

## **CASE HISTORY ON THE OREGON GO BOND TASK FORCE: PROMOTING EARTHQUAKE SAFETY IN PUBLIC SCHOOLS AND EMERGENCY FACILITIES**

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### **ABSTRACT**

Promoting earthquake safety is neither a short nor easy task. Scientists, policy makers, and citizens of Oregon have joined forces the past three legislative sessions to develop long-term programs designed to increase seismic safety for schools and emergency facilities. Two key components in establishing these programs are the Oregon State Senator Peter Courtney, who championed legislation requiring all public schools and emergency facilities to have life safety standards and the citizens of Oregon, who voted to change the Oregon Constitution Articles, which now allow state general obligation (GO) bonds to pay for earthquake rehabilitation of schools and emergency facilities. Scientific advances in understanding that a Cascadia subduction zone earthquake is imminent in geologic time have prompted the Oregon Department of Geology and Mineral Industries (DOGAMI) and the Oregon Seismic Safety Policy Advisory Commission (OSSPAC) to develop sound public policies to forward the goal of mitigation of statewide risks. Funding from FEMA (both NEHRP and Pre-Disaster Mitigation program) was used to create the Oregon GO Bond Task Force and facilitate a dialog among a wide diversity of stakeholders in late 2004. Three concepts were developed:

- 1) Performing a statewide needs assessment for all schools and emergency facilities,
- 2) Formation of a temporary committee to establish a new state grant program to distribute earthquake rehabilitation grants using state bond funds, and
- 3) Issue of state bond funds through the newly established grant program to state and local communities for the rehabilitation of fire stations, police stations and hospitals and high occupancy school buildings.

Senator Peter Courtney formulated these concepts into legislation, which successfully passed and formed into new laws in August 2005. These laws lay out a framework for a highly effective long term mitigation plan for Oregon's public schools and emergency facilities. They are a significant step forward from pre-disaster planning to actual evaluation and mitigation.

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## Introduction

A basic understanding that Oregon is in an active area of seismicity has evolved in the past two decades. It is widely accepted that the Cascadia Subduction Zone is likely to trigger a large magnitude earthquake that will shake the Pacific Northwest, including western Oregon for over five minutes. Shaking from Cascadia as well as crustal faults, such as the Portland Hills, Corvallis, and Klamath Falls faults, will cause damage to many communities and infrastructure. The projected damage is largely due to Oregon's relatively recent adoption of a statewide building code in 1974. Furthermore, the building code was only recently (1993) upgraded to include earthquake loading in the building design. Figure 1 shows the construction ages of the kindergarten to high school buildings, with most schools constructed before there was a statewide building code.

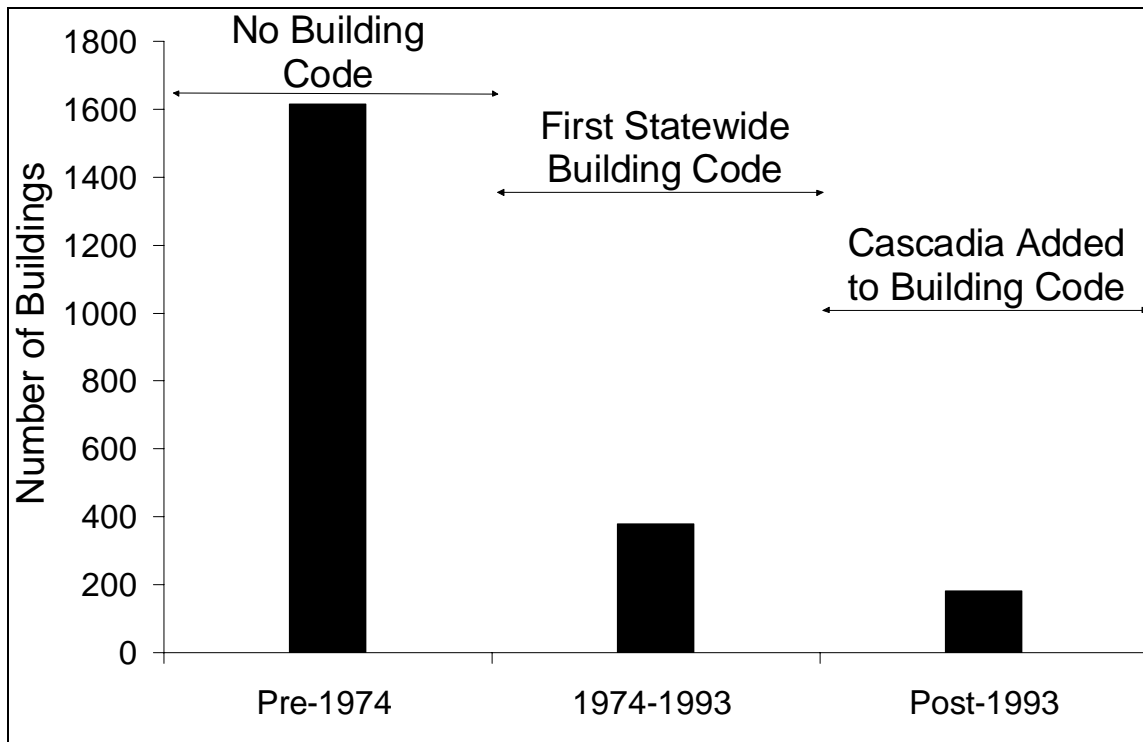


Figure 1. This graph depicts the number of kindergarten to high school buildings with the construction ages. It shows the vast majority of the schools were constructed before the first statewide building code was enacted in 1974 (data from the Oregon Department of Education, 2005, [www.ode.state.or.us](http://www.ode.state.or.us)).

The potential number of buildings, including schools and emergency facilities, that have been constructed to significantly lower seismic design standards than what is considered prudent by structural engineers is considered to be substantial. Consequently, hundreds of Oregon's public schools and emergency facilities may be at high-risk of collapse from earthquake shaking. Many thousands of school children and Oregonians are vulnerable to injury and fatality. To reduce this unacceptable risk, the state is trying to protect vulnerable communities and

populations before the next disaster strikes. Since 2000, Senator Peter Courtney, the Department of Geology and Mineral Industries (DOGAMI), and the Oregon Seismic Safety Policy Advisory Commission (OSSPAC) have considered the many seismic risks with key stakeholders and brought the problem to voters statewide. In a partnership effort, we have developed public policies to identify and provide financial assistance to all high-risk schools and emergency facilities.

### **History of Seismic Safety Laws**

In 2000, Senator Peter Courtney joined OSSPAC as a member Legislator. The Commission facilitated the crafting of earthquake safety legislative concepts. In the 2001 Legislature, Senator Courtney authored five successful earthquake safety bills, which quickly defined him as the leading earthquake safety champion (Figure 2). During the session, Senator Courtney earned nicknames such as “the earthquake kid,” “Number 9,” and “Q9” (Q is short for quake). A combination of his concern about citizens, his political astuteness, and his successes with fellow legislators and legislation eventually earned him the Senate Presidency in 2005.

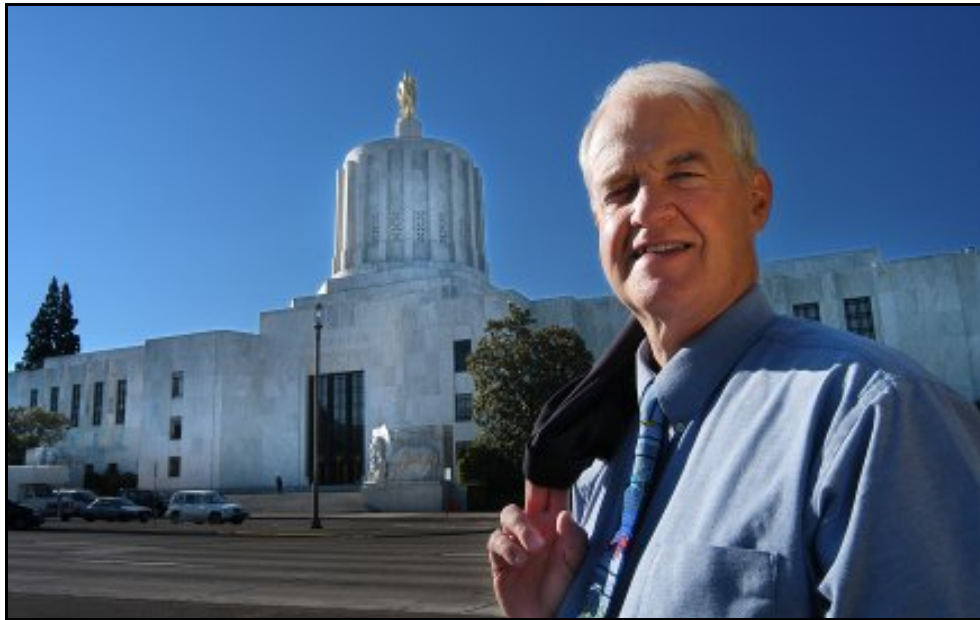


Figure 2: Senate President Peter Courtney outside the Capitol (Senate President Office, 2005).

In 2001, several earthquake related bills became state laws, as detailed in Olshansky (2005). In short, Oregon Revised Statute (ORS) 455.400 mandates that public school buildings with greater than 250 occupants and fire, police and hospitals have life safety standards in major earthquakes. ORS 455.400 requires that these public school buildings and emergency facilities to be "screened" using FEMA rapid visual screening methods for seismic vulnerability by January 1, 2007. High-risk buildings are required to be eventually mitigated ([www.leg.state.or.us/ors/455.html](http://www.leg.state.or.us/ors/455.html)).

Two of the bills became ballot measures in the 2002 statewide election. The ballot

measures, both which were easily passed by the voters, changed the Oregon Constitution to allow the State to issue earthquake safety general obligation (GO) bonds (see Table 1).

Table 1. Constitution Articles XI-M and XI-N allow for state general obligation (GO) bonds to pay for earthquake mitigation (Oregon State Legislative Website).

<p style="text-align: center;"><b>ARTICLE XI-M</b></p> <p style="text-align: center;"><b>SEISMIC REHABILITATION OF PUBLIC EDUCATION BUILDINGS</b></p> <p>Sec. 1. State empowered to lend credit for seismic rehabilitation of public education buildings</p> <ol style="list-style-type: none"><li>2. Sources of repayment</li><li>3. Refunding bonds</li><li>4. Legislation to effectuate Article</li><li>5. Relationship to conflicting provisions of Constitution</li></ol> <p>Note: Article XI-M was designated as "Article XI-L" by S.J.R. 21, 2001, and adopted by the people Nov. 5, 2002.</p> <p style="text-align: center;"><b>ARTICLE XI-N</b></p> <p style="text-align: center;"><b>SEISMIC REHABILITATION OF EMERGENCY SERVICES BUILDINGS</b></p> <p>Sec. 1. State empowered to lend credit for seismic rehabilitation of emergency services buildings; bonds</p> <ol style="list-style-type: none"><li>2. Sources of repayment</li><li>3. Refunding bonds</li><li>4. Legislation to effectuate Article</li><li>5. Relationship to conflicting provisions of Constitution</li></ol> <p>Note: Article XI-N was designated as "Article XI-L" by S.J.R. 22, 2001, and adopted by the people Nov. 5, 2002.</p>
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### **2004 GO Bond Task Force**

Several years passed where the progress was slow to meet the new earthquake safety laws. Except for the public universities, the rapid visual screenings were not being performed and the state did not issue earthquake safety bond funds. Following the 2003 Legislature, the Oregon Department of Geology and Mineral Industries (DOGAMI) was assisted by Oregon Emergency Management (OEM) to seek federal funds to help the state meet ORS 455.400. In 2004, FEMA Pre-Disaster Mitigation grant funds were obtained to organize a task force, which lead to the creation of the 2004 GO Bond Task Force.

## Diverse Range of Stakeholders

In Fall 2004, DOGAMI invited a diverse range of stakeholders to join a temporary task force aimed to provide legislative concepts for the 2005 Legislature. The GO Bond Task Force members included those well informed on earthquake hazards and risk, such as members from the Oregon Seismic Safety Policy Advisory Commission (OSSPAC), those who have immediate responsibilities on schools and emergency facilities, and experts on public policy making, including lobbyists. Some of the GO Bond Task Force members had already identified high-risk facilities that required seismic upgrades and were seeking GO bond funds to conduct rehabilitation. The GO Bond Task Force members and stakeholder participants are listed on Table 2 (without a specific order to the listing).

Table 2. GO Bond Task Force members and stakeholder participants.

Oregon Senate President Peter Courtney & staff	Oregon Community Colleges Association
Oregon Legislative Fiscal	Representatives from Individual Oregon Community Colleges
Oregon Legislative Counsel	Oregon Fire Chiefs Association
Oregon Seismic Safety Policy Advisory Commission	Oregon State Fire Fighters Council
Oregon Department of Geology and Mineral Industries	Oregon Department of Administrative Services (DAS)
Oregon Emergency Management	Oregon Natural Hazards Workshop
Local Emergency Management departments	Engineering Faculty from Portland State University
American Red Cross	Various other stakeholders, Businesses and Public at Large
Oregon Department of Education	Oregon Emergency Management
Division of Health Services	League of Oregon Cities
Representatives from Individual Oregon Fire Districts	City of Portland
Representatives from Structural Engineering	City of Salem
Association of Oregon Hospitals	City of Mt. Angel
City of Berkeley, California (invited speaker)	Associated General Contractors Oregon
United States Geological Survey (invited speaker)	Oregon Department of Transportation
California Division of the State Architect (invited speaker)	Oregon Department of Land Conservation and Development
Oregon University System	Portland Metro Association of Buildings
Oregon School Boards Association	Portland Public Schools
Dept. of Community Colleges & Workforce Development	Oregon Association of Hospitals and Health Systems
Federal Emergency Management Agency	Oregon Association Chiefs of Police
Oregon Sheriff's Association	

## Education on State of Risk

The meetings, which were held in the Capitol, included discussion on the local seismic hazard and risk, the intent of the earthquake safety laws enacted in 2001, and any progress that had been made on fulfilling the laws. Expert council was provided on earthquake risks by the Craig Weaver from the U.S. Geological Survey, on school mitigation at a local level by Arrietta Chakos from the City of Berkeley, and statewide school mitigation in California by Dennis Bellet from the California Division of State Architects. Damage and loss estimates for the state of Oregon (Wang and Clark 1999) and projected mitigation costs to identify and mitigate high-risk schools and emergency facilities (Wang 2005) were provided. (We note that recent preliminary estimates on a great Cascadia earthquake that include the 2000 census data suggest building losses on the order of three times higher than the earlier (1999) estimates).

## **Birth of Three Concepts**

The GO Bond Task Force shared a diverse range of lively ideas and opinions. Two clear messages that were expressed by Task Force and participants were 1) the lack of knowledge of which buildings are seismically vulnerable, and 2) the state should provide financial assistance to meet ORS 455.400. The Task Force developed a plan that focused on three concepts during their three meetings. In December 2004, on behalf of the Task Force, DOGAMI provided Senate President Peter Courtney and his staff with a final three-concept plan. The plan proposed legislative concepts to conduct 1) the needs assessment, 2) start a grant program, and 3) authorize the government obligation bonds. At this point, DOGAMI transferred the lead responsibilities of the GO Bond Task Force to OSSPAC.

1) Needs Assessment: The objective is to determine the school and emergency buildings that are potentially at high or low risk and therefore potentially require structural rehabilitation. A Needs Assessment could be achieved by conducting rapid visual screenings on community colleges, K-12 and emergency facilities (fire, police and hospitals) with a preliminary findings report completed by January 1, 2007 (ORS 455.400 deadline). We estimated that this could be conducted for \$1.3 million.

2) Grant Program: The objective is to develop a Grant Program by January 1, 2007 to appropriate GO Bond funds through for earthquake rehabilitation in schools and emergency facilities. A Grant Committee could be formed to develop the terms of a new Grant Program. By early 2007, the Grant Program should be established, applications could be submitted, GO bonds should be issued and structural rehabilitation can proceed to successful applicants. This committee could exist within the Oregon Seismic Safety and Policy Advisory Commission (OSSPAC). We estimated that this grant program could be constructed for \$200,000.

3) Authorize and Appropriate GO Bonds in 2005-07 Session: The objective is to provide stable, long term state funds to help meet ORS 455.400 requirements on earthquake safety in communities. The Department of Administrative Services would determine the allowable state debt capacity and repayment terms. The Department of Treasury would issue GO Bonds for an estimated \$700 million to \$1 billion.

## **2005 Legislation is Introduced and Supported**

Senator Courtney considered the three concepts, then modified and drafted them into legislation that were presented in the 2005 Legislature as Senate Bills 2, 3, 4 and 5. Throughout the following months, the four senate bills were discussed at many legislative venues including hearings, work sessions and committee meetings in both the Senate and House.

## **Advocacy: OSSPAC Briefing Sheet, Public Education Poster and Testimonials**

This suite of bills was ushered to various Legislative committees during the Session. Not surprisingly, during the course of the Legislature, a number of revisions were made to the original bills. Due to political differences (unrelated to these bills), the Joint (Senate and House)

Ways and Means Committee was divided into separate Senate and House committees. This split made the already difficult to follow legislative process even more difficult. Nonetheless, to advocate the importance of the bills, a briefing sheet on how to support the bills (Figure 3) and public education on school seismic safety was shared. OSSPAC and GO Bond Task Force members provided verbal and written testimonials at selected hearings. In the end, these efforts helped to support the bills to successful passage.

### **2005 Senate Bills Signed into Law**

In the very early morning hours of August 5, 2005, which was the last day of the 73rd Legislative Assembly, all four bills were voted on and passed! Within the following weeks, Governor Ted Kulongoski signed the bills into law. In summary, the passage of the 2005 Senate Bill 2 provided limited funding to DOGAMI to address the ORS 455.400 requirements and conduct a needs assessments to determine the potentially highest risk facilities. SB 2 extended the deadline to July 1, 2007 and DOGAMI was appropriated \$500,000, which is historically a considerable appropriation for this small agency. Senate Bill 3 requires OEM to setup the grant program with no funding. Senate Bills 4 and 5 refer to the issuance of the GO Bonds in early 2007. The GO Bond parameters will be determined by DAS and integrated into the 2007-09 Governor's bonds budget.

The passage of these bills is a landmark step in pre-disaster mitigation for Oregon's public schools and emergency facilities. These new public policies mark the beginning of a systematic, statewide needs assessment and will shortly transition into actual mitigation. The needs assessment will provide information on which buildings pose the highest risk to students and communities. The grant funds will assist local authorities to rehabilitate the highest risk structures, which will reduce the losses from future inevitable earthquakes in Oregon.

### **Benefits of Legislative Failures**

As with many things in life, and especially in politics, there is no crystal ball. It was not clear if bills would be written, let alone pass. However, assuming that the bills had not passed, the exercise in promoting seismic safety could be considered as very successful. Looking at the "big picture," a diverse partnership was developed (the GO Bond Task Force), a problem statement was agreed upon (the State should assist unsafe schools and emergency facilities), a clear and concise plan was developed (the three concepts that later framed the Senate Bills), and most importantly, relationships with public policy leaders who helped champion the seismic safety bills was established. So, had the bills not passed, Oregon would still have public policy concepts ready to resurrect when windows of opportunities were presented.

<h2 style="text-align: center;">Safe Communities and Schools Preparing for Earthquakes</h2> <p><b>Senate Bills 2, 3, 4 and 5</b>, currently under consideration by the Oregon Legislature, would assist Oregon communities and schools to be safe in earthquakes (Oregon Revised Statutes 455.400 requirements). Currently, <u>fire, police, hospitals and public schools</u> are required to be safe during earthquakes. Unfortunately, hundreds of these buildings were not built to withstand earthquake shaking and will be <u>severely damaged</u>.</p> <p>In 2002, Oregonians voted to approve state bond funds to help fix the most vulnerable buildings. Senate Bills 2, 3, 4 and 5 would <u>identify the highest risk buildings</u>, and carefully allocate state bond funds to <u>help the worst communities and schools</u> in a most cost-effective manner.</p> <p>Fire, police, and hospitals are important to have operating during emergencies to respond to problems and help with damage in our communities. In earthquake disasters, schools often function as community gathering centers and provide a sense of normalcy in our lives.</p> <p>Senate Bills 2, 3, 4 and 5 would:</p> <ul style="list-style-type: none"> <li>• Complete a statewide <i>Needs Assessment</i> on kindergarten to high schools, community colleges, and emergency facilities (fire, police and hospitals) by January 1, 2007.</li> <li>• Provide stable, long term state bond funds to improve earthquake safety in communities and public schools.</li> <li>• By January 1, 2007 a Grant Program will be established to allocate state bond funds for earthquake rehabilitation in emergency facilities and schools .</li> </ul> <p><b>How to help:</b></p> <p>Telephone, write, or email your state legislators TODAY and ask them to <u>vote YES on Senate Bills 2, 3, 4 and 5</u>. Your message can be simple and short. You can just say that you are in favor of earthquake safety in communities and schools.</p> <p>For questions, please contact Jim Doane, Chairman of the Oregon Seismic Safety Policy Advisory Commission, at (503) 307-5223.</p>	<h2 style="text-align: center;">How to contact your legislator</h2> <p><b>BY TELEPHONE:</b> Phone 1-800-332-2313, ask for your legislator by name, and leave a message that you would like him or her to support SB 2, 3, 4 and 5: the earthquake safety bills on schools, fire, police and hospitals.</p> <p><b>BY MAIL:</b> Send a short note (it may be typed or handwritten, whichever you prefer) to your legislator, and urge his or her support of SB 2, 3, 4 and 5: the earthquake safety bills on schools, fire, police and hospitals.</p> <p><i>Addressing Senators:</i> The Honorable [FULL NAME] 900 Court Street NE Salem, Oregon 97301</p> <p>Dear Senator [LAST NAME]:</p> <p><i>Addressing Representatives:</i> The Honorable [FULL NAME] 900 Court Street NE Salem, Oregon 97301</p> <p>Dear Representative [LAST NAME]: Letters should close with: "Respectfully," or "Sincerely,"</p> <p><b>BY E-MAIL:</b> Log on to: <a href="http://www.leg.state.or.us">www.leg.state.or.us</a>. Click on "<b>Write Your Legislator</b>" on the right hand side of the page and enter your home address. The web page will automatically connect you with your legislator's e-mail address-you can compose and send your message right there!</p> <hr style="width: 10%; margin: 10px auto;"/> <p><b>IF YOU DON'T KNOW YOUR DISTRICT:</b> Log on to: <a href="http://www.leg.state.or.us">www.leg.state.or.us</a>. Click on "<b>Find Your Legislator</b>" on the right hand side of the page and enter your home address. The web page will automatically generate the names and addresses of your elected officials.</p> <p><b>IF YOU DON'T HAVE A COMPUTER:</b> Call your county elections office. You'll find them in the blue pages of your telephone book under "<b>County Government - Elections Office:</b>" The clerk will be able to give you the names and addresses of your legislators.</p>
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Figure 3. The briefing sheet on Senate Bills 2, 3, 4 and 5 was made available by OSSPAC.

### SB 2 in Action

DOGAMI is developing an advisory group with OEM and an implementation strategy to complete the statewide needs assessment by July 2007. With outside assistance, DOGAMI will "screen" and prioritize all public kindergarten through 12th grade (k-12) school buildings with over 250 occupants and emergency facilities, including police stations, fire stations, and hospitals. Training workshops on the FEMA's Rapid Visual Screening methodology (2002 FEMA 154 RVS method) were offered in October 2005 to help with capacity building of potential screeners. Buildings that are potentially at high risk of collapse will be identified.



Selected stakeholders may be notified of the potential vulnerability through the DOGAMI website. Structural analyses and mitigation will be recommended actions for each of the facilities to pursue on their own. Analyses and mitigation is not a part of this DOGAMI project.

### **“How-To” Advocacy Tips**

Promoting earthquake safety and developing earthquake safety laws requires dedication, persistence, focus, compromises, and diverse partnerships, including high level champions. A wealth of information on advocacy from past experiences is presented by Alesch and others (2004). We lend some advice from our recent experiences: (1) secure long term, permanent mitigation funds, (2) formalize earthquake safety requirements into law, and (3) prioritize on the most critical facilities, such as schools and emergency facilities. One should expect a scarcity of funds and fierce adversaries, as even high priorities issues to fall off the radar screen. Remember to celebrate even small successes, as making even incremental progress is worthwhile. Lastly, no magic formula exists to get a whole lot of important work done. Consider other hard fought battles-- smoking cessation and seatbelts usage—at least we are not up against the tobacco and automobile industries!

### **Conclusions**

A great Cascadia earthquake is 100% guaranteed to occur. Oregon's challenge is to be proactive in developing earthquake safety public policies that will help protect communities. This requires the use of parallel windows of opportunity (e.g., 2004 Sumatra earthquake, 2005 Katrina Hurricane) to make any gains. In Fall 2004, a GO Bond Task Force was created and worked closely with Senate President Peter Courtney to develop legislative concepts. Successful legislation was adopted into new laws in August 2005. The laws will facilitate schools and communities to become better prepared for inevitable future earthquakes on the Cascadia Subduction Zone and on crustal faults. The laws will provide long term, stable state funding to help the highest risk schools and emergency facilities to conduct seismic rehabilitation. In time, Oregon will lower its risk to acceptable level. Lots of work needs to be completed before we can avert disasters. It is a race against time and let us hope we can stay ahead of the next big one.

### **Acknowledgments**

We would like to thank Senate President Peter Courtney for his remarkable vision and leadership to Oregonians. Thanks to Jim Doane, Chairman of the Oregon Seismic Safety Policy Advisory Commission, Dennis Sigrist and Jay Wilson of Oregon Emergency Management, and the GO Bond Task Force members for their dedicated support. This progress would not have been possible without strong support from Elizabeth Lemersal (US Geological Survey, formerly with DHS-FEMA) and Chris Jonientz-Trisler (DHS-FEMA), Arrietta Chakos (City of Berkeley, California) and Tracy Monk (Families for School Seismic Safety, Vancouver, Canada).

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