

Alfred E. Alquist Seismic Safety Commission

2007 Annual Report



CSSC 2007-01

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The Alfred E. Alquist Seismic Safety Commission (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 Section 8870, et seq.).

This statutorily required report is prepared pursuant to Government Code Section 8870.1 that requires the Commission to “report annually to the Governor and to the Legislature on its findings, progress, and recommendations relating to earthquake hazard reduction, and any other seismic safety issues, as requested by the Governor or the Legislature.”

SB 1278 (Alquist, 2006)

Chapter 532, Statutes of 2006 made organizational and technical changes to the Commission. On January 1, 2007, the Commission was moved under the State and Consumer Services Agency (SCSA). Also, the Commission was renamed the Alfred E. Alquist Seismic Safety Commission in honor of the founder of the Commission and the State Seismic Safety Act.

The Governor appoints 15 Commissioners with respective technical expertise and experience as identified in statute. The Senate and the Assembly each choose a representative. SB 1278 also provides for the inclusion of representatives to the Commission from the Governor’s Office of Emergency Services (OES), the California Building Standards Commission (BSC), and the Division of the State Architect (DSA). The new alignment has provided for the establishment of new relationships both in state service and in the private sector. Furthermore, the relationship has been mutually beneficial in moving seismic awareness and issues forward for all entities under SCSA and the state.

Commission

Senator Elaine Alquist, State Senate - James Schwab, Representative

Assemblyman Sam Blakeslee, State Assembly - Jonathan Changus, Representative

Donald Parker, Chairman - Fire Protection

Hon. Mark Church, Vice Chair - Local Government (San Mateo County Supervisor)

David Thorman – California State Architect

David Walls – California Building Standards Commission

Henry Renteria – Governor’s Office of Emergency Services

Ali Sadre - Structural Engineering

Andrew Adelman - Cities/Building Official (City of Los Angeles)

Hon. Brad Mitzelfelt - County Government (San Bernardino County Supervisor)
Dr. Arul Arulmoli - Geotechnical Engineering
Dr. Dennis Mileti - Social Services
Dr. Lucile M. Jones – Seismology (United States Geological Survey)
Gary McGavin - Architectural Planning
Hon. Ken Cooley - City Government (City of Rancho Cordova)
Michael Stevens – Insurance (Fireman’s Fund Insurance)
Sharron Leao - Emergency Services (California Volunteers)
William Chubb - Public Utilities (AT&T)
Elizabeth Mathieson – Geology (Exponent)
John Littrell - Mechanical Engineering (LSW Engineers)

Commission Funding

Chapter 49, Statutes of 2006 (AB 1809, Committee on Budget), was budget trailer bill language that extended that sunset date, from July 1, 2007 until July 1, 2009, on the Insurance Fund to support for the Commission. The Commission’s operational budget for fiscal year (FY) 2007-08 is \$1.3 million with an additional \$2.0 million in monies to be used exclusively for the Earthquake Research and Projects Program (Program). While no solution was found in 2007 to identify a stable and permanent source of funding to support the Commission, the Commission is working with the SCSA and the Administration to examine all funding options available to continue California’s seismic mitigation efforts to protect California.

Federal Emergency Management Agency – Grant Repayment

The Commission received a grant from the Federal Emergency Management Agency (FEMA) in 1994 to produce a report on the Northridge earthquake. The total grant amount was \$1.1 million and was approved by OES and FEMA. Beginning in 2001, FEMA audited the Commission and requested that \$188,000 be returned to FEMA from a discrepancy in the grant and the scope of work. After discussions with FEMA (with OES representing the Commission) it was clear the appeal process was futile. In year 2007, the Commission granted approval to close the appeal process and return the \$188,000 to FEMA. The \$188,000 is to be repaid to FEMA through OES over two fiscal years. In order to absorb this new financial liability, program cuts were made where feasible. In 2007 a total of \$115,000 was repaid to FEMA with the balance of \$73,000 to be repaid in 2008 pending the status of the Commission’s budget.

2007 Major Earthquake Hazard Reduction and Seismic Safety Actions of the Commission

Listed below are some of the major accomplishments of the Commission in 2007 that reduce hazards and/or improve recovery after a disaster:

1. ***Establish the Earthquake Research and Projects Program (Program).***

The Commission established a Special Deposit Fund (SDF) to receive \$6.5 million in non-state funds from the dissolution of the California Research Assistance Fund (CRAF) under a settlement agreement with the courts between the Department of Insurance and

insurance companies after the 1994 Northridge Earthquake. The Commission also established the Program to use the funds consistent with the Gift Agreement and Gift Purpose which is only for projects related to earthquake risk reduction.

The Program outlines project selection criteria (including alignment to the State Hazard Mitigation Plan, the California Earthquake Loss Reduction Plan, or State Plan for Earthquake Research), the process to submit Concept Proposals, and the role of the Commission in approving and monitoring candidate ideas. The Commission has approved all projects listed. It should be noted that the first cycle of projects has yielded \$3.2 million in leveraged assistance from various project partners.

Project Name	Description	Contract Amount	Amount Leveraged	Contractor
Household Preparedness Survey	Will determine through a survey the current state of household earthquake mitigation and preparedness 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.	\$350,000	\$420,000	University of California, Los Angeles
Tall Buildings Initiative	Develop seismic performance objectives and alternative design acceptance criteria for future tall building construction.	\$350,000	\$1,040,000	Pacific Earthquake Engineering Research
Los Angeles Art Center College: Get Ready	Art Center College of Design to develop new and creative paradigms for research and communication outreach about earthquake preparedness for: 1) Los Angeles Earthquake: Get Ready Visual Sourcebook; 2) Los Angeles Earthquake: Get Ready Public Awareness Campaign; and 3) Los Angeles Earthquake: Get Ready Civic Spectacle.	\$250,000	\$1,710,000	Los Angeles Art Center College of Design
Tsunami Risk to Los Angeles/Long Beach Harbor	Assesses the tsunami threat potential from a Cascadia Subduction zone event that causes high ocean current velocities inside the Ports of Los Angeles and Long Beach.	\$50,000	\$50,000	National Oceanic and Atmospheric Administration
Performance of Field Act Buildings	Will evaluate the differences in the performance of public schools constructed to Field Act standards and schools constructed to non-Field Act standards subjected to earthquakes.	\$350,000	\$0	San Jose State University
TOTAL		\$1,350,000	\$3,220,000	

2. ***Earthquake Investigation Team to Niigata Japan.***

On July 16, 2007 a Magnitude (M) 6.6 earthquake occurred near Niigata Japan. The Commission sent an Earthquake Investigation Team to Japan on November 3-10, 2007

to investigate the effect this earthquake had on the economy and infrastructure of Niigata Prefecture, as well as, review disaster preparedness plans and mitigation activities in Shizuoka Prefecture. The investigation team was comprised of the Secretary of the SCSA, the Governor's Office of the Insurance Advisor, representatives from the Commission, BSC, the California Science Center, and San Jose State University.

The team examined economic recovery issues faced by the affected regions, viewed specific damage to infrastructure and facilities, strengthened the Cooperative Agreement with Shizuoka Prefecture, reviewed Japan's recently implemented earthquake early warning (EEW) system managed by the Japan Meteorological Agency (JMA), reviewed Japan's earthquake insurance programs, and explored earthquake mitigation programs and activities.

The final report titled "The Niigata Chuetsu-oki, Japan Earthquake and Disaster Preparedness in Shizuoka Prefecture: Lessons for California" was approved by the Commission at the April 2008 meeting. The report includes 9 recommendations including feasibility of an EEW implementation in California, development of mitigation activities and programs in association with the California Science Center and others, and exploration of policies and actions associated with economic recovery after an earthquake.

3. ***Release of the California Earthquake Loss Reduction Plan 2007-2011.***

The *California Earthquake Loss Reduction Plan, 2007–2011*(Plan) is a comprehensive and integrated strategic effort that sets forth statewide policy and direction in pursuit of the vision for a safer California. The Plan consists of eleven elements that each addresses a particular aspect of earthquake loss. Although each element identifies specific topical goals, all elements are interrelated with progress in one element impacting other elements.

The five-year Plan identifies current and proposed seismic safety efforts, goals, and priorities for the State through 2011. The objectives and ambition of the Plan continue to reflect that California still has much to do to achieve success in the area of seismic mitigation.

The Plan is a living document that serves three needs:

- Serves as the Commission's current policy statement regarding actions necessary to reduce earthquake risk over the long term.
- Advises the executive branch on its overall priorities and implementation strategies for seismic safety.
- Supports the State's requirement to update the Multi-Hazard Mitigation Plan that is required by the Federal Emergency Management Agency (FEMA) to obtain federal mitigation funding after disasters.

Forty-four strategies of high importance, covering all eleven discrete elements, are presented in the Plan. A total of 148 individual initiatives support these strategies.

Twelve of the initiatives are considered critically important and should be implemented with the highest priority. Individual implementation plans describe the actions and approximate costs required to accomplish the goals of the initiatives.

4. ***Publication of The Field Act and Public School Construction: A 2007 Perspective.***

The Commission released *The Field Act and Public School Construction: A 2007 Perspective* (Field Act Perspective) that evaluates the effectiveness of the Field Act and its administration. The Field Act Perspective was also prepared in response to a section of law found in the 2006 Education Bond Act that authorizes California Community College Districts to construct or modify their facilities to a standard other than the Field Act.

The Field Act Perspective was prepared by a multi-disciplinary ad hoc committee that reviewed public school seismic safety and effectiveness of the Field Act. There have been recent attempts in the past few years to exempt community colleges and public schools from the requirements of the Field Act which has been based upon the assertion that equivalent levels of child safety can be attained at a lower cost. These assertions compelled the Commission to revisit aspects of the Field Act with respect to implementation and consequently held a series of workshops and public hearings. A total of sixteen professionals representing code enforcement agencies, public school districts, school advocates, policy makers, and design professional organizations made presentations to the Commission. The results were weaved into the Field Act Perspective and include the following recommendations:

1. Support research using benefit-cost methodologies to analyze the full range of factors associated with Field Act statutes, administration, and implementation in order to recommend improvements or alternatives to existing practices.
2. Support administrative efforts that improve timeliness and technical accuracy of plan reviews, provide for consistent regulatory interpretation, and improve communications with implementing agencies.
3. Support the DSA's efforts to design and implement collaborative workload management processes that reduce planning and construction delays and, therefore, costs.
4. The DSA's newly created training academy should expand its workshops to include all stakeholders—local government building departments, architectural and engineering firms, and the construction industry—to acquaint them with the provisions of the Field Act and its implementation.
5. Support comparative research to evaluate public school buildings constructed to Field Act standards and buildings constructed to non-Field Act standards.
6. No public school building in California should be exempt from the Field Act.

5. ***Development of the Seismic Portion of the State's Enhanced Multi-Hazard Mitigation Plan.***

The Commission formed an ad hoc committee to provide direction to OES and other stakeholders in updating the seismic portion of the State's Enhanced Multi-Hazard Mitigation Plan (Mitigation Plan). The Mitigation Plan was approved by the Commission and was then submitted to OES. The Mitigation Plan is required under the Federal Robert T. Stafford Disaster Relief and Emergency Assistance Act of 2000 and must be updated every three years. In 2007, California submitted an enhanced version of the Mitigation Plan in order for the state to qualify for additional mitigation funds once the Mitigation Plan is approved by FEMA.

6. ***AB 1632 Implementation: Assessing Seismic Vulnerability to Generating Plants.***

Chapter 722, Statutes of 2006 (AB 1632, Blakeslee) requires the CEC, in partnership with the Commission through the CEC's Seismic Vulnerability Advisory Team, to assess the vulnerability of the state's two largest nuclear power plants due to a major seismic event. The Seismic Vulnerability Advisory Team is reviewing and commenting on the work of the CEC hired contractor with a final report available for public review expected in September 2008.

7. ***Partnership with Seccion Amarilla (Spanish Yellow Pages).***

The Commission partnered with Seccion Amarilla (formerly Enlacé) Spanish Yellow Pages. Seccion Amarilla is the largest distributed Spanish business directory in California. The Commission provided three full pages of emergency seismic safety information at the front of this directory at a substantially discounted rate. The Commission participated in three yellow page distribution markets of Los Angeles, San Francisco, and Sacramento. As a result of the broadcast distribution of earthquake safety information in Spanish markets, it is important to note that Seccion Amarilla has offered the same discounted rate to other state agencies.

8. ***Review of the Pacific Earthquake Engineering Research Center***

The Pacific Earthquake Engineering Research Center (PEER) is a major national and regional engineering research center established in 1997 by the state and the National Science Foundation (Government Code Section 8876.1 *et seq.*). PEER identifies California's research needs in earthquake engineering and coordinates the efforts of nine educational institutions that include the California Institute of Technology, Stanford University, the Universities of California at Berkeley, Davis, Irvine, Los Angeles, and San Diego, the University of Southern California, and the University of Washington.

Under current law (Government Code Section 8876.7), the Commission is required to periodically monitor the work of PEER on behalf of the state and produce an independent evaluation of PEER's progress. Three reports have been issued to date. The current report was completed in 2007 and covers the period from 2003 through 2006.

The Commission formed a review committee comprised of Commission members, leadership at the Earthquake Engineering Research Institute (EERI) and other

organizations. The review committee met with key PEER staff to discuss various research efforts and institutional issues. The six-month PEER review effort resulted in a final report covering the 2003-2006 period that contain the following recommendations:

1. PEER take the lead and collaborate with its Business and Industry Partners and other organizations to educate owners, regulators, and design professionals about performance-based earthquake engineering and to transfer PEER's research results into practice.
2. PEER package its research results as a tangible set of documents and web resources that can be readily used by engineers and earthquake risk managers.
3. The state and the private sector should continue to fund PEER at twice the state's current financial support of PEER's core program to offset the pending loss of National Science Foundation funding.
4. Because of the large dollar amount of the public works bonds passed by voters in the 2006 November election, fiscal responsibility dictates that the state dedicate a reasonable percentage of future bond monies for research in all applicable disciplines to ensure that funds are invested wisely and in the most-cost-effective manner.

9. ***Partnership with the California Earthquake Authority and the California Geological Survey***

The Commission and the California Geological Survey (CGS) entered into an agreement with the California Earthquake Authority (CEA) to provide one staff person each at 75% time to oversee and work on CEA seismic research projects. This agreement leads to the formation of the CEA's Multidisciplinary Research Team (CEA-MRT) with duration of 2 years beginning in January 2007. The purpose of the CEA-MRT is to assist the CEA to use best available scientific information to determine the occurrence, frequency, and severity of earthquakes in California and their impacts to the CEA financial portfolio.

The research by the CEA-MRT with the Southern California Earthquake Center (SCEC) and the Consortium of Universities for Research in Earthquake Engineering is focused on reducing uncertainties in loss estimation. The Commission staff assigned to this effort has worked with the CEA and a variety of partners in helping to ensure that CEA research projects were developed according to research contract requirements. The Commission staff person also functions as a liaison between the CEA and the Commission.

10. ***Public Education and Outreach Actions***

To better engage regional communities, the Commission holds public Commission hearings in various areas of the state in order to highlight seismic risk and emergency preparedness issues. Two major outreach efforts were conducted in 2007 and are noted below:

Seismic Risk in the Central Valley

The Commission conducted a hearing in Lodi focusing on the seismic vulnerability of the Central Valley. Local public officials described their emergency operations, preparedness campaigns, and facility planning. The Commission also recognized the Northwest Training Center in Stockton for its research and training efforts in seismic retrofit.

Dr. Michael Reichle of the California Division of Mines and Geology provided an Overview of Geologic Risk in Central Valley and noted that this area does not have as much seismic activity as other parts of the state.

Mr. Ronald E. Baldwin, San Joaquin County Director of the Office of Emergency Operations, reported on San Joaquin County's emergency preparedness efforts and noted that the federal government's emphasis on homeland security and terrorism issues is a problem for small rural areas like San Joaquin County that face more imminent threats from floods, earthquakes, and other natural disasters.

Mr. Robert Gerber, Deputy Chief at the Governor's OES, provided a report on mass fatality planning issues and noted that the subject of what to do with dead bodies after disasters is taboo and tends to be avoided, so there are few procedures in place for identifying deceased victims and dealing with bodies. He warned that California could have between 3,000 and 14,000 fatalities after a major earthquake on the San Andreas Fault.

Simpson Strong-Tie Co. of Stockton provided a tour of its state-of-the-art testing facility and a tour of its Seismic Retrofit Testing Lab where three shake table demonstrations were conducted simulating three earthquakes including Kobe, Japan and Northridge, California.

Seismic Risk in the Coachella Valley

The Commission held a hearing in the Coachella Valley focusing attention on the Coachella Valley's earthquake risk specifically from the Southern San Andreas Fault within Riverside, San Bernardino, and Imperial counties. The Commission heard presentations from various officials on the seismic vulnerability of the area and emergency preparedness and planning issues. Dr. Lucy Jones of the USGS noted that the Coachella Valley is particularly vulnerable given that a seismic event in the area is long overdue.