

REPORT OF THE CHIEF LEGISLATIVE ANALYST

DATE: February 21, 2013

TO: Honorable Members of the Rules, Elections and Intergovernmental Relations
Committee

FROM: Gerry F. Miller *gfm* Council Files: 13-0002-S24, 13-0002-S25
Chief Legislative Analyst Assignment No.: 13-02-0108

SUBJECT: Resolutions to Support SB 135 to Create an Earthquake Early Warning System

CLA RECOMMENDATION: Adopt Resolution (Wesson – Englander – Koretz) and Resolution (LaBonge – Buscaino) to include in the City's 2013-2014 State Legislative Program SUPPORT of SB 135 (Padilla), and any similar legislation, which would create an earthquake early warning system for California.

SUMMARY

On February 5, 2013, two Resolutions were introduced in support of SB 135 (Padilla) which would create an earthquake early warning system for California. The Resolutions note California's history of devastating earthquakes which have caused significant physical and economic damage. The Resolutions state that the investment required to build the system will be more than offset by the potential to save lives, property and public infrastructure. The Resolutions further note that the system's benefits will be realized statewide, and particularly in the densely populated Los Angeles region which faces the threat of a major earthquake on the San Andreas fault. The Resolutions, therefore, seek an official City position to support this legislation.

BACKGROUND

According to the bill, leading institutions have already contributed research and development toward establishing an earthquake early warning system. The California Integrated Seismic Network (CISN) is operated by a collaborative partnership consisting of the California Geological Survey; Caltech Seismological Laboratory; University of California, Berkeley Seismological Laboratory; United States Geological Survey; and the Governor's Office of Emergency Services.

At its current stage of development, CISN has some capabilities for an early warning system for earthquakes. The bill states that a more robust early warning system could be achieved by building upon CISN, and installing and upgrading underground sensors throughout the state. The ideal system would effectively detect the strength and progression of earthquakes as they occur and alert the public before potentially damaging shaking can be felt. For large magnitude earthquakes, such a system could provide up to 60 seconds of advance notice.

The bill notes California's history of devastating earthquakes, including:

- 1906 San Francisco earthquake, magnitude 7.8, which resulted in 3,000 fatalities and over \$500 million in property damage.

- 1971 San Fernando/Sylmar earthquake, magnitude 6.6, which resulted in 65 fatalities and over \$500 million in property damage.
- 1989 Loma Prieta earthquake, magnitude 6.9, which resulted in 63 fatalities and over \$6 billion in property damage.
- 1994 Northridge earthquake, magnitude 6.7, which resulted in 57 fatalities and \$20 billion in property damage.

Countries that currently have, or are developing, early warning systems include Japan, Taiwan, Mexico, Turkey, Romania, Italy, and China. Some examples of the benefits include shutting off gas lines and other high-risk infrastructure automatically, stopping mass transit from operating, and providing sufficient warning time for people to take cover. The cost to implement the system is approximately \$80 million according to one estimate; however, the bill does not identify potential funding sources.

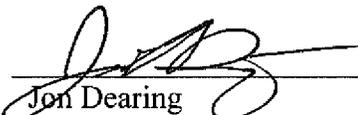
The City of Los Angeles is a long-standing supporter of initiatives to increase preparedness for earthquakes. Recent efforts have included a partnership with some of CISO's member agencies to establish the Great Southern California ShakeOut in 2008. The ShakeOut campaign has since grown nationally and internationally with over 19.4 million participants in 2012. The inaugural ShakeOut also coincided with the City of Los Angeles International Earthquake Conference, which hosted leading experts from 15 countries to share best practices, scientific research, and new innovations.

DEPARTMENTS NOTIFIED

Fire Department
Emergency Management Department

BILL STATUS

1/28/2013 Introduced in State Senate
2/7/2013 Referred to Com. on G.O. and Com. on N.R. & W.


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Analyst

GFM:SMT:jd

Attachment: SB 135 (Padilla) Bill Text

INTRODUCED BY Senator Padilla

JANUARY 28, 2013

An act to add Section 8587.8 to the Government Code, relating to earthquake safety.

LEGISLATIVE COUNSEL'S DIGEST

SB 135, as introduced, Padilla. Earthquake early warning system.

There is in state government, pursuant to the Governor's Reorganization Plan No. 2, operative July 1, 2013, the Office of Emergency Services. Existing law requires the office to develop and distribute an educational pamphlet for use by kindergarten, any of grades 1 to 12, inclusive, and community college personnel to identify and mitigate the risks posed by nonstructural earthquake hazards.

This bill would require the office, in collaboration with various entities, including the United States Geological Survey, to develop a comprehensive statewide earthquake early warning system in California.

Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. The Legislature finds and declares the following:

(a) According to the United States Geological Survey, California is one of the most seismically active states, second only to Alaska.

(b) California has experienced dozens of disastrous earthquakes, which have caused loss of life, injury, and economic loss. Some of the most significant earthquakes in California's history include:

(1) The 1906 San Francisco earthquake, which, at a magnitude of 7.8, resulted in an estimated 3,000 deaths and over \$500 million in property losses.

(2) The 1971 San Fernando earthquake, which, at a magnitude of 6.7, resulted in at least 65 deaths and caused property damage of over \$500 million.

(3) The 1989 Loma Prieta earthquake, which, at a magnitude of 6.9, rocked the bay area and caused 63 fatalities and over \$6 billion in property damage.

(4) The 1994 Northridge earthquake, which, at a magnitude of 6.7, claimed the lives of 60 people and caused estimated property damage of between \$13 and \$32 billion.

(c) About 90 percent of the world's earthquakes and over 80 percent of the world's largest earthquakes occur along the Circum-Pacific Belt, also known as the Pacific Ring of Fire. The Pacific Ring of Fire includes the very active San Andreas Fault Zone in California.

(d) The Uniform California Earthquake Rupture Forecast (UCERF) released in 2008 predicted a 99.7 percent likelihood of a magnitude 6.7 or larger earthquake in California in the next 30 years.

(e) A 2013 study published by the Caltech and the Japan Agency for Marine-Earth Science and Technology discovered that a statewide California earthquake involving both the Los Angeles and San Francisco metropolitan areas may be possible.

(f) Japan, Taiwan, Mexico, Turkey, Romania, Italy, and China either have or are working on earthquake early warning systems that

are capable of saving lives and helping to mitigate loss.

(g) The Office of Emergency Services, Caltech, California Geological Survey, University of California at Berkeley, United States Geological Survey, and others have been conducting earthquake early warning research and development in California. They operate the California Integrated Seismic Network, which has a demonstration earthquake early warning capability.

(h) By building upon the California Integrated Seismic Network and processing data from an array of sensors throughout the state, a fully developed earthquake early warning system would effectively detect some strength and progression of earthquakes and alert the public within seconds, sometimes up to 60 seconds, before potentially damaging ground shaking is felt.

(i) An earthquake early warning system should disseminate earthquake information in support of public safety, emergency response, and loss mitigation.

SEC. 2. Section 8587.8 is added to the Government Code, to read:

8587.8. The Office of Emergency Services, in collaboration with the California Institute of Technology (Caltech), the California Geological Survey, the University of California Berkeley, the United States Geological Survey, and others, shall develop a comprehensive statewide earthquake early warning system in California.