

# ASHSC Alaska Seismic Hazards Safety Commission

## ALASKA SEISMIC HAZARDS SAFETY COMMISSION

ANNUAL REPORT TO THE GOVERNOR AND STATE LEGISLATURE FOR 2017

Alaska's  
**NEXT BIG  
EARTHQUAKE**

Workshop  
May 9-11, 2017  
Crowne Plaza Hotel, Anchorage, AK

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## EXECUTIVE SUMMARY

This report summarizes the Alaska Seismic Hazard Safety Commission's business, activities, and accomplishments in 2017.

As an advisory body charged to recommend goals, priorities, and policies for mitigating seismic hazards, the Commission's work in 2017 continued to focus on long-term goals to improve the safety of schools and public buildings at risk of earthquake damage; facilitate local earthquake scenario planning studies; and educate state government and public entities about the Alaska seismic environment.

Specific accomplishments by the Commission in 2017 include:

- Helped to secure more than \$60,000 in federal grants to support earthquake and tsunami awareness activities.
- Completed a project to assess the vulnerability of older buildings in Fairbanks North Star Borough School District to significant structural damage during a design earthquake using FEMA's Rapid Visual Screening Method.
- Secured funding and helped produce "Alaska's Next Big Earthquake and Tsunami" workshop hosted in Anchorage in May 2107.
- Secured new funding to assess the vulnerability of older school buildings in Southeast Alaska.
- Represented the state as a member of the Western States Seismic Policy Council.
- Commission Chair West was invited, on behalf of the Commission, to brief the U.S. Congressional Hazards Caucus on legislative needs in April 2017.
- Compiled and distributed a summary of the Haines Highway earthquakes in May 2017.
- Reviewed and re-adopted its Earthquake Response Plan.
- Responded to several requests for information regarding earthquake hazards and safety and continued partnering with organizations and government entities on strategies for seismic risk mitigation.
- Conducted five public meetings, with no written determinations, requests for determinations, or suspected potential violations under the Ethics Act (AS 39.52), within our budget of \$10,000. Commissioners volunteered several hundred professional hours of public service to the State in 2017.

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

Michael West, 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
AELS	Architects, Engineers, and Land Surveyors [ <i>Alaska State Board of</i> ]
ASHSC	Alaska Seismic Hazards Safety Commission
DEED	Department of Education & Early Development
DFLS	Division of Fire and Life Safety
DGGS	Division of Geological & Geophysical Surveys
DHS&EM	Division of Homeland Security & Emergency Management
DNR	Department of Natural Resources
FEMA	Federal Emergency Management Agency
FNSB	Fairbanks North Star Borough
NEHRP	National Earthquake Hazard Reduction Program
UAF	University of Alaska Fairbanks
USCG	U.S. Coast Guard
USGS	U.S. Geological Survey
WSSPC <sup>1</sup>	Western States Seismic Policy Council

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

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**ALASKA SEISMIC HAZARDS SAFETY COMMISSION  
ANNUAL REPORT TO THE GOVERNOR  
& STATE LEGISLATURE FOR 2017**

**INTRODUCTION**

This report<sup>2</sup> summarizes the Alaska Seismic Hazard Safety Commission's (ASHSC) business, activities, and accomplishments in 2017 as related to its statutory powers and duties (AS 44.37.067) on behalf of the Governor, Legislature, local governments, and 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 and 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. During 2017 the Alaska Earthquake Center<sup>3</sup> recorded over 43,000 earthquakes throughout all regions of the state. Overall it was a seismically uneventful year though it was punctuated by a few notable events, including a pair of large (M6.2 and 6.3) earthquakes along the Haines Highway in May.

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. 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 2017**

The following summarizes the ASHSC's business conducted in 2017, 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.). In total, Commission members volunteered over 400 professional-hours of public service to the State in 2017.

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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> <http://earthquake.alaska.edu/>

## MEMBERSHIP

The ASHSC began and ended 2017 with 11 members (Table 1).

**TABLE 1: COMMISSION MEMBERSHIP IN 2017**

COMMISSIONER / OCCUPATION / RESIDENCE	REPRESENTATION
John L. Aho, Ph.D., Sc.D. Engineering Consultant; Anchorage	Public/Restricted
Edward Athey § Fire Chief, City of Seward	Local Government
Charity Carmody State Farm Insurance; Anchorage	Insurance Industry
Duane Dvorak† Kodiak Island Borough Resource Manager; Kodiak	Local Government
David Gibbs Director Emergency Services, FNSB; Fairbanks	Local Government
Michael Holman Director, Unalaska Department of Public Safety, Unalaska	Local Government
Laura W. Kelly, P.E. Civil Engineer, USCG; Juneau	Federal Agency
Robert L. Scher, P.E. Geotechnical Engineer, Consultant; Anchorage	Public/Restricted
De Anne Stevens Geologist, DGGS; Fairbanks	Alaska Department of Natural Resources
Sterling Strait Structural Engineer, Alyeska Pipeline; Anchorage	Public/Restricted
Kimberly Stuart DMVA, DHS&EM; Anchorage	Alaska Department of Military & Veterans Affairs
Michael West, Ph.D. Alaska State Seismologist, UAF; Fairbanks	University of Alaska

† Resigned during 2017                                    § Appointed in 2017

## MEETINGS

The ASHSC conducted five public meetings in 2017, including two by teleconference (September 11 and April 14) and three ‘in-person’ meetings at Anchorage (January 30, May 9, October 25-26).

## ETHICS ACT (AS 39.52)

The ASHSC submitted quarterly ethics reports to the Department of Law in 2017, with no written determinations, requests for determinations, or suspected potential violations.

## FINANCES

The ASHSC's expenditures (e.g. meeting and travel expenses, etc.) in FY17 totaled \$13,043,065.

### **ACTIVITIES & ACCOMPLISHMENTS IN 2017**

This section summarizes the ASHSC's activities and accomplishments in 2017. While these items generally involved the ASHSC as a whole, most were coordinated or implemented by informal subcommittees tapping the Commissioners with the most relevant expertise.

- The Commission helped to secure more than \$60,000 in federal grants. Commissioners helped draft proposals and helped carry out the projects once awarded. At present the most successful funding path is FEMA's National Earthquake Hazards Reduction Program (NEHRP) grant process. These grant requests are prioritized and submitted on behalf of the state through the DMVA Division of Homeland Security and Emergency Management.
- The Commission completed a project to assess the vulnerability of older buildings in the Fairbanks North Star Borough School District to significant structural damage during design earthquakes, using FEMA's Rapid Visual Screening (RVS) method. The Anchorage-based company BBFM Engineers Inc. was contracted to conduct the necessary surveys and concluded that 20 structures had risk levels sufficiently high to warrant follow-on evaluation. The culmination of this project was a report titled *Vulnerability of Some Fairbanks North Star Borough Schools to Earthquake Damage Based on Rapid Visual Screening*, which can be found on the Commission's website<sup>4</sup> and was also delivered to the borough and school district as well as the Fairbanks Borough Assembly with the assistance of Commissioner Gibbs.
- The Commission secured funding and helped organize the "Next Big Earthquake and Tsunami" workshop, which was held May 9-11 2017 in Anchorage. This workshop brought more than 100 representatives from local, state, and federal governments, as well as education professionals, engineers, planners, and other stakeholders. The three-day workshop consisted of panel discussions and tabletop exercises that focused on earthquake and tsunami preparedness, emergency response, and infrastructure. Participation and attendance for the 2017 workshop was double that of the 2015 workshop and the event was considered a success. The workshop report<sup>5</sup> is available from the Western States Seismic Policy Council.
- The Commission secured new funding to assess the vulnerability of older school buildings in Southeast Alaska. At the time of this report, the Juneau School District has accepted the Commission's offer to conduct surveys and the Commission has an additional request out to the Sitka School District.
- The Commission represented the state as a member of the Western States Seismic Policy Council (WSSPC). The Commission supported WSSPC by reviewing policy recommendations that are used across the western U.S. and at the federal level. The

<sup>4</sup>

[http://seismic.alaska.gov/download/ashsc\\_meetings\\_minutes/Rapid\\_Visual\\_Screening\\_of\\_Fairbanks\\_North\\_Star\\_Borough\\_Schools\\_Final\\_Report\\_Jun\\_15\\_2017.pdf](http://seismic.alaska.gov/download/ashsc_meetings_minutes/Rapid_Visual_Screening_of_Fairbanks_North_Star_Borough_Schools_Final_Report_Jun_15_2017.pdf)

<sup>5</sup> [http://www.wsspc.org/wp-content/uploads/2017/10/2017\\_EarthquakeWorkshopReport\\_FINAL.pdf](http://www.wsspc.org/wp-content/uploads/2017/10/2017_EarthquakeWorkshopReport_FINAL.pdf)

Commissions' involvement helps ensure that Alaska's needs are accurately represented at the federal level.

- In April 2017, Commission Chair West was invited, on behalf of the Commission, to brief the Congressional Hazards Caucus in Washington, D.C., on legislative earthquake needs. Separate authorization bills for the nation's earthquake, tsunami, volcano, and landslide programs were under review this year. The event, as well as West's presentation, can be found on the Hazards Caucus Alliance webpage.<sup>6</sup>
- Following the Haines Highway earthquakes on May 1, 2017, the Commission compiled and distributed a summary of the earthquake. This is the second time the Commission has done this. It is a product the Commission feels is important and is committed to producing rapidly for future earthquakes. This information can be found on the Commission's website under "Significant Alaska Earthquakes."<sup>7</sup>
- The Commission reviewed and re-adopted its Earthquake Response Plan. The Commission's primary roles in the event of a major earthquake are to ensure that all necessary actions are being carried out by the appropriate state agency; and to advocate short- and long-term needs to the Governor and Legislature. The Commission's Earthquake Response Plan lays out a path for accomplishing this.

## POLICY RECOMMENDATIONS

The Commission began work to update and re-adopt existing policy recommendations.

- **2013-2 IDENTIFICATION AND PRIORITIZING MITIGATION OF SEISMICALLY VULNERABLE SCHOOL BUILDINGS:** The Commission voted to allow this to terminate as the new International Building Code (IBC) will cover all concerns addressed in this policy recommendation.
- **2014- 1 EARTHQUAKE RESPONSE AND INVESTIGATION FIELD GUIDE:** The Commission is investigating guides that are currently available that contain this information and whether they are sufficient. If it is deemed appropriate, the Commission will proceed with creating a new comprehensive field guide.

## LONG-TERM PROJECTS

- Identification and Mitigation Prioritization of Seismically Vulnerable Schools:
  - Completed a project<sup>8</sup> using FEMA's state-of-practice *Rapid Visual Screening* method to assess the vulnerability of a select number of buildings located on Fairbanks North Star Borough School District campuses to significant structural damage during a design earthquake. The results of this project will provide the district with an effective framework for prioritizing future construction projects.

<sup>6</sup> <http://www.hazardscaucus.org/events/saving-lives-through-hazards-mapping-and-monitoring>

<sup>7</sup> [http://seismic.alaska.gov/significant\\_earthquakes.php](http://seismic.alaska.gov/significant_earthquakes.php)

<sup>8</sup> To be completed under a grant from the Federal Emergency Management Agency (FEMA) National Earthquake Hazard Reduction Program (NEHRP), routed through the Earthquake Engineering Research Institute (EERI). This project is similar to the two RVS projects the Commission completed in 2015 for the Matanuska-Susitna and Kenai Peninsula school district projects.

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- Advocate for earthquake research in Alaska:
    - Continued work on an informational report summarizing the known earthquake sources and seismicity across the state.

#### **BRIEFINGS**

- In October, Sally Cox (RiskMAP Coordinator, State of Alaska) gave a presentation to the Commission on FEMA's Risk Mapping, Assessment and Planning (RiskMAP) program in Alaska, with emphasis on the process for selecting the earthquake scenarios modeled in their hazards analysis.

#### **PARTNERING & OUTREACH**

- Commissioners Stuart, Scher, and West worked with the Alaska Division of Community and Regional Affairs to offer guidance to FEMA on the most productive ways to implement the RiskMAP program in Alaska.
- Commissioner West represented the Commission in a keynote lunchtime speech to 300 individuals attending the EarthScope National Meeting in Anchorage in June.
- Commissioner Kelly attended the "Alaska's Next Big Earthquake and Tsunami" workshop and delivered a 30 minute presentation entitled "School Hazard Identification and Risk Management in Alaska highlighting RVS studies in the state and how efforts compare to other communities throughout US.
- Commissioners Scher and Strait attended the "Alaska's Next Big Earthquake and Tsunami" workshop and participated in a roundtable discussion on structural engineering for seismic loads.