

2025

Annual Report



Cal OES
GOVERNOR'S OFFICE
OF EMERGENCY SERVICES

Alfred E. Alquist Seismic Safety Commission (SSC)

Improving the seismic safety and resiliency of California communities by providing resources and guidance, facilitating research, and fostering collaboration in earthquake preparedness, mitigation, and recovery.

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December 31, 2025

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Introduction

The Alfred E. Alquist Seismic Safety Commission (SSC) is pleased to present its 2025 Annual Report as required by Government Code section 8589.75, subdivision (b). The Commission is required to report annually to the Governor and Legislature on its findings, progress, and recommendations related to activities of the Commission and the state toward higher levels of seismic safety and any other seismic safety issues. This report provides a brief overview of the SSC projects in 2025. Once projects are completed, all reports or studies are posted on the SSC "publications" website at https://ssc.ca.gov/forms_pubs/.

As the new Executive Director, I want to acknowledge that 2025 marks 50 years of the SSC. Over the past five decades, the SSC has led and supported a variety of legislative initiatives and policies to reduce earthquake risk for California. We could not have achieved this without numerous collaborators, particularly our most important partner, Cal OES, who provides guidance and support directly to the SSC.

We still have much to do. As earthquake science continues to evolve, so does our understanding of the technologies, tools, and structures we can use to better strengthen California. Our work as a Commission continues as we strive to improve seismic safety for all Californians. We look forward to continuing to serve Californians as we grow, learn, strengthen, and adapt to meet the seismic challenges of the next 50 years and beyond.

Sincerely,

Dr. Sara K. McBride

DR. SARA K. MCBRIDE
Executive Director
Seismic Safety Commission



SSC Vision

A California that is prepared for, safe from, and resilient to seismic hazards.

SSC Staff

Dr. Sara K. McBride, Executive Director

Vacant, Program Manager

Tanya Black, Administrative Processes Manager

Jia Wang-Connelly, Senior Structural Engineer

Tanya Cole, Program Analyst

Harold Selby, Program Analyst

SSC Commissioners, as of December 31, 2025

Honorable David Rabbitt Chair, Local Government

Honorable Debra Garnes Vice Chair, Local Government

Stoyan Bumbalov California Building Standards Commission

Alternate: Irina Brauzman

Ida A. Clair California Division of State Architect

Alternate: Diane Gould

Joone Kim-Lopez Public Utility

Kevin McGowan Emergency Services

Dr. H. Kit Miyamoto Structural Engineer

Honorable Gail Pellerin State Assembly

Alternate: Stephanie Nguyen

Alternate: Tomasa Duenas

Honorable Cindy Silva Local Government

Nancy Ward California Governor's Office of Emergency Services

Alternate: Lori Nezhura

Alternate: Jose Lara

Vincent Wells Fire Protection

Vacant Planning

Vacant Insurance

Vacant California State Senate

Vacant Social Service



Seismic Safety Commission Background

The SSC was established in 1975 to advise the Governor, Legislature, state and local agencies, and the public about strategies to reduce earthquake risk. In 2020, the SSC joined the Office of Emergency Services (Cal OES) (Gov. Code. §8589.71, et seq.). In coordination with Cal OES, SSC offers a broad perspective of the overall seismic risk to the state, sets consistent policies and goals without regard to political agendas, and makes independent findings and recommendations. The SSC investigates earthquake-related issues and evaluates and recommends to the Governor and Legislature policies and programs needed to reduce earthquake risk.

The SSC consists of 15 Commissioners: 10 appointed by the Governor with expertise in earthquakes, disaster-related fields, or local government; one legislative member from the California State Senate; one from the California State Assembly; and three Commissioners representing the Governor's Office of Emergency Services, the Division of State Architect, and the Building Standards Commission. The SSC is supported by six staff members.

To ensure a coordinated framework for establishing earthquake safety policies and programs in California, the SSC leverages the expertise of its members, who are experienced in earthquake-related fields, to review, evaluate, and interpret scientific information and provide recommendations to guide and shape earthquake safety policies. The SSC assists in the state's mitigation efforts through collaboration with Cal OES and interested parties. The SSC responds after earthquakes to gather information and recommends policy changes based on lessons learned.



Financial Summary

The following provides background information on the SSC's various funding sources.

Insurance Fund

California Insurance Code (CIC) section 12975.9 established the Seismic Safety Account as a special account within the Insurance Fund to, upon appropriation by the Legislature, fund SSC and the California Department of Insurance (CDI). The Seismic Safety assessment is imposed on each person who owns real property, commercial or residential, covered by a property insurance policy. CDI calculates the assessment annually every August 1st for all commercial and residential earned property exposures reported during the previous calendar year. Pursuant to CIC section 12975.9 subdivision (b), the annual assessment shall be based upon the number of earned property exposures from both commercial and residential insurance policies, the amount required for the support of the SSC, the actual collection and administrative costs of CDI, and the maintenance of an adequate reserve. In FY 2024-2025, the assessment was charged at \$0.13 per earned property exposure.

General Fund

As part of the state's broader preparedness efforts, the SSC was reorganized under Cal OES as set forth in Government Code Section 8589.71. The Budget Act of 2021-22 allocated General Fund to the SSC to support the reorganization. The reorganization has increased the coordination efforts between SSC and Cal OES, along with other components of the state's multi-hazard strategy, earthquake preparedness, and broader distribution of seismic safety policies and recommendations.



California Research and Assistance Fund

In August of 2007, the SSC was awarded a one-time allocation of funds through a Gift Agreement from the California Research and Assistance Fund (CRAF). The CRAF funds SSC research and education projects. As the CRAF Gift Agreement outlines, the SSC is entitled to collect up to 10% of overhead expenses for contracts awarded through the fund. The fund's recipients develop products for the SSC and have an overhead limit of 25%. This fund is currently active.

Contract with the California Public Utilities Commission (CPUC)

The SSC contracts with the CPUC as an Independent Peer Review Panel (IPRP) member and receives reimbursement for staff time. IPRP is tasked with providing expertise to the CPUC while also assuring the public that Diablo Canyon Power Plant (DCPP) seismic studies are being performed appropriately. Members of the IPRP include representatives from CPUC, California Energy Commission, California Coastal Commission (CCC), Cal OES, California Geological Survey (CGS), SSC, and County of San Luis Obispo (SLO). IPRP activities are further discussed on page 11.

SSC Operating Budget Fiscal Year 2024-2025

Insurance Fund—Seismic Safety Account	\$1,450,000
General Fund	\$351,000
California Research and Assistance Fund	\$700,000
California Public Utilities Commission	\$15,000



Reporting Requirements

The following provides background information on the SSC's reporting requirements.

AB 100 – Annual Reporting Requirement of the Seismic Safety Commission

This annual report to the Governor and Legislature includes how the State has developed multiple seismic safety risk reduction and recovery programs. Improved descriptions of what entities have been doing to reduce seismic risk will lead to a better understanding and improved cooperation between State departments, local governments, universities, and private industry. The Legislature finds numerous agencies at various levels of government have substantial responsibilities in earthquake preparedness and seismic safety and has explicitly designated nine agencies to report to the SSC. The SSC reporting is not limited to those agencies. Reports are available on the SSC website. Future work involves developing a more strategic and aligned approach to the AB 100 and projects funded by the SSC.

In 2025, the SSC received reports from:

- CA Department of Health Care Access and Information (HCAI)

As an annual reporting requirement, this project is ongoing.



AB 1770 – New Annual Reporting Requirement Beginning January 1, 2026, Regarding Activities Related to Fire Stations and Seismic Safety

In September 2024, Government Code Section 8989.75 was amended to authorize the SSC, in coordination with the Department of Forestry and Fire Protection and Cal OES, to do the following:

- Develop a list of all fire stations in California and each station's status in meeting the standards of the Essential Services Buildings Seismic Safety Act of 1986 (Health & Saf. Code, § 16000 et seq.) to determine which stations are adequately designed and constructed to minimize fire hazards and to resist the forces generated by earthquakes, gravity, and winds.
- Collect data on earthquake early warning technology implementation in all fire stations in California and their interest in implementing that technology.
- Identify potential sources of funding for fire station seismic mitigation activities.

In addition, the amendment requires, beginning January 1, 2026, the SSC to provide an annual report to the Senate and Assembly Committees on Emergency Management and the Senate Committee on Governmental Organization, describing the SSC's actions, and conclusions on the activities listed above.



Consultant Projects

The following provides background information on the SSC's consultant projects.

Review of Project Delays for the San Francisco Public Utilities Water System Improvement Program (WSIP)

Pursuant to Water Code Section 73502, the Wholesale Regional Water System Security and Reliability Act required the City and County of San Francisco Public Utilities Commission (SFPUC) to adopt a specified program of capital improvement projects designed to restore and improve the Bay Area regional water system that delivers water from the Hetch Hetchy Reservoir in Yosemite.

With any notice of project deletions or delays for the program, the State Water Resources Control Board and the SSC shall each submit written comments to the City of San Francisco and the Joint Legislative Audit Committee no later than 120 days after the date of notice of that change about the significance of the changes with respect to public health and safety. SSC reviewed the *Fiscal Year (FY) 2024-2025 Annual Report Water System Improvement Program San Francisco Public Utilities Commission* dated September 1, 2025. With the continued progress achieved between July 1, 2024, and June 30, 2025, the overall percent completion of the Regional Program increased from 98.9% to 99.3%. The program remains in its administrative close-out phase, with planning and construction activities continuing on the two remaining regional projects. As of June 30, 2025, planning, environmental, design, and construction phases were 94.5%, 99.9%, 99.9%, and 99.4% complete, respectively.

All seismic reliability projects with a primary or secondary Level of Service (LOS) goal remain 100% complete, and 41 of the 43 Regional WSIP projects with LOS objectives have achieved their LOS goals. The two remaining regional projects with a water-supply LOS objective—the Alameda Creek Recapture Project and the Regional Groundwater Storage and Recovery Project—continue to advance toward completion consistent with the current baseline schedule. As of June 30, 2025, planning and construction were in progress on two regional projects valued at \$214 million, while 49 projects valued at approximately \$3.58 billion were completed or in close-out.

As of June 30, 2025, the overall WSIP remains forecast to be complete in June 2032, consistent with the March 2024 Revised WSIP Baseline approved by the SFPUC Commission. This project is in progress.



Independent Peer Review Panel for Diablo Canyon Nuclear Power Plant

In 2022, the IPRP was tasked with reviewing the seismic assessment for the Diablo Canyon Power Plant (DCPP) in a consulting role for the Diablo Canyon Independent Safety Committee (DCISC) (see Pub. Util. Code, § 712.1, subd. (e)(1)). SSC is a member of the IPRP.

On February 1, 2024, Pacific Gas and Electric Company (PG&E) released a report, "Diablo Canyon Updated Seismic Assessment," updating its previous seismic assessment (PG&E, 2015) for the DCPP. The initial findings from IPRP were shared with the public, PG&E, and the DCISC on August 27, 2024. IPRP Final Response letter "PG&E Seismic Update" is under review in CPUC.

The seismic study required for DCPP is ongoing.

This project is in progress.



SSC Projects

The following provides background information on the SSC's projects.

Earthquake and Fire Following Earthquake Resilience of Mid-Rise Cold-Form Steel (CFS) Buildings

Research group: The University of California of San Diego (UCSD)

The SSC and UCSD executed a contract in March 2022, to improve the understanding of mid-rise CFS-framed building systems under earthquake and post-earthquake fire conditions. Central to this effort is earthquake testing, post-earthquake repair, earthquake re-testing, and live-fire testing of a CFS 10-story building constructed on the UCSD, large high-performance outdoor shake table. Through shaking, implementation of repair strategies, and live-fire testing, the project team will facilitate an understanding of the performance, recovery time, and resiliency of these types of buildings when subject to earthquake and live-fire scenarios.

In January 2024, an amendment to the contract was signed to utilize Unmanned Aerial Vehicles (UAVs) to capture detailed characteristics of testing events to add a unique set of otherwise unobtainable data for correlation with other measurement sources (e.g., terrestrial visuals and point-wise analog sensors).

The project is behind schedule due to delays of another project on the shake table. Construction of the test specimen on the shake table began in late September 2024. The schedule was adjusted, the material was delivered onsite, and construction began in early October 2024. Construction continued through early 2025, followed by three months of instrumentation. Earthquake testing began in late Spring 2025, and live fire tests in Summer 2025.

This project is in progress.



Regional Scale Consequences Assessment of Earthquake Sequence Scenarios in California

Research group: The Regents of the University of California, University of California Berkeley/ Pacific Earthquake Engineering Research Center (PEER)

PEER and the SSC partnered to improve understanding of the consequences and burden on emergency response should an earthquake like the 2023 Türkiye event happen in urban centers of California. Working with the United States Geological Survey (USGS), California Geological Survey (CGS), Southern California Earthquake Center (SCEC), and other subject matter experts, the SSC identified two earthquake sequences (one in Southern California and one in Northern California), which are scientifically plausible, albeit rare, but likely to be devastating. PEER is assessing the consequences of the selected earthquake scenarios at regional and local levels.

The deliverables include two reports:

- Volume 1: Lessons from Historical Earthquakes and Hazard Analysis
- Volume 2: Regional risk simulation on tectonics/triggered events, like Türkiye, modeling locations in Northern and Southern California entitled, Regional Scale Consequence Assessment of Earthquake Sequence Scenarios in California. The report will include regional-scale damage assessments for a scenario in Northern California (M7.21 Hayward/M7.23 Calaveras) and in Southern California (M7.25 Newport-Inglewood/M7.05 Palos Verdes).

The reports have been delayed. Delivery will occur in 2026.

This project is in progress.



***Paradigm Shift in Metric Evaluation Cost of an Earthquake and
Recommendations on Creating Resilient Communities
Research group: Colorado State University/Interdependent
Networked Community Resilience Modeling Environment (IN-CORE)***

The SSC and Colorado State University have partnered to enhance understanding of the actual cost of an earthquake and to develop recommendations for building resilient communities. Working with SSC, the IN-CORE project team provided technical quantification for the economic impact of an earthquake with intensity comparable to that experienced by Rio Dell during the 2022 Ferndale earthquake sequence. IN-CORE's recovery metrics can help better understand socio-economic disparities between communities and their recovery capabilities post-earthquake, given the available resources and government aid. The towns of East Richmond Heights and Monte Sereno will be compared to Rio Dell, using similar damage levels as those from the 2022 Ferndale earthquake sequence. The report was approved at the October 9, 2025, meeting. The Principal Investigator is working on making the data and model publicly available through the IN-CORE platform.

This project is in progress.



Quake Heroes Expos

Research group: The University of Southern California

The SSC signed a contract with the University of Southern California (USC) in June 2024 to provide a series of events featuring their Quake Heroes documentary film, which discusses the 1994 Northridge earthquake. The goal is to inspire preparedness activities of people across California. These events will include large multi-component Quake Heroes Expos with partner booths, displays, earthquake simulators, and a screening of the Quake Heroes film. The SSC staff anticipate ten (10) events in primarily socially vulnerable communities throughout California. This contract also includes dubbing the film into Spanish and Chinese. SSC staff were working with USC on an events schedule and expected the expos to be completed in 2026.

However, due to changes in the project's delivery timelines, the contract was terminated.

The contract expired on May 30, 2025.



Website Update with Capitol Tech Solutions

The SSC staff submitted a request for proposal for a contractor to update and create a new interactive “120 Years of Seismic Safety” page/infographic. In addition to an overall content review/update and technical assistance, update the current website to utilize the Cal OES template.

The graphic design service aims to educate all Californians about the SSC's tools and resources by producing creative materials. The goal is to ensure that all communications are culturally and linguistically appropriate and responsive to a rapidly changing climate by producing innovative materials.

Capitol Tech Solutions is in contract with SSC to accomplish these goals.

This project is in progress.



Building Health Monitoring/MyShake App

Research group: The Regents of the University of California, Berkeley Seismology Lab

The MyShake application (<https://myshake.berkeley.edu/>), developed by the UC Berkeley Seismology Lab, is a citizen science seismology app. Most importantly, it delivers earthquake early warning alerts from California's Earthquake Early Warning System (<https://earthquake.ca.gov/>) to citizens across the state. As the official state app for earthquake alerts, its development and operations are funded by the California Office of Emergency Services. In addition to the alerts, the app also transforms smartphones into portable seismometers by leveraging their built-in accelerometers.

The overall goal of the SSC partnership with researchers from the UC Berkeley Seismology Lab is to address key technical challenges, such as detecting early damage by identifying significant shifts in natural frequencies after an earthquake and determining how to infer damage. This effort could enable quick assessments of structural integrity, support long-term monitoring by tracking frequency changes over time, and help identify gradual structural degradation. By tackling these technical challenges, the project will validate the proof of concept for using the MyShake system for structural health monitoring. The kickoff meeting was held on September 18, 2025.

This project is in progress.



Reduce Fire Following Earthquake Risk and Improve Firefighting Water Capacity

Research group: The Regents of the University of California, Berkeley

Fire following earthquakes is regarded as low-probability but high-consequence events, although there is little basis to believe the probability is low. Indeed, under current conditions, a large quake in California's urban areas would almost certainly cause hundreds of ignitions leading to widespread fires.

Seismic gas shutoff devices (SGSDs), also known as earthquake gas valves, can effectively shut off gas to a building during an earthquake, potentially preventing gas-fed fires, which account for a significant portion of post-earthquake ignitions. However, the rate of SGSD installation remains slow, with only some jurisdictions requiring them—usually only for new construction or major renovations. The proposed research will identify densely built, highly seismic areas where widespread and comprehensive installation of SGSDs is cost-effective, focusing on a study area in Southern California.

Additionally, the project aims to enhance the reliable water supply for fighting large fires after earthquakes. This objective also supports firefighting efforts in wildland-urban interface (WUI) conflagrations. It will be achieved by compiling a survey of the current status of fire and water agencies to ensure access to firefighting water and by developing a mitigation “toolkit” that agencies can use to improve their situation.

This project is in progress.



Mobile Home Building Code Project

SSC staff submitted a Federal Emergency Management Agency (FEMA) Building Resilient Infrastructure and Communities (BRIC) 2023 Building Code Plus Up grant application to review the current California Code of Regulations (CCR) relating to tie-downs, earthquake-resistant bracing systems, and foundation systems for manufactured housing units. It will also assess the performance of these home types in recent earthquakes (e.g., Anchorage (2018), Ridgecrest (2019), and South Napa (2014)). Additionally, modeling and testing of systems in a laboratory environment will be conducted. The level of protection provided by current systems is unclear. This project aims to update existing codes and regulations and develop seismic code provisions that do not currently exist.

The work will be performed by an as-yet-unknown contractor, with input from a project steering committee assembled by SSC staff. After the code provisions are drafted, the project steering committee will lead the code adoption process.

Any recommended code updates, informed by lab tests and analysis, if adopted statewide, will quantify and reasonably enhance the level of protection for manufactured houses.

FEMA approved the BRIC Building Code Plus Up grant in late November 2024.

This project is in progress.



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