California Earthquake Early Warning Alert System Legislation Advances

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The Assembly Governmental Organization Committee today approved Senate Bill 135 by Senator Alex Padilla (D-Pacoima) on a bipartisan vote of 13 to 0. The bill would require the development of a comprehensive statewide earthquake early warning alert system in California. The measure now goes to the Assembly Appropriations Committee for consideration.

“...a fully developed earthquake early warning alert system would provide Californians critical seconds to take cover, assist loved ones, or pull over safely to the side of the road. It could allow time to stop a train and power down other critical infrastructure,” said Senator Alex Padilla.

Added Padilla, “We all know a big quake will hit again in the future. We should be smart and use our science and technology to detect seismic activity and alert people in advance of destructive shaking.”

About 90% of the world’s earthquakes and over 80% of the world’s strongest quakes occur along the Pacific Ring of Fire. The Ring of Fire includes the very active San Andreas Fault zone here in California. For example, earlier this year, there was a 5.7 earthquake in Northern California, an 8.2 earthquake in Russia, a 7.4 earthquake in Tonga and a 6.8 earthquake off the coast of Chile. Japan, Taiwan, Mexico, Turkey, Romania, Italy and China either have or are working on earthquake early warning systems.

Specifically, SB 135 would direct the Office of Emergency Services, in collaboration with the California Seismic Safety Commission, California Institute of Technology (Caltech), the California Geological Survey, the University of California Berkeley, the United States Geological Survey, and others, to develop a comprehensive statewide earthquake early warning alert system in California. The initial cost estimate for the system is $80 million.

“An earthquake early warning would speed the response of critical public safety personnel by quickly identifying areas hardest hit by a quake,” Padilla said. “California is going to have an earthquake early warning alert system, the question is whether we have one before or after the next big quake,” said Padilla.

In January, the California Institute of Technology and the Japan Agency for Marine-Earth Science and Technology published a study concluding for the first time that a statewide California earthquake involving both the Los Angeles and San Francisco metropolitan areas may be possible. The Uniform California Earthquake Rupture Forecast released in 2008 predicted a 99.7 percent likelihood of a magnitude 6.7 earthquake in California in the next 30 years and a 94% chance of a magnitude 7.0.

California presently has a demonstration earthquake early warning system called the California Integrated Seismic Network (CISN). SB 135 would fully develop this system, which would process data from an array of sensors throughout the state, detect the strength and the progression of an earthquake, alert the public within seconds and provide up to 60 seconds advanced warning before potentially damaging ground shaking is felt. The beta-system worked successfully in March, providing a 30 second warning to seismologists of a 4.7 magnitude temblor centered in the Riverside County desert.

Japan’s earthquake early warning system provided the public with critical advanced warning of the 9.0 magnitude Tohoku earthquake in March 2011. Earthquake warnings were automatically broadcast on television and radio, and 52 million people received the warning on their smartphones. Millions more downloaded the early warning app after the quake to receive warnings in advance of large aftershocks. The system brought bullet trains to a stop, and triggered the automatic shutdown of operations at critical companies. A professor at the University of Sendai received a text message of the warning and was able to warn his students to duck for cover before the shaking began and the light fixtures fell from the ceiling.