

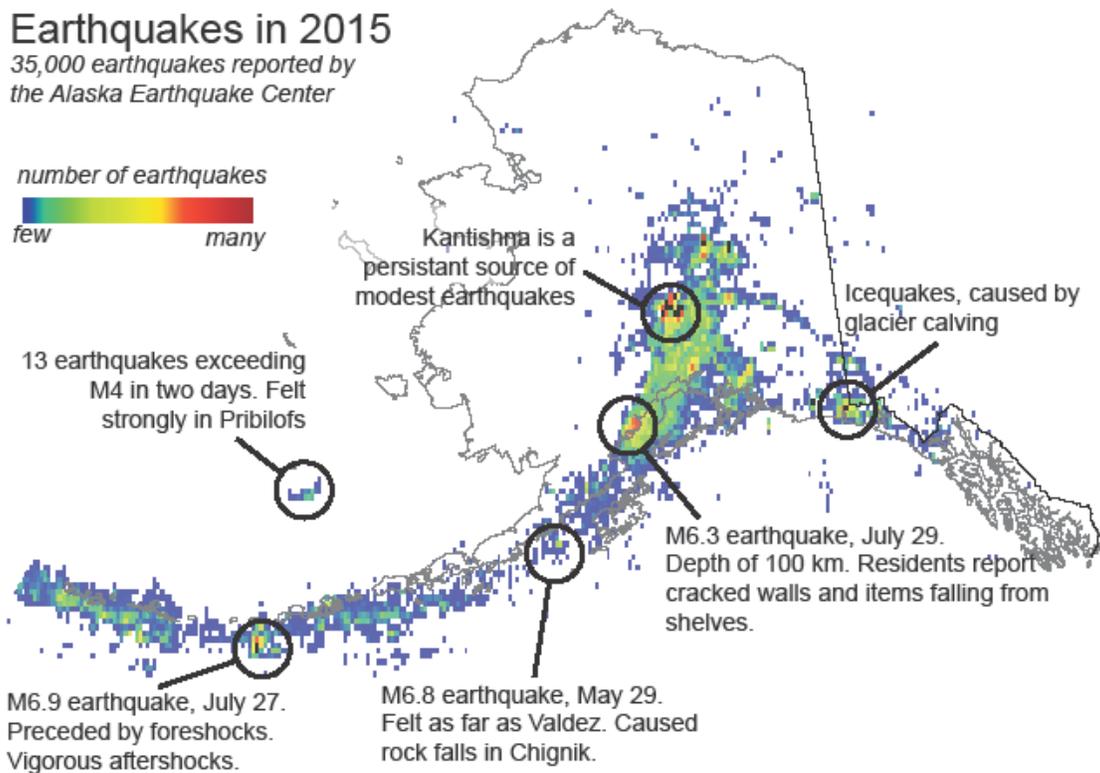
# ALASKA SEISMIC HAZARDS SAFETY COMMISSION

## ANNUAL REPORT TO THE GOVERNOR AND STATE LEGISLATURE FOR 2015

### Earthquakes in 2015

35,000 earthquakes reported by  
the Alaska Earthquake Center

number of earthquakes  
few many



15 JANUARY 2016

**ASHSC** Alaska Seismic Hazards  
Safety Commission



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## EXECUTIVE SUMMARY

This report summarizes the Alaska Seismic Hazard Safety Commission's business, activities, and accomplishments in 2015 as related to its statutory (AS 44.37.067) powers and duties on behalf of the Governor, Legislature, local governments, as well as public and private sectors. As an advisory body charged to recommend goals, priorities, and policies for mitigating seismic hazards, the Commission's work in 2015 continued to focus towards long-term goals to improve the safety of schools and public buildings at risk from earthquake damage; facilitate local earthquake scenario planning studies; and educate State government and public entities about the Alaska seismic environment. The Commission's highlights in 2015 included:

- Operated within our budget of \$10,000, conducting seven public meetings, and without any written determinations, requests for determinations, or suspected potential violations under the Ethics Act (AS 39.52) - In total, the members volunteered over 700 man-hours of public service to the state in 2015;
- Adopted and implemented four new policy recommendations pertaining to identification, prioritization of seismically vulnerable schools and public buildings, seismic design and construction of school and public buildings, and development of contingency plans to mitigate the possible detrimental effects of a great Pacific Northwest earthquake on Alaska;
- Completed two projects [*with grants from the Federal Emergency Management Agency National Earthquake Hazard Reduction Program, and volunteered time, valued in total at about \$45,000 - over 4 times the ASHSC's annual budget*] using Rapid Visual Screening methods to assess the vulnerability of a number of school buildings in the Kenai Peninsula Borough School District and Matanuska-Susitna Borough School District to significant structural damage during a design earthquake;
- Provided several public presentations regarding seismic risk issues; and,
- Continued partnering with numerous other organizations and government entities focusing on the mitigation of seismic risks.

The Commission is available and would welcome the opportunity to discuss any issues within our purview at your request.

Robert L. Scher, Chair  
Laura W. Kelly, Vice-Chair

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*Abbreviations used in this report for Federal, Alaska and Other entities:*

AEC	Alaska Earthquake Center
ASHSC	Alaska Seismic Hazards Safety Commission
DEED	Department of Education & Early Development
DGGS	Division of Geological & Geophysical Surveys
DHS&EM	Division of Homeland Security & Emergency Management
DNR	Department of Natural Resources
FEMA	Federal Emergency Management Agency
NEHRP	National Earthquake Hazard Reduction Program
WSSPC <sup>1</sup>	Western States Seismic Policy Council

<sup>1</sup> The Alaska DHS&EM, DGGS, and ASHSC are the three Alaska members to WSSPC

# ALASKA SEISMIC HAZARDS SAFETY COMMISSION ANNUAL REPORT TO THE GOVERNOR & STATE LEGISLATURE FOR 2015

## INTRODUCTION

This report<sup>2</sup> summarizes the Alaska Seismic Hazard Safety Commission's (ASHSC) business, activities, and accomplishments in 2015 as related to its statutory powers and duties (AS 44.37.067) on behalf of the Governor, Legislature, local governments, as well as the public and private sectors, which include:

- *Recommending goals and priorities for mitigating seismic hazards (e.g. strong ground shaking, landslide, avalanche, liquefaction, tsunami inundation, fault displacement, and subsidence);*
- *Recommending policies including needed research, mapping, and monitoring programs;*
- *Reviewing the practices for recovery and reconstruction after a major earthquake; to recommend improvements to mitigate losses from similar future events; and,*
- *Gathering, analyzing, and disseminating information of general interest on seismic hazard mitigation to reduce the state's vulnerability to earthquakes.*

Alaska has more earthquakes than any other region of the United States and is one of the most seismically active areas of the world. While it is not possible to predict the time and location of the next big earthquake, the active geology of Alaska guarantees that major, potentially damaging earthquakes will continue to occur. During 2015 the Alaska Earthquake Center<sup>3</sup> (AEC) recorded over 35,000 earthquakes throughout all regions of the state – the most notable earthquakes in 2015 are annotated on the cover illustration prepared by AEC.

Despite advancements in seismic hazards analysis and engineering, the age and structural resilience of buildings and infrastructure vary across Alaska, especially in areas of higher seismicity. Therefore, the risks to public safety and infrastructure from these future events can be greatly reduced through proper planning, design, construction, and continuing education and outreach.

## COMMISSION BUSINESS IN 2015

The following summarizes the ASHSC's business conducted in 2015, including membership, meetings, ethics act, and finances; with administrative support provided by the Alaska Department of Natural Resources (DNR), Division of Geological & Geophysical Survey (DGGS) (e.g. meeting logistics, budget, travel, website, etc.).

### MEMBERSHIP

The ASHSC ended 2015 with 10 members, listed below, and one vacancy for a local government representative<sup>4</sup>.

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<sup>2</sup> *The Commission's documents (e.g. annual reports, meeting agenda and minutes, strategic and operating plans, policy recommendations and white papers, etc.) are available on our website [www.seismic.alaska.gov](http://www.seismic.alaska.gov).*

<sup>3</sup> [www.aeic.alaska.edu](http://www.aeic.alaska.edu)

<sup>4</sup> *The Office of Boards and Commissions has been working to fill this vacancy since October 2015.*

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## MEETINGS

The ASHSC conducted seven public meetings in 2015; including five teleconference meetings (February 12, April 21, July 23, September 30, and December 9), and two ‘face-to-face’ meetings (at Anchorage May 11-12, and Fairbanks November 11). In total, the members volunteered over 700 man-hours of public service to the state in 2015.

## ETHICS ACT

The ASHSC submitted four quarterly ethics reports to the Department of Law. The Commission members had no written determinations, requests for determinations, or suspected potential violations under the Ethics Act (AS 39.52) in 2015.

## FINANCES

The ASHSC’s expenditures (e.g. meeting and travel expenses, etc.) in FY14 totaled \$10,000; our allotted budget.

## ACTIVITIES & ACCOMPLISHMENTS IN 2015

This section summarizes the ASHSC’s activities and accomplishments in 2015 including policy recommendations, progress on long-term projects, briefings and presentations, partnering, formal correspondence, etc. While these items generally involved the ASHSC as a whole, most were coordinated or implemented under one or more of the Commission’s six standing committees, including: Earthquake Scenarios (*chair* Gary Carver), Education-Outreach-Partnering (Robert Scher), Hazards Identification (De Anne Stevens), Insurance (Charity Charmody), Response and Recovery (Ann Gravier), and Schools (Laura Kelly).

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## POLICY RECOMMENDATIONS

The Commission adopted and implemented four ‘policy recommendations’ (PR) in 2015.

- **PR 2015-1 SEISMIC RISK MITIGATION OF FUTURE DESIGN, CONSTRUCTION, AND MAJOR RENOVATION OF ALASKA SCHOOLS:** *Ensuring that proposed new schools are designed and constructed in accordance with the seismic provisions of the International Building Code (IBC) adopted by the State is critical to the safety of the users of these facilities. In addition, a facility undergoing a major renovation or expansion should also meet the current seismic provisions of the IBC. Therefore the Alaska Seismic Hazards Safety Commission recommends that the State of Alaska, through the Alaska Department of Education and Early Development (DEED), develop requirements specific to the seismic review, design, and construction of school facilities.*

The Commission prepared a position paper supporting and recommending implementation of PR 2015-01 which was mailed to the Commissioner of DEED, as well as the chair of the Alaska State Board of Education & Early Development.

- **PR 2015-2 IDENTIFICATION AND PRIORITIZING MITIGATION OF SEISMICALLY VULNERABLE SCHOOL BUILDINGS:** *Alaskans should expect that their children attend schools that are resistant to damaging earthquake hazards, such as strong shaking, ground failure, and tsunami inundation. Further, many school facilities in Alaska are also used as community gathering places and as emergency shelters in times of natural disaster. Therefore, the Alaska Seismic Hazards Safety Commission recommends that the State support and appropriate resources for programs that identify and prioritize rehabilitation or replacement of those school facilities most at risk from earthquakes, to mitigate risk to our children, and to assure those facilities can be used as emergency shelters in times of need.*

The Commission prepared a position paper supporting and recommending implementation of PR 2015-02, which was mailed to the Commissioner of DEED, as well as the chairs of the Senate and House Education Committees, and the chair of the Alaska State Board of Education & Early Development.

- **PR 2015-3 IDENTIFICATION AND PRIORITIZING MITIGATION OF SEISMICALLY VULNERABLE PUBLIC BUILDINGS:** *Alaskans expect that the state’s public buildings are resistant to damaging earthquake hazards, such as strong shaking, ground failure, and tsunami inundation. Further, many public buildings in Alaska are also used as community gathering places and as emergency shelters in times of natural disaster. Therefore, the Alaska Seismic Hazards Safety Commission recommends that the State support and appropriate resources for programs that identify and prioritize rehabilitation or replacement of those public buildings most at risk from earthquakes, to mitigate risk to our citizens, and to assure those facilities can be used as emergency shelters in times of need.*

The Commission prepared a position paper supporting and recommending implementation of PR 2015-03 which was mailed to the Commissioner of the Department of Transportation & Public Facilities, and the mayors of the Fairbanks North Star Borough, the Kenai Peninsula Borough, the City and Borough of Juneau, the Matanuska-Susitna Borough, and the Municipality of Anchorage.

- **PR 2015-4 DEVELOP CONTINGENCY PLANS TO MITIGATE THE POSSIBLE DETRIMENTAL EFFECTS OF A GREAT PACIFIC NORTHWEST EARTHQUAKE ON ALASKA:** *There is consensus amongst Federal and western state agencies and general agreement within the scientific community that the next great devastating earthquake in North American may likely occur in the Pacific Northwest region, along the Cascadia subduction zone or on a shallow Puget Sound fault. While such an earthquake would not likely cause any physical damage to Alaska’s infrastructure, or*

*directly pose a safety hazard to Alaska's population, it would, however, have a significant effect on Alaska's economy given the importance of the Pacific Northwest region to Alaska's commerce, shipping, oil exports, fishing and tourism industries, and communications. Therefore, the Alaska Seismic Hazards Safety Commission recommends that the respective Alaska government agencies investigate potential impacts and develop contingency plans to prepare for and mitigate the possible detrimental effects of a great Pacific Northwest earthquake on Alaska.*

The Commission prepared a position paper supporting and recommending implementation of PR 2015-04 which was mailed to Governor Walker; the Commissioner of every state department (14); the Alaska senators for Districts Q and R, and representatives for Districts 32, 33, 34, 35 and 36; and the mayor of the Municipality of Anchorage.

## **LONG-TERM PROJECTS**

- Identification and Mitigation Prioritization of Seismically Vulnerable Schools:
  - Completed a project<sup>5</sup> using *Rapid Visual Screening* methods to assess the vulnerability of 17 buildings, located on 7 Matanuska-Susitna Borough School District campuses, to significant structural damage during a design earthquake.
  - Completed a project<sup>5</sup> using *Rapid Visual Screening* methods to assess the vulnerability of 47 buildings, located on 15 Kenai Peninsula Borough School District campuses, to significant structural damage during a design earthquake.

The final reports from these two projects were also submitted to the DEED to support our policy recommendation 2015-2 for a statewide program aimed at identifying and prioritizing seismically vulnerability schools throughout Alaska.

- Kodiak Scenario Earthquake Study:
  - Continued work on a scenario earthquake study for eastern Kodiak Island.
- Advocate for Alaska Earthquake Research:
  - Continued work on an informational report summarizing the known earthquake sources and seismicity across the state.

## **BRIEFINGS & PRESENTATIONS**

- Commissioner Scher testified in a Legislative hearing in support of House Bill 35, establishing March 27 as "Great Alaska Good Friday Earthquake Remembrance Day", in perpetuity.
- In May, Courtney Sanborn (DNR Legislative Liaison) briefed the ASHSC on the 1<sup>st</sup> session of the 29<sup>th</sup> Alaska Legislature.
- Commissioners Kelly and Aho delivered presentations at the "Alaska's Next Big Earthquake Partnering Workshop", in Fairbanks in November, sponsored by the AEC and the Western States Seismic Policy Council (WSSPC), and funded by a grant from FEMA NEHRP.

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<sup>5</sup> *The Matanuska-Susitna and Kenai Peninsula school district projects were supported with grants the ASHSC obtained from Federal Emergency Management Agency (FEMA) National Earthquake Hazard Reduction Program (NEHRP), plus volunteered time from the schools districts, valued in total at about \$45,000 - over 4 times the ASHSC's annual budget.*

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## PARTNERING & OUTREACH

- The ASHSC partnered with AEC to organize, and six commissioners attended the “Alaska’s Next Big Earthquake Partnering Workshop”, in Fairbanks in November, sponsored by the AEC, WSSPC, and funded by a grant from FEMA NEHRP.
- Commissioner Aho continued to represent the ASHSC on the DMVA’s *Alaska Partnership for Infrastructure Protection* organization.
- Commissioner Gravier and former Commissioner Koehler represented the ASHSC during WSSPC’s 2015 annual meeting in Pasadena, California. Commissioner Gravier continued to participate on the WSSPC Tsunami Hazards Mitigation Committee, and Commissioner Scher continued to participate on the WSSPC Engineering, Construction and Building Codes Committee.
- Commissioner Kelly continued to participate in the Earthquake Engineering Research Institutes’ *School Seismic Safety Initiative* to create a nation-wide program to inventory the seismic vulnerability of schools.

## MISCELLANEOUS

- Submitted an application to WSSPC nominating the Alaska Division of Homeland Security & Emergency Management (DHS&EM) for a WSSPC ‘Award in Excellence’ for the 2014 Alaska Shield Exercise [*which DHS&EM was ultimately awarded*].
- Provided comments to the Department of Commerce, Community, and Economic Development regarding the Board of Registration for Architects Engineers and Land Surveyors proposed changes to state regulations for licensure of structural engineers.
- Sent letters to Representative Millet supporting House Bill 35 establishing March 27 as ‘Great Alaska Good Friday Earthquake Remembrance Day’, in perpetuity; and to Governor Walker thanking him for signing that bill into law.
- Sent a letter to Commissioner of DEED regarding misleading claims by a private entity soliciting funding from several Alaska school districts to participate in an earthquake forecasting project.
- At the request of WSSPC, the Commission provided a summary of the strategies followed by the three Alaska member organizations’ (DHS&EM, DGGS, and the ASHSC) for reducing earthquake and tsunami risks in the state.
- At the request of the University of Washington, the ASHSC provided assistance with their grant application to the National Science Foundation to fund an earthquake research project in southwestern Alaska.