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Congress OKs \$5 million for state's quake early-warning system

By David Perlman Updated 5:02 pm, Monday, December 15, 2014



IMAGE 1 OF 4

ShakeAlert early warning system simulation of a repeat of the Lomo Prieta earthquake is displayed on the computer of Richard Allen (not shown), UC Berkeley Seismological Laboratory director, after he spoke during a press conference on BART's earthquake preparedness at the Embarcadero BART station on Monday, August 25, 2014 in San Francisco, Calif. [BUY THIS PHOTO](#)

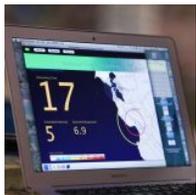
Congress has approved \$5 million to speed development of the West Coast's earthquake early-warning system, a network of seismic sensors that could give Californians up to a minute of warning when the ground is about to shake from a distant quake.

The funds were included in the \$1.1 trillion bipartisan spending bill passed by the [U.S. Senate](#) over the weekend. The money was added to the bill through the efforts of California's congressional delegation after the network demonstrated success in August during the 6.0-magnitude South Napa quake, scientists said.

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Editorial: California needs a seismic warning system

A completed system in California would cost \$16 million a year to build, maintain and operate, said geophysicist **Richard Allen**, director of the **UC Berkeley Seismological Laboratory** and a leader in developing California's network.

An incomplete network of seismic sensors is already in place, and officials have been trying to find ways to complete the system.

"Hopefully, this is the beginning of our efforts to complete building it," Allen said.

Sen. **Dianne Feinstein**, D-Calif., who pushed for Senate approval of the funds, called them "a down payment" and said she will seek more money next year.

The early-warning network currently includes 400 quake-detecting stations throughout California, but 250 of them need upgrades and an additional 100 will be needed to complete the statewide system,

said **Peggy Hellweg**, a research geophysicist at the **Berkeley laboratory**.

\$16 million sought

Allen, who is in San Francisco to discuss the system with scientists attending an annual meeting of the **American Geophysical Union** at **Moscone Center**, said the new money will help pay for the upgrades and help buy more of them — particularly in and around California's major population centers. He said it will cost \$16 million a year to build the warning system to completion and to operate it once it's finished.

Democrats in Congress plan to ask President Obama to include the full \$16 million in his budget request for the fiscal 2016 year, Allen said.

The final version of the early-warning system will cover Northern and Southern California plus Oregon and Washington, and the new \$5 million will be managed by the U.S. Geological Survey's Los Angeles headquarters at the **California Institute of Technology** in Pasadena.

The need to improve the network is particularly great in what scientists call the San Andreas Corridor along the quake-prone San Andreas Fault south of Hollister (San Benito County) and north of Santa Rosa, Hellweg said.

The early-warning system is essentially based on one simple fact: When an earthquake starts rupturing the ground, the seismic detectors can send out electronic signals of the event faster than the quake itself sends waves of dangerous ground-shaking to distant regions.

The incomplete network, for example, detected the South Napa quake in August the instant it ruptured the ground, and its warning signals were received at BART's Oakland quake headquarters five seconds later, Allen said.

Sufficient warning

"Fortunately the quake struck at 3:20 a.m., and no trains were running that morning, but five seconds was enough time for BART to have stopped all its trains if they were running," Allen said.

San Francisco's **Office of Emergency Management** received the network's warning signal nine seconds after the quake struck, he recalled.

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