



DEPARTMENT OF CONSERVATION

Managing California's Working Lands

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CALIFORNIA GEOLOGICAL SURVEY ISSUES NEW SEISMIC HAZARD ZONE MAP FOR SAN JOSE AREA

Editors: A PDF of the map can be seen at <http://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx>

SACRAMENTO – A regulatory map that establishes earthquake hazard zones for parts of the city of San Jose and Santa Clara County has become official after a 90-day public review. The Lick Observatory Quadrangle Seismic Hazard Zone map, created by the California Geological Survey (CGS), designates land within an approximately 30-square-mile area where special precautions may have to be implemented for new development and construction projects in order to protect life and property in the event of a large earthquake.

“This is the first Seismic Hazard Zone map we’ve produced in Santa Clara County that shows all the earthquake hazards covered by our regulatory zones in one place,” noted Dr. John Parrish, State Geologist of California and head of CGS. “Users will see not only areas of landslide and liquefaction hazards, but also previously defined Alquist-Priolo Earthquake Fault Zones, which address the hazard of surface fault rupture.”

Earthquakes of magnitude 5.5 or greater can trigger landslides or liquefaction, a phenomenon in which soil temporarily loses its ability to support structures. The Seismic Hazards Mapping Act mandating the zoning maps was passed after the 1989 Loma Prieta Earthquake, which triggered significant landslide and liquefaction damage throughout the Bay Area.

“These maps are part of the state’s ongoing efforts to prepare for large, damaging earthquakes, which are infrequent but inevitable,” said CGS Supervising Geologist Chuck Real, head of the Seismic Hazards Zonation Program. “These Seismic Hazard Zone maps are intended to ensure that large, new construction projects are built with earthquake hazards in mind. The maps also trigger a disclosure element in real estate transactions for existing properties, not unlike flood or wildfire zone maps. We’ve released more than 100 Seismic Hazard Zone maps, and surveys have shown that they do not have a negative effect on real estate prices.”

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For development within a Seismic Hazard Zone, the local building department must require – before permits are issued – that a registered civil engineer or certified engineering geologist with competence in seismic hazard evaluation and mitigation investigate the site for evidence of liquefaction or landslide potential. If such evidence is found, design modifications must be made in the planning stage.

“It’s much easier and less expensive to take mitigation steps – for example, slope stabilization in landslide areas and deep foundations in liquefaction zones – if the hazard is known before construction begins,” Real said.

For individuals in existing homes or structures, the California Emergency Management Agency, FEMA, the California Earthquake Authority, and the American Red Cross all have released publications about becoming more earthquake-ready. Those publications are available online or at local public libraries.

Landslide hazard zones are shown on much of the new map, which covers the hilly terrain in the southeast portion of San Jose. There are areas where the Alquist-Priolo fault rupture zones – which were established in 1982 – overlap both liquefaction and landslides zones, most significantly along the Calaveras Fault on the eastern map boundary. Liquefaction zones are established where there is evidence of the widespread presence of near-surface soil layers composed of saturated, loose sandy and silty sediments. There is a liquefaction zone shown in the northwestern portion of the map, along Alum Rock Avenue, and another along San Felipe Road east of the Silver Creek Valley Country Club.

Scientists believe the Hayward Fault is the most likely fault to produce a major earthquake in Northern California in the next 30 years (a 30 percent chance of a magnitude 6.7 or greater quake). Although the Calaveras Fault is assigned a relatively low 7 percent chance for a quake of that size, it produced a magnitude 6.5 in 1911, a magnitude 6.2 in 1984, and the magnitude 5.6 Alum Rock quake in October 2007, the most powerful in the Bay Area since the Loma Prieta Earthquake.

The Seismic Hazards Zonation Program has identified 345 California communities as high-risk areas for liquefaction and/or landslides; however, only 182 have been zoned to date. There are now 117 official Seismic Hazard Zone maps – 28 in the Bay Area – covering all or portions of nine counties.

About the California Department of Conservation (DOC): In addition to studying and mapping geologic phenomena such as earthquakes, DOC categorizes mineral resources; administers agricultural and open-space land conservation programs, ensures the reclamation of land used for mining; and regulates oil, gas and geothermal wells.

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