



DEPARTMENT OF CONSERVATION

Managing California's Working Lands

PUBLIC AFFAIRS OFFICE

801 K STREET • MS 24-07 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 323-1886 • FAX 916 / 323-1887 • TDD 916 / 324-2555 • WEB SITE conservation.ca.gov

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Contact: Ed Wilson (916) 323-1886

Don Drysdale

Krista Watson

20TH ANNIVERSARY OF NORTHRIDGE EARTHQUAKE FINDS CALIFORNIA BETTER PREPARED, CGS SAYS

Seismic Hazard Zone Maps Help Make Communities Safer

SACRAMENTO -- On January 17, 1994, the magnitude 6.7 Northridge Earthquake struck Southern California. It caused 57 fatalities and up to \$40 billion in damage, making it the costliest earthquake disaster in U.S. history.

“In the 20 years since that earthquake, the California Geological Survey (CGS) has made major strides in understanding and locating earthquake hazards around the state, and creating products that will protect lives and property the next time such a disaster occurs,” said Dr. John Parrish, the State Geologist of California and head of CGS.

So, is California better prepared for the next large earthquake?

“In many ways, yes,” Parrish said. “But there is still work to be done, both in terms of the science involved in identifying additional hazards and the engineering to ensure the resiliency of the state’s older building stock.”

During the Northridge Earthquake, intense ground shaking generated widespread ground failures. Thousands of landslides occurred throughout the mountains surrounding the San Fernando Valley and as far north as Castaic Lake. Widespread liquefaction (saturated soil that behaves as a liquid when shaken) was triggered as far away as the Port of Los Angeles, about 30 miles from the epicenter.

“These types of ground failures caused severe damage to building foundations and to vital lifeline infrastructure, such as transportation corridors, water, gas, and electric transmission facilities,” Parrish noted.

Over the last two decades, CGS has completed 90 maps covering 5,580 square miles that identify landslide and liquefaction hazard zones in developed and developing areas of Los Angeles, Orange, and Ventura counties. Another 29 maps for those hazards cover 1,798 square miles in the San Francisco Bay area. These Seismic Hazard Zones delineate where there is a high likelihood of landslides and/or liquefaction occurring in future earthquake events.

Statewide, CGS has completed mapping liquefaction and landslide hazard zones in eight counties, covering 165 incorporated cities and 32 unincorporated communities. Local city and county permitting agencies are required

to request “special geological and engineering studies” be performed within these zones prior to land development and construction. Disclosure to the buyer is required when real estate within a zone is sold.

“Once the special studies are performed by qualified engineers and geologists, measures to physically mitigate the ground-failure hazards are included in the development plans before permits are issued,” said Tim McCrink, manager of CGS’ Seismic Hazards Zonation Program. “Recognizing and fixing these potential problems before development occurs is the most cost-effective way to deal with landslide and liquefaction.”

The Seismic Hazard Zonation Program at CGS continues to produce similar maps throughout the Bay Area, and in recent years also has started work in the fast developing portions of Riverside and San Bernardino counties.

“Reducing the impact of these ground-failure hazards will not only save lives and property during future earthquakes, but will lead to more sustainable economic communities,” Parrish said.

For more information about the Northridge Earthquake, please visit <http://www.conservation.ca.gov/CGS/Pages/Index.aspx>.

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