



We develop seismic policies and share information to promote programs intended to reduce earthquake related losses.



A non-profit earthquake consortium for the western states

**Spring 2017
 e-Newsletter**
April 2017

**Western States
 Seismic Policy Council**

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WSSPC Annual Meeting

All are welcome to attend the WSSPC Annual Meeting which will be held Thursday and Friday, April 27-28, 2017 at the Sheraton Oklahoma City Downtown Hotel, Oklahoma City, Oklahoma.

The agenda includes:

Thursday, April 27 (2-5 p.m.)

- WSSPC Committees
 - o Basin and Range Province Committee
 - o Engineering, Construction, and Building Codes Committee
 - o Tsunami Hazard Mitigation Committee

Friday, April 28 (8-9:30 a.m.)

- WSSPC Board Meeting

Friday, April 28 (10 a.m. – noon)

- WSSPC Annual Meeting
 - o Establishment of Quorum
 - o Approval of Minutes
 - o WSSPC Executive Director's Report
 - o Board Election
 - o Adoption of 2017 Policy Recommendations
 - o Response to EERI Policies
 - o New Business
 - o Future Meetings
 - o Adjournment

Policy Revisions

Policy Recommendations returned from the Committees to the Board by March 24th, resulted in several versions of the same recommendation. The Board will decide which version moves forward to be voted on at the WSSPC Annual Meeting. <http://www.wsspc.org/public-policy/2017-wsspc-draft-policy-recommendations/>

Draft PR 17-1: Improving Tsunami Public Education, Mitigation and Warning Procedures

Draft PR 17-3: Earthquake Monitoring Networks

Draft PR 17-4: Identification and Mitigation of Unreinforced Masonry Structures

Draft PR 17-5: Earthquake Emergency Handbook for First Responders and Incident Commanders

Draft PR 17-6: Post-Earthquake Information Management System

Draft PR 17-7: Earthquake Early Warning Systems

Draft PR 17-8: Seismic Design of New Schools

Earthquake Emergency Handbook

The *Earthquake Emergency Handbook for First Responders and Incident Commanders* has been created for rural communities with limited resources and is intended to guide response within the first 48 to 72 hours after an earthquake – before State and Federal assistance is available.

The February 21, 2008 M6.0 Wells, Nevada earthquake provided the impetus for the development of the handbook. The number one “lesson learned” stated in the emergency response section of the Wells earthquake disaster review was the need to develop an earthquake emergency handbook for Incident Commanders in similar situations.

In 2014, the Western States Policy Council adopted a policy recommending that “an Earthquake Emergency Handbook for first responders and incident commanders be developed”.

The handbook provides a quick checklist of initial actions as soon as the shaking stops, safety considerations, detailed earthquake communications to the public, and Appendices that cover pre-earthquake preparedness actions, earthquake basics and key terms, and building safety evaluation.

The handbook is available as a pdf:

(http://www.wsspc.org/wp-content/uploads/2017/01/Handbook_FINAL_New.pdf)

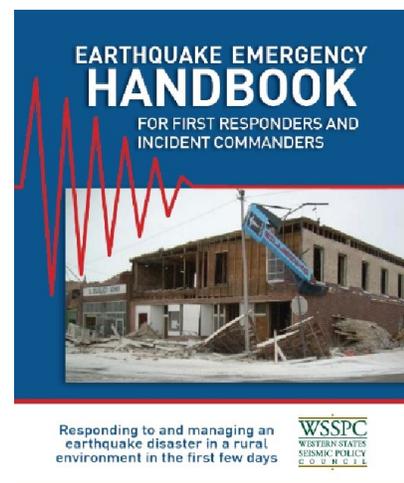
The pocket-sized handbook (free!), suitable for use in the field, is available from:

Utah Division of Emergency Management
c/o John Crofts
State Office Building, Room 1110
Salt Lake City, Utah 84114-1201
jcrofts@utah.gov

The handbook may also be downloaded from either of these two links:

<https://ussc.utah.gov/pages/view.php?ref=1295#>

<http://www.wsspc.org/resources-reports/publications/>



National Earthquake Program Managers Meeting

The 2017 National Earthquake Program Managers meeting will be held in Oklahoma City, Oklahoma on April 25-27, 2017. This year’s meeting is being hosted by the Oklahoma Department of Emergency Management. The primary function of the meeting is to continue dialogue and relationship building between State Earthquake Program Managers and key stakeholders. This year’s meeting will feature learning about induced earthquakes in Oklahoma.

To view the agenda and for more information: <http://eqprogram.net/2017-nepm-meeting-information/>

AGI Webinar on State Response to Induced Earthquakes

The American Geosciences Institute is sponsoring a free webinar on *State Responses to Induced Earthquakes* April 14 at 11:00 a.m. Pacific time, discussing the actions Oklahoma, Texas, and Ohio have taken to monitor and reduce earthquakes from oil and gas operations in their states. The key topics to be covered in the webinar are:

- Efforts to monitor small earthquakes using improved seismic networks
- Collaborations between government, industry, and others to reduce induced earthquakes
- Regulations and their effects
- Outreach and education to improve public awareness.

To register: <http://bit.ly/induced-eq-webinar>

Alaska's Next Big Earthquake & Tsunami: Mitigating Impacts

Alaska's Next Big Earthquake and Tsunami workshop will be held May 9-10, 2017 in Anchorage, Alaska. Attendees will be actively engaged to dialogue with professionals in the field to develop action plans within their organizations to mitigate and respond in a seismic and tsunami event. This workshop will broaden its audience of attendees to contribute to refining the goals of the alliance/coalition and capture the earthquake and tsunami awareness needs of high risk jurisdictions; critical infrastructure facility representatives; K-12 school districts; and Alaska's local businesses. Participants will be able to learn from one another and express ideas in an environment that is open for both advice and constructive criticism from their peers.

To view the agenda and for more information: <http://nextearthquake.gi.alaska.edu/schedule>

After the National Earthquake Conference, Now What?

In the months since the 2016 National Earthquake Conference (NEC), the NEC Executive Committee is continuing the work that began at the conference through the new National Earthquake Resiliency Coalition (NERC). A bi-monthly newsletter under the FLASH byline is one of the coalition's first products.

The NEC Newsletter is intended to keep the earthquake community informed of the latest advances and best practices for outreach and education, building science and code advancement, and policy initiatives that improve resiliency. Email Barbara Harrison at barbara@flash.org if you have news, projects, or research that you would like to see featured in the newsletter.

A YouTube "Earthquake Community" channel has also been created to host conference presentations. To subscribe, go to https://www.youtube.com/channel/UCc_3X9-gk1BwGij8WDM90RA

The channel will become a repository for earthquake-related digital resources.

NEWS

Oregon's SB 109 Proposes Earthquake Insurance Task Force

Oregon legislators are in the process of trying to create a statewide earthquake insurance system modeled after the California Earthquake Authority (CEA). If passed, SB 109 would create a task force of industry leaders, state agencies, and the public to consider earthquake insurance options.

The insurance proposal was created as a response to state initiatives to mitigate risk of state earthquake losses from the Cascadia Subduction Zone, and having no residential seismic retrofitting program in the state.

Mike Harryman, Oregon's State Resilience Officer, said the bill has three primary goals:

1. Explore requiring all insurance companies doing business in Oregon to offer earthquake insurance to residential owners, including multi-family units.
2. Look at the CEA model for residential incentive programs; one such program is to give a one-time state tax credit to home owners who make seismic rehabilitation investments in their homes.
3. Seek other task force recommendations.

References:

<https://riskmarketnews.com/oregon-explore-cea-quake-insurance-model-battle-cascadia-threat/>
<http://gov.oregonlive.com/bill/2017/SB109/>

17 Canadian National Research Facilities Receive Funding

Canada's Minister of Science, Kirsty Duncan, announced an investment of \$328.5 million to 17 national research facilities led by 12 universities across the country. Researchers at these facilities are working on some of the most

important issues facing today's society— evolution and fate of our sun, space weather and its effects on our telecommunications and health care improvements for all Canadians.

Ocean Networks Canada (ONC), one of the 17 research facilities, is set to receive a portion of the funding, \$46.6 million, over the next five years. The funding is being made through the Canada Foundation for Innovation's (CFI) Major Science Initiatives Fund.

“The long-term observations being collected by ONC instruments have wide-ranging policy applications in areas such as ocean and climate change, earthquakes and tsunamis, pollution, port security and shipping, hazard mitigation, renewable resource assessment, sovereignty and security and ocean management, “ ONC stated in a news release. Ocean Networks Canada works with hundreds of scientists, engineers, researchers, innovators, industry and government partners and others across Canada and around the world. ONC is funded by CFI, the Government of Canada, the Government of British Columbia, CANARIE, and IBM Canada.

The Honorable Kirsty Duncan, states, “Our government's investment in these remarkable, world-class facilities demonstrates the value we place in the role that science plays in building a vibrant, healthy society... Through investments like this, our government is supporting leading-edge research essential to creating jobs, improving healthcare and growing the middle class.”

References:

<http://www.oceannetworks.ca/federal-funding-secures-onc-world-leader-ocean-science-and-technology>
<https://www.innovation.ca/about/press-release/essential-government-funding-announced-some-canadas-leading-national-research>
<http://www.canadianunderwriter.ca/insurance/research-earthquakes-tsunamis-climate-change-benefit-federal-government-investment-46-6-million-ocean-networks-canada-1004106420/>

HAZARD MITIGATION & PREPAREDNESS

Earthquake Brace and Bolt Program Expands

The newly expanded Earthquake Brace + Bolt (EBB) Program has \$6 million in grant money available in 2017, enough to retrofit 2,000 homes, according to Janiele Maffei, Chief Mitigation Officer for the California Earthquake Authority. Since its creation 4 years ago, the EBB program has helped hundreds of homeowners improve their homes. While a typical retrofit costs between \$3,000 and \$7,000 depending on location and size of the house; through the EBB program homeowners are eligible to apply for up to \$3,000 in assistance for needed upgrades.

This year 40 new zip codes have been added to the program in northern and southern California in the following cities: Daly City/Colma, El Cerrito, Eureka, Hayward, Redwood City, San Bruno, San Lorenzo, San Mateo, Watsonville, Altadena, Alhambra, Claremont, Los Angeles, Redlands, and Santa Barbara. Homeowners living within the designated zip codes—those who are most affected as a result of an earthquake—may apply for the grants.

In addition, this is the first year Eureka residents have been eligible to apply for assistance. They were singled out as having high importance because, as Sheri Aguirre, Managing Director of the Brace + Bolt program at the California Earthquake Authority noted, there are many Victorian houses in close proximity to the Mendocino Triple Junction (the point where the Gorda plate, the North American plate and the Pacific plate meet).

For more information visit: <https://www.earthquakebracebolt.com/Content/AboutEBB>

References:

<http://www.times-standard.com/article/NJ/20170124/NEWS/170129879>

<http://www.sfgate.com/bayarea/article/Up-to-3-000-available-to-some-Bay-Area-10884556.php>

<http://www.mercurynews.com/2017/01/25/state-may-give-you-3000-to-protect-your-home-from-earthquake/>

2017 PROGRAM ZIP CODES

(New ZIP Codes for 2017 in bold)

Northern CA

Albany 94706
Berkeley 94702, 94703, 94704, 94705, 94707, 94708, 94709, 94710
Burlingame/Hillsborough 94010
Daly City/Colma **94014, 94015**
El Cerrito **94530**
Emeryville 94608
Eureka **95501, 95503**
Hayward **94541, 94542, 94544, 94545**
Millbrae 94030
Oakland 94601, 94602, 94603, 94605, 94606, 94607, 94609, 94612, 94618, 94619, 94621
Piedmont 94610, 94611
Redwood City **94061, 94062, 94063, 94065**
San Bruno **94066**
San Francisco 94102, 94103, 94107, 94108, 94109, 94110, 94112, 94114, 94115, 94116, 94117, 94118, 94121, 94122, 94123, 94124, 94127, 94131, 94132, 94133, 94134
San Leandro 94577, 94578, 94579
San Lorenzo **94580**
San Mateo **94401, 94402, 94403, 94404**
Watsonville **95076**
Woodside 94061, 94062

Southern CA

Altadena **91001**
Alhambra **91801, 91803**
Claremont **91711**
Los Angeles 90004, 90005, 90006, **90011**, 90012, 90014, 90015, **90016**, 90017, **90018**, 90019, 90020, 90021, **90022**, 90023, **90024**, 90026, 90027, 90028, 90029, 90031, 90032, 90033, **90035**, 90036, 90038, 90039, 90041, 90042, 90046, 90048, **90049**, 90057, 90063, **90064**, 90065, 90068, **91601**, 91604
Pasadena 91101, 91103, 91104, 91105, 91106, 91107
Redlands **92346, 92354, 92359, 92373, 92374**
San Bernardino 92401, 92404, 92405, 92407, 92408, 92410, 92411, 92415
San Marino 91108
Santa Barbara **93101, 93103**
Santa Monica 90401, 90402, 90403, 90404, 90405
South Pasadena 91030
West Hollywood 90046, 90048, 90069

Note: Eligibility is solely based on ZIP Code, not the city

Nation's Most Extensive Retrofit Plan—Santa Monica, CA

In the first of two votes necessary to approve an ordinance, Santa Monica's City Council unanimously took the first step in approving the nation's most extensive seismic retrofitting effort. The plan would require safety improvements for up to 2,000 earthquake-vulnerable buildings in the city.

What makes Santa Monica's Retrofit Plan more extensive than previous plans is the addition of requiring steel-framed structures to undergo retrofitting. Failure of one high-rise steel building in Southern California during working hours could be the cause of a large number of deaths. USGS simulation predictions show that without retrofitting the result would be the collapse of five high-rise buildings during a future M7.8 earthquake resulting in over 5,000 deaths.



*Buildings listed by the city as potentially vulnerable.
Source: <http://www.latimes.com/local/lanow/la-me-ln-santa-monica-earthquake-retrofit-20170215-story.html>*

Of the roughly 2,000 earthquake-vulnerable buildings in Santa Monica: about 1,700 of them are suspected to be wood-frame apartment buildings with unstable carports, around 150 are suspected vulnerable brick buildings (URMs), 80 are tall steel buildings, 60 are brittle concrete buildings, and 30 are concrete tilt-ups. Due to the length of time the retrofitting is anticipated to take, a timeframe has been developed for the project.

Potentially Seismically Vulnerable Buildings Type	Structural Evaluation Report Due	Retrofit Must be Completed Within
Unreinforced Masonry Buildings	3 Months	2 Years
Concrete Tilt-Up Building	4 Months	3 Years
Soft-Story Buildings	2 Years	6 Years
Non-Ductile Concrete Buildings	3 Years	10 Years
Steel Moment Frame Buildings	3 Years	20 Years
Single Family		Voluntary

Mayor Ted Winterer states, “We are very committed here in Santa Monica to make sure that we are resilient in the face of possible catastrophe. We want to make sure that we are doing everything we can to protect our community.”

References:

<http://www.latimes.com/local/lanow/la-me-santa-monica-quake-retrofit-20170213-htlmstory.html>

<https://www.smgov.net/Departments/PCD/Programs/Seismic-Retrofit/>

<http://www.latimes.com/local/lanow/la-me-ln-santa-monica-earthquake-retrofit-20170215-story.html>

PG&E Launches EEW Pilots

PG&E continues their work on Earthquake Early Warning (EEW) with public and private entities. Their collaborations have resulted in proposing three pilot programs that will launch in 2017 utilizing EEW notifications and data streams in the following applications:

1. “Installing ground sensor stations at select PG&E Bay Area facilities to provide basic audio alerts to employees when a quake has occurred and shaking is imminent. Data from the sensor stations also will feed into the Bay Area Regional Earthquake Warning System (BREWS), enhancing the seismometer network and helping fast-track the adoption of earthquake-warning services throughout the region.
2. Installing hardware on a bank of elevators at the company’s downtown San Francisco headquarters, which will provide immediate elevator recall to the nearest floor when a warning signal is received. This will lock the elevator cars in place and allow passengers to safely disembark the elevators ahead of the shaking, minimizing potential injury to personnel.
3. Providing desktop alerts to employees connected to PG&E’s intranet at the company’s downtown San Francisco headquarters so they can drop, cover and hold on before shaking occurs.”

The pilots are crucial in understanding the benefits of what’s possible with an advanced warning.

Barry Anderson, the vice president of Electrical Distribution for PG&E states, “PG&E’s embrace of earthquake early warning technology is the latest example of our dedication to taking a proactive and committed approach to preparedness and resiliency.”

References:

https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20170131_potential_benefits_of_earthquake_e

*arly_warning_prompts_pge_to_be_among_first_ene
rgy_companies_to_implement_the_technology
http://www.govtech.com/public-safety/California-
Utility-Enters-P3-to-Deploy-Earthquake-Early-
Warning-Tech.html*

RESILIENCE AND RECOVERY

Washington Subcabinet Addresses Earthquake Response and Recovery

Last year’s Cascadia Rising, the largest disaster exercise ever conducted in the Pacific Northwest, revealed gaps in the post-earthquake emergency management plans. Although the state had already published a resilience plan in 2012 (*Resilient Washington State*), recommendations in the report for improving statewide recovery after an earthquake had not been implemented.

The *2016 Cascadia Rising Exercise After Action Report* spurred Governor Jay Inslee, through *Directive of the Governor 16-19*, to establish a subcabinet group of many state agencies. In addition to the individual agency-specific goals outlined in the *Directive*, the overarching goals of the subcabinet are:

1. Identify data and information gaps that hinder preparedness and response plans.
2. Identify data and information to help guide a strategic public education campaign centered on personal preparedness.
3. Develop potential actions that can be coordinated across state agencies, local jurisdictions and federal partners to reduce risk and improve response in the event of an earthquake or tsunami.
4. Identify, prioritize, and estimate costs for state actions that will improve public safety and earthquake preparedness and response.

Washington Military Department’s Emergency Management Division will facilitate the process, coordinating the Washington

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Department of Transportation, Utilities and Transportation Commission, Department of Commerce, Department of Health, Department of Enterprise Services and the Department of Social and Health Services. By organizing into workgroups, the agencies will work together to address the *Resilient Washington State* recommendations and “any other issues necessary to ensure adequate preparedness and response in the event of an earthquake or tsunami, including gaps and implementation of appropriate solutions.”

The kickoff meeting was January 17 and the initial subcabinet report is due in June 2017.

“Protecting the public health, safety, and welfare of the people of the state of Washington is my highest priority and one of the primary functions of the state government.

In light of the potential damage from our many active earthquake faults, we must re-examine our strategy in creating a more resilient Washington to produce a more effective response and recovery to natural disasters.”
—Jay Inslee

References:

- http://www.governor.wa.gov/sites/default/files/directive/dir_16-19.pdf
- <http://mil.wa.gov/uploads/pdf/seismic-safety-committee/RWS%20final%20report.pdf>
- <https://assets.documentcloud.org/documents/3152696/CR16-State-AAR-Final-Draft-Oct-21-2016.pdf>
- <http://www.seattletimes.com/seattle-news/politics/washington-states-plan-for-megaquake-grossly-inadequate-review-finds/>

Seattle’s First Chief Resilience Officer

Jessica Finn Coven was appointed the first Chief Resilience Officer of Seattle on March 9, 2017. Finn Coven will remain in her role as director of Seattle’s Office of Sustainability & Environment while taking on additional



responsibilities. Mayor Ed Murray states, “Jessica’s experience and expertise in the complex issues of climate change, affordable housing, and inequity will be

leveraged in this new role as she helps drive the City’s strategy to increase resilience, grow equitable and reduce disproportionate impacts on communities of color.”

References:

- <http://www.govtech.com/em/emergency-blogs/disaster-zone/cro-named-for-city-of-seattle.html>
- <http://murray.seattle.gov/mayor-murray-partnership-100-resilient-cities-appoints-jessica-finn-coven-seattles-first-chief-resilience-officer/>

San Francisco’s New Chief Resilience Officer

Brian Strong was appointed San Francisco’s Chief Resilience Officer by Mayor Edwin Lee on December 9, 2016. In his announcement, Mayor Lee said, “Brian Strong created the City’s Capital Plan and brings more than a decade of proven leadership to the vital resilience work.” Strong will be replacing Patrick Otellini (former WSSPC Affiliate member) as the second Chief Resilience Officer for the city. Working under the supervision of City Administrator, the Chief Resilience Officer oversees City policy and implementation on resilience, including the Capital Planning Program, Earthquake Safety Implementation Program and Lifelines Council.



References:

- <http://www.sfexaminer.com/mayor-lee-appoints-brian-strong-chief-resilience-officer/>
- <http://sfmayor.org/article/mayor-lee-announces-brian-strong-new-chief-resilience-officer>

Six Years Later: Great Eastern Japan Earthquake and Tsunami

Six years have passed since the M9.0 earthquake and tsunami struck eastern Japan. An estimated 123,000 people remain displaced – about ¼ of those displaced immediately after the disaster and the majority from Fukushima Prefecture, severely impacted from the nuclear disaster. The government will soon lift the evacuation orders for four Fukushima communities, allowing 32,000 residents to return, but it is unclear what will happen. Many have already given up returning to the area altogether, as jobs and schools, especially in the most heavily impacted areas near the nuclear plants, have not come back.

In Miyagi and Iwate, areas flooded by seawater, most of the land has been restored to farmable conditions. Ports have resumed most of their fishing operations. Almost all railways and roads have been restored. Even so, temporary housing units are still in place and occupied, as people have begun new lives. Namie Mayor Tamotsu Baba believes it is now or never for his town. “Six long years have passed. If the evacuation is prolonged further, people’s hearts will snap. The town could go completely out of existence.”

References:

<http://www.japantimes.co.jp/opinion/2017/03/10/editorials/six-years-311-disasters/#.WNP53VXuUk>
<https://www.msn.com/en-us/news/world/six-years-after-fukushima-nuclear-disaster-residents-trickle-back-to-deserted-towns/ar-AAo07z4>

RESEARCH

New Evidence of San Andreas Fault Earthquakes

Dr. Katherine Scharer, U.S. Geological Survey, headed a study along the Big Bend section of the Southern San Andreas fault. Her team found new evidence for 10 ground-rupturing

earthquakes that occurred prior to 1857. This particular area is important because the Big Bend, Carrizo, and Mojave sections of the San Andreas fault account for 50-70% of the plate motion—resulting in a high seismic hazard for the area.

The team worked to excavate over 30 trenches where they documented the structural and sedimentological evolution of the area. By dating charcoal and plant remains, they identified 11 horizons dating back to 800 AD.

Dr. Scharer and her team discovered that the average interval between quakes along the Big Bend section is approximately 100 years with intervals as short as 22 years and as long as 186 years. The time since the last rupture in 1857 is 160 years; 66% of the intervals are shorter than this. With this discovery, the USGS forecasts a 16% chance that a M7.5+ earthquake will strike this part of the San Andreas fault in the next 30 years.

References:

<http://temblor.net/earthquake-insights/usgs-study-finds-new-evidence-of-san-andreas-fault-earthquakes-2689/>
<http://onlinelibrary.wiley.com/doi/10.1002/2016JB013606/abstract>

Volunteers Sought for Site Response Study

U.S. Geological Survey scientists are looking for volunteers in central Contra Costa County, California (specifically in Walnut Creek, Concord and Pleasant Hill) to host a seismic station for several years. Volunteers will have a small combined accelerometer and datalogger installed on their property starting in March 2017.

The volunteer hosting is part of a larger USGS project to examine the effect of topographic highs and basins on seismic waves generated by earthquakes or manmade events, such as explosions. USGS seismologist Alana Leeds states, “Essentially we look at signals from

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very small earthquakes to identify regions that will amplify incoming earthquake ground motion with respect to other areas.” Such research can provide an even greater understanding of the effects that topography can have on seismic waves, with results that could be extrapolated to large earthquakes.



Residents in Walnut Creek, Concord and Pleasant Hill are being asked to assist the USGS in ground motion study. Source: <https://earthquake.usgs.gov/research/eqproc/volunteer.php>

References:

<http://temblor.net/earthquake-insights/usgs-seeks-volunteers-to-help-with-new-ground-motion-study-2481/>

<https://earthquake.usgs.gov/research/eqproc/volunteer.php>

<http://www.eastbaytimes.com/2017/02/06/want-to-help-the-usgs-study-earthquake-activity/>

ADDITIONAL RESOURCES & PUBLICATIONS

2016 NEC Final Report Available

The final report of the 2016 National Earthquake Conference has been published <http://newsroom.flash.org/news/reports/national-earthquake-conference-final-report.htm> WSSPC served on the Executive Committee and organized several sessions.

California Earthquake Clearinghouse After-Action Report

On November 14-18, 2016 the California Clearinghouse participated in the National Guard Vigilant Guard-17 exercise. The Clearinghouse participation in the exercise was quite in-depth, beginning with the activation of a physical Clearinghouse location on November 16, 2016 at Los Alamitos Joint Facilities Training Center, and later activating a Virtual Clearinghouse.

A report, *California Earthquake Clearinghouse Participation in Vigilant Guard-17: After-Action Report/Improvement Plan*, was released in February 2017. During the After-Action process each objective of the exercise was meticulously reviewed for successes, areas of improvement, and a final analysis. All of the findings can be found in the After-Action report at the California Clearinghouse website: <http://www.californiaeqclearinghouse.org/>

Oregon's After-Action Report for Cascadia Rising

This After-Action Report provides an overview of Oregon's statewide participation in the Cascadia Rising 2016 Exercise. It describes activities that occurred during the exercise, identifies key assessment findings, and provides recommendations for the enhancement of local, tribal and state-level emergency management programs with a focus on coordination and mutual support.

Oregon's Director of Emergency Management, Andrew Phelps, recaps the major "ah-ha" factors of the exercise: all state agencies become emergency management agencies in the wake of a disaster, communication wins the day, resources are coming, benchmarks are important, and there is always more to do.

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Core Capabilities were identified and evaluated in detail:

1. Operational Communications
2. Public Health and Medical Services
3. Mass Care Services
4. Situational Assessment
5. Critical transportation
6. Operational Coordination

For each core capability the report evaluated which emergency support functions (ESF) were used, strengths, areas of improvement, observations and analysis, and recommendations for the future.

The full report can be found here: <http://www.oregon.gov/oem/Documents/CR16-AAR-Final.PDF>

City Club of Portland's Earthquake Resilience Report

The City Club of Portland released its Earthquake Resilience Research Committee report, *Big Steps Before the Big One: How the Portland area can bounce back after a major earthquake*. The report provides findings and recommendations that coincide with two vital goals—mitigating risk to vulnerable physical systems and empowering communities. Five key areas have been identified which are essential to resiliency: fuel, buildings, lifelines, people and coordinated planning.

The City Club of Portland is a nonprofit, nonpartisan civic organization that examines issues of importance to the Portland metropolitan region, the state and society as a whole.

“City Club members asked this committee to identify affordable, attainable steps that will improve resilience for all Portlanders,” City Club President Kourtney Nelson stated. “Creating and supporting community networks throughout the city will ensure a strong response that continues for decades after an earthquake and allows people to remain in

Portland rather than relocate, as has happened after major disaster in other American cities.”

The report offers practical and relatively low-cost steps to reduce damage from any large earthquake. A few recommendations are:

- All local governments in the Portland area should require that structures built or significantly remodeled using any public financing meet standards that will allow the buildings to be used and occupied after an earthquake.
- School districts in the Portland metro area should provide students and their parents with comprehensive information about earthquake risks and preparedness strategies.
- Government and private sector members of the Regional Disaster Preparedness Organization should increase their funding commitment to a level sufficient to support two full-time professional staff in addition to the administrator.

These recommendations would ultimately shorten the time required for the region to rebound. Tom Dyke with the City Club states, “We want buildings to survive, we want the economy to survive. If the economy is destroyed it could take generations to repair.”

References:

<http://www.pdxcityclub.org/Files/Reports/Earthquake/EarthquakeResilienceExecSummary-CityClub.pdf>

<http://www.kgw.com/news/city-club-of-portland-releases-new-earthquake-report/408530890>

<http://www.pdxcityclub.org/about>

WSSPC Logo Wear

A special selection of men's and women's shirts emblazoned with the WSSPC logo is now available for order directly from Lands

End: <https://business.landsend.com/store/wsspc/>.



Vulnerable Buildings in Victoria

The City of Victoria, British Columbia commissioned a study of its seismic hazard, vulnerability, and risk assessment. Three earthquake scenarios were selected to evaluate the impacts of these earthquakes on their city's buildings and infrastructure. At risk are 40 % of the city's building stock: low-rise buildings of concrete, steel and brick built before 1972; unreinforced masonry buildings of all heights; three-to-four story wood apartments; and pre-1960 family wood homes with cripple walls or sub-floors (Table 6, p. 35 of report). Also investigated in the study were the water and sewer lines; the latter were especially vulnerable due to their age and construction type.

The results of the study were to expand the number of heritage buildings to be seismically upgraded. However, the pace of retrofit in the existing program is slow – an average of 3 buildings per year – and so additional incentives for building owners to retrofit may need to be considered.

Only one other city has commissioned such a study—the District of North Vancouver—in 2008. The study's author, C.E. Ventura, Director of VC Structural Dynamics, Ltd., said he believes each community that is at high seismic risk should conduct a similar study to that of Victoria and the District of North Vancouver. "It could help them understand what is the risk and what they could do to reduce the risk".

References:

<http://vancouversun.com/news/local-news/study-reveals-thousands-of-buildings-in-victoria-at-risk-of-earthquake-destruction>

<http://www.cbc.ca/news/canada/british-columbia/city-of-victoria-commissioned-report-details-potential-devastation-of-the-big-one-1.4005181>

https://victoria.civicweb.net/FileStorage/255CAC13B25A419CBD0444025AE7FB6B-Attachment_Citywide%20Seismic%20Vulnerabilities%20Assess.PDF

PEOPLE & TRANSITIONS

WSSPC Welcomes New Members

- David Kennard, State Hazard Mitigation Officer, Hawaii Emergency Management Agency
- Samana Semo Ve'ave'a, Director, American Samoa Department of Homeland Security
- Lealofisa Moliga-Tilei, Earthquake Program Manager, American Samoa Department of Homeland Security
- Heidi Tremayne, Executive Director, Earthquake Engineering Research Institute
- Delila Bruno, Administrator, Montana Disaster and Emergency Services Division

CONFERENCES, WORKSHOPS & EVENTS

- April 18-20, 2017—Seismological Society of America meeting (Denver, Colorado) <http://meetings.seismosoc.org/>
- April 20, 2017—The Great Utah Shakeout www.shakeout.org/Utah
- April 25-27, 2017—National Earthquake Program Managers (NEPM) Meeting (Oklahoma City, Oklahoma) <http://eqprogram.net/2017-nepm-meeting-information/>
- April 27, 2017—WSSPC Committee meetings 2-5pm (Oklahoma City, Oklahoma)
- April 28, 2017—WSSPC Board and Annual Business Meeting 8am-noon (Oklahoma City, Oklahoma) <http://www.wsspc.org/programs-events/conferencesworkshops-board-meetings/upcoming-events/>
- May 9-11, 2017—2017 *Alaska's Next Big Earthquake & Tsunami: Mitigating Impacts* Workshop (Anchorage, Alaska) <http://nextearthquake.gi.alaska.edu/>



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If you have a newsworthy item for our e-Newsletter, please forward it to
Erin Mommsen Program Manager at: emommsen@wsspc.org