

CALIFORNIA EARTHQUAKE EARLY WARNING
ADVISORY BOARD
OCTOBER 27, 2021, MEETING



***Cal* OES**
GOVERNOR'S OFFICE
OF EMERGENCY SERVICES

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California Earthquake Early Warning Advisory Board Meeting

NOTICE OF MEETING

October 27, 2021, 1:30 PM
Zoom Video Conferencing

Participant Call-In Number: 877 853 5247 | **Meeting ID:** 971 655 7174

Meeting Link: <https://us02web.zoom.us/j/9716557174>

Meeting Agenda: <https://www.caloes.ca.gov/cal-oes-divisions/earthquake-tsunami-volcano-programs/california-earthquake-early-warning-program/advisory-board>

Participating Remotely: All participants

AGENDA

I. CALL TO ORDER/INTRODUCTIONS

II. REVIEW AND APPROVE August 5, 2020 MEETING MINUTES

Advisory Board Members will review previous meeting minutes to adopt or amend

III. GENERAL PROGRAM UPDATE

- a. General update of activities since last advisory board meeting
- b. USGS Presentation on July 8, 2021 M6.0 Antelope Valley Earthquake
- c. Public Comment

IV. SYSTEM OPERATIONS

- a. Update on the system operations
- b. Public Comment

V. RESEARCH AND DEVELOPMENT

- a. MyShake Update
- b. Public Comment

VI. FINANCE

- a. Update on budget
- b. Public Comment

VII. EDUCATION AND OUTREACH OVERVIEW

- a. Overview of the education and outreach campaign
- b. Great ShakeOut
- c. Public Comment

VIII. NEXT STEPS

- a. Discussion of how to increase system adoption
 - 1. State agencies
 - 2. Businesses
 - 3. Public
- b. Public comment

IX. Closing Statements and Public Comment

- a. Advisory Board Members may provide closing statements
- b. Public Comment

X. ADJOURNMENT

Individuals who require special accommodations, or to receive meeting materials, contact the individual below at least seven days prior to the scheduled meeting date:

Jessica Sicard, Earthquake Early Warning Research and Development Analyst
3650 Schriever Avenue, Mather, CA 95655

PREVIOUS MEETING MINUTES

California Earthquake Early Warning Advisory Board Meeting Minutes

California Governor's Office of Emergency Services (Cal OES)
Via Blue Jeans
Mather, CA
August 5, 2020

Members Present:

Mark Ghilarducci, Director of the Governor's Office of Emergency Services
Elizabeth Basnett, Assistant Secretary of Health and Human Services
Lori Pepper, designee of the Secretary of the California State Transportation Agency
Bryan Cash, designee of the Secretary of Natural Resources Agency
Lupita Sanchez-Cornejo, the Speaker of the Assembly's appointee representing the interests of private businesses
Melinda Grant, designee of the Secretary of the California Business, Consumer Services and Housing Agency
Jenny Novak, System-wide Emergency Manager, designee of the President of California State University
Alisha Jensen, Office of Emergency Management, designee of the President of the University of California

Members Absent:

Michael Lewis, Governor's appointee representing the utilities industry
Holly Porter, Senate Committee on Rules appointee representing county

I. Welcome / Call to Order / Introductions

- Meeting called to order by Advisory Board Executive Officer Amanda Moyer. A quorum was achieved.
- Director Mark Ghilarducci provided opening remarks about the infrequency of the advisory board meeting during these challenging times where California is constantly confronted with statewide disasters. Now that Cal OES is significantly into the COVID response and wildfire season is approaching, this is a great time catch up regarding the past year with the earthquake early warning system. Cal OES and the partners have done a great job with ensuring the system is operational, and recent earthquakes have put it to the test. Welcome.

II. REVIEW AND APPROVE September 26, 2019 MEETING MINUTES

- Previous meeting minutes were moved by Ms. Sanchez-Cornejo and Assistant Secretary Cash.

III. GENERAL PROGRAM UPDATE

- Seismic Hazards Branch Chief Rachel Sierer Wooden provided general updates. These updates focused on the performance of MyShake since it has been in the public domain since the 30th anniversary of the Loma Prieta earthquake on October 17, 2019. The first WEA alert was issued on January 24, 2020. The first WEA alert in Spanish occurred on April 11, 2020. Twenty events have met the alerting criteria as of August 4, 2020.
- Public Comments: None.
- Dr. Jennifer Strauss of the University of California, Berkeley, MyShake Product Manager, provided updates regarding the MyShake app. Dr. Strauss discussed MyShake's performance during large events and the spike in downloads after these events. There are 1M users currently and they're scaling to allow for 4M users. The system will include features for those with access and functional needs, and it will also have a sharded system so parallel batches of alerts can go out and more people will receive alerts sooner.
- Comments:
Tina Curry, Chief Deputy Director of Operations at the California Governor's Office of Emergency Services, asked if Dr. Strauss could expand on the grid distribution because a lot of the grids pictured also covered Nevada. She also asked if Dr. Strauss could expand on earthquakes that happen outside of California and about the experience of those who have downloaded MyShake but do not live in California. Dr. Strauss said they are providing a public service app, and the team wants to ensure they provide a public service and do not invade privacy. There is a balance of getting locations and sending alerts without having to collect personally identifiable information, and this is leading to adoption of interesting features. Borders are political but earthquakes do not honor these borders. We do not have the authority to alert outside of California.
- Assistant Secretary Cash asked about the average time for alerts to reach users and if that is recorded in MyShake. Dr. Strauss said that the numbers she provided earlier are an average of when phones received alerts. That was 20% of devices getting the alert in 5.1 seconds, 50% within 7.1 seconds, and 80% within 9.4 seconds.
- Deputy Secretary Pepper asked about the difference in time for phones to receive the alerts. She asked if the distance from the

epicenter and where the signal originates play into the time. Dr. Strauss said that when you send a message on a cell phone, those are not sent as a broadcast where the message goes to several phones at once. Alerts are sent in batches. The phones first identified as belonging in the target squares go right away. Batches send out as quickly as possible and they cannot all be sent at once which is why some phones receive it later. The system has one computer to send out batches, but the new sharded system will allow parallel batches to go out. This will decrease the alert speed going forward.

- Jenny Novak, California State University, asked if researchers can determine if experience reports include information about if people received the alert before or after the event. Dr. Strauss said experience reports focus more on shaking intensity and if there is structural or road damage. Different scientists have talked about doing post-earthquake surveys but we want people to take protective actions, especially during big events, instead of figuring out when they got the alert. They decided to focus on a post-earthquake experience instead of shaking in the moment.
- Public Comments: None.

IV. SYSTEM OPERATIONS

- Branch Chief Sierer Wooden discussed After Action Report development in a presentation. After launching EEW, it became essential to measure success and identify places for improvement and provide full transparency. With the system partners, Cal OES developed a comprehensive AAR template with the goal to keep it flexible so that they can tailor the template as they learned more. Cal OES and partners developed AAR trigger criteria: MyShake distributed to 1,000+ phones; WEA alert distributed; and anytime MyShake or WEA has an alert malfunction. A template allows Cal OES and system partners to quickly develop a report and answer questions about latency and how the system performed.
- Ms. Novak asked if there is a way to measure public response with qualitative feedback by collecting social media data from users of the system. Branch Chief Sierer Wooden said that at this time, this has not been a consideration, but the team is working on a comprehensive education and outreach campaign. One aspect is a social media report that is provided to Cal OES and partners on a daily basis to keep a pulse on what is happening. Berkeley looks at feedback through their app. Ms. Novak asked if the AAR reports are

already in use. Branch Chief Sierer Wooden said that the report templates have just been finalized and vetted. Ms. Novak asked if these reports will be shared with the Advisory Board. Branch Chief Sierer Wooden said that it hasn't been discussed yet; however, they are discussing a possible high level view for the Advisory Board.

V. EDUCATION AND OUTREACH OVERVIEW

- Jim Wright of Pulsar Advertising presented on the strategic educational outreach campaign designed to educate Californians of all ages on how to receive earthquake warnings and how to react to them. The plan focuses on digital strategies and outreach via TV. The campaign will be in English, Spanish, Chinese, and Vietnamese. Three components of the campaign: paid advertising, public relations, and measurement. The campaign will be measured in two ways. The first is through four focus groups for message testing: 2 Bay Area focus groups with diverse members and 2 Southern California group with diverse members. The groups responded best to the "don't get caught off guard" campaign. They wanted to know if it's an earthquake preparedness message and what's in it for them. There will also be online surveys.
- Alberto Gonzalez, President and Executive Creative Director of Pulsar Advertising, spoke about the creative campaign and how it illustrates how an unexpected event in our life can catch us off guard. The campaign suggests that earthquakes don't have to catch you off guard if you have the MyShake app. Pulsar then showed examples of the advertisements. The campaign allows for different tones with universal kinds of moments.
- Jim Wright said the program names that performed best are: California Earthquake Warning System and Earthquake Ready California. These names sound trustworthy. Baby boomers preferred California Earthquake Warning System and younger people preferred Earthquake Ready California.
- Ms. Alicia Jensen, University of California, said that she likes the humor in the advertising. She didn't see anything actionable in the ads and recommends a call to action to download the app or go to a website. With the heartbeat, there's the image of the cell phone on each slide. The heartbeat would be better if it's the MyShake logo so when they find it, they recognize it. She likes Earthquake Ready California name. She said she would like earthquakeready.ca.gov as a website. Executive Officer Moyer said she appreciates the feedback because the entire team is close to this and they would like other perspectives. The examples

seen today are examples of creative materials. The call to action will be in the final product and on earthquake.ca.gov. Once a name is selected, further development of the logo will take place.

- Ms. Novak liked Ms. Jensen's comments and the title Earthquake Ready California. It rings a familiar bell with local governments who are using the "ready" word in terms of preparing for hazards so it makes sense. She would like to see how this app works in a video and how it will allow users to take critical actions. She suggested showing someone who got the alert versus someone who didn't. The phrases used in the ads are eye catching, but she thought the one about overtime was related to watching a basketball game. Since these ads draw people it will be important to have a good, informative website. Executive Officer Moyer said part of the project is a refresh of earthquake.ca.gov. She thanked Ms. Novak for the video component suggestion.
- Director Ghilarducci said these comments have been outstanding and encouraged other Advisory Board members to provide feedback if they have any.
- Undersecretary Grant agreed that Earthquake Ready is a great title but some kind of call to action is needed. Consider adding an action word to the title.
- Speaker Sanchez-Cornejo said she finds Earthquake Ready California quicker and easier to say, easier to remember, and if we have to use an acronym, easier to use.
- Director Ghilarducci said that everyone likes the title preferred by the younger people.
- Undersecretary Grant said these ads for earthquake early warning don't acknowledge what is different from other preparedness messaging. Dr. Strauss mentioned privacy hurdles and that they're working to not overreach. It will be challenging to get people to download the app and trust. She's not sure how to do that in a quick ad so people will take the step to download the app.
- Assistant Secretary Cash stressed that privacy is a good idea and liked the suggestion about videos showing how to use the app and how privacy is protected. He also favors Earthquake Ready California and thinks the project is going in the right direction.
- Fabia Terra, Project Manager at UC Berkeley, would like to see more diversity in the ads due to California's diversity. Branch Chief Sierer Wooden said that those were just examples of what the creative content will be. We're shooting video graphics starting tomorrow and they will be more representative because we want to represent every Californian. The campaign will be inclusive and also

include people with access and functional needs who may not be able to drop, cover, and hold on.

- Executive Officer Moyer thanked everyone for feedback and is going to address the questions in the chat.
- Public Comments:

Keith Porter said that the Pulsar Advertising campaign looks great and appears to focus on public warning for individuals to take self-protective actions. He asked if the team deliberately focused on that group or if they intend to include business, industry, and fire stations, including more technical approaches to using EEW. Mr. Porter also mentioned that he developed education and outreach materials that might be useful for the program to address these groups. Executive Officer Moyer asked to have Patrick George of Pulsar Advertising answer that question. Mr. George said that a small piece of a much larger campaign was presented today. There will be a lot of public relations outreach, including third party partners that will carry messaging for their specific audiences. There will be specific technical messages that will appeal to businesses, civic organizations, and hospitals. Mr. Wright and Mr. Gonzalez were presenting the overarching idea. Mr. Porter asked Mr. George and the Seismic Hazards Branch to look over the materials he developed with funding from the Gordon and Betty Moore Foundation as a possible addition to the campaign. Executive Officer Moyer said that the materials have already been provided to Pulsar and the PIO for review.
- Dave Crocker, USGS, seeing the California Earthquake Warning System name choice is a dangerous one to use in that it has connotations of predicting earthquakes, which we cannot do.
- Mark Benthian of USC said Earthquake Ready California might make people think it's about getting supplies and strapping furniture and may not give them the sense that it's about an alert and taking action. He does not have an alternative except that it should show immediateness. He understands the complexity but is concerned about people taking the title the wrong way.
- Mr. George asked if the campaign will steer people to the website and if there are both desktop and mobile versions. He asked if there will be links or QR codes on the websites so people can find ShakeAlert in their respective app stores easily. He also asked if there's a way to have cell phone providers preload ShakeAlert on new phones and set it so it's impossible to uninstall. This would bypass the process of asking people to load it. Branch Chief Sierer Wooden said that desktop and mobile versions of the website are in

progress and they will be a one-stop shop. The QR code is an excellent idea that they have not explored yet. They will also consider the recommendation to have cell carriers preload the app.

- Ms. Terra wanted to reiterate Mr. Crocker's comment about the importance of making sure people understand the app doesn't predict earthquakes. Earthquake Ready California is more scientifically appropriate.

VI. FINANCE

- Dana Ferry, System Operations Project Manager, discussed the 2019-2020 spending plan and gave a report on last year's activities. In April, May, and June, executed contracts totaled \$16.3 million for expenditures in several areas. Another \$1.6 million was awarded in Education and Outreach and \$7.9 million was awarded to CGS, Caltech, and UC Berkeley for supporting additional seismic sensors and enhancing data processing abilities. Partners are going into phase 1 of installation and need more funds to get people into the field and hook up sensors to microwave. One point five million went to continue support for MyShake and enhanced monitoring for emergency managers. They worked with CGS to upgrade and modernize the CISN display for emergency managers. This program is used globally.
- Heather Carlson, Assistant Director of Finance and Administration, discussed the finance related to the 2020-2021 budget allocation for EEW, \$17.3 million loan from Schools Land Bank Fund. General Fund experiencing a lot of competing priorities considering the state of the state and administration. The state was able to find the \$17.3 million as a one-time investment. There's been over \$40 million in general fund investments in California earthquakes so there was a way to work around the status of the General Fund. The \$17.3 million is one-time funding and Cal OES is looking for ongoing funding. These funds will support system operations, program management, education and outreach, and research and development to expand earthquake mitigation. Cal OES is faced with another precarious budget cycle and will keep everyone updated.
- Public Comment: [name unknown] I have a question about the word loan. Will we be able to repay this loan? Director Ghilarducci said that an allocation was made through normal budget process through general fund for this \$17.3 million. Given the budget shortfalls due to COVID, the state moved money from a different special fund source with the caveat that it would be a loan and

then the General Fund will repay that loan from the special fund later. In terms of internal action, the idea is Cal OES will move forward with the program. It would be at least partially funded through private sources. Cal OES continues to work with the Department of Finance and the Legislature to do that. The Governor is dedicated to funding this program.

- Public Comment: None

VII. NEXT STEPS

- Branch Chief Sierer Wooden said Cal OES continues to leverage public and private relationships including technology leaders to find new and innovative ways to put earthquake early warning in the hands of every Californian. These partnerships are flourishing and the team has the power to expand the reach of alerts soon. Cal OES hasn't had a lot that the Advisory Board could help with in the past, but now they are reaching out and asking for help in getting out the word about EEW. Cal OES and its partners are quickly working to get the website overhauled so it will be a one-stop shop with all the information you need, including toolkits for different sectors.
- Chief Deputy Director Curry said she appreciates the feedback from the board today. New and exciting things are coming with the campaign. There are things the Advisory Board can do now to work with their various sectors, whether that is hospitals or transit. Please use these tools for your workforce. There are always disasters around the corner, and earthquakes will continue to happen anyway. They hope these resources will permeate in the different sectors and expand EEW applications.
- Assistant Secretary Cash commented that when the drought was going on, we had the Save Our Water campaign and logos on our emails and that they're doing that for the census this year. He asked if Cal OES has anything that they can put in their emails and if there are any materials they can send to all employees so they're aware of the app and feel encouraged to download it. Branch Chief Sierer Wooden said that that's part of the toolkit. They want to make it as easy as possible to share the information and to also tailor it to fit your organization's needs. These are resources you can easily throw on Instagram and other social media platforms. Assistant Secretary Cash asked if these resources are coming out soon. Branch Chief Sierer Wooden said that they are putting the final touches on them now.

- Ms. Novak asked if there are timelines for specific sector toolkits and if there will be one for education. Branch Chief Sierer Wooden said they are working on several toolkits right now and there is not a finalized toolkit for higher education yet. She wishes to reach out to higher education entities to finalize those kits. She's looking to get these kits out as soon as possible, and once that happens, the content can be shared freely. Ms. Novak said she would like to work with Ms. Jensen to make sure all California campuses get this information. Branch Chief Sierer Wooden added that a component will be a monthly newsletter to keep a pulse on what's happening so our team can adjust if needed.

VIII. Closing Statements and Public Comment

- Executive Officer Moyer thanked the Board for joining in this format.
- Public Comments: None
- Advisory Board Comments:
- Ms. Sanchez-Cornejo thanked Cal OES and everyone on the Board. She said she understands that it is challenging for Cal OES to meet between earthquakes and fires and appreciates this time.
- Executive Officer Moyer read the official roll call from the previous Advisory Board meeting minutes so they can be officially approved. The Board passed a motion to approve attendance.

IV. ADJOURNMENT

- Ms. Sanchez-Cornejo moved to adjourn the meeting. Deputy Secretary Pepper seconded the motion.