Earthquake alert system a good investment for California

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If and when another big earthquake strikes California, a little advance notice could save a lot of lives.

That's why a proposed early warning system is so intriguing – and why officials at state agencies, nonprofits and private companies should seriously consider investing in it.

Sen. Alex Padilla, who represents the San Fernando Valley, joined seismologists on Monday at the California Institute of Technology to announce a measure (Senate Bill 135) to create a statewide quake alert network. The estimated price tag is $80 million to develop it and $20 million a year to run, plus millions more for upgrades.

Importantly, Padilla says his goal is not to dip into the state's general fund or impose any new fees. He told The Bee's editorial board on Tuesday that he plans to look into other sources, including state special funds, federal emergency preparedness grants and charitable foundations. (A $6.5 million grant from the Gordon and Betty Moore Foundation has helped fund early development.) He also wants to reach out to water and electric utilities, insurers and other private companies with a stake in limiting earthquake damage.

As Padilla notes, the cost would be a relative pittance compared with the potential savings in medical costs and infrastructure damage from a major calamity.

The system is designed to give as long as a minute's warning to emergency workers and the general public. In those precious seconds, people could seek shelter, mass transit could stop trains and utilities could power down. "We can absolutely save lives and reduce injuries," Padilla told the editorial board.

Dubbed ShakeAlert, the system would build on 10 years of research and testing by scientists at the UC Berkeley Seismological Laboratory, Caltech and the U.S. Geological Survey. It is based on a network of 2,000 sensors up and down California that send an alert as they detect the first shock waves – known as P-waves – when a fault begins to rupture. These waves are followed by the far more destructive S-waves; the gap in between the two kinds of waves is the potential warning time.

ShakeAlert instantly calculates how strong the earthquake will be and when the damaging waves will strike any region of the state. In a test last year, the system correctly predicted and sent out alerts to San Francisco for a small temblor near the epicenter of the 6.9 magnitude Loma Prieta quake in 1989 that killed 63 and caused $6 billion in property damage.

The odds are almost certain of at least one other quake of 6.7 magnitude or higher somewhere in California in the next quarter century.

The importance of a statewide warning system was reinforced by a study published earlier this month that upends one of the key assumptions about the "Big One."

Experts have long believed that the central portion of the San Andreas Fault acts as a barrier stopping a big quake in Southern California from spreading to Northern California, and vice versa. But the new study suggests that supposedly stable segment could rupture, resulting in a mega-quake felt from San Diego to San Francisco.

That sort of snap happened in Japan in 2011, causing the 9.0 magnitude earthquake that killed 16,000 people

the most advanced in the world – is credited with saving lives. China, Italy, Mexico and Turkey also have, or are developing, warning networks.

California, one of the most seismically vulnerable places on Earth, needs a system, too.