



# Oregon

Kate Brown, Governor

## Seismic Safety Policy Advisory Commission

Oregon Emergency Management

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To: Governor Kate Brown, Oregon Senate President Peter Courtney,  
House Speaker Tina Kotek, State Resilience Officer Mike Harryman,  
Legislative Assembly

From: Oregon Seismic Safety Policy Advisory Commission (OSSPAC)

Subject: Recommended Protective Action for Earthquake Early Warning

The Oregon Seismic Safety Policy Advisory Commission (OSSPAC) supports “Drop, Cover, and Hold On” (DCHO) as the only recommended protective action for earthquake early warning utilizing the ShakeAlert system. We make this recommendation for the following reasons:

- **Safety.** By far the most common injuries during an earthquake are caused by falling debris and being thrown to the ground with force. Evacuation is likelier to cause injuries than DCHO.
- **Expert Consensus.** DCHO has been endorsed by The United States Geological Survey (USGS), the American Red Cross, the Federal Emergency Management Agency, the Joint Committee on Education and Outreach and emergency managers from around the United States – all of whom emphasize the need for consistent, evidence-based messaging during a seismic event when seconds matter.
- **Public Familiarity.** DCHO is already well known and understood as a public safety message. In the last decade alone, more than 63 million people in more than 50 countries worldwide have practiced DCHO as part of ShakeOut earthquake drills.

Since the introduction of ShakeAlert to Oregon, some officials have promoted evacuation as an alternative protective action. We believe this notion is based on mistaken assumptions:

- **The assumption that ShakeAlert always gives a two-minute warning before people feel shaking.** Warning time depends on where the quake happens. Two minutes is the best-case scenario. An event that originates on one of the many local crustal faults in Oregon will offer roughly tens of seconds of warning time to those in the Portland region, not enough time to safely evacuate.
- **The assumption that buildings in Oregon will collapse on the scale seen in developing countries.** Very few buildings anywhere in the world collapse completely. In the US, strict building codes have greatly reduced the potential of structural collapse. The 1988 Armenian earthquake had half the energy release of the 1989 Loma Prieta quake; it caused 25,000 deaths as opposed to 100 in San Francisco. The 2003 Paso Robles earthquake in California had the same magnitude as the Bam earthquake in Iran but caused 2 deaths as opposed to 41,000.
- **The assumption that the MyShake app provides a shaking countdown.** It does not. Those who receive the alert do not know how much time they may have before shaking starts.

While proponents of evacuation are working from good intentions, there is simply no data to support evacuation as a supportable protective action for ShakeAlert or in general for earthquake safety in the United States.

References:

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- USGS, (2019). ShakeAlert Protective Actions Guidelines. ShakeAlert Joint Committee for Communication, Education, and Outreach.
- Wood, M. (2018). State-of-the-Art Knowledge of Protective Actions Appropriate for Earthquake Early Warning. Nusura Report for Cascadia Region Earthquake Workgroup (CREW).

cc: OSSPAC Commission Members  
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Joint Committee for Communication, Education and Outreach (JCCEO)  
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