



Fact Sheet



Department of Conservation California Geological Survey *Seismic Hazards Zonation Program*

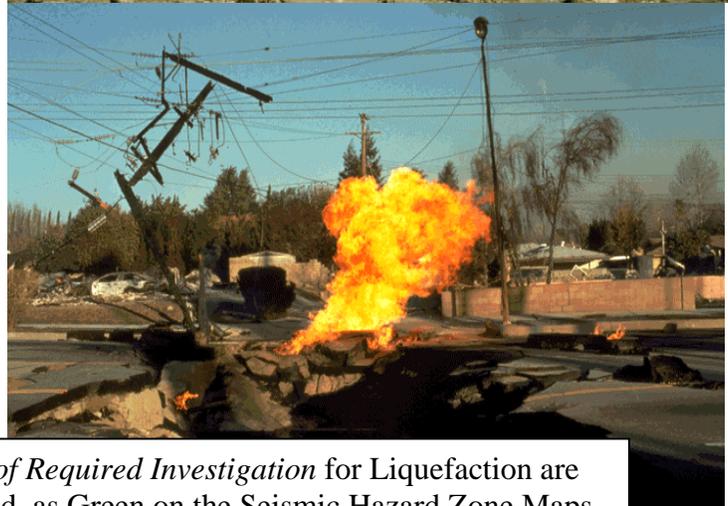
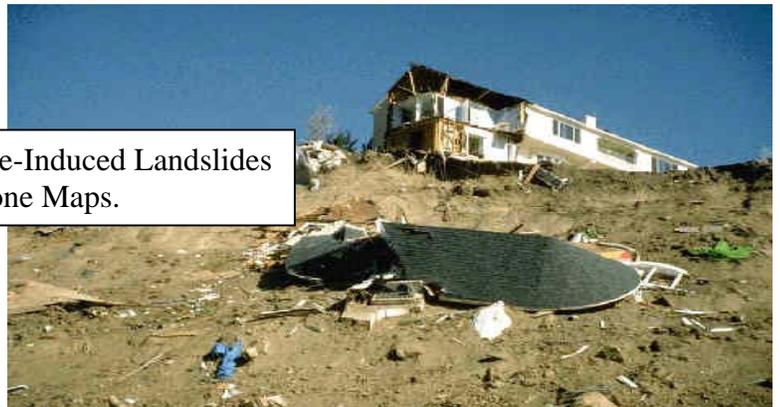
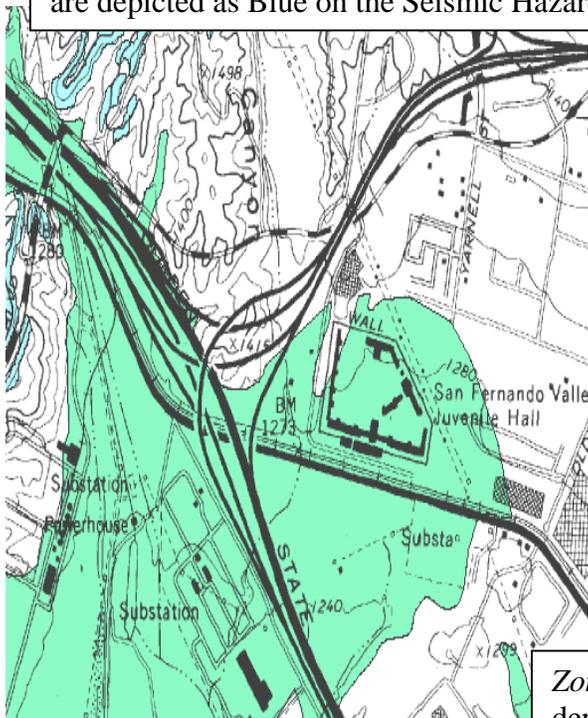
The Seismic Hazards Mapping Act (SHMA) of 1990 (Public Resources Code, Chapter 7.8, Section 2690-2699.6) directs the Department of Conservation, California Geological Survey to identify and map areas prone to liquefaction, earthquake-induced landslides and amplified ground shaking. The purpose of the SHMA is to minimize loss of life and property through the identification, evaluation and mitigation of seismic hazards. The SHMA was passed by the legislature following the 1989 Loma Prieta earthquake.

Staff geologists in the Seismic Hazard Zonation Program gather existing geological, geophysical and geotechnical data from numerous sources to produce the Seismic Hazard Zone Maps. They integrate and interpret these data regionally in order to evaluate the severity of the seismic hazards and designate as *Zones of Required Investigation (ZORI)* those areas prone to liquefaction and earthquake-induced landslides. Cities and counties are then required to use the Seismic Hazard Zone Maps in their land use planning and building permit processes.

The Seismic Hazards Mapping Act requires site-specific geotechnical investigations be conducted within the Zones of Required Investigation to identify and evaluate seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy.

Portion of a Seismic Hazard Zone Map below:

Zones of Required Investigation for Earthquake-Induced Landslides are depicted as Blue on the Seismic Hazard Zone Maps.



Zones of Required Investigation for Liquefaction are depicted as Green on the Seismic Hazard Zone Maps.

Seismic Hazards

Liquefaction

Liquefaction occurs when loose, water-saturated sediments lose strength and fail during strong ground shaking. Liquefaction is defined as the transformation of granular material from a solid state into a liquefied state as a consequence of increased pore-water pressure. The process of zonation for liquefaction combines Quaternary geologic mapping, historical ground-water information and subsurface geotechnical data. The liquefaction hazard *Zone of Required Investigation* boundaries are based on the presence of shallow (< 40 feet depth) historic groundwater in uncompacted sands and silts deposited during the last 15,000 years and sufficiently strong levels of earthquake shaking expected during the next 50 years.

Earthquake-Induced Landslides

Landslides tend to occur in weak soil and rock on sloping terrain. The *Zone of Required Investigation* for earthquake-induced landslides generally indicate areas characterized by steep slopes composed of weak materials that may fail when shaken by an earthquake. The process for zonation of earthquake-induced landslides incorporates expected levels of future earthquake shaking, evidence of existing landslides, slope gradient and strength of hillslope materials.

Additional Information

The maps are distributed in two releases - Preliminary and Official. The Preliminary Release maps provide a 90-day public comment period for technical review and comment. Once the public review period has ended, the Department of Conservation has 90 days to revise the maps, as appropriate, and issue the Official maps to affected cities, counties and state agencies. The Program will ultimately map the principal urban and major growth areas in seismically active areas of California. Each map covers an area of approximately 60 square miles at a scale of 1 inch = 2,000 feet.

Visit our website at www.conservation.ca.gov/cgs to view and download Seismic Hazard Zone Maps and GIS data, Evaluation Reports, Special Publications 117, 118, Map Sheet 48 and Southern California Earthquake Center documents --- or contact us at (916) 324-7324 or Seismic Hazard Zonation Program, 801 K Street MS 12-31, Sacramento, CA 95814.

