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# City of Long Beach

## Natural Hazards Mitigation Plan

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### DMA 2000

- Disaster Mitigation Act of 2000 streamlined the delivery and utilization of disaster recovery assistance.

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## 1989 Loma Prieta Earthquake

FEMA Public Assistance:  
\$867 million



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## 1992 Hurricane Andrew

FEMA Public Assistance:  
\$1.8 billion

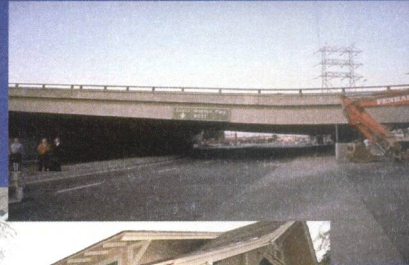


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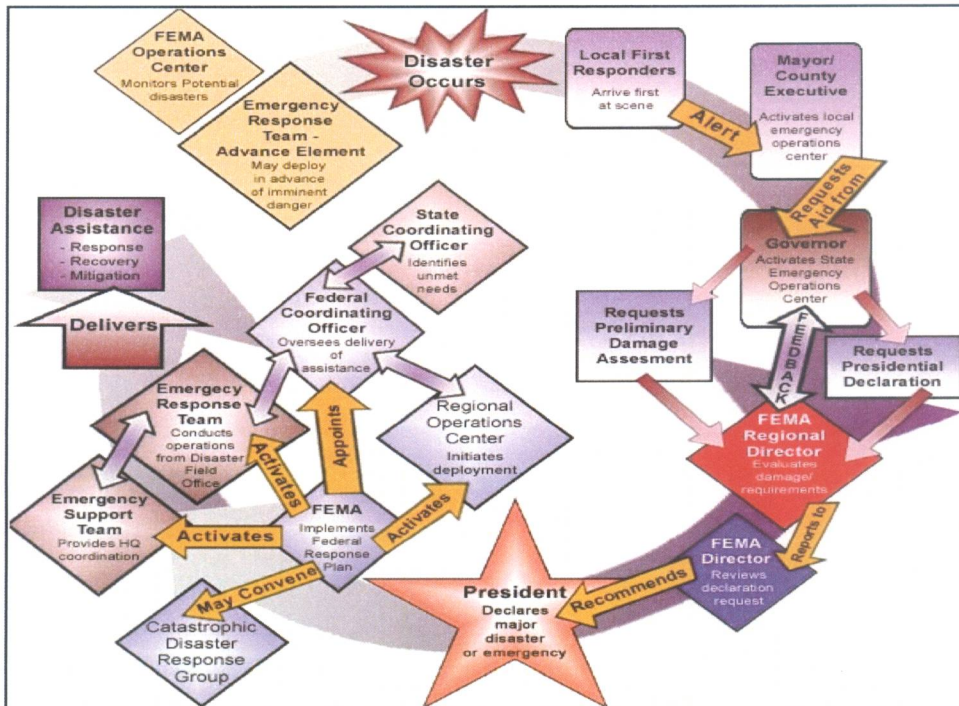


# 1994 Northridge Earthquake

FEMA Public Assistance:  
\$7 billion



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## What is Mitigation?

- FEMA defines Mitigation as:
  - Sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their secondary effects.

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## Mitigation Measures Prevention

- Land Development Regulations
- Open Space Preservation
- Planning and Zoning Regulations
- Storm Water Management

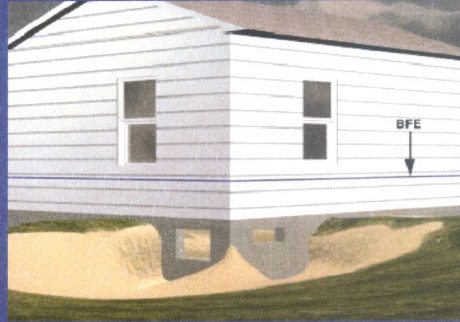
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## Mitigation Measures Property Protection

- Acquisition
- Relocation
- Rebuilding
- Floodproofing



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## Mitigation Measures Public Education & Awareness

- Inform people about hazards and how they can reduce damages and injury
- Directed toward property owners, businesses and visitors



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## Mitigation Measures Natural Resource Protection

- Erosion and sediment control
- Wetlands protection



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## Mitigation Measures Emergency Services

- Protection of warning capability
- Protection of critical facilities
- Protection of infrastructure needed for emergency response capability



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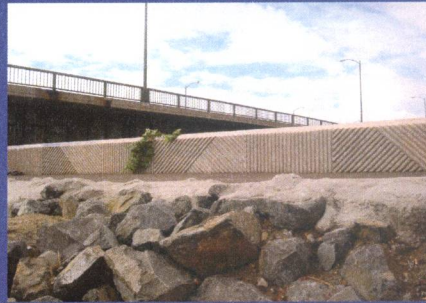




## Mitigation Measures Structural Projects

Directly protect people and property  
Involve construction of man-made structures to  
control hazards

- Levees, floodwalls and seawalls
- Reservoirs
- Diversions
- Channel modifications
- Storm drains



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## Mitigation Planning Process

- Step #1: Organize Resources
  - Public Participation
- Step #2: Assess Risks
  - Identify Hazards and Vulnerability
- Step #3: Develop a Mitigation Plan
  - Develop Goals and Action Items
- Step #4: Implement the Plan
  - Adopt the Plan
  - Implement the Plan
  - Update the Plan

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## Step #1: Public Participation


Approach:

- Surveys distributed throughout the City to staff and residents
- 700 Completed Surveys

Results:

- Earthquakes are greatest concern

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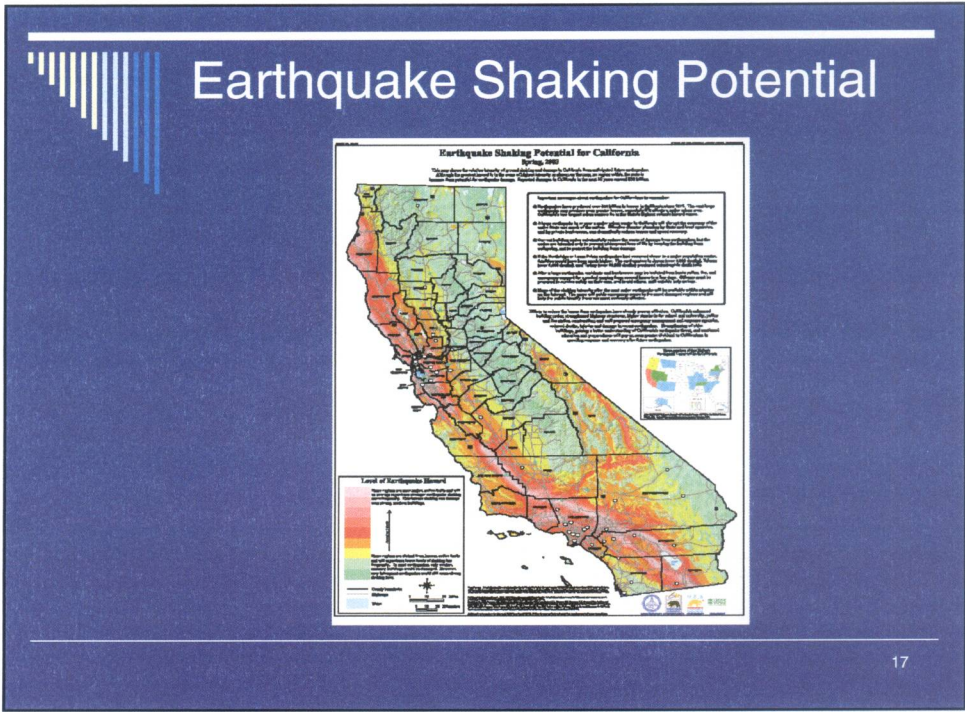


## Identify Natural Hazards

- Earthquakes
- Flooding
- Windstorms
- Earth Movement
- Tsunami

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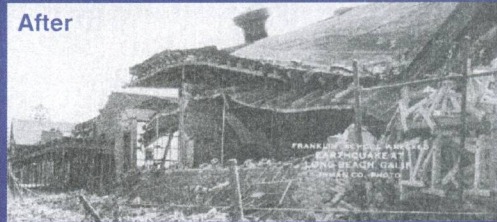
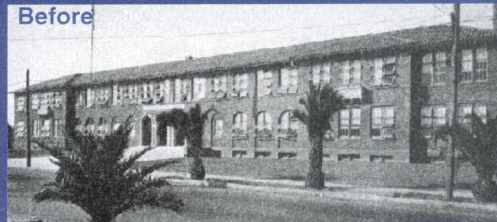






## 1933 Long Beach Earthquake

- Magnitude 6.4
- March 10, 1933
- 5:55pm
- 120 deaths
- \$50 million in damages (1933 dollars)

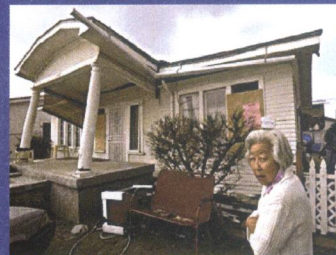


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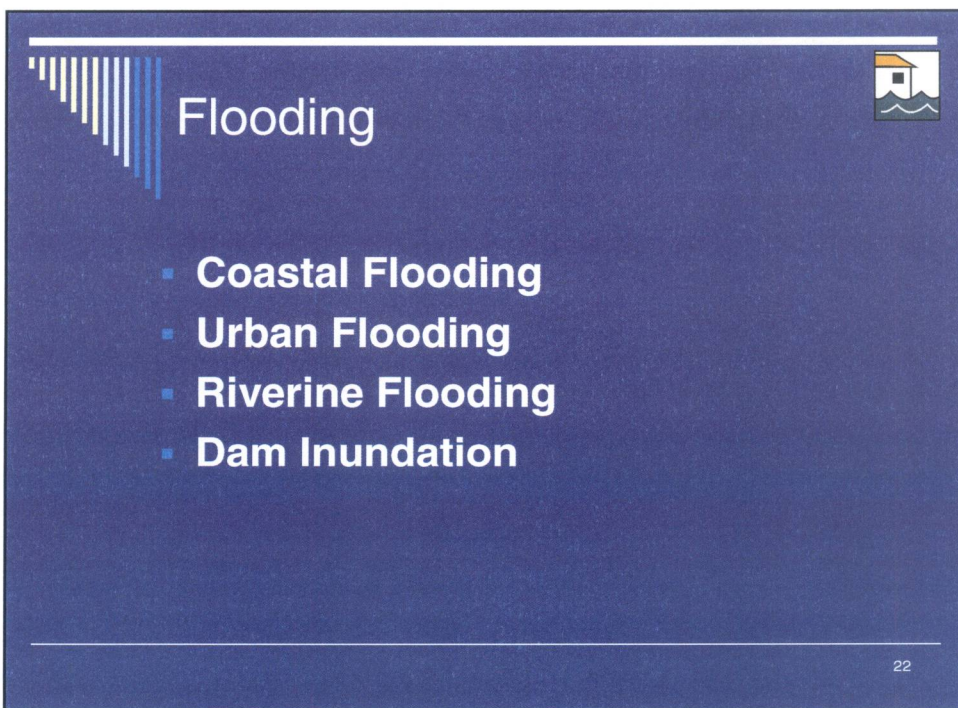
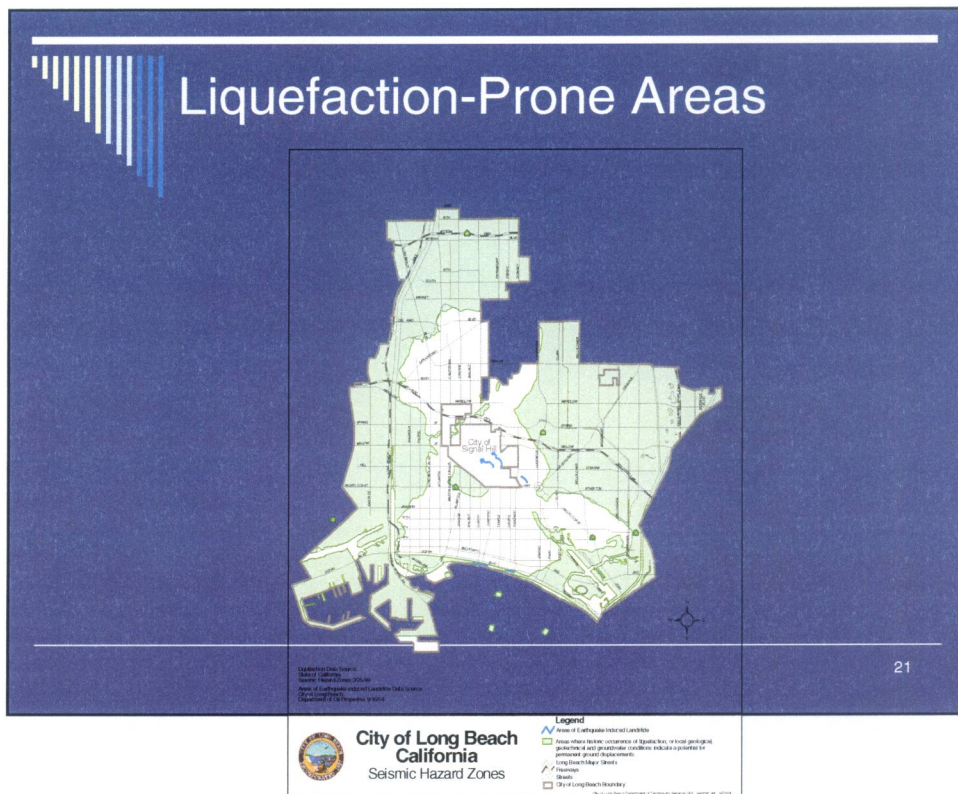
## 1994 Northridge Earthquake

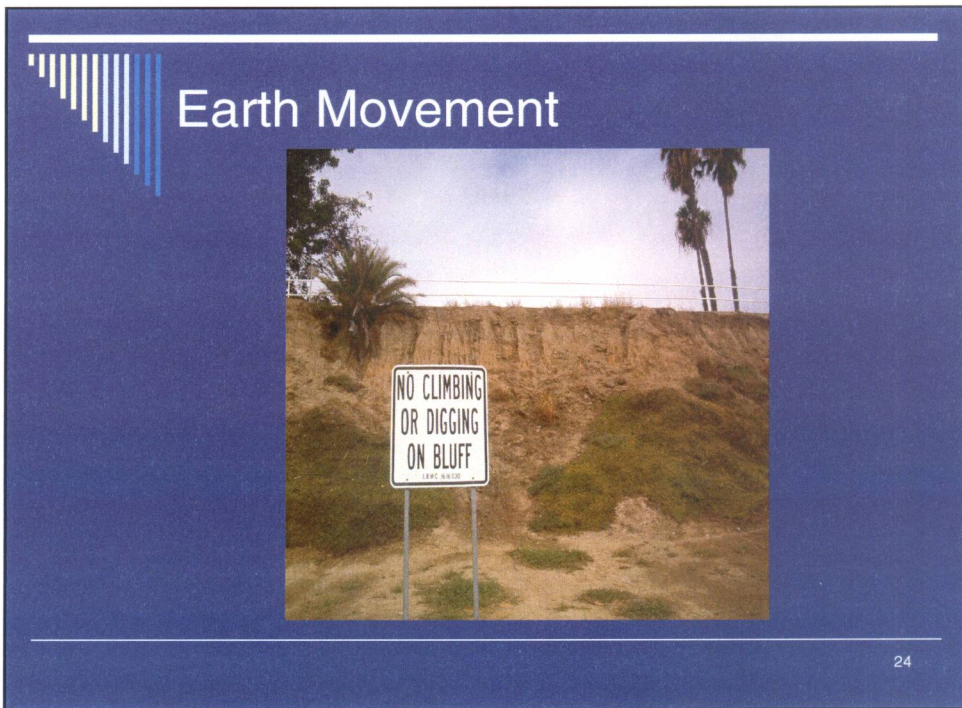
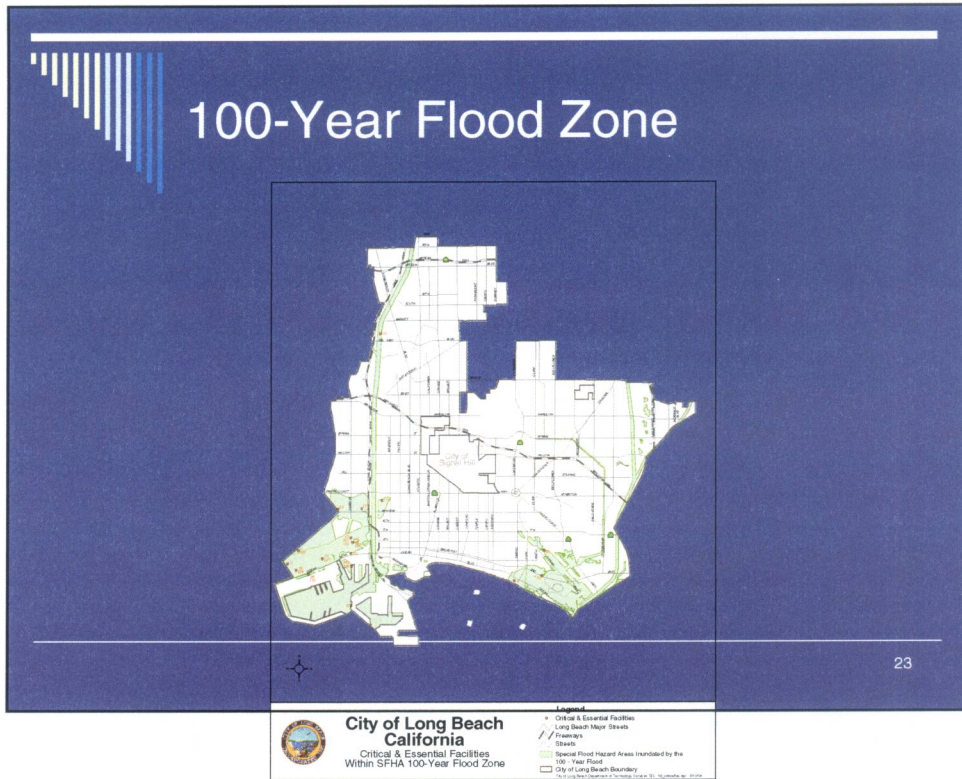
- Magnitude 6.7
- \$25 billion in damages
- 72 deaths
- 11,846 people received hospital treatment for quake related injuries.



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## Windstorms - Microburst



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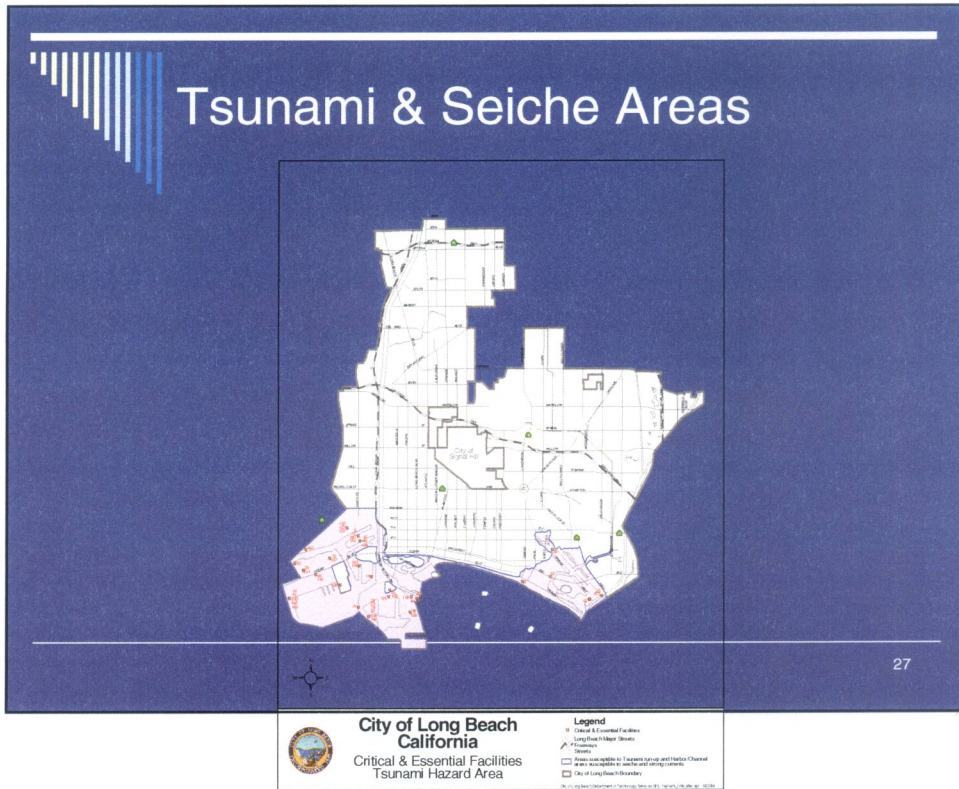
## Tsunami



- **A Tsunami is a series of long-period sea waves produced by a submarine earthquake or volcanic eruption.**


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- ## Plan Goals & Mitigation Actions
- Goals
    - Protect Life & Property
    - Increase Public Awareness
    - Strengthen Partnerships
    - Enhance Environmental & Historical Preservation
    - Improve City Emergency Services
  - Mitigation Action Items
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## Plan Implementation

- Plan Adoption by City Council
- Plan Approval by State & Federal
- Annual Reviews
- FEMA Updates every 5 years

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## Thank You

Questions?