ASHSC Alaska Seismic Hazards Safety Commission

STRATEGIC PLAN, V2

V1 Adopted October 2012

V2 Adopted November 2013

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Abbreviations for Federal and Alaska Agencies named in the Plan:

ASHSC	Alaska Seismic Hazards Safety Commission
DGGS	Division of Geological & Geophysical Surveys
DNR	Department of Natural Resources
FEMA	Federal Emergency Management Agency
GAC	Municipality of Anchorage Geotechnical Advisory Commission
DEED	Department of Education & Early Development
DHS&EM	Division of Homeland Security & Emergency Management
DMVA	Department of Military & Veterans' Affairs
DOT&PF	Department of Public Transportation & Public Facilities
DPS	Department of Public Safety
UA	University of Alaska
USCG	U.S. Coast Guard
USGS	U.S. Geologic Survey

EXECUTIVE SUMMARY

Alaska has more earthquakes than any other region of the United States and is, in fact, one of the most seismically active areas of the world. Recent disastrous earthquakes in Haiti, Chili, Japan, New Zealand and other areas of the world continue to remind us of the need to be prepared for the next damaging seismic event in our area. While it is not possible to predict where or when an earthquake will occur, advancements in seismic hazards analysis are now providing better estimates of how likely future earthquakes may affect our built environment and population centers. The mission of the Alaska Seismic Hazards Safety Commission (ASHSC) is to make recommendations to the Governor and Legislature for reducing the State's vulnerability to seismic hazards and to advise the public and private sectors on approaches for mitigating earthquake and tsunami risk.

This Strategic Plan has been developed to guide the ASHSC for the next three to five years in their efforts to address seismic risk mitigation issues. The plan is dynamic and will be reviewed, modified and updated every two years as experience is gained and additional information is obtained. Several strategies identified in the Plan can be addressed and solved quickly while other strategies will take years to resolve. The ultimate goals of the ASHSC are to provide advice that will result in the development of an earthquake-resilient society, one that can recover relatively quickly after a damaging seismic event.

The Strategic Plan begins with an introductory section that summarizes the history and status of the ASHSC, the earthquake risk in Alaska, and current ASHSC membership. The next section of the Plan describes the Charter that has governed ASHSC activities from its inception. The final section of the Plan addresses six objectives for earthquake safety and risk mitigation and provides strategies for accomplishing these objectives. Each strategy includes a priority designation, target date, and measure(s) of success.

Time is required to introduce and educate the public and decision makers about the benefits of seismic safety advocacy. Repeated efforts are necessary to make the case that earthquakes are truly a threat and that cost-effective actions can be taken to mitigate risk. The ASHSC is committed to assuring policy makers that effective steps can be taken to reduce exposure to risk before the next damaging earthquake occurs. The ASHSC believes that many of these solutions are affordable and can be relatively easy to implement.

1.0 INTRODUCTION

The ASHSC is charged by Alaska Statute (AS 44.37.067) to recommend goals and priorities for seismic hazard (e.g. strong ground shaking, landslide, avalanche, liquefaction, tsunami inundation, fault displacement, and subsidence) mitigation to the public and private sectors; recommend policies to the governor and the legislature, including needed research, mapping, and monitoring programs; review the practices for recovery and reconstruction after a major earthquake; recommend improvements to mitigate losses from similar future events; and to gather, analyze, and disseminate information of general interest on seismic hazard mitigation, among other duties to reduce the state's vulnerability to earthquakes. The ASHSC is administered by the Alaska DNR-DGGS.

The ASHSC consists of eleven members appointed by the Governor for three-year terms. ASHSC members include: a representative from the UA, three representatives from local government; a representative from the DNR; a representative of the DMVA; a representative from an appropriate federal agency; a representative of the insurance industry; and three members of the public who are experts in the fields of geology, seismology, hydrology, geotechnical engineering, structural engineering, emergency services, or planning. The ASHSC has no executive director, although DGGS provides administrative, travel, and publication support.

The ASHSC developed this *Strategic Plan* to guide its efforts for the next three to five years to address seismic risk mitigation issues. While some of the strategies identified in the Plan can be addressed and solved quickly, others will take many years to resolve. Therefore, the plan is dynamic and will be reviewed, modified and updated every two years as experience is gained and additional information is obtained. The ultimate goals of the ASHSC are to provide advice that will result in the development of an earthquake-resilient society, one that can recover relatively quickly after a damaging seismic event.

1.1 History of the ASHSC

In 2002, the 22nd Alaska Legislature passed, and the Governor signed into law, House Bill (HB) 53 establishing the ASHSC with nine members. This legislation originally placed the ASHSC under the Office of the Governor, but in January 2003, Governor Frank Murkowski issued Executive Order Number 105 transferring the ASHSC to the DNR. In 2005 Governor Murkowski appointed the first nine members to the ASHSC. In 2006, HB 83 was passed which added two additional local government positions, bringing the total number of members to 11, and extended the ASHSC through June 30, 2012. Most recently, the legislature passed HB 279 in 2012 extending the ASHSC to June 30, 2014.

The ASHSC first met on October 28, 2005, at which time it elected a Chair and Vice Chair, listened to briefings from the California Seismic Safety Commission and various state and local agencies in Alaska with responsibilities in earthquake-risk mitigation, and began developing goals and priorities for its activities. Since then, the ASHSC has held eight to ten meetings annually, generally all but two via teleconference. Since 2005, the ASHSC has submitted an annual report to the Governor and Legislature summarizing

its accomplishments and near-term plans. The ASHSC posts basic information about its mission, earthquake risk in Alaska, meeting agendas, minutes, presentations, annual reports, policy recommendations, and appropriate links on its website www.seismic.alaska.gov.

1.2 Earthquake Risk in Alaska

Alaska has more earthquakes than any other region of North America and is one of the most seismically active areas of the world. The second largest instrument recorded earthquake in the world occurred on the Prince William Sound and Kodiak segments of the Aleutian Subduction Zone in southern Alaska on March 27th, 1964 (moment magnitude, M_W9.2). The largest on-land earthquake in North America in almost 150 years occurred on the Denali fault (M_W7.9) in central Alaska on November 3rd, 2002.

Alaska has changed significantly since the great 1964 earthquake. The population has more than doubled, and building codes have continued to improve design provisions to prevent collapse during intense shaking. Further, some older buildings have been reinforced, and development has been discouraged in some particularly hazardous areas. However, despite these improvements, and because practices to reduce vulnerability to earthquakes and tsunamis are not applied uniformly in regions of high risk, future earthquakes of magnitude and proximity to cause life-threatening damage to buildings, disrupt basic utilities and critical infrastructure, and result in significant economic repercussions should still be expected during our lifetime. The catastrophic April 2011 (M_W9.0) Tohoku Earthquake in Japan is a grim reminder of why it is important for a society to be prepared to deal with major seismic events.

In addition to the Aleutian Subduction Zone and Denali fault, there are other active sources of potentially damaging earthquakes in Alaska, which have each produced strong earthquakes over the past few hundred years. These sources include the Castle Mountain fault in lower Matanuska-Susitna valley; the active belt of faulting beneath northern Cook Inlet; the Fairbanks, Minto Flats, and Salcha area seismic zones; the Yakataga seismic gap near Yakutat; and the Fairweather-Queen Charlotte fault in southeast Alaska; among others.

Noteworthy earthquake statistics for Alaska include:

- Eleven percent of the world's recorded earthquakes have occurred in Alaska.
- Alaska has more frequent earthquakes then the entire rest of the United States.
- Three of the eight largest instrument recorded earthquakes in the world were in Alaska.
- Seven of the ten largest instrument recorded earthquakes in the United States were in Alaska.
- Approximately 2,000 earthquakes are recorded in Alaska each month. And,

- Since 1900, Alaska has had an average of: one "great" (magnitude 8 or larger) earthquake every 13 years; one magnitude 7 to 8 earthquake every two years; six magnitude 6 to 7 earthquakes per year; 50 magnitude 5 to 6 earthquakes per year; 300 magnitude 4 to 5 earthquakes per year.

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. Further, while advancements in seismic hazards analysis now provide better estimates of how future earthquakes may affect our built environment and population centers, the age and structural resilience of buildings and infrastructure vary across the state, 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.

1.3 Current ASHSC Membership

John L. Aho	Public Member	Retired
Gary A. Carver	Public Member	Carver Geologic, Inc.
Bud Cassidy	Local Government	Kodiak Island Borough
Mark J. Delozier	Local Government	City of Valdez
Ann Gravier	Alaska DMVA	DHS&EM
Laura W. Kelly	Federal Agency	USCG
Richard D. Koehler	Alaska DNR	DGGS
Robin J. McSharry	Insurance Industry	State Farm Insurance Co.
David E. Miller	Local Government	City and Borough of Sitka
Robert L. Scher	Public Member	R&M Consultants, Inc.
Michael West	UA	Geophysical Institute

2.0 COMMISSION CHARTER

Purpose

To provide a vehicle through which statewide seismic risk issues can be addressed and solutions can be proposed that will reduce life and property losses from a future damaging earthquake.

Vision

Eliminate losses from future earthquakes and tsunamis. Promote public and government awareness of Alaska's seismic hazards and seismic risk mitigation.

Mission

Make recommendations to the governor and legislature for reducing the State's vulnerability to seismic hazards. Advise the public and private sectors on approaches for mitigating earthquake and tsunami risk.

- ***Act in an Advisory Capacity*** - Advise the Governor, the Legislature, and the public on Alaska's seismic hazards and risk mitigation.
- ***Provide Information and Technical Guidance*** - Recommend studies, policies, and programs that will mitigate the risks associated with seismic hazards.
- ***Recommend Educational Programs*** - Recommend and participate in programs that will disseminate information to government agencies and the public.
- ***Encourage Seismic Hazards Risk Mitigation Efforts*** - Encourage efforts to address issues related to seismic hazards risk mitigation.

By achieving this mission, we create an opportunity to be an effective body in mitigating the potential damaging effects of major seismic events.

Core Values

Honesty; Integrity; Trust; Diligence; Service to the State; Responsibility for One's Own Work; Support to Other Commission Members; Commitment to Complete Accepted Assignments; Provide Value to Stakeholders; Be Objective and Reasonable; Advocate for Seismic Risk Mitigation Efforts; Recognize Exemplary Seismic Risk Mitigation Efforts

3.0 STRATEGIC OBJECTIVES FOR EARTHQUAKE SAFETY AND RISK MITIGATION

The following objectives delineate a framework within which the ASHSC will work over the next three to five years to fulfill its powers and duties as assigned in AS 44.37.067. As a framework, objectives may and should be expected to change with time, and some may not necessarily ever be completed. However, there are tasks and actions that can be completed in support of the objectives. Therefore, specific strategies are also described that the ASHSC has identified to implement each general objective, including relative priority, completion target, and metrics for measuring success. As this is a dynamic plan, the objectives and strategies will be reviewed, modified and/or updated every two years as experience is gained and additional information is obtained.

OBJECTIVE # 1: Recommend Goals and Priorities for Seismic Hazards Mitigation to Public and Private Sectors

Implementation Strategies

a. Develop a directory of speakers with expertise in seismic risk mitigation issues and make it available on our website for use by interested groups.

   Priority: Low

   Target Date: 2014

   Measure of Success: A directory is posted on the ASHSC website

b. Work with the Alaska DEED and DOT&PF to identify and prioritize seismically vulnerable public schools and buildings.

   Priority: Very Important

   Target Date: Continuing

   Measures of Success: Demonstrate need by compiling case history information. Facilitate a rapid visual screening (e.g. FEMA 154) pilot program to evaluate a sampling of schools. Provide specific recommendations to the DEED and DOT&PF.

c. Work with the Alaska DEED, DPS, and DOT&PF to improve seismic design and construction of public schools, buildings, and critical infrastructure.

   Priority: Very Important

   Target Date: Continuing

   Measures of Success: Provide specific recommendations to improve seismic design code provisions, conduct third-party reviews, improve special construction inspection requirements, etc.

d. Educate Commission members about the State's plans to identify and retrofit 'at-risk' critical structures.

   Priority: Moderate

Target Date: Continuing

Measure of Success: ASHSC has documented the State's plans for retrofit.

e. Develop Policy Recommendations, with supporting documentation, to address seismic risk mitigation issues.

Priority: Very important

Target Date: Continuing

Measures of Success: Develop at least one new policy recommendation each year (*see the ASHSC Rules of Procedure*). Review, update and re-adopt (or drop) existing policy recommendations that are ≥3-years older.

OBJECTIVE # 2: Recommend Policies to the Governor and Legislature Including Needed Research, Mapping, and Monitoring

Implementation Strategies

a. Encourage, and provide advice on, continued efforts in the Identification, mapping, and characterization of active faults in Alaska.

Priority: Very important

Target Date: Annually

Measures of Success: ASHSC offers suggestions to the DGGS and receives annual updates from them concerning this work.

b. Encourage, and provide advice on new and existing seismic monitoring at the municipal, state, and private industry levels.

Priority: Very important

Target Date: Annually

Measures of Success: ASHSC offers suggestions to USGS and UA concerning the seismic instrumentation program(s) and receives annual updates from them concerning this work.

c. Maintain routine communication with the Governor and the legislature of earthquake risk mitigation research activities of significance to the State.

Priority: Important

Target Date: Continuing

Measure of Success: Address active earthquake risk mitigation research relevant to Alaska in the ASHSC's annual report to the Governor and Legislature.

d. Develop a report summarizing the present state of knowledge concerning active seismic sources in Alaska.

Priority: Important

Target Date: 2014

Measures of Success: A report is written, published, and made available on the ASHSC website. The Report is also circulated to appropriate government, public and private entities.

OBJECTIVE # 3: Advise Government at all Levels on Coordinating Earthquake Disaster Preparedness and Seismic Hazards Mitigation. Review the Practices for Recovery and Reconstruction After Major Earthquakes, and Recommend Improvements to Mitigate Losses From Future Similar Events

Implementation Strategies

a. Develop a plan that defines the ASHSC's role in the intervals after a damaging earthquake of 1 week, 1 month, 6 months and greater.

   Priority: Very important

   Target Date: 2014

   Measure of Success: Adoption of the plan.

b. Work with the DHS&EM or independently to present Post-Earthquake Safety Evaluation of Buildings (e.g. ATC-20) training.

   Priority: Important

   Target Date: Continuing

   Measure of Success: At least one course is made available annually to public and private participants.

c. ASHSC commissioners complete the FEMA Incident Command System (ICS) 100 short course

   Priority: Low

   Target Date: Continuing

   Measure of Success: New members complete the on-line course within one year of appointment.

OBJECTIVE # 4: Gather, Analyze, and Disseminate Information of General Interest on Seismic Hazards Mitigation

Implementation Strategies

a. Participate in opportunities to discuss seismic hazard mitigation strategies with seismic commissions in other States.

   Priority: Moderate

   Target Date: Continuing

   Measure of Success: Number of meetings or teleconferences between the ASHSC and at least three other commissions outside the State.

b. Develop a brochure that describes the ASHSC and its current and ongoing activities.

Priority: Low

Target Date: 2016

Measure of Success: ASHSC develops an ASHSC information brochure and provides access to it on the ASHSC website.

c. Develop an Alaska post-earthquake information clearing house website.

Priority: Moderate

Target Date: 2015

Measures of Success: Evaluate website templates in other states for application to Alaska. Identify and recommend the appropriate Alaska entity to develop and operate the website.

d. Participate in earthquake risk mitigation briefing presentations to the general public, and to public and private agencies.

Priority: Important

Target Date: Continuing

Measure of Success: Participate in at least one presentation per year.

e. Regularly post to the ASHSC website commission activities, other information of earthquake risk mitigation interest, and links to other appropriate earthquake and tsunami information websites.

Priority: Moderate

Target Date: Continuing

Measure of Success: The ASHSC website is up-to-date and contains information of interest to the public and private sectors.

OBJECTIVE # 5: Establish and Maintain Working Relationships with Other Public and Private Agencies

Implementation Strategies

a. Assist the Kodiak Island Borough (KIB) and FEMA complete an earthquake planning scenario for the Kodiak road-system area.

Priority: Very Important

Target Date: 2014

Measure of Success: An earthquake planning scenario report is submitted to the KIB and posted on the ASHSC website.

b. Participate in meetings of the Alaska Partnership for Infrastructure Protection (APIP).

Priority: Moderate

Target Date: Continuing

Measure of Success: At least 25% of the APIP meetings are attended annually by an ASHSC representative.

c. Regularly interact with the GAC on seismic risk mitigation issues.

Priority: Moderate

Target Date: Continuing

Measures of Success: Provide a briefing to the GAC of the ASHSC activities at least four times per year. Provide a briefing to the ASHSC of the GAC activities at least four times per year. Organize joint meetings between the ASHSC and the GAC to discuss common issues.

d. Continue participation as a seismic commission member of the Western States Seismic Policy Council (WSSPC).

Priority: Important

Target Date: Continuing

Measures of Success: An annual report of ASHSC activities is published in a WSSPC publication. WSSPC meetings are attended if funding is available. Participate on a WSSPC committee.

e. Provide annual updates of ASHSC activities to Alaska's local emergency planning committees (LEPC) and the State Emergency Response Commission (SERC).

Priority: Low

Target Date: Continuing

Measure of Success: At least 25% of the LEPC's and the SERC are provided with ASHSC's annual reports.

f. Work with the Earthquake Engineering Research Institute (EERI) on the 10th Conference on Earthquake Engineering to be held in Anchorage during July 2014.

Priority: Moderate

Target Date: 2014

Measures of Success: ASHSC provides support as requested from EERI. Participate on the EERI Local Organizing Committee.

g. Invite public and/or private agency speakers to present topics of interest on seismic safety issues at ASHSC face-to-face meetings.

Priority: Low

Target Date: Continuing

Measure of Success: At least one presentation at each face-to-face meeting.

h. Identify a member(s) of the legislature willing to be a champion for earthquake risk mitigation issues and who will offer advice to the ASHSC on presenting Policy Recommendations and draft legislation.

Priority: Important

Target Date: Continuing

Measure of Success: A legislative champion is identified.

OBJECTIVE # 6: Review Earthquake Forecasts and Tsunami Warnings Issued by the Federal Government, Research Institutions, and Other Organizations, and Suggest Appropriate Responses at the State and Local Levels

Implementation Strategies

a. Review and assess earthquake and tsunami forecasts and warnings for Alaska issued by the State, Federal government, research institutions, other organizations, or individuals.

Priority: Moderate

Target Date: Continuing

Measure of Success: [*ASHSC is continuing dialog on the best approach to work towards, implement and measure the success of this strategy*]