HB 408

Alaska State Legislature

Member
House Finance Committee

Legislative Budget Subcommittees
University of Alaska
Natural Resources
Environmental Conservation

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Representative John Davies
District 29

SPONSOR STATEMENT

House Bill 408
"An act establishing the Alaska Seismic Hazards Safety Commission"

A Seismic Hazards Safety Commission needs to be established to address the pressing need to provide a consistent policy framework and a means for ongoing coordination of programs and public safety practices related to seismic hazards. Currently this need is not being addressed by any continuing state government organization. The Seismic Hazards Safety Commission would encourage long-term progress toward mitigating the effects of earthquakes.

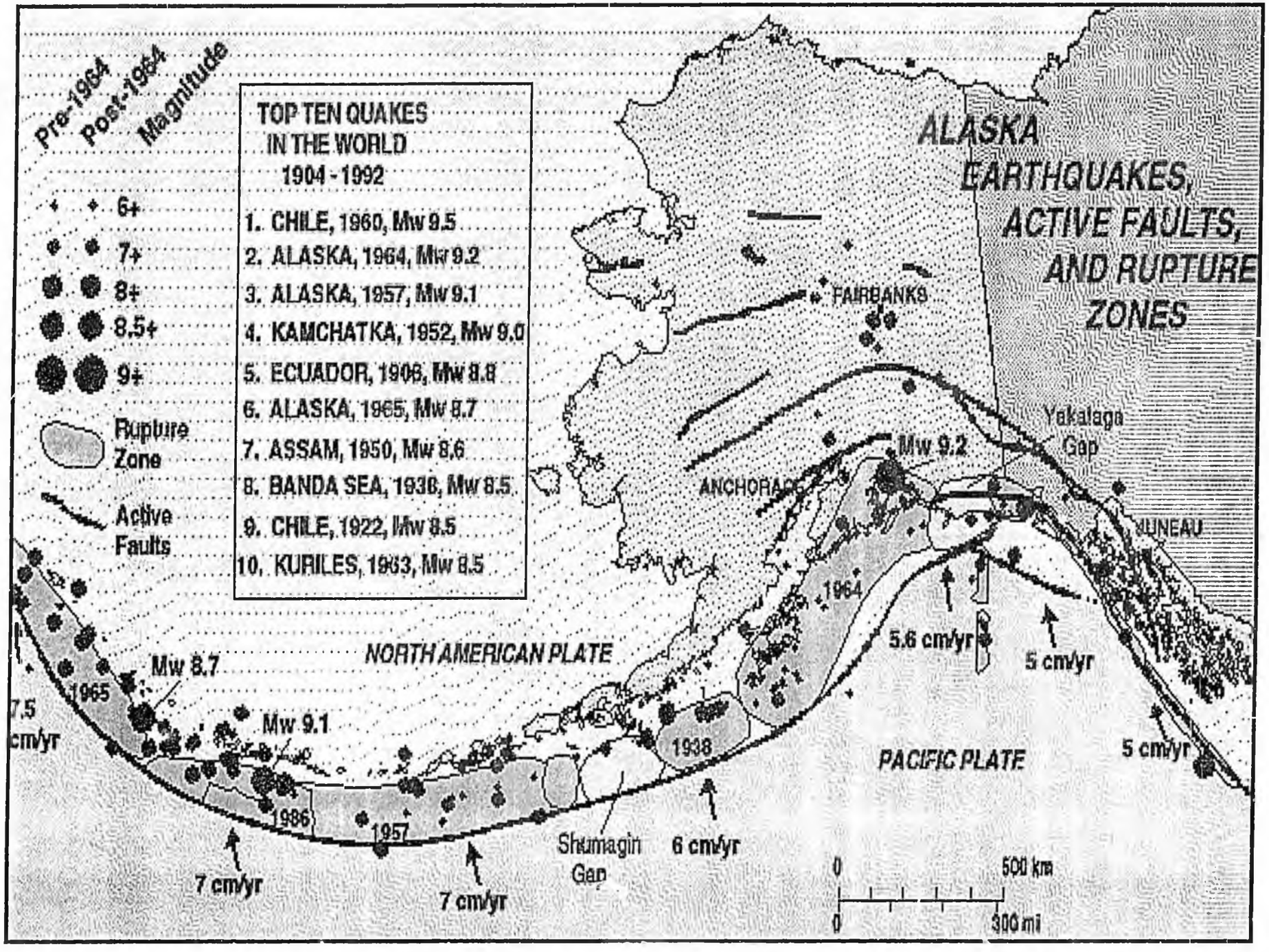
Alaska is on the edge of the Pacific Plate, which acts like a relentless conveyor belt, moving about six centimeters a year. It is inevitable that there will be large earthquakes the only question is when will they occur not if they will occur. Although the state has made great improvements in disaster preparedness there has been little corresponding improvement in measures to reduce the disaster potential of major earthquakes and, consequently, to reduce dependence on disaster relief. Creating a seismic commission patterned after those in California, Oregon, Washington and other states on major fault lines will help address these issues. If you prepare for a major earthquake ahead of time and prepare appropriately, when the earthquake does occur less damage will occur, less lives will be lost and so the cost of recovery obviously will be less.

Through ten years experience as state seismologist I have extensive knowledge in this subject area. I have first hand experience with the difficulty of coordinating earthquake information for the university and state, federal, and municipal governments. Anchorage does have an active geo-tech advisory commission, but the state needs to strengthen that work while broadening efforts throughout the state. A Seismic Safety Hazards Commission can provide that strength.

The scientific community is working hard on earthquake prediction, but it is not yet a reality, except in the most general sense. We can predict in a probabilistic way where earthquakes are likely to occur so we can focus resources in those areas, but in terms of knowing the date and time of the occurrence of earthquakes we will not have that information for some time.

The state needs to mitigate possible effects of earthquakes by encouraging appropriate land use and building design so it can reduce loss of life, and property, as well as the costs of recovery when earthquakes occur. It costs a lot of money to rebuild after a large earthquake and, of course, there is no way to replace lost lives; so it is clearly worth spending some time and money before earthquakes occur to prepare for them. This commission would help us as a state to get better prepared.

Members of the commission would be appointed by the governor to represent the university and governmental agencies, as well as members of the public who are knowledgeable in earthquake hazard mitigation. The commission would recommend to the public and governmental sector goals and priorities for reducing earthquake effects. The commission will accept grant contributions and appropriations from public agencies, private foundations, and individuals. The authorities and responsibilities of other state agencies, boards, councils, commissions or of local governments are not intended to transfer to the Alaska Seismic Hazards Safety Commission.


ALASKA
EARTHQUAKES,
ACTIVE FAULTS,
AND RUPTURE
ZONES
Pre-1964
Post-1964
Magnitude
6+
7+
8+
8.5+
9+
Rupture Zone
Active Faults
TOP TEN QUAKES
IN THE WORLD
1904 - 1992
1. CHILE, 1960, Mw 9.5
2. ALASKA, 1964, Mw 9.2
3. ALASKA, 1957, Mw 9.1
4. KAMCHATKA, 1952, Mw 9.0
5. ECUADOR, 1906, Mw 8.8
6. ALASKA, 1965, Mw 8.7
7. ASSAM, 1950, Mw 8.6
8. BANDA SEA, 1938, Mw 8.5
9. CHILE, 1922, Mw 8.5
10. KURILES, 1963, Mw 8.5
FAIRBANKS
Yakalaga Gap
Mw 9.2
ANCHORAGE
JUNEAU
1964
5.6 cm/yr
5 cm/yr
NORTH AMERICAN PLATE
Mw 8.7
1965
7.5 cm/yr
Mw 9.1
1938
PACIFIC PLATE
5 cm/yr
1986
1957
Shumagin Gap
6 cm/yr
7 cm/yr
7 cm/yr
0
500 km
0
300 mi

ALASKA STATE
SEISMOLOGIST

GEOPHYSICAL INSTITUTE
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MEMO: April 21, 1998

TO: Rep. John Davies

FROM: Dr. Roger A. Hansen

RE: Seismic Hazards Safety Commission

CC:

I would like to express my strong support for House Bill 408, "An Act establishing the Alaska Seismic Hazards Safety Commission." Because our urban areas are expanding, and because we know that measures can be taken to reduce casualties and economic losses from the next large earthquake in Alaska, it is important that we improve our mitigation efforts. Establishing an Alaska seismic hazards safety commission is an important first step in coordinating state and local efforts in this area.

Alaska spans 4,800 km of the seismically active boundary between the oceanic Pacific and continental North American plates and is one of the world's most active regions of earthquake activity associated with subduction and volcanism. Nearly the entire state is seismically active. The greatest concentration of earthquakes is along the Pacific margin where the Pacific plate is being subducted beneath southern Alaska and the Aleutian Islands. The historical record indicates that magnitude 7 and larger shocks are about three times more frequent in southern Alaska than in California. Three of the six largest earthquakes in the world this century originated in Alaska on the boundary between the Pacific and North American plates. In 1964, the eastern end of the Aleutian subduction zone spawned the moment magnitude (Mw) 9.2 Prince William Sound earthquake, the second largest earthquake of this century. Alaska's other two great earthquakes occurred in the central and western parts of the Aleutians Islands -- the 1957 Mw 8.6 Andreanof-Fox Islands earthquake and the 1965 Mw 8.7 Rat Islands earthquake. The seismicity of Alaska stems primarily from the interaction of the Pacific and North American plates. The northwestward motion of the Pacific plate relative to the North American plate is accommodated by faulting in southeast Alaska on the Queen Charlotte-Fairweather fault system (similar to the San Andreas fault), and by underthrusting and subduction of the Pacific plate along the Aleutian megathrust, which crops out on the seafloor at the Aleutian trench. The seismicity related to various tectonic elements can be divided into five distinct source zones as follows: 1) Plate-boundary earthquakes along the interface between the Pacific plate and the North American plate; 2) subsea earthquakes within the Pacific plate beneath or seaward of the trench; 3) Wadati-Benioff Zone earthquakes within the subducted part of the Pacific plate landward of the trench; 4) North American plate earthquakes; and 5) volcanic-axis earthquakes within the North American plate along the axis of active volcanoes.

Within the seismology lab at the University of Alaska Fairbanks, Geophysical Institute, there is a strong seismology program with elements of earthquake and volcano monitoring, real-time processing and notification of seismic events, participation in a Federal/State tsunami hazard mitigation initiative, interaction with the engineering community, public and community outreach to

K-12 school programs, state fairs, and public lectures, and research into a variety of seismology and earthquake hazard related subjects: i.e. earthquake prediction, tectonic systems, seismic energy propagation in complex environments like Alaska, energy attenuation from strong earthquake shaking, and structural studies into the reasons for mountain building and fault behavior.

I bring up these issues as a way to speak strongly in favor of the formation of a seismic safety commission. I see such a board as a positive extension to the scientific and technological aspects of the seismology lab currently under way. It would be very complimentary to have a body who can take the results of the many and varied investigations into seismology in Alaska and translate the basic information into a coordinated effort between the scientists, the engineering community, the building industry, and such state agencies as DOT, ADDGS, and ADES. There is clearly a need for such integration into proper land use and building codes for the very potentially dangerous areas throughout Alaska. Within the tsunami program mentioned above, we have taken the position that a small amount of mitigation effort up front, has the potential for huge savings of both lives and economic loss in the event of a large earthquake. When (not whether) the next tsunamigenic earthquake strikes in the Aleutians, thousands of lives would be at risk in Sand Point, Akutan City, and Dutch Harbor. Since these communities are some of the largest fishing ports in the entire country, hundreds of millions of dollars of fishing industry infrastructure would be damaged or destroyed. A like situation exists within our largest cities in Alaska where we have known significant potential for destructive earthquakes, yet no strong framework for mitigating the hazards ahead of time.

It is time for Alaska to take steps toward reducing future earthquake losses. We can begin by passing HB 408.

Sincerely,

Roger A. Hansen

Roger A. Hansen

State Seismologist

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CH2MHILL

April 17, 1998

Representative Gene Therriault
Co-Chair, Finance Committee
Alaska State Legislature
Juneau, AK

Dear Mr. Therriault:

Subject: HB408-Seismic Hazards Safety Commission

This correspondence is written in support of Dr. John Davies' HB408 which would establish a Seismic Hazards Safety Commission for the State of Alaska.

As you know, Alaska is located in the most seismically active area in the world with many areas of the State having the potential for extensive damage from a strong motion earthquake. It is essential that we recognize the fact that it is not a question of "whether" a damaging event will occur but rather "when" it will happen.

It is incumbent upon us to be proactive in strengthening earthquake safety in the State by developing and improving public policies related to reducing hazards and mitigating the effects of potentially damaging earthquakes. This approach is totally superior to being reactive after the event and having to concentrate our people and financial resources on victim extrication, debris removal, and reconstruction activities because of inadequate prior planning.

A Commission, as proposed in HB408, could be instrumental in setting State goals and priorities, devising criteria to promote seismic safety, recommending programs to reduce earthquake hazards, gathering, analyzing and disseminating information, encouraging research, sponsoring training, coordinating seismic safety activities at all government levels, and could review reconstruction activities after a damaging earthquake.

I would like to commend Dr. Davies in his efforts to establish this Commission and urge members of the Legislature to support him in this important endeavor.

Sincerely,

CH2M HILL

John L. Aho, Ph.D.
Vice President

HB408/DOCUMENT2
c: Representative John Davies
Rod Combellick

JOHN C LAHR

Representative John Davies
Alaska State Legislature
State Capitol, Room 422
Juneau, AK 99801-1182

Dear John,

I am writing to lend my support to your effort to establish an Alaskan Seismic Hazards Safety Commission. Given that Alaska is the most seismically active state in the US and that many areas are growing rapidly or being developed for resources that are critically needed by the entire nation, it is important that the State makes every effort to mitigate the effects of future earthquakes. The ASHSC could play an important role in focusing and coordinating private, state, and federal efforts on the most critical areas.

I certainly hope you are successful in establishing this commission.

John C. Lahr

John C. and Jan H. Lahr
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DOWL
ENGINEERS
A Division of DOWL, Incorporated

March 18,1998
W.O. D00001

The Honorable John Davies
House of Representatives
State Capitol Building
Room 422
Juneau, Alaska 99801-1182

Subject: House Bill 408
Alaska Seismic Hazards Safety Commission

Dear ~~Representative:~~ JOHN

As a practicing civil engineering in the State of Alaska I wholeheartedly support HB 408 pertaining to the establishment of a state Seismic Hazards Safety Commission. I have been practicing my profession in Alaska for over 22 years. My technical specialties are geotechnical engineering and earthquake engineering, so I routinely deal with the problems associated with seismic hazards and their mitigation throughout the state. Moreover, I have been a member of the Municipality of Anchorage Geotechnical Advisory Commission (GAC) for nearly 20 years (currently Chairman). In that role, I and my fellow commissioners have routinely advised the Municipality regarding identification and mitigation of seismic hazards in Anchorage.

Although major earthquakes seemingly are "rare" events, their consequences literally can be disastrous, as was demonstrated by the 1964 great Alaska earthquake. Because of the damage and loss of life that occurred in Anchorage in 1964, and due to the concerns of local engineers and earth scientists, Anchorage established the Geotechnical Advisory Commission to advise our local government officials and citizens about earthquake hazards that can affect our community. The GAC generally has been the only real resource in those matters Anchorage has been able to rely upon consistently and effectively through the years. I believe the commission has had a positive effect on how our community has developed, and how it has taken appropriate steps to mitigate the seismic hazards with which we must live. Most of these efforts have been, and continue to be, through identification and mapping of the local hazards, and recommending mitigation measures to preserve life safety and to minimize economic impacts when the next major quake impacts our city.

I believe it is imperative that the State Legislature of one of the most seismically active regions in the world establish a statewide Seismic Hazard Safety Commission to help its citizens and those responsible for their general well being understand the seismic environment in which they live, and how best to deal with the Hazards that can affect them.

John, I applaud your sponsorship of this bill and give it my full support. If there is anything else I can do for you in this matter, please feel free to call me.

Sincerely,
DOWL Engineers

David A. Cole

David A. Cole, P.E.
Principal

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STATE OF ALASKA

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DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

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April 1, 1998

The Honorable John Davies
Alaska State Legislature
State Capitol Rm 430
Juneau, AK 99501-2133

Dear Representative Davies:

House Bill 408 "An Act establishing the Alaska Seismic Hazards Safety Commission" is a timely legislative initiative for protecting Alaska's growing population both physically and financially. Mitigation of natural disasters has become a national priority in the wake of devastating flood storm, and earthquake events in the contiguous United States. There is increasing federal reluctance to fund recovery efforts and increasing reluctance of private insurers to take on the potential liability for damages suffered from events that could have been mitigated but were not.

Seismic hazards are part of the reality of Alaska, and there is much that can be done to mitigate their effects. In coordination with the state's Emergency Response Commission, a well qualified oversight group charged to review and prioritize Alaska's seismic mitigation efforts can save lives and money. Effectiveness of a seismic safety commission has been frequently demonstrated in California, a state having many seismic similarities to Alaska. House Bill 408 is an important step in improving seismic hazard mitigation in Alaska, thereby reducing casualties and costs of responding to earthquake disasters.

Sincerely,

Milton A. Wiltse

Milton A. Wiltse
Director & State Geologist

MAW/vjb

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES
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April 16, 1998

The Honorable Gene Therriault
Alaska State Legislature
State Capitol, Room 511
Juneau, AK 99801

Dear Representative Therriault:

Representative Davies' recently-proposed legislation, HB 408, "An Act establishing the Alaska Seismic Hazards Safety Commission" has come at a good time to position Alaska with respect to federal disaster insurance legislation currently being drafted in Congress. While no one can predict the final form of legislation that will emerge from Washington, there is a growing resistance in Congress to federally fund recovery from disasters that might have been avoided or mitigated. This may take the form of requiring states to have seismic hazard mitigation policies or reviews of some kind in place in order to participate in federal seismic disaster recovery programs.

Alaska has long acknowledged the need for having contingency plans in place for responding to hazardous earthquakes, however, less policy attention has be given to systematic seismic hazard mitigation programs. A seismic hazards safety commission acting in coordination with Alaska's Emergency Response Commission would provide a pre-event mitigation overview now lacking in the state's efforts to protect its citizens from seismic risks.

I enclose a previous letter to Representative Davies in regard to HB 408. I believe this is good legislation for the people of Alaska.

Sincerely,

Milton A. Wiltse

Milton A. Wiltse
State Geologist and Director

cc: Representative John Davies
Marty Rutherford, Deputy Commissioner

STATE OF ALASKA

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March 16, 1998

Rep. John Davies
State Capitol, Room 422
Juneau, AK 99801-1182

Dear Rep. Davies:

I would like to express my strong support for House Bill 408, "An Act establishing the Alaska Seismic Hazards Safety Commission." Seismic activity in Alaska is among the highest in the world and it is only a matter of time before another potentially destructive earthquake will strike one of our urban areas. Because these urban areas are expanding, and because we know that measures can be taken before an event to reduce casualties and economic losses, it is important that we improve our mitigation efforts. Establishing an Alaska seismic hazards safety commission is an important first step in coordinating state and local efforts in this area.

Much progress has been made in Alaska toward improving emergency-response planning, through the state Disaster Act and local preparedness exercises. However, less progress is evident in pre-disaster efforts to prevent losses and thereby reduce emergency-response needs. Such loss reduction can occur, for example, through more rigorous design and construction standards in areas more subject to earthquake damage. Although we cannot predict when and where the next large earthquake will occur, we can identify areas that will be most severely affected, and we can plan development accordingly. A seismic safety commission will help coordinate state and local efforts toward achieving these loss-reduction goals.

The California Seismic Safety Commission evolved from state advisory groups that were established as a result of Alaska's 1964 earthquake. This commission has been highly successful in initiating programs that have proven effective in reducing losses from numerous recent earthquakes. One recent article states that if there had been no seismic design standards in place prior to the 1994 Northridge earthquake, economic losses would have been 60% greater. The analysis further states that if today's standards had been strictly followed, losses would have been further reduced by 40%. Considering that the cost of complying with these standards is less than 5% of construction cost, implementing such loss-reduction measures is clearly worthwhile. Now that 34 years have passed since our last destructive earthquake, and before development expands further, it is time for Alaska to take similar steps toward reducing future earthquake losses. We can begin by passing HB 408.

Sincerely,

Rodney A Combellick

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April 15, 1998

Representative Gene Therriault
Alaska State Legislature

Dear Mr. Therriault:

I am pleased to learn that House Bill 408B to establish the Alaska Seismic Hazards Safety Commission was passed out of the House State Affairs committee in March and was referred to the Finance Committee, which you chair. Since I highly recommend that this legislation move forward quickly, I hope you will be able to schedule a hearing on it during the short time that remains this session.

From the late 1960's through just last year the focus of my seismology research has been on Alaska, so I am keenly aware of the hazards that earthquakes pose there. Although Alaska is far more tectonically active than California, it has the advantage of being less fully developed at this time. The Alaska Seismic Hazards Safety Commission can therefore have a profoundly positive effect in mitigating the effects of earthquakes on the infrastructure to be built in the future. This is much more cost effective in the long run than remedial efforts that often are begun only after disastrous losses have occurred.

Thank you for your careful consideration of this matter.

Sincerely,

John C. Lahr