

# EARTHQUAKE WARNING CALIFORNIA



## Earthquake Warning California

Scientists are still unable to predict earthquakes, but thanks to new technology, individuals and organizations can potentially receive a few seconds of notice to take appropriate safety precautions before an earthquake strikes. Earthquake Warning California utilizes the California Integrated Seismic Network, which is a partnership between Cal OES, United States Geological Survey (USGS), UC Berkeley, the California Institute of Technology, and the California Geological Survey. The system uses ground-motion sensors to detect earthquakes that have already started and estimates their size, location, and impact. When it detects a significant magnitude, the system issues a ShakeAlert® Message, providing a warning before shaking begins.

To receive earthquake warnings, individuals and family members can download the MyShake App and ensure phone settings are adjusted to receive emergency alerts, including:

Earthquakes can happen in California at any time, and the transportation industry should be appropriately prepared to react and respond quickly when an earthquake occurs. The California Governor's Office of Emergency Services (Cal OES) invites members of the transportation industry to learn about how they can receive warning before shaking is felt with California's comprehensive earthquake warning program, "Earthquake Warning California." The program includes tools and resources to help warn Californians and visitors as soon as shaking is detected.

This document is intended to supplement existing emergency preparedness procedures. Please review your institution's existing earthquake preparedness plans for full instructions on how to proceed during an emergency.

- **Wireless Emergency Alerts (WEAs):** No-cost text messages for emergency situations (magnitude 5.0 or higher and Modified Mercalli Intensity IV shaking);
- **MyShake App:** Free smartphone app that provides iPhone and Android users with audio and visual warnings (magnitude 4.5 or higher and Modified Mercalli Intensity III shaking). Available in the Apple App and Google Play stores; and
- **Android Earthquake Alerts:** Android phones with updated operating systems are automatically subscribed to Android Earthquake Alerts, which uses the same technology as the MyShake App.

## **Benefits and Applications**

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### **Planes and Trains**

Millions of people, both Californians and visitors, use planes or trains to travel every year. These mass transit vehicles are susceptible to earthquake induced shaking, especially while operating at high speed, which may cause an accident with hundreds of travelers onboard. Earthquake Warning California can help prevent an accident and injuries / fatalities. Transportation organizations operating planes or trains can incorporate Earthquake Warning California resources as follows:

- Integrate Earthquake Warning California resources into an airport's Public Announcement (PA) or alarm system to quickly warn passengers if an earthquake warning is issued, giving them the opportunity to move away from dangerous areas and drop, cover, and hold on.
- Integrate Earthquake Warning California into a train stop's communication system to allow passengers in waiting areas or transit stations the opportunity to move away from dangerous areas, and drop, cover, and hold on.
- Add Earthquake Warning California to air traffic control operations to provide notice to approaching planes not to land.
- Install autonomous automatic stopping systems into commuter train control system.

### **Automobiles, Buses, and Freight**

Earthquake Warning California can give warning to drivers to slow down or stop the vehicle, and avoid high-risk areas (e.g. bridges, overpasses, tunnels). Vehicles traveling at high speed are more likely to be involved in crashes with other vehicles or stationary objects, resulting in potential injuries and vehicle damage. Large vehicles, such as semi-trucks and passenger buses, are more likely to tip if traveling at high speed during an earthquake without advanced warning.

Individuals and roadway transportation agencies can incorporate Earthquake Warning California resources as follows:

- Integrate smartphone functions into dashboards, allowing a flash to warn drivers to slow down and stop
- Integrate Earthquake Warning California resources to automatically issue warnings on digital road signs

# Getting Transportation Systems and Employees Prepared

Roadways and bridges are a primary concern during an earthquake, and their destruction can have a significant impact on moving people and equipment long after a natural disaster. The 1995 Northridge earthquake damaged more than 163 bridges and overpasses, six of which collapsed. Careful and thorough emergency preparedness planning can help ensure the safety of employees and travelers, as well as reduce significant damage to essential infrastructure. Below are five tips that can aid in the preparation process:

- 1. Conduct Vulnerability & Risk Assessment.** To reduce transportation vulnerability to earthquake damage, all transportation organizations should identify and prioritize hazard mitigation measures and policies well ahead of time. Help employees to understand actions to take in a variety of settings, including on bridges, overpasses, or in heavy traffic. For public transit or other transport involving passengers, determine what actions should be taken if an earthquake warning is issued (e.g., use seatbelts where available, taking cover under seats).
- 2. Develop a Mitigation Plan.** Transportation systems likely have a plan in place to quickly respond to an oncoming earthquake, such as slowing down and stopping transportation and notifying passengers to take cover. Review which functions can be done automatically when an earthquake warning is sent out and which require manual intervention. Consider posting instructions for passengers in easily visible areas, such as information about earthquake warnings and reminders of how to drop, cover, and hold on.
- 3. Download the MyShake App and Adjust Phone Settings.** The MyShake App, Android Earthquake Alerts, and WEAs can supplement existing warning systems and give transportation employees and passengers time to take cover before shaking starts. Organizations should demonstrate to employees what an earthquake warning sounds and looks like. Ensure staff knows how to enable mobile devices to get earthquake warnings, such as turning phone location settings to “always on.”
- 4. Incorporate Earthquake Warnings into Existing Emergency Plans.** It's important for individuals to understand their roles and responsibilities before, during, and after an emergency. Consider how to integrate earthquake warnings into existing emergency plans so that personnel can immediately take steps to keep themselves and their cargo (be it hazardous materials or passengers) safe and secure.
- 5. Spread the Word.** Encourage transportation operators and personnel to be familiar with earthquake warning protocols well ahead of time. Determine where information can be posted to help educate employees and / or the public about available resources and what to do in an earthquake. Additional resources and information are available at [www.earthquake.ca.gov](http://www.earthquake.ca.gov).

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## For more information:

Earthquake Warning California is managed by Cal OES. It provides individuals, organizations, and communities with easily accessible earthquake warning and emergency preparedness information, as well as resources. For the latest news and resources, visit [earthquake.ca.gov](http://earthquake.ca.gov). Send questions or comments regarding this fact sheet to [earthquakeinfo@caloes.ca.gov](mailto:earthquakeinfo@caloes.ca.gov).

For information, questions, or comments relating to this fact sheet, email Cal OES at: [earthquakeinfo@caloes.ca.gov](mailto:earthquakeinfo@caloes.ca.gov).