

**Breaking the Disaster Cycle:  
Future Directions in Natural Hazard Mitigation**

*Hazard Area Definition and Risk Notification;  
Smart Growth and Hazard Mitigation*

**Author: David Salvesen  
University of North Carolina  
Chapel Hill**

# *Hazard Areas Definition and Risk Notification; Smart Growth and Hazard Mitigation*

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## ➤ Objectives:

13.1 Understand the current system of mapping hazards as a means of risk notification.

13.2 Discuss the strengths and weaknesses of the present system

13.3 Describe innovative approaches to mapping and managing floodplains

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## ➤ Objectives:

13.4 Assess the Charlotte floodplain remapping initiative

13.5 Understand the context of relocation during disaster recovery

13.6 Discuss methods of achieving community resiliency through application of smart growth principles

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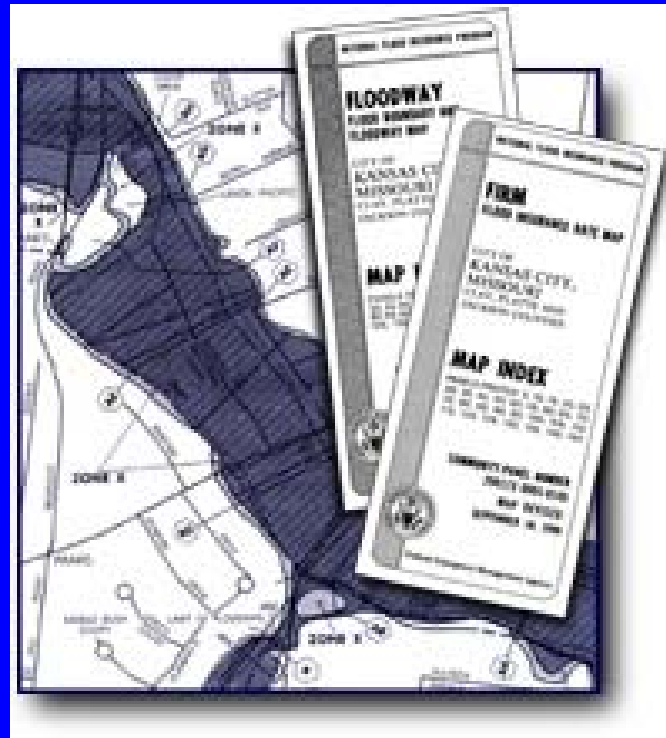
## ➤ Objective 13.1

- Understand the current system of mapping hazards as a means of risk notification:
  - Flood hazards
    - ✓ FEMA – Flood Insurance Risk Maps (FIRMs)
    - ✓ Federal, state, and local maps
  - Earthquake hazards - USGS
    - ✓ Federal, state, and local maps

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- Figure 13.1. Flood Insurance Rate Maps (FIRMs) (Source: FEMA)



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- **Figure 13.2 Features of FIRMs**
  - Special flood hazard areas
  - Highways, roads, lakes railroads, waterways)
  - Base flood elevation (1% chance)
  - Flood insurance risk zones
  - Areas subject to 0.2 % flood
  - Floodways
  - Undeveloped coastal barriers (COBRA)

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- **Figure 13.3 Grifton, NC Flood Hazard Map** (Source: FEMA Map Store (<http://store.msc.fema.gov>))

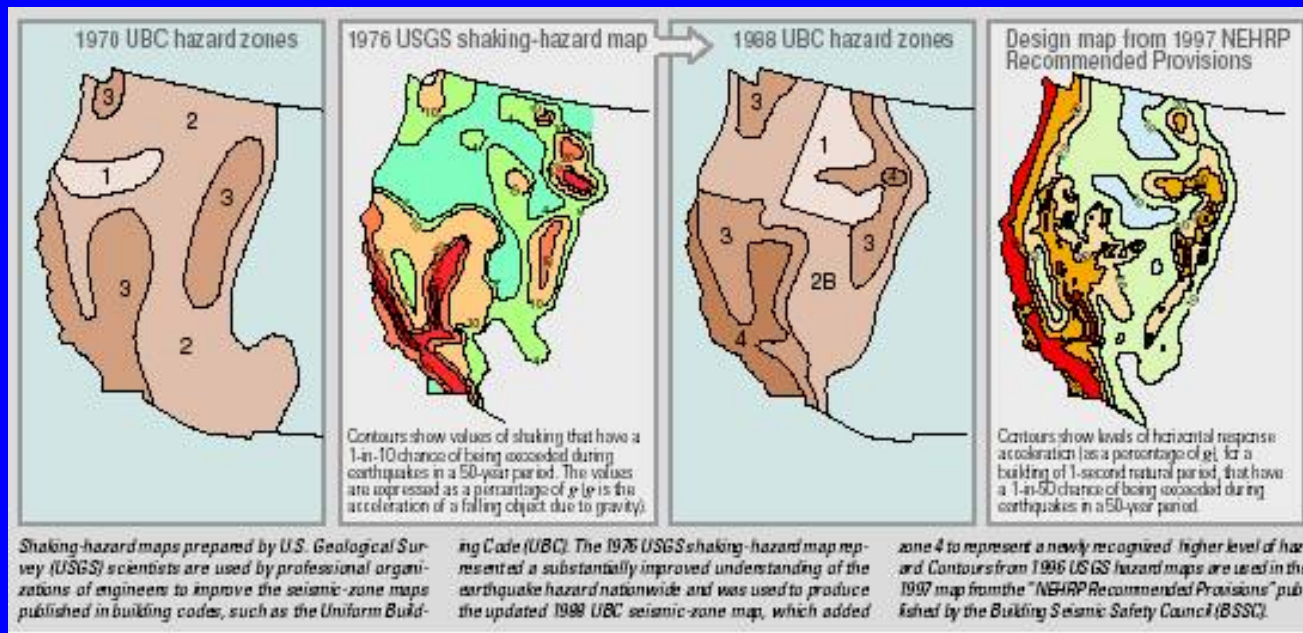


Gray areas indicate special flood hazard areas. Hashed areas within SFHA is floodway.

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## ➤ Figure 13.4 Earthquake Shaking Hazard Maps

Source: USGS, 2001. "Hazard Maps Help Save Lives and Property." Fact Sheet 183-96



Note: Map shows integration of Uniform Building Code (UBC) maps with USGS shaking-hazard map for western U.S.

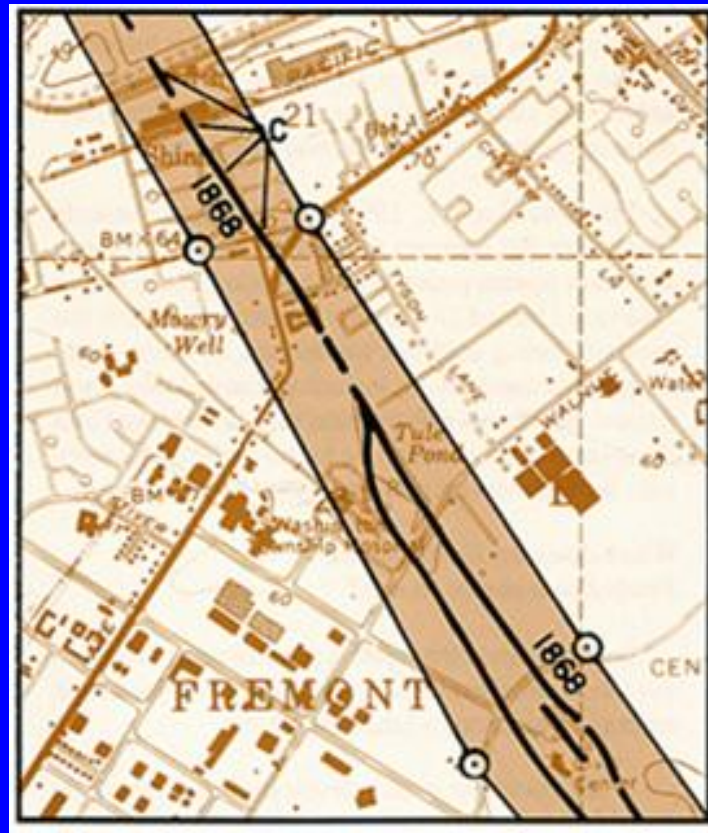


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## ➤ **Figure 13.5 California Earthquake Fault Zone Map**

Source: California Geological Survey



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## ➤ **Figure 13.6 California Disclosure Requirement**

- A person who is acting as an agent for a seller or real property that is located within a seismic hazard zone, of the seller if he or she is acting without an agent, shall disclose to any prospective purchaser that the property is located within a seismic hazard zone.

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## ➤ Objective 13.2

- Discuss the strength and weaknesses of the current system:
  - Strengths: provides valuable location information
  - Weaknesses: accuracy of information varies

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- **Figure 13.7 Weaknesses of Current Mapping/Notification System**
  - Outdated Maps
  - Risk Perception
  - Time of Notification

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## ➤ Objective 13.3

- Describe innovative approaches to mapping and managing floodplains:
  - FEMA:
    - ✓ Digital FIRMs
    - ✓ Multi-hazard maps
  - State and local level:
    - ✓ Updating flood hazard maps
      - » Charlotte, NC
    - ✓ Managing development in floodplains
      - » Tulsa, OK
      - » Winston Salem/Forsyth County

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## ➤ Objective 13.4

- Assess the Charlotte floodplain remapping initiative:
  - Includes two major rivers – Yadkin and Catawba
  - Rapid growth leads to increased flood hazard
  - Tropical storms Jerry and Danny in mid 1990s prompt remapping
  - Advantages:
    - ✓ More accurate information
    - ✓ Increased public involvement
  - Disadvantages
    - ✓ Technically complex
    - ✓ Time consuming
    - ✓ Developer concerns

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- Flood on the Catawba River near Fort Mills, South Carolina 1916 (Source: NOAA)

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## ➤ **Objective 13.5**

- Understand the context of relocation during disaster recovery:
  - Loss of tax revenues
  - Potential for infill development
  - Financial incentives to relocate locally



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## ➤ **Figure 13.9 Using Relocation to Achieve Smart Growth Objectives**

- Promote infill and compact development
- Protect open space, build greenways
- Steer growth away from natural hazard areas
- Improve quality of life

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## ➤ **Objective 13.6**

- Discuss methods of achieving community resiliency through application of smart growth principles:
  - Zoning
  - Subdivision ordinances
  - Land acquisition
  - Infrastructure polices and programs

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## ➤ **Figure 13.10 Smart Growth Principles**

- Create a range of housing opportunities and choices
- Provide a variety of transportation choices
- Create walkable neighborhoods
- Encourage community and stakeholder collaboration
- Foster distinctive, attractive places with a strong sense of place
- Take advantage of compact building design
- Make development decisions predictable, fair, and cost-effective
- Strengthen and direct development towards existing communities
- Preserve open space, farmland, natural beauty, and critical environmental areas, including natural hazard areas.
- Mix land uses