

# Annual Report

## 2018 ALFRED E. ALQUIST SEISMIC SAFETY COMMISSION

*Mission: To provide decision makers and the general public with cost-effective recommendations to reduce earthquake losses and expedite recovery from damaging earthquakes.*

### **Alfred E. Alquist Seismic Safety Commission (SSC)**

---

Tel (916)263-5506  
Fax (916)263-0594

1755 Creekside Oaks Drive,  
Suite 100  
Sacramento CA 95833

[www.ssc.ca.gov](http://www.ssc.ca.gov)

---

## Contents

|                            |      |
|----------------------------|------|
| Executive Summary          | 1    |
| SSC Commissioners          | 2    |
| Legislative Authority      | 3    |
| Financial & Budget Summary | 4-5  |
| 2018 Projects              | 6-15 |

## Executive Summary

---

The following annual report provides a brief overview of the projects that the Alfred E. Alquist Seismic Safety Commission (SSC) was engaged in 2018. Once the projects are concluded, any reports or studies produced are placed on the SSC “publications” webpage at <http://www.ssc.ca.gov/pub.html>

The SSC is the primary seismic resource for the State of California dedicated to reducing earthquake risk for the people of California since 1975. The SSC investigates earthquakes, reports on earthquake-related issues, and evaluates and recommends to the Governor and Legislature policies needed to reduce earthquake risk. Although the SSC does not have any governing authority on earthquake policy, the SSC strives to ensure a coordinated framework for establishing earthquake safety policies and programs in California.

Richard McCarthy,  
Executive Director

### SSC’s Vision

*To provide leadership in implementing and achieving the goals and objectives in the California Earthquake Loss Reduction Plan, including to advance learning about earthquakes and risk reduction in both the short and long term, advance the earthquake-resistant designs of buildings and other important structures, and advance the preparedness and emergency response systems for earthquakes.*

### 2018 SSC Staff

Richard J. McCarthy-----Executive Director  
Robert Anderson-----Senior Engineering Geologist  
Lena Daniel-----Chief Administrative Manager of Operations  
Michael Orille----- Project Analyst  
Fred Turner-----Senior Structural Engineer  
Salina Valencia-----Director of Legislative/ Communications

**2017 SSC Commissioners**

| Name                      | Area of Expertise                          |
|---------------------------|--|
| Michael Gardner           | Local Government                           |
| Tracy Johnson             | Public Utilities                           |
| Senator Anthony Cannella  | California State Senate                    |
| Assemblymember Ken Cooley | California State Assembly                  |
| Mark Ghilarducci          | California Office of Emergency Services    |
| Mia Marvelli              | California Building Standards Commission   |
| Chester Widom             | California State Architect                 |
| Randy Goodwin             | Architectural & Planning Building Official |
| Dr. Kit Miyamoto          | Structural Engineer                        |
| Jorge Meneses             | Geotechnical Engineer                      |
| Ian Parkinson             | Emergency Services                         |
| David Rabbitt             | Local Government                           |
| Timothy Strack            | Fire Protection                            |
| Andrew Tran               | Insurance                                  |
| Cindy Silva               | Local Government                           |
| Fuad Sweiss               | Mechanical Engineer                        |
| Edward Valenzuela         | Local Government                           |
| Ivan Wong                 | Seismologist                               |
| Vacant                    | Geologist                                  |
| Vacant                    | Social Services                            |

## **Authority & Statue**

The California Seismic Safety Commission (SSC) was established in 1975 to advise the Governor, Legislature, state and local agencies, and the public about strategies to reduce earthquake risk (Government Code §8870, et seq.).

The SSC is an independent unit within the Business Consumer Services and Housing Agency (BCSH) and 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 without agency bias or repercussions.

The SSC investigates earthquake-related issues and evaluates and recommends to the Governor and Legislature policies and programs needed to manage earthquake risk.

To ensure a coordinated framework for establishing earthquake safety policies and programs in California, the SSC uses the expertise of its members, experienced in earthquake-related fields, to review, evaluate, and translate scientific information and make recommendation to guide and influence earthquake safety policies.

The SSC coordinates the State’s mitigation efforts through publication and promotion of the California Earthquake Loss Reduction Plan, which serves as the State’s strategic earthquake plan, guiding the executive and legislative branches. It acts efficiently after earthquakes to gather information and recommend policy changes to incorporate lessons earned and activities to enhance seismic safety.

The SSC does not have regulatory authority over any specific programs or agencies, but it is empowered with quasi-judicial and investigative powers to examine and conduct studies on seismic safety policies and programs across lines of governments and the private sector.

The SSC is composed of 20 Commissioners. There are 15 Commissioners who are appointed by the Governor, with expertise in earthquake or disaster related fields, as well one legislative Member from the California State Senate and the California State Assembly. Three Commissioners represent the Governor’s Office of Emergency Services, Division of State Architect, and Building Standards Commission. The SSC is supported by 6.5 staff members.

## **Financial Summary**

---

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

### **Insurance Fund**

California Insurance Code (CIC) section 12975.9 established a Seismic Safety subaccount in the Insurance Fund and imposed an assessment to fund the Alfred E. Alquist Seismic Safety Commission (SSC) upon appropriation by the Legislature. On July 1, 2012, this assessment became inoperative as the SSC was funded by the General Fund in Fiscal Year (FY) 2012-13 and funded by a General Fund loan in the amount of \$1,122,000 in FY 2013-14. As of June 30, 2017, the SSC has repaid \$81,000 of the General Fund loan. Assembly Bill 98 (Chapter 27, Statutes of 2013) re-established a Seismic Safety subaccount, effective June 27, 2013, and imposed an assessment on each person who owns real property, commercial or residential, that is covered by a property insurance policy to fund the SSC. The California Department of Insurance (CDI) shall set the assessment annually every August 1 for all commercial and residential earned property exposures reported during the previous calendar year. This assessment supports the operations of the SSC and allows a multi-year repayment of the General Fund loan. Assessment Methodology Pursuant to CIC section 12975.9, the annual assessment shall be based on 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 the department, and the maintenance of an adequate reserve, but shall not exceed fifteen cents (\$0.15) per earned property exposure.

### **Gift Agreement, California Research and Assistance Fund**

In August of 2007, the SSC was awarded a one-time allocation of funds, in the form of a Gift Agreement, from the California Research and Assistance Fund (CRAF). The CRAF funds the SSC research and education projects. As outlined in the CRAF Gift Agreement, the SSC is entitled to collect up to 10 percent overhead expenses for contracts awarded through the fund.

### **Contract with the California Public Utilities Commission (CPUC)**

The SSC also receives reimbursement from the California Public Utilities Commission (CPUC). Pursuant to Assembly Bill No. 361, approved by the Governor, and under the California Emergency Services Act, the CPUC created an independent disaster council for the purposes of "planning" activities related to initial and subsequent assessments of the Diablo Canyon powerplant site. These assessments include the investigation and interpretation of environmental factors such as seismic conditions. The bill requires the CPUC to convene, or continue, until August 26, 2015, an independent peer review panel

to conduct an independent peer review of enhanced seismic studies and surveys of the Diablo Canyon Units 1 and 2 powerplant, including the surrounding areas of the facility and nuclear waste storage.

Ch. 399, 712. (b) The independent peer review panel shall contract with the Energy Commission, the California Geological Survey of the Department of Conservation, the California Coastal Commission, the Alfred E. Alquist Seismic Safety Commission, the Office of Emergency Services, and the County of San Luis Obispo to participate on the panel and provide expertise.

In accordance with Agreement number 11IA5937, executed on December 1, 2011, between the CPUC, California Seismic Safety Commission (SSC), California Coastal Commission (CCC) and the California Energy Commission (CEC) the CPUC agrees to compensate the SSC for authorized expenditures incurred in accordance with the rates specified and made part of the Agreement. Total expenses claimed by the SSC under the Agreement, include but are not limited to Travel and Other Expenses. SSC shall be entitled to the specific sum not to exceed the total amount of \$188,000 through the duration of the Agreement for staffing and travel costs.

**SSC Operating Budget Fiscal Year 2017/2018**

|                                      |                    |
|--------------------------------------|--------------------|
| <b>Appropriated Operating Budget</b> | <b>\$1,318,000</b> |
| Actual Operating expenses            | \$1,293,000        |

## Projects

---

### *Earthquake & Tsunami Classroom Curriculum*

Humboldt State University partnered with the SSC for a project to deliver preparedness information to elementary school students and their families in the North Coast region. The framework of the project includes the development of a web-based interactive earthquake and tsunami education program that will include curriculum and preparedness information. This project will provide web-based materials that fit into the current state teaching framework and address the priority needs in the State for earthquake and tsunami outreach.

School districts in both Humboldt and Del Norte counties are using the children's book, "The Extraordinary Voyage of the Kanome" for a web based interactive earthquake and tsunami education program to deliver earthquake and tsunami preparedness information to elementary aged students and their families. Many web-based tsunami education tools have been developed and the book has been reprinted in English as well as Spanish.

An update of this project was presented to the SSC at the July 2017 SSC meeting. The book "The Extraordinary Voyage of the Kanome" has gone into its third printing thanks to outside funding raised by Dr. Lori Dengler, the contractor and author of the book. At that time, the project was on time.

This project is scheduled for completion in the spring of 2019.

### *Performance of Buildings Designed to California Building Code*

One of the challenges in the earthquake policy field is bridging the public's expectation of the intent of the California Building Code seismic provisions with respect to building performance. In other words, what might a building look like after an earthquake if the building were designed to the current code? What might an existing older building that was retrofitted to code look like after an earthquake?

The SSC is funding the Pacific Earthquake Engineering Research Center (PEER) to create an educational document targeted to the general public. The final product will be a concise, clear and focused final report, along with an electronic file of a single sheet, double-sided, color info-graphic handout suitable for dissemination to the public.

The intent of this educational document is not to develop a compendium of all information known about the California Building Code, but specific findings related to

the objectives identified above. Details will be provided in appendices to the report and by reference to other sources of information.

PEER will work cooperatively with a variety of organizations, companies and governmental entities to synthesize and analyze results obtained regarding the expectations of seismic behavior of buildings and their contents, when designed to the provisions of the current California Building Code. Topic areas that will be studied include earthquake effects on the built environment when designed to the current Building Code, and a general discussion of socio-economic impacts and expectations.

This project is expected to be completed in 2019.

***Post-Earthquake Business Recovery: Learning from Japan's Experiences***

Japan and California have close economic and political ties. Japan is a major trading partner and many Japanese companies are in California. A major disaster that impacts one partner will have economic impacts on the other.

Japan has experienced many major earthquakes and has recovered rapidly from everyone. The SSC wanted to identify economic recovery policies the Japanese have implemented and apply them after major earthquakes in California. The SSC has funded a project with San Jose State University to:

1. Survey and review post-disaster economic recovery measures, following the March 11, 2011 Great East Japan Earthquake and Tsunami, implemented by Japanese governments (national, prefectural, and local), and where possible assess the extent to which these measures were effective.
2. Develop and deliver seminars to Japanese companies in northern and southern California to educate them on the earthquake threat in California, including pertinent regulations designed to accelerate economic recovery and limitations to the extent US federal, state and local governments can assist specific businesses.
3. Develop and implement a survey of Japanese companies to determine their perceptions of needs in a post-earthquake environment to accelerate their recovery. This will serve as the basis for the development of a more broadly applicable business/economic recovery strategy for the State of California.
4. Complete a final report to the SSC that will identify the most successful economic recovery policies implemented in post-earthquake Japan. Based on the results of this study, the SSC will consider a possible Phase II project that will incorporate existing

policy recommendations gathered by the Commission and combine them with those implemented in Japan. This list could then be circulated among California businesses and industry with a request to identify those that may be most impactful on helping them recover after future major disasters in California.

**Major Activities during 2018 included:**

1. Initiated a review of published sources for information in English on post-disaster economic recovery incentives in Japan, especially those following the March 11, 2011 earthquake, tsunami and nuclear disaster.
2. Established contact with Japan Business Association (JBA) covering Southern California and the Japan Chamber of Commerce of Northern California (JCCNC). Met with representatives of JBA and JCCNC, and the Consul Generals of Japan in San Francisco and in Los Angeles, respectively, and successfully obtained commitment of cooperation and support.
3. Developed a PowerPoint presentation for Japanese companies in California, to educate them on earthquake risk in California and also California legislation that relates to earthquake safety and earthquake hazard mitigation. This material was presented to a gathering of JPA members. JCCNC in the process of arranging a meeting for this presentation.
4. Held meetings in Japan with national, prefectural and local governments to determine what, if any, incentives they have developed to foster economic recovery and growth.

This project is expected to be completed in 2019.

***Homeowner's Guide to Earthquake Safety Update***

The Homeowner's Guide to Earthquake Safety is required by state law to be given to buyers along with forms filled out by sellers that disclose typical earthquake vulnerabilities in homes. First published in 1992 and last updated in 2005, the Commission is embarking on an update. A subcommittee chaired by Commissioner Cindy Silva along with Commissioners Ivan Wong and Randy Goodwin are leading this effort. They expect to convert the guide to color, reduce its length, and improve its readability.

This project is expected to be completed in 2019.

***ALERTWildfire Camera Network***

ALERTWildfire is a consortium of three universities, the University of Nevada, Reno (UNR), University of California San Diego (UCSD), and the University of Oregon (UO) which is providing access to state-of-the-art Pan-Tilt-Zoom (PTZ) fire cameras and associated tools to help firefighters and first responders: (1) discover/locate/confirm fire ignition, (2) quickly scale fire resources up or down appropriately, (3) monitor fire behavior through containment, (4) during firestorms, help evacuations through enhanced situational awareness, and (5) ensure contained fires are monitored appropriately through their demise.

The SSC has supported the efforts of AlertWildfire network for since the inception of the development of the cameras. Dr. Neal Driscoll from UC San Diego has presented updates to the Commission for over three years and will describe the contribution of the utilities and the State in expanding the network coverage statewide. Cameras for the AlertWildfire network continue to be deployed throughout the State.

This project is still in progress.

***Review of Project Delays for the San Francisco Public Utilities Water System Improvement Program***

The Wholesale Regional Water System Security and Reliability Act required the County San Francisco Public Utilities Commission 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. Within 90 days of receiving a notice of project deletions or delays for the program, the SSC and the State Department of Public Health are to submit to the Joint Legislative Audit Committee written comments with regard to the significance of the changes with respect to public health and safety. In September 2017, the SSC received a notice about 15 months of delay for three projects and submitted its comments to the Joint Legislative Audit Committee in November. The delays don't adversely impact the seismic safety of the program since the three projects experiencing further delays are not impeding the delivery of water.

Project is still in progress.

***Independent Peer Review Panel for Diablo Canyon Nuclear Power Plant***

The SSC with many other state organizations, assisted the California Energy Commission in the development of a report in response to AB 1632 (Blakeslee) in 2008.

The legislation directed PG&E to use advanced 3-dimensional seismic surveying and other methods to try to reduce the uncertainty in information regarding the plant's seismic hazard. In 2011 The California Public Utilities Commission created an Independent Peer Review Panel (IPRP) consisting of the California Public Utilities Commission (CPUC), the SSC, the California Geological Survey, The California Energy Commission, The California Coastal Commission and a representative from the County of San Louis Obispo. The IPRP has been reviewing and meeting as warranted with personnel from the Pacific Gas and Electric Company and various interveners since 2011. The IPRP has been focused on reviewing seismic hazards with respect to the Diablo Canyon Nuclear Power Plant since the shutdown of the San Onofre Nuclear Generating Station.

In December 2016, the SSC received a copy of a letter from the Nuclear Regulatory Commission (NRC). SSC staff requested additional information regarding the Diablo Canyon Nuclear Power Plant seismic hazard assessment. The CPUC has extended the IPRP until August of 2025. The IPRP periodically reviews documents from both the NRC and PG&E.

This project is still in progress.

***HayWired: How Earthquake Damage Communication and Information Technology in the Bay Area***

The United States Geological Service (USGS) and Joint Venture Silicon Valley partnered with the SSC to research and strategize to enhance the resilience of Bay Area communities to Climate Change and Natural Hazards. The USGS in collaboration with its partners and stakeholders transforms hazard information into risk products that are useful for decision and policy makers across scales of government and the private sectors.

Currently, the USGS is leading a scenario, called HayWired, in the San Francisco Bay Area of California. The HayWired scenario is a hypothetical, but realistic earthquake sequence initiating with a rupture of the Hayward Fault. The main earthquake is a magnitude 7.0 with hypocenter in Oakland, California. HayWired is a reference to the Hayward Fault and speaks to the potential chaos caused by impacts to the wired and wireless world. More generally "wired" represents interconnectedness at many levels: interdependencies of lifeline, social connectivity through technology, and the ripple effects of damages and disruption encompassing the digital economy. The HayWired theme is particularly apropos for the Bay Area, a leader in digital communications and technology.

The HayWired scenario addresses risks of climate change and natural hazards, benefiting communities, businesses, governmental agencies and the general public in the Bay Area, California.

The HayWired project study Volume I and Volume II were released in 2018 and Volume III is still in progress.

### ***Community & Media Outreach***

The SSC has developed and financially supported a wide range of methods, technologies and practices for preparedness, response and recovery. SSC's efforts range from scientific, construction related, and consistent with general preparedness information for not only the people of California but worldwide. The SSC website and social media outlets and relationships with other state entities including California Governors of Emergency Services (CalOES), California Earthquake Authority (CEA), Non-Governmental Organization, such as the Red Cross, Tribal organizations, and state-wide associations, such as the California State Association of Counties and League of Cities, and other respective organizations. Regents of the University of California San Diego Principal Investigator will create communications plan which will elevate SSC's mission and produce easily find digestible and engaging information surrounding earthquake preparedness. This communications plan will create a hub of resources and information about the SSC assisting the residents of the state in becoming better aware of the risks of and prepare for earthquakes.

The goals and objectives of this effort are increased public awareness of the need for, engagement with and community practice in earthquake preparedness and disaster response in California. This will be achieved by creating and then leveraging a network of services and media partners to highlight efforts supported and enabled by the SSC. The effort will also significantly expand the number and quality of channels and media types used to communicate information and build ongoing public awareness of the importance of preparedness, effective response and resources available.

By enhancing the impact of the SSC's work, the Principal Investigator will undertake research into what media outlets look for and prepare and execute a media plan including traditional and social media. The goal of the work is to increase the earthquake awareness and preparedness of the residents of California, both directly and through their civic leaders and the media. The contractor will utilize various direct and indirect channels to communicate the efforts and achievements of the SSC and amplify the work of its partners.

This is project was completed in 2018.

***HayWired Scenario/ OutSmart Disaster Branding, Marketing and Public Engagement Campaign***

This campaign will build awareness about the HayWired scenario and report findings. SSC has hired the Honey Agency to develop a consumer-friendly platform and campaign to inform target audiences on proactive earthquake preparedness, loss mitigation and how to recover rapidly from earthquakes. Building awareness about the HayWired scenario and the findings that are published in the various reports, the Honey Agency will create a recognizable and unique brand for the scenario. The deliverables include creating a toolkit of materials, a website, brochures, flyers, social media graphics and media/press kit and badge for the project's partners and participating businesses.

The key tasks identified in this contract will set a strong foundation for outreach to businesses, local government and the strategy for a future Phase II, which is a state-wide public engagement campaign, resiliency challenge and mitigation to the project's steady to state.

This project was completed 2018