National Flood Insurance Program (NFIP) and Flood Insurance Rate Map (FIRM) City and County of San Francisco October 22, 2007
Flood Insurance Rate Map (FIRM)

- FEMA manages the NFIP using a nationwide system of flood maps.
- The FIRM:
  - Shows areas with 1% annual chance of flooding (100-year flood)
  - Includes bay and coastal flood hazards
  - Reflects current conditions
  - Does not reflect future conditions, such as sea level rise due to climate change
- Used as the basis for:
  - Insurance rating
  - Local floodplain management ordinance
Flood Zones

• Flood zones shown on the preliminary FIRM for San Francisco:
  – Zone A: Area of coastal flooding with no wave hazard, or waves less then 3 feet in height
  – Zone V: Area of coastal flooding subject to wave hazards
  – Zone X: minimally floodprone
Flood Zones on Preliminary FIRM
North Waterfront

Pier 45
Pier 27
Flood Zones on Preliminary FIRM
Mission Bay Area

Sixth Street Off-Ramp

AT&T Park
Flood Zones on Preliminary FIRM
Hunters Point/Candlestick Area

City and County of San Francisco
060298

SAN FRANCISCO BAY

ZONE V

ZONE X

Zone A

ZONE X

ZONE V

Candlestick Park
Flood Zones on Preliminary FIRM
Treasure Island
Flood Zones on Preliminary FIRM
Pacific Shoreline

Great Highway

Fort Funston
Basic Requirements

• New and substantially improved structures in flood zones must be:
  – Elevated to or above flood elevation
  – Designed below flood elevation to resist flood damage
Protection of Structures in Zone A

Residential Structures

Lowest floor of living space must be at or above flood elevation

Flood Elevation

Ground Elevation

Area below flood elevation must be constructed of flood-resistant materials
Protection of Structures in Zone A

Commercial Structures

May be “floodproofed” to or above flood elevation

Flood Elevation

Ground Elevation

Area below flood elevation must be watertight
Protection of Structures in Zone V

**All Structures**

- Lowest horizontal member must be at or above wave height
- Wave Height Elevation
- Ground Elevation
- Walls below wave height elevation must be constructed of breakaway materials
Basic Requirements

• No new construction or substantial improvement seaward of mean high tide in Zone V

Pier 27-31 Area
Strategies for Addressing Piers

- Variances can be implemented for:
  - Historic structures
  - “Functionally dependent” uses, e.g. maritime uses requiring proximity to water

- FEMA may consider map change to remove Zone V designation based on height of waves and structural integrity of piers
Implementation of Ordinance

- Identify structures/parcels located in flood zones
- Incorporate elevation requirements into permitting process for new or substantially improved structures
- Check design details for:
  - Proper elevation
  - Use of flood-resistant materials
  - Proper design/calculations for floodproofing
- Require preparation/submittal of Elevation Certificates documenting lowest floor elevations
Implementation of Ordinance

- City Administrator will serve as floodplain administrator
- City Attorney preparing floodplain management ordinance based on minimum NFIP criteria
- Procedures to be developed through collaboration among:
  - DBI
  - Planning
  - PUC
  - SFO
  - DPW
  - Port
  - Redevelopment
  - Treasure Island Project Office
Questions Regarding the FIRM and the NFIP:

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