



# DEPARTMENT OF CONSERVATION FACT SHEET

## California Geological Survey

Established in 1860, the California Geological Survey (CGS) is one of the oldest geological surveys in the United States, serving as a primary source of geologic information for California's government agencies, businesses, and public. The CGS maps and analyzes data about the state's diverse geologic settings and features, earthquakes, other geologic hazards and mineral resources to better care for life, property, commerce, and the natural environment. CGS manages the following programs:

### Seismic Hazards Zonation Program

The goal of this program is to identify potentially devastating seismic hazards so as to mitigate the impacts of future earthquakes in at-risk areas. To that end, CGS issues special regulatory hazard maps to assist local and state government agencies in ensuring earthquake hazards are appropriately considered in their land-use planning and building permit processes. Required by the Alquist-Priolo Earthquake Fault Zoning Act of 1971 and the Seismic Hazards Mapping Act of 1990, these maps create mandatory investigation zones in areas where there is surface fault rupture or other ground conditions favorable to landslides or liquefaction (the failure of water-saturated soil). Disclosure is required when property located in a CGS regulatory hazard zone is sold.

There currently are 559 Alquist-Priolo zone maps affecting 36 counties and more than 100 communities. The Seismic Hazards Zonation Program has identified 345 California communities as potentially 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 covering all or parts of nine counties.

### Strong Motion Instrumentation Program

Established in 1971, the Strong Motion Instrumentation program (SMIP) operates one of the most extensive seismic monitoring systems in the world, gathering vital earthquake engineering and scientific data through a statewide network of instruments. More than 8,500 sensors are in place at over 1,100 monitoring stations located on structures such as dams, bridges, hospitals high-rise buildings, fire stations, piers and harbors, and industrial

facilities, as well as open land. These instruments measure the vertical and horizontal motions of the ground and the response of structures during an earthquake. Ultimately, these data help improve building codes and assist local government planning. SMIP data also assist emergency response personnel by pinpointing locations of the heaviest ground shaking, and therefore potentially most damage, during an earthquake. SMIP currently is converting a number of its field instruments for incorporation into the developing California Earthquake Early Warning System, the first such system in the United States.

### Seismic Hazards Assessment Program

Through this program, the CGS provides geological and engineering expertise to state agencies in need of unbiased, independent analyses. CGS geologists, seismologists, and engineers perform independent reviews of geologic and geotechnical reports for proposed school construction under an agreement with the Division of the State Architect, for hospitals under an agreement with the Office of Statewide Health Planning and Development, and for critical operations facilities, helping to ensure that they will remain operational following a future natural disaster event.

### Forest and Watershed Geology Program

This program provides geological information and advice about landslides, erosion and sedimentation to those who make land-use decisions that affect California's watersheds where proposed activities, such as timber harvesting, may affect public safety, water quality, and fish habitat. This program reviews Timber Harvesting Plans for the California Board of Forestry, helps design and implement stream restoration projects and conducts post-wildfire assessments for potentially dangerous debris flow conditions.

### Mineral Resources Program

CGS' Minerals Resources Program gathers, analyzes and distributes information about the state's mineral resources, and classifies California's lands by the degree of mineral resource potential. Sand, gravel, cement, and crushed stone are essential in the construction of homes, schools, roads, and other

infrastructure. The CGS tracks 31 mineral products produced by California mines. As of 2016, approximately 37 million acres, or about 36 percent of the state's area, have been classified for their mineral resource potential. This information assists land planners and the public in recognizing mineral resource potential. The CGS also produces maps for several state agencies describing locations of naturally occurring hazardous minerals, such as mercury, asbestos, arsenic and radon gas.

## Geology Library

The CGS Geology Library possesses an extensive collection of books, magazines, reports, maps and photographs dating to the 1800s. Although it is a research library, some publications may be borrowed or purchased from CGS. Scientific and technical materials include information about earthquakes, engineering and environmental geology, California's geology, groundwater, landslides, mining, mineral resources, and seismology.



## CALIFORNIA DEPARTMENT OF CONSERVATION

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