2015 WSSPC Annual Meeting Notebook

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Acknowledgments

The Western States Seismic Policy Council is grateful for the financial support we receive from the Federal Emergency Management Agency (FEMA) and our Affiliate members.

We are funded by a Cooperative Agreement with the Department of Homeland Security, Federal Emergency Management Agency in the current fiscal year. The agreement, EMW-2014-CA-00189-S01, is currently in effect.

Our Affiliate members help defray the costs not covered by FEMA’s Cooperative Agreement. WSSPC Affiliate members for 2015 are:

- Applied Technology Council
- California Earthquake Authority
- Cascadia Hazards Institute, Central Washington University
- City and County of San Francisco, Earthquake Safety Implementation Program (California)
- City of Las Vegas, Department of Building and Safety
- Clark County (Nevada) Department of Building and Fire Prevention Bureau
- Degenkolb Engineers, Inc.
- Earthquake Engineering Research Institute (EERI)
- Saunders Construction, Inc.
- Dominic Sims
- State Farm Insurance Companies


The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Government. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Government.
Tab 1 Introduction
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:30 – 9:00 AM</td>
<td>Setup and Coffee Break in Monterey Room</td>
</tr>
<tr>
<td>9:00 – 10:30 AM</td>
<td>Engineering, Construction, Building Codes Committee</td>
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<tr>
<td></td>
<td>Santa Monica</td>
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<td>Tsunami Hazard Mitigation Committee</td>
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<td>Monterey</td>
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<td></td>
<td>Basin &amp; Range Province Committee</td>
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<td>San Jose</td>
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<tr>
<td>10:30 – 10:45 AM</td>
<td>Coffee Refresh – 15 minutes</td>
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<td>10:45 – 11:45 AM</td>
<td>Board Meeting</td>
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<td></td>
<td>Monterey</td>
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<tr>
<td>11:45 AM – Noon</td>
<td>Break – 15 minutes</td>
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<tr>
<td>Noon – 1:15 PM</td>
<td>WSSPC Awards Luncheon</td>
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<tr>
<td></td>
<td>San Gabriel Patio</td>
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<tr>
<td>1:15 – 1:30 PM</td>
<td>Break – 15 minutes</td>
</tr>
<tr>
<td>1:30 – 3:00 PM</td>
<td>Annual Business Meeting</td>
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<tr>
<td></td>
<td>Monterey</td>
</tr>
</tbody>
</table>
Burbank Bob Hope Airport (BUR)
2627 N Hollywood Way, Burbank, CA 91505

» Depart from Bob Hope Airport, CA (0.2 mi.)
» Keep left toward W Empire Ave (0.0 mi.)
» Turn left onto W Empire Ave (0.9 mi.)
» Turn left onto N Buena Vista St (0.4 mi.)
» Turn right onto N San Fernando Blvd (0.5 mi.)
» Take ramp left for I-5 South toward Los Angeles (3.8 mi.)
» At exit 144, take ramp right for CA-134 toward Pasadena / Glendale (8.3 mi.)
» Take ramp right for Corson St toward Marengo Ave / Fair Oaks Ave (0.8 mi.)
» Turn right onto N Los Robles Ave (0.4 mi.)
» Road name changes to S Los Robles Ave (0.2 mi.)

Arrive at Hilton Pasadena
168 S Los Robles Ave, Pasadena, CA 91101
**Hilton Pasadena**
168 South Los Robles Avenue.
Pasadena, CA 91101

Tel: 1-626-577-1000
MEETINGS & EVENTS

Planning a meeting, conference, event or wedding? Be assured of success as our professional Sales, Catering and Event Services team brings your event to fruition. Our facilities include:

• 28,000 sq ft of space all on one floor, outfitted to your specifications
• An elegant ballroom spacious enough for up to 1,000 happy Guests

KEY

- Food & Beverages
- Meeting/Conference Rooms
- Fitness Center
- Amenities

LOCATION

Ready for the ultimate California experience? Nearby attractions include Los Angeles, Pasadena Convention Center, the Rose Bowl, Old Town Pasadena, Universal Studios Hollywood, Mann’s Chinese Theater, Dodger Stadium, Disneyland, Raging Waters and Six Flags Magic Mountain. Plus amazing shopping and dining at Pasco Colorado.
Tab 2  2015 WSSPC
AWARDS IN EXCELLENCE
WSSPC Awards

The Western States Seismic Policy Council (WSSPC) implemented an awards program in 1996 to support its mission to develop seismic policies and share information to promote programs intended to reduce earthquake-related losses. Since then, WSSPC awards have been effective in recognizing the hard-working, creative and innovative efforts of those within the earthquake hazards reduction community, brought greater visibility to exemplary programs, projects and products, and facilitated the transfer of successful experiences to other agencies.

“Awards in Excellence” are awarded annually to honor exemplary programs, projects, and products that have significantly contributed to addressing earthquake risk reduction through demonstrated achievements in earthquake mitigation, preparedness, response and recovery. One winner is selected to receive the Overall Award in Excellence.

“National Awards in Excellence” are awarded every four years in partnership with the Northeast States Emergency Consortium (NESEC), the Central U.S. Earthquake Consortium (CUSEC), and the Cascadia Region Earthquake Workgroup (CREW).

“Lifetime Achievement Awards” are awarded periodically to honor outstanding leaders who are currently practicing, and who have demonstrated an extraordinary commitment, level of service, and contribution to earthquake risk reduction throughout their careers.

“WSSPC Leadership Awards” are awarded periodically to honor individuals within the WSSPC membership who have demonstrated sustained leadership benefitting the WSSPC community.

2015 WSSPC AWARDS IN EXCELLENCE

Overall Award in Excellence for Legislation: Senator Alex Padilla for sponsoring Senate Bill 135, Earthquake Early Warning System.

Former California State Senator Alex Padilla, representing District 20 (parts of Los Angeles and San Bernardino Counties), is the author of S.B. 135 “Earthquake Early Warning System”, a bill that requires California to build an earthquake early warning system. Padilla was successful over the course of five months in achieving unanimous approval of the bill by the Senate and Assembly and Governor Jerry Brown’s signature on September 24, 2013.

The law requires California Office of Emergency Services, in collaboration with the California Seismic Safety Commission, California Institute of Technology, California Geological Survey, University of California at Berkeley, the U.S. Geological Survey, and other stakeholders, to develop a comprehensive statewide earthquake early warning system that would disseminate earthquake information in support of public safety, emergency response, and loss mitigation.

The cost to build and operate the system for five years is $80 million. The Office of Emergency Services has until January 1, 2016 to identify funding sources other than the State’s General Fund. Alex Padilla is now serving as the California Secretary of State.

Winner: Former State Senator Alex Padilla
Accepting: Bill Mabie, Chief Deputy Secretary of State
Award in Excellence for Educational Outreach:  *Prepare Del Norte for their "Tsunami Safe Week".*

Prepare Del Norte coordinates training programs including CERT, C.O.A.D. (Del Norte Community Organizations Active in Disaster), D.A.R.T. (Disaster Animal Response Team), and Neighbors Helping Neighbors, coordinates drills and exercises, provides emergency resources (weather, road, earthquake, tsunami information), promotes ShakeOut and Tsunami Week activities, provides detailed community tsunami information and is the Del Norte Coordination point for the Redwood Coast Tsunami Work Group. Details of these programs are found on the Prepare Del Norte web site – [www.preparedelnorte.com](http://www.preparedelnorte.com). The group also maintains a Facebook page [www.facebook.com/DelNorteOfficeOfEmergencyServices](http://www.facebook.com/DelNorteOfficeOfEmergencyServices) and a twitter account [@PrepareDN](http://@PrepareDN).

*Winner: Prepare Del Norte*  
*Accepting: Cindy Henderson and Heather Holt, Prepare Del Norte*

Award in Excellence for Multi-jurisdictional Planning:  *Alaska Department of Homeland Security and Emergency Management for their Alaska Shield Earthquake Exercise.*

The Alaska Shield 2014 exercise was the capstone event for the *White House*-directed 2014 cycle of national planning and preparedness exercises. The Alaska Shield exercise was a full-scale, live test of the ability of numerous State and Federal agencies (including the military), along with local government and non-government entities to respond to a devastating earthquake affecting a significant area (modeled after the M9.2 1964 Great Alaska Earthquake). This exercise was designed and conducted by the Alaska Department of Military & Veterans Affairs, Division of Homeland Security & Emergency Management (DHS&EM), with the support of FEMA Region X.

Alaska Shield 2014 was a linked exercise intended to improve Alaska’s emergency response capacity (individual/organization/interagency), validate the State’s, FEMA, Department of Defense, and local community response plans, test interagency coordination; and to explore recovery plans in the face of a catastrophic earthquake.

*Winner: Alaska Department of Homeland Security and Emergency Management*  
*Accepting: Cathy Cavyell, Alaska Department of Homeland Security and Emergency Management*
Tab 3  BASIN & RANGE PROVINCE (BRP) COMMITTEE MEETING
Basin & Range Province Committee

Hilton Pasadena
Pasadena, California
San Jose Room
Friday, April 24, 2015
9:00 a.m. – 10:30 a.m.

AGENDA

Participant Telephone Number * 866-730-7514 Participant PIN: 231931#
*Note this is a toll-free number. You will NOT be charged for the call.

1. Call to Order by Chair Bill Phillips, Idaho Geological Survey

2. Approval of Minutes from July 21, 2014


4. Summary of Basin and Range Province Seismic Hazard Summit III

5. New Business

6. Announcements

- Note: Full versions of adopted policies are posted on the “Members Only” webpage: [http://www.wsspc.org/member-login/members](http://www.wsspc.org/member-login/members). Log in is: 2014SeismicMember
Call to Order
The meeting was called to order by Bill Phillips, Chair. Present in Anchorage were:
Doug Bausch (FEMA), Wendy Blackwell (NM EM), Bob Carey (UT EM), Sheila Curtis (UT EM), John Parrish (CA GS), and Patti Sutch (WSSPC)
Present on the phone were: Mike Conway (AZ GS), Melinda Gibson (WY EM), Dan Koening (NM GS), Ian Madin (OR GS), Carlos Mendoza (FUGRO), Bill Phillips (ID GS), Mark Stephensen (ID EM), Chris Wills (CA GS), and Mark Zellman (FUGRO)

Minutes Recorder
Bill Phillips asked Patti Sutch to take minutes of the committee meeting.

Approval of Minutes
MOTION: To approve the minutes of May 2, 2013 (Mark Stephensen)
SECOND: Mike Conway
VOTE: Unanimously in favor.

Policy Recommendations
1. Policy Recommendation 13-5 (Basin and Range Province Earthquake Working Group(s)) was sunsseted by the WSSPC Board.

2. Committee members were surveyed on Policy Recommendation 14-2 (Definitions of Fault Activity for the Basin & Range Province) and the results were summarized by Bill Phillips. Survey comments and discussion centered around the fault activity definition, with a suggestion by Chris Wills to use slip rate rather than activity. John Parrish stated that the policy is prescriptive; and although California uses the Holocene as the time frame for fault activity, other state geological surveys should work up their own standards. Ian Madin said that the regulatory agencies are the ones to determine acceptable risk, and the 15K date is not as useful for the Basin & Range as a measure of activity. Dan Koening agreed that the fault activity definition is problematic. Chris Wills thought that a WSSPC policy would be useful to have, but it would be more helpful if geologic criteria for determining recurrence interval, slip rates, or most recent rupture were used.

Bill Phillips asked if the draft should be rewritten and proposed three outcomes:
1) Adopt policy recommendation 14-2 after making brief changes
2) Table the draft for a future re-write
3) Recommend that 11-2 sunset.

Patti Sutch suggested a fourth option which would be to sunset policy recommendation 11-2 and rework 14-2 for next year. Chris Wills made the following motion:
MOTION: To sunset policy recommendation 11-2 and table policy recommendation 14-2 to work on it for next year.
SECOND: Bob Carey.
VOTE: Unanimously in favor by individually polled state representatives from AZ, CA, UT, NM, OR, WY, and ID.

Wendy Blackwell asked if the earthquake response handbook could be developed through NEHRP funding. Bob Carey thought that WSSPC could be funded to coordinate it. Doug Bausch indicated that it fit in criteria 5 of the NEHRP state assistance guidelines but a state or multiple states would have to make the request through the FEMA regions. Bill Phillips asked about the budget; Bob Carey estimated about $15K was needed to supply the handbook to fire and law enforcement. Bill asked to include Craig dePolo in the development of the handbook, and Bob Carey and Sheila Curtis volunteered to contact Craig and put together the project request and submit to FEMA on behalf of the WSSPC states.

MOTION: To adopt policy recommendation 14-5 (Bob Carey)
SECOND: Wendy Blackwell
VOTE: Unanimously in favor.

New Business – None

Announcements
Bob Carey announced that the Basin & Range Province Seismic Hazards Summit III will be held in January in Salt Lake City. The agenda and dates will be announced soon.

Adjournment
MOTION: Chris Wills moved to adjourn the meeting.
SECOND: Mike Conway
VOTE: Unanimously in favor.

Respectfully submitted,

Patti Sutch, Secretary
| Tab 4 | ENGINEERING, CONSTRUCTION, AND BUILDING CODES (ECBC) COMMITTEE MEETING |
Engineering, Construction & Building Codes Committee  
Hilton Pasadena  
Pasadena, California  
Santa Monica Room  
Friday April 24, 2015  
9:00 a.m. - 10:30 a.m.

AGENDA

Participant Telephone Number* 866-730-7514 Participant PIN: 491619#
* Note this is a toll-free number. You will NOT be charged for the call.

1. Call to Order and introductions by Chair, Ron Lynn, Clark County Department of Building and Fire Prevention Bureau

2. Approval of minutes of the February 6, 2015 meeting


6. Update on policy for non-ductile concrete buildings (DRAFT Policy 15-4) [Link](http://www.wsspc.org/wp-content/uploads/2015/03/DRAFT_15-4-Non-Ductile-Concrete-Bldgs-Policy.docx)

7. New Business and other areas of concern for the committee

8. Schedule next teleconference

9. Adjournment

- Note: Full versions of adopted policies are posted on the “Members Only” webpage: [Link](http://www.wsspc.org/member-login/members). Log in is: 2014SeismicMember
MINUTES

1. The WSSPC Engineering, Construction & Building Codes Committee held a meeting and conference call on February 6, 2015 at 11:00 a.m. Chairman Ron Lynn’s Executive Assistant, Carol Carter called the meeting to order and introductions were made. In attendance were the following individuals:

Ron Lynn, Clark County, Nevada, Department of Building & Fire Prevention
Rob Jackson, Colorado Earthquake Hazard Mitigation Council
Barry Welliver, Utah SSC
Shahin Moinian, ICC-ES
Larry Brugger, ICC
Fred Turner, California Seismic Safety Commission
Yumei Wang, Oregon DOGAMI
Patti Sutch, Western States Seismic Policy Council
Carol Carter, Clark County, Nevada, Department of Building & Fire Prevention

2. Minutes for the December 15, 2014 Conference Call were reviewed by the Committee, and were approved unanimously.

3. Ron said there has been a suggestion for developing a policy for incorporating either seismic questions in the Engineering Registration Exam or for Professional Development Hours. Ron has spoken to the national NES and with some state organizations. They think there are enough questions for lateral loads and they sent him percentages that are supposed to be on the tests. Ron received support for Professional Development Hours. He received feedback that civil engineers are often not required to have seismic consideration for education or testing and they feel an appropriate policy may include restricting structures 3 story or above in seismically active states to structural engineers only and to include as part of their Professional Development Hours if it includes that in the state.

There was discussion that civil engineers should have knowledge or structural training when designing buildings and that the public’s perception should be that buildings are designed by the appropriate engineers. Ron suggested a recommendation that anyone designing structures be either a structural engineer or knowledge of seismic issues and keep pace with codes and standards. He said NIBS is staying to the 3 yr cycle for PDH’s. Fred suggested doing periodic surveys. Ron requested Fred send him an e mail requesting this for the Major Jurisdiction Committee who does ongoing surveys.
Buzz mentioned that jurisdictions aren’t charging fees to effectively regulate their construction in their jurisdiction. Ron said will consider this for a future agenda item.

4. Barry sent out a preliminary policy on non-ductile concrete buildings. Is this format acceptable in a policy and suggest from WSSPC that it is a mandatory requirement for the guidelines. There are three known organizations that actively pursue non-ductile concrete that issue policy and guidelines. There was discussion of local and state governments that vary from policy to policy. Ron suggested referencing the local entity. In support of this policy moving forward is Ron, Rob, Larry, Buzz, Yumei, Barry and Patti.

5. We have a lot of policies due next year which includes 13-4, 13-10, 13-7, 13-11, and 13-12. Some will not need changes, but Ron suggested reviewing them for updating. It was requested moving a couple them to an off year cycle to avoid being overwhelmed. There were no objections from the committee members. Submitted will be 13-4 & 13-12, and Non Ductile Concrete Buildings; the others will be tabled for the off year cycle. Patti requested to submit them within 1 ½ weeks to put them on the website before the WSSPC Annual Meeting on April 24, 2015.

6. Ron gave an update. Werner Hellmer is the lead on this with interns assisting. We took an overlay that the state insurance pool did using the assessor’s records and the design year for unreinforced masonry and had to balance state-wide between the different levels of enforcement. A report was submitted to EERI and a report was submitted to the Nevada Earthquake Safety Council. The school district has asked us to check some of their buildings as well. What we see is a model for communities going forward and exporting as much as we can. The draft of the final report and the Power Point has been sent to the Committee Members. A GIS overlay is being put into the pre-planning component for first responders that will know what to expect when they go out to those areas.

7. No new business.

8. Next teleconference will be brief. No date mentioned.

9. Meeting adjourned at 12:22 pm. PDT.

Respectfully Submitted,

Ronald L. Lynn
Chairman
Engineering, Construction and Building Codes Committee
Tab 5  TSUNAMI HAZARD MITIGATION (THM) COMMITTEE MEETING
Tsunami Hazard Mitigation Committee

Hilton Pasadena
Pasadena, California
Monterey Room
Friday, April 24, 2015
9:00 a.m. – 10:30 a.m.

AGENDA

Participant Telephone Number * 866-730-7514 Participant PIN: 374697#
*Note this is a toll-free number. You will NOT be charged for the call.

1. Welcome and Introductions by John Schelling, Washington EMD – All (5 min)

2. Review 2015 WSSPC DRAFT Policy Recommendations – All (30 min.)
   • Risk Reduction Strategies
   • Hazard Identification and Assessment
     Policy Recommendation 15-1: Earthquake Planning Scenarios

3. Brief Overview of Upcoming Policy Recommendations for 2016 – All (15 min.)
   • *Tsunami
     Policy Recommendation 13-1: Rapid Tsunami Identification and Evacuation Notification
   • *Discussion on Potential Revisions to EEW Policy to Reflect Need for Integration with Tsunami Notification? Policy Recommendation 14-7: Earthquake Early Warning Systems

4. Discussion on the Tsunami Warning, Education and Research Act (TWARA) – All (20 min.)

5. Election of New Tsunami Committee Chair – All (10 min.)

6. State/Program Updates – WSSPC State Representatives (15 min.)

7. Adjournment

*Note: Full versions of adopted policies are posted on the “Members Only” webpage: http://www.wsspc.org/member-login/members. Log in is: 2014SeismicMember
Tsunami Hazard Mitigation Committee Meeting Minutes

BP Energy Center
Anchorage, Alaska
Monday, July 21, 2014
9:00 a.m. – 10:30 a.m.

Meeting Attendees:
Vicki McConnell, State of Oregon, Chair
John Madden, State of Alaska
Ann Gravier, State of Alaska
Rich Koehler, State of Alaska
Rick Wilson, State of California
Jim Goltz, State of California (Ret.)
Kevin Richards, State of Hawaii
Gary Chock, Martin Chock, Inc.
Dave Norman, State of Washington
John Schelling, State of Washington
Shahin Moinian, International Code Council

John Schelling, acting as meeting facilitator on behalf of Tsunami Committee Chair, Vicki McConnell, welcomed committee meeting attendees and introductions were completed.

The committee reviewed two (2) draft policy recommendations, Draft Policy Recommendation 14-1 - Improving Tsunami Public Education, Mitigation, and Warning Procedures for Distant and Local Sources, and Draft Policy Recommendation 14-7 - Earthquake Early Warning Systems. John Schelling reviewed Policy 14-1 with the committee. Discussion ensued regarding various statements related to Policy 14-1. The consensus of the committee was to suggested the below statement to the WSSPC Board for consideration.

Policy Recommendation 14-1
To be most effective, public education must be institutionalized and consist of continuous instructional programs that are reinforced by exercises and training, and subsequently measured and evaluated using social science surveys. To be most effective, community outreach and education requires an ongoing commitment by state and local governments partnering with the federal government through the National Tsunami Hazard Mitigation Program (NTHMP) to implement robust, long-term education programs reinforced by exercises and training, and subsequently measured and evaluated using social science surveys. The Tsunami Warning and Education Act provided the framework for the NTHMP collaboration and supports the full
national effort to reduce loss of life from tsunamis. The Tsunami Warning and Education and Reauthorization Act (TWERA) is currently being considered by Congress.

WSSPC members will continue to support increased mitigation, preparedness, and response efforts in communities at risk to local tsunami sources. WSSPC will also offer continued support for increased deployment of deep-ocean tsunami detection systems, the development of a tsunami forecasting model, improvement of seismic monitoring to better detect tsunami-generating earthquakes, public education, and other long-term risk reduction efforts. While WSSPC supports these activities, the activities should not be funded at the expense of continued and required support of State and local tsunami mitigation and education activities.

WSSPC members will continue to communicate WSSPC adopted positions with federal, state, and local stakeholders.

A motion was made by Kevin Richards to provide the consensus recommendation forward to the WSSPC Board for review and approval and a second was offered by Jim Goltz.

The Tsunami Committee unanimously recommended approval of the motion.

The committee then reviewed Policy 14-7 - Earthquake Early Warning Systems. Members of the committee offered comments on the initial version.

Jim Goltz provided a history earthquake early warning, outlined the law that the California Legislature passed supporting earthquake early warning, and discussed the workgroup that California Office of Emergency Services convened to examine implementation.

The committee discussed earthquake early warning research that was being completed by various university partners and the USGS through funding by the Gordon and Betty Moore Foundation.

Kevin Richards and Ann Gravier inquired about application to states that were not participating in the initial system development for the west coast. Discussion about the committee ensued and Jim Goltz outlined the policy component that suggested each state have a working group to examine local implementation.

The committee offered suggested edits to the original draft that was reviewed and the outcome of that discussion is below.

**Policy Recommendation 14-7**

WSSPC supports the research, development, and implementation of earthquake early warning systems in those states or regions with high seismic risk and a seismic network that can, or can be enhanced to, support an early warning capability.

The United States has followed scientific and technological developments in other nations, and although it has not yet implemented a fully operational earthquake early warning (EEW) system,
the United States Geological Survey (USGS) has supported the development and trial operation of EEW with university partners and the State of California since 2006. Those efforts have resulted in a demonstration system called ShakeAlert that began sending test notifications to selected users in January 2012. While that system has demonstrated the feasibility of earthquake early warning in California, the system is still being tested for reliability and robustness.

WSSPC recommends that its members establish state level working groups on earthquake early warning that include interested stakeholders, including social and physical scientists, engineers, emergency managers, private sector partners, and end users. These working groups will serve in several capacities: to support efforts for continued research and development; to support expansion to other regions; to serve as clearinghouses of information on this new technology and as bodies of experts who are able to speak on the subject at scientific and emergency management meetings; to assess the need for regional seismic network enhancement or upgrades to support earthquake early warning; to identify local areas within states where earthquake early warning system deployment is feasible or functions to which early warning could be applied; to address the broader policy issues of the organization and management of an earthquake early warning system; and, to serve as advocates for earthquake early warning before legislative bodies, the media and the public.

A motion was made by Rich Koehler and seconded by Kevin Richards to recommend the amended policy be sent to the WSSPC Board for consideration.

The committee unanimously passed the amended recommendation.

State of Alaska Emergency Management Director, John Madden, provided a brief overview of the Alaska Shield exercise and shared lessons learned from the event. He noted that this was a state designed exercise and the first Capstone event to test national deployment of resources. Director Madden compared the exercise to the actual 1964 Great Alaska Earthquake and Tsunami responses, which was one of the finest responses to such a large scale disaster. He identified that after 50-years, the exercise revealed how many improvements had been made, but some work was still necessary in other areas.

Director Madden outlined the recovery components to the exercise and the use of the National Disaster Recovery Framework.

Committee members made various inquires about the exercise and Director Madden noted that he and his staff were continuing to document areas for improvement within the National Disaster Recovery Framework and those could be shared with the committee in the future.

Gary Chock provided a brief overview on the progress of on American Society of Civil Engineers (ASCE) 7 Tsunami Loads & Effects. He noted the progress to date, which has been based on several reconnaissance trips by ASCE and others to Japan in order to determine which structures fared well and which ones did not and why the performance varied. He discussed how the committee was addressing maps and inundation zones compared with work completed through the National Tsunami Hazard Mitigation Program. Mr. Chock noted that the ASCE 7 committee was addressing minority comments
and outlined the timetable for approval. The stated that the results would be published by ASCE in 2016, incorporated into the International Code Council Codes in 2018, and would potentially begin appearing in state building codes in 2019-2020.

The Committee discussed the status of the Tsunami Warning and Education Reauthorization Act. Chair McConnell provided an overview of TWER and discussed the House version of the legislation. Director Madden noted that Senator Begich had sponsored the Senate version of the bill.

John Schelling noted how valuable state reports are and allow us to share best practices. He noted that, unfortunately, time was running short and asked committee members to circulate a summary of their progress to the group via email.

The meeting was adjourned at 10:30 a.m.
Tab 6  WSSPC BOARD OF DIRECTORS MEETING
## AGENDA

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<th>Time</th>
<th>Tab</th>
<th>Item</th>
<th>Lead</th>
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<tbody>
<tr>
<td>10:45</td>
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<td>Call to Order, Welcome, and Introductions</td>
<td>John Parrish WSSPC Chair</td>
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<td>Welcome to new Board member Brad Richy</td>
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<td>10:50</td>
<td>Tab</td>
<td>Approval of Minutes</td>
<td>Parrish</td>
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<td>• WSSPC Board of Directors’ Meeting of November 19, 2014</td>
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<td>10:55</td>
<td>Tab</td>
<td>WSSPC Executive Director’s Report</td>
<td>Patti Sutch WSSPC Executive Director</td>
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<td>• WSSPC Cash on Hand</td>
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<td>• WSSPC FY Income &amp; Expense (December 2014 – March 2015)</td>
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<td>• Current FEMA Cooperative Agreement</td>
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<td>• FY 2013-2014 Financial Statements (in Annual Report)</td>
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<td>11:10</td>
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<td>Review of Board of Directors Slate: December 2015-November 2017 for Member Election</td>
<td>Parrish</td>
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<td>Mark Ghilarducci, Peter McDonough, GS Director</td>
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<td>11:40</td>
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<td>New Business</td>
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<td>Status of Future Meetings</td>
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<td>• 2015 Board Meetings – Sacramento November 18</td>
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<td>• 2015 Earthquake Program Managers May 5-8</td>
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<td>• 2016 WSSPC Annual Meeting</td>
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<td>Adjournment</td>
<td>Parrish</td>
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Questions? Patti Sutch 916-799-5410 (cell)
Western States Seismic Policy Council  
Board of Directors’ Meeting  
Sacramento, California  
November 19, 2014  

MINUTES

Present were:
Michelle Bates, WSSPC Program Manager
M. Leon Berrett, representing Peter McDonough for Utah Seismic Safety Commission
Mark Johnson, representing Mark Ghilarducci for California Governor’s Office of Emergency Services
Keith Knudsen, U.S. Geological Survey (as noted)
John Madden, Alaska Department of Homeland Security and Emergency Management
John Metesh, Montana Bureau of Mines and Geology
John Parrish, California Geological Survey
Patti Sutch, WSSPC Executive Director

Call to Order
WSSPC Chair John Parrish called the meeting to order and each person introduced themselves.

FEMA Report – Teleconference Call
Ed Laatsch from FEMA headquarters provided a report of FEMA activities.

- State assistance process: FEMA is working on a “clear and transparent process” whereby the states provide their requests for projects and support to headquarters and then headquarters swings back to the FEMA regions and states with questions and clarifications. The consortia will be involved with assessing feasibility of the requests and reasonable costs. The project list from FEMA headquarters will be provided to the consortia and partners in December.
- Performance Measures: FEMA requests quarterly snapshots from the consortia.
- Publications: FEMA has 8-9 new publications. The NEHRP Recommended Provisions are due in January 2015, and included will be a Performance Assessment Calculations (PAC) tool as part of the Performance Based Design methodology.
- Building Code Updates: FEMA is involved with the FY15 code hearings, and works to improve the codes and standards. New Madrid commercial standards have been adopted, but residential standards are being resisted.
- FEMA Regional Earthquake Program Managers: Positions in Regions 9 and 10 are being filled.
- Napa Earthquake: FEMA plans to put out a 30-60 page report on the buildings that were seismically retrofit – most performed well.
- Training: Efforts are strong.
- Headquarters position: Headquarters is trying to fill Erin Walsh’s position.
- Budget: They are hopeful that FY15 will have the same level of funding.
- Loss Avoidance Study: Ed’s project is an effort to determine savings accruing annually from disaster-resistant building codes for earthquakes, hurricanes, and floods. They have a pilot study in Salt Lake City and Charleston, South Carolina.
Ed concluded his report and ended the teleconference call. The Board discussed Ed’s project and thought WSSPC could develop a recommendation for buildings to be built beyond life safety.

Approval of Minutes
MOTION: To approve the minutes of July 21, 2014 (John Madden).
SECOND: Leon Berrett.
VOTE: Unanimously in favor.

Review of Annual Business Meeting Minutes
The Board reviewed the draft minutes from the July 21, 2014 Annual Business Meeting and approved them for posting on the website.

Executive Director Report
Patti Sutch discussed the status of WSSPC’s finances. In the current fiscal year there are three cooperative agreements, two of which have ended. With two months more in the current fiscal year, WSSPC shows a positive $3532.48 (which will be reduced at year end by meeting costs and depreciation). We increased our Affiliate membership to 13, which has helped to achieve the positive results. WSSPC cash on hand is approximately $172 K, an amount that would cover our expenses for about 11 months at the current rate. The 2013 Cooperative Agreement ended in July being underspent in both the state assistance and operational categories. For the current cooperative agreement, we have underspent about $14K because of a several month personnel vacancy and a 50% reduction in monthly medical benefits that start in December. We used a portion for printing California’s mobile home flyers for ShakeOut. Patti has hired a student intern to work on the research for the newsletter, and a 30-hour per week Program Manager. Patti proposed that of the remaining underspent portion of the budget, $10K be used to support annual meeting costs, leaving the remaining $4K for a cushion or other purposes. The Board agreed to the change in the budget.

Keith Knudsen arrived.

Board Emergency Manager Vacancy
John Madden described the challenge in finding an available emergency manager director to serve on the WSSPC Board, due to many directors being involved in NEMA leadership positions. In addition, with the recent election, he and another director’s jobs have not been approved by the incoming governors. John will let Patti know the results.

BREAK

USGS Report
Keith Knudsen, USGS Hazards Center Deputy Director, summarized USGS activities.

- The USGS re-published 6 Professional Papers (541-546) on the 50th anniversary of the 1964 Alaska earthquake and tsunami, and participated in anniversary activities for the Alaska and Loma Prieta earthquakes.
- Funding for the Earthquake Hazards Program is higher in 2014, but is below the average funding level which impacts their ability to hire staff. USGS is on the continuing resolution at least through December 11.
- The USGS recently completed the National Seismic Hazard Map and UCERF3, and held an induced seismicity workshop because of the increased earthquake activity in Oklahoma, Texas, and Kansas.
• Earthquake Early Warning (EEW) may receive additional funding if Congressional committee recommendations are followed; the President’s budget recommended $5M. Early Warning received attention in the South Napa earthquake; a letter was sent from the western states to the President supporting EEW, and Cal Tech received Los Angeles City UASI funding for EEW. The USGS is committed to EEW for the west coast and other high hazard areas. As a result of the 2013 workshop in Seattle, a Pacific Northwest Communication Plan was developed.

• The south to north rupture direction increased damage in Napa in the earthquake. The “Did You Feel It?” website provided useful information.

• A goal of ANSS is to develop an aftershock forecasting product in FY15.

Financial Policies and Procedures Document
MOTION: To approve the WSSPC Financial Policies and Procedures document (John Madden).
SECOND: John Metesh.
VOTE: Unanimously in favor.

WSSPC Benefits Policies
Since July of 2012, WSSPC is now an employer of record, and is responsible for setting up benefits. While the level of benefits have remained as similar as possible to past benefits, the method of delivery is different. Those changes are summarized in the document presented for Board approval.

MOTION: to approve the Benefits Summary document (John Madden).
SECOND: Mark Johnson.
VOTE: Unanimously in favor.

Earthquake Program Managers Activities
Art Faulkner, one of the CUSEC Directors, asked the State Earthquake Program Managers (EQPM) to prepare a White Paper about the state of the earthquake program. Approximately 25 state EQPM responded and sent a draft White Paper to NEMA. The paper was presented as a resolution brought before NEMA at their annual meeting, requesting an earthquake subcommittee be formed. In addition to the items shown on the resolution, there were 2 additional ones proposed, one from John Madden that the subcommittee look at the full range of emergency management activities. The final version is being worked on by NEMA and when they release the final version, Patti will post it on the website.

LUNCH BREAK
Keith Knudsen left after lunch.

Draft Policy Recommendations
Policy Recommendation 15-1: Developing Earthquake Scenarios
The Board discussed the benefits of having scenarios, but noted that the policy didn’t recognize the efforts of the USGS, Northcom, and the regional catastrophic planning for southern California, the San Francisco Bay area, and Cascadia. The Board decided to specifically look at updating the appendices.

The Board discussed how to better leverage this policy and re-examine underlying assumptions. They decided it, along with 15-1, needed a re-working.
Policy Recommendation 15-3: Definitions of Recency of Surface Faulting for the Basin and Range Province
John Parrish noted that every state has different levels of fault activity – in California the Holocene or 11,000 years defines the activity level. The California standard doesn’t necessarily fit other states. Therefore the recommendation should be rewritten to recommend that every state geological survey should define recency of faulting in its state.

Patti asked if there were policy recommendations that should be developed that haven’t yet been addressed? Two policy ideas were suggested: Resiliency and Non-ductile Concrete Buildings. Patti suggested that additional policies might be generated by the LP25 and Northridge anniversaries that WSSPC could support. Any ideas should be submitted to Patti by the end of December.

WSSPC Outreach
The student intern has expressed a desire to publish a monthly newsletter, but Patti was not certain that could be sustainable. WSSPC will continue to publish the quarterly e-Newsletter, but supplement it with a monthly bulletin to cover news occurring in the intervening months.

WSSPC Awards
The Awards in Excellence nomination period is open but we haven’t received any applications for 2015 yet.

WSSPC Annual Meeting
The NEPM meeting is tentatively being scheduled for Charleston, South Carolina. That location is not conducive to be able to attract the WSSPC members to a meeting, so John Parrish proposed meeting in southern California at CalTech or Scripps in La Jolla. Patti will investigate the location and make the arrangements for some time in April if possible.

New Business
The next WSSPC Board meeting, other than the teleconference call in January to decide the Awards recipients, will be at the annual meeting. Leon mentioned the joint Utah Seismic Safety Commission meeting with the Nevada Earthquake Safety Council and how useful it would be to arrange another opportunity for the councils to meet at the WSSPC annual meeting.

Closed Session
The WSSPC staff left the room. When the session was opened up, the results of the discussion were not disclosed.

Adjournment
The meeting was adjourned.

Respectfully submitted,

Patti Sutch, WSSPC Secretary
| Tab 7 | WSSPC ANNUAL BUSINESS MEETING (ABM) |
**AGENDA**

Teleconference Call Information:
Telephone Number: (866) 730-7514 *
Participant Passcode: 374697#

*Note: This is a toll-free number. You will NOT be charged for the call.*

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<tbody>
<tr>
<td>1:30</td>
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<td><strong>Call to Order, Welcome, and Introductions</strong></td>
<td><strong>John Parrish</strong></td>
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<td><strong>WSSPC Chair</strong></td>
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<td><strong>Roll Call and Establishment of Quorum</strong></td>
<td><strong>Patti Sutch</strong></td>
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<td><strong>WSSPC Executive Director</strong></td>
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<td><strong>USGS Update</strong></td>
<td><strong>Bill Leith, USGS</strong></td>
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<td>Tab 8</td>
<td><strong>Approval of Minutes of WSSPC Annual Business</strong></td>
<td><strong>Parrish</strong></td>
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<td>Meeting July 21, 2014</td>
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<td>Tab 9</td>
<td><strong>WSSPC Executive Director's Report</strong></td>
<td><strong>Sutch</strong></td>
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<td>&amp; Annual Report</td>
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<td><strong>WSSPC Board of Directors Nominations for Terms from 2015-2017 and Member Vote</strong></td>
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<td>Mark Ghilarducci, Pete McDonough, GS Director</td>
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<td>Tab 3</td>
<td><strong>WSSPC Committee Reports:</strong></td>
<td><strong>Committee Chairs:</strong></td>
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<td>• Basin &amp; Range Province Committee</td>
<td><strong>Bill Phillips</strong></td>
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<td>Tab 4</td>
<td>• Engineering, Construction, and Building Codes</td>
<td><strong>Ron Lynn</strong></td>
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<td>Tab 5</td>
<td>Committee</td>
<td>Tab 7</td>
<td>Proposed 2015 Policy Recommendations – Discussion and Adoption</td>
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<td>• Tsunami Hazard Mitigation Committee</td>
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<td>Notice of 2013 Policy Recommendations For Renewal in 2016</td>
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<td>Tab 6</td>
<td>2016 WSSPC Annual Meeting</td>
<td>Parrish</td>
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<td>2:30</td>
<td>DHS/FEMA Update</td>
<td>Wendy Phillips</td>
<td>FEMA HQ</td>
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<td>2:45</td>
<td>Napa Earthquake Presentation</td>
<td>Mike Mahoney</td>
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<td>New Business</td>
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<td>3:00</td>
<td>Adjournment</td>
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Western States Seismic Policy Council  
Annual Business Meeting  
BP Energy Center  
Anchorage, Alaska  
July 21, 2014  

MINUTES

Call to Order and Establishment of Quorum:  
John Parrish called the meeting to order and Patti Sutch read the roll call to establish a quorum. A telephone conference call was set up for those who could not attend in person.

Present were: (+ denotes voting for their agency and/or holding a proxy for another member)  
+Rick Allis, Utah Geological Survey  
+Doug Bausch, DHS/FEMA Region VIII  
+Wendy Blackwell, New Mexico Department of Homeland Security and Emergency Management  
+Bob Carey, Utah Division of Emergency Management  
+Mike Conway, Arizona Geological Survey  
+Sheila Curtis, Utah Division of Emergency Management  
+James Goltz, California Governor’s Office of Emergency Services (retired)  
+Colleen Gonzales, Western States Seismic Policy Council (temporary)  
+Rob Jackson, Colorado Earthquake Hazard Mitigation Council  
+Richard Koehler, Alaska Division of Geological and Geophysical Surveys  
+Dan Koning, New Mexico Bureau of Geology and Mineral Resources  
+Keith Knudsen, U.S. Geological Survey  
+Kate Long, California Governor’s Office of Emergency Services  
+Bill Lund, Utah Geological Survey  
+Ron Lynn, Nevada Earthquake Safety Council  
+John Madden, Alaska Division of Homeland Security and Emergency Management  
+Vicki McConnell, Oregon Department of Geology and Mineral Industries  
+Pete McDonough, Utah Seismic Safety Commission  
+Matt Morgan, Colorado Geological Survey  
+Dave Norman, Washington State DNR Division of Geology and Earth Resources  
++John Parrish, California Geological Survey  
+++Kevin Richards, Hawaii State Civil Defense  
+Althea Rizzo, Oregon Emergency Management  
++++John Schelling, Washington Military Department, Emergency Management Division  
+Robert “Buzz” Scher, Alaska Seismic Hazards Safety Commission  
Patti Sutch, Western States Seismic Policy Council

A total of 23 agencies were represented, establishing a quorum.
Approval of Minutes:
MOTION: To approve the Minutes of the Annual Business Meeting May 3, 2013 (John Madden).
SECOND: Ron Lynn.
VOTE: Unanimously approved.

Executive Director Report:
Website: The website has been redesigned and moved to a WordPress platform. There is now a working “Members Only” password-protected webpage for the adopted policy recommendations that have the full internal sections. The page is accessed from the top of the home page and by using the log-in of “2014SeismicMember”.

Awards: The schedule for Awards nominations is posted on the WSSPC website home page. Nominations will open September 1.

WSSPC finances: WSSPC has about $2000 more cash on hand than last year, due to an increase in the number of supporting Affiliate members, now up to 12.

FEMA Cooperative Agreement: There are currently 3 fiscal years in play. Our current FY13 agreement ends July 31, and for the first time in my 15-year history, we have not been able to spend all of the money. Both the state projects piece of $25K and the WSSPC operations amount of $225K will be underspent. Our new cooperative agreement for FY14 starts August 1 in the amount of $275,500 (with $50,500 allocated to state projects) but we have not received an announcement for applying. At the same time FEMA has asked the states to provide a list of projects they want to accomplish through the earthquake consortia and other partners for FY 15. Those projects will be used to backfill the FY14 work plan when they are decided upon by FEMA.

John Madden commented that the FEMA Risk Reduction program has competing priorities, and that the technical review of projects would be accomplished by non-technical people. Kate Long added that they would lose travel funds and have added administrative fees from the vendors. She described that the state earthquake program managers were preparing at the request of Art Faulkner, a CUSEC Director, a white paper on the status of the national earthquake program that would be sent to the National Emergency Management Association (NEMA) for their consideration and support for reinstating state assistance funding directly to the states. Jim Goltz offered to share the white paper (or abstract talking points) with the next ACEHR (Advisory Committee on Earthquake Hazards Reduction) meeting at the end of August.

WSSPC Board of Directors Election:
John Parrish reviewed the slate of candidates for the 2014-2016 Board. John Madden and Dave Norman have agreed to run again; Vicki McConnell will step down and John Metesh from Montana has agreed to be a candidate. There is still an emergency manager vacancy on the Board; John Madden will ask his colleagues to find a Director who will serve on the Board.
MOTION: To approve the candidates for the 2014-2016 Board of Directors (Kevin Richards).
SECOND: Ron Lynn.
VOICE VOTE: Unanimously in favor.
Committee Reports:
Basin and Range Province – The Chair was not available, and so John Parrish agreed to circle back around to this committee report after the other reports were given.

Engineering, Construction, and Building Codes – Chair Ron Lynn noted that the committee had 4 meetings this year, and he hopes to establish a pattern of calls every other month. The group looked at policy recommendations 14-3 and 14-4. Ron suggested creating a policy to recommend incentives for seismic safety and developing communities of interest to see the benefits of mitigation. Another policy suggestion is to have a recommendation for non-ductile concrete buildings. He suggested that there should be earthquake engineering questions on the engineering exams, and professional development hours credit for earthquake engineering. Ron asked what the status was of the policy recommendation survey; he desired to use the results as examples of best practices. Patti Sutch replied that she would be following up on that once there was a replacement for the Program Manager. Kevin Richards asked that the personnel who respond to the survey and those who they communicated with at the state are listed.

Tsunami Hazard Mitigation – John Schelling reported out for the Chair Vicki McConnell. Their committee reviewed policy recommendations 14-1 and 14-7, suggesting changes related to local tsunami sources and current and future expansion of earthquake early warning. John Madden gave an overview of the Alaska Shield exercise recently held. Schelling noted that Gary Chock’s work on the ASCE-7 Committee is expecting the tsunami appendix in the building codes to be implemented by 2020. Vicki McConnell reported that the Tsunami Warning and Education Reauthorization Act was reintroduced in the U.S. Senate and was in committee in the House of Representatives.

Basin and Range Province – Dan Koning reported out for Chair Bill Phillips. The committee voted to sunset policy recommendation 11-2 and table 14-2 for a re-write and re-introduction in 2015. Policy recommendation 14-5 was approved with a plan to move it forward as a proposal to FEMA for a funded project to be managed by WSSPC. Bob Carey and Sheila Curtis from Utah are taking the lead. Bill Lund announced the Basin and Range Province Seismic Hazards Summit III to be held January 12-17, 2015 in Salt Lake City. The Utah Geological Survey is the host of the fully-funded summit that will be consultant-directed. There will be 7 technical sessions with 30 speakers and a field trip to the Wasatch fault.

 Adoption of Policy Recommendations:
Policy Recommendation 14-1: Improving Tsunami Public Education, Mitigation, and Warning Procedures for Distant and Local Sources
MOTION: To adopt policy recommendation 14-1 as revised (Ron Lynn).
SECOND: John Schelling.
VOTE: Unanimously in favor with one abstention by Hawaii.

Policy Recommendation 14-2: Definitions of Fault Activity for the Basin and Range Province
MOTION: To sunset policy recommendation 11-2, table 14-2 and rework it for 2015 (Jim Goltz and Vicki McConnell).
SECOND: Pete McDonough.
VOTE: Unanimously in favor.

Policy Recommendation 14-3: Earthquake Monitoring Networks
MOTION: To adopt policy recommendation 14-3 (Ron Lynn).
SECOND: Rob Jackson.
VOTE: Unanimously in favor.
Policy Recommendation 14-4: Identification and Mitigation of Unreinforced Masonry Structures
MOTION: To adopt policy recommendation 14-4 (Ron Lynn).
SECOND: Bob Carey.
VOTE: Unanimously in favor.

Policy Recommendation 14-5: Earthquake Emergency Handbook for First Responders and Incident Commanders
MOTION: To adopt policy recommendation 14-5 (Bob Carey).
SECOND: Ron Lynn.
VOTE: Unanimously in favor.

Policy Recommendation 14-7: Earthquake Early Warning Systems
MOTION: To adopt policy recommendation 14-7 as amended by the Tsunami Hazard Mitigation Committee (Richard Koehler).
SECOND: John Schelling.
VOTE: Unanimously in favor.

Review of 2015 Policy Recommendations:
Next year there will be at least 2 policy recommendations to review: 15-1: Earthquake Planning Scenarios and 15-2: Developing Earthquake Risk-Reduction Strategies. Patti will send out an email when these draft policies are available to review.

FEMA Report:
Doug Bausch reported that there will be a July 29 hearing of the House Subcommittee on Research and Technology on the National Earthquake Hazards Reduction Program (NEHRP). The NEHRP Strategic Plan needs to be updated; there will be a meeting of the Advisory Committee on Earthquake Hazards Reduction (ACEHR) August 18-19.

FEMA will start its FY15 calls with the states in July. Eligible project activities remain the same. States must submit their projects to the FEMA Regions by August 15, and Regions submit their recommendations to FEMA headquarters by August 31.

Doug is working with Mark Petersen of the USGS to update the new seismic hazard maps and develop a HAZUS module that will be web-enabled to provide broad access. The module will not include tsunamis.

The USGS Earthquake Hazards Program budget is $54M, down from an average of $70.3M per year over 30 years with a spike in 2009 due to ARRA funding. The USGS is investigating induced seismicity in Oklahoma as part of a larger initiative on hydraulic fracturing, and has just released the 2014 National Seismic Hazard Map and UCERF3 with California. Their budget request included almost $3M for rapid disaster response capabilities, including earthquake early warning, which remains highly visible to Congress. The Earthquake Information Timeline as to when post-earthquake information becomes available has shrunk such that a ShakeMap can be produced within 5 to 10 minutes after an earthquake, PAGER within 10 to 20 minutes, and HAZUS loss estimates within 1 to 2 hours. Shake Cast Reports provide situational awareness for ground shaking at critical facilities. ShakeAlert is currently in beta testing and select individuals and agencies are receiving early warning alerts as the system is being tested. Finally, Keith noted the uncertainties faced by the USGS in the future. His presentation will be available on the “Members Only” portion of the WSSPC website.
Alaska Shield Exercise – John Madden
John summarized some of the important lessons of the recently held exercise, stressing the need for a national approach to preparedness. Issues that arose were:
- How swiftly the Federal government could respond after an event
- How to use full resources to determine the viability of the land
- How to quickly consider and apply land use policies and construction practices
- How to access information quickly to make rapid decisions
- How to use the opportunity to make recommendations to decision makers.

Adjournment – John Parrish
There being no new business, the meeting was adjourned by John Parrish.

Respectfully submitted,

Patricia L. Sutch
WSSPC Secretary
Earthquake Planning Scenarios

Policy Recommendation 15-1

WSSPC recommends that each member state, province, and territory establish an active program to produce Earthquake Planning Scenarios for areas with high risk of earthquake losses. WSSPC also recommends that FEMA support the production of these Earthquake Planning Scenarios through its funding resources and in-kind services.

Executive Summary

Earthquake planning scenarios provide policy makers and emergency preparedness personnel with realistic assessments of the areas and types of structures and lifelines that are at most risk of damage, and estimated human casualties. Equally important, scenarios identify areas and infrastructure that are most likely to sustain little or no damage and remain functional following an earthquake, thereby minimizing the placement of valuable response assets in areas where they may not be needed.

The cost to prepare planning scenarios, and to update them regularly, is insignificant compared to the future savings from reduced losses to infrastructure, business economics, and human life when the information is used to develop effective seismic-safety policies. Minimizing future earthquake damage through prior planning, loss-reduction measures, and providing information to facilitate quick recovery is critical for maintaining earthquake-resilient communities.
**Background**

The U.S. Geological Survey indicates that losses to the U.S. built environment and to the U.S. economy from natural geologic hazards amount to tens of billions of dollars every year, and the cost of these losses continues to increase. A fundamental reason for this increase is the continued development of population centers and infrastructure in areas known to have significant natural hazards. Policy makers and public agencies at all levels of government must balance the desired needs for community growth and development with concerns for ensuring the safety of the citizenry. Knowledgeable professionals must provide government decision makers, community planners, and developers with factual, timely, and unbiased scientific and engineering assessments of a community’s vulnerability to geologic hazards. Planning scenarios have proven to be an effective means for communicating these risks.

Earthquake Planning Scenarios have been prepared for several areas in the western U.S. over the past two decades and have resulted in numerous initiatives to reduce future earthquake losses (see Appendix 1). A planning scenario describes a realistic earthquake and the estimated resulting damage and casualties in the affected areas. It may describe the fault rupture that initiates the earthquake, expected ground motion and acceleration, secondary effects triggered by the earthquake (landslides, liquefaction, surface rupture, tsunamis, fires), expected structural losses to the building stock and lifelines (major pipelines, power transmission lines, highways, bridges, airports, harbors, hospitals, etc.), and human casualties, as well as areas and types of infrastructure least likely to be damaged or destroyed. The purpose of a scenario is to provide accurate information that can assist governments and developers in engineering, planning, and protecting vulnerable facilities from the destructive effects of a future earthquake; prioritizing emergency relief operations in areas likely to suffer the greatest damage; or planning and conducting emergency response training exercises.
Appendix 1: Completed earthquake planning scenarios

Following the devastating eruption of Mount St. Helens in 1980, President Carter requested the National Security Council to consider the implications of the occurrence of a large damaging earthquake in California. The results of this analysis were presented by FEMA in 1981. One of the major conclusions was that it was unlikely that the collective emergency response capabilities of all levels of government and the private sector would be adequate to cope with a major destructive earthquake in metropolitan areas of California.

In response, the California Governor’s Emergency Task Force on Earthquake Preparedness was established in February, 1981. Some 30 committees were formed to deal with improvement of the many emergency response functions that would be needed in such an earthquake emergency: e.g., communications, search and rescue, fire services, medical services, air transport, etc. Working with the Task Force, the California Geological Survey (CGS) developed the first two earthquake planning scenarios for the San Francisco Bay Area and the Greater Los Angeles Area. These two scenarios, funded by FEMA, were readily accepted, and a demand for additional scenarios covering other California metropolitan areas resulted in the production of five more scenarios over the following decade.

The State of Washington, through its Emergency Management Division of the Military Department, and the Earthquake Engineering Research Institute, recently prepared an earthquake disaster scenario for the Seattle-Tacoma metropolitan area. This scenario describes potential damage from the Seattle Fault, and predicts 1,600 deaths, 24,000 injured, police and fire departments overwhelmed, inadequate emergency and shelter services, nearly 40,000 buildings destroyed or rendered uninhabitable, $33 billion in damages and loss, more than 130 fires, and years of rebuilding and recovery.

In 1996, the Nevada Bureau of Mines and Geology (NBMG) produced a detailed scenario for a Reno-Sparks-Carson City earthquake. That scenario, published as NBMG Special Report 20, has been used numerous times in emergency response and recovery exercises, most recently in June 2008.

Most recently, the USGS, in collaboration with the California Geological Survey and many community agencies and organizations, has published *The ShakeOut Scenario – Effects of a Potential M7.8 Earthquake on the San Andreas Fault in Southern California* (USGS Open File
Under this scenario, if no additional preparedness and mitigation actions are taken, the resulting damage will cause 2,000 deaths, 50,000 injuries, and $200 billion in damage along with severe, long-lasting disruptions.

Other states with earthquake potential have also prepared these types of scenarios on a formal basis. Washington, in collaboration with the USGS, universities, and others, is undertaking studies of the potential damage from a very large earthquake along the Cascadia Subduction Zone. The California Geological Survey has considered this in one of its original scenarios. In 2007, Oregon completed an initial step in quantifying structures in the state that would be susceptible to damage from an earthquake in its publication *Statewide Seismic Needs Assessment Using Rapid Visual Screening.*

In Alaska, an earthquake planning scenario is in the initial stages of development for the Kodiak area. This scenario is a cooperative effort involving the Alaska Seismic Hazards Safety Commission, Alaska Division of Homeland Security & Emergency Management, city and borough government, FEMA, and U.S. Coast Guard.
Appendix 2: Resources for scenario development

Valuable analytical tools are available for incorporation into Earthquake Planning and Mitigation Scenarios. HAZUS is a powerful risk assessment software program developed by FEMA for analyzing potential losses from earthquakes (as well as from other types of natural hazards). HAZUS combines current scientific and engineering knowledge with geographic information systems (GIS) technology to produce estimates of hazard-related damage before or after an earthquake. For HAZUS to be most effective, users should employ the latest census information and a current inventory of the built environment, including transportation and lifeline infrastructure.

Two other analytical tools are available from the USGS; these are ShakeMap and PAGER. ShakeMap combines measurements of ground shaking (actual or modeled) with information about local geology and earthquake location and magnitude to estimate shaking variations within a geographic region. Produced maps are a valuable tool for emergency response, public information, loss estimation, earthquake planning and modeling, and post-earthquake engineering and scientific analyses.

PAGER (Prompt Assessment of Global Earthquakes for Response) is an automated system designed to rapidly estimate the number of people, cities, and regions that have been exposed to severe ground shaking by an earthquake. PAGER products can be sent automatically to affected emergency responders, government agencies, and others with information as to the estimated scope of a potential disaster.
**Internal Section:**

**Facilitation and Communication**

Geological surveys are uniquely qualified to provide scientific and engineering information and guidance to the communities they serve regarding geologic and seismic hazards. Emergency management agencies facilitate and manage available resources to lessen the impacts of a damaging earthquake through mitigation and to hasten a community’s response and recovery. Seismic safety advisory boards provide important state and local earthquake policy guidance. These WSSPC member organizations, in cooperation with other federal, state, and regional experts, are uniquely suited to combine their talents and spearhead the development and production of Earthquake Planning Scenarios for their affected populations. In addition, public-private organizations such as the not-for-profit Cascadia Region Earthquake Workgroup (CREW), which provides services to Washington, Oregon, California, and British Columbia, can assist in preparing earthquake and tsunami scenarios. Resources such as these should be examined and leveraged, where practicable.

Scenario-development activities are most effectively implemented by involving and coordinating with federal and state geoscience and emergency management agencies and owners and operators of critical infrastructure and key resources. This policy recommendation recognizes that FEMA is in an ideal position to support the development of earthquake planning scenarios.

**Assessment**

The effectiveness of this policy recommendation will be evaluated by identifying future earthquake planning scenario efforts that culminate in production of a published scenario report. Ultimately, the effectiveness of a planning scenario will be evaluated by identifying earthquake loss-reduction actions or policies that are developed in response to the published scenario.

**History**

Policy Recommendation 09-1 was first adopted in 2009 by unanimous vote of the WSSPC membership at the Annual Business Meeting February 11, 2009. It was reformatted and re-adopted as WSSPC Policy Recommendation 12-1 by unanimous vote of the WSSPC membership at the WSSPC Annual Business Meeting April 10, 2012.
Policy Recommendation 15-2

WSSPC strongly encourages states and local governments to form public-private partnerships to develop and continually update long-term, comprehensive statewide and community-level earthquake risk-reduction strategies as part of an all-hazards plan to reduce injury, loss of life, property damage and economic disruption from earthquakes.

Executive Summary

Given the high seismic activity in the western states, provinces and territories, and the high risk of loss of life, property damage and economic loss due to earthquakes, state and local governments are encouraged to form partnerships that will develop earthquake risk-mitigation plans and risk-reduction strategies that will benefit local communities. Mitigation policies and activities are long-term, multifaceted processes where effective coordination, collaboration and communication among partners are critical. For example, partnerships with the many Seismic Safety Boards and Commissions that have been created in WSSPC states are critical in the effort to educate state and local policymakers about the importance of sound seismic hazard policy.
Background

Given the high seismic activity in the western United States, Pacific territories, and Canada, mitigation of earthquake risks is a common interest among all the western states, territories, and provinces. FEMA’s Report 366b, (April 2008), *HAZUS-MH Estimated Annualized Earthquake Losses for the United States*, clearly shows that the western states are most at risk, with 84% of the nation’s estimated annual dollar losses from earthquakes. WSSPC, as a consortium of 13 western states, 3 Pacific territories, and a Canadian territory and province, is the ideal organization to promote the benefits of earthquake risk-mitigation policies, to promote collaboration among its members and the federal government, and to share mitigation successes between WSSPC and other organizations. From its inception, WSSPC has strongly supported reduction of losses from seismic events through policy recommendations and annual conferences.

The benefits of proper mitigation and planning is highlighted by cost/benefit studies that show for every FEMA dollar spent on mitigation, four dollars are saved in reduced disaster relief. In addition, FEMA grants to mitigate natural-hazard risks are expected to save lives and injuries in future events (Multihazard Mitigation Council, 2005, *Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities*).

It is the responsibility and duty of the geological and emergency management community to organize and disseminate key information concerning proper earthquake-risk mitigation. WSSPC encourages its partners to seek potential mitigation outreach activities, mitigation plan development, or construction projects, some of which may be eligible for funding through FEMA’s various mitigation program grants. These efforts complement FEMA’s Pre-Disaster Mitigation initiatives.

Comprehensive statewide and local earthquake mitigation plans and strategies should include the following elements:

- Assessment of all seismic hazards to quantify and define the risk to communities;
- Assessment of infrastructure risks;
- Implementation of land-use and development policies to reduce exposure to earthquake hazards;
• Adoption and enforcement of the International Building Codes for the seismic design, inspection, and construction of new buildings and structures;

• Adoption of the International Existing Building Code for the maintenance and retrofit of seismically “at risk” structures;

• Development and implementation of retrofit, redevelopment, grant, and abatement programs to help strengthen existing structures, where necessary;

• Support of continuing public-education efforts and public/private partnerships to raise awareness of seismically induced threats and build constituent support for earthquake hazard reduction programs.

Safety of communities and infrastructure can only be accomplished though diligent, informed, and coordinated efforts of regulators and stakeholders. WSSPC will continue to play a key role in that organization and communication effort.

Washington: The Resilient Washington State Initiative is a strategic planning process for achieving state-level resilience with respect to earthquake hazards. The intent of the process is to identify actions and policies before, during, and after an earthquake that can leverage existing policies, plans and initiatives to realize disaster resilience to earthquakes within a 50-year life cycle.

California: The State of California Enhanced Multi-Hazard Mitigation Plan, also known as the State Hazard Mitigation Plan (SHMP), represents the state’s primary hazard mitigation guidance document, and provides a comprehensive description of California’s historical, current and projected hazard analysis, mitigation strategies, goals and objectives. The SHMP reflects the state’s commitment to reduce or eliminate potential risks and impacts of natural and human-caused disasters in keeping our families, homes and communities better prepared and more disaster resilient. A key implementation tool of the SHMP has been the California Vital Infrastructure Vulnerability Assessment (Cal VIVA) project. This project, in coordination with the Department of General Services (DGS), assists the State in preparing for natural disasters by identifying State owned-buildings that house critical functions and are vulnerable to earthquakes. The State of California is required to review and revise its SHMP and resubmit for Federal Emergency Management Agency (FEMA) approval at least once every 5 years to ensure continued funding eligibility for certain Stafford Act grant programs. This includes FEMA’s hazard mitigation assistance programs: Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Assistance (PDM), Repetitive Flood Claim Program, as well as the Fire Management Assistance Grant Program and Public Assistance grants (Categories C-G). The State Hazard Mitigation Team (SHMT) includes over 80 key Federal, State, Local and NGO stakeholder partners including Cal OES Earthquake and Tsunami Program, California Seismic Safety Commission, California State Lands Commission, California Geological Survey, Earthquake Engineering Research Institute (EERI) and the Environmental Systems Research Institute, Inc. (ESRI).
Internal Section:
Facilitation and Communication
WSSPC members, including seismic safety commission liaisons, will send this policy recommendation to all identified policy and decision makers (elected officials, heads of key departments, such as emergency managers, building officials and planners, and chairs of the State Seismic Safety Commissions and Boards). Policymakers’ decision to support earthquake risk mitigation and foster partnerships is the key to effective mitigation in each state.

Assessment
Successes in policy implementation are occasions when the mitigation actions or requirements stated above are incorporated into public policies and decisions, and subsequently integrated into important public or private projects.

This statement of earthquake risk-reduction strategies should be adopted by all WSSPC partners. Successes should be submitted in a timely manner to WSSPC for posting on its website and in Appendix A.

History
Policy Recommendation 09-2 was first adopted as Policy Recommendation 03-1 by unanimous vote of the WSSPC membership at the Annual Business Meeting September 24, 2003. It was revised and re-adopted as WSSPC Policy Recommendation 06-1 by unanimous vote of the WSSPC membership at the WSSPC Annual Business Meeting April 17, 2006. It was revised and re-adopted as WSSPC Policy Recommendation 09-2 by unanimous vote of the WSSPC membership at the WSSPC Annual Business Meeting February 11, 2009. It was reformatted and re-adopted as WSSPC Policy Recommendation 12-2 by unanimous vote of the WSSPC membership at the Annual Business Meeting April 10, 2012.
Definitions of Recency of Surface Faulting for the Basin and Range Province

Policy Recommendation 15-3

WSSPC recommends that each state in the Basin and Range physiographic province (BRP), through consultation with state and federal geological surveys and other earthquake-hazard experts, define scientifically and societally relevant the following categories for recency of surface faulting (generally earthquake magnitude $\geq M 6.5$) in the Basin and Range physiographic province (BRP).

Examples of categories that are applicable for much of the BRP include the following:

- Latest Pleistocene-Holocene fault – a fault whose movement in the past 15 ka has been large enough to break the ground surface.
- Late Quaternary fault – a fault whose movement in the past 130 ka has been large enough to break the ground surface.
- Quaternary fault – a fault whose movement in the past 2.6 Ma (Cohen and Gibbard, 2010) has been large enough to break the ground surface.

WSSPC further recommends that in the absence of information to the contrary, all Quaternary faults be considered Latest Pleistocene-Holocene active unless there are adequate data to confidently assign them to a Late Quaternary or Quaternary activity class.

Executive Summary

The fault activity definitions are limited to the Quaternary because this period of geologic time is considered by the scientific community to be most relevant to studies of active (hazardous) earthquake faults (Machette and others, 2004). The activity class of a fault is the youngest class based on the demonstrated age of most recent surface faulting. The latter two categories of recency are inclusive; that is, latest Pleistocene-Holocene faults are included within the definition of late Quaternary faults, and both latest Pleistocene-Holocene and late Quaternary faults are included in Quaternary faults. WSSPC recommends that in the absence of information to the contrary, all Quaternary faults be considered Latest Pleistocene-Holocene active unless there are adequate data to confidently assign them to a Late Quaternary or Quaternary activity class.

The examples of surface-faulting recency categories are based on the ways that faults are portrayed on geologic maps and on the availability of geologic data in the BRP. Policy makers (owners, regulators,
governmental agencies) should consult with state and federal geological surveys and other earthquake-hazard experts to use these categories and additional geologic data in developing definitions of hazardous faulting or categories of faults to be considered in planning for development or infrastructure projects.

Proposed Policy Recommendation 15-3 replaces and updates WSSPC Policy Recommendation 11-2 Definitions of Fault Activity for the Basin and Range Province, which was allowed to sunset at the WSSPC Annual Meeting in Anchorage, Alaska, July 21, 2014.

Background

The BRP is a large extensional to transtensional tectonic domain that contains thousands of normal-slip and a lesser number of strike-slip Quaternary faults involved in contemporary deformation. Large earthquakes in the BRP, especially those associated with surface rupture, have occurred on faults with a wide range of recurrence intervals (time between successive surface-faulting earthquakes) and times since their most recent surface-faulting earthquakes. Many of the historic surface-faulting earthquakes in the BRP have ruptured multiple, distributed strands at the surface, that which in some instances had significantly different geologic histories.

The tectonic behavior of Quaternary faults in the BRP differs from the more localized, higher slip-rate, chiefly strike-slip tectonics typical of plate boundary systems. These differences may warrant different approaches within the WSSPC region when categorizing recency of surface faulting. The examples of fault recency categories in this policy recommendation are considered appropriate for much of the BRP but within the WSSPC region, and depend on whether the fault offsets, or is covered by, geologic materials of different ages. The recency categories are described in more detail below.

A latest Pleistocene-Holocene criterion (≤15 ka) for recency of faulting is based upon recognition of faulting in deposits known to be ≤15 kyr old that are widespread over much of the BRP. These deposits are chiefly associated with the last glacial maximum, and with large, well-dated pluvial lakes such as Lake Bonneville and Lake Lahontan. The deposits possess distinctive stratigraphy and geomorphology that can be reliably recognized by geologists without recourse to costly and time consuming dating techniques. The latest Pleistocene-Holocene criterion conforms to usage in the U.S. Geological Survey Quaternary Fault and Fold Database of the United States (http://earthquake.usgs.gov/hazards/). However, because major historical earthquakes have occurred in the BRP on faults that do not show surficial evidence of previous latest Pleistocene-Holocene activity, the latest Pleistocene-Holocene span...
of 15 kyr is too short to encompass the range of average earthquake recurrence intervals on faults in the BRP.

A late Quaternary criterion (≤130 ka) for recency of faulting uses the onset of the Sangamon interglacial period as a datum, and spans many of the average fault recurrence intervals in the BRP. All but possibly one of the historical surface-faulting earthquakes in the BRP (1887 Sonoran earthquake; Bull and Pearthree, 1988; Suter and Contreras, 2002) occurred on faults that show evidence of late Quaternary activity.

The Quaternary criterion (≤2.6 Ma) for recency of faulting represents the onset of a major climatic change to the current cycle of glacial/interglacial intervals, during which most of the surficial deposits and much of the present landscape formed in the BRP. All historical surface-faulting earthquakes in the BRP occurred on faults that show evidence of Quaternary surface faulting. The Quaternary recency of activity criterion encompasses the average recurrence interval for essentially all faults that might produce future surface-faulting earthquakes (≥M 6.5) in the BRP.

Recurrent of Faulting, Fault Activity, and Seismic Hazard

The examples of recency of faulting categories in this policy recommendation are intended to fulfill the needs of a broad spectrum of users involved in evaluating and regulating/mitigating earthquake hazards in much of the BRP. Categories based on recency of faulting use easily obtained observational data, and as such represent a first step toward defining fault activity or seismic hazard associated with faults. Future large, surface-rupturing earthquakes in the BRP most likely will occur on faults that display evidence of prior surface faulting during the Late-late Quaternary (≤130 ka), and almost certainly on faults that display evidence of prior faulting in the Quaternary (≤2.6 Ma). Evaluation of fault activity and seismic hazard should consider timing of the most recent surface-faulting earthquake, and a well-constrained average recurrence interval and/or slip rate spanning multiple paleoearthquake cycles (McCalpin, 2009).

Whether a fault within a particular recency category constitutes a hazard or not, depends on the time frame of concern and the size and frequency of future earthquakes.

Appropriate recency of faulting criterion allow policy makers to develop guidelines for identifying potential surface-rupture and ground-motion sources and evaluating the seismic hazard they present to a specific activity or infrastructure. Elapsed time since the most recent large earthquake and average earthquake recurrence intervals are critical parameters when determining fault activity, but those data must be evaluated in conjunction with other considerations related to type of facility, societal constraints
(level of acceptable risk); and goals, costs, and benefits of risk reduction (Shlemen, 2010; Lund and others, in preparation) when assessing seismic hazard. It is then up to policy makers in each state to decide what degree of fault activity is hazardous and what level of seismic risk is acceptable.
References


Internal Section:
Facilitation and Communication

WSSPC recommends that policy makers in each state within the BRP, through consultation with state and federal surveys and other earthquake experts, consider these categories for recency of surface faulting when evaluating fault activity and seismic hazard. For some facility types, “active” (hazardous) fault definitions are contained in state and federal regulations. Such regulations commonly use different definitions of fault activity based on the societal importance of the facility being built. Definitions that include less active faults or require more restrictive mitigation measures are typically used for high-risk facilities (e.g., International Code Council, 2012) where the effect of facility failure may have grave consequences.

It is ultimately up to policy makers to decide how seismic hazards should be categorized and addressed, although uniform treatment across much of the BRP states is desirable.

Assessment

The success of this policy recommendation can be assessed based on the use of these recency of surface-faulting categories by states and local governments to guide development of appropriate regulations and ordinances to mitigate seismic hazards. Utah, Colorado, and Clark County, Nevada have adopted an earlier version of WSSPC fault-activity categories; however, the recency of surface-faulting categories in this policy recommendation differ significantly from some earlier versions. Recency of surface faulting categories do not equate directly with seismic hazard, and policy makers must determine what frequency and size of future earthquakes represent a hazard to a proposed activity or facility. A periodic re-evaluation of federal, state, and local entities should be made to determine the extent to which these definitions are being used to develop future seismic-hazard rules, regulations, and guidelines.

History

WSSPC Policy Recommendation 11-2 was first adopted November 7, 1997 as WSSPC Policy Recommendation 97-1. It was re-adopted as WSSPC Policy Recommendation 02-3 by unanimous vote of the WSSPC members at the Annual Business Meeting September 18, 2002. It was revised and re-adopted as WSSPC Policy Recommendation 05-2 by unanimous vote of the WSSPC members at the WSSPC Annual Business Meeting September 12, 2005. It was revised and re-adopted as WSSPC Policy Recommendation 08-2 by unanimous vote of the WSSPC members at the WSSPC Annual Business Meeting April 22, 2008. Policy Recommendation 08-2 was updated and re-adopted as WSSPC Policy Recommendation 11-2.
Recommendation 11-2 by unanimous vote of the WSSPC members at the WSSPC Annual Business Meeting April 4, 2011. WSSPC Policy Recommendation 11-2 was permitted to sunset at the WSSPC Annual Business Meeting July 21, 2014 to facilitate a thorough review and revision of WSSPC’s surface-faulting activity definitions for the BRP. WSSPC Policy Recommendation 15-3 incorporates the results of that review and revision, and was subsequently adopted at the 2015 WSSPC Annual Meeting.
Identification and Mitigation of Non-Ductile Concrete Buildings

DRAFT Policy Recommendation 15-34

WSSPC recommends that states, provinces, territories or communities with high seismicity consider creating programs to identify non-ductile concrete buildings and develop plans and policies that will effectively reduce the risks in their jurisdictions.

Executive Summary

Non-ductile concrete buildings represent a class of structures considered by earthquake risk managers to be particularly susceptible to significant damage and/or collapse during earthquakes making them one of the most dangerous threats to life-safety and economic burdens for communities.

The 1971 San Fernando, California earthquake caused over $500 million in property damage (in 1971 dollars) and 65 deaths, due mainly to the collapse of older concrete buildings. A recent initiative by the City of Los Angeles calls for the assessment of all pre-1976 non-ductile concrete buildings and mandatory retrofitting within 30 years. For those buildings that would incur excessive damage in low levels of earthquake shaking, retrofits would also be required.

WSSPC strongly encourages jurisdictions to be proactive in reducing this threat to communities through legislatively mandated programs and/or municipally adopted ordinances.
Background

Non-ductile concrete buildings are a type of construction in which the walls and columns lack enough reinforcing steel to keep them from collapsing or being damaged beyond repair during earthquakes. These buildings can pose a great threat to life in major earthquakes because, although total collapse of these buildings is rare, just one collapse could cause hundreds of deaths. Non-ductile concrete buildings are generally considered to have been constructed before 1980 and include archaic construction methods dating back to the early 1900s. Of particular concern are those buildings constructed with inadequate steel reinforcing details, frame irregularities, or other features that could result in sudden shear failure and loss of their load-carrying ability.

The failure of these building types in the 1971 San Fernando, California earthquake directly resulted in significant changes to the building codes and standards for concrete buildings. Consequently, construction standards for concrete buildings since the late 1970’s has been dramatically improved helping to provide adequate collapse resistance in earthquakes.

Due to the high costs of retrofits and the infrequent occurrence of collapse, it is difficult to quantify their cost-effectiveness.

This building type is a noteworthy concern since many are of significant size and contain large numbers of occupants.

Facilitation and Communication

In order to develop meaningful public policies for non-ductile concrete buildings, communities will need to:

1. Characterize the problem of non-ductile concrete buildings through inventories, analysis, and prioritization.
2. Engage the community in discussions about the desire for resiliency against a likely earthquake scenario.

3. Determine how building owners and the community can bear the costs for reducing the risks from non-ductile concrete buildings. Options include developing loss estimation scenarios, replacing buildings, retrofits, partial retrofits, disclosing risks when buildings are sold or leased, and placarding.

Several organizations are actively engaged in providing solutions to help communities deal with the dangers of non-ductile concrete buildings including:

- The City of Los Angeles Department of Building and Safety (http://www.lamayor.org/earthquake)
- Pacific Earthquake Engineering Research Center and the Network for Earthquake Engineering Simulation Mitigation of Collapse Risk in Older Concrete Buildings (http://peer.berkeley.edu/grandchallenge/summary.html)
- The Earthquake Engineering Research Institute Concrete Coalition (http://www.concretecoalition.org)
- The International Code Council as published in its International Existing Building Code (www.iccsafe.org)
- The American Society of Civil Engineers as published in its national standard Seismic Evaluation and Retrofit of Existing Buildings, ASCE 41. (www.asce.org)
- The American Concrete Institute 369 Seismic Repair and Rehabilitation Committee (www.concrete.org)

Commented [ED3]: Fred Turner - Consider reordering these bullets below or revising their links to be more specific in order of their relative utility, since most of them are intended for narrow, technical audiences. Two bullets are not yet available as final, but one at least provides an interim FAQ. Consider expanding the descriptions of what each link can provide WSSPC’s intended audiences.
• California Seismic Safety Commission Commercial Property Owners’ Guide to Earthquake Safety (http://www.seismic.ca.gov/pub/CSSC_2006-02_COG.pdf)

WSSPC encourages states, provinces, and territories and communities to use all available resources to reduce the risks of non-ductile concrete buildings in their jurisdictions.

Summary

Non-ductile concrete buildings are significant liabilities in our communities. Actively measuring their effect on life-safety and post-earthquake recovery strategies will serve our communities well.

This policy will become effective when urban areas adopt pro-active stances regarding the reduction of risks from non-ductile concrete buildings.
## Cash on Hand as of March 31, 2015

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- **March expenses**: $21,451.71 (not final, not yet billed)

**TOTAL**: $175,263.03
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## Expense

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### Western States Seismic Policy Council

**WSSPC FY Income & Expense**

**December 2014 through March 2015**

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**Net (Due to March expenses not yet final)**

-17,505.55
### Ordinary Income/Expense

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Net Income (Preliminary March 2015 Expenses) -21,451.71
## Summary

- **Total Cooperative Agreement Amount**: $275,500.00
- **Cumulative Amount Budgeted**: $16,637.02 to $225,000.00
- **Cumulative Budget Remaining**: $258,862.98 to $50,500.00
- **Budget Developed for July 31, 2015 end date**

## Tasks / Expenses

### Task 1.0 Develop Seismic Policies
1. Develop Seismic Policies
2. Hold Committees Meetings & Annual Meeting
3. Hold Board Meetings

### Task 2.0 Provide Forums
1. Conduct WSSPC Awards in Excellence
2. Organize National EQ Program Managers Meeting
3. Support Earthquake Early Warning

### Task 3.0 Provide Outreach/Public Education
1. Provide up to date Website
2. Distribute Quarterly newsletter
3. Prepare an Annual Report

### Task 4.0 Expand Partnerships
1. Maintain Partnerships (e.g. ShakeOut)
2. WSSPC Affiliate Member Program Outreach

### Task 5.0 Financial Management
1. Manage Program/Financial of Co-Op Agreement
2. Manage WSSPC Finances
3. Maintain Office w/FT Exec Dir & Support Staff

### Task 6.0 Support States
1. Support States

*Budget Developed for July 31, 2015 end date*
### Western States Seismic Policy Council
#### FEMA 2014 Cooperative Agreement EMW-2014-CA-00189
August 1, 2014 - July 28, 2015*

Reimbursement Request for February 2015

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*January 2015 and July 2015 funding is not available.