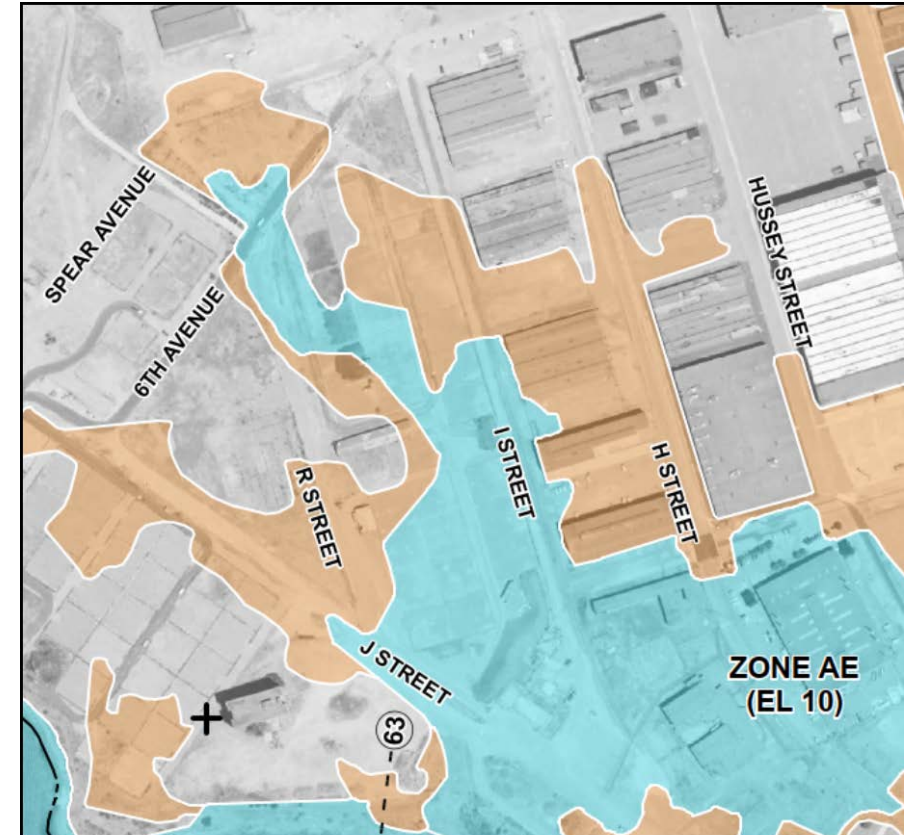


Floodplain Management Ordinance Amendment

Brian Strong, Chief Resilience Officer, Office of Resilience and Capital Planning
City and County of San Francisco
July 13, 2020

Overview

- City participates in National Flood Insurance Program (NFIP)
- FEMA is finalizing Flood Insurance Rate Map (FIRM)
- City must amend its Floodplain Management Ordinance to:
 - Adopt the new FIRM
 - Comply with NFIP requirements
- Amendment must be adopted before FIRM is effective – February 2021



2019 preliminary FIRM for San Francisco showing flood hazards at Hunters Point

National Flood Insurance Program



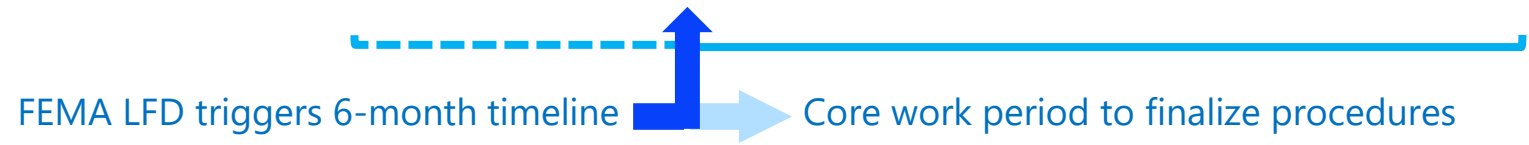
- Nationwide program managed by FEMA
 - Reasonably priced flood insurance
 - In exchange, community must adopt a floodplain management ordinance
 - Community can adopt requirements that are more restrictive than NFIP
 - Community participation is voluntary
- FEMA publishes FIRMs showing flood hazards
 - Insurance companies use FIRM data for flood insurance policy ratings
 - Communities must use FIRM for floodplain management

Past Actions Timeline

- **2007:** FEMA issues preliminary FIRM showing flood hazards; never finalized
- **2008:** City adopts Floodplain Management Ordinance and joins NFIP
- **2010:** City amends ordinance based on input from FEMA
- **2015:** FEMA completes analyses and issues new preliminary FIRM for review
- **2016:** City appeals preliminary FIRM based on analysis of waterfront piers
- **2019:** FEMA resolves appeal and issues revised preliminary FIRM
- **2020:** FEMA provides period to appeal revised preliminary FIRM; no appeals

Schedule Moving Forward

	2020						2021		
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
FEMA to deliver Letter of Final Determination (LFD) August 2020 target									
Maps Become Effective 6 months after LFD February 2021 target									



Flood Insurance Rate Map

- Based on analyses of San Francisco Bay and Pacific Ocean
 - Shows coastal flood hazards only (does not consider SLR)
 - Does not show flood hazards from stormwater runoff (SFPUC has mapped these hazards separately)
- FIRM Shows flood hazards for the following areas:
 - Port of San Francisco
 - Redevelopment areas – Mission Bay, Hunters Point, Candlestick
 - Treasure Island
 - Ocean Beach
 - San Francisco International Airport

Flood Insurance Rate Map



FEMA FIRM: SPECIAL FLOOD HAZARD AREAS

COASTAL INUNDATION FROM BAY/OCEAN

>1 FOOT FLOODING
FROM 1% CHANCE/100-YEAR STORM



GOING INTO EFFECT 2021

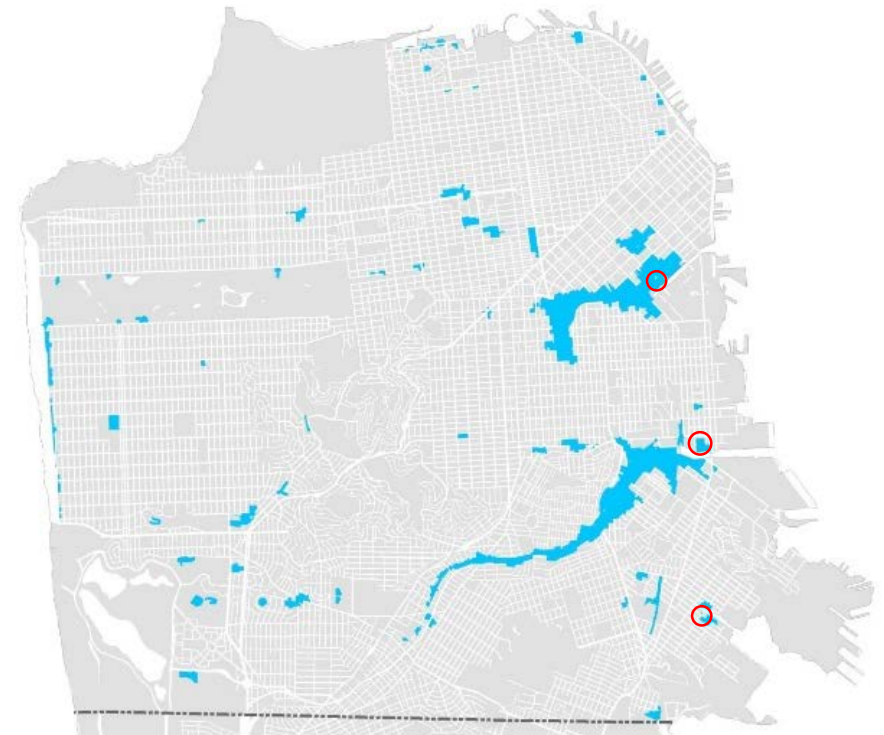
~ 200 PARCELS*/400 ACRES



SFPUC 100-YEAR STORM FLOOD RISK MAP

STORM RUNOFF ONLY

>6 INCH 'DEEP AND CONTIGUOUS' FLOODING
FROM 100-YEAR RAIN EVENT



ADOPTED 2018

~ 2100 PARCELS/920 ACRES

○ = OVERLAPS

Flood Hazard Zones

- Special Flood Hazard Areas (SFHAs)
 - Inundation due to 1% annual chance (i.e. “100-year”) flood
 - Represents coastal flooding with waves less than 3 feet high
 - Shown on FIRM as Zone AE
 - Shows Base Flood Elevation (BFE) – water level during 1% annual chance flood
 - Building construction/renovations in SFHAs must comply with flood provisions of building code
 - Flood insurance is only required for buildings in SFHAs that have federally backed/regulated mortgages
- Other flood hazard zones shown on the FIRM:
 - Zone VE: coastal high hazard areas with waves greater than 3 feet high; doesn’t extend inland of shoreline
 - Zone X (shaded): 0.2% annual chance (“500-year”) floodplain; informational purposes only
 - Zone X (unshaded): minimally flood prone areas
 - Insurance rates are lowest in Zone X, applies to the majority of San Francisco
 - Zone D areas:
 - Port waterfront piers only
 - Area of possible, but undetermined flood hazard
 - Floodplain management and insurance requirements do not apply
 - Insurance rates are higher than Zone X, lower than in Zone AE

Downtown Waterfront Area



“Shaded” Zone X
2% annual chance (500-year) floodplain

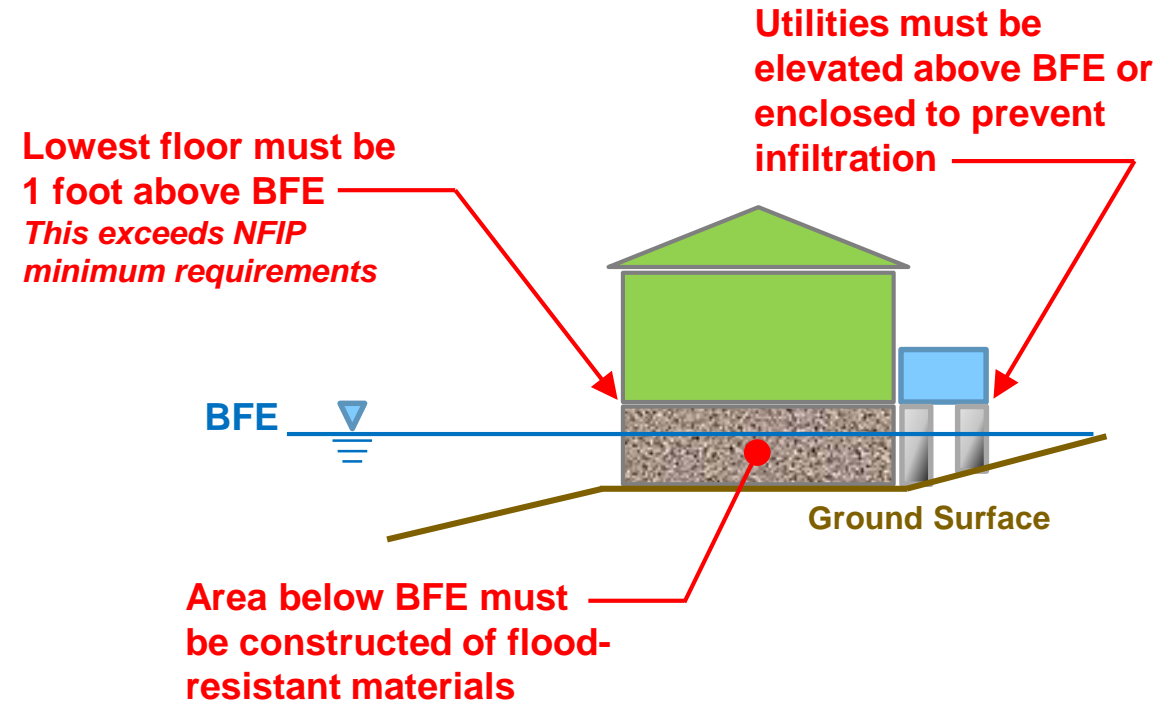
Zone D
Possible but undetermined flood hazard
shown on piers only

Zone AE
1% annual chance floodplain
Wave heights < 3 feet

“Unshaded” Zone X
Areas of minimal flood risk

Floodplain Management Ordinance

- Incorporates min. requirements of NFIP
- In SFHAs, requires flood-resistant construction for:
 - New buildings
 - Substantial improvements – renovation/repair for which cost exceeds 50% of market value of structure
- Incorporates San Francisco Building Code and California Building Code (CBC) by reference
- CBC includes flood-resistant construction provisions that exceed NFIP requirements
- Amendment does not change floodplain management requirements/CBC provisions



CBC Flood-Resistant Construction Provisions
(not comprehensive)

Questions?

Brian Strong, Chief Resilience Officer and Director
Office of Resilience and Capital Planning

Chris Barkley, West Region Market Sector Leader,
AECOM

Rebecca Benassini, Real Estate & Development
Port of San Francisco,

Ann-Ariel Veccio, Principal Planner and Consultant for Sewer System Improvement Program
Parsons

Sarah Minick, Utility Planning Division Manager
San Francisco Public Utilities Commission

Sandra Hamlat, Principal Resilience Analyst
Office of Resilience and Capital Planning

Northern Waterfront

Zone VE
*Coastal flood hazards with waves > 3 feet
do not extend inland of shoreline*



Zone D
*Possible but undetermined flood hazard
shown on piers only*

“Unshaded” Zone X
Areas of minimal flood risk

Downtown Waterfront Area



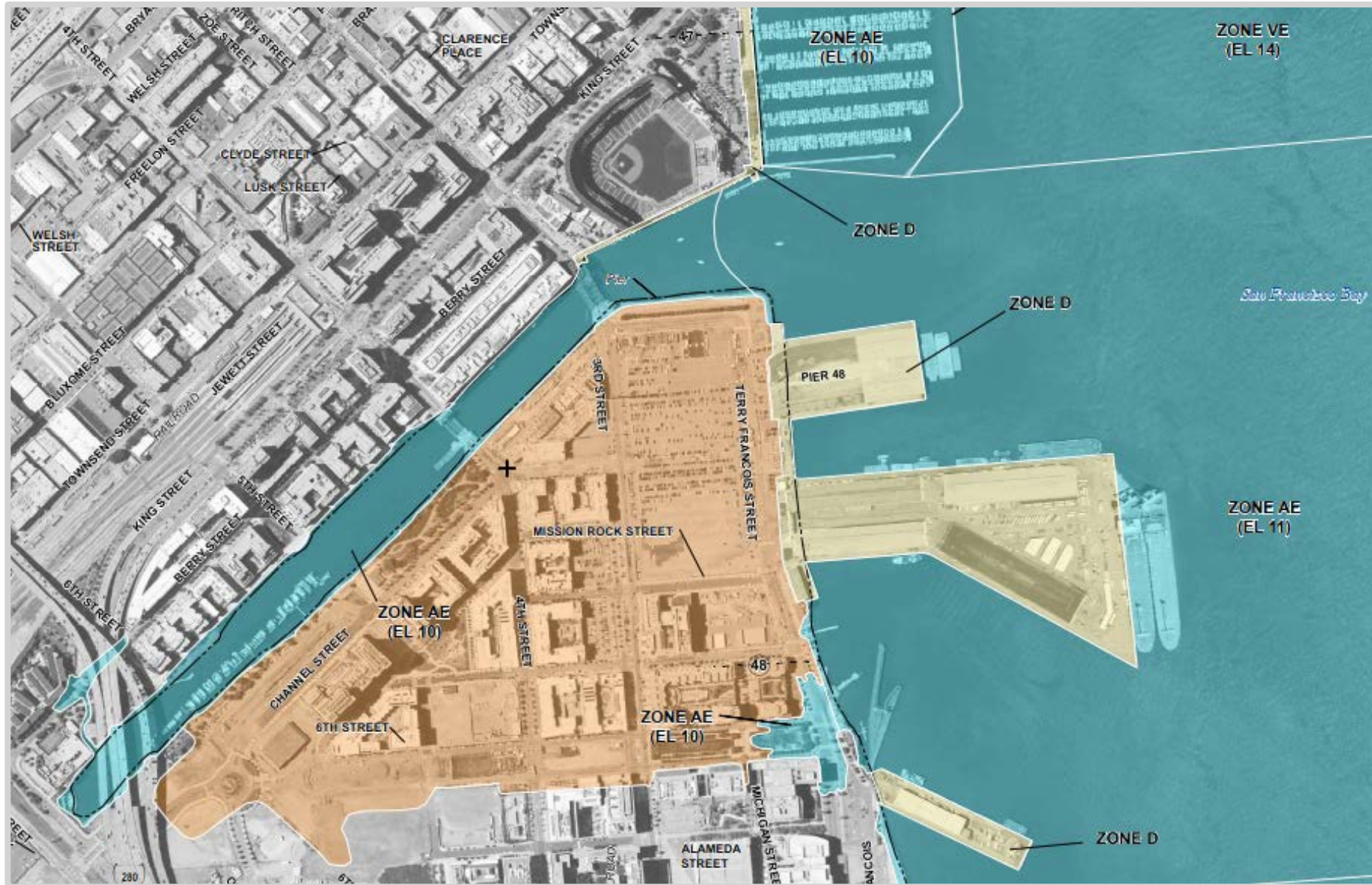
“Shaded” Zone X
2% annual chance (500-year) floodplain

Zone D
Possible but undetermined flood hazard
For CCSF, shown on piers only

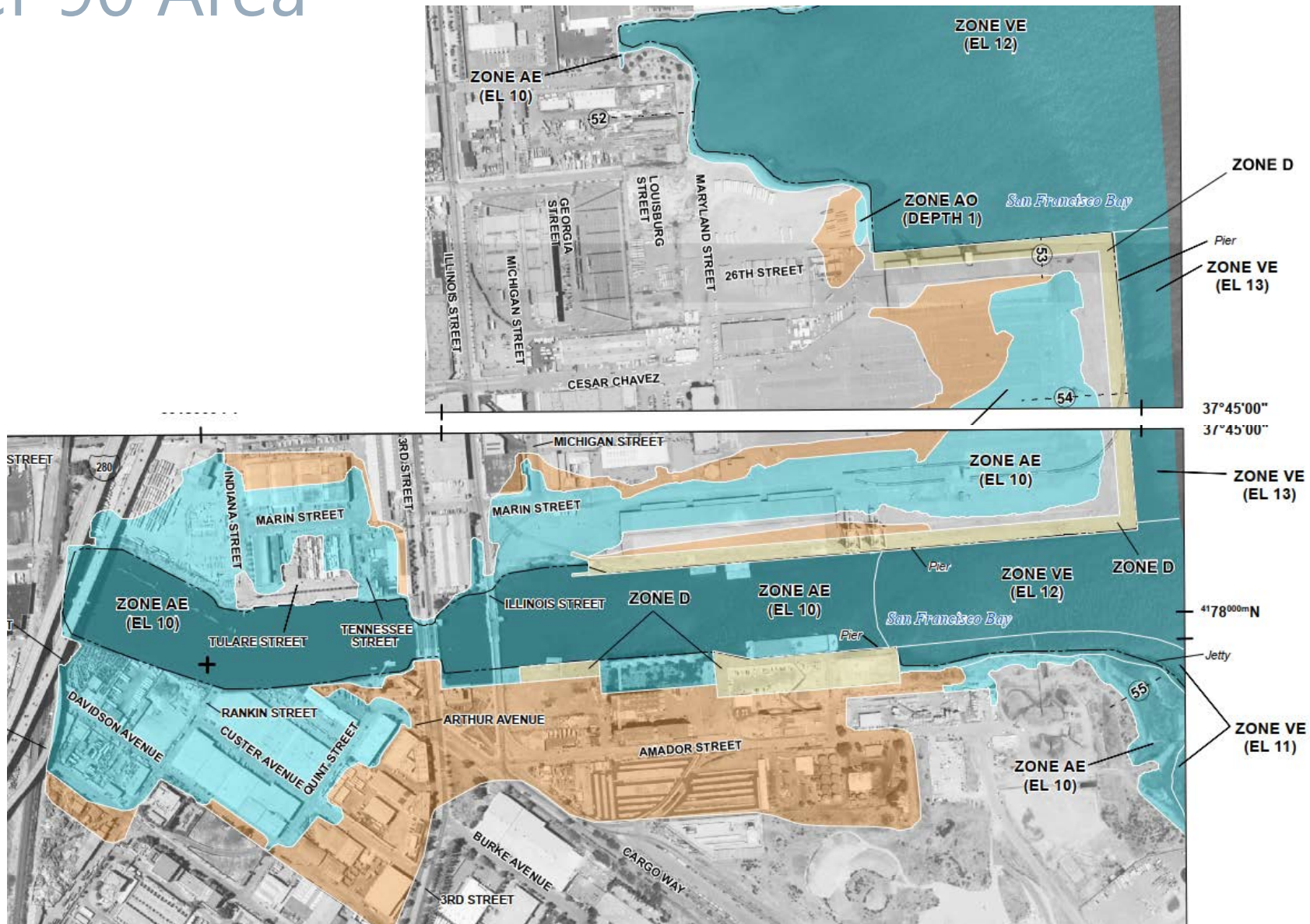
Zone AE
1% annual chance floodplain
Wave heights < 3 feet

“Unshaded” Zone X
Areas of minimal flood risk

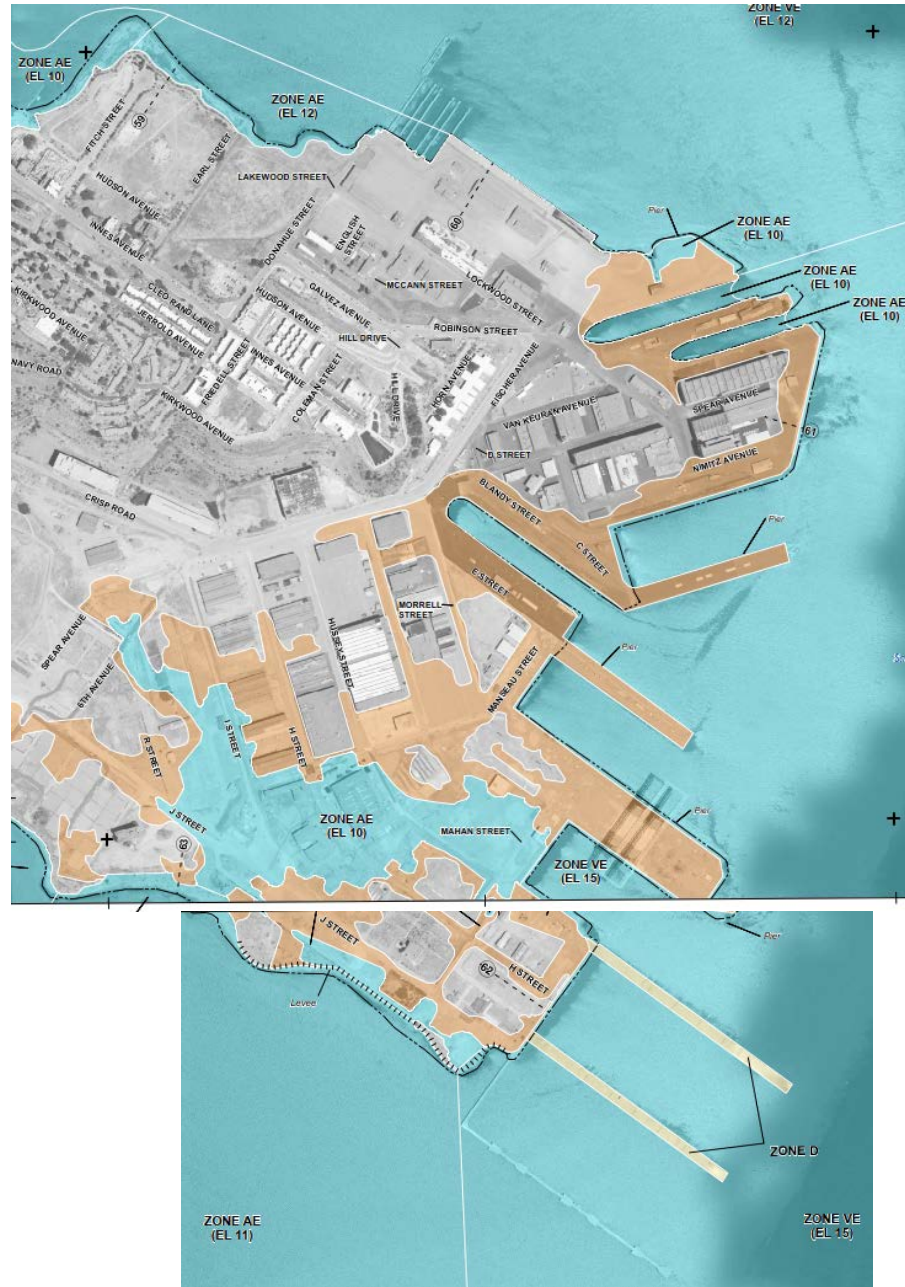
Mission Bay Area



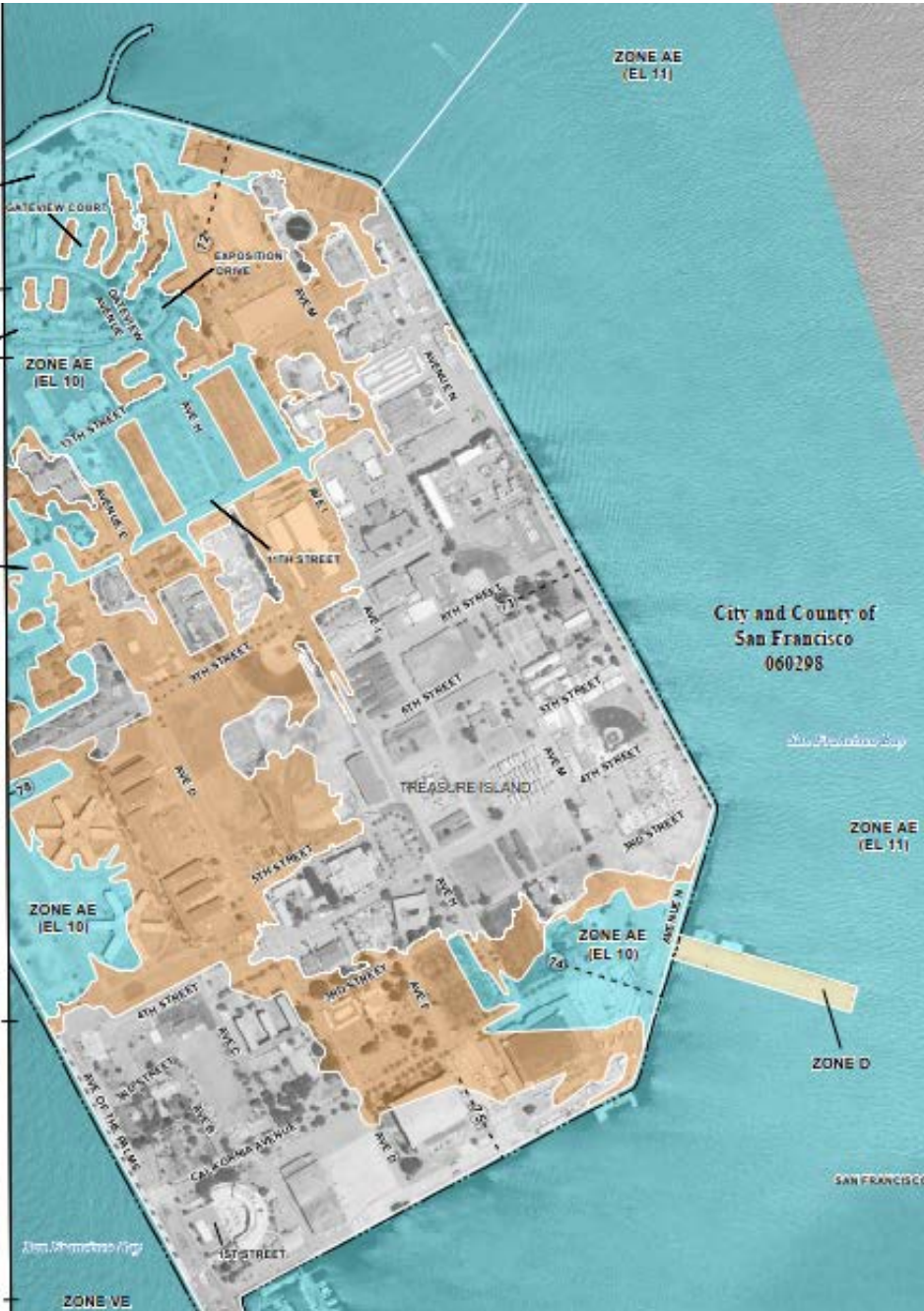
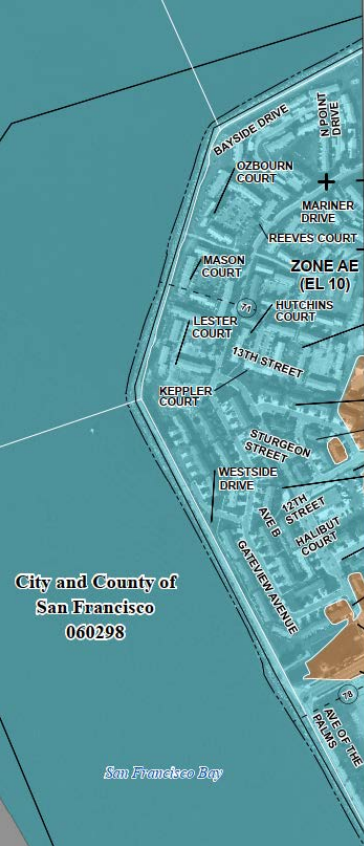
Pier 90 Area



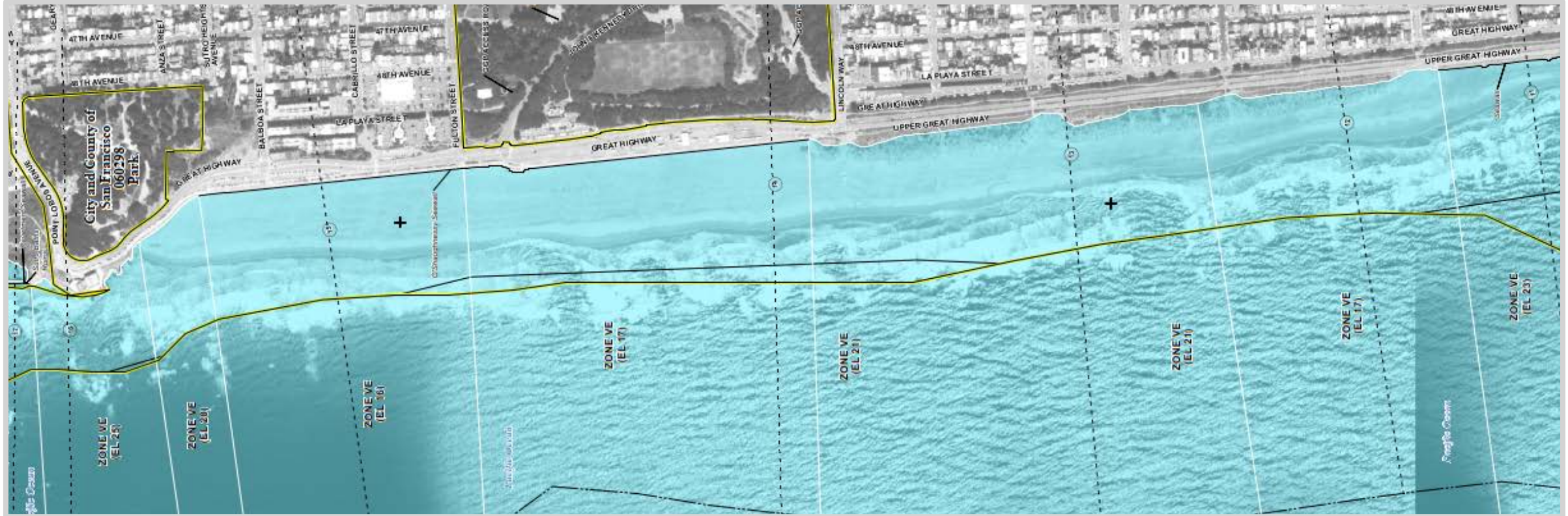
Hunters Point



Treasure Island



Ocean Beach



Airport

