
Lincoln Middle 1501 California Ave	Santa Monica College Main Campus 1900 Pico Blvd
McKinley Elementary 2401 Santa Monica Blvd	Santa Monica High School 601 Pico Blvd
Fairview Library 2101 Ocean Park Blvd	Santa Monica Alternative School House (SMASH) 2525 5th St
Main Library 601 Santa Monica Blvd	Will Rogers Elementary 2401 14th St
Montana Library 1704 Montana Ave	

Response Operations

The evacuation and sheltering of hundreds to thousands of people generally involves the participation of several government agencies and volunteering organizations. Thus, the Police Department typically serves as the lead organization carrying out evacuations, supported by the Fire Department as appropriate. The Public Works Department typically assists in the identification of the best evacuation routes and in barricading the evacuated areas. The Office of Emergency Management determines which mass care shelters will be opened and the resources needed to accommodate the evacuees during their stay there.

The Office of Emergency Management maintains a limited cache of disaster supplies, including disaster cots, hygiene kits, and basic sheltering provisions. When mass care shelters are needed, the City's Emergency Operations Center coordinates with the American Red Cross and other voluntary organizations, utility providers, and service agencies to provide assistance to shelter clients.

BE PREPARED!

Every home and business should have a disaster kit that include basic supplies, like:

- potable water and non-perishable food for each family member/pet,
- items for the specific health and wellness needs in your household, and
- items like a battery-operated radio, flashlights, tools, solar chargers for cell phones and laptops.

For other recommended disaster kit items and information about emergency preparedness visit **santamonica.gov - Emergency Preparedness** (https://www.santamonica.gov/topic-explainers/emergency-preparedness).

Natural disasters such as earthquakes and flooding can displace households, requiring the activation of emergency short-term shelters and resource centers. Public and government buildings, parks, community centers, parking lots/garages, City libraries, and schools in and near Santa Monica can be utilized for emergency purposes including, but not limited to, evacuation sites, points of distribution, information hubs, shelters, recovery centers and/or reunification centers. These short-term facilities may be used for a few hours to a few days – open for use to the public as necessary. Not all of these facilities would be open following a disaster; which ones would be available for use is dependent on the number of people in need of shelter, the location of the facilities relative to the areas most impacted, and the structural stability of each of these buildings or facilities following a disaster. Given that not all of these facilities may be available or fully functional after a disaster, it is preferable to have several options, and disaster shelter supplies easily deployable to these locations. Table 2 - Potential Emergency Shelters in Santa Monica* lists all pre-identified facilities that are part of the National Sheltering System, FEMA and the American Red Cross's nationwide GIS-based database of emergency shelters. The potential shelter locations are distributed throughout the city, however, as discussed above, not all of these shelter locations may be open following a disaster.

Table 2 - Potential Emergency Shelters in Santa Monica*

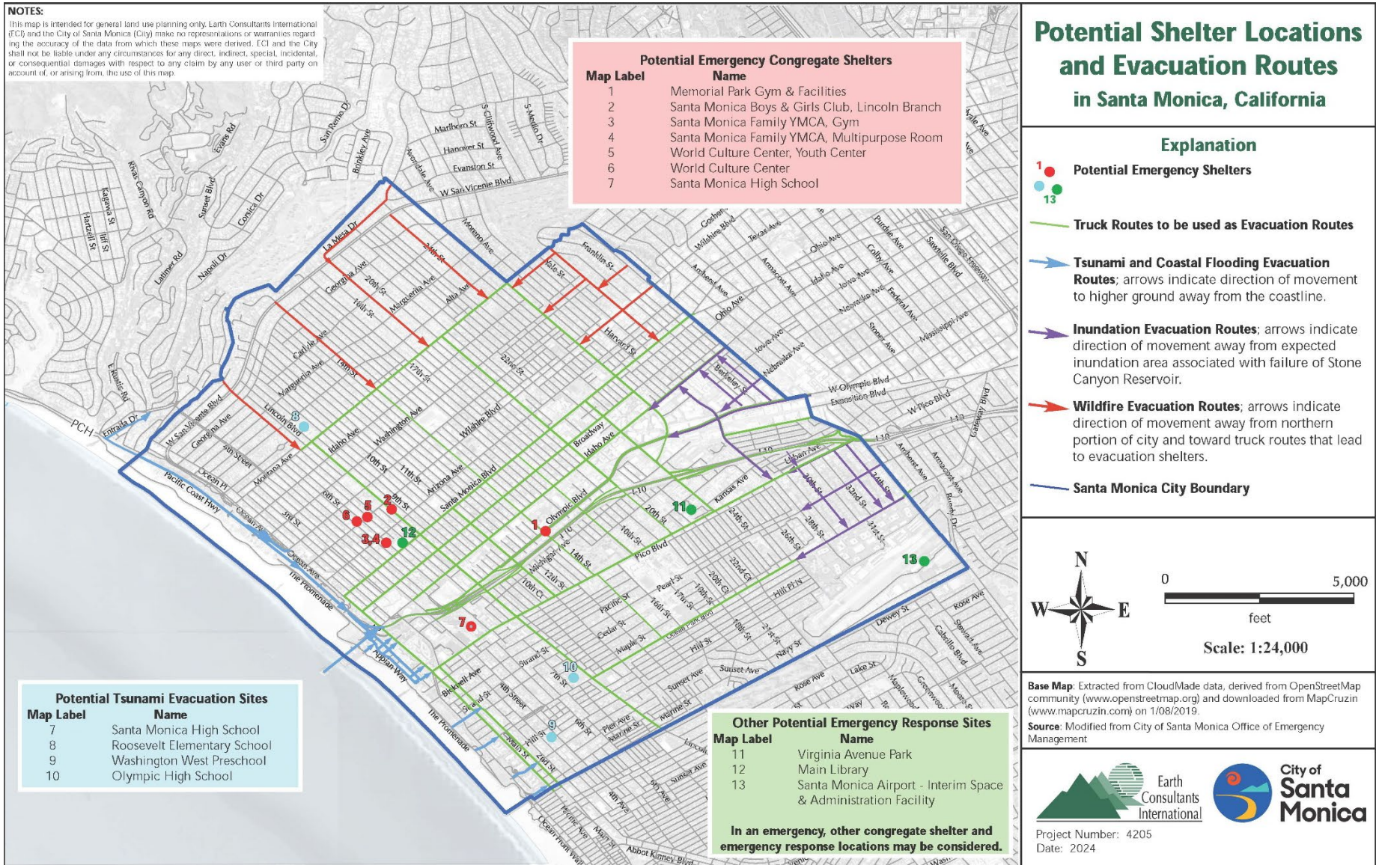
Name	Address
Potential Emergency Non-Congregate Shelters	
Memorial Park Gymnasium and Facilities	1401 Olympic Boulevard
Boys & Girls Club of Santa Monica	1238 Lincoln Blvd
Santa Monica Family YMCA, Gym, Bldg 1 of 2	1332 6th Street
Santa Monica Family YMCA, Multipurpose Room, 2 of 2	1332 6th Street
World Culture Center Youth Center	606 Wilshire Blvd
World Culture Center	525 Wilshire Blvd
Santa Monica High School	601 Pico Blvd
Potential Tsunami Evacuation Sites (Temporary Facilities)	
Roosevelt Elementary School	801 Montana Ave
Washington West Preschool	2728 4th St
Olympic High School	721 Ocean Park Blvd
Santa Monica High School	601 Pico Blvd
Other Emergency Response Sites	
Virigina Avenue Park	2200 Virginia Ave
Santa Monica Main Library	601 Santa Monica Blvd
Santa Monica Airport- Interim Space and Administration Facility	3223 Donald Douglas South
** In an emergency, other congregate shelter and emergency response locations may be considered such as private school, City libraries, public parks, parking lots/garages, SMC, that the American Red Cross currently does not have an agreement with.*	

Evacuation

Evacuation occurs only when a serious threat to public safety exists. At the time of the emergency, emergency responders determine evacuation routes that do not pose an additional danger to the evacuees. Evaluating a route for safety and viability is situational, context-specific, and dynamic in response to the latest emergency conditions.

In the event that an emergency evacuation becomes necessary, OEM will coordinate with SMFD, SMPD, Santa Monica Department of Transportation, transit agencies, and other relevant departments and agencies to evacuate the population. Figure 3-1 identifies several potential evacuation routes for various disaster events in the City of Santa Monica. Several of these routes correspond with the primary and secondary roads used by trucks to deliver goods in and out of the city; their width and accessibility makes them ideal evacuation routes also. Some of the evacuation routes identified also lead to the potential emergency shelters discussed below. These evacuation routes are not all inclusive and may not be the most suitable route depending on actual day-of event conditions in the aftermath of an emergency event.

Figure 3-1 Evacuation Routes and Potential Shelters



Resilience Hubs

The City's Climate Action & Adaptation Plan (CAAP) identifies the need to develop a "climate ready community" that is resilient to the impacts of climate change. Key to achieving this objective is the creation of community resilience centers. Community resilience centers are community facilities that provide assistance and resources during adverse climate conditions and emergencies, as well as year-round services and programming that build long-term resilience, preparedness, and recovery operations for local communities. These centers are designed to support the diverse needs of everyone in the community, offering services such as food and water distribution, community vaccinations, employment assistance, and disaster preparedness and first aid training. In the event of an emergency, resilience centers can be mobilized temporarily to provide resources and serve as central places to seek disaster-related information. Community resilience centers may be housed in community and youth centers, schools, libraries, health clinics, places of worship, independent living centers, and more. The City is committed to increasing community resilience and has been actively exploring future options for developing and funding community resilience centers, including at Virginia Avenue Park.

Emergency Power

Southern California Edison delivers electrical power to the City of Santa Monica. When an area has dangerous weather conditions and is at high-risk for wildfire, SCE will implement a Public Safety Power Shutoff (PSPS) to temporarily shut off electricity. The planned electricity outage is to prevent the electric system from becoming a source of fire ignition. Santa Monica is not typically impacted by PSPS events, however, should a local PSPS event occur, a significant area of Santa Monica could be impacted by electrical outages. Figure 3-2 shows SCE PSPS area.

Reliability of the electrical grid is a growing concern particularly as the State moves forward to electrifying all its vehicles and shifting its electrical power to clean renewables by 2045. While modernizing the grid to meet future needs is largely dependent on the coordinated efforts of utility companies and State agencies (California Energy Commission, California Public Utilities Commission, Southern California Edison, etc.), the City has been making its own efforts in ensuring the flexibility, efficiency and reliability of its energy supply.

Since 2019, the City has utilized the Clean Power Alliance (CPA) for its electricity supply. CPA purchases electricity from a mix of renewable sources and partners with SoCal Edison to distribute electricity to residential and commercial customers throughout the City. The use of renewable energy sources such as solar and wind not only reduces greenhouse gas emissions, but also ensures a more reliable electrical grid. Furthermore, the City's programs and regulations requiring the development of more energy efficient buildings, which include the installation of heat-pumps, will help conserve energy and reduce strain on the City's electricity grid.

To further increase the resiliency of the local energy infrastructure, the City is currently working on design and construction of a microgrid at the City Yards property located at 2500 Michigan Avenue. The microgrid would include a photovoltaic array and battery backup storage and would provide efficient, reliable, and cost-effective energy that has a low environmental and carbon impact. It could also store energy, allowing the City Yards and eventually the surrounding businesses to continue critical operations in case of a major power outage. The installation of a microgrid at City Yards would help mitigate the effects of a power loss during emergencies.

Figure 3-2 Public Safety Power Shutoff Area

Chapter 4: Goals, Policies, and Actions

Seismic, Geologic, and Flooding Hazards

Goal 1: Minimize the risk to life, injuries, and property due to natural hazards.	
Policy 1.1 Strengthen utilities and infrastructure, public structures, and other critical facilities to increase public safety and minimize potential damage from seismic and geologic hazards.	• Action 1.1.1 Seismic Improvements. As part of the Capital Improvement Program, prioritize seismic retrofits and investments in public infrastructure and facilities to minimize potential damage from seismic hazards, ensure protection of vulnerable communities, and maintain continuity of government operations. • Action 1.1.2 Seismically Resilient Transportation Network. Support efforts by the California Department of Transportation to identify and retrofit or replace seismically deficient transportation infrastructure such as bridges, freeway crossings, and highways.
Policy 1.2 Continue, enhance, or develop regulations and programs designed to improve the seismic safety of new and existing buildings.	• Action 1.2.1 Seismic Retrofit Program. Continue to implement the Seismic Retrofit Program adopted in 2017 that requires the seismic strengthening of existing vulnerable buildings to enhance the security and safety of occupants. The City shall seek grant funding or connect property owners with resources to identify financial support for seismic retrofits, prioritizing socially vulnerable neighborhoods.
Policy 1.3 Collaborate with other public agencies to implement seismically resilient strategies, including Metropolitan Water District (MWD), Caltrans, and Metro.	• Action 1.3.1 Regional Seismic Resilience. Continue to participate in and support MWD's Seismic Resilience Strategy, including participation in emergency response workshops and joint exercises.
Policy 1.4 Ensure that new construction shall comply with State and local building and safety regulations and implement mitigation measures as necessary to minimize loss and damage to human life and property.	• Action 1.4.1 Geotechnical Investigations. Prior to the issuance of building permit, continue to require geotechnical investigations for projects to ensure the safety of workers and building occupants. Geotechnical investigations shall. ○ Evaluate site stability, including potential hazards during seismic events, and possible impact on adjacent properties, before final project design is approved;

	○ Identify recommended measures to reduce geologic and seismic hazards, which shall be incorporated into final project design and construction; and ○ Be prepared by a State-license geotechnical professional • Action 1.4.2 Geotechnical Guidelines. Every 8 years, update the City's Geotechnical Guidelines to ensure that requirements are consistent with current requirements of the California Geological Survey and current Building Code, with local revisions as necessary. The Guidelines shall address at minimum the following. ○ Seismic Hazards, including ground shaking and secondary seismic hazards (e.g., liquefaction, seismically-induced settlement, and lateral spreading) ○ Fault surface rupture hazards (including Earthquake Fault Zones defined by the State of California under the Alquist Priolo Earthquake Fault Zoning Act) ○ Unstable Slopes/Landslides ○ Compressible Soils ○ Collapsible Soils ○ Expansive Soils ○ Corrosive Soils • Action 1.4.3 Fault Studies. Continue to require Fault Rupture studies for projects located within the Alquist-Priolo Earthquake Fault Zone, in compliance with the guidelines of California Geological Survey for Earthquake Fault Zones (Special Publication 42). Fault studies shall be prepared by a State-licensed professional, and City shall also submit such studies to the California Geological Survey for further study of the Santa Monica Fault Zone.

Policy 1.6 Reduce hazards pertaining to steep and unstable slopes, such as those of the Palisades Bluffs.	• Action 1.6.1 Palisades Bluffs. Conduct regular inspection and monitoring of the Palisades Bluff and slopes along the I-10 to maintain limited erosion and prevent slope failure. Where necessary, implement measures such as.
	  ○ Physical controls such as drainage, slope-geometry modification,
	  ○ Installing landscaping consisting primarily of drought-resistant, preferably native vegetation that helps stabilize the hillsides;
	  ○ Avoiding heavy irrigation, maintaining drainage devices, and controlling the populations of burrowing animals as these destabilize slopes, with their burrows providing channels for surface runoff to infiltrate into the underlying materials and increase pore water pressures.
	  ○ Other measures as necessary to direct water away from the Bluffs (e.g., dewatering and re-grading)
	• Action 1.6.2 Bluff Infiltration. Continue to prohibit the infiltration of run-off water in areas near the Palisades Bluffs that could potentially result in soil stability issues.

Policy 1.7 Ensure that the Santa Monica Groundwater Basin maintains a safe yield to prevent overdraft conditions	• Action 1.7.1 Surface Runoff. To mitigate against subsidence, the City shall coordinate with other jurisdictions in the Santa Monica Groundwater Basin to maximize surface runoff capture in recharge areas and manage the pumping of groundwater. • Action 1.7.2 Runoff Ordinance. Continue to implement the City's Runoff Ordinance to maximize infiltration of urban runoff and minimize stormwater and dry weather flows.
Policy 1.8 Implement strategies to minimize the risk and effects of coastal flooding.	• Action 1.8.1 National Flood Insurance Program. Maintain, comply with, and meet the requirements of the National Flood Insurance Program to protect property owners and recover more quickly after a flood. • Action 1.8.2 Flood Protections. Continue to comply with federal flood regulations by implementing Chapter 7.68 of the Santa Monica Municipal Code to ensure that new development within Special Flood Hazard Zones comply with state and local flood regulations and incorporate mitigations in accordance with established requirements.

Policy 1.9 Ensure essential critical water facilities are maintained to current standards and adaptable to changing conditions.	• Action 1.9.1 Resilient Water Storage. Evaluate City-owned water reservoirs and other storage facilities for earthquake safety and make seismic improvements, as needed. Analyze water production data and other relevant information to ensure facilities have adequate capacity and are functioning properly to reduce potential hazards. • Action 1.9.2 Adequate Water Infrastructure and Peakload Water Supply. As part of the Capital Improvement Plan, assess the adequacy of the City's water infrastructure to provide adequate water flow and fire demands for existing and future development. When necessary, upgrade and replace main water pipes, with priority given first to those lines that do not meet fire flow requirements and those that cross or are located near the mapped trace or projections of the Santa Monica fault. • Action 1.9.3 Resilient Water Supply. Continue to annually monitor the City's water supply and seek new strategies and actions to ensure a resilient water supply. • Action 1.9.4 Emergency Water. Consider implementation of redundant water systems in those areas of the city where earthquakes, fault rupture, liquefaction and other modes of ground failure could result in breaks to both the water and gas mains. This includes considering alternate sources backup sources of water in the event of a natural disaster event or other service disruption.
Policy 1.10 Reduce the potential for urban flooding by requiring Best Management Practices and other stormwater control on public and private properties.	• Action 1.10.1 Stormwater Capture. Continue to require new development to comply with Section 7.10 of the SMMC that requires stormwater capture, re-use and infiltration of runoff wherever feasible. All new development must be designed to minimize, to the maximum extent feasible, the introduction of pollutants of concern that may result in significant impacts from site runoff from impervious areas. Development shall incorporate construction and post-construction Best Management Practices (BMPs) to reduce pollutant loading to the maximum extent feasible. • Action 1.10.2 Local Flooding. Identify priority localized flooding sites, conduct necessary inspections, and prioritize maintenance and upgrades to the City's stormwater system to mitigate problems prior to wet season and after severe storms. • Action 1.10.3 Stormwater Infrastructure Improvements. Continue to assess adequacy of the existing storm drain system and implement improvements as necessary to address deficiencies. Build green infrastructure to help reduce runoff flows and reduce potential flooding (e.g., water retention tanks, bio-retention areas green roofs, swales, vegetated or impervious surfaces). New

	private development shall be required to provide necessary on- and off-site improvements to drainage facilities to ensure that stormwater runoff can be accommodated. • Action 1.10.4 Flood Controls. In advance of significant rainstorm events, where feasible and when resources are available, provide sandbags and other resources to the community when necessary.
Policy 1.11 Ensure that information regarding dam inundation risks are up to date and publicly available.	• Action 1.11.1 Dam Inundation. As required by State law (Senate Bill 92), the City shall evaluate and update the Riviera Reservoir inundation paths every 10 years. This information shall be used to identify critical infrastructure and population-at-risk sites that may require protective measures, warning, and evacuation planning. • Action 1.11.2 Seismically Resilient Dams. Continue to perform regular assessments and maintenance on the City-owned Riviera Reservoir and other aboveground water reservoirs to ensure that these structures can withstand seismic ground shaking from nearby faults.

Fire Hazards

Goal 2: Reduce threats to public safety and minimize property damage from urban fire hazards commensurate with the risk of post-earthquake fire and fires driven by Santa Ana winds.	

Policy 2.1 Continue, enhance, and implement regulations and programs that seek to reduce the risk of fires in new and existing development.	• Action 2.1.1 Fire Safety Standards. Review and enforce the fire safety standards set forth in the City's Fire Code for new and existing development. This includes but limited to.
	  ○ Adequate building egress/ingress for fire safety
	  ○ Adequate road widths, grade, and turning radii to accommodate emergency vehicles
	  ○ Minimum clearances around structures
	  ○ Adequate fire flow requirements for fire fighting
	  ○ Automatic fire extinguishing systems
	  ○ Smoke detection alarms
	  ○ Fire resistant building construction materials
	• Action 2.1.2 Vegetation Management. Continue to enforce the weed abatement ordinance to reduce the potential for vegetation fires to occur in poorly maintained lots.
	• Action 2.1.3 Fire Prevention. Continue to implement fire inspection program consistent with fire safety requirements of State and local law.
	• Action 2.1.4 Fire Suppression. Maintain and if necessary, upgrade fire suppression systems in all public facilities to reduce the potential loss of life and property.
	• Action 2.1.5 Wildfire Risk Reduction. Educate and encourage residents living within proximity of a wildfire zone to implement safe fire practices, including utilizing fire-resistant building materials, maintaining a fire-retardant native landscape, and keeping combustibles (such as firewood) a safe distance away from all structures.
	• Action 2.1.6 Fire Education. Continue to conduct public outreach and education to inform residents, businesses, and visitors of air quality alerts when air quality is at unhealthy levels due to wildfire smoke.

Policy 2.2 Conduct and implement long-range planning that will facilitate fire prevention, preparedness, effective response, and recovery.	• Action 2.2.1 Building Safety. Implement regular updates of the Fire Code standards so that optimal fire protection standards are used in construction and renovation projects. • Action 2.2.2 Fire Response. Continue to regularly update the Standards of Cover study to assess current performance (i.e., deployment/response) and ensure that fire and emergency medical staffing is adequate such that response times are within or faster than the National Fire Protection Association Standard 1710. • Action 4.2.3 Fire Planning. Continue to prepare the Santa Monica Fire Department 5-year strategic plan to identify budget needs, organizational priorities, facility and staffing needs, and decision-making over the planning period. • Action 2.2.4 Fire Fighting Resources. Invest in improved firefighting equipment, adequate fire stations and facilities, and other resources that facilitate the City's ability to provide more effective fire response and suppression. • Action 2.2.5 Fire Station Planning. Plan for siting a new fire station in the northern portion of the City, to more quickly respond to emergency calls in this area, and provide efficient fire suppression response in the event of a wildland fire in the immediate vicinity of the city's northern and northeastern boundaries. • Action 2.2.6 Fire Risk Assessment. Prepare a Community Risk Assessment to regularly re-evaluate specific hazards and adopt reasonable safety standards and actions as necessary to minimize risks. • Action 2.2.7 Funding for Fire Fighting Resources. Consider adoption of a development impact fee for new developments to mitigate the cost of increased fire-fighting resources. • Action 2.2.8 Fire Fighting Coordination. Continue to participate in the Standardized Emergency Management System (SEMS), with coordination and training exercises between partner agencies and departments. • Action 2.2.9 Mutual Aid Agreements. Continue to maintain interjurisdictional mutual aid agreements in the event of regional and local fires.

Hazardous Materials

Goal 3: Protect human health and the environment by minimizing the risk of potential releases of hazardous materials	
Policy 3.1 Continue, enhance, and implement regulations and programs to reduce the potential release of hazardous materials.	• Action 3.1.1 Certified Unified Program Agency. Continue to serve as the Certified Unified Program Agency (CUPA) to regulate business that handle or store, hazardous materials, or generate hazardous waste consistent with applicable State and federal regulations. As part of the CUPA program, the Santa Monica Fire Department is responsible for maintaining certified status by the California Environmental Protection Agency to implement the Hazardous Waste Generator Program, the Hazardous Materials Release Response Plans and Inventory Program, the California Accidental Release Prevention Program (Cal-ARP), the Aboveground Petroleum Storage Tank Program and the Underground Storage Tank Program. The Santa Monica CUPA shall conduct annual inspections to ensure that hazardous materials are safely managed, hazardous wastes are properly disposed, hazardous materials are designed with secondary containment systems, and that all aboveground and underground tanks are monitored and maintained to prevent the release of hazardous substances to the environment. • Action 3.1.2 Environmental Site Assessments. Require new buildings for occupancy to conduct a Phase I environmental site assessment to investigate for the presence of hazardous materials and/or waste contamination before the issuance of building permit. Continue to require remediation and construction techniques for adequate protection of construction workers, future occupants, adjacent residents, and the environment are adequately protected from hazards associated with contamination. • Action 3.1.3 Alternate Non-Toxic Materials. Continue to encourage residents and businesses to use safer alternate products and non-hazardous materials. • Action 3.1.4 Hazardous Materials Reduction and Disposal. Continue to operate programs for business and residents that provide for the reduction of hazardous materials and for the safe and proper collection and disposal of hazardous waste.

Policy 3.2 Encourage the establishment of any future land uses using significant hazardous materials at least 0.5 mile away from critical facilities and schools.	• Action 3.2.1 Permitting of Hazardous Materials Sites. Restrict or prohibit the siting of land uses that will generate or use significant hazardous materials near critical facilities and schools.

Climate Change

Goal 4: Protect the City's communities, economy and infrastructure from the effects of climate change.	
Policy 4.1 Minimize the adverse effects of climate change, particularly on vulnerable populations, by identifying and implementing climate adaptation and resiliency strategies.	• Action 4.1.1 Climate Action and Adaption Plan. Continually update the City's Climate Action and Adaption Plan in order to achieve carbon neutrality by 2050 or sooner. The CAAP shall address climate preparedness, infrastructure resiliency, water self sufficiency, and coastal flooding preparedness. The CAAP should be based on the most recent information and action items related to climate change-related hazards including but not limited to extreme heat events, inland flooding, severe weather (high wind and extreme precipitation events), wildfires, and sea level rise. Sea level rise maps should be updated at least every 5 years or sooner based on the best available science. • Action 4.1.2 Implementation of the CAAP and LCP. Continue to implement climate preparedness and adaptation policies and projects identified by the Climate Action and Adaptation Plan and the Local Coastal Program as climate change impacts increase. • Action 4.1.3 Climate Change and Local Hazard Mitigation Plan. Incorporate climate change information and plan for climate hazards into the City's Local Hazard Mitigation Plan.

	• Action 4.1.4 Climate Change Equity. Prioritize vulnerable communities and populations in climate adaptation planning and strategies.
	
	• Action 4.1.5 Sustainable City Plan. Regularly update and implement the Sustainable City Plan to use the power of community to enhance resources, prevent harm to the natural environment and human health, and benefit the social and economic well-being of the community for the sake of current and future generations.
	
	• Action 4.1.6 Extreme Heat Action Plan. Prepare an Extreme Heat Action Plan with strategies to reduce extreme heat effects such as.
	
	  ○ Enhance and expand green spaces and the urban forest (tree canopy);
	  ○ Provide additional access to shade and clean drinking water in public spaces, with locations targeted to vulnerable populations (e.g., unhoused populations, seniors, outdoor workers);
	  ○ Increase access to cooling centers during extreme heat events, coordinating transportation for limited mobility residents;
	  ○ Explore the feasibility of adopting a "Cool Community" ordinance in the building code to require new construction to implement residential air temperature and air filtration requirements for health/safety;
	  ○ Encourage installation of energy efficient heat pumps for cooling;
	  ○ Promote mobility options and access to the beach (e.g., beach shuttle bus) which can serve as a refuge during extreme heat events;
	  ○ Continue to build heat resiliency through building code updates (i.e., Green Building Code, Energy Reach Code, etc).
	• Action 4.1.7 Sea Level Rise Regional Strategy. Continue to work with local, regional, and state entities to address sea level rise in Los Angeles County and coordinate with other neighboring non-profit institutions on sea level rise and climate adaptation efforts such as the Santa Monica Dunes restoration project.
	
	• Action 4.1.8 Grant Funding. Continue to explore and pursue funding sources for climate change adaptation and resiliency programs and projects in alignment with the priorities identified in the Climate Action and Adaption Plan.

Airport Safety

Goal 5: Reduce airport land use hazards.	
Policy 5.1 Continue, enhance, and implement regulations and programs to reduce aircraft incidents and noise until closure of the airport.	• Action 5.1.1 Unleaded Fuel. Implement the transition to unleaded fuel for aviation use when legally viable. • Action 5.1.2 Fly Neighborly Program. Continue to implement the Santa Monica Airport's Fly Neighborly Program throughout the operational life of the Airport to outline responsibilities, assess needs, and mitigate noise impacts as much as possible. • Action 5.1.3 Compliance with Regulations. Continue to comply with the Consent Decree and existing federal and state air safety regulations. • Action 5.1.4 Potential Contamination. Perform comprehensive environmental site assessments on Airport land and properties prior to alteration, remodeling, re-purposing or demolition of any Airport building, runway, or other structure, in accordance with regulatory agency standards. Properties should be tested for lead based paint, asbestos, and soil and groundwater contamination by a licensed professional. All contaminated or potentially contaminated materials, surfaces or structures should be carefully identified, and an abatement program developed for implementation by a licensed asbestos/lead expert. Removal and disposal methods should be carefully considered for each contaminant and source identified. The EPA asbestos regulations found under 40 CFR 61-National Emissions Standards for Hazardous Air Pollutants (NESHAP) require an inspection regardless of the age of the structure before any renovation or demolition activities are undertaken. Certain asbestos containing materials must be removed before any work begins. EPA has also issued the lead-safe practices rule requiring contractors performing renovation, repair and painting projects to prevent lead contamination. If contamination exceeds regulatory action levels, the City shall undertake remediation actions prior to the development of any future land uses under the supervision of the appropriate oversight agencies such as the Department of Toxic Substances Control, Regional Water Quality Control Board, or Santa Monica Fire Department.

Disaster Preparedness and Emergency Response

Goal 6: Maintain an emergency preparedness and response network and programs to increase community resiliency to emergencies and natural disasters and minimize risk to life, injuries, and property.	

Policy 6.1 Develop and implement plans and programs for comprehensive emergency preparedness, response, and recovery.	• Action 6.1.1 Local Hazard Mitigation Plan. Update and adopt the Local Hazard Mitigation Plan (LHMP) every 5 years as required by State law to remain eligible for federal funding. The LHMP shall.
	  ○ Identify hazards affecting the community, include climate-change effects;
	  ○ Assess the risks based on the most recent available data for all hazards;
	  ○ Identify and implement mitigation strategies to protect the community, critical facilities, infrastructure, private property, and the environment from the hazards; and
	  ○ Establish a process for ensuring that the LHMP is adapted to changing conditions.
	
	• Action 6.1.2 Emergency Services and Resource Planning. Evaluate future emergency service needs for planned land uses and evaluate the need for resources, infrastructure or staffing improvements needed to implement and maintain citywide disaster and special event planning, mitigation, response, and recovery actions, including but not limited to the recommended actions and policies identified in the Safety Element and Local Hazard Mitigation Plan.
	
	• Action 6.1.3 Mutual Aid Agreements. Maintain mutual aid agreements and foster partnerships with Federal, State, and other local agencies to assist in cooperative emergency response when necessary.
	
	• Action 6.1.4 Regional Earthquake Preparedness Participation. Continue to conduct or participate in joint regional earthquake drills with nearby cities and Los Angeles County.
	
	• Action 6.1.5 Regional Coordination. Participate in regional emergency planning efforts to ensure coordinated and efficient response and recovery efforts in the event of a large-scale natural disaster or emergency event.
	
	• Action 6.1.6 Evacuation Routes. Continue to review and identify primary and secondary emergency evacuation routes for multiple emergencies and disaster events. Evaluate if emergency parking restrictions should be implemented during times of disaster or evacuation.

	• Action 6.1.7 Multi-Modal Evacuation. Collaborate with operators of multi-modal transportation options such as e-scooters and bikeshare to explore the feasibility of providing non-vehicular evacuation options in the event of emergencies and disaster events. • Action 6.1.8 Partnerships. Foster partnerships between outside public, private, and nonprofit organizations to provide critical services to vulnerable populations. • Action 6.1.9 Emergency Assistance. Establish a vendor list, updated annually, of contractors, businesses, organizations, and individuals that the City can called in for help during emergencies. • Action 6.1.10 Emergency Shelters and Critical Facilities. Maintain and regularly update list of emergency shelters, critical facilities, and other sites that are pre-identified for emergency response purposes. Ensure shelters and facilities are accessible to vulnerable populations. • Action 6.1.11 Contingency Medical Strategies. In partnership with local hospitals and LA County departments, identify strategies to continue to provide medical care in the event that local hospitals and medical facilities close to the Santa Monica fault trace are not fully operable following a worst-case scenario earthquake. • Action 6.1.12 Emergency Operations Center. Continue operation of the City's Emergency Operations Center, the build out of alternate Emergency Operations Center sites. and implementation of OEM procedures, including staff training and exercises for emergency procedures. • Action 6.1.13 Integrated Systems. Implement citywide data integration systems to support first responders and City departments in identifying the most urgent and highest need situations. • Action 6.1.14 Emergency Response Exercises: Continue to conduct emergency response exercises, including mock earthquake-induced fire scenario exercises, using the adopted emergency management system (SEMS). The community shall be encouraged to participate in these exercise to increase self reliance.

Policy 6.2 Invest in public facilities, infrastructure network, and other resources to improve the City's effectiveness and capacity for emergency response and recovery.	• Action 6.2.1 Resilience Hubs. Explore the creation of Neighborhood Resilience Hubs to provide community members essential services during disaster events, with priority location in the Pico Neighborhood. Pursue resources and grant funding for the establishment of these neighborhood resilience hubs.
	
	• Action 6.2.2 Emergency Resources. Evaluate and maintain City emergency supplies with sufficient supply for at least 72 hours providing.
	
	  ○ Staff emergency food, water capability;
	  ○ Emergency sanitation capability;
	  ○ Emergency medical supplies capability;
	  ○ Emergency lighting capability; and
	  ○ Vehicle emergency refueling or charging capability
	
	• Action 6.2.3 Resilient Energy Supply. Ensure that critical facilities, emergency shelters, and Neighborhood Resilience Hubs are equipped with electrical back-up systems, microgrids, solar and storage, and/or other sustainable utility resources. Work with utility partners to identify future vulnerability potential for power outages related to extreme heat and develop plans to prevent facility outages. Continue to pursue installation of the microgrid at City Yards, and explore the feasibility of additional community microgrids that are driven by renewable energy sources to increase local energy resilience during grid power outages, reduce reliance on long-distance transmission lines, and reduce strain on the grid when demand for electricity is high.
	
	• Action 6.2.4 Tsunami Warnings. Explore the feasibility of installing warning sirens at various locations along the beach to alert beach-goers about evacuating to higher ground immediately after an earthquake is felt, before a tsunami reaches the coastline. The City's tsunami response plan should be updated as necessary and City staff should practice how to respond to a tsunami on a regular basis.
	
	• Action 6.2.5 Heat Wave Preparation. During heat wave events, continue to communicate heat warnings and appropriate responses to the public (e.g., encourage staying indoors, provide symptom reminders, open cooling shelters). Consider utilizing systems such as disaster hotlines to provide education and obtain information about high-risk or distressed individuals.

	• Action 6.2.6 Water Resiliency. Consider retrofitting older water pipelines to reduce the number of potential breaks as a result of corrosion and age. Encourage residents to store at least a 7-day supply of water for all family members, including pets, so that they can be self-sufficient immediately following the earthquake, until service is restored. Explore feasibility of trucking in emergency water that is delivered directly to the residents in the event that the need arises or having emergency water storage. • Action 6.2.7 Mobility and Access. Partner with Caltrans and neighboring jurisdictions on measures to protect critical entry and exit routes such as Pacific Coast Highway and Interstate 10. Santa Monica will work with local agencies to develop contingency plans for operations when Highway 1 and other roads are inoperable during emergencies and natural disaster events. Work with transit providers and other mobility services (e.g., E-bikes, scooters) to identify and support residents without access to transportation in the event of an emergency or when there are disruptions in transportation routes. • Action 6.2.8 Traffic Signalization. Prioritize the connection of traffic signals along evacuation routes to the City's Traffic Management Center to allow for real-time modifications to signal timing that can speed evacuation in the event of an emergency. Maintain a higher level of tree and vegetation maintenance along evacuation routes. In the event of an emergency or evacuation order, implement street restrictions as necessary. • Action 6.2.9 Emergency Capability at the Airport Property. As part of the planning process for the airport conversion project, consider provisions for emergency facilities (e.g., emergency supply storage, communications center) that allow the City to re-establish and maintain emergency response operations and capabilities after closure of the airport.
Policy 6.3 Increase community awareness of potential hazards and provide publicly accessible information and resources build a community resilient to natural disasters, climate	• Action 6.3.1. Emergency Notification. Continue to operate emergency warning notification systems (SMAlerts) to notify residents of hazardous or emergency conditions. Identify and implement best practices to distribute emergency alerts and response information, such as providing evacuation directions in multiple languages. • Action 6.3.2 Community Outreach. The City shall continue to provide public information on local hazards and risks at community events, on-line, and other social media networks. Engage in

change effects, and other emergencies.	community outreach efforts focused on the most vulnerable populations. Continue partnerships with community organizations to target vulnerable and disadvantaged communities.
	
	• Action 6.3.3 Public Hazards Information. Make publicly available the most recent information on natural and human-made hazards in the City. Ensure on an annual basis that the City's online geologic-hazard mapping is up to date which shall include but not limited to maps depicting.
	
	  ○ Earthquake fault zones
	  ○ Fire hazard zones
	  ○ Tsunami risk areas
	  ○ Dam inundation areas
	  ○ Flood zones
	
	• Action 6.3.4 Community Awareness. Emergency preparedness and response/recovery information shall be publicly available in multiple languages and accessible through various media (website, social media, print form, digital signage, etc.). Work to ensure that in the event of an emergency, multilingual staff personnel are available to assist in evacuation and short-term recovery activities.
	
	• Action 6.3.5 Community Training. Continue to provide on-going disaster preparedness and emergency response training to the community through the Community Emergency Response Training (CERT) program. Seek partnership with community organizations to target vulnerable populations.
	
	• Action 6.3.6 Emergency Preparedness. Encourage residents to have an emergency plan and an emergency preparedness kit, with at least a 7-day water supply, food, blankets, clothing, sturdy shoes, medications, flashlight, radio and other essential supplies.
	
	• Action 6.3.7 Earthquake Drill. Continue annual participation in the Great California Shakeout.