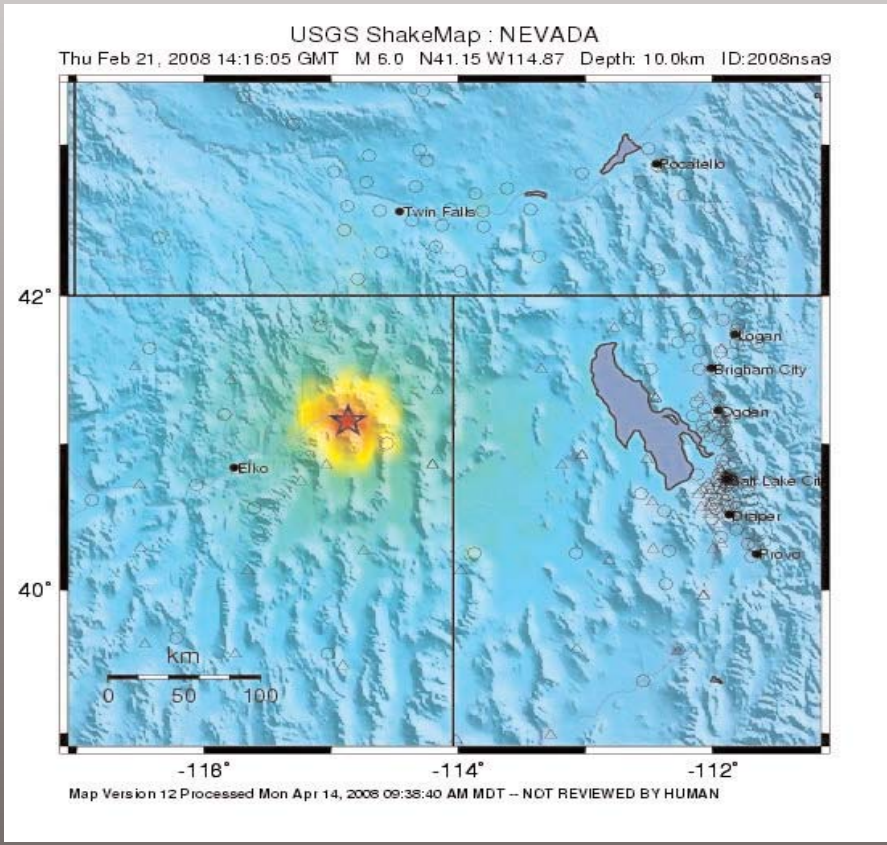
2009 WSSPC Meeting and Event Notebook



2009 EERI-WSSPC ANNUAL MEETING

Earthquake Risk Reduction - Are Voluntary Actions The Key?

February 11-14, 2009
Hilton Salt Lake City Center
Salt Lake City, Utah

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FINAL TECHNICAL REPORT
AWARD No. G09AP00032

Earthquake Engineering Research Institute

WESTERN STATES SEISMIC POLICY COUNCIL

2009 WSSPC Meeting and Event Notebook
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The image on the cover is a ShakeMap of the February 21, 2008, M6.0 Wells, Nevada earthquake.

Acknowledgments

The idea to hold the WSSPC annual conference with the Earthquake Engineering Research Institute (EERI) this year was suggested by the WSSPC Board. We would like to extend special thanks to the EERI Board for their support of the joint conference idea. We are pleased for the opportunity to interact with the members of EERI and to assist in the planning and execution of the annual meeting.

We worked closely with the EERI staff over the past year – particularly Susan Tubbesing, Sonya Hollenbeck, and Julianne Lane – who graciously accommodated our requests. Gabe Mulford provided essential audio-visual support at the conference.

We would also like to thank the Program Committee, headed by Lawrence Reaveley, for putting together an excellent program. The contributions of all of the speakers and moderators are gratefully acknowledged.

The Western States Seismic Policy Council is funded through a Cooperative Agreement EMW-2005-CA-0435 M003 with the Department of Homeland Security, Federal Emergency Management Agency.

In addition, a grant from the Department of the Interior, United States Geological Survey, under Grant Agreement G09AP00032, supports the printing of the WSSPC Annual Report and Meetings Notebook.

Our Affiliate members help defray the costs not covered by these federal agencies. We are grateful for their support. WSSPC Affiliate members in 2009 are:

- Clark County Nevada Development Services Building Division
- Degenkolb Engineers, Inc.
- Earthquake Engineering Research Institute (EERI)
- Kodiak Island Borough
- U.S. Gypsum Company
- Saunders Construction
- State Farm Insurance Companies
- TOLCO

Disclaimer

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.

WESTERN STATES SEISMIC POLICY COUNCIL

2009 Joint WSSPC/ EERI Annual Conference
WSSPC Event Schedule

Wednesday February 11, 2009

12:00pm-2:00pm – Tsunami Hazard Mitigation Committee Meeting
Chair: John G. Parrish, California Geological Survey
(916) 445-1923, john.parrish@conservation.ca.gov
Meeting Room: Topaz

12:00pm-2:00pm – Basin and Range Province Committee Meeting
Chair: William Lund, Utah Geological Survey
(435) 865-9041, billlund@utah.gov
Meeting Room: Canyon A

2:00pm-3:00pm – WSSPC Board Meeting
Chair: John G. Parrish
Meeting Room: Topaz

2:00pm-3:00pm – Committee for Engineering, Construction and Building Codes Meeting
Chair: Ron Lynn, Clark County Development Services, Building Division
(702) 455-8039, rll@co.clark.nv.us
Meeting Room: Canyon A

3:00pm-5:00pm – WSSPC Annual Business Meeting
Chair: John G. Parrish
Meeting Room: Topaz

Friday, February 13, 2009

7:00pm-9:00pm – 2009 Awards in Excellence Banquet
Meeting Room: Canyons B & C

AGENDA
WSSPC BASIN and Range Province Committee Meeting
Wednesday, February 11th, 12:00-2 p.m.
Hilton City Center Hotel
Canyon A Meeting Room
255 South West Temple, Salt Lake City, Utah

Welcome

Introductions

Discussion Item 1. Basin and Range Rural Earthquake Summit – planning for 2010.

Discussion Item 2. Post-Earthquake Technical Clearinghouse Committee (http://www.wsspc.org/PublicPolicy/PolicyRecs/2007/Approved_PR_07-3.pdf)

Discussion Item 3. Interstate Emergency Management Assistance Compacts and the need(?) for MOUs between states to provide technical assistance with earthquake response (the Wells example).

Other Business

Close

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Basin and Range Province Committee Members,

To prepare for our BRPC meeting on the 11th, please review the following two WSSPC documents.

http://www.wsspc.org/PublicPolicy/Committees/clearinghouseplan.pdf

http://www.wsspc.org/PublicPolicy/PolicyRecs/2007/Approved_PR_07-3.pdf

They will be central to much of our discussion at the meeting.

Thanks

Bill

WSSPC Board Meeting

Hilton Salt Lake City Center
Topaz Room
Salt Lake City, Utah

February 11, 2009
2:00 – 3:00 p.m.

A G E N D A

Time	Tab*	Item	
2:00 PM		**Call to Order, Welcome, and Introductions**	**John Parrish,** WSSPC Chair
	1	**Approval of Minutes of WSSPC Board of Directors' Meeting – December 16, 2008**	**Parrish**
	3	**WSSPC Executive Director's Report** WSSPC Budget and Financial Report FEMA Grant 2008 FEMA Grant 2007 Annual Report (separate)	**Patti Sutch**, WSSPC Executive Director
		2010 WSSPC Conference with Natural Hazards Center Saturday July 10-Tuesday July 13, 2010	**Sutch**
		Review of WSSPC Board of Directors' Nominations	**Parrish**
	4	**Proposed 2009 Policy Recommendations – Discussion and Board Recommendations for Adoption**	**Parrish**
	Annual Report	**Review of Policy Recommendation for Renewal in 2010** **(PR 07-1, 07-2, 07-3, 07-4, 07-5, 07-6)**	**Parrish**
		New Business	**Parrish**
		Reminder -- Next Board Meeting Teleconference -- June 2009	**Parrish**
3:00 PM		**Adjournment**	**Parrish**

* See WSSPC Meetings Book Patti Sutch 916-799-5410 (cell)

WESTERN STATES SEISMIC POLICY COUNCIL
California Geological Survey
12th floor conference room
801 K Street Suite 1200
Sacramento, CA 95814

MINUTES

December 16, 2008

Present:

Johanna Fenton, DHS/FEMA Region IX
Jim Goltz, proxy for Henry Renteria, California Governor's Office of Emergency Services
Amy Lewis, Western States Seismic Policy Council
John Madden, Alaska Division of Homeland Security and Emergency Management
Vicki McConnell, Oregon Department of Geology and Mineral Industries
Ken Murphy, Oregon Emergency Management
John Parrish, California Geological Survey
Patti Sutch, Western States Seismic Policy Council
Bob Swenson, Alaska Division of Geological and Geophysical Surveys

Call to Order and Introductions – John Parrish

FEMA Conference Call – Larry Hultengren

1. Consortia funding levels for FY2009 – FEMA is increasing funding for the four earthquake consortia: $925,000 for all and WSSPC will be re-established at the $200,000 level.
2. In addition, state earthquake program funding will increase to $5.4 M; $2.3 M for the first year. Vulnerability, exposure and risk will be determining factors for funding to states, as well as adopting model building codes, lifelines, educating public to reduce risk, and public preparedness programs.
3. National Earthquake Hazard Reduction Program (NEHRP) accomplishments in 2008 – development and completion of publication P646 *Guidelines for the Design of Structures for the Vertical Evacuation from Tsunamis*.
4. Other documents – publication P695 is 90% complete: *Seismic Design Procedures*.
5. The NEHRP Strategic Plan on is on the NEHRP website (*www.nehrp.gov*) and is mitigation oriented.
6. Deadlines for preparedness grants: The Pre-Disaster Mitigation (PDM) application period just ended December 12, and Emergency Management Performance Grants (EMPG) application period for $306M in 2009 closes January 13.
7. FEMA Seismic Mitigation Assessment Teams (MAT) – FEMA is developing "surgical", event-driven, focused and problem-specific teams. For example, after an earthquake they might look at code adoption instead of damage patterns. Building failure is not an automatic trigger. NEHRP, National Institute of

Standards and Technology, National Construction Safety Team, U.S. Geological Survey, (USGS *Circular 1242*), Earthquake Engineering Research Institute, clearinghouses, and the FEMA Regions are all involved. Any there any scenarios to test run it? Probably not - there are reconnaissance and PDM issues.

8. NEHRP Reauthorization – a draft bill is being circulated (House Report 108-246, Senate 108-385). The current NEHRP authorization expires September 30, 2009.

FEMA Briefing - Ed Laatsch

FEMA is making progress with increased funding available for state assistance grants; however, the money is only half of what they had 5 years ago.

1. QuakeSmart (*www.quakesmart.org*) – Ed apologized for the states not hearing more about it. The idea for QuakeSmart was self-generated out of the program office at FEMA, to look at where they could get recognition for the Earthquake Program and the value of mitigation. They contracted with the Safe America Foundation, a Public Relations firm. The project reached out to 350 businesses and got local media interviews in 4 cities, by working through the local chambers of commerce. Jim Goltz asked if there was anything WSSPC can do to help? Are chambers a viable direct point of contact? He suggested working through contacts that the state Earthquake Program Managers already have and regional organizations like BICEPP (Business and Industry Council for Emergency Planning and Preparedness) in southern California.
2. WSSPC Policy Recommendations – FEMA wants to highlight the need for retaining Draft Policy Recommendation 09-2, which stresses the importance of states and communities undertaking mitigation activities.

FEMA Toolkit – FEMA plans to hold a focus group of 6-8 Earthquake Program Managers to develop web-based support tools for them, utilizing already developed tools such as EQ-101, etc. (Patti recommended Bob Carey, Jim Goltz and John Schelling for the focus group).

John Parrish expressed appreciation for FEMA support. Ed Laatsch replied that FEMA wants to stay engaged with the consortia. FEMA's funding increased $3.5M and they added 4 positions in the last year. FEMA is hiring (6 open positions at headquarters) and U.S. staffing is increasing to 3000.

Approval of Minutes – Board

MOTION: To approve the minutes of August 12, 2008 (Ken Murphy).
SECOND: John Madden
VOTE: Unanimously approved.

Executive Director Report – Patti Sutch

Bank Resolution: With John Parrish as the new Board Chair, the Board needs to pass the following bank resolution to allow the Chair and Vice Chair (Corporation President and Vice President) to have signatory power of the bank accounts.

RESOLVED:

That the President, any Vice President, Secretary, Assistant Secretary, or Treasurer of this Organization are authorized to enter into deposit account and cash management agreements with East-West Bank ("Bank") and to designate from time to time who may withdraw funds from, and otherwise give instructions regarding this Organization's account.

Resolved further: This authorization is in addition to any other authorizations in effect and shall remain in force until the Bank receives written notice of its revocation in the manner specified by the Bank.

MOTION: To adopt the aforementioned resolutions (Jim Goltz).
SECOND: Ken Murphy.
VOTE: The resolutions passed unanimously.

Affiliate Member Perk: We would like to offer Affiliate members a perk for joining in 2009 and our suggestion is to offer them an extra awards banquet ticket at the WSSPC-EERI conference (a $100 value).

MOTION: To give an extra banquet ticket to 2009 Affiliate members (Vicki McConnell)
SECOND: Ken Murphy
VOTE: Unanimously approved.

WSSPC financials: The Year End Income and Expense statement is preliminary and covers 8 months of FEMA Grant 2007 and 4 months of FEMA Grant 2008. Category 490.0 (Miscellaneous Income) is the reimbursement for the National Earthquake Conference website and staff expenses. We haven't received the reimbursement yet, but the accountant plans to include it on the year-end statement. Category 583.2 is the last remaining part of FEMA Grant 2007 for the Borah Peak Scenario project which will be completed by December 31, and category 583.0 is a catchall for assets to show computer upgrades and software purchases. WSSPC's earnings from the National Earthquake Conference will be around $20K and will show up on the financial statements for WSSPC FY 2007-2008.

BREAK

USGS Report - Conference Call with Tom Brocher

- David Applegate is briefing the incoming administration, including about the earthquake program. It is unknown whether Director Mark Myers is staying.
- Budget is on a Continuing Resolution until March. The Earthquake Hazards Program was cut $2M and external grants was cut 50% ($3M). The top half of the successful external grant proposals was funded. The rest (second tier) are on hold until FY'09 appropriations levels are set.
- The Multi-Hazards Demonstration Project (MHDP) effort resulted in an earthquake scenario for a M7.8 on the southern San Andreas fault used for The Great Southern California ShakeOut preparedness exercise. Funding is uncertain.

- Public outreach and preparedness efforts: 1868 Hayward Earthquake Alliance, schools and businesses participating in earthquake drills, a city-wide earthquake drill (ShakeUP San Francisco), California Geological Survey-sponsored conference for earthquake professionals at Cal State University East Bay, and local, state and federal agencies participating in a response drill called Silver Sentinel.
- Great Southern California ShakeOut activities: 5.4M people participated in the November event, lots of agencies tested response plans, many associated activities, 300 people attended the International Earthquake Conference, Golden Guardian exercise based on the scenario.
- NetQuakes: inexpensive high quality accelerographs were delivered to the USGS to be placed in private homes and businesses.
- ANSS: Now there are over 125,000 users of Earthquake Notification System (ENS). ShakeMap is now available as part of the newest release of Google Earth.
- The California State and Consumer Services Agency Secretary, Rosario Marin, supports having a statewide annual earthquake drill based on the Japanese model and held in the fall.
- The U.S./Japan Natural Resources Panel on Earthquake Research meeting in Seattle discussed early warning, episodic tremor and slip, and seismic hazards analysis.
- Golden Guardian product: Products include the development of scenario itself, which can be used for future exercises and planning, an after-action report (in preparation), and an updated USGS Open-file Report due in February.

Executive Director Report, continued – Patti Sutch
WSSPC Budget: The budget for FY 2008-2009 is based mostly on FEMA Grant 2008. Travel expenses for only two Board meetings (out of the usual 4 meetings per year) are incorporated in the budget; (the number of meetings needs to be discussed with the Board). The request to the USGS for $10K to support the conference includes travel to help Awards winners attend the conference. The Board suggested that Patti reduce the travel amount in the USGS request and ask to exchange costs with EERI before submitting it.

MOTION: To adopt the WSSPC budget for the 2008-2009 fiscal year, as presented (Vicki McConnell).
SECOND: Jim Goltz.
VOTE: Unanimously approved.

Bonus for WSSPC Program Manager
The Board unanimously approved a bonus for Amy Lewis of $500.

WSSPC Annual Conference – Patti Sutch
The program is outlined in the brochure mailed to WSSPC members and posted on the website. WSSPC committee, Board, and annual business meetings will be held before the conference Wednesday, February 11 from Noon to 5 p.m. Registration follows

immediately afterwards. The Awards in Excellence will be given at the Friday night banquet.

LUNCH

Policy Recommendation 09-2 – Board
Action Item: Bob Swenson volunteered to work on a revision and return it to the Board for comments.

Policy Recommendation 09-1 – Board
This policy recommendation generated much discussion and a consensus that it was too long. John Parrish will revise it and send it to the Board for review before Patti posts it on the website for the members' additional comments for two weeks in January.

Awards in Excellence – John Parrish
Five programs and projects were selected as being worthy of the WSSPC Award in Excellence. Kodiak Island Borough, Alaska was selected to receive the Overall Award in Mitigation. The other winners are (in alphabetical order):

1. City of Santa Rosa COPE - Outreach to General Public
2. Redwood Coast Tsunami Work Group - Innovations
3. Utah Geological Survey - Research
4. Washington Department of Natural Resources – Outreach to Business and Government

BREAK

Determination of 2009 Board meetings – John Parrish
Because of state restrictions on travel, the Board decided to reduce the number of meetings in 2009 from 4 to 3. Board meetings will be in Salt Lake City in February, a conference call in June, and a meeting in Sacramento in December.

2010 Annual Conference Location – John Parrish
The Board asked Patti to explore having a joint meeting in July 2010 with the Natural Hazards Center in Boulder.

2011-2012 Annual Conference Location – John Parrish
It is anticipated that the next National Earthquake Conference will be in the Midwest around the time of the 200th anniversary of the New Madrid earthquakes, and that the Central U.S. Earthquake Consortium (CUSEC) will be taking the lead.

Board Nominations for 2009-2011 – John Parrish
There is currently a vacancy on the Board from Dan McGowan's departure, and 3 other Board positions that expire in 2009: Ken Murphy, John Parrish, and Henry Renteria. Ken Murphy and John Parrish are willing to continue; Henry Renteria's situation is unknown due to the reorganization of emergency services and homeland security into one agency called the California Emergency Management Agency, beginning January 1, 2009.

Action Item: Ken Murphy and John Madden will provide a list of possible emergency manager candidates before the February meeting.

New Business – John Parrish
1. Patti asked the Board to consider an Award for Rick Allis' Board leadership from 2005-2008, which was unanimously agreed to.

2. Bob Swenson asked for guidance understanding what WSSPC's focus and products are. The immediate answers were that WSSPC promotes adoption of policy recommendations and sharing of successful state earthquake programs, but the question generated much further discussion.

John Parrish's vision for WSSPC is to have a pulse on each member state's seismic issues, to provide a forum for discussion and promote ideas from and to the states, and to act as a policy clearinghouse to provide earthquake information to policy makers. In addition, he would like the WSSPC Awards in Excellence to be pushed out into communities and advertised by press releases (a current practice).

Another under-utilized media are member states' websites. Many states don't link to WSSPC from their websites. Some state agencies don't know they are WSSPC members. Wyoming, Arizona, and Yukon have been dormant recently. John suggested sending a copy of the Welcome letter to the Governors.

3. The National Emergency Management Agency's (NEMA) Mitigation Committee has requested WSSPC's participation in a survey and preparation of a white paper on mitigation. They are planning a one-day meeting in Washington DC in January 2009. John Madden is attending the meeting and will serve as the WSSPC representative. He was asked to make sure seismic hazards are considered prominently as one of the hazards in the all-hazards approach to mitigation. Board members were asked to complete the survey and return it to the WSSPC office.

Adjournment – John Parrish
The meeting was adjourned by Board Chair John Parrish.

Respectfully submitted,

Patricia L. Sutch
WSSPC Secretary

WSSPC Annual Business Meeting
Hilton Salt Lake City Center
Topaz Room
Salt Lake City, Utah

February 11, 2009
3:00 – 5:00 p.m.

A G E N D A

Time	Item	*	Lead
3:00 p.m.	**Call to Order, Welcome, and Introductions**		**John Parrish,** WSSPC Chair
	Roll Call and Distribution of Ballots		**Patti Sutch**, WSSPC Executive Director
	Approval of Minutes of WSSPC Annual Business Meeting – April 22, 2008	**2**	**Parrish**
	WSSPC Executive Director's Report WSSPC Budget and Financial Report FEMA Grant 2007, FEMA Grant 2008 Annual Report (separate)	**3**	**Sutch**
	2009 Earthquake Program Managers Meeting		**Bob Carey,** Utah DHLS
	2010 Annual Conference Location -- Discussion		**Parrish**
	WSSPC Board of Directors Nominations		**Parrish**
	Proposed 2009 Policy Recommendations – Discussion and Adoption	**4**	**Parrish**
	Notice of Policy Recommendations For Renewal in 2010 (see Annual Report)		**Parrish**
	DHS/FEMA Update		**Larry Hultengren,** FEMA
	USGS Update		**Tom Brocher,** USGS
	Results of Board of Directors' Election		**Sutch**
	WSSPC Committee Reports		
	Basin & Range Province Committee		**Bill Lund**, Chair
	Tsunami Hazard Mitigation Committee		**John Parrish,** Chair
	Engineering, Construction, and Building Codes Committee		**Ron Lynn,** Chair
	New Business		**Parrish**
5:00 p.m.	**Adjournment**		**Parrish**

* See Attachments

WESTERN STATES SEISMIC POLICY COUNCIL
ANNUAL BUSINESS MEETING
THE WESTIN HOTEL
SEATTLE, WASHINGTON

APRIL 22, 2008

DRAFT MINUTES

Present: **Key**

+John Aho, Alaska Seismic Hazards Safety Commission
+*Rick Allis, Utah Geological Survey + WSSPC Member
James Bela, Oregon Earthquake Awareness * Proxy holder
+Maiclaire Bolton, British Columbia Provincial Emergency Program
Tom Brocher, US Geological Survey
+Bob Carey, Utah Division of Homeland Security
+Rod Combellick, Alaska Division of Geological and Geophysical Surveys
+George Crawford, Washington Military Department, Emergency Management Division
*Craig dePolo, Nevada Bureau of Mines and Geology
+Dave Freeborn, New Mexico Dept. of Homeland Security and Emergency Management
*Terri Garside, Nevada Bureau of Mines and Geology
+Jim Goltz, California Governor's Office of Emergency Services
Roger Hansen, Alaska Seismic Hazards Safety Commission
Larry Hultengren, DHS/FEMA
+**Dave Jackson, Idaho Bureau of Homeland Security
Ed Laatsch, DHS/FEMA
Amy Lewis, WSSPC
+Dave Love, New Mexico Bureau of Geology & Mineral Resources
*Bill Lund, Utah Geological Survey
+John Madden, Alaska Division of Homeland Security and Emergency Management
+**Vince Matthews, Colorado Geological Survey
+*Vicki McConnell, Oregon Department of Geology and Mineral Industries
+P.W. McDonough, Utah Seismic Safety Commission
Henry Munford, Safe America Foundation
Brent Nicholls, Alaska Division of Homeland Security and Emergency Management
+John Parrish, California Geological Survey
Ervin Petty, Alaska Division of Homeland Security and Emergency Management
*William Phillips, Idaho Geological Survey
+Jon Price, Nevada Bureau of Mines and Geology
+Kevin Richards, Hawaii State Civil Defense
Mark Roberts, Alaska Division of Homeland Security and Emergency Management
Patti Sutch, WSSPC
+Tim Walsh, Washington Division of Geology and Earth Resources
Yumei Wang, Oregon Department of Geology and Mineral Industries
+Seth Wittke, Wyoming State Geological Survey

Call to Order – Rick Allis
The meeting was called to order at 7:00 p.m.

Roll Call – Patti Sutch
Twenty-nine (29) members and/or proxies were present, establishing a quorum for the meeting. (A quorum is 20 out of 38 members).

Approval of Minutes of October 3, 2007 – Board
MOTION: To approve the minutes of the Annual Business Meeting October 3, 2007 (John Parrish).
SECOND: John Madden.
VOTE: Unanimously in favor.

Executive Director Report – Patti Sutch

- Introduction of Amy Lewis, WSSPC Program Manager
- The financial handout has the accounting of the current FEMA Grant 2007 from August 2007 through February 2008. We have spent 55% of the budget in 7 months (58% of the time).
- The WSSPC budget covers 8 months of FEMA Grant 2007 and 4 months of FEMA Grant 2008 (not yet awarded). Non-covered expenses are Executive Committee and Staff meals which are paid with Affiliate member fees. We currently have 7 Affiliate members.
- Expenses in the first quarter of our fiscal year are $45,304.40 – 22% of the budget.
- A preliminary budget has been submitted to FEMA for the next cooperative agreement or modification starting August 1, 2008.
- An Annual Report was requested by the Board in 2007. Included is a financial review completed for the WSSPC fiscal year ending November 30, 2007, expenses for the period August through November, and all of the currently adopted policy recommendations.
- The conference with the International Code Council was financially successful.
- The WSSPC Forum, a web-based communications tool, debuted at the Seismic Commissions meeting. Further development and operation depends on funding from the California Seismic Safety Commission.

Earthquake Program Managers Meeting Report – Bob Carey
The 2008 meeting was held yesterday, with the main topics of discussion funding and post-earthquake clearinghouses. In 2009 they will pursue having the meeting at Emitsburg, Maryland and combining a class with the meeting. Other possible meeting spots are Charleston and the northeastern U.S. The time frame for the meeting will be the end of April or early May 2009.

2009 Annual Conference – Board
WSSPC will explore with EERI the possibility of holding a joint conference in 2009. EERI will meet in Salt Lake City, Utah February 11-14, 2009. Patti will follow up with Susan Tubbesing, who will take it to her Board for approval.

Board Nominations 2008 to 2010 – Rick Allis
The Board terms of Rick Allis, John Madden, and Vince Matthews expire at the end of November 2008. Rick Allis is stepping down from the Board; John Madden and Vince Matthews are willing to continue. Vicki McConnell has agreed to serve in one of the Geoscience positions. Rick Allis asked for a voice vote of approval of the Board of Directors' nominations, and the members were unanimously in support.

Discussion and Approval of Policy Recommendations – Board
Policy recommendations that the Board accepted the previous day at the Board meeting were presented to the WSSPC members for their approval.

Policy Recommendation 08-1 – John Parrish
Tim Walsh recommended several changes in the language:

1. Remove the word "full" before implementation in the second paragraph: full implementation of the deep-sea tsunami detection system has been done by NOAA.
2. Change "state programs" in the third paragraph to "National Tsunami Hazard Mitigation Program".

The policy recommendation with the two revisions above was approved unanimously by voice vote of the WSSPC members.

Policy Recommendation 08-2 – Bill Lund
The major change to the policy recommendation is the replacement of Basin & Range Province fault definitions with the fault activity definitions, bringing it into conformance with the Quaternary fault and fold database. The revised policy recommendation was approved unanimously by voice vote of the WSSPC members.

Policy Recommendation 08-3 – Rick Allis
Rick outlined the changes to the policy recommendation made by the WSSPC Board (deleting the words "Real-Time" from the title and adding a phrase to the first paragraph). The revised policy recommendation was approved unanimously by voice vote of the WSSPC members.

Policy Recommendation 08-4 – Rick Allis
The Board-edited version of the policy recommendation was approved unanimously by voice vote of the WSSPC members.

Policy Recommendation 06-1 – Rick Allis
This policy recommendation will be re-evaluated in 2009.

New Policy Recommendations – Rick Allis
Any new policy recommendations, including a suggestion to add a policy recommendation on the value of earthquake scenarios, need to have a working draft to the Board by the August Board meeting.

Members discussed the value of having policy recommendations and shared how they are used in their states:

- Alaska – Shared with State and Congressional delegations
- Nevada – Adopted by the Nevada Earthquake Safety Council
- Idaho – Provided Pre-Disaster Mitigation project support
- New Mexico – Helped to increase funding (but then funding was cut by set asides and earmarks)

FEMA Report – Larry Hultengren

- FY 08 funds will support WSSPC at a reduced level of $190,000.
- The Draft National Earthquake Hazards Reduction Plan (NEHRP) Strategic Plan is currently available for public comments on the NEHRP website at www.nehrp.gov
- The NEHRP Annual Report is also available at the same website.
- Nominations are being accepted for the three vacancies coming up on the NEHRP Advisory Committee on Earthquake Hazards Reduction.
- The NEHRP Interagency Coordinating Committee met and discussed funding for state earthquake programs. David Maurstad supports returning to the previous way of allocating Emergency Management Performance Grants to the states.
- One of NEHRP's strategic priorities that will be emphasized in its new Strategic Plan is the creation and maintenance of a repository of important post-earthquake reconnaissance data. The plan is outlined at http://nehrp.gov/news/pims.htm.
- In FY 07 20% of FEMA's Pre-Disaster Mitigation Grants were earthquake projects; in FY 08, 60 out of 220 projects (27%) were earthquake projects.
- The Safe America Initiative (www.safeamerica.org) is a public relations effort involving Chambers of Commerce and businesses to provide new visibility for the NEHRP program. Four cities will be selected.
- Cathleen Carlisle and Doug Bausch are working towards an early summer release of an Unreinforced Masonry (URM) brochure.
- A draft webpage "Toolkit for State Earthquake Programs" is being developed.

U.S. Geological Survey Report – Tom Brocher

Highlights of the written report are:

- The Earthquake Hazards Program budget is reduced by $4.6 Million in the President's FY 09 budget request (further details are in David Applegate's handout).
- The proposal cuts the External Grants program in half and eliminates the multi-hazard initiative increase.
- Dr. Suzette Kimball was named to the position of Associate Director for Geology.
- Changes to the National Seismic Hazards Maps are officially released and on the USGS website.
- Funding still supports the multi-hazards demonstration project and the development of the scenario on the southern San Andreas Fault and Golden Guardian exercise.

- The Hayward Earthquake Alliance commemorates the 140th anniversary of the 1868 earthquake. Sixty thousand students have signed up for an earthquake drill. A three-day conference sponsored by the California Geological Survey will be held in October. Less than 10% of the expected losses from a repeat earthquake are insured.
- The Uniform California Earthquake Rupture Forecast (UCERF) was announced April 14th.
- A PAGER map was created 16 minutes after the Wells, Nevada earthquake, showing the estimated population exposed to the shaking (see handout). Tom is asking for feedback from this product.

Basin & Range Province Committee – Bill Lund

- Working Group meeting in Nevada led by Craig dePolo
- The Committee has worked on the revision of Policy Recommendation 08-2.
- The Committee will meet Thursday morning at 7 AM to discuss ideas for holding a Rural Earthquake Summit.
- The Committee will also discuss specific action items for Policy Recommendation 07-3 on post-earthquake technical clearinghouses.
- There is a breakout session on Friday on clearinghouses.

Tsunami Hazard Mitigation Committee – John Parrish

- The Committee met Monday to revise Policy Recommendation 08-1.
- Funds have been committed to the tsunami programs at NOAA, but the impact of the continuing resolution is unclear.
- The coastal states need a communication link between them.

Tim Walsh brought up the fact that impacting the tsunami program budget will be the Federal Communications Commission auction of the air waves. For access to the spectrum open to public safety officials, the Department of Commerce is asking the Tsunami Program for $50 Million.

Adjournment
MOTION: To adjourn the meeting (John Parrish).
SECOND: Tim Walsh
VOTE: Unanimously in favor.

Respectfully submitted,

Patricia L. Sutch
WSSPC Secretary

2009 WSSPC Financial Documents

3A……..WSSPC FY 2008-2009 Budget
January 2009 Revision

3B……..WSSPC FY 2008-2009 Income & Expense
December 2008 through January 2009

3C……..FEMA Grant 2008
August through January 2009

3D…….. FEMA Grant 2007 Final Income and Expense
August 2007 through December 2008

Western States Seismic Policy Council
FY 2008-2009 Budget
January 2009 Revision

	2008-2009 Budget	FEMA, USGS or WSSPC Category	Comments
Ordinary Income/Expense			
Income			
401.0 · Interest Income			
401.1 · Money Market Interest Income	75.00		
401.2 · CD Interest Income	100.00		
Total 401.0 · Interest Income	175.00		
410.0 · Affiliate Member Income	3,400.00		6 as of 1/31/09, 2 new
428.1 · 2009 Conference Income	300.00		1 Exhibitor @$300
450.0 · Grants Earned			
460.0 · FEMA Grants Earned			
460.3 · 2007 FEMA Grants Earned (Dec. 31, 2008)	10,000.00		Borah Peak project
460.3 · 2008 FEMA Grants Earned (Dec 2008-July 2009)	129,920.43		$190,000 minus Req#1 and #2 ($60,079.57) =$129,920.43
460.3 · 2009 FEMA Grants Un-Earned (not awarded)	66,666.67		Aug-Nov 2009 (4 months @$200,000)
Total 460.0 · FEMA Grants Earned	206,587.10		
465.0 · USGS Grants Earned			
465.3 · 2009 USGS Grants Earned (not yet awarded)	10,000.00		Keyed to 09Conf spreadsheet
Total 450.0 · Grants Earned	216,587.10		
Total Income	220,462.10		
Expense			
500.0 · P/R Expenses Exec Dir			
500.1 · Salary	79,211.10	P	Keyed to Benefits spreadsheet
500.2 · Benefits			1.5 mo @6272.10, 10.5 mo @6647.90
500.7 · Employer IRA Contribution			
500.701 · Sutch IRA Employer Contribution	2,376.33		3% of salary in 2009
Total 500.7 · Employer IRA Contribution	2,376.33		
500.2 · Benefits - Other	5,809.87		Keyed to Benefits spreadsheet
Total 500.2 · Benefits	8,186.20	B	
500.3 · Employer Contrib/Taxes	7,109.50	B	Keyed to Emp Tax spreadsheet
500.4 · Workers' Comp	1,616.50	B	Keyed to Emp Tax spreadsheet
500.5 · Payroll Service	2,040.00	C	Keyed to Emp Tax spreadsheet
Total 500.0 · P/R Expenses Exec Dir	98,163.30		
500.0 · P/R Expenses Pgm Mgr			
500.1 · Salary	30,160.00	P	PT (1508 hrs/year)
500.2 · Benefits			
500.7 · Employer IRA Contribution			
500.702 · PM IRA Employer Contribution	0.00		
Total 500.7 · Employer IRA Contribution	0.00		
500.2 · Benefits - Other	0.00		Keyed to Benefits spreadsheet
Total 500.2 · Benefits	0.00	B	
500.3 · Employer Contrib/Taxes	3,008.36	B	Keyed to Emp Tax spreadsheet
500.4 · Workers' Comp	500.66	B	Keyed to Emp Tax spreadsheet
500.5 · Payroll Service	2,040.00	C	Keyed to Emp Tax spreadsheet
Total 500.0 · P/R Expenses Pgm Mgr	35,709.02		
Total 500.0 · P/R Expenses	133,872.32		
506.0 · Prof Fees Accounting	7,800.00	C	Annual Financial Statement (Review) $5700, Tax Prep $1500, Monthly check review $600
509.0 · Prof Fees Other			
Website	4,500.00	C	Website 180 hours @ $25
Annual Conference	0.00	C	
Total 509.0 · Prof Fees Other			
510.0 · Office Supplies	2,200.58	S	
515.0 · Telephone	2,160.00	O	$180 per month
520.0 · Printing	547.11	O	Reduced from $750
522.0 · Postage and Delivery	900.00	S	
525.0 · Internet Services	2,073.48	C	$119.85/1 month; $172 /11 months
530.0 · Staff Expenses			
530.1 · Staff Meals	1,000.00	WSSPC	

Western States Seismic Policy Council
FY 2008-2009 Budget
January 2009 Revision

	2008-2009 Budget	FEMA, USGS or WSSPC Category	Comments
530.2 · Staff Mileage	0.00	T	Keyed to Staff Travel spreadsheet
530.3 · Staff Transportation	1,620.00	T	Keyed to Staff Travel spreadsheet
530.4 · Staff Hotel	2,225.51	T	Keyed to Staff Travel spreadsheet
530.0 · Staff Expenses - Other	425.00	T	Exec Dir registration at EERI
Total 530.0 · Staff Expenses	5,270.51		
535.0 · Executive Committee Expense			
535.1 · Meals Exec Comm	3,075.00	WSSPC	
535.2 · Mileage Exec Comm	0.00	T	Keyed to Board Travel spreadsheet
535.3 · Transportation Exec Comm	6,070.00	T	Keyed to Board Travel spreadsheet
535.4 · Hotel Exec Comm	4,106.00	T	Keyed to Board Travel spreadsheet
535.0 · Executive Committee Expense - Other	2,975.00	WSSPC	Keyed to Board Travel spreadsheet
Total 535.0 · Executive Committee Expense	16,226.00		
554.20 · 2009 Annual Conference			
554.21 · Transportation			
554.22 · Airfare for Awards Winners	1,400.00	USGS T	Keyed to 09Conf spreadsheet
554.22 · Airfare for WSSPC Members	7,642.80	WSSPC	
554.23 · Ground Transportation for Awards	80.00	WSSPC	Keyed to 09Conf spreadsheet
554.24 · Mileage	277.20	WSSPC	
554.25 · Hotel	1,722.75	USGS T	Keyed to 09Conf spreadsheet
554.26 · Food & Beverage			
554.27 · Meeting Costs	372.00	USGS O	Keyed to 09Conf spreadsheet
554.28 · Printing	5,921.25	USGS O	Keyed to 09Conf spreadsheet
554.29 · Shipping	584.00	USGS S	Keyed to 09Conf spreadsheet
Total 554.20 · 2009 Annual Conference	18,000.00		
565.0 · Newsletter			
565.1 · Production	0.00		
565.2 · Printing	0.00		
565.3 · Postage	0.00		
Total 565.0 · Newsletter	0.00		Newsletters are now electronic
570.0 · Insurance			
570.1 · Liability Insurance	1,170.00		
570.3 · Insurance Other			
Total 570.0 · Insurance	1,170.00	C	Annual Fee
575.0 · Rent	18,624.00	C	$1552 per month
580.0 · Bank Service Charges	336.00	C	$28 per month
581.0 · Equipment Rental			
581.3 · Postage meter	105.00		$8.75 per month
581.5 · Copier Maintenance	1,000.00		New category
Total 581.0 · Equipment Rental	1,105.00	C	
583.2 · Borah Peak Scenario	10,000.00	C	on FEMA Grant 2007
590.0 · Property Tax	0.00	O	New Category; Exemption Received CARRF-$75, CAFTB-$10, Postal
591.0 · Licenses and Permits	265.00	O	permit $180
Total Expense	225,050.00		

		Sum of FEMA Categories
P	Personnel	109,371.10
B	Fringe Benefits	20,421.22
T	Travel	14,446.51
S	Supplies	3,100.58
C	Contractual	49,688.48
O	Other	2,972.11
	TOTAL	200,000.00

		Sum of USGS Categories
T	Travel	3,122.75
S	Supplies	584.00
O	Other	6,293.25
		10,000.00

		Sum of WSSPC Categories
T	Travel (Using NEC proceeds)	8,000.00
T	Meals	4,075.00

Western States Seismic Policy Council

FY 2008-2009 Budget

January 2009 Revision

		2008-2009 Budget	FEMA, USGS or WSSPC Category	Comments
T	Board Registration	2,975.00		
		15,050.00		

Accrual Basis

Western States Seismic Policy Council
WSSPC FY 2008-2009 Income & Expense
December 2008 through January 2009

	Dec '08 - Jan '09
Income	
401.0 · Interest Inc	
401.1 · Money Mkt Interest Income	5.97
401.2 · CD Interest Income	36.21
Total 401.0 · Interest Inc	42.18
410.0 · Membership Dues	3,400.00
420.0 · Conf Registration Fees	
428.2 · 2009 Conference Income	795.00
Total 420.0 · Conf Registration Fees	795.00
450.0 · Grants Earned	
460.0 · FEMA Grants Earned	
460.3 · 2007 FEMA Grants Earned	10,000.00
460.4 · 2008 FEMA Grants Earned	33,854.88
Total 460.0 · FEMA Grants Earned	43,854.88
Total 450.0 · Grants Earned	43,854.88
Total Income	48,092.06
Expense	
500.0 · P/R Expenses	
500.1 · Salary	18,617.98
500.2 · Benefits	
500.7 · Employer IRA Contribution	
500.701 · Sutch IRA Employer Contribution	293.16
Total 500.7 · Employer IRA Contribution	293.16
500.2 · Benefits - Other	968.36
Total 500.2 · Benefits	1,261.52
500.3 · Employer Contrib/Taxes	2,342.28
500.4 · Workers' Comp	356.80
500.5 · Payroll Service	765.00
Total 500.0 · P/R Expenses	23,343.58
509.0 · Prof Fees Other	0.00
510.0 · Office Supplies	185.42
515.0 · Telephone	392.72
522.0 · Postage and Delivery	88.01
525.0 · Internet Services	239.70
530.0 · Staff Expenses	
530.1 · Staff Meals	20.00
530.2 · Staff Mileage	145.20
530.3 · Staff Transportation	564.00
530.4 · Staff Hotel	344.78
530.6 · Staff Meetings	435.00
Total 530.0 · Staff Expenses	1,508.98

Accrual Basis

Western States Seismic Policy Council
WSSPC FY 2008-2009 Income & Expense
December 2008 through January 2009

	Dec '08 - Jan '09
535.0 · Executive Committee Expense	
535.1 · Meals Exec Comm	692.85
535.2 · Mileage Exec Comm	111.15
535.3 · Transportation Exec Comm	2,532.54
535.4 · Hotel Exec Comm	1,114.07
Total 535.0 · Executive Committee Expense	4,450.61
554.0 · Conferences	
554.2 · 2009 WSSPC-EERI	495.00
Total 554.0 · Conferences	495.00
575.0 · Rent	3,104.00
580.0 · Bank Service Charges	66.09
581.0 · Equipment Rental	
581.3 · Postage meter	17.14
581.5 · Copier Maintenance	1,257.66
Total 581.0 · Equipment Rental	1,274.80
583.0 · Miscellaneous Expenses	
583.2 · Borah Peak Scenario	10,000.00
Total 583.0 · Miscellaneous Expenses	10,000.00
Total Expense	45,148.91
Net Income	2,943.15

Accrual Basis

Western States Seismic Policy Council
FEMA Grant 2008
August 2008 through January 2009

	Aug '08 - Jan '09
Income	
450.0 · Grants Earned	
460.0 · FEMA Grants Earned	
460.4 · 2008 FEMA Grants Earned	93,934.45
Total 460.0 · FEMA Grants Earned	93,934.45
Total 450.0 · Grants Earned	93,934.45
Total Income	93,934.45
Expense	
500.0 · P/R Expenses	
500.1 · Salary	55,846.38
500.2 · Benefits	
500.7 · Employer IRA Contribution	
500.701 · Sutch IRA Employer Contribution	763.56
Total 500.7 · Employer IRA Contribution	763.56
500.2 · Benefits - Other	2,999.11
Total 500.2 · Benefits	3,762.67
500.3 · Employer Contrib/Taxes	5,454.86
500.4 · Workers' Comp	1,078.71
500.5 · Payroll Service	2,210.00
Total 500.0 · P/R Expenses	68,352.62
506.0 · Prof Fees Accounting	1,100.00
509.0 · Prof Fees Other	1,262.50
510.0 · Office Supplies	577.90
515.0 · Telephone	1,122.55
522.0 · Postage and Delivery	300.71
525.0 · Internet Services	719.10
530.0 · Staff Expenses	
530.2 · Staff Mileage	246.99
530.3 · Staff Transportation	692.00
530.4 · Staff Hotel	611.81
530.6 · Staff Meetings	435.00
Total 530.0 · Staff Expenses	1,985.80
535.0 · Executive Committee Expense	
535.2 · Mileage Exec Comm	203.59
535.3 · Transportation Exec Comm	4,963.88
535.4 · Hotel Exec Comm	1,826.15
Total 535.0 · Executive Committee Expense	6,993.62

Accrual Basis

Western States Seismic Policy Council
FEMA Grant 2008
August 2008 through January 2009

	Aug '08 - Jan '09	
575.0 · Rent	9,312.00	
580.0 · Bank Service Charges	178.09	
581.0 · Equipment Rental		
581.3 · Postage meter	51.42	
581.5 · Copier Maintenance	1,978.14	
Total 581.0 · Equipment Rental	2,029.56	
Total Expense	93,934.45	49.40%

Accrual Basis

FEMA Grant 2007
Final Income and Expense
August 2007 through December 2008

	Aug '07 - Dec '08	Re-Programmed Budget*
Income		
450.0 · Grants Earned		
460.0 · FEMA Grants Earned		
460.3 · 2007 FEMA Grants Earned	200,000.00	
Total 460.0 · FEMA Grants Earned	200,000.00	
Total 450.0 · Grants Earned	200,000.00	
Total Income	200,000.00	200,000.00
Expense		
Total 170.1 · Software Assets	1,737.41	0.00
500.0 · P/R Expenses		
500.1 · Salary	96,334.02	99,573.00
500.2 · Benefits		
500.7 · Employer IRA Contribution		
500.701 · Sutch IRA Employer Contribution	2,350.28	
Total 500.7 · Employer IRA Contribution	2,350.28	2,207.19
500.2 · Benefits - Other	5,237.14	10,262.04
Total 500.2 · Benefits	7,587.42	12,469.23
500.3 · Employer Contrib/Taxes	9,055.74	10,139.36
500.4 · Workers' Comp	1,875.02	2,091.12
500.5 · Payroll Service	3,970.00	4,080.00
500.6 · Job Search	25.00	0.00
Total 500.0 · P/R Expenses	118,847.20	128,352.71
506.0 · Prof Fees Accounting	7,360.00	10,700.00
509.0 · Prof Fees Other	3,918.75	5,125.00
510.0 · Office Supplies	2,558.94	1,274.00
515.0 · Telephone	1,773.21	1,600.00
520.0 · Printing	490.30	0.00
522.0 · Postage and Delivery	838.87	875.00
525.0 · Internet Services	1,956.40	1,438.20
530.0 · Staff Expenses		
530.2 · Staff Mileage	155.32	297.00
530.3 · Staff Transportation	1,091.71	1,382.00
530.4 · Staff Hotel	2,320.02	3,123.00
530.6 · Staff Meetings	1,375.00	300.00
Total 530.0 · Staff Expenses	4,942.05	5,102.00
535.0 · Executive Committee Expense		
535.2 · Mileage Exec Comm	61.07	148.50
535.3 · Transportation Exec Comm	5,077.59	7,760.00
535.4 · Hotel Exec Comm	5,144.82	7,064.00
535.0 · Executive Committee Expense - Other	41.97	0.00
Total 535.0 · Executive Committee Expense	10,325.45	14,972.50

Accrual Basis

FEMA Grant 2007
Final Income and Expense
August 2007 through December 2008

	Aug '07 - Dec '08	Re-Programmed Budget*
553.0 · 2007 WSSPC-ICC Annual Conf Reno		
553.1 · AC 07 Transportation		
553.11 · Airfare	1,384.49	
553.12 · Ground Transportation	91.30	
553.13 · Mileage	141.14	
Total 553.1 · AC 07 Transportation	1,616.93	0.00
553.2 · AC 07 Contractors	1,922.25	
553.3 · AC 07 Hotel	2,596.68	
553.5 · AC 07 Meeting Costs	4,137.29	
553.7 · AC 07 Shipping	676.54	
Total 553.0 · 2007 WSSPC-ICC Annual Conf Reno	10,949.69	0.00
554.0 · Conferences		
554.1 · 2008 NEC Seattle	2,153.83	
Total 554.0 · Conferences	2,153.83	0.00
570.0 · Insurance		
570.1 · Liability Insurance	1,004.00	
570.3 · Insurance Other	166.00	
Total 570.0 · Insurance	1,170.00	1,186.59
575.0 · Rent	18,624.00	18,624.00
580.0 · Bank Service Charges	1,933.05	336.00
581.0 · Equipment Rental		
581.3 · Postage meter	135.85	264.00
Total 581.0 · Equipment Rental	135.85	
583.2 · Borah Peak Scenario	10,000.00	10,000.00
591.0 · Licenses and Permits	285.00	150.00
Total Expense	200,000.00	200,000.00

*** $10,000 Funds moved from Expense Category 500.1 to 583.2**

Western States Seismic Policy Council

WSSPC

WESTERN STATES SEISMIC POLICY COUNCIL

WESTERN STATES SEISMIC POLICY COUNCIL

DRAFT Policy Recommendation 09-1: Earthquake Planning Scenarios

Comment: John Schelling: It appears that there is no hard and fast definition included that it will be left up to the members to define this for their particular situation. This is good.

Policy Recommendation

WSSPC recommends that ~~the governor and legislature of~~ each member state, province, and territory establish ~~and fund~~ 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.

Comment: Tim Walsh: WSSPC need not specify who should do the work; leave that up to the member organizations.

Comment: John Schelling: Nearly all of the states within the US have record deficits and are experiencing significant budget cuts and reductions in force.

Therefore, the timing of this recommendation for new programs and additional funding will likely not occur within most member organizations until the overall fiscal situation dramatically improves.

Comment: John Schelling: If the intent is for FEMA to provide grant monies to states, territories, etc. for this work, the recommendation should explicitly state this, rather than leave it up to each member to interpret this differently.

An option might be to not have this as a formal recommendation ***UNTIL*** FEMA provides dedicated funding to members for this to occur.

Background

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 steady 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.

Comment: John Schelling: Consider inserting a source for these figures.

Comment: John Schelling: Even when this information is readily available, unless a state and/or local government has chosen to regulate development within these hazard areas under its police powers, these scenarios have no legal basis from which to regulate. If they were enforced without such enabling legislation, jurisdictions would be liable for significant 'takings' claims from developers and land owners.

Earthquake Planning Scenarios have been prepared for selected 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 in detail a realistic maximum earthquake

Comment: Tim Walsh: Who has prepared these selective scenarios?

Comment: John Schelling: These are typically achieved through mitigation once the hazard has been fully identified.

Comment: Tim Walsh: Not necessarily. The Seattle fault scenario was based on a M6.7 event rather than the M7+ event that occurred ~1,000 years ago.

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 loss to buildings and lifelines (major pipelines, power transmission lines, highways, bridges, airports, harbors, hospitals, etc.), and human casualties, as well as areas and infrastructure least likely to be damaged or destroyed. The purpose of a scenario is to provide accurate information that will assist governments and developers in engineering, planning, and protecting vulnerable facilities from the destructive effects of a future earthquake, as well as information for prioritizing emergency relief operations in areas likely to suffer the greatest damage.

Comment: Tim Walsh: Scenarios normally do not discuss damage to individual structures.

Comment: John Schelling: Scenarios also provide parameters from which to conduct more realistic and accurate training exercises, such as table tops and functional drills.

Comment: Tim Walsh: The CREW scenarios have been used extensively in emergency management exercises.

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 recovery. Where present, 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, other entities such as the not-for-profit Cascadia Region Earthquake Workgroup (CREW), which provides services to Washington, Oregon, California, and British Columbia, prepares earthquake and tsunami scenarios. Resources such as these should be examined and leveraged, where practicable.

Comment: Rick Allis: The policy statement includes the sentence about FEMA supporting the plans with funding. However, there is no reference to this in the text – Under the Facilitation section, which talks about the agencies that would do these, there needs to be an extra sentence fleshing out what the role of FEMA is proposed to be, and this would then link back to the policy recommendation.

Deleted: for members and r

Scenario-development activities are most effectively implemented by involving and coordinating with federal geoscience and emergency management agencies and with public/private sector organizations such as transportation departments, electric and water utilities, railroad and pipeline companies, and port authorities.

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.

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.

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 [To be added]

Appendix 1: Completed earthquake planning scenarios

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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 Report 2008-1150; CGS Preliminary Report 25). 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 not 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.*

There are formative plans by the States of Missouri and Illinois and their neighboring states to put together a planning scenario for a potentially very large earthquake along the New Madrid Fault Zone that runs near the City of St. Louis.

Appendix 2: Resources for scenario development

New and 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 a current inventory of the built environment.

Comment: Ken Murphy: Any recommendation from WSSPC that requires the use of HAZUS should include language urging FEMA to improve the modeling accuracy and to include a tsunami module.

Deleted: building standards

Comment: Tim Walsh: Important to include transportation and lifeline infrastructure.

Two other new 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.

WESTERN STATES SEISMIC POLICY COUNCIL
DRAFT POLICY RECOMMENDATION 09-2

Developing Earthquake Risk-Reduction Strategies

DRAFT Policy Recommendation 09-2

WSSPC strongly encourages states and local governments 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.

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

- Assessment of all seismic hazards to quantify and define the risk to communities;
- 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.

WSSPC encourages its partners to seek potential 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.

Background

Given the high seismic activity in the western United States, Pacific territories, and Canada, mitigation of earthquake hazards is a common interest among all the western states, territories, and provinces. FEMA's Report 366, "HAZUS 99 Estimated

Annualized Earthquake Losses for the United States", clearly shows that the western states are most at risk, with 88% 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 hazards 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).

Private and public organizations 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, the many Seismic Safety Boards and Commissions that have been created in WSSPC partner states are critical in the effort to educate state and local policy makers as to the importance of sound seismic hazard policy.

It is the responsibility and duty of the geological hazards community to organize and disseminate key information concerning proper seismic hazards mitigation. Safe communities and infrastructure can only be accomplished though diligent, informed, and coordinated effort of both regulators and stakeholders. WSSPC will continue to play a key role in that organization and communication effort.

Facilitation and Communication

This policy recommendation will be sent 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) as well as to WSSPC representatives in the member states. Policymakers' decision to support earthquake risk mitigation and foster partnerships is the key to effective mitigation in their state.

Assessment

Successes in policy implementation are occasions when mitigation actions or requirements 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.

History

First adopted in 2003 as WSSPC Policy Recommendation 03-1. Reviewed, 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.

2009 WSSPC Awards in Excellence Winners

Awards will be presented at the Awards in Excellence Banquet
Friday February 13, 2009

2009 WSSPC Leadership Award

Rick Allis, Director, Utah Geological Survey, will be receiving the 2009 WSSPC Leadership Award for his work as WSSPC Board Chair from 2005-2008.

Awards in Excellence

Outreach to General Public
Citizens Organized to Prepare for Emergencies (COPE)
City of Santa Rosa Emergency Preparedness Program
Accepting: Richard Ruge, Strategic Development and Outreach Supervisor,
North Bay Regional Center

Innovations
Redwood Coast Tsunami Work Group
Humboldt State University, Earthquake Education Center
Accepting: Lori Dengler, Professor and Center Director, Humboldt State University,
Earthquake Education Center

Research
Wasatch and Sevier Faults Paleoseismic Research
Utah Geological Survey
Accepting: Bill Lund, Senior Scientist, Utah Geological Survey

Outreach to Business/Government
Washington Decision Makers Field Conference:
The Cost and Practice of Seismic Safety in Washington
Washington Department of Natural Resources, Division of Geology and Earth Resources,
Geologic Hazards Program
Accepting: Dave Norman, Acting State Geologist, Washington State Division of Natural Resources

2009 Overall Award in Excellence for Mitigation

Kodiak Island Borough School Seismic Hazard Mitigation Program
Kodiak Island Borough, Alaska
Accepting: Charles “Bud” Cassidy, Director, Community Development Department,
Kodiak Island Borough

Rick Allis
2009 WSSPC Leadership Award

Rick Allis is currently the State Geologist and Director of the Utah Geological Survey. He served on the WSSPC Board of Directors from December 2004 to November 2008 and was Board Chair from June 2005 to November 2008.

Under Rick's leadership, WSSPC changed the style of its annual conferences from stand-alone WSSPC conferences to collaborative partnerships with other organizations. In 2006 WSSPC met with the 1906 100th Anniversary Conference in San Francisco, in 2007 with the International Code Council in Reno, Nevada, in 2008 at the National Earthquake Conference in Seattle, and now, in 2009 with the Earthquake Engineering Research Institute in Salt Lake City.

Rick was committed to ensuring WSSPC's sustainability in the event of a reduction in funding, and during his time as Board Chair WSSPC accomplished its strategic goal of establishing a 6-month operating reserve.

After earning his Ph.D. at the University of Toronto in Geophysics, Allis received a Fullbright Travel award at the University of Utah. Subsequently he joined the New Zealand Department of Scientific and Industrial Research (DSIR) at its Wairakei Research Centre where he focused on geothermal resource evaluation and environmental impact assessments of development. In 1990 he moved to the Lower Hutt office (also on New Zealand's North Island) of what is now called GNS Science. He was chosen as the Hochstetter Lecturer in 1994 by the New Zealand Geological Society.

Rick has been based in Salt Lake City since 1997. He was a Research Professor at the Energy and Geoscience Institute, University of Utah, between 1997 and 2000. Recently he was tapped by Utah's Governor Jon Huntsman, Jr. to co-lead a 20-member Renewable Energy Zone Task Force. Their task will be to learn how much renewable energy in Utah can be cost-effectively delivered to market and what new policies might be needed to make that happen.

Rick became a member of the Utah Seismic Safety Commission in 2000 as part of his duties as Director of the Utah Geological Survey. His active involvement with USSC and encouragement of its activities has lead to some major accomplishments in the area of seismic hazards. Under his leadership the UGS and USSC have developed programs and projects including:

- Working groups to coordinate and prioritize geologic earthquake work
- Completion of a comprehensive Quaternary fault and fold map and database
- Renewed partnership with the U. S. Geological Survey and its research efforts
- Development of ground shaking maps and a scenario for a magnitude 7.0 earthquake along the Wasatch Front
- Organization of the 2004 Utah Earthquake Conference and teacher workshops

Rick has been both a supporter and advocate for seismic safety in Utah. He is a keystone champion who has helped advance both the science and legislation necessary to bring about effective change toward safer land use and a better appreciation of our environmental and seismic hazards.

Outreach to General Public

Administering Agency	City of Santa Rosa Emergency Preparedness Program
Program Name	Citizens Organized to Prepare for Emergencies (COPE)
Contact	Ed Buonaccorsi, General Services Administrator
Address	630 Third Street, 2nd Floor, Santa Rosa, CA, 95404
Telephone Number	707-543-3710
E-mail	ebuonaccorsi@srcity.org

Program Summary

Program Origins – started in the late 1990s by the adult community of Oakmont in east Santa Rosa, CA to prepare for earthquake, fire and other emergencies.

Participants – Oakmont has 200 neighborhood leaders covering more than 2000 households. That is over 70% of their 2800 families. That would make Oakmont the most prepared concentration of households in the nation. In the rest of Santa Rosa, we now have an additional 240 leaders, bringing the total to over 440 COPE Neighborhood Leaders covering about 4,400 households. That is over 7% of households in the city. COPE is also being used by many communities and neighborhoods throughout Sonoma County like Sebastopol, Windsor, and Sonoma. Monterey County, Redding, Santa Maria and other communities are also establishing COPE Programs.

Community Partners – COPE has been embraced by Community Partners including Santa Rosa Junior College, Exchange Bank, Kaiser Santa Rosa Medical Center, Sonoma County Indian Health Project, North Bay Regional Center, and others, who are encouraging their employees and clients to use the program in their neighborhoods as well as in their workplace. We are looking for schools, churches, and businesses that will do the same.

COPE Training Time – It takes about 1-2 hours to teach the theory of COPE preparedness to classes, groups, and neighborhoods. After attending two meetings, families can walk away with a Neighborhood COPE Response Plan.

COPE Videos & DVD – The original COPE Awareness Video was put together by award winning Avery Media and is 11 minutes in length. It is used at all training meetings and is also available on the COPE webpage (*www.cope.srcity.org*). Funded by a Homeland Security grant, the new COPE DVD has been developed with 5 videos in English & Spanish:

1. COPE Awareness
2. How to be a COPE Leader
3. Putting your Kit together
4. 3 minute COPE Promotion Video (on YouTube)
5. 1 minute COPE Internet site promo (on YouTube)

The City of Santa Rosa has distributed more than 2,300 COPE DVDs to neighborhood and community leaders throughout Sonoma County and northern California. The videos are now on the City webpage and on You Tube. There are plans to develop a COPE for persons with “special needs” video in 2008.

Motivational Success – We believe that families and neighbors are motivated to action by the small amount of time investment required and also by the fun that they have with each other holding "Preparedness Parties", Pot Lucks, Grill Outs, and Wine & Cheese meetings. There is an element of fun socializing with COPE that is not found in many other preparedness programs.

Social Networking – COPE involves many individuals and groups from the community to urge the preparedness message. These include:

- The American Red Cross
- VOAD (Volunteer Agencies Active in Disaster)
- The Volunteer Center
- ACS & ARRL Amateur Groups
- Local Boy Scouts
- Nursing Homes
- Schools
- Homeowners Associations (HOA)
- Mobile Home Parks
- Faith Based Organizations
- Community Fairs & Events
- ADA & Special Needs Community
- Business & Industry
- Latino Service Providers
- Apartment Complexes
- Service Clubs
- City & County Employees
- Elected Officials
- Community Advisory Board (CAB)
- City & County Emergency Managers

Award Winning– the City of Santa Rosa COPE Program was presented the California League of Cities "Helen Putnam Award" in 2007 for being the best public safety program in the state. We also received the Sonoma County "Pete Peterka Award" for excellence in Emergency Management.

How long has the program been operational?

Since 2003

What are the major purposes of the program? What problem(s) or issue(s) was it designed to address?

COPE is Citizens Organized to Prepare for Emergencies and was started by the adult community of Oakmont in Santa Rosa to prepare them for earthquake and other emergencies. They now have over 70% of their 2800 households prepared for earthquake. We now have over 430 COPE Team Leaders covering more than 3200 households in the City of Santa Rosa using the simple and fun program.

Describe the specific activities and operations of the program.

COPE Leaders and families learn in two meetings how to organize their family and neighbors for earthquakes and other emergencies. They inventory the skills, tools, and vulnerabilities in their area, select a meeting spot for all residents, and prepare them to help each other after the earthquake.

Does the program take a new and creative approach or method?

COPE encourages neighbors to throw "preparedness parties" to make the planning process fun. Neighbors have fun while developing their plan and supplies and sharing training. At the North

Bay Regional Center we have used the COPE Program to help our special needs clients to take the initiative to involve their neighbors and co-workers as COPE Leaders and Co-Leaders to develop support teams for disaster response.

What were the program's start-up costs and source(s) of funding? Annual operational costs and source(s) of funding?
Start-up Costs: $30,000
Source: City of Santa Rosa General Services Budget
Annual Budget: $130,000
Source: City of Santa Rosa General Services Budget

How many employees worked on the program?
One full-time employee.

To the best of your knowledge did the program originate in your state?
Yes.

Are you aware of similar programs in other states?
No.

Has the program been fully implemented?
Yes.

Is there evidence that the program has been effective in achieving its stated purpose?
In 2008, we developed a COPE DVD with 5 videos in English & Spanish through Homeland Security funding. Attached to the DVD was a survey card on whether the DVD was used. In 100% of the returned survey cards residents either used the program for their family and neighbors or their business.

How has the program changed since its inception? What limitations or obstacles might other states expect to encounter if they adopt the program?
We have improved our handout materials and developed our 5 videos, two of which are on YouTube (type in "cope program"). We have also developed what we think is one of the best web pages for emergency preparedness at *www.cope.srcity.org*.

Innovations

Administering Agency	Humboldt State University, Earthquake Education Center
Program Name	Redwood Coast Tsunami Work Group
Contact	Dr. Lori Dengler, Professor and Center Director
Address	Dept. of Geology, 1 Harpst Street, Arcata, CA, 95521
Telephone Number	707-826-3115
E-mail	lad1@humboldt.edu

Program Summary

Background. The Redwood Coast Tsunami Work Group (RCTWG) is an organization of local, state and federal agencies, relief agencies, tribes, coastal land managers, academia, and the private sector from Del Norte, Humboldt and Mendocino Counties. The group was formed in July 1996 to define the needs of local jurisdictions to mitigate the North Coast earthquake and tsunami hazard, and to promote a coordinated, consistent mitigation program for all coastal areas.

The RCTWG and its member agencies have sponsored a variety of projects in four areas — hazard assessment, response planning, education/outreach, and institutionalizing tsunami mitigation programs. Since its inception the RCTWG has become an effective tool for initiating, promoting and coordinating regional tsunami mitigation efforts.

The group received recognition by the Coastal Region, Governor's Office of Emergency Services in May 1997, as a part of on-going state hazard reduction efforts. In April 2002, the Humboldt County Board of Supervisors declared their support of ". . . the Redwood Coast Tsunami Work Group and its member organizations to mitigate the effects of future great earthquakes."

Projects. Recognition of the local, regional and distant source tsunami hazards on the North Coast has led to a number of planning, outreach and mitigation projects. The RCTWG has developed brochures in English and Spanish, and other materials to educate North Coast residents about earthquakes and tsunami hazards. Of particular significance in the group's education and mitigation efforts have been the relative tsunami hazard maps of the Humboldt County coastline developed and refined from 2003 to the present. The maps were developed with input of RCTWG members, and have become an important educational tool, and are being used in the County Tsunami Contingency Plan and evacuation route planning.

In 2006 RCTWG team members from CalTrans District 1, the Eureka National Weather Service office, Humboldt State University, and Humboldt County Office of Emergency Services began planning to identify areas that needed tsunami hazard and evacuation route signs and sign locations. The group also identified sign cost specifics, regulatory issues and funding alternatives for 475 general sign locations on State and Humboldt County roadways. That effort proceeded in parallel with other RCTWG team efforts for tsunami sirens, evacuation planning and exercises, hazard area mapping, TsunamiReady planning efforts and other educational opportunities.

In 2007 RCTWG team members helped prepare for and conduct the first full-scale tsunami evacuation drill in California at the town of Samoa, which is particularly exposed to the tsunami hazard. The RCTWG team designed evacuation routes, participated in the extensive community outreach prior to the drill, and

conducted the drill to evaluate the town's evacuation plan and to provide an opportunity for community members to practice the skills needed to survive a real tsunami. Some 90% of the households participated, and were able to reach the evacuation site within 10 minutes at a normal walking pace.

RCTWG agencies have partnered with the National Weather Service in Humboldt County to encourage and assist local communities to apply for TsunamiReady designation. The approach has been to identify jurisdictions in the highest hazard zones and to work with the unique mix of cultural, political and economic entities within the community to develop partners and a constituency for tsunami hazard mitigation so that the Samoa and Orick communities were recognized as the 49th and 50th U.S. TsunamiReady communities in July, 2007.

The RCTWG has sponsored an Earthquake/Tsunami Education Room at the Humboldt County Fair since 1999, and also at the Del Norte County Fair since 2005. Each year the rooms' themes change, and they exemplify RCTWG's commitment to promote a coordinated, consistent earthquake and tsunami mitigation program for Northwest California. The rooms are staffed by knowledgeable professionals from RCTWG constituent agencies, educational institutions (including students), and businesses, who interpret current and breaking-edge information about our earthquake and tsunami hazards, natural and official warnings, and what to do before, during and after an earthquake or tsunami to mitigate hazards, reduce injuries and save lives. Hands-on exhibits have included a shake trailer, tsunami wave tank, seismograph, real-time earthquake monitor, fault sand box, liquefaction tank, posters and displays, as well as an earthquake/tsunami theater and preparedness materials.

How long has the program been operational?

Since July 1996.

What are the major purposes of the program? What problem(s) or issue(s) was it designed to address?

The Redwood Coast Tsunami Work Group (RCTWG) — an organization of representatives from Federal, state, county and local government agencies, tribes, service groups, academia and the private sector from the three northern coastal California counties — was formed in 1996 to coordinate and promote tsunami hazard awareness and to develop coordinated projects among the counties to mitigate risk and institutionalize tsunami preparedness.

Describe the specific activities and operations of the program.

The RCTWG typically holds bimonthly meetings. The group is currently co-chaired by Vicki Ozaki of Redwood National and State Parks and Troy Nicolini of the Eureka Forecast Office of the National Weather Service. The group has developed a strategic planning document and its member agencies and organizations have sponsored a variety of projects including education/outreach products and programs, tsunami hazard mapping, and signage and siren planning.

The overall goal of the Work Group has been to build tsunami-resilient communities on California's North Coast, and to that end its RCTWG members have taken the lead in the following projects (a complete list of mitigation and outreach efforts by members of the RCTWG may be found in "Building Tsunami-Resilient Communities in Humboldt County, California,"):

- Created relative tsunami hazard maps of the Humboldt County coastline.
- Prepared tsunami hazard brochure tri-folds that have been reissued to incorporate ongoing research findings and to include lessons learned following December 2004 Indian Ocean Subduction zone earthquake and tsunamis.
- Partnered with Del' Arte to create Earthquake Education through Theater Arts: Earthquake and Tsunami public service announcements.
- Draft tsunami curriculum developed by Humboldt Earthquake Education Center.
- Coordinated Manila Community Earthquake and Tsunami Safety Fair.

- Created yearly Humboldt and Del Norte County Fairs' Earthquake and Tsunami Room exhibits, posters and displays, with changing, yearly themes. The room has been staffed with HSU students and professionals from the RCTWG member agencies, tribes, service groups, academia and companies.
- Provided media briefing at the National Weather Service's "Tsunami — When It Happens Here".
- RCTWG member created and teaches the Red Cross course "Living on the Faultline and Along the Coast" that has been recognized by the National American Red Cross as a "Best Practice." Presentation thoroughly vetted by RCTWG members.
- 60,000 newspaper inserts on tsunami/earthquake hazards, created by the Humboldt County Chapter American Red Cross, a RCTWG member, were distributed by *The Times-Standard*.
- RCTWG members created and presented Del Norte and Humboldt County earthquake/tsunami briefing to California Seismic Safety Commission.
- RCTWG members created "Shake, Rattle, and Roll: Awaking the Public's Curiosity in Geology via Interpretation," a training manual on interpreting earthquakes and tsunamis in Redwood National and State Parks.
- RCTWG members from the Humboldt County OES, NWS and HSU made presentations on earthquake and tsunami hazard mitigation to Board of Supervisors.
- RCTWG members from Humboldt County OES and NWS made local community outreach/education presentations to residents of Klamath, Orick, Fields Landing, and Samoa.
- RCTWG member agencies have created and posted tsunami hazard information signs, and thoroughly researched and analyzed, and recommended the locations for the placement of the entering and leaving tsunami hazard zone signs in Humboldt County.
- RCTWG member agencies coordinated, conducted, monitored, and analyzed the success of the first tsunami evacuation drill in California, held at Samoa.
- RCTWG members working with the State Office of Emergency Services organized California's first test of the Emergency Alert System for tsunami warnings using live codes.

Does the program take a new and creative approach or method?

The RCTWG has implemented several new and creative approaches to implementing the goal of coordinating and promoting tsunami hazard awareness and mitigation. The Working Group itself is a unique interagency task force of representatives from government, tribes, service groups, academia and the private sector that work very well together to promote a coordinated, consistent tsunami mitigation and education effort on the North Coast.

The RCTWG has been unusually successful because it has focused its efforts in four areas: hazard assessment, response planning, education/outreach, and institutionalizing tsunami mitigation programs. The collegial and active support of the various members of the RCTWG has ensured the success of these projects.

What were the program's start-up costs and source(s) of funding? Annual operational costs and source(s) of funding?

Start-up Costs: $0
Source: Voluntary Participation of Members
Voluntary effort from members covers almost all operating costs. The group facilitates grant projects and funding proposals for specific projects. Primary event sponsored by the RCTWG is the annual Humboldt and Del Norte County Fairs funded by donations from members and the community and contracts. In the

past eight years, we have received over $23,000 in donations from businesses and the University, and $22,000 through a grant from the California Earthquake Authority to support Fair activities.
The table below summarizes the fair funding since 2001.

2001	HSU	5000	
2002	HSU	5000	staffing through 2004
2003	assorted	500	
2004	assorted	500	
2005	PG&E	5000	staffing 2005 & 2006
2006	assorted	400	
2007	CEA	22000	computer displays for CISN and tsunami theater, staffing 2007 & 2008, publicity, giveaways (pens, magnets & T-shirts)
2008	assorted	7500	ReadyAmerica's Big Shaker earthquake simulator,

note: “assorted” means that donations came from at least 5 different sources.

The Fair displays rely heavily on the donated materials and efforts of RCTWG members and other community donations.

How many employees worked on the program?
No full-time employees.

To the best of your knowledge did the program originate in your state?
Yes.

Are you aware of similar programs in other states?
No.

Has the program been fully implemented?
Yes

Is there evidence that the program has been effective in achieving its stated purpose?
Six telephone surveys have been conducted to assess awareness, preparedness, and the effectiveness of hazard mitigation programs from 1993 (before the RCTWG was established) to 2006. The surveys asked a set of questions regarding actions people have taken to prepare for earthquakes and tsunamis, and their perceptions of the risk. Each survey made calls to randomly selected telephone numbers over a two-week period, and included 400 to 600 responses.

Over the 14-year period, the percent of respondents knowing what a tsunami is increased from 78% to 98%, persons aware of the near-source tsunami hazard increased from 51% to 91%, and those aware that the first wave is not the largest increased from 65% to 95%. The results are summarized in the supporting document “Building Tsunami-Resilient Communities in Humboldt County, California.”

How has the program changed since its inception? What limitations or obstacles might other states expect to encounter if they adopt the program?
While the program has changed in terms of projects and visibility since its inception in 1996, the organizational structure has remained the same and has proven to be durable. It was originally formed to respond to the 1995 publication of the California Division of Mines and Geology (now the California Geological Survey) Earthquake Planning Scenario for a great earthquake and tsunami on the Cascadia subduction zone (Special Publication 115). That publication showed much of the coastal region could be damaged by a tsunami and created great concern and some alarm in the community.

The first RCTWG meeting laid out the need to promote consistent tsunami signage and develop education programs. These continue to be high priority items for the RCTWG. But it turned out that to develop a comprehensive sign program, it was necessary to assess the hazard. To convince local government to

support sign deployment, it was necessary to develop educational materials targeted for decision makers. To put signs on state and federal highways, it was necessary to work with both Caltrans and the Federal Highway administration to approve the signage. In all these areas, RCTWG members took the lead and through the consultation process involved city, county, state and federal agency representatives, the expertise of private consulting companies and university members, and the perspective of groups involved in planning and responding to disasters. As a result, the group has developed a strong regional basis of support for tsunami hazard mitigation.

While current projects such as the full test of the tsunami warning system using live codes and the tsunami signaling devices projects were not envisioned back in 1996, they are a natural outgrowth of the original intent of the group. The RCTWG has been surprisingly long lived and successful for a group with no budget, no permanent funding and no official government oversight. Its success has been the result of the dedicated efforts of a relatively small core of representatives who are truly impassioned about the importance of reducing North Coast tsunami risk and have not let bureaucratic rules or the lack of precedent or state regulations stand in the way of developing local strategies and modifying them as needed. Certainly the structure could be adopted in other regions and states and many of the RCTWG projects easily adapted to other areas. But to succeed, such a group would need the similar involvement of a mix of locally and regionally based private and public partners. RCTWG members would be willing to work with other areas who are interested in developing a similar group.

Additional Comments

The Redwood Coast Tsunami Work Group is an ad hoc organization in the true sense of the word, a group formed to address a specific issue – the tsunami hazard in North Coast California. In the past 13 years since its inception, awareness and concern about the tsunami hazard has only increased. Similarities between the geologic setting of the 2004 Sumatra-Andaman earthquake and the Cascadia subduction zone has further heightened these concerns as did problems associated with the tsunami warning issued for the entire U.S. west coast in June 2005 and the $10 million in damages to Crescent City's small boat basin that occurred after tsunami warnings had been cancelled. The group has both strong local ties and is well-connected to the expertise of tsunami experts and is able to quickly adapt the lessons of global events to the local region and modify projects as hazard assessment has evolved.

Research

Administering Agency	Utah Geological Survey
Program Name	Wasatch and Sevier Faults Paleoseismic Research
Contact	William “Bill” Lund, Senior Scientist
Address	88 East Fiddler Canyon Road, Suite C, Cedar City, UT 84721
Telephone Number	435-865-9460
E-mail	billlund@utah.gov

Program Summary

The Utah Geological Survey (UGS) maintains a long standing paleoseismic research program to investigate Utah’s active faults and to determine fault parameters critical to understanding the state’s earthquake hazard and reducing earthquake risk to the state’s citizens. In 2008 the UGS conducted two fault paleoseismic studies and published the results of that research. The two studies were UGS Special Study 122 *Paleoseismic Reconnaissance of the Sevier Fault, Kane and Garfield Counties, Utah*, and UGS Special Study 124 *Paleoseismic Investigation of the Northern Strand of the Nephi Segment of the Wasatch Fault Zone at Santaquin, Utah*.

Special Study 122 characterized the relative level of activity of the Sevier fault in southwestern Utah. The Sevier fault (known as the Toroweap fault in Arizona) trends generally north-south through southwestern Utah and northern Arizona. Approximately 108 km of the 250-kilometer-long fault are in Utah. This study used aerial-photograph analysis, field reconnaissance, detailed mapping of selected areas, and new geochemical analyses and 40Ar/39Ar radiometric ages for volcanic flows displaced by the fault. Paleoseismic results of this study include estimates of geologic slip rates and surface-faulting recurrence intervals at two critical locations in Utah, and identifying two possible seismological segment boundaries along the Utah portion of the fault. Determining paleoseismic parameters for the Sevier fault is important because they help the Utah Geological Survey assess the level of seismic hazard presented by the fault to southwestern Utah, and assist the U.S. Geological Survey in updating the Quaternary Fault and Fold Database of the United States and evaluating the Sevier fault’s significance to the National Seismic Hazard Maps.

Special Study 124 characterizes the relative activity of the northern part of the Nephi segment of the Wasatch fault zone (WFZ). The Nephi segment consists of distinct northern and southern strands, and all previous paleoseismic investigations on the segment have been conducted on the southern strand. To resolve issues related to similarities or differences in the timing, displacement, and magnitude of prehistoric surface-faulting earthquakes between the strands, the UGS excavated two trenches on the northern strand at Santaquin. The study includes discussions of (1) previous paleoseismic investigations on the Nephi segment, (2) the geology of the Santaquin trench site and excavations, (3) paleoseismic results, including the timing of the most recent surface-faulting earthquake, fault displacement and slip rate, and surface-faulting recurrence and magnitude, and (4) implications for segmentation of the southern Wasatch fault zone. Determining paleoseismic parameters for the entire Nephi segment is important because the new data help refine segmentation models for the Nephi and Provo segments, which are key components of understanding the past (Holocene) and future behavior of the WFZ, improving WFZ hazard models, and reducing Utah’s earthquake-related risk.

How long has the program been operational?
The UGS has conducted paleoseismic studies on active faults in Utah since the late 1970s. The UGS Paleoseismology of Utah publication series now has 17 volumes in print. Special Studies 122 and 124 represent volumes 16 and 17, respectively.

What are the major purposes of the program? What problem(s) or issue(s) was it designed to address?
The major purpose of the two studies being submitted is to better understand the earthquake hazard represented by these two potentially active faults. Utah contains more than 170 potentially active Quaternary faults. The level of earthquake hazard represented by each of these faults varies by fault activity level. The purpose of these studies was to determine earthquake timing, recurrence, and magnitude to better assess earthquake hazards in Utah.

Describe the specific activities and operations of the program.
Literature review, fault scarp profiling, site location and permitting, air photo analysis and geologic mapping, trenching, sampling for radiometric dating.

Does the program take a new and creative approach or method?
The program chiefly employs established paleoseismic investigative techniques to characterize fault activity and paleoearthquake magnitudes.

What were the program's start-up costs and source(s) of funding? Annual operational costs and source(s) of funding?
The budgets for both studies were about $100,000. Sources of funding include State of Utah general funds and National Earthquake Hazard Reduction Program (NEHRP) grants. The NEHRP grants were awarded on a competitive basis based on technical merit and earthquake risk considerations.

How many employees worked on the program?
Eight

To the best of your knowledge did the program originate in your state?
The State of Utah is a long-time leader within the Basin and Range/Intermountain West in conducting paleoseismic investigations of active faults. Paleoseismology did not originate in Utah, but the first paleoseismic investigation of a normal-slip fault occurred in Utah.

Are you aware of similar programs in other states?
Yes, the California, Nevada, and Arizona state surveys have conducted paleoseismic investigations of faults.

Has the program been fully implemented?
As fully as funds currently allow. Paleoseismic investigations are costly; the UGS performs investigations such as the two presented for consideration here as funds are available.

Is there evidence that the program has been effective in achieving its stated purpose?
The program has been very effective. Results of this research represent the best available scientific information regarding the activity of these two faults. The results are currently being used by the engineering community to help design earthquake-resistant structures along the Wasatch Front and to evaluate hazards along a proposed major water pipeline in southwestern Utah.

How has the program changed since its inception? What limitations or obstacles might other states expect to encounter if they adopt the program?
The two specific studies being submitted were conducted to state-of-the-art normal-slip fault paleoseismic investigation standards of practice. Much of what has been learned through the years regarding how to investigate normal faults and the use of varying dating techniques to constrain earthquake timing have been developed in Utah. So, we've gotten better with practice.

Outreach to Business/Government

Administering Agency	Washington Department of Natural Resources, Division of Geology and Earth Resources, Geologic Hazards Program
Program Name	Washington Decision Makers Field Conference
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Program Summary

The initial Decision Maker Field Conference was held on September 17, 2005 by the Washington Department of Natural Resources, Division of Geology and Earth Resources, Geological Hazards Program (DGER). DGER held a one-day field conference for legislators and other local decision-makers. The field trip was an opportunity to learn first-hand about natural hazards and their impacts on people, economic development, and transportation. In an informal outdoor setting, speakers presented the latest information on understanding and mitigating geologic disasters. Since the conference was field-oriented, participants visited sites that are the focus of concern. The field-trip format stimulated onsite debates about public policy, strategies for growth, funding for geologic hazard work, and methods for solving problems.

The first stop was Timberlake Park on Lake Sammamish to view earthquake-induced landslides and evidence for a major earthquake along the Seattle fault. During this stop, Tim Walsh of DGER gave an introduction on what risk is and how it is mitigated. Brian Sherrod of the USGS described his research on the Seattle fault, which has documented evidence of faulting and the size and extent of the fault. Tim Nogler, Director of the Building Codes Council, gave a presentation on seismic hazards and how they affect building codes.

At Carkeek Park, Walsh set the stage by talking about the unstable bluffs north of the park, where hundreds of debris flows blocked a critical rail corridor in January of 1997. Bill Laprade of Shannon & Wilson described bluff stratigraphy and causes of the debris flows. He explained that, even with the engineered works along this important rail line, prevention is uncertain. Hugh Shipman of the Shorelands Division of the Washington State Department of Ecology gave an overview of landsliding in Puget Sound and the broader shoreline management picture. While the bluffs are a geological hazard, there are also environmental issues that must be considered. Shipman said there should be an emphasis on avoiding hazards rather than mitigating or controlling them and recommended educational work with communities and property owners. The Department of Ecology looks to agencies such as DGER and the USGS for mapping and technical guidance. With the emergence of LiDAR and new geologic mapping, there is a critical need for updated slide mapping.

The final stop was at the Don Armeni Boat Launch in West Seattle. It provided a spectacular view of Seattle, Elliott Bay, the lower Duwamish Waterway, Harbor Island, Magnolia, Mount Rainier, and landslides along Harbor Drive. The presentations centered on our vulnerability to hazards from the Seattle fault, tsunamis, and eruptions of Mount Rainier. Tim Walsh led off by describing what would happen if there were an earthquake along the Seattle fault. He vividly described the liquefaction that would occur and the tsunami that would roll Harbor Island and described what would happen if there were a large lahar from Mount Rainier today. George Crawford of the Washington State Emergency Management Division (EMD)

explained the warning systems in place for tsunamis and Mount Rainier lahars. Jon Koloski of GeoEngineers, Inc., talked about deep-seated landslides in western Washington, using examples from Aldercrest in Cowlitz County and Carlyon Beach in Thurston County.

State Geologist Ron Teissere closed with a presentation on how cities and counties use geoscience information for land-use planning under the Growth Management Act and how emergency managers can use geoscience information for preparedness and mitigation planning, to guide response efforts, and to aid in recovery planning. He explained how DGER plays a key role in all of the above and needs funding to be restored to continue that role. Participants left knowing that Washington State: has the second largest population at risk from earthquakes in the nation; has experienced earthquakes, tsunamis, landslides, and volcanic eruptions large enough to be catastrophic to the state's people and economy should they recur without the proper geological, land-use, and emergency management planning; and has suffered at least 20 damaging earthquakes during the past 125 years, the most recent of which caused billions of dollars in damage.

How long has the program been operational?

Since September 2005

What are the major purposes of the program? What problem(s) or issue(s) was it designed to address?

The Decision-Makers Field Conference allows participants to learn first-hand, in an outdoor setting, about earthquakes, their effects on our lives, buildings and their potential impacts on our safety, commerce, economic development, and transportation.

The Division of Geology and Earth Resources, Geological Hazards Program discusses measures that make our communities and infrastructure more disaster resistant. They demonstrate how preparation and mitigation can aid in faster economic recovery for the state so that business is not permanently lost.

Describe the specific activities and operations of the program.

Throughout the conference there are scheduled field stops where technical experts give succinct presentations and answer questions about geological hazards. Usually there is a lively discussion following each presentation.

Does the program take a new and creative approach or method?

The Decision-Makers Field Conference differs substantially from other conferences in that it:

- Provides a hands-on look at current issues in a field setting (rather than in a lecture hall) that stimulates onsite debates about public policy, strategies for growth, and methods for solving problems.

- Is designed to inform. The speakers are recruited for their expertise and ability to communicate with technical and non-technical audiences.

- Gathers a balanced group of influential leaders composed of elected officials, government agency officials, business leaders, and educators.

What were the program's start-up costs and source(s) of funding? Annual operational costs and source(s) of funding?

Start-up Costs: $10,000
Source: State Funds
Annual Budget: $5,000
Source: State Funds

How many employees worked on the program?

No full-time employees worked on this program.

To the best of your knowledge did the program originate in your state?
Yes. The focus of the Decision Maker Conferences has been on Geological Hazards with an emphasis on earthquakes and seismic safety. Certain field trips have been used to inform people but not at the level that the Division of Geology and Earth Resources, Geological Hazards Program does.

Are you aware of similar programs in other states?
No.

Has the program been fully implemented?
Yes.

Is there evidence that the program has been effective in achieving its stated purpose?
The program has been effective as it has resulted in wide recognition, legislation and positive funding for the Washington Geological Survey hazards program and partner agencies, such as the Emergency Management Division and the Pacific Northwest Seismic Network.

The feedback from people that have attended the Field Conference, which was developed and implemented by Division of Geology and Earth Resources, Geological Hazards Program, has always been extremely positive. The outcomes of the first conference were that participants left knowing that Washington State:

- has the second largest population at risk from earthquakes in the nation
- has experienced earthquakes, tsunamis, landslides, and volcanic eruptions large enough to be catastrophic to the state's people and economy should they recur without the proper geological, land-use, and emergency management planning
- has suffered at least 20 damaging earthquakes during the past 125 years, the most recent of which caused billions of dollars in damage
- has a coast at risk from a devastating tsunami that could cause thousands of deaths
- has inadequate funding to do the jobs that need to be done.

As a result of the trip, several legislators have become interested in geological hazards.

How has the program changed since its inception? What limitations or obstacles might other states expect to encounter if they adopt the program?
The program has not changed substantially since 2005, other than the participants have visited different areas of Washington to use as examples during the field conference. The biggest limitation of course is funding and getting legislators and staff to sign up for the conference; however, to date, the program has been very successful.

Overall Award in Excellence for Mitigation

Administering Agency	Kodiak Island Borough
Program Name	Kodiak Island Borough School Seismic Hazard Mitigation Program
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Program Summary

The program being nominated is the community-wide effort of the Kodiak Island Borough of Alaska, to assess the seismic risk of the Borough's public schools and then, on the basis of that assessment, perform needed seismic retrofit construction. Kodiak - as a community - is nominated for the annual WSSPC award in mitigation because there was a unique community wide "ground swell" commitment to take action on public school structural seismic safety. Throughout the five year project, unanticipated costs and challenges arose, yet the community sustained their commitment to this project. Kodiak stands as a "showcase" example of what a community can do when they come together and make a commitment to long term structural seismic safety.

The Kodiak Island Borough (KIB) is a regional government in Alaska with a jurisdictional area of 12,024 square miles, of which, 6,560 square miles is land and 5,464 square miles (45.44%) is water, encompassing the entire Kodiak Island Archipelago and a portion of the Alaska Peninsula. All recognized communities are located in the Kodiak Island Archipelago and these communities are geographically isolated from the rest of the state and the road system connection to Anchorage, Fairbanks and the bulk of the state's population.

In 2000 through 2003 a loosely coordinated campaign of local seismic experts, concerned citizens and Kodiak community officials worked to raise awareness of structural seismic safety issues in Kodiak. As a result of efforts using the local news media, citizen campaigns, educational presentations and public meetings the community recognized that the entire Borough was in a historic seismic hazard zone. This awareness effort generated serious public interest in evaluating the seismic safety of school facilities which are used daily by hundreds for education and also serve as community disaster shelters. In 2004, through a public general obligation bond, the Kodiak Island Borough funded a seismic risk assessment for existing public school structures. With the results of the assessment in hand, the Borough and the community prioritized school structural earthquake safety in local funding decisions. The community continued to capitalize on local seismic experts and local media to communicate the need for long term seismic safety construction. The community publicized Kodiak's seismic history through first hand accounts and a documentary. A community consensus developed around structural school seismic safety that produced a commitment to move forward with identified retrofit projects.

Concurrent with the school building seismic risk assessment program, the Borough applied through the State and received funding from FEMA for a pre-disaster mitigation (PDM) planning grant to develop a Borough-wide hazard mitigation plan. The Borough recognized early that this planning effort,

with the accompanying risk assessment and mitigation strategies, would be needed to support the education and outreach needed for any seismic retrofit projects and would also be required to seek future federal and state mitigation project funding.

As the assessment was completed, the Borough recognized the need for additional funding to make the needed retrofits identified in the risk assessment. In 2005-2006 the Borough, through the State, aggressively pursued and received several different hazard mitigation grants to fund the retrofits. The State Division of Homeland Security and Emergency Management mitigation team, recognizing the importance of these school projects, prioritized the Kodiak applications for funding and worked with the Borough to enhance their applications. The result was substantial funding for the projects in a short time frame using a combination of Borough, State and FEMA funds through the Pre-Disaster Mitigation (PDM) and Hazard Mitigation Grant (HMGP) programs. The Borough also received funding through direct State legislative appropriation for some of the projects.

The successful school seismic retrofit projects in Kodiak demonstrate what a community can accomplish when an educated and concerned public is complemented with a properly funded systematic seismic engineering risk assessment. This collaborative effort of the Borough citizens and staff, in conjunction with State support and Federal funding is a model for addressing community level school seismic structural safety. This effort not only resulted in schools that are safer but enhanced community awareness of seismic safety.

How long has the program been operational?

Since November 2004

What are the major purposes of the program? What problem(s) or issue(s) was it designed to address?

This program is designed to address the structural seismic safety of the public schools in the Kodiak Island Borough. The program also, as an additional benefit, promoted public education and awareness of seismic safety in an area that has a significant seismic hazard and that has experienced historic fatalities from seismic events.

The first part of the program was the seismic structural assessment of the Borough's schools.
One of the challenges this project faced was that the Borough has over thirty distinct school facilities that had to be assessed for seismic structural hazard. Many of these buildings were more than thirty-five years old and had been modified over time. There was very little institutional knowledge within the Borough government about the construction standards, building materials and methods that were applicable to each facility and facility addition.

One goal of the assessment was to establish a complete building plan database featuring digitized floor plan images in an organized archive developed to facilitate easy plan dissemination and retrieval. As a result of this early effort, the sum of all Borough school building plans was distributed to qualified consultants who did the seismic risk assessments. The seismic risk assessment identified substantial school building risks in correlation with historical and statistical seismic activity. The risk assessment also provided benefit / cost analysis and a ranking of vulnerabilities to facilitate subsequent FEMA and State of Alaska mitigation project grant funding.

Describe the specific activities and operations of the program.

An informal coalition of concerned community members and government officials lobbied the Kodiak Island Borough Assembly in 2003 to place a bond issue on the ballot for a seismic risk assessment of all Kodiak School District facilities.

The coalition educated the public about the need for the assessment prior to the April 20, 2004 special election.

The Borough hired qualified staff in November 2004 to research and inventory all building plans relating to the Kodiak Island Borough School District facilities and engaged qualified consultants to evaluate the facility plans and make site visits to all facilities.

Concurrent with the seismic risk assessment of the school facilities, the Borough applied for and received a hazard mitigation planning grant (PDM) to complement the risk assessment and provide an overall survey of the Borough's hazards, risks and potential mitigation strategies. The mitigation planning effort included community surveys and public meetings about hazards and mitigation. Approval of the completed plan by the State and FEMA made Kodiak eligible for mitigation grant funding.

When the schools assessment was completed, additional research to develop a scope of work and cost-benefit analysis was done on the schools needing structural retrofits. This allowed the Borough to systematically prioritize the retrofit projects and apply for grant funding to complete them. A combination of FEMA and State grants, direct legislative appropriations and local funds funded the retrofit projects.

Project	**Grant #**	**Grant Amount $**	**Total Project Cost $**	**Project Schedule Complete**
Kodiak Middle School Seismic Upgrade[1]:			5,972,487	Scheduled. 2009
Phase I			2,904,759	Completed. 2007
Phase IIa	PDM-C		2,029,432	Completed. 2008
Phase IIb	06-PDM-GR34015	1,251,510	1,151,804	Scheduled. 2009
Ouzinkie Community School Seismic Upgrade[2]	HMGP 1571.0009	301,318	311,921	Completed 2008
East Elementary School Windows Upgrade	HMGP 1618.0002	134,917	134,917	Scheduled. 2009
Kodiak High School Library Wing Seismic Upgrade	HMGP 1584.0003	455,508	636,391	Completed. 2008
Peterson Elementary School Seismic Upgrade	HMGP 1663.0007	540,508	714,454	Completed. 2008
Kodiak Island Borough School District Nonstructural MEP Strapping	HMGP 1663.0002	132,249	132,249	Scheduled. 2009
Kodiak Island Borough Nonstructural Bracing	HMGP 1663.0009	75,490	75,490	Scheduled. 2009
Fire Sprinkler Seismic Upgrade	HMGP 1657.0003	48,656	48,656	Scheduled. 2009
Total Completed to date:			6,596,957	Completed
Total Scheduled for 2009:			1,543,116	Scheduled
Grant Totals		2,940,156	8,140,073	Total

[1] Original project scope included roofing renovation and flooring replacement and was further expanded to include new PVC roof and insulation, asbestos abatement, floor leveling, lighting upgrade, UPS and HVAC upgrade and communication cabling upgrade. Additional funding for the project came from a $910,000 legislative grant, $390,000 energy grant and bond fund interest.

[2] This project was contracted in conjunction with an ongoing renovation and gym addition bond project. The seismic scope was completed without major cost overages. The remaining scope was subsequently expanded to include asbestos abatement, generator and boiler replacement, and new code required fire suppression system and fire pump.

Does the program take a new and creative approach or method?

What is unique about this structural seismic retrofit project for the Kodiak Island Borough public schools is the community-wide dedication to this seismic hazard mitigation project. The Borough stands as an example of how a community can band together to increase their community's seismic safety – even when the cost is significant.

In this case the Borough initiated a local community seismic survey of their public schools. This survey was funded through local bond funds. The community held public meetings and developed a community support consensus around the structural engineer's report that identified several of their schools as needing structural seismic retrofits. The community used local, State and Federal funds through a combination of programs to fund the retrofits and withstood substantial unanticipated cost increases due to the price of fuel and construction materials.

While there was some recognition that older school structures (and other critical facilities) were not constructed to the latest building standards it was generally accepted that these building would eventually be updated to the higher standards over time as buildings were slowly replaced. In fact, the program discovered that many of the older portions of existing school structures were merely remodeled to tie in aesthetically with newer facility additions. In this process, the original structures themselves remained relatively unchanged from an engineering perspective and their seismic safety was not enhanced.

Once the risks were determined and publicly considered by the Borough Assembly, the community made these projects the highest priority assignment for staff to address. This meant deviating from previously planned work programs in other areas in order to bring the maximum amount of human and financial resources to bear on the resolution of these identified seismic deficiencies. Where "in-house" staff was not available or not qualified to assist in these efforts a considerable amount of work was contracted with other qualified consultants and project managers.

The ability and willingness of the Kodiak Island Borough to flexibly change its priorities in order to meet the challenges identified in the seismic risk assessment of the studied school facilities was an innovative necessity for the community once the extent of seismic risk vulnerability became known. Much of the credit in this regard goes to the consultants responsible for preparing the seismic risk assessment. With the data they collected and analyzed and their ability to summarize the findings in a relatively non-technical manner, the case for taking immediate action was clear.

The Borough had a great deal of assistance from its consultants and also from the State of Alaska, Division of Homeland Security and Emergency Management earthquake program and mitigation staff in identifying and encouraging the Borough's pursuit of all available grant and funding resources. These resources included a mix of general funds, State and Federal Hazard Mitigation grants and State Legislative appropriations. This effort allowed the Borough to accomplish this project in a very short time that was responsive to the level of community concern.

Because funding was acquired to do the projects quickly, the projects were accelerated to allow for school construction to be done during the summer months when school was not in session.

What were the program's start-up costs and source(s) of funding? Annual operational costs and source(s) of funding?

Budget: $500,000
Source: General Obligation Bond approved by special election on April 20, 2004.
Budget: $ 55,000
Source: FEMA Hazard Mitigation Planning Grant $43,000 (Grant)
Kodiak Island Borough $12,000 (Match)

How many employees worked on the program?
Borough Staff

To the best of your knowledge did the program originate in your state?
Yes.

Are you aware of similar programs in other states?
Yes.

Has the program been fully implemented?
Yes. The program is fully implemented although some projects identified by the initial program effort are yet to be done.

Is there evidence that the program has been effective in achieving its stated purpose?
The program has evaluated all of the Borough's school facilities and established a priority list of needed seismic retrofits. Because of the engineering and seismic work that went into the assessment, the process of applying for grants was much easier to justify under the granting criteria. In addition, the Borough was able to link the seismic projects with other needed building maintenance projects. This helped to create a better economy of scale for several of the projects. This is an exceptionally critical item when contemplating major construction of public facilities in isolated coastal communities around the Kodiak Island Archipelago.

In only three years the Kodiak Island Borough has completed or substantially started eight major seismic retrofit projects and obtained considerable outside funding assistance. This was possible in large part due to the school facility seismic risk assessment program. These funding grants would not have been possible without the adoption of the Kodiak Island Borough Hazard Mitigation Plan. Another demonstrable benchmark of the improvements resulting from this program is the ratio of building upgrade square footage to the number of students served by those facilities.

The outreach and educational component of both the hazard mitigation planning process and the seismic upgrade construction program required more "in-kind" contribution on the part of Borough staff than was initially anticipated. The results however have been worth the effort as the outlying communities, in particular, have become much more aware of their seismic (and all hazards) risk factors and their application to critical community facilities and infrastructure.

How has the program changed since its inception? What limitations or obstacles might other states expect to encounter if they adopt the program?
The Borough initiated the school facility seismic risk assessment program without a clear idea what the outcome of the risk assessment would be. Prior to the study, little thought was given to the manner in which any seismic deficiencies would be corrected and resolved. Borough staff did understand that the Borough would not be eligible for FEMA and HMGP project grants unless the Borough had a hazard mitigation plan adopted and in place.

What started out as a largely engineering analysis exercise however, turned into a major construction program once the need for seismic retrofitting various school facilities was fully enumerated. Once the results of the assessment study were delivered to the Assembly and became public knowledge there was never any doubt that the Borough would need to move quickly and decisively to address the concerns raised by the assessment. It is perhaps notable that the Borough chose to construct the retrofits to a more stringent code, the recently adopted 2006 IBC. In addition construction costs, material costs and labor costs continued to rise during construction.

Other states would be wise to allow adequate time for grant submittals given that FEMA has a multi-function mission and reviewing and awarding grants is a low priority. Prepare to be flexible in planning for projects. Keep in close touch with the state agency staff responsible for the grants and establish a good working rapport before, during and after the establishment of a seismic assessment program.