



# DEPARTMENT OF CONSERVATION

## News Release

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## CALIFORNIA GEOLOGICAL SURVEY ISSUES FIRST EARTHQUAKE ZONE MAPS FOR LAKE TAHOE AREA

**Note: The maps can be viewed online at <http://www.conservation.ca.gov/cgs/Pages/Index.aspx>**

SACRAMENTO – The California Geological Survey (CGS) today released for public review the first two Alquist-Priolo Earthquake Fault Zone maps in the Lake Tahoe region. These maps, which identify areas where faults have ruptured the surface of the earth, may impact development plans.

“These maps are a planning tool for a specific earthquake hazard,” explained California’s State Geologist, Dr. John Parrish, head of CGS. “We create zones in areas where earthquake faults have ruptured the ground in the past. The zones define where site-specific investigations must be undertaken to ensure that new construction for human occupancy does not take place atop the surface trace of an active earthquake fault.

“Buildings can be engineered to withstand earthquake ground shaking. But if fault movement causes a rupture directly under a building, the foundation’s integrity will almost certainly be compromised.”

Of the various hazards associated with major earthquakes – including shaking, landslides and liquefaction -- building atop the surface trace of an active fault is the easiest to avoid. The Alquist-Priolo Act was passed into law following the destructive February 9, 1971 magnitude 6.6 San Fernando Earthquake, which caused extensive surface ruptures that damaged numerous buildings. Currently there are 554 official maps covering 36 counties and more than 100 communities.

“Most of our zoning work has been concentrated in California’s major population centers – the Los Angeles Basin and the San Francisco Bay Area – and we’re pleased to be releasing these maps in the Lake Tahoe area,” said Tim McCrink, who heads the Seismic Hazards program at CGS. “Many people don’t realize that Lake Tahoe was formed by seismic activity and has significant earthquake potential. There have been a handful of sizeable earthquakes in the area in the last 150 years.”

For example, there was a magnitude 6.0 earthquake in December 1948 west of Reno that caused damage in Lake Tahoe communities and quakes estimated at magnitude 6.5 and 6.3 in 1887 and 1857, respectively, in

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the region.

The Earthquake Fault Zones are in two 60-square-mile “quadrangles” along traces of the West Tahoe Fault, which scientists believe is capable of generating a quake in the magnitude 7 range.

There are four zones in the Emerald Bay Quadrangle. One runs from the southwest corner of the bay to Fallen Leaf Lake. There’s another in the Emerald Point area; another that runs south from Lake Tahoe, starting about midway between Eagle Point and Baldwin Beach; and another that runs southeast of Fallen Leaf Lake, continuing into the Echo Lake Quadrangle map. On the second map, that zone runs by Angora Lakes, west and south of Celie Ranch and east of Lower Echo Lake.

The preliminary maps have been forwarded to local lead agencies and will be available for public review. The review period, which includes a hearing in front of the State Mining and Geology Board, will last 90 days. CGS will publish final maps after it considers comments from the lead agencies, the public, and the State Mining and Geology Board.

Under the Alquist-Priolo Act, before a new project containing structures for human occupancy can be permitted within a zone, lead agencies must require a geologic investigation to demonstrate that proposed buildings will not be constructed across active faults. An evaluation and written report about a specific site must be prepared by a California-licensed geologist. Disclosure that property is within a zone must be made in real estate transactions; otherwise, the zones do not affect existing developments unless extensive additions or remodeling are proposed. Local jurisdictions have final say over permitting construction.

There have been 26 earthquakes associated with surface faulting in California since the first Alquist-Priolo zone maps were issued in 1974. Although most of the ground surface displacement associated with these events was relatively minor, there have been seven earthquakes with surface fault offsets greater than a foot. Earlier earthquake records suggest that earthquakes with ground surface displacement equal to or greater than three feet occur once every 15 to 20 years in California.

“California is earthquake country,” McCrink said. “We can’t stop them or predict them, but these zone maps are one thing that we can do to help keep residents and property safer.”

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