

SHAKING MAPPING RESEARCH THAT MAY BE USED FOR FUTURE UPDATES OF ABAG'S SHAKING HAZARD MAPS

Since the 1970s, ABAG has been developing shaking hazard maps for the San Francisco Bay Area. These maps were last updated in 2003, and the associated documentation was last updated in 2010. However, there are several types of research that have improved our knowledge of shaking hazard and will likely be incorporated into future updates of these maps.

(1) USGS and others have created spectacular animations of the propagation of shaking throughout the San Francisco Bay for major earthquakes on the San Andreas and Hayward faults. These models emphasize the variety of shaking patterns that can be generated from a single fault source, and how the 18 scenario maps on ABAG's web site are just a small sample of possible future earthquakes. *Note: These simulations include the effects of amplification from deep sediments in areas such as the Santa Clara Valley, Livermore, San Pablo Bay, and Santa Rosa, but do not include amplification effects from very shallow soft soils, such as Bay Mud, around the perimeter of the Bay.* These animations can be viewed at <http://earthquake.usgs.gov/regional/nca/simulations/>.

(2) USGS and others have created the ShakeMap product for past earthquakes, and used this software to generate "real time" models of shaking. These maps typically show less shaking intensity near the fault than those generated by ABAG's models. They can be viewed at <http://earthquake.usgs.gov/earthquakes/shakemap/>. In addition, a comparison of a ShakeMap product with an ABAG Shaking Hazard Map can be viewed at <http://quake.abag.ca.gov/shaking>.

ABAG's goal in generating the shaking maps shown on the Earthquake and Hazards Mapping website is to show an internally consistent suite of 18 scenario maps that have been used to predict housing losses, road closures, and other infrastructure disruptions. The models typically use higher resolution shallow geologic information than that used in ShakeMap but do not include the 3D basin and rupture effects present in the 3D simulations. Over time, the research from some of these other products are likely to be used by ABAG and others in future generations of earthquake shaking hazard maps.