



City of  
**Santa  
Monica**

Planning Commission Study Session  
Safety Element Update  
\_\_\_\_\_ Item 8-A

June 21, 2023

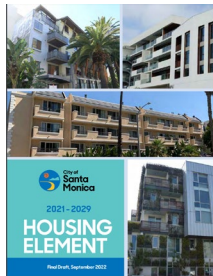
# Agenda for Study Session

1. Background Info for Updating the Safety Element
2. Integration with Other City Plans
3. Issues to be Addressed in Safety Element
4. Process and Timeline
5. Discussion Questions for the Commission

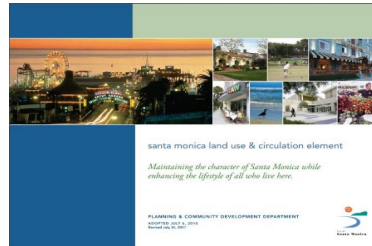
# What is the Safety Element?

Safety Element is a Mandatory Element of General Plan

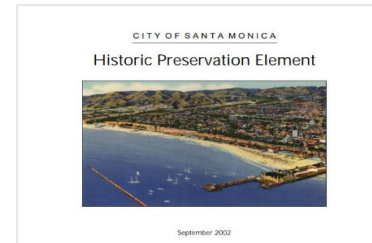
## General Plan



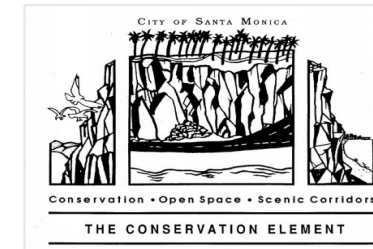
Housing Element



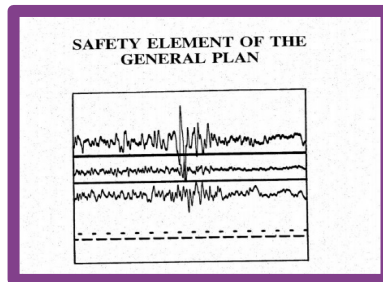
LUCE



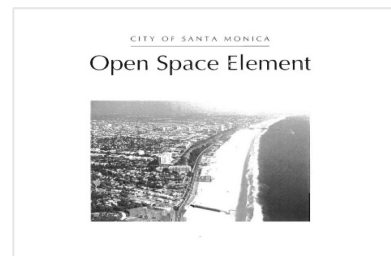
Historic Preservation



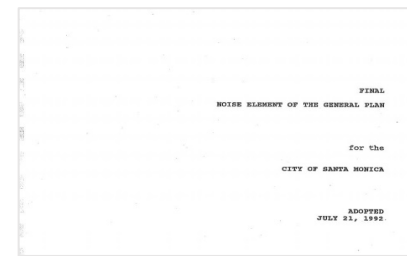
Conservation



Safety



Open Space

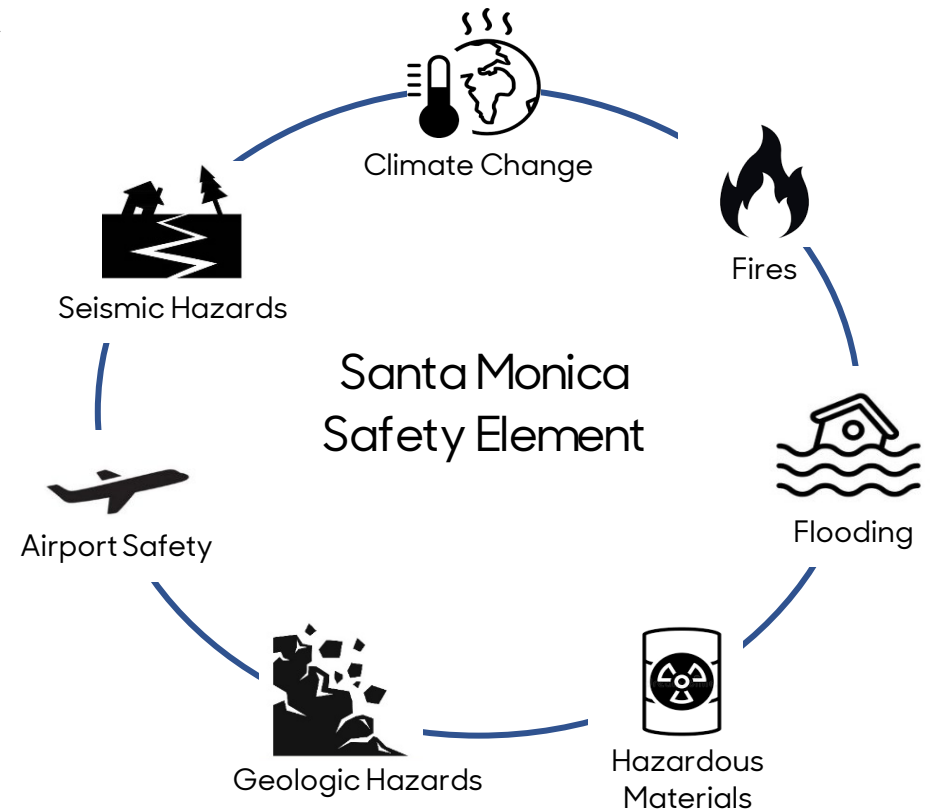


Noise

# What is the Safety Element?

The Safety Element establishes the City's goals, policies, and programs to reduce the risk of death, injuries, property damage, and social dislocation due to hazards in the natural and built environment including:

- Geological and seismic hazards, including earthquakes, ground failure, and landslides
- Flooding
- Fires
- Climate change effects, including sea level rise, droughts, and heat waves
- Hazardous materials and waste
- Airport Hazards



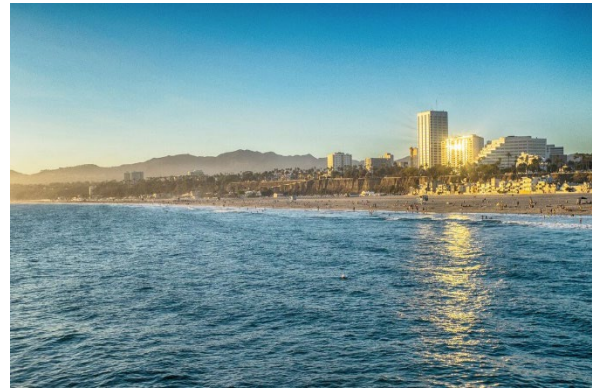
# Why Update the Safety Element?

***Ensure that the City establishes the framework for a safer and more resilient community.***



## 1995 Safety Element outdated

- Santa Monica Fault maps (2018)
- FEMA Flood maps (2022)
- Climate change effects not discussed



## Integration with Recent City Plans

- Climate Action & Adaptation Plan
- Local Hazard Mitigation Plan
- Housing Element

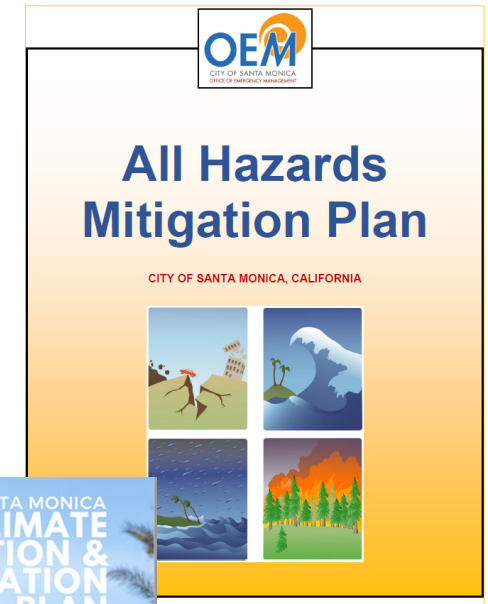


## State requirements

- SB 379 – address climate change
- SB 1035 – update Safety Element upon adoption of Housing Element
- AB 747 – identify evacuation routes

# Other City Plans

- Local Hazard Mitigation Plan (2016)
  - To be updated concurrently in coordination with Office of Emergency Management
    - Required by FEMA for update every 5 years
    - Supplements the Safety Element, which provides broader overview and framework
    - Identifies specific strategies and actions for responding to and mitigating hazards
- Climate Action and Adaptation Plan (2019)
  - Analyzes climate change effects and vulnerability
  - Identifies resiliency strategies to minimize effects
  - State law requires Safety Element to address climate change effects



# Issues to be Addressed

## Natural Hazards

Geologic/Soils



Seismic Risks



Climate Change



Wildfires



Flooding



## Built Environment Hazards

Hazardous Materials



Urban Fires



Airport-Related



# Issues to be Addressed

*Apply equity lens – Effects on vulnerable population groups*



Seniors



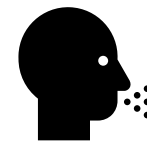
Infants



Communities  
of Color



Low-Income  
Households



Sick or  
Disabled

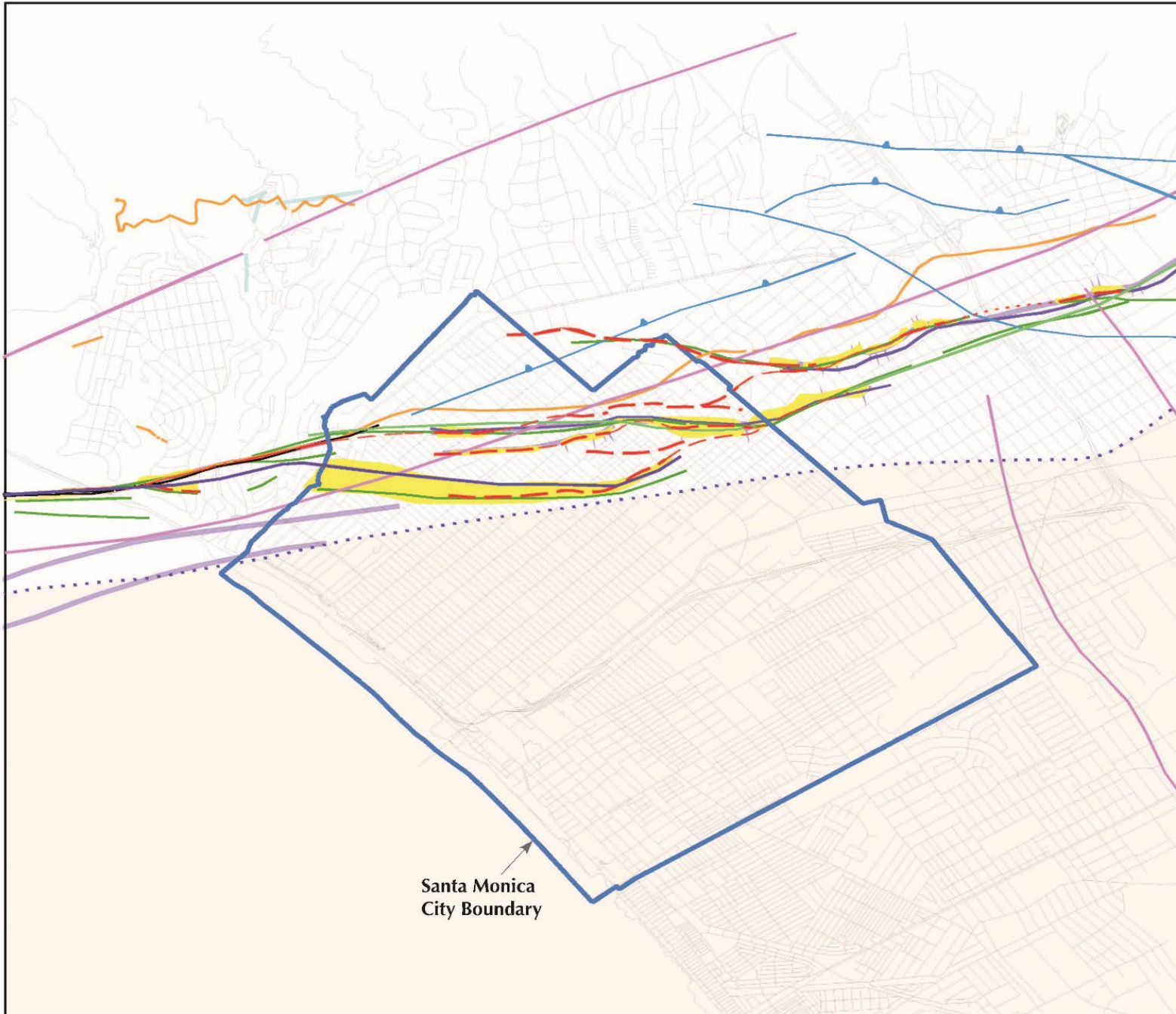


# Geologic and Seismic Hazards

- Slope Failures (including Landslides)
- Coastal Erosion
- Collapsible Soils
- Expansive Soils
- Subsidence
- Seismic Related Effects
  - Fault Rupture
  - Ground Shaking
  - Liquefaction



# Seismic Risks



## MAPPED FAULTS

- CGS (2018a, 2018b)**  
Long dash where approximately located, short dash where inferred, dotted where concealed. Refer to Plate 1-3 also.
- Catchings et al. (2008)**  
Approximate location of fault in the near surface (upper +/- 200 feet).
- USGS and CGS (2006, accessed 2022)**  
Solid line where well constrained, dotted where inferred.
- Kenney Geosciences (2016)**  
Undifferentiated active and potentially active fault.

- Yerkes and Campbell (2005)**  
Active and potentially active fault. Dotted where concealed.
- Crook and Proctor (1992)**  
Undifferentiated active and potentially active fault.
- Dibblee (1991a, 1991b)**  
Dotted where concealed, queried where existence is doubtful.
- Lang and Dressen (1975)**  
Undifferentiated active and potentially active fault.
- Hoots and Kew (1931)**  
Undifferentiated active and potentially active fault.

## MAPPED SCARPS, FOLDS, THRUSTS and LINEAMENTS

- Dolan and others (1997)**  
Geomorphic scarps interpreted as fault- or fold-controlled. In areas of young alluvium where there are no scarps, dots are used to infer where faults extend below alluvium.
- SCEC Community Fault Model (2022)**
  - Fault trace
  - Bind Thrust
  - Thrust ramp

- SM Fault zone designated in 2018
- More than 20 fault studies prepared since designation, and none have yet to find evidence of an active recent fault.
- Utilities and major transportation corridors, Franklin Elementary, cross through SM fault zone

# Geologic/Soils – Initial Assessment

Santa Monica is at risk for strong ground shaking and potential fault rupture

- Presence of near-source faults extending near or through City including Santa Monica, Malibu Coast, Anacapa-Dume, Newport-Inglewood, Palos Verdes, and Compton Blind
- Also faults capable of producing large earthquakes including San Andreas Fault and San Jacinto Faults, with high probability earthquake in the next few years

Most susceptible populations to earthquake effects are renter populations in soft-story buildings not retrofitted

As of May 2023, 44% (865 cases) Seismic Retrofit cases remain open since Seismic Retrofit Ordinance 2017

# Flooding

- Inland Flooding from storms
- Dam Failure (City of LA Stone Canyon & Riviera Dams)
- Above-Ground Reservoir Failure
- Tsunami
- Coastal Flooding



Damage from the 1938 flood at Santa Monica Canyon



Localized flooding from rainstorms

# Flood Hazard Map Santa Monica, California


## Explanation

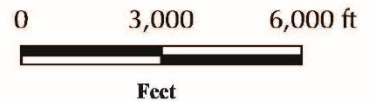
### FEMA Flood Insurance Rate Zones

#### High Risk Areas (Special Flood Hazard Areas)

- A** Zone A: The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
- AE** Zone AE: The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone, either at cross section locations or as static whole-foot elevations that apply throughout the zone.
- AH** Zone AH: The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
- AO** Zone AO: The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
- VE** Zone VE: The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.

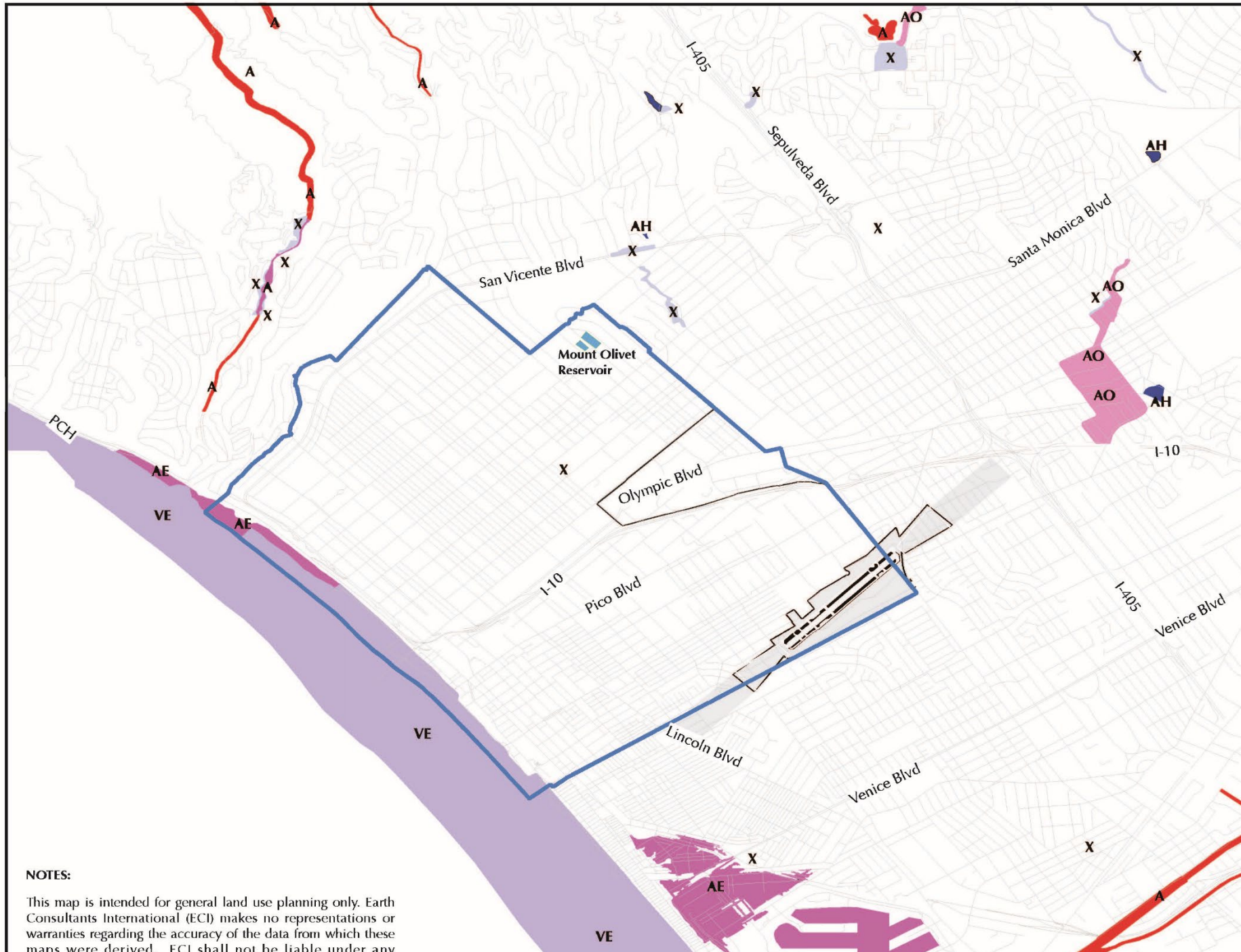
#### Other Areas of Flood Hazard

- X** Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.
- X** Unshaded Zone X: Areas of minimal flood hazard.
-  Santa Monica City Boundary



Scale: 1:30,000

Base Map: Extracted from CloudMade data, derived from OpenStreetMap community ([www.openstreetmap.org](http://www.openstreetmap.org)) and downloaded from MapCruzin ([www.mapcruzin.com](http://www.mapcruzin.com)) on 1/08/2019.  
Sources: Federal Emergency Management Agency, downloaded 2/2023, Los Angeles County and City of Santa Monica




### NOTES:


This map is intended for general land use planning only. Earth Consultants International (ECI) makes no representations or warranties regarding the accuracy of the data from which these maps were derived. ECI shall not be liable under any

# Tsunami Hazards Map

## Santa Monica, California

### Explanation

 City of Santa Monica Boundary

 Los Angeles County Tsunami Hazard Area

(California Department of Conservation, Los Angeles County, Tsunami Hazard Areas, <https://www.conservation.ca.gov/cgs/tsunami/maps/los-angeles>)

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# Flooding – Initial Assessment

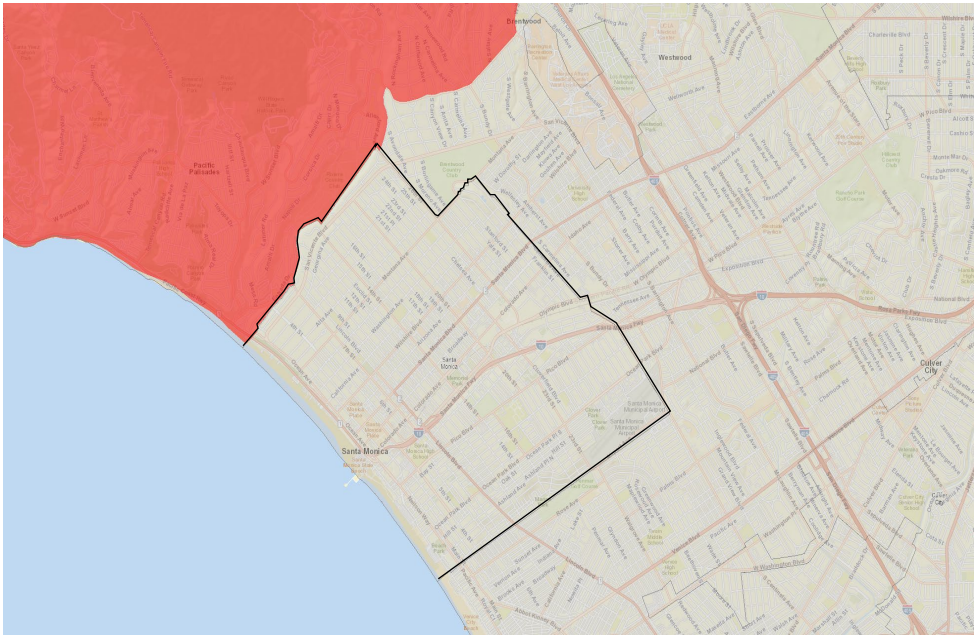
## Moderate flood risk in Santa Monica

- FEMA indicates coastal areas as within 100 and 500 year flood zones
- Climate change will exacerbate sea level rise and storm effects
- Water storage facilities in the City (Mt Olivet) and City of Los Angeles could lead to flooding if damaged following an earthquake
- Localized urban flooding during storms (such as atmospheric river events) is a problem if inadequate drainage infrastructure

## Coastal populations susceptible to flooding

# Fires

No fire hazard zones within City boundaries



Nearby wildfire zones are to the north (Pacific Palisades and Santa Monica Mountains)



Smoke from wildfires is most significant concern, particularly to sensitive populations



# Fires - Initial Assessment

Urban fire risks are relatively low



In 2022, less than 3% SMFD calls were related to fires

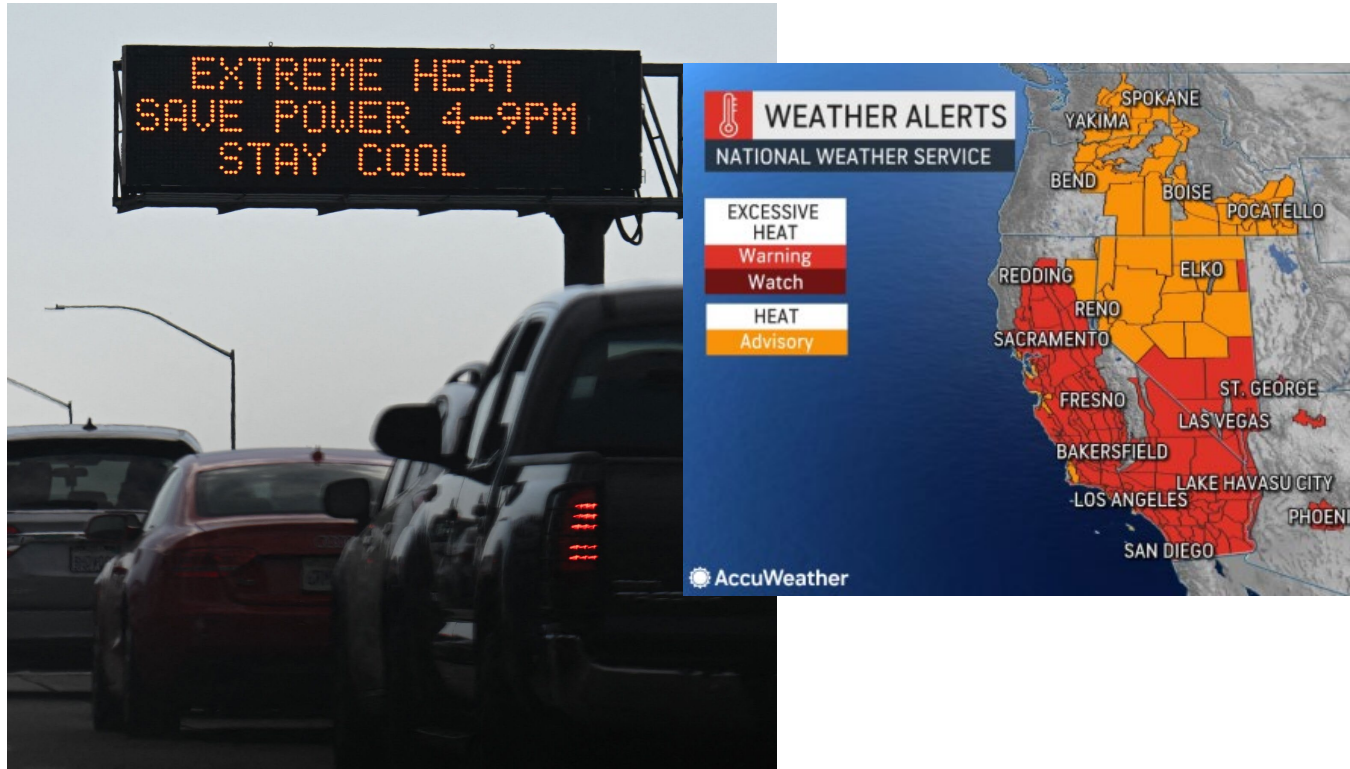
Seniors, children, unhoused populations, outdoor workers, and immunocompromised individuals at greatest risk from smoke

# Climate Change Effects

- Extreme Heat
- Wildfires
- Drought
- Severe Weather Events (Rain)
- Sea Level Rise and Coastal Flooding



# Climate Change Effects



## Record high temperatures continue to bake the West. Here's how days of extreme heat are impacting life

By Dakin Andone, CNN  
Updated 7:53 PM EDT, Tue September 6, 2022



**In pictures: The West's record-setting heat wave**  
1 of 16  
A girl sprays herself with water to cool off during a Los Angeles Angels baseball game against the Detroit Tigers in Anaheim, California, on Wednesday, September 7. The heat wave scorching California may be one of the worst on record for the state.

(CNN) — More than 50 million people across the American West are under heat alerts Tuesday, as a prolonged heat wave continues to grip the region, prompting record high temperatures and upending daily life.

Californians have been warned to prepare for rolling blackouts and asked to conserve energy. Wildfires have ripped through the region, forcing people to evacuate their homes and businesses. And a

Extreme heat is one of the most immediate felt consequences of climate change. In 2022, record breaking temperatures were set in many California cities including Sacramento and San Jose.

# Climate Change – Initial Assessment

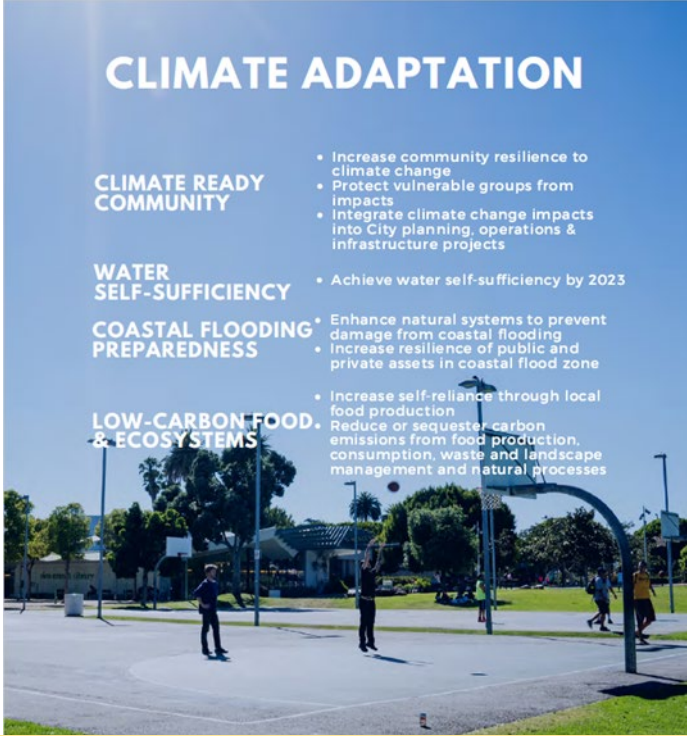
Complement and build upon the climate action and adaptation strategies in the City's CAAP

## CLIMATE ACTION



- ZERO NET CARBON BUILDINGS**
  - Achieve 100% renewable grid electricity
  - Install 100 MW of local solar energy
  - Reduce fossil fuel use 20% in existing buildings
  - Discourage fossil fuels in new buildings
- ZERO WASTE**
  - Divert 95% of materials from landfills
- SUSTAINABLE MOBILITY**
  - Convert 50% of local trips to foot, bike, scooter & skateboard
  - Convert 25% of commuter trips to transit
  - Convert 50% of vehicles to electric or zero emission

## CLIMATE ADAPTATION

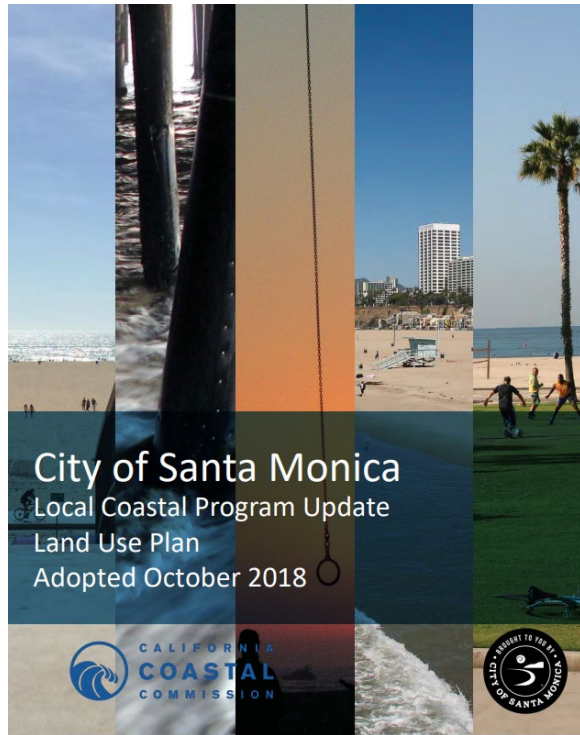


- CLIMATE READY COMMUNITY**
  - Increase community resilience to climate change
  - Protect vulnerable groups from impacts
  - Integrate climate change impacts into City planning, operations & infrastructure projects
- WATER SELF-SUFFICIENCY**
  - Achieve water self-sufficiency by 2023
- COASTAL FLOODING PREPAREDNESS**
  - Enhance natural systems to prevent damage from coastal flooding
  - Increase resilience of public and private assets in coastal flood zone
- LOW-CARBON FOOD & ECOSYSTEMS**
  - Increase self-reliance through local food production
  - Reduce or sequester carbon emissions from food production, consumption, waste and landscape management and natural processes

Vulnerable communities include low-income, unhoused, and historically impacted populations (e.g. households near I-10 freeway)

# Climate Change – Initial Assessment

Incorporate and supplement the sea level rise and coastal hazard strategies in the 2018 Local Coastal Program Land Use Plan



Source: Climate Central

Vulnerable communities to sea level rise include land uses within the coastal zone

# Hazardous Materials Exposure

- Discharges into Storm Drains
- Toxic Releases Inventory
- Hazardous Materials Disclosure Program
- Hazardous Materials Incident Response
- Leaking Underground Tanks
- Water and Air Quality
- Emissions into Air and Ocean



# Hazardous Materials Site Map

## Santa Monica, California



### Explanation

- City of Santa Monica Boundary
- Faults (CGS, 2018)

### Critical Infrastructure

- ⊕ Hospitals
- ★ Fire Stations
- Crude Oil Pipeline
- Roads

### HazMat Sites

#### Toxics Release Inventory (TRI) Sites

(EPA's database: <https://www.epa.gov/toxics-release-inventory-tri-program>)

- Open

#### Resource Conservation and Recovery Act Large Quantity Sites

(EPA's database: <https://siteportal.calepa.ca.gov/nsite/map/help> and <https://rcrapublic.epa.gov/rcrainfoweb/action/modules/hd/handlerindex>)

Additional non-RCRA sites in Santa Monica were shared with us by City officials)

- ▲ RCRA
- ▲ non-RCRA

#### Leaking Underground Storage Tanks (LUSTs) Sites

(GeoTracker: <http://geotracker.swrcb.ca.gov/>)

- ◆ Open
- ◊ Closed
- ◊ Permitted

#### Cleanup Program Sites (GeoTracker: <http://geotracker.swrcb.ca.gov/>)

- Open
- Closed

#### Waste Discharge Requirement (WDR) Sites

(GeoTracker: <http://geotracker.swrcb.ca.gov/>)

- ✱ Open
- ✱ Closed

#### Land Disposal Site (GeoTracker: <http://geotracker.swrcb.ca.gov/>)

- Closed

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Project Number: 4205  
Date: March 2023

## Plate 6-2



Projection and Scale: WGS84, 1:18,000  
Basemap Source: Google Earth Satellite Imagery and Roads

# Hazardous Materials – Initial Assessment

Soil and groundwater contamination is a concern, particularly along “Auto Row”, in former industrial areas, and the Bergamot Area



Workers and nearby sensitive populations at greatest risk during soil disturbance at contaminated sites



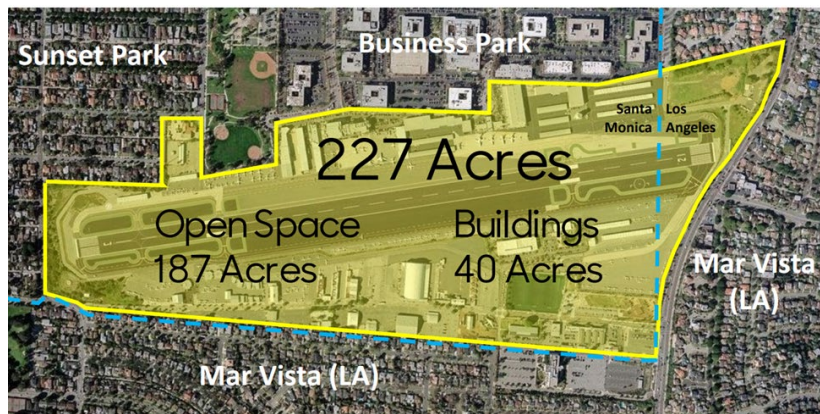
# Airport-Related Hazards

- Aircraft-Related Incidents
- Noise
- Hazardous Materials

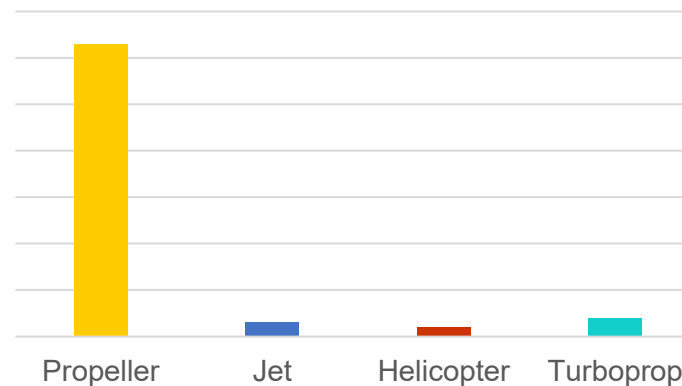


# Airport Hazards – Initial Assessment

With anticipated SMO closure in 2028, hazards such as aircraft-related incidents and noise will cease; however, contamination will need to be considered for future land use



2022 SMO Flight Operations



In 2022, SMO recorded 72,039 flight operations (i.e., departures, arrivals), with propeller aircraft accounting for more than 87% of these

Nearby households currently at greatest risk of aircraft-hazards

# Disaster Preparedness



Natural Disasters  
(storms, floods, earthquakes,  
floods, heat waves, wildfires)



Acts of Terrorism



Public Health Crisis

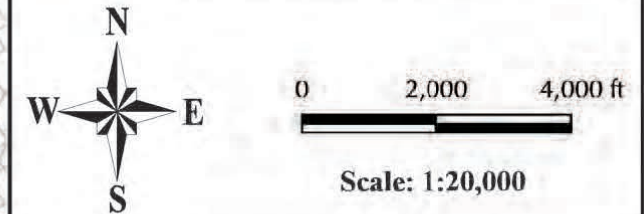


Disruptions in Infrastructure or Services

# Critical Facilities Santa Monica, California

## Explanation

-  Hospital/ Medical Center
-  Police Station, Fire Administration & Primary Emergency Operations Center
-  Secondary Emergency Operations Centers
-  Fire Station
-  Fire Training Academy
-  CalFire Facilities for Wildland Fire Protection
-  City Hall
-  Library
-  Police Activities League Gymnasium
-  Youth Recreational Facilities
-  School
-  Reservoir
-  Santa Monica City Boundary



Base Map: Extracted from CloudMade data, derived from OpenStreetMap community ([www.openstreetmap.org](http://www.openstreetmap.org)) and downloaded from MapCruzin ([www.mapcruzin.com](http://www.mapcruzin.com)) on 1/08/2019.

Sources: Modified from Data Provided by the City of Santa Monica.



Project Number: 4205

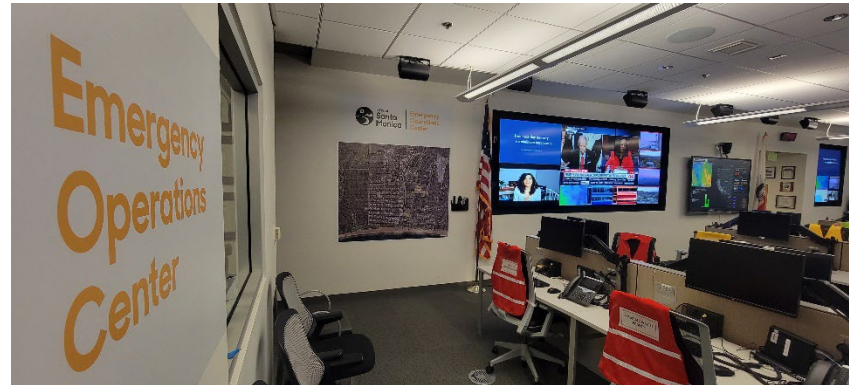


### NOTES:

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# Disaster Preparedness – Initial Assessment

Coordinate with OEM on the LHMP update to identify emergency preparedness and response mitigation policies and actions



Improve accessibility of community resources, investments, and services to vulnerable communities

# Safety Element Update Timeline



# Safety Element Update

Continued Inter-Departmental Coordination with:

- Office of Emergency Management
- Public Works
- Building and Safety
- Fire Department
- Airport
- Office of Sustainability and Environment

# Questions for Discussion

- 1. What are the priority safety concerns as a result of hazards in the built and natural environment in Santa Monica?**
- 2. What other gaps in information should be considered and reviewed in the update?**
- 3. What goals and strategies should the City adopt to create a safer and resilient community for all?**