

State of California
Alfred E. Alquist



Annual Report for 2010



California Seismic Safety Commission

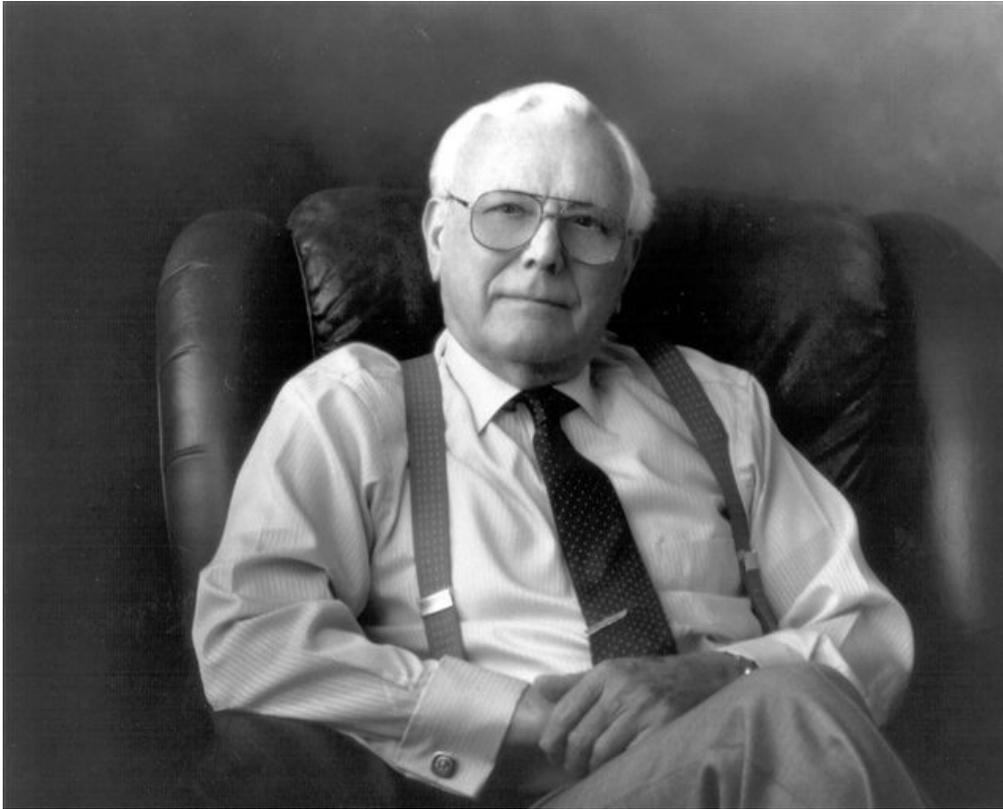
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CSSC 2011-01

Senator Alfred E. Alquist
Seismic Safety Commission
Founder



State Senator Al Alquist was born on August 2, 1908 in Memphis, Tennessee. Senator Alquist was elected to the State Assembly in 1962, and four years later, the State Senate, where he served for 30 years.

The Commission will not let his legacy be in vain, but will continue supporting his efforts. He laid a strong foundation and his courage and leadership will be profoundly missed by all whose lives he touched.

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2010 Annual Report
Seismic Safety Commission

Executive Summary

The Alfred E. Alquist Seismic Safety Commission (Commission) is the central seismic resource and guardian for the State of California and acts as adviser to the Governor and the Legislature on earthquake policy, providing California with cost-effective recommendations to reduce earthquake losses and speed recovery. Dedicated to reducing earthquake risk for the people of California since 1975, the Commission investigates earthquakes, reports on earthquake-related issues, and evaluates and recommends to the Governor and Legislature policies needed to reduce earthquake risk and to ensure a coordinated framework for establishing earthquake safety policies and programs in California.

Earthquakes in 2010 are a reminder that the State must remain vigilant in its earthquake programs. On January 9, 2010, a 6.5 magnitude earthquake occurred offshore, 22 miles northwest of Ferndale, California. Damages totaled \$12.5 million. Just three days later on January 12, 2010 a 7.0 magnitude earthquake struck Haiti. Over 230,000 people died. On February 27, an 8.8 magnitude earthquake struck Chile. Over 500 people died. Residents in both Haiti and Chile experienced significant disruptions related to food, water, electricity, gas and other basic services.

The Chile earthquake generated a tsunami that reached California. The tsunami caused wave heights of three to four feet in Santa Barbara and generated significant currents and a minor amount of damage in harbors statewide. Tsunami currents were observed in ports and harbors all along the coast of California. The effect of this tsunami was accurately forecasted by NOAA's recent Deep Ocean Assessment and Reporting of Tsunamis (DART) system. On April 4, the magnitude 7.2 El Mayor-Cucapah Earthquake in Northern Baja California, Mexico, caused \$91 million damage in Imperial County, California and over \$425 million south of the border. A Presidential disaster was declared.

These earthquakes are reminders that even with the Commission's leadership and support in reducing losses and speeding recovery, California must continue to make significant progress toward earthquake safety.

The Commission's accomplishments in 2010 helped reduce earthquake risk and improve post-earthquake recovery capabilities in California. The Commission's goal for next year is to help further reduce the risk of fires following earthquakes and identify and streamline post-disaster economic recovery strategies.

Mission Statement

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

Vision Statement

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.

Commission Membership

- | | |
|---|---------------------------------|
| 1. Honorable Mark Church <i>Chair</i>
<i>San Mateo County Supervisor</i> | <i>County Government</i> |
| 2. William Chubb, <i>Vice Chair</i> | <i>Public Utilities</i> |
| 3. Senator Elaine Alquist | <i>State Senate</i> |
| 4. Assembly Representative | <i>Vacant</i> |
| 5. Sharron Leason | <i>Emergency Services</i> |
| 6. John L. Littrell, PE | <i>Mechanical Engineering</i> |
| 7. Elizabeth Mathieson, CEG | <i>Geology</i> |
| 8. Gary McGavin, AIA | <i>Architectural Planning</i> |
| 9. Tina Curry, <i>State Representative</i> | <i>Cal EMA</i> |
| 10. Ali Sadre M.S.C.E., S.E. | <i>Structural Engineering</i> |
| 11. Michael Stevens | <i>Insurance</i> |
| 12. Howard Smith, <i>State Representative</i> | <i>State Architect</i> |
| 13. David Walls, <i>State Representative</i> | <i>Building Standards</i> |
| 14. Jay Elbettar | <i>Cities/Building Official</i> |
| 15. Arul Arulmoli, PE, GE | <i>Geotechnical Engineering</i> |
| 16. Michael Gardner | <i>City Government</i> |
| 17. Ron Garcia | <i>City Government</i> |
| 18. Emir Jose Macari | <i>Seismology</i> |
| 19. Helen Knudson | <i>Social Services</i> |
| 20. John McPartland | <i>Fire Protection</i> |

Commission Staff

Richard J. McCarthy, *Executive Director*
Robert Anderson, *Senior Engineering Geologist*
Sue Celli, *Executive Secretary and Office Manager*
Karen Cogan, *Administrative Manager, Annual Report Editor*
Dave King, *Legislative & Special Projects Manager*
Henry Reyes, *Structural Engineer (Special Projects)*
Fred Turner, *Senior Structural Engineer*

Commission Authority

The California Seismic Safety Commission 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 Commission reports through the State and Consumer Services Agency and consists of 20 commissioners chosen for their technical expertise and experience. The Governor appoints 15 commissioners, the Senate and the Assembly each choose a representative from their respective memberships (2), and three (3) state agencies are represented (*California Emergency Management Agency, California Building Standards Commission, and the State Architect*).

Elected Officers

Mark Church served as Chairman and William Chubb served as Vice Chairman. The Commission will elect new officers at the beginning of 2011.

Commission Funding

The Commission is funded by an Insurance Fund until July 1, 2012. Chapter 49, Statutes of 2006 (AB 1809, Committee on Budget), was language in a budget trailer bill that extended the sunset date on the Insurance Fund from July 1, 2009 until July 1, 2012. The Commission's operational budget for fiscal year (FY) 2009-10 is \$1.3 million with an additional \$2.0 million in monies to be used exclusively for the Earthquake Research and Projects Program.

Commission Review of San Francisco Public Utility Commission's Water System Improvement Plan

The San Francisco Public Utilities Commission (SFPUC) initiated a \$4.3 billion project to retrofit its water delivery system. This program calls for the construction of a new dam and pipelines, repair of existing pipelines and facilities, and construction of new earthquake fault crossings. Enabling legislation requires the SFPUC to make annual reports and provide notice to the Seismic Safety Commission of any changes

resulting in delays, additions, or deletions in the work or scheduling of its Water System Improvement Program (WSIP). When completed, this program will significantly reduce the risk from major earthquakes to the water supply for over 2.4 million people in the greater San Francisco Bay region. The Seismic Safety Commission last reviewed changes and delays to the SEPUC's Water System Improvement Program in the fall of 2009.

The SFPUC issued an annual report updating its progress on the water system improvements in September 2010. Seismic Safety Commission staff determined that a review by the full Commission of further program delays was not yet required by the state's Water Code since the SFPUC had not yet adopted its delays.

California's Multi-Hazard Mitigation Plan

The Commission has taken the lead in compiling a summary of statewide efforts to reduce future earthquake losses through federal, state, and local government and private sector investments in pre-earthquake loss reduction. While earthquakes occur less frequently than fires, floods, and many other natural hazards, earthquakes account for the greatest combined losses in deaths, injuries and property damage in California. Significant mitigation efforts include the unreinforced masonry building retrofit program, the bridge and dam retrofit programs, public schools and hospitals programs, and major improvements to other utilities and lifelines throughout California. These are compiled along with information about efforts to address other hazards in the California's Multi-Hazard Mitigation Plan that is coordinated by the California Emergency Management Agency (Cal EMA). The Multi-Hazard Mitigation Plan helps California qualify for mitigation funds after Presidentially-declared disasters within the state and was updated as required under the Stafford Act in 2010.

California's *Enhanced* Multi-Hazard Mitigation Plan

Commission staff advised the California Emergency Management Agency (Cal EMA) and other participating state and local agencies and private sector and non-profit organizations on the most appropriate ways to describe hazard mitigation progress in an update of the state's Enhanced Multi-Hazard Mitigation Plan. FEMA approved the 2010 version in October 2010, enabling California's government agencies to receive much more mitigation funding from FEMA following future disasters. Commission staff also advised Cal EMA on ways to improve outreach to private and public sector stakeholders who benefit from disaster mitigation efforts. Staff is also working with FEMA and Cal EMA to develop more consistent methods of measuring and reporting mitigation progress and measuring mitigation effectiveness following future earthquakes.

California Earthquake Authority's Multi-Disciplinary Research Team

The Commission entered into a third agreement for services with the California Earthquake Authority (CEA) in 2010. The agreement will be renewed for 2 more years through 2012. It provides the CEA the services of the Commission's Senior Engineering Geologist on a half-time basis to work with the CEA's Multidisciplinary Research Team (MRT). MRT focuses on seismic hazard issues related to earthquake loss estimates used for determining the expected annualized loss for the CEA's portfolio. Work on the Uniform

California Earthquake Rupture Forecast (UCERF) program and refinement of ground motion prediction models known as the Next Generation Attenuation relations (NGA) both continue to be supported by the CEA. Potential spinoffs from such activities are envisioned to help reduce uncertainties in the hazard component of the assessment of earthquake risk to the California Earthquake Authority's portfolio and may be included in a future update of the California Building Code.

Restoring California Commerce After an Earthquake

The Commission recognizes California needs to identify precise plans to get businesses back to work to prevent loss of California's market share after a disaster. Because of this, the Commission secured a consultant to assemble a list of business executives to invite them to a roundtable discussion regarding the economic impact of a catastrophic event and what assistance the state could provide to reduce the economic impact to their business and minimize the loss of jobs and market share to other states and counties.

During 2010/2011, a team of business leaders was established to discuss the concept and solicit ideas and recommendations. These recommendations will be submitted to the Agency Secretary once approved by the Commission. The Commission contracted with PAC West Communications to develop a comprehensive list of large Corporate Executives, large Chamber of Commerce organizations, medium size Business Executives, and appropriate Business Associations in Northern and Southern California that will participate in discussions about what role state government can provide to expedite California business and its citizens back to work.

The first meetings were in December 2010. Pac/West met with the California Manufacturers and Technology Association (CMTA), representatives from the Chemical Industry, insurance industry representatives, and PG & E. The Commission is reaching out to various local Chambers of Commerce, retail organizations, realtor organizations, and high tech firms, including Lloyd's Insurance, AT&T and the California Volunteers Business Partners Program Members. The final recommendations are expected to be reviewed and approved by the Commission in spring 2011.

Statewide Drop, Cover, and Hold Earthquake Exercise

This year's exercise was built on the momentum of last year's statewide drop cover and hold earthquake exercise. This year's statewide exercise was held on October 21, 2010 and 7.9 million people participated.

The Commission was pleased to see a significant increase in the number of state government employees registered to participate. Efforts were made within the state government business-continuity community to organize office drills. Several large Sacramento-based state offices conducted first-time exercises. The commission recognized government offices that participated in the drill by awarding resolutions of gratitude.

Seismic Safety Commission Agricultural and Earthquake Summit - Mitigating Risk Along the California/Mexico Border

The Commission engaged in discussions with representatives from Mexico in an attempt to strengthen California and Mexico mutual aid capabilities. The Commission identified a continual need for the U.S. and Mexico to develop relationships focused on common language, common interests, and common needs. At that time, representatives from the Governor's Office and Cal EMA in Sacramento committed to explore joint project possibilities.

Following those discussions, a 7.2-magnitude earthquake struck at 3.40 p.m., on April 4, 2010, about 38 miles south-west of Mexicali, Baja California, Mexico. There were two reported deaths in Mexico and no deaths in the United States. As of April 13, 2010, the damage estimates in Imperial County, California, were about \$91 million. There have been over 13,000 aftershocks. Aftershocks are still continuing.

The earthquake caused water contaminated with salt, chemicals, and raw sewage, to rise to the surface of the ground (as a result of liquefaction) of saturated soil. In some cases, the contamination was severe enough to possibly prevent crops from growing for many years. The Commission participated in field investigations of this earthquake with the Earthquake Research Institute (EERI).

Because of the damage that occurred to the agricultural area in Baja from this earthquake, the Commission determined the lessons from this event should be shared with California State agencies and the farming community. The information was presented in the form of a summit intended to assist the \$36 billion California Agriculture industry in reducing losses and speeding recovery after future major earthquakes.

The following are some of the major lessons learned from this earthquake relative to agriculture.

- Baja California and its federal government faced difficulty in responding because of the magnitude of the earthquake and the size of the area affected.
- Irrigation capacity of canals was restored in 30-60 days, but the spring crop was lost.
- Drainage patterns changed, water pooled, resulting in breeding areas for mosquitoes. This created health risks to the public that required extensive aerial spraying.
- This earthquake caused significant agriculture job losses in Baja California. Some of the workers were employed to aid in post- earthquake reconstruction of agricultural areas.
- Approximately 10,000 head of livestock were displaced due to lack of water. California must develop a plan to relocate livestock after disasters.
- Agricultural similarities between the Coachella and Imperial Valley's make it imperative that we learn from Baja California.
- The devastation of this earthquake to the northern Mexico's agricultural sector should be seen as wake-up call to California.

Key California Departments will receive transcripts of the summit and copies of presentations for review. Follow-up meetings are intended to take place the first part of 2011 to focus on agricultural response and recovery issues that will benefit California and Baja, California.

The Seismic Safety Commission
Earthquake Research &
Assistance Program

In 2007, the Commission received \$6.5 million of the California Research Assistance Fund (CRAF) settlement for seismic projects. These non-General Funds are designated for earthquake risk reduction projects and are being administered and awarded through the *Commission's Earthquake Research Program*. Projects in 2010 included:

Pilot Program for Evaluation of the Most Seismically Vulnerable California Public School Facilities.

The Office of Public School Construction (OPSC) is developing a pilot program that includes an engineering template for the structural evaluations (using this template) of the school buildings in the school districts that have expressed interest in participating in the program. This intent of this program is to provide structural reports to the school districts that have public K-12 school buildings identified by the Division of the State Architect (DSA) that may be at risk during a seismic event and to develop a more systematic and cost-effective approach to determine the seismic safety status of school facilities. This information would allow the State to develop a better understanding of engineering costs that could be incorporated in future bonds.

Commission Contribution: \$200,000. The Commission provided sole funding. No funds were leveraged but the product will enhance the release of \$199.5 million plus local funds provided by school districts. The end date for this project is May 31, 2011

Lake Tahoe Hazard Survey

In 2010 the Commission entered into agreements with Northern Illinois University and the California Geological Survey to co-fund the use of a new remote operating vehicle (a remote controlled submarine) that needed to be field tested before being sent to its research site in Antarctica. The use of the device for observing faults and landslides in Lake Tahoe while conducting test drives allows the Commission to obtain, at lost cost, data pertinent to seismic hazards in the Lake Tahoe basin. The device is currently under construction and test dives at Lake Tahoe are scheduled for March 2011.

Previous studies have documented evidence of past earthquake activity in the Lake Tahoe region that suggests a magnitude-7 earthquake potential. Data suggests past earthquakes produced a nearly 4-meter-high offset of the Lake floor, creating a tsunami or seiche (a standing wave in an enclosed or partially enclosed body of water) many years ago. This research can be utilized not only in the Lake Tahoe area, but findings can be applied to other underwater landslide risks with potential result in a tsunami, for example, along the coast.

Commission Contribution: \$75,000

Tall Buildings Initiative, Pacific Earthquake Engineering Research Center.

This project will help California's local governments address earthquake vulnerabilities of tall buildings in California. In the past few years, several cities in coastal California were confronted with an increase in the construction of high-rise buildings. To meet architectural requirements and achieve construction economy, many of these designs do not follow the prescriptive building code provisions but instead use an alternative design clause in the California Building Code. Unfortunately, there is no industry standard to guide these alternative designs of tall buildings, which causes concern about the reliability and insured losses in major earthquakes, schedule delays, and cost uncertainties. In some cities, building departments have prohibited tall buildings from being designed under these alternative provisions.

Recognizing this situation, several organizations and leading engineers joined together under the leadership of the Pacific Earthquake Engineering Research Center (PEER) to establish the Tall Buildings Initiative (TBI). The Commission provided support for this initiative to help develop consensus earthquake performance objectives, ground motion selection procedures, computer modeling procedures, acceptance criteria, and, ultimately, guidelines suitable for adoption by building code publishers and local jurisdictions. Workshops were conducted and recommendations for the design of new tall buildings were issued in the spring of 2010. Design guidelines for new tall buildings as well as benefit-cost studies of nine designs were published by PEER in December 2010. The Commission will be hearing a summary of PEER's recommendations at its meeting in January 2011.

Commission Contribution Up to \$350,000

Distant Tsunami Threat to the Ports of Los Angeles and Long Beach

This project, conducted by the National Oceanic and atmospheric Administration, examined the tsunami threat potential from earthquake sources around the Pacific Rim that may cause high current velocities inside the harbors at the Ports of Los Angeles and Long Beach.

A computer model of tsunami travel times and wave heights completed in the winter of 2009-2010, was put to the test during its development when a tsunami generated by the February 27, 2010 Chile earthquake reached California. The tsunami caused wave heights of three to four feet in Santa Barbara and generated significant currents and a minor amount of damage in harbors statewide. Tsunami currents were observed in Ports and harbors all along the coast of California. The effect of this tsunami was accurately forecasted by this computer model

The study's findings were hailed as an important milestone in assessing tsunami hazards for the ports of Los Angeles and Long Beach and has generated interest from the United States Navy and the major stakeholders for the Port of San Diego.

Commission Contribution \$49,900

Fire Following Earthquake Risk

The project, conducted by Pacific Earthquake Engineering Research Institute, will qualitatively review the current status of emergency water supply in California and provide a series of recommendations for improvements if/and where needed. The project was initiated in 2010 and the project plan developed. Review of selected earthquakes and fire following earthquake / water issues has begun. Development of a fire following earthquake model for San Francisco has begun, for use in a sensitivity study – the goal will be some quantification of losses for various water supply options. The project organizers have begun planning surveys (i.e., purpose and contact of survey, who to contact) of selected water and fire agencies.

The Commission realizes California's human and economic loss from structure fires after earthquakes could be significant. Historically, every significant earthquake in California has resulted in multiple simultaneous fires that have overwhelmed the fire service – such as the 1906 San Francisco earthquake, the 1971 San Fernando earthquake and the 1994 Northridge earthquake.

Commission Contribution \$49,000

Public Education through California Public Television

The Commission entered into a partnership with PBS Television, to encourage emergency preparedness in a multi-faceted program with Cal EMA, CEA, and the Insurance Industry for education and outreach projects. Project objectives include preparation of: 1) an outreach strategy of primetime programs on earthquakes, 2) an integrated website, and 3) social marketing programs with partner channels such as Facebook® and Twitter®. Ideas include a short video, a Drop Cover and Hold exercise, a Shake Room, and advanced social media. The goal is to provide education and community outreach, encourage interaction, and spur individuals to become more aware of their own earthquake risk and get prepared. The project is underway and scheduled to be completed in December 2011.

Commission Contribution \$300,000

Field Act Building Performance Study

In 2010, the Commission released the results of comparative research conducted to evaluate the differences, if any, in the earthquake performance of public school buildings constructed to Field Act standards and buildings constructed to non-Field Act standards (Uniform Building Code and International Building Code, or California Building Code) that have been subjected to damaging earthquakes. The resulting study conducted by San Jose State University, focused on earthquakes that have occurred since 1940 and was based on data compiled from published literature; no primary data collection was performed.

The primary findings from this study are that Field Act public school buildings affected by earthquakes:

- Field Act compliance public schools have incurred a substantially lower level of damage as compared with other buildings of similar age and construction, in the same vicinity and experiencing similar shaking intensity, including private school buildings or pre-Field Act school buildings, some of which were damaged to the point where they had to be demolished;
- Generally suffered relatively minor to no earthquake-caused structural damage;
- Showed very few instances of structural failure that could have been potentially life threatening;
- Have served as the primary source for disaster shelters in regions that have experienced significant damage, including epicenter regions that had MMI IX or X ground shaking intensity;
- Incurred damage that was primarily limited to nonstructural items, such as ceilings and lighting fixtures, and building and classroom furniture and supplies.

Commission Contribution \$350,000

Other Leveraged Funds: No funds were leveraged due to the Commission's important need for an independent review.

California Earthquake Authority's Structural Retrofitting Program

This project initiated in 2010, will help develop a fast track plan to adopt a California building code for residential seismic retrofitting. This is part of CEA's structural retrofitting program. Other partners include the California Department of Housing and Community Development, the California Building Standards Commission, and the Seismic Safety Commission. This project facilitates the CEA release of funds by CEA for the voluntary seismic retrofit of residences statewide. A key component of the CEA's public service mission is its Earthquake Loss Mitigation Program.

Commission Contributions: \$49,900

High-Performance Shake Table

The Commission contributed \$300,000 towards a \$5.5 million collaborative project with UC San Diego and other universities and industry groups to assess fire safety and structural integrity of healthcare facilities after an earthquake. The first three years of the effort will entail constructing on an existing shake table a full-scale five-story office building with an acute-care component, and the fourth year will focus on fire safety aspects.

Recent earthquakes highlighted the poor performance of nonstructural systems in older buildings. For example, three hospitals were partially evacuated due to nonstructural damage in the Baja California earthquake on April 4, 2010. This test will focus on documenting the interaction of nonstructural and structural systems during ground shaking and in fires that can occur following earthquakes. The test structure will include hospital and other building equipment, heating and ventilating systems, as well as a fully functional elevator, component that has never been tested on a shake table. The Commission prepared a letter of support to the National Science Foundation (NSF) urging funding for the project. In August, NSF awarded UC San Diego the grant.

UCSD and the Commission signed a contract in December 1020 to fund part of the intensive care unit in the test building, its seismic isolation system, and an educational video that can be used to train hospital personnel and earthquake engineering students. Construction will begin March 2011.

Commission Contribution: \$300,000

Status of Seismic Safety Commission Research and Assistance Fund Completed in 2010

Project Name	Description	CSSC Funds	Amount Leveraged (Partner Contributions)	Contractor	Status
California Earthquake Structural Retrofitting Program	Developed a building code for residential seismic retrofitting.	\$49,000	\$59,718 CA Dept of Housing & Community Development	CA Dept of Housing and Community Development	Completed May 2010
Distant Tsunami Risk to the Ports of Los Angeles/Long Beach Harbor	Estimated current velocities within the Ports of Los Angeles/Long Beach from multiple sources around the Pacific Basin.	\$50,000	NOAA \$350,000	National Oceanic and Atmospheric Admin./Univ. of Washington	Completed March 2010

Projects Underway and Planned to be Completed in 2011/2012

Project Name	Description	CSSC Funds	Amount Leveraged (Partner Contributions)	Contractor	Status
Tall Buildings Initiative	Developing seismic performance objectives and alternative design acceptance criteria for future tall buildings.	Up to \$350,000	CA Geological Survey/SMIP \$100,000 CA Governor's OES \$100,000, LA Dept of Building & Safety \$200,000, NSF through PEER \$500,000, USGS \$130,000, The Charles Pankow Foundation \$250,000 FEMA \$50,000 (\$1,330,000)	Pacific Earthquake Engineering Research Center	Underway Completion Date May 2011
Pilot program for Evaluation of the Most Seismically Vulnerable California Public School Facilities	Developing a workable template that provides a standard procedure for an efficient, effective, consistent, and standardized method for seismic evaluation of vulnerable public school buildings at a minimum cost.	\$200,000	OPSC \$200,000 <i>Assists in release of \$199 million in Prop 1D seismic retrofit funds</i>	Office of Public School Construction	Completion Date May 2011
Fire Following Earthquake Risk	Identifying Water sources for Post-Earthquake fire Suppression	\$49,000	\$50,000 Pacific Earthquake Engineering Research Center	Pacific Earthquake Engineering Research Center	Completion Date: July 2011
Lake Tahoe Hazard Survey	Identify geologic hazards and seiche sources at the bottom of Lake Tahoe using a unique remotely operated vehicle	\$75,000	\$50,000 Northern Illinois University, \$25,000 California Geological Survey (\$75,000)	Northern Illinois University, California Geological Survey	Completion Date: December 2011
Public Education through Public Television	Program for Public Television on how to take action to reduce injuries and damage from earthquakes	\$300,000	CEA \$250,000 CalEMA \$500,000 American Insurance Assoc. \$20,000 (\$770,000)	PBS Television	Completion Date: December 2011
High Performance Shake Table	Shake Table Test of a Hospital Facility and an Educational Video	\$300,000		University of California San Diego	Completion Date: December 2012

Completed in 2009

Household Preparedness Survey	Survey of the state of household earthquake mitigation and preparedness in 2008 for selected racial and ethnic minorities, and different geographical areas at high risk. Partnership with the OES, California Volunteers, Governor's Office Insurance Advisor, Office of Homeland Security, and the University of California at Los Angeles.	Actual Final Cost \$320,181	CalEMA \$350,000 Institute for Home & Business Safety \$35,000, Southern California Association of Governments \$15,000 (\$400,000)	University of California, Los Angeles	Completed Spring 2009 At Governor's Office
Field Act Building Performance Study	Evaluated the differences in the earthquake performance of public schools constructed to Field Act standards and buildings constructed to non-Field Act standards.	\$277,785	\$0 No partnerships; requested by CSSC	San Jose State University	Completed October 2009

Completed in 2008

The Los Angeles Earthquake: Get Ready	Disseminated public information and outreach regarding earthquake preparedness activities for the Shakeout in collaboration with other expert advisors and project partners. Served as a "prototype" for the first Statewide Shakeout held on 10/15/09.	\$250,000	\$1,510,000 USGS, SCEC, CEA, And 31 other partners	The Art Center College of Design	Completed December 2008
	TOTAL	\$2,220,966	\$4,744,718		

Progress Report on California's Earthquake Loss Reduction Plan

The California Earthquake Loss Reduction Plan (Plan) 2007-2011 was last revised and released in January 2007. This Plan continues to identify current and proposed seismic safety efforts, goals, and priorities for the State through 2011. The Plan satisfies three needs:

- Reduces earthquake loss.
- Advises the executive branch on overall priorities and implementation strategies
- Supports the state's requirement to update the Governor's Office of Emergency Services Statewide Multi-Hazard Mitigation Plan.

The Plan is a living document that continues to evolve. The following is a summary of progress made in 2010. These include all Seismic Safety Commission projects:

Strategic Plan Element	Plan Initiative	Brief Project Description
Research and Technology Education & Information Emergency Response	2.1.4 2.2 3.2 3.3 10.4 10.4.5 11.1 11.2 11.3	<i>Fire Following Earthquake:</i> Identifying Water sources for Post-Earthquake fire Suppression
Geosciences	1.4.	<i>Distant Tsunami Threat to the port of Los Angeles and Long Beach:</i> Estimated current velocities within the Ports of Los Angeles/Long Beach from multiple sources around the Pacific Basin.
Research Technology, & New Buildings	2.1 2.2 7.2 7.3	<i>Tall Buildings Initiative</i> Developing seismic performance objectives and alternative design acceptance criteria for future tall buildings.
Existing Buildings Preparedness	6.4.1 9.4	<i>Field Act Building Performance Study</i> Evaluated the differences in the earthquake performance of public schools constructed to Field Act standards and buildings constructed to non-Field Act standards.
Existing Buildings & Preparedness	6.4.1	SSC direct funding for the Office of Public School construction (OPSC) for a program that provides funding for structural reports to the school districts that have public school buildings identified by the Division of the State Architect (DSA) that meet the criteria of the Most vulnerable category 2 buildings.
Education, Information & Preparedness	3.2 9.1 9.3	A research project to determine the current state of Household earthquake mitigation and preparedness for the state for selected racial and ethnic minorities, and different geographical areas at high risk. The Commission partnered with California Emergency Services and Homeland Security, and California Volunteers.

Education, Information & Preparedness	3.1 3.2 9.1 9.2 9.3	California conducted a state-wide Drop Cover and Hold earthquake exercise in October, increasing earthquake awareness and readiness among the public and emergency planners and responders. The 2010 drill was held October 21 st and 7.9 million participated.
Research & Education & Information	2.3.1 3.2 3.2.3	<i>High Performance Shake Table</i> Shake Table Test of a Hospital Facility and an Educational Video
Emergency Response	11.1 11.2 11.3 10.4 11.4	Commission awareness and support of earthquake hazards and reducing risk along the California/Mexico Border. Review California plans to respond to Water Delivery systems damage, agriculture land damage, and livestock following an earthquake. Baja Mexico suffered major damage to the agricultural regions unlike anything California has ever seen, from the information California has received from Baja Mexico, a response and recovery plan needs to be addressed.
Geosciences, Research & Technology	1.1.3 2.1.1 2.1.3 2.2.3	Commission support to Coachella Valley Emergency Managers Association for Federal Stimulus Fund for Earthquake Early Warning system
Utilities, Transportation, Geosciences, Economics, Land Use, Existing & New Buildings	5.3 5.4 6.4 8.2 8.3 8.4 1.2.3 4.1 5.1	Multi-hazard Mitigation Planning
Recovery & Economics Standards	4.1 through 4.4 9.1 through 9.3 11.1 through 11.4	Restoring California After an Earthquake. This project will collaborate with business leaders and California Volunteers to project California jobs and economy following an earthquake. Evaluating the consensus requirements by business leaders to return to work and maintain market share.
Utilities & Transportation	8.1 8.3 8.4	Review of SFPUC's Water System Improvement Program
Existing Buildings Preparedness	6.4.4	Commission direct funding to assist Housing community Development to promulgate a statewide uniform code which can be used for voluntary seismic strengthening of cripple walls and sill plate anchorage on light wood-frame buildings. This would help the California Authority (CEA) release \$20 million for the voluntary seismic retrofit of residential statewide.

Commission Budget

	Budget Year 2009/2010	Staff 2009/2010	Budget Year (current) 2010/2011	Staff (current) 2010/2011
Special Fund <i>Insurance Fund (Seismic Safety Account)</i>	\$1,138,000	7.8	\$1,144,000	7.8
Reimbursements	\$(82,000)		\$(82,000)	
Total	\$1,056,000	7.8	\$1,062,000	7.8

With the enactment of Chapter 741, Statutes of 2003 (SB 1049), the Commission's operations are funded from fee revenues derived from assessments on property insurance policies. Insurance companies in California are assessed an annual fee reflecting the volume of property insurance policies underwritten at a rate calculated to equal the Commission's annual operating budget. The Commission will continue to provide advice to the Legislature and public on earthquake and other seismic issues in addition to policy recommendations.