

Creating a Seismic Safety Advisory Board

A GUIDE TO EARTHQUAKE RISK MANAGEMENT



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Disclaimer

Creating a Seismic Safety Advisory Board: A Guide to Earthquake Risk Management was prepared by the Seismic Safety Commission of California under an agreement with the Federal Emergency Management Agency (FEMA). Its purpose is to assist states, groups of states, local governments, or private-sector entities in developing seismic safety advisory boards. It also contains guidelines for strategic planning and developing a model seismic risk management program to enhance seismic safety once the board is established. However, neither the Seismic Safety Commission nor FEMA can ensure that by using the concepts in this publication, either public- or private-sector entities can avoid bodily injury or property damage when an earthquake occurs. Therefore, neither the Seismic Safety Commission nor FEMA, nor any of their employees makes any warranty, express or implied, nor assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process described herein.

Contents

Acknowledgments	iv
1. Introduction	1
2. Why Create a Board?	3
3. Putting It Together: Creating a Board	7
4. Selecting Advisory Board Members	19
5. Operations: Getting to Work	21
6. Staffing the Board	25
7. Footing the Bill: Funding a Board	27
8. Strategic Planning: The Long View	31
9. Risk Reduction and Management Plan	37
Appendix A: Model Executive Order	A-1
Appendix B: Model Enabling Legislation	B-1
Appendix C: Example of Interstate Compact	C-1
Appendix D: Example of Articles of Incorporation	D-1
Appendix E: Example of Corporate Bylaws	E-1
Appendix F: Model Staff Duty Descriptions	F-1
Appendix G: Model Workshop Design	G-1
Appendix H: Workshop Roster	H-1
Appendix I: Existing Seismic Safety Advisory Boards	I-1
Appendix J: Lexicon of Terms	J-1
Appendix K: California Seismic Safety Commission	K-1

Acknowledgments

The Seismic Safety Commission of California developed this manual under an agreement with the Federal Emergency Management Agency to assist states in creating seismic safety advisory boards.

States in this country present a myriad varieties of geologic conditions, types of construction, populations, and awareness of and interest in seismic safety. This manual incorporates points of view from several states, the Central United States Earthquake Consortium, and the New England States Earthquake Consortium to reflect the concerns and needs of every region of the United States as much as possible. The project manager consulted with representatives of agencies from several states and organized a workshop of key personnel from across the country to assess and suggest amendments to the manual.

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Introduction

The purpose of this manual is to assist interested states, coalitions of states, or confederations of local governments to develop and nurture seismic safety advisory boards. The first part contains "how-to" tips and advice to assist states that already have such panels in upgrading their advisory boards.

The second part of the manual contains advice on strategic planning for improving seismic safety. Specifically, it includes guidelines for developing a model seismic risk management program by which to gauge progress.

A seismic safety advisory board is a multi-disciplinary panel composed of volunteers with expertise in fields related to earthquakes and preparation for and response to earthquakes, such as earth sciences, engineering, emergency services, local government, social services, and public policy. They are drawn from the private sector, academia, and government. The board's functions are to:

- Advise the legislature and administrative agencies
- Advocate earthquake programs
- Promote improvements to seismic safety and procedures
- Identify seismic hazards
- Coordinate plans and actions of responsible agencies, programs, and government levels
- Gather, integrate, and transfer information from a wide range of sources
- Plan for the long-term implementation, review, and maintenance of seismic safety programs

EARTHQUAKES ARE POSSIBLE
IN VIRTUALLY ALL PARTS OF
THE UNITED STATES. EVERY
STATE SHOULD BE PREPARED.

The need for seismic safety advisory boards and for model seismic risk management programs is based on the following assumptions:

- A damaging earthquake can occur with little or no warning. With each passing year, the potential for one increases.
- Positive, goal-oriented leadership is a prerequisite to starting an effective advisory board.
- Organizations at many levels of government and in the private sector have responsibilities in seismic safety. The board can help develop comprehensive and consistent programs for seismic safety and risk management.
- Earthquakes can cause extensive property damage and endanger lives, but this risk can be reduced and managed by prudent policies for locating and designing structures.
- Managing earthquake risks has collateral benefits, bringing about improved buildings, dams, transportation facilities, building stock, communications, fire safety, toxic materials management, and emergency response.
- Concerted efforts bring long-term progress toward seismic safety.

For most states seismic safety is a new need crammed onto an already full agenda. As a result, it is not being addressed by a statewide governmental program in a majority of states. Earthquakes occur less frequently than other disasters, such as floods, hurricanes, and tornadoes. Consequently, the time, expense, and effort of contending with seismic safety concerns must often be weighed against the probability—the "odds"—that a major earthquake will not occur in a decade or even within a generation.

Making progress in reducing and managing earthquakes risk requires a long-term commitment. Many of the planning issues addressed in this manual are also involved in preparing for, responding to, and recovering from other types of disasters. Therefore, the creation and maintenance of the board will also help enhance general emergency preparation, response, and recovery plans. The cost of reducing risk and strengthening emergency response capabilities is more than justified in view of the cost of damage, repair, and rehabilitation—that is, the cost of not preparing. In this case, a “stitch” in time saves money and lives.

This manual is meant to help in the creation of a seismic safety advisory board—either as an autonomous agency

or as part of an existing entity. It provides advice gained from dealing with existing hazards and offers options to consider when establishing a new board or revitalizing an existing board to meet the unique needs of a region.

The board will provide access to expertise, giving government as well as the private sector help in focusing attention on earthquake-related issues. Although this manual attempts to create “perfect” boards, it allows room to select from options and do what is necessary to establish a board and get it underway. Without the seismic safety advisory board, state and local governments are ill-equipped to develop consistent and comprehensive programs for improving safety and reducing risks.

Why Create a Board?

Earthquakes pose unique public policy challenges. Awareness is limited outside a few areas. Major earthquakes are infrequent events with potentially great consequences. Few jurisdictions regard them as clear and present dangers, so daily problems tend to crowd out earthquake issues. There is little understanding about what can be done to lessen earthquake risk. Moreover, because earthquakes occur in most areas less frequently than other major disasters—such as floods, hurricanes, and tornadoes—the resources required to deal with seismic issues are often weighed against the probability that no major event will occur in the near future. As a result, a majority of states are not addressing earthquake risk in an on-going statewide program. A seismic safety advisory board can help keep efforts to address this risk viable.

Responsibility for seismic safety is typically spread among many local, state, and federal agencies as well as individuals and businesses. Emergency response and recovery may be a multi-state effort. It is also crowded onto disparate agendas and mingled with more immediate demands that get a higher priority. Seismic safety stands a better chance of increased priority in both the public and the private sectors if one entity has responsibility for bringing it into focus and to the attention of the public and the policy makers.

**CREATING A SEISMIC SAFETY
ADVISORY BOARD IS JUSTIFIED
ORGANIZATIONALLY AND
FISCALLY.**

State and local governments are short of resources and have crowded agendas. But despite crowded agendas and desperate budgets, those entrusted

with public safety should not gamble on the future. It must be remembered that a “moderate” chance of earthquake refers only to occurrence interval, not to the level of damage that such an event may cause. A seismic safety advisory can provide a low-cost, common-sense means to ensure that legitimate, long-term seismic safety problems receive the attention they deserve and the mitigation efforts they demand.

**EARTHQUAKES ARE POSSIBLE
IN VIRTUALLY ALL PARTS OF
THE UNITED STATES.**

The U. S.—Earthquake Country

The Plymouth pilgrims felt their first earthquake in 1638, thus discovering that the northeastern states are seismically active. In 1727, a temblor shook the eastern seaboard from Maine to Delaware, and in 1755, an even stronger quake rocked Massachusetts and rendered the streets of Boston impassable. The 1925 La Malbaie, Quebec, earthquake was felt over an area of 1 million square miles, from New England as far south as Virginia. A pair of damaging earthquakes occurred near Ossipee, New Hampshire, in 1940, and were felt to distances of 350 miles and over an area of 400,000 square miles. More recently, New England has been subjected to ground shaking from two moderate quakes occurring in New Brunswick during 1982, a moderate earthquake in central New Hampshire in 1982, and another moderate temblor in New York State in 1983.

Even the southeastern states were reminded of their seismicity in 1886, when a major earthquake struck Charleston, South Carolina, causing

severe damage. In what is now the central United States, a series of great earthquakes exceeding Richter magnitude 8 occurred on the New Madrid (Missouri) fault during the winter of 1811-12, rocking what are now the states of Arkansas, Illinois, Indiana, Mississippi, Missouri, Kentucky, and Tennessee. These events were of such enormous magnitude that the flow of the Mississippi River was temporarily reversed. Ground shaking was so strong and far reaching that buildings were severely damaged in Chicago and Cincinnati. Pavement was cracked and church bells rung in the mid-Atlantic and New England states, a thousand miles from the New Madrid epicenters. These earthquakes were felt over an area of 5 million square miles.

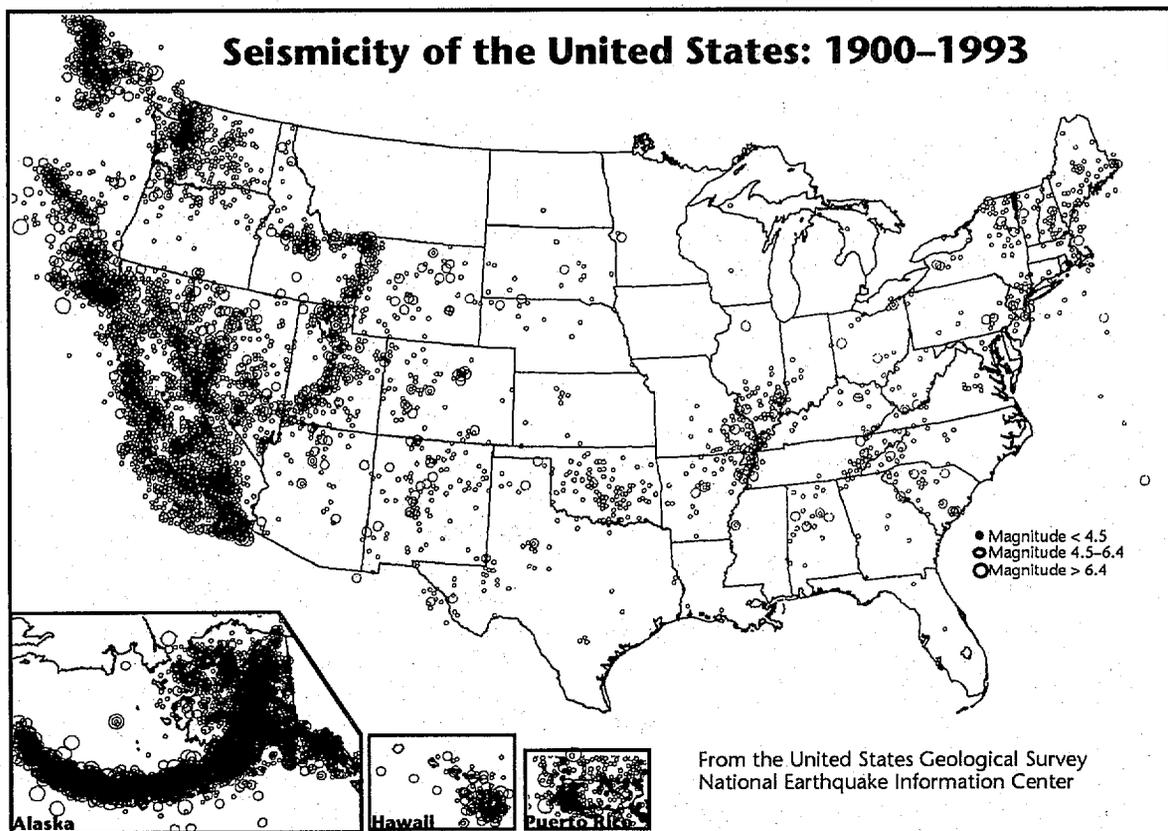
The Pacific Coast states—Alaska, Washington, Oregon, California, and

Hawaii—are among the nation's most seismically active, having experienced damaging earthquakes and volcanic activity within the lifetimes of residents. Utah, Montana, Nevada, Idaho, and portions of Wyoming and Arizona also experience earthquakes.

**EARTHQUAKES CAN BE
AMONG THE MOST
MANAGEABLE DISASTERS.**

Although earthquakes occur more frequently in the western states than elsewhere in the United States, earthquakes in the central and eastern states are potentially more damaging. This discrepancy is caused by two things: the large percentage of unreinforced masonry buildings and a

Figure 2-1—Seismicity of the U.S. in the 20th century



more consistent underlying rock that transmits shock waves farther. The

western states' geologic structure tends to break up earthquake vibrations,

whereas that of the central and eastern states transmits vibrations relatively undiminished.

Eastern and central earthquake shocks travel two to four times the distance of those in California, covering areas four to forty times greater. The East also includes denser populations, most of whom are not trained to respond to an earthquake. The heavy industrial development means that central and eastern states face a greater probability of damage resulting from toxic wastes, chemicals, and collapses.

Managing the Risk

The risk to life and property from earthquakes is especially significant in areas of rapidly growing urban areas near earthquake faults. In such areas, each year that passes without earthquake planning increases the potential for catastrophe. Earthquakes can, however, be among the most manageable of disasters. Eliminating vulnerabilities will reduce risks, and developing the plans and resources will help manage those that remain.

A properly composed and structured board can provide the long-term commitment, responsibility, and oversight necessary to develop and pursue meaningful seismic safety goals and effective risk-reduction programs. It can accomplish this by reviewing, evaluating, and helping the work of governmental agencies and the private sector. It can monitor seismic safety programs to ensure their adequacy and effectiveness. It can focus attention on seismic safety and provide a consistent policy framework for integrating and implementing needed programs.

Seismic safety must be incorporated into design and construction practices, emergency response, and recovery planning for the long-term. Without a long-term commitment, effective oversight and remedial efforts may be short-lived, piecemeal, and ineffective.

Why Limit It to Earthquakes?

Earthquakes differ from other natural disasters in a number of ways that make the threat unique and deserving of a single-focus advisory board. Unlike floods and most windstorms that create relatively localized damage, a large earthquake can create an enormous, multi-state area of damage that may leave its victims dependent on their own resources for days before relief can reach them. Moreover, with the exception of Alaska, California, and Hawaii, earthquake response planning is not a part of the public consciousness in most of the United States, as is preparation for floods, tornadoes, and hurricanes in the central and eastern United States.

Many earthquake risk reduction efforts are also unique. Seismic safety must not only be integrated into construction practices, but emergency response, recovery, and long-term risk reduction efforts as well. Earthquake risk management includes improvements in buildings, dams, transportation, and communications facilities. A seismic safety advisory board, by focusing its efforts on earthquake-related issues, will have plenty to do.

EARTHQUAKES CAN CREATE ENORMOUS, MULTI-STATE DAMAGE, A UNIQUE THREAT THAT DESERVES A SINGLE-FOCUS ADVISORY BOARD.

The question of overspecialization is certain to arise, particularly in areas where floods, hurricanes, or tornadoes are common. Earthquake response planning has much in common with fire safety, toxic materials handling, and other emergency response preparations, and the general level of response planning for these and other natural disasters. Broadening the focus of the advisory board to include these

and other natural disasters may allow it to address many of the interrelated issues relevant to preparation for, response to, and recovery from other types of natural disasters as well as earthquakes. Broadening the focus of the advisory board to make it multi-hazard is an option that can be exercised, particularly if it is the only approach available to concentrate attention on earthquake-related issues, but to do so may dilute its effectiveness in dealing with earthquake-specific mitigation matters.

The Bottom Line

A principal obstacle to effective earthquake risk management is lack of commitment by both the public and private sectors to make seismic safety a priority in allocating financial and other resources. Yet reasonable, long-term, incremental investment of resources to avoid future earthquake damage and economic and social disruption is enormously more effective than paying for building repairs and victim assistance after an earthquake. Some seismic risk reduction measures may be costly and complex; others may be inexpensive and relatively simple. An advisory body with a broad perspective can help weigh the cost-benefit of such measures, set priorities, and provide oversight for prudent long-term progress.

THE BOARD IS THE OUNCE OF PREVENTION THAT WILL PROVE ITS WORTH IN REDUCED RESPONSE AND RECOVERY COSTS.

Moreover, earthquake risk-reduction measures often result in other benefits,

such as long-term improvements in buildings, dams, transportation facilities, communications, fire safety, toxic materials handling, and emergency response capabilities. The board can be the catalyst that promotes an efficient, cost-effective ounce of preventive investment in seismic safety that will prove its worth in a general state of preparedness for other natural hazards as well as earthquake risk reduction.

STATES WITH SEISMIC SAFETY ADVISORY BOARDS WILL BE MORE SUCCESSFUL IN REDUCING EARTHQUAKE RISK.

A seismic safety advisory board can enable both government and the private sector to respond to multiple needs with expertise that would not otherwise be available and make timely decisions on what should be done and when. Moreover, as a credible advocate of seismic safety that can help integrate the competing interests of multiple agencies and organizations, the board can promote needed seismic safety programs by building a supportive, nonpartisan constituency.

Future earthquakes will occur, and scientists and engineers know a great deal about how to minimize earthquake losses. A board can apply this knowledge to ensure that in the next century all states and communities will be seismically safer places to live. Unless earthquake risks are reduced and emergency response is strengthened, many of this nation's cities and millions of its citizens will remain at great—and unnecessary—risk.

Putting It Together: Creating a Board

This section discusses the creation of a seismic safety advisory board. A board can be constituted to advise a state, a coalition of states, or even a confederation of local governments. It can also be a private-sector entity. This section will emphasize formulation of state-level boards and give a number of options. Because creating an ideal board may be impossible, the strategy should be to get started and then improve the organization as necessary.

Creating a State-Level Board

As the principal governing entity of a major population, state government is responsible for the safety of its residents. Accordingly, state government is obligated to take measures adequate to meet the need. These measures typically include working with the local governments (the entity responsible for building safety and land-use planning, as well as the principal governmental resource at the site of any disaster) to help and encourage their seismic safety efforts and to improve their performance.

Therefore, a state-level board can provide a focal point for developing statewide policies and implementing needed improvements. Moreover, a state-level board can recommend seismic safety components for statewide comprehensive plans or policies—for example, industrial development,

hazardous material control, or environmental quality. This might include the identification of hazard zones and the development of criteria and standards that should be applied in such zones. Finally, a state-level seismic safety advisory board can provide analysis of a state's seismic safety statutes and regulations and evaluate their application in all cities, counties, and special districts.

A state-level board can become a legally authorized entity of state government through an executive order issued by the governor or by legislative enactment. Each method of creating the board has benefits and drawbacks. It is important to involve someone with knowledge of state government and the legislative process. Even good, well-meaning ideas must "fit in."

BECAUSE CREATING AN IDEAL
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An expeditious way to create and empower a state-level board is for the governor to create it by executive order. A board created by executive order can ensure participation by all state agencies in the executive branch. On the other hand, there are several drawbacks to using an executive order. Earthquake risk management is a long-term endeavor. An effective board must be an agency with staying power. Governors change, and a new governor can unilaterally rescind the order. Thus, creation by executive order may not provide the necessary continuity. Moreover, except during emergencies, a governor cannot mandate the participation of local governments or elements of the private sector. If the board is created by an

executive order, the ability to promote earthquake-related programs at the local level and in the private sector may be hampered.

A state-level board can also be created by legislative enactment that defines its powers and gives it a statutory mandate to promote a consistent seismic safety policy and the coordination of earthquake-related programs of agencies at all governmental levels and with the private sector. Inasmuch as such a board's mandate grows out of the legislative process of debate, compromise, and consensus, including ratification by the governor, a legislative enactment probably assures the board of a degree of bipartisan support that may be lacking if established by executive order.

An executive order may be the quickest way to establish a board. Some of the disadvantages of using an executive order may be mitigated if the order directs the board to draft and sponsor legislation creating a state-level board mirroring the one created by the governor. In essence, this course seeks legislative ratification of the governor's action.

A BOARD IS LESS LIKELY TO BE AT THE MERCY OF SHIFTING POLITICAL PRESSURES IF CREATED BY LEGISLATIVE ENACTMENT.

Whichever method is used, the following components should be considered for inclusion in either a gubernatorial or legislative board:

1. A declaration of the seismic safety advisory board's purpose and scope of responsibility.

Typically a board is created when there is interest in doing something about earthquake risk. Because progress will involve activities of many different agencies at various levels of government and the private sector and expertise from diverse disciplines, the

purpose statement must be broad. The board should be directed to develop a consistent policy and promote earthquake-related programs at all governmental levels and in the private sector. Any legislative declaration must recognize the comprehensiveness of the task. It should not be just a matter of retrofitting buildings, improving emergency response, or recovering from an earthquake. The board should be responsible for keeping the earthquake issue on the public agenda and advocate an acceptable rate of progress.

The executive order or enabling legislation creating a board should acknowledge that:

- Earthquakes can cause extensive property damage and endanger the lives of people.
- Earthquakes can overwhelm local and state emergency response resources.
- The knowledge and technology exists to make significant improvements in seismic safety; for example, retrofitting potentially hazardous buildings.
- Earthquake-related problems require the knowledge and expertise of the earth sciences, earthquake engineering, the social and the behavioral sciences, emergency management, finance, insurance, business, public policy, and public administration.
- Many different agencies at various levels of government as well as elements of the private sector have substantial responsibilities in seismic safety, and these need to be discharged in a consistent and mutually supportive manner.
- Earthquake risk management can bring about improvements in buildings, dams, transportation facilities, communications, fire safety, toxic materials handling, emergency response preparations, and the general level of response planning for earthquakes and other natural disasters.
- Long-term progress in seismic safety requires broadly based and comprehensive efforts, planned for,

coordinated, and promoted by the board.

2. Specific language creating the board as an autonomous entity.

The legislation or executive order creating the advisory board should determine where the board will be placed within the organizational hierarchy of state government. There are advantages to creating it as an autonomous entity rather than as part of an existing agency. If its functions are incorporated into an existing agency, rather than as a stand-alone organization, it will probably have to respect the host agency's agenda and the political agenda of the current governor. Moreover, the fiscal and political limitations imposed on the host agency will limit the board too. Incorporating an advisory board into an existing agency may also limit its ability to develop independent perspectives and could discourage the participation of the private sector and local governments. The result may be institutionalized biases and bureaucratic processes that can insulate even the best organization.

To ensure accountability as well as autonomy, the board can be required to report periodically to the governor and to the legislature, presenting findings, reviewing progress, and making recommendations on seismic safety and earthquake risk management. Such a requirement will signify legislative or gubernatorial recognition of the need for a continuing policy-making progress for seismic safety. It will also ensure that the board's agenda is reported regularly to the legislature or governor. Through this kind of merchandising, the executive and legislative branches may rely on the board for guidance in formulating state seismic safety policy.

3. Procedures for appointing the board's members and for selecting its chair and vice-chair.

Procedures should be established for selecting the board's chair and vice-chair, as well as for replacing them in the event of vacancies. Selection of the chair and vice-chair could follow either of two options: appointment by the governor or election by the members.

Procedures for the nomination and appointment of board members should be specified. The most advisable option is to solicit the names of prospective members from professional organizations and agencies in appropriate fields of expertise. The appointing authority should retain the power to make the final selection. This would allow the flexibility needed to hand-pick board members after conducting interviews and evaluating the nominees' expertise and other qualifications, including commitment to active participation in the advisory board's activities. Such a procedure makes it less likely that a board will include members who fail to attend and participate consistently.

Another option is for the appointing authority to shop around, making inquiries regarding individuals who are recognized for their expertise in their fields and professions. Good candidates could then be "drafted," allowing professional organizations to choose members to represent their area of expertise. This has the advantage of creating strong relationships with the organizations making such selections, but has the disadvantage of giving the final say to those groups.

It may be advisable to have members appointed by the chief elected executive and confirmed by the legislative branch of government. For a state-level board, it will be helpful to include a member from each house of the legislature.

4. Definition of the board's general powers and duties.

The executive order or legislative enactment creating the board should clearly define its powers and duties. Powers that may be conferred on the advisory board may include the following:

- Authority to appoint committees from its own membership which may also include nonmembers at the board's discretion. Power to appoint advisory committees from interested public and private groups and appoint ex officio members who shall not be entitled to vote but are allowed to participate in discussions and provide advice.

- Authority to contract for professional services and research required by the board or required for the performance of necessary work and services which, in the board's opinion, cannot satisfactorily be performed by its own officers and employees or by other federal, state, or local governmental agencies.
 - Authority to accept grants, contributions, and appropriations from public agencies, private foundations, or individuals to ensure its continued function in times of budgetary ebbs.
 - Authority to enter into agreements to act cooperatively with private nonprofit scientific, educational, or professional associations or foundations engaged in promoting seismic safety, including activities under the National Earthquake Hazard Reduction Program.
 - Authority to administer oaths and issue subpoenas for the attendance of witnesses, the production of documents, and testimony in the conduct of any hearing, investigation, or study.
5. Establishment of and statement of objectives for the state's earthquake risk management program.
- The executive order or legislative enactment creating a board should clearly state its principal purpose: developing and promoting a comprehensive and consistent earthquake risk management program. The program should set priorities and schedules, recommend funding sources and amounts, as well as other resources needed to reduce earthquake vulnerabilities statewide significantly by one or more long-term target dates. The board should be authorized to explore and report what needs to be done, who needs to do it, what the probable costs will be, and what degree of priority should be accorded the principal remedial measures. (See Section 8 for a discussion of strategic planning.)
6. Definition of the board's risk-management responsibilities.
- The executive order or legislation creating a board should define the board's responsibility for any or all of the following:
- Setting goals and priorities for the public and private sectors.
 - Requesting appropriate state agencies to devise criteria to promote earthquake safety.
 - Analyzing post-earthquake recovery issues in cooperation with the state agency providing recovery services.
 - Recommending program changes for state and local agencies and the private sector to improve earthquake risk management.
 - Reviewing recovery and reconstruction after damaging earthquakes and making appropriate recommendations.
 - Gathering, analyzing, and disseminating information.
 - Recommending and sponsoring training to improve the competence of personnel.
 - Helping coordinate earthquake safety activities of government at all levels.
 - Establishing and maintaining working relationships with other federal, state, or local boards, departments, and agencies, as well as private, nonprofit, and volunteer organizations.
 - Providing information to other agencies from the National Earthquake Hazard Reduction Program and principal state agencies involved in earthquake risk management.
 - Encouraging research that will contribute to improved seismic safety and risk management.
 - Encouraging the translation, dissemination, and use of research findings and other knowledge.
7. Promotion of an earthquake risk management program.
- The executive order or legislation creating a board should empower it to promote an earthquake risk management program prepared in consultation with the appropriate state and local agencies, the private sector, and the legislature. This will require authorization for the board to:
- Review proposed legislation related to earthquake safety, advise the governor and legislature concerning

the proposals, and recommend needed legislation.

- Recommend the addition, deletion, or modification of state agency standards to help reduce risk and promote mitigation.
- Conduct hearings, investigations, inquiries, or studies to investigate seismic safety problems and issues as well as the effects of seismic events.
- Review the state's budget and review grant proposals for earthquake-related activities and advise the governor and legislature on them.

8. Authorization to consult with other agencies and organizations.

The executive order or legislation creating the advisory board should authorize it to consult with appropriate federal, state, and local agencies, the private sector, volunteer groups, and the legislature. It may be advisable to authorize the board to hold joint hearings with other groups and conduct other activities as necessary for the development and maintenance of such a program.

9. Authorization to employ an executive director and employees.

The board will need the authority to appoint an executive director or program manager, who will be responsible for managing day-to-day affairs, subject to the direction of the board and in compliance with its policies. Depending on the scope of the board's activities and financial resources, it may also be advisable to empower the executive director to recruit and employ other staff members to carry out the board's functions.

Experience with existing statewide and local boards has demonstrated that the most effective boards are typically established and operating before they select an executive director or hire staff. In those instances where an

executive director was named and a staff was established before the board is formed, it was not uncommon for staff to set the policy and goals. Not only does this compromise the concept underlying creation of the board, in some instances it also leads to a lack of involvement with staff, a failure of staff to use the expertise available from board members, and a staff agenda that is inconsistent with that of the board.

10. Authorization for per diem and compensation for expenses.

Fiscal stress may very well make it necessary for the members of the advisory board to serve without compensation. On the other hand, members will typically devote large amounts of otherwise uncompensated time to the advisory board's pursuit of seismic safety and hazard mitigation. Equity may thus dictate that, at the very least, they be paid the state's standard per diem for each day's attendance at a meeting of the board, plus necessary travel expenses as determined by the state's fiscal control agency. Paying a small stipend for attending meetings is a useful gesture that recognizes a member's contribution to the board.

11. Authorization to establish a program for responding to earthquake predictions and other forecasts.

The advisory board also may wish to initiate a comprehensive program to prepare the state for responding to earthquake predictions or forecasts. The program could be implemented with the assistance and participation of other state, federal, and local agencies.

The foregoing components suggested for an executive order or legislative enactment creating a board may not necessarily be appropriate for all states and can be tailored to meet a state's needs. A model executive order and a model legislative act for creation of a state-level board are contained in appendixes A and B, respectively.

Creating a Single-State Board

1. Evaluate the state's earthquake risk and risk management needs.
2. Identify representatives of appropriate state and local government and professions to plan the creation of a seismic safety advisory board.
3. Identify funding sources.
4. Decide the following:
 - a. Executive order vs. legislation to create a board.
 - b. Which professions and areas of expertise should be represented on the board.
 - c. How should members be nominated and selected?
 - d. How many members should the board have?
 - e. Which members, if any, should be authorized to designate alternates.
 - f. Which of the suggested components should be incorporated into the vehicle creating the board.
5. Draft the executive order or legislation creating the board.
6. Issue executive order/enact legislation creating the board.
7. Select board members.
8. Convene first meeting and commence formulation of the state's earthquake risk management agenda.

Multi-State Board

Areas of the United States encompassing millions of square miles and several states may be subject to earthquake damage from a single major seismic event. The historic record demonstrates this vulnerability. A single seismic safety advisory board set up as a coalition or partnership of the states in such an area can offer more resources than several single-state boards. A coalition may also provide a coordinating body for a group of single-state boards. A multi-state entity would be able to develop plans and advise on risk reduction programs, emergency response measures (including facilitating mutual aid among states), and earthquake recovery plans of its member states. It can be a central repository of information and equipment in the multi-state area.

A board set up as a coalition of states may be preferable to a number of state-level boards, particularly in multi-

state areas subject to widespread damage from a single earthquake or where individual states lack the resources to establish an advisory board. A multi-state coalition can also work with existing state or local advisory boards to integrate earthquake risk management programs at the regional level. A multi-state board can provide a credible voice on earthquake-related issues, improve communication among member states, and promote consistent policies and programs. The board could formulate earthquake risk management programs and emergency response measures, review earthquake recovery plans of the member states, and facilitate mutual aid between member states. A multi-state board should not become embroiled in state-level politics or issues.

State Legislation and Congressional Authorization

Creating a seismic safety advisory board as a multi-state coalition is more

complicated than establishing a single-state advisory board. Each participating state must pass legislation authorizing its government to join the coalition and participate in its activities. The legislation must be reasonably consistent state-to-state, and each state should be able to participate in the endeavor as an equal partner.

Moreover, if the coalition is viewed as an agreement or "compact" between the participating states, each state must petition the United States Congress for permission to create the coalition, as required by Article I, §10, clause 3, of the Constitution. Once Congress approves the interstate compact that creates the board, the legislatures in the participating states must ratify it. (See Appendix C for an example of an interstate compact.)

Articles of Incorporation

A multi-state board can be a loosely structured association or partnership or can be organized as a corporation. Examples of corporations are the Central United States Earthquake Consortium and the New England States Earthquake Consortium. A corporation is a distinct legal entity that limits the participating states' liability for the board's debts and actions. Another important factor favoring incorporation is the continuity of corporate status. Risk management is a long-term endeavor, and the need for emergency planning and public information never ends. An incorporated board provides such continuity because it exists perpetually, until dissolved in conformance with the statutes under which it is incorporated.

Another significant factor favoring incorporation of an interstate board is the degree of autonomy incorporation affords. Control of an incorporated board is centralized in its board of directors. The directors' autonomy in managing the board can provide a uniform policy structure and a means for developing and promoting the earthquake-related programs of all participating states. There would be, of course, statutory procedures for selecting and removing directors. (See Appendix D for an example of articles of incorporation; *note, however, that laws controlling incorporation vary greatly from state to state.*)

If a coalition of states sets up a board, the articles of incorporation will set forth the purposes for which it is formed and the powers granted. In most instances the articles of incorporation will also specify the number of directors authorized to serve on the corporation's board. Some states, however, allow the articles to establish a flexible board, the number of directors being set by the corporation's bylaws. Bylaws set forth the ground rules for the day-to-day management of the entity, typically including the duties and authority of corporate officers, formalities for directors' meetings, and the mechanics of voting. Although a coalition is free to tailor its board to meet its own needs, the following components—along with those mentioned already for state-level board—should be considered for inclusion into the bylaws of multi-state advisory boards. (See Appendix E for an example of bylaws.)

Creating a Multi-State Board

1. Draft a preamble with a declaration of the coalition's purpose and scope of responsibility.
2. Decide on the qualifications for membership on the board.
3. Decide on the place of business and, where appropriate, state of incorporation.
4. Decide on voting eligibility and procedures.
5. Decide on the composition of, powers of, and selection procedures for the board's directors and executive leadership.
6. Decide the powers to confer on the advisory board, such as the following:
 - a. Authority to contract for or employ professional services and research.
 - b. Authority to enter into agreements with private nonprofit scientific, educational, or professional associations or foundations.
 - c. Authority to accept grants, contributions, and appropriations from public agencies, private foundations, or individuals.
 - d. Authority to appoint committees from its membership and from outside.
 - e. Authority to appoint ex officio members.
 - f. Procedures for convening and conducting meetings.

Creating an Interstate Board

1. Evaluate the regional earthquake risk as well as the risk management, recovery, and emergency planning needs.
2. Identify representatives of appropriate state and local government and professions to plan the creation of the board.
3. Identify funding sources.
4. Decide the following:
 - a. Whether to incorporate the coalition of member states or to set it up as a loosely structured association or partnership.
 - b. Which professions and areas of expertise should be on the board?
 - c. Which components will be incorporated into the vehicle creating a board.
5. Each state must pass legislation authorizing its government to join the coalition and participate in its activities.
6. Each state must submit a petition to the United States Congress asking permission to create the coalition by interstate compact.
7. Each state's legislature must ratify the compact.
8. Select board members.
9. Convene first meeting and formulate an earthquake risk management agenda.

Confederation of Local Governments

A seismic safety advisory board can be set up as a confederation of local governments. As previously noted, local governments have significant earthquake responsibilities. Moreover, the earthquake-related issues for local government may require a more hands-on approach differing from those of other levels of government. Local agencies must be heavily involved in preventive actions related to buildings and land-use planning as well as immediate on-the-scene response to earthquakes. This fact, coupled with America's strong local home-rule tradition, suggests that multi-jurisdictional, intrastate advisory boards can provide important direction in the planning of local governments and local business organizations.

Single- or limited-purpose regional organizations are increasingly important in many metropolitan areas.

Such multi-jurisdictional, intrastate boards can provide important direction for the planning and development for local and regional organizations and help advance the cause of seismic safety. A board may be well suited for outreach to local private-sector organizations, schools, and local governments, including special purpose districts. Moreover, such a board can be a useful adjunct to either a state or multi-state coalition board.

Typically, an advisory board set up as a confederation of local governments will become a legally authorized entity by state legislation. Like a state board, enabling legislation provides it with a legislative mandate that defines its powers and duties. Although an ad hoc committee or association of local governmental officials is the quickest way to establish a board that represents a confederation of local governments or functions as an advisory board to a state-level agency, creation by legislation may have the same overriding advantages noted earlier

with regard to state boards. In meeting common seismic safety needs, local governments may find it advisable to include at least some of the following components in the legislation or the bylaws:

- Prepare model plans, draft legislation, and model policies on land use, zoning, building codes, redevelopment, and new community development.
- Develop local outreach programs for private-sector organizations, schools, other local governments, and special purpose districts, including public information and cooperative programs

with the print and broadcast news media.

- Establish an information resource center with appropriate earthquake-related educational materials.
- Establish of an overview body to assess the impact of damaging earthquakes, recommend appropriate actions, and monitor progress.
- Develop local mutual assistance agreements.
- Develop plans and procedures to reestablish governmental services and business services after earthquakes.
- Coordinate activities with risk management, emergency service providers, and local governments.

Creating a Local Government Board

1. Evaluate local earthquake risk and risk management needs.
2. Identify representatives of local government, the professions, higher education, the business and legal communities, and volunteer organizations to formulate a plan for initiating the board.
3. Identify funding sources.
4. Decide the following:
 - a. Should the board be incorporated?
 - b. Which professions and areas of expertise should be on the board?
 - c. What scope and powers should the board be given?
5. Each participating local government must draft and enact an ordinance authorizing membership in the consortium.
6. If appropriate, draft and enact state-level legislation authorizing the local governments to join and participate in the board's activities.
7. Provide for the selection of board members.
8. Provide for the board's first meeting and initiate work on a earthquake risk management agenda.

Creating a Private-Sector Board

Private-sector organizations can also create a broad-based board to address common concerns. The private sector has many of the resources needed for a viable board: in-house property and asset managers, risk managers and safety departments, structural and civil engineers, geologists, and individuals familiar with land-use and environmental regulation.

Telecommunications, transportation, financial, and insurance businesses typically have state-of-the-art expertise in communications and data transmission that are relevant to mitigating earthquake-related damage to lifeline services. A private-sector advisory board can use the pool of multi-disciplinary expertise to address common concerns or risks just as easily as a public-sector board. In areas where the private sector lacks expertise, a private-sector board can invite

academicians, earth scientists, or civil servants to volunteer their services.

Even if governments do not establish a board, there are valid reasons for private-sector institutions to take the initiative in creating one. In a technologically complex and regionally interdependent economy like that of the United States, a damaging earthquake can cause a widespread disruption of commerce and crucial business support systems, including public utilities and transportation. Businesses in an earthquake-damaged area may be unable to manufacture vital components for goods assembled and sold in other regions of the country. Trading relationships may be severed and the financial markets affected. The insurance industry may need to liquidate assets to pay claims.

A private-sector board would be able to recommend seismic safety goals, practices, and policies—not only within the business community, but for governmental consideration as well.

Moreover, a properly constituted private-sector board would be able to monitor program implementation and evaluate effectiveness, while avoiding anti-trust-related allegations of collusion, price fixing, or anti-competitiveness.

Creating a private-sector board need not be complicated. Although the board could be a loosely structured association or ad hoc committee of concerned business people, it is usually preferable to organize it as a nonprofit corporation. (See the discussion of the incorporation of interstate coalitions for details.) Earthquake risk management is a long-term endeavor; the need for emergency planning and public information never ends. An incorporated board may provide the requisite continuity. Incorporation also confers a degree of autonomy, helping the board prepare a credible earthquake-related program for all or most participating businesses.

Creating a Private-Sector Board

1. Evaluate the private sector's regional earthquake risk and risk management needs.
2. Identify representatives of businesses to formulate a plan for creation of a board.
3. Decide the following:
 - a. Should the board be incorporated?
 - b. Which business and professions should be on the board?
 - c. What should be the scope and powers of the board?
4. Provide for selecting board members.
5. Find a sponsor willing to provide physical facilities for the board.
6. Provide for the board's first meeting and initiate work on an earthquake risk management agenda.

Selecting Advisory Board Members

The methods and care used in selecting members are critical in shaping the nature and ensuring the success of the board. Every member should have a "can-do" attitude. The first step is deciding which professions and fields of expertise need to be included.

Earthquake concerns cut across traditional disciplinary boundaries. A broad perspective on seismic safety is essential to help a seismic safety advisory board achieve a well-balanced program. The board might include representatives of earthquake-related governmental agencies and private-sector organizations, as well as experts in such fields as architecture, planning, fire protection, medicine, law, public utilities, insurance, finance, electrical engineering, mechanical engineering, structural engineering, geotechnical engineering, geology, seismology, education, emergency services, public policy, the media, contracting, and land development.

Although an advisory board will not necessarily need representatives from each of these areas, the membership should be multi-disciplinary and well balanced (perhaps including a member representing the public at large) so that no one group or discipline dominates. Seismic safety policies should be formulated in consultation with the private sector. Including private representatives of the commercial and manufacturing sectors along with nonprofit scientific, educational, professional associations or foundations engaged in promoting seismic safety—and even the public at large—will prevent the development of organizational biases and procedures that may tend to insulate even the best organization from perceptive and innovative practices. Integration of the public and private sectors promotes the consistency in policy that is a must if a seismic safety advisory board is to

benefit its constituency and ensure accountability.

Selecting the Members

Methods of selecting individuals to serve on the board can be critical in the board's success. Prospective members should be leaders in their fields, whose intellectual integrity is recognized by their peers and the organizations representing their professions. Equally important, nominees should be knowledgeable about earthquake risks and willing to devote substantial amounts of uncompensated time to the board's pursuit of seismic safety and hazard mitigation. Each member should be a "spark plug" who can create a sense of excitement and an abiding desire in his or her contemporaries to be a part of an organization that is accomplishing something.

Nominees must want to be on the board. At the very outset, they should be advised that board membership is a job, not an honor. Nominees should accept appointment to a seismic safety advisory board with the understanding that the position carries significant public service responsibilities. Members not only serve on the board itself but as ambassadors to their constituencies and other audiences, interpreting the mission of the board, defending it when it is under pressure, and representing it within their professional organizations and communities. They also must be sponsors of the board, assigning a high priority of their personal time and effort to the advisory board. In recruiting members, it is not unrealistic to ask them to accord as high a priority to the work of the board as they do to their efforts in their own professions. In addition to a commitment to the work of managing earthquake risks, they must also be able to work effectively in

achieving a consensus with colleagues from other backgrounds.

The relationship between the legislature and the board may be enhanced by requiring that the board's members be confirmed by the legislature and providing that the board's membership include one member from each house of the legislature. The legislators or their staffers (sitting as alternates) can provide the board access to the legislature's leadership and may facilitate the successful translation of seismic safety advice into public policy.

It may be advisable to have members appointed by the chief elected executive and confirmed by the legislative branch of government. If the board is established as a state-level body, it will be helpful to include a member from each house of the legislature.

How Many?

Although Arkansas' 47-member seismic safety advisory board has proven to be quite effective, experience by other existing boards suggests that the number of board members is best kept to a manageable level—between nine and 19 members—if it is to be effective. The board should be just large enough to ensure participation by all elements of the private and public sectors with an interest in earthquake risk management, yet it should not be so small as to be viewed as elitist or a special-interest clique. A semblance of parity should be maintained between the socioeconomic interests and the geotechnical and engineering interests represented on the advisory board. Inviting representatives of organizations and disciplines not represented on the board to serve on committees is a good way to involve these persons.

The use of alternate members (except for legislators) should be limited, if not prohibited. The use of alternates creates an impediment to the development of the working relationships

necessary for the board to develop a true consensus on issues and policies. Moreover, using alternates will deprive the board of preeminent expertise, the continuity and commitment its concept is based on and its effectiveness depends on. Effective advisory boards typically prohibit the designation of alternates by members. It should be clear that board members are personally responsible to the board for their performance.

Term of Office

The viability of a board and a seismic hazard mitigation program requires a broad consensus. The term of office for members of the board should be long enough to provide for continuity in the board's policies. Four years is probably a good starting point, with reappointment possible. Initially, it may be advisable to appoint one-half of the members to terms that expire two years after appointment and the remaining members, including the chair, to terms that expire four years after appointment. Such overlapping terms of office tend to promote continuity since the entire board would never change at one time. Any unexpected vacancies could be immediately filled by the appointing power for the unexpired part of the term.

To prevent stagnation and forestall the growth of institutionalized views and procedures that can isolate even the best organization, the board may find it advisable to limit the terms of board members. An alternative to term limits may be for the appointing authority to evaluate a board member's performance when his or her term is completed. If a board member has performed effectively in terms of attendance, professional expertise, participation, and stewardship, then that member could be invited to serve further. In any event, the board's leaders must deal with poor performance.

Operations: Getting to Work

Once the seismic safety advisory board is established, it will hold meetings and hearings to act on seismic safety issues and problems. It will also set up committees and subcommittees to address topics that cannot or should not be handled by the full group. This section contains advice on holding meetings and hearings as well as creating and managing committees and subcommittees.

Planning Meetings

Meetings are important events that need to be properly planned and staged. Regular meetings will be the board's primary means for members to communicate with each other, gather information, and work with others in the public and private sectors. Such meetings will be the principal way of integrating both lay and expert perspectives on seismic safety issues. Meetings can also be a device for promoting communication between state and local governments, professional design and geotechnical organizations, and the private sector. These meetings also will be a primary means for exchanging information with the news media by providing a platform for individuals who are interested in and knowledgeable about seismic safety to promote, discuss, and analyze seismic safety programs and policies. The board can publicize meritorious seismic safety activities as well as inadequate ones.

The board should meet a minimum number of times each year. Nine meetings is the recommended minimum. Otherwise, it will be difficult to foster communication among earthquake-related disciplines, establish priorities, and ensure reasonable progress in board activities. The board should conduct business in a public forum with a

meeting structure that fosters a variety of viewpoints and allows public comment. Agendas should be arranged so that presentations do not squeeze out discussion. Good meetings do not just happen. A concentrated effort is needed to plan and run meaningful and successful meetings. Good meetings will attract and motivate good board members.

Conducting Meetings

Public participation allows members of the public to listen to the deliberations of the board and provides an opportunity for public comment. Periodic meetings can provide a public forum to reward deserving individuals and seismic safety activities, expose earthquake-related problems, and pressure responsible agencies and entities to take necessary action. Meetings also allow board members to interact with their constituency—the public.

To ensure the right of all interested parties to be heard, however, the board should be able to limit the time allowed for testimony on an issue or by an individual speaker. Despite the merits of public participation, the board should retain the right to exclude nonmembers who disrupt the normal progress of the meeting. Persons attending public meetings of a seismic safety advisory board should be permitted to record the proceedings on a video or audio recorder if done unobtrusively. The board also should be able to stop or prohibit such a recording if it disrupts proceedings.

Advertising forthcoming meetings and encouraging interested parties to attend is a good way to reach the media and expand the board's constituency. In addition, legislation in many states and local jurisdictions re-

quires that the balance between public access and the protection of sensitive information be struck in favor of public access. It is recommended that all aspects of the decision-making process—all discussion, debate, and information gathering—be conducted in public, open to scrutiny. Unscheduled or “informal” meetings in which a quorum of members “drop-in” should be avoided. Such meetings restrict the public’s ability to observe the deliberative process and contribute to, or monitor, the board’s decision-making process.

A “meeting” should be considered to be any gathering of a quorum of the board, no matter how informal, if the board’s business is discussed. However, this should not be construed to mean that board members should refrain from attending general conferences on issues directly or collaterally related to seismic safety. Such conferences, even if attended by a quorum of members, would not constitute a meeting so long as the members do not convene and discuss matters that are or may be before the board. When establishing meeting policies, consult the applicable open-meeting laws.

The minutes of a board’s meetings are valuable for informing interested parties as well as keeping a record of the proceedings. Widespread dissemination of minutes can serve to inform a broad constituency and encourage coordination. The minutes should be reviewed by the board and approved at the next meeting. The minutes should be kept on file and remain accessible as public record, as should any recordings.

Publishing the Agenda

To encourage public access and participation, the public must be given adequate notice of the time and place of the meetings as well as the topics to be discussed. This requires timely dissemination of an agenda containing a description of each item to be discussed and the time each item is

scheduled to be heard. Every agenda for a regular meeting should include adequate time for the public to address the advisory board. Even if the state’s open meeting laws do not specify a minimum number of days’ notice for meetings, set a minimum of ten days’ notice for any board meeting or hearing.

Planning a meeting agenda is an important exercise. Include the entire board when discussing possible topics, witnesses, and meeting formats. Above all, the agenda must call for action to be taken at each meeting. Taking reasoned, informed action—doing something—at every meeting is the key to an advisory board’s effectiveness and board members’ participation. Board decisions should never become mere “rubber stamping” of its staff’s work or the work of a committee.

Closed Sessions

Although the public should be able to observe the board’s entire deliberative process, the need for candor, discussion, and information gathering will occasionally justify closed sessions. Closed sessions are typically justified for the following reasons:

- Personnel matters that may cause undue publicity or embarrassment to public employees. Candid discussion of personnel matters may require closed meetings.
- Pending litigation and matters that are within the attorney-client privilege.
- Labor negotiations.
- National and public security matters.

The meeting agenda should indicate a closed session and give the reason for it. An accurate record of the proceedings at a closed session is a must, including confidential discussions and debates. The record should be kept confidential and made accessible only to the board itself or a court in connection with litigation. It should not be considered a public record. However, decisions (even roll-call votes) should be made public.

Hearings and Investigations

It is critical that seismic safety advisory boards conduct hearings to identify, investigate, study, or evaluate earthquake-related issues or problems and showcase noteworthy actions or events furthering seismic safety. Such hearings can provide for communicating among state and local governments, professional design and earth sciences organizations, and the private sector. That knowledge and increased public awareness can lead to expedited seismic risk management. Public hearings also afford an opportunity for both public and private-sector organizations to present testimony on seismic safety issues, providing the focus necessary to pull things together and arrive at consensus.

When a public agency is the subject of board hearings, the focus should be to assist it in addressing its seismic safety concerns, not embarrassing it. The hearing process should include the submission of concise reports, public comments at the hearing, board discussion, and preparation of a report on the findings. Such a report should not only evaluate the agency's seismic safety performance but also include the board's recommendations for improvement or compliance.

It is also important that a board be empowered to investigate any earthquake or any issue affecting seismic safety. As an example, a state-level board might be directed to determine what policy changes should be implemented by governmental agencies, how seismic safety programs have worked or not worked, and recommend legislation to ameliorate weaknesses

and expedite remedial action. The evaluation process would typically include submission of reports by those involved, public hearings, and preparation of a report by the board for submission to the governor, the legislature, or both. Such a report would typically include a number of recommendations for certain agencies the legislature and governor to follow to achieve an adequate degree of seismic safety.

Committees

The board should be empowered to appoint committees from its membership and from interested public and private groups. Such advisory committees can provide it with a broad base of representation and fresh ideas.

State and local representatives of disciplines such as science and engineering, emergency response, and governmental administration, drawn from both the public and the private sectors can integrate their fields of expertise into a

comprehensive seismic risk management program.

A chair who is willing and able to give strong leadership is essential to a committee's effectiveness and punctuality in meeting deadlines. Choice of the chair is thus an important decision, along with selection of other members who can be counted on to contribute to deliberations.

Initially, much of a board's work may be performed by committee members with interests in specific topics or concerns. Because of their expertise, members will almost certainly be busy with other professional commitments; therefore, it is imperative to use their time and expertise efficiently. However, if a board's responsibilities expand, it may become apparent that committee

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members cannot be asked to give specific issues or programs the time and effort that may be required. In such a case, adequate staff may have to be added to the board. (See Section 6 for information on staffing.)

At the outset, the board may find it advisable to form ad hoc committees to address issues that the board determines must be accorded the highest priority. These committees can write publications on key seismic risk reduction topics. By focusing on narrow topics or issues, committee members can efficiently translate their knowledge and expertise into usable information and effective government policy. This advice can be capsulated into policy reports and, if appropriate, draft legislation. Committees' activities should not fragment the board by isolating any one subject or issue; the integration of earthquake-related disciplines and issues must be preserved. Committees' products can be subjected to public hearings to gather perspectives and to give them greater visibility and media coverage.

An alternative is for the board to establish standing committees to coordinate the technical expertise available to the advisory board and translate their advice into policy recommendations. These are some of the more obvious standing committees, their makeup, and their responsibilities:

Executive Committee—Board operations require that decisions be made in between board meetings. They also raise a host of administrative matters which, although they do not merit the time of the full board, should be considered by more than the chair or staff director. Creating an executive committee to assist the board's chair, executive director, or program manager in formulating policy and procedures for the day-to-day management of the advisory board and its staff is recommended.

- *Seismic Hazards Committee*—This committee can review available scientific and engineering knowledge

on the earthquakes and related geological hazards.

- *Structural Vulnerability Committee*—The committee can review the existing building and infrastructure codes and enforcement and recommend improvements.
- *Emergency Planning Committee*—This committee would recommend and review plans to marshal human, physical, and economic resources to minimize losses after an earthquake and facilitate restoration of the normal life of the board's region. The committee would recommend pre-earthquake measures to help minimize human and material losses attending an earthquake.
- *Post-Earthquake Recovery Committee*—This committee would be responsible for recommending contingency measures to guide the long-term work of recovery, reconstruction, relocation, and redevelopment. Such plans should include variable courses of action based on the earthquake's location, duration, intensity, the soil conditions, and resulting damage.
- *Land-Use Planning Committee*—This committee would describe the limits that should be placed on the use of land subject to seismic hazards so that it is designated appropriately in state and local land-use plans.
- *Local Government Committee*—This committee would study the needs of local government to determine how the plans formulated by other committees to reduce risk may be best put into effect. It would recommend changes to policies and practices to help local government exercise the authority to manage earthquake risks effectively. It would also recommend new governmental institutions as necessary.
- *Earthquake Awareness Committee*—This committee would devise and promote programs that will keep the issue of earthquake safety and hazard reduction in the public eye.
- *Earthquake Prediction Committee*—This committee would devise and promote programs that will focus on the issue of earthquake warnings, advisories, and alert levels.

Staffing the Board

Typically, much of the seismic safety advisory board's initial work will be performed by board and committee members, drawing on their experience and expertise and providing their own support. As the board's responsibilities expand, however, members will probably no longer be able to provide the time and effort that may be required. The efficiency of a board made up of high-level, successful people requires support. Adequate staff support may have to be added.

The board will require both administrative and technical support. Beyond the obvious need to make meeting arrangements, do correspondence, reports, keep financial records, and so on, the board's planning effort should determine which avenues of expertise are needed and which staff positions are required. This section will provide suggestions about staffing a seismic safety advisory board and using personnel effectively. Appendix F contains model duty statements for the positions described.

Staff and Director

Staff work can be done by employees from supportive state or federal agencies, by college-level interns, or volunteers. If funds are available, contractors may be a good way to provide staff and retain flexibility.

A board will probably need to hire a director to plan, direct, and organize administrative matters related to the board's functions and responsibilities. These responsibilities would include hiring and supervising other staff and managing the board's office. The director would prepare grant proposals, and administer the budget.

The director can also assist the board in searching for qualified personnel to serve on committees and

for ex officio members. The director would be a primary contact with the public, media, governmental officials, and other entities. The director also will need to maintain contact with decision makers in the public and private sectors. The director will oversee the preparation and publication of reports and dissemination of information pertaining to the board's work.

Probably most important, the director must be able to coordinate the day-to-day activities with those of other agencies with the intent of providing the leadership and coordination of public and private efforts necessary to attain higher levels of seismic risk management. These responsibilities will include meeting with and advising directors and officials of other state agencies as well as maintaining working relationships with other public or private organizations to further an effective seismic safety program.

Technical and Professional Staff

The mix of personnel needed on staff will depend on a board's strategic and risk management plans, the issues and tasks given highest priority, and the groups and entities that will be involved. The board does not need a large bureaucracy to function effectively. Some professional staff will, however, probably be essential. The need for staff positions must be documented and justified in terms of the work to be performed to maintain financial support.

The board's staff will gather information, support the work of committees, help draft reports, and assist in disseminating ideas. This may mean taking technical data from scientists and engineers and translating

it into easily understood and usable policy information. Therefore, staff members not only need to be conversant with specialized disciplines, but must also be generalists who can bridge between the technical community and policy makers. They will need strong writing and speaking skills and credibility among their peers. Preferably, staff members will have developed networks within their professions.

Because of the multi-disciplinary nature of a board's work, it will require the assistance of skilled professionals in a number of areas. If the board's fiscal and organizational means are limited, it may be necessary to rely on the technical and professional resources of other public-sector agencies or those donated by the private sector. This may require full-time staffers to perform more than one of these functions or outside professionals to perform such work.

Particularly at the outset, staff members may need to be generalists who can deal with the myriad issues associated with the board's start-up. However, the board may require assistance of the following professional and technical personnel:

- Legal counsel
- Engineering geologist
- Structural engineer
- Architect
- Legislative specialist
- Emergency response specialist

- Recovery specialist
- Public information officer
- Research writer and editor
- Land-use planner
- Budget/financial analyst
- Grant writer

Support Staff

The board will need support staff to provide secretarial support for the board and the staff. Tasks include arranging meetings, responding to routine inquiries, handling correspondence, completing travel claims, making travel arrangements, and dealing with other fiscal and administrative matters.

The support staff would also be responsible for screening calls and visitors, keeping appointment schedules, and referring calls to appropriate staff members or advisory panel members. The support staff may include, if the staff is large enough, an office manager responsible for supervising the support staff.

Another support staff duty is taking and transcribing the minutes of meetings and hearings as well as assisting with arrangements for locations, organizing and assembling meeting materials including agendas, minutes, reports, and background information for mailing. The support staff would typically make quorum checks and report advisory board members' attendance at meetings.

Footing the Bill: Funding a Board

Who should foot the bill, and how should it be paid? Should the public in general assume major responsibility through federal, state, and local governments. Should the owners of properties benefiting from seismic safety programs contribute? Should the costs be met in other ways? These are legitimate questions that need to be dealt with.

Initially, the seismic safety advisory board should secure funding for its establishment and operating expenses and thereafter acquire funding for its earthquake risk management activities. Because public funds always seem to be in short supply, seismic safety should be recognized as a public priority so that sufficient funds can be allocated and standby devices employed to help raise additional money as needed. Equity would suggest that costs generally be prorated among those benefiting. Sometimes the public as a whole should pay the bill, sometimes the user or owner of the property should bear the main financial burden for seismic safety, and sometimes the costs should be shared.

Earthquake dangers are seldom immediately threatening—until an earthquake strikes. As long as things remain quiet seismically, public and private motivations focus on more immediate problems. Nevertheless, progress can be made, given a strong commitment, sustained effort, and a realistic plan for financing what needs to be done.

Federal Funds

One avenue of financing is grants or federal matching funds from agencies such as the Federal Emergency Management Agency. Although state and local governments often have to provide a certain amount of match

money to secure federal funding, matching funds can substantially defray the cost of establishing and operating a board.

Typically there are cost-sharing requirements as a condition of receiving such funds. The most current regulations will always be found in the Code of Federal Regulations (44 CFR 361).

State General Funds

If a seismic safety advisory board is a governmental entity, fairness may dictate paying the costs of its operations and risk management activities benefiting the general public out of government's general fund. In this age of great mobility, virtually everyone is at some time in earthquake-prone territory or economically dependent on the survival and normal functioning of communities that are either located in earthquake areas or vulnerable to damage to transportation, power, and other lifeline systems that traverse earthquake-prone areas.

Inasmuch as the public will benefit directly and demonstrably from the board's operations, financial support from general fund sources is justified and should be pursued. Moreover, if state government requires local governments to establish seismic risk management programs, economic necessity may dictate that at least a portion of their costs be met from the state's general fund.

Special Assessments

An alternative way to finance a board's activities is to assess a fee or surcharge on regulated activities that will benefit from the board's operations. This would shift a portion of the cost of the

board to property owners and facility users. Devices to generate funding can use an existing collection mechanism, and should not be so burdensome as to provoke a public outcry. For example, a surcharge of less than a dollar on an existing collection mechanism, such as building permits could finance the portion of the board's staffing and operations costs focusing on potentially hazardous buildings.

Surcharges, seismic safety assessments, or fees might be set on a sliding scale. Projects involving greater seismic risks would contribute more. It should be noted, however, that special assessments, surcharges, and fees could, if necessary, be partially offset by general tax funds, inasmuch as the public benefits from measures that will reduce the loss of life, the number of injuries, and economic disruption. Some of the earthquake-related regulatory activities that could be subjected to a seismic safety assessment, fee, or surcharge might include the following:

- *Occupancy and Use Permits*—Depending on the size and composition of an area's building stock, a very small surcharge levied on all properties considered potentially hazardous at the time of transfer, change in occupancy or permitted use, or renewal of licensed use can generate enough revenue to staff and operate an effective board. A fee could be charged on admission prices to places of public assembly to support the board's activities related to reducing seismic hazards in places that have a high potential for deaths or injuries in an earthquake.
- *Building Permits*—A very small assessment, surcharge, or fee could be absorbed as a part of costs for each building permit (commercial or residential).
- *Special Fees in Earthquake Hazard Zones*—A board's hazard-reduction activities will have broad benefits to the public as a whole, justifying special fees or surcharges on all new subdivisions or buildings planned for

property within designated earthquake hazard zones.

- *Utilities*—A seismic safety fee of only pennies on utility bills (telephone, energy, water, or sewer service) to pay for hazard-reduction activities for these lifelines seems justifiable.

Bond Issues

State and local governments typically use general obligation bonds and revenue bonds to make long-term capital improvements in buildings, highways, and other elements of their infrastructure. Although bond measures are not generally used to fund the day-to-day operations of governmental agencies, a board should attempt to acquire an allocation of a very small percentage (typically less than 2 percent) of any bond fund proposal to ensure that the projects funded with bond money incorporate seismic safety concerns. The suggested allocation would enable the board to evaluate and monitor the seismic safety of bond-financed programs.

Other Sources

A seismic safety advisory board should have the authority to accept grants, contributions, and appropriations from other public agencies, private foundations, or individuals to finance its staff and operations. Corporate grants have been made to existing boards and should not be overlooked as a source of funding. To facilitate use of these funds, the board should be empowered to enter into interagency agreements and contracts to act cooperatively with other governmental agencies, private scientific, educational, or professional associations, or foundations engaged in promoting seismic safety.

An alternative to cash funding might be contribution of in-kind services, such as legal, engineering, or other professional services. Needed equipment may be available from surplus equipment stores. Airlines may

be willing to contribute tickets for some activities.

An advisory board's work is valuable. Publications can be sold at a reasonable price to recoup costs and possibly generate a modest surplus to pay for reprinting, for example. Training courses and conferences can be financed by registration fees.

What the board lacks in funding can be made up for with creativity and innovation. One goal might be to leverage a variety of funding sources. One existing board strives to match every dollar of government money with private-sector money.

Footing the Bill: Funding a Board

Who should foot the bill, and how should it be paid? Should the public in general assume major responsibility through federal, state, and local governments. Should the owners of properties benefiting from seismic safety programs contribute? Should the costs be met in other ways? These are legitimate questions that need to be dealt with.

Initially, the seismic safety advisory board should secure funding for its establishment and operating expenses and thereafter acquire funding for its earthquake risk management activities. Because public funds always seem to be in short supply, seismic safety should be recognized as a public priority so that sufficient funds can be allocated and standby devices employed to help raise additional money as needed. Equity would suggest that costs generally be prorated among those benefiting. Sometimes the public as a whole should pay the bill, sometimes the user or owner of the property should bear the main financial burden for seismic safety, and sometimes the costs should be shared.

Earthquake dangers are seldom immediately threatening—until an earthquake strikes. As long as things remain quiet seismically, public and private motivations focus on more immediate problems. Nevertheless, progress can be made, given a strong commitment, sustained effort, and a realistic plan for financing what needs to be done.

Federal Funds

One avenue of financing is grants or federal matching funds from agencies such as the Federal Emergency Management Agency. Although state and local governments often have to provide a certain amount of match

money to secure federal funding, matching funds can substantially defray the cost of establishing and operating a board.

Typically there are cost-sharing requirements as a condition of receiving such funds. The most current regulations will always be found in the Code of Federal Regulations (44 CFR 361).

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Strategic Planning: The Long View

Strategic planning is the process of defining the direction for an organization so it can reach its goal. Strategic planning is planning for the long haul. More specifically, strategic planning means identifying the board's mission, goals, and objectives and then devising policies and strategies to achieve those ends. Strategic planning will allow the board to anticipate the probable impact of its decisions on its constituency and to prepare a more detailed plan that specifies tasks, responsibilities, schedules, and costs for the endeavors to be pursued. Even though the mission and goals will not change much over time, strategic planning should include a formal evaluation and revision process to keep the objectives and activities current.

The strategic plan will serve as a "road map" for setting priorities, guiding decisions, and assessing progress in lowering seismic risk. This section describes a three-phase strategic planning process in the context of a statewide constituency; however, it is also fully applicable to a multi-state, local, or private-sector constituency.

The Process

The strategic planning process is as important as the plan itself. The process will result in the identification of "stakeholders" (persons who will be responsible for—or affected by—the resulting activities) and potential leaders for the cause of seismic safety. It can create open, collaborative channels of communication and lasting commitments.

The first phase is information collection—the collection of information and opinions from board members and others who are essential to earthquake risk reduction and management efforts. Because perceptions will affect the program, they are as important as facts. The assessment must provide a current and comprehensive perspective of the state's strengths, weaknesses, opportunities, and obstacles. The information obtained in this phase will be the foundation of the strategic plan.

The second phase is the evaluation and integration of the information collected. The information is presented and discussed in an open forum. A workshop or series of workshops involving the stakeholders and decision makers should be held to consider the

information gathered and chart a course of action. This collaborative exercise is a key element of strategic planning.

Formulating the strategic policies is the third phase, in which the results of the workshop are melded to develop the long-range policy guidance needed for preparing a detailed, action-specific, shorter-term earthquake risk reduction and management plan. Not only should the strategic plan be adopted by the board, but a commitment is needed to refine, improve, and update the strategic plan periodically.

Phase I: Collecting Information

The objective of the information collection phase is to obtain a current and comprehensive assessment on the state's earthquake risk reduction and

THE STRATEGIC PLANNING
PROCESS IS AS IMPORTANT AS
THE PLAN ITSELF.

management needs and to identify stakeholders and leaders.

Crucial to the strategic planning process is identifying and interviewing stakeholders—individuals and entities with earthquake-related responsibilities who have significant influence on seismic risk management efforts. Stakeholders may represent external sources (the private sector, the legislature, local government) and internal sources (board members and staff). The selection of stakeholders must be balanced to ensure that no one group or discipline dominates.

Stakeholders should include persons with varied experience in academia, government, and the private sector, and other professionals, including earth scientists, engineers, emergency managers, mitigation specialists, and representatives of human services agencies.

The interview is used to obtain perspectives on the board's earthquake-related needs and, if appropriate, on the board's past performance. Questions should relate to strengths, weaknesses, obstacles, and opportunities for organizing existing conditions and programs within the field as well as required legal mandates.

In depth, face-to-face interviews by a strategic planner or other qualified personnel are better than telephone interviews and written solicitations. The interviewer must elicit information and perceptions about vulnerable facilities and seismic hazards, the potential for managing the risk and reducing vulnerability, and planning for emergency response and recovery. The interviewer should seek to identify clients and interest groups, potential leaders, personnel and monetary resources, and other sources of support

or opposition to the board's programs and objectives.

The information should be collected on "issue statement" forms. Each completed form should include a brief description of the issue or idea, supporting information, and recommended action. (Appendix G is an example of an issue statement.)

The information collected should be separated into four categories:

- *The state's strengths* (to capitalize on), such as academic and professional resources offering expertise in earth sciences and engineering, knowledgeable local government building officials, and the resources of emergency response and recovery organizations.
- *The state's weaknesses* (to strengthen), such as untrained building officials, out-of-date emergency response plans, and inventories of vulnerable buildings and lifelines.
- *Opportunities* (to exploit), such as private-sector interest in building codes, recent seismic events, and pending redevelopment programs.
- *Obstacles* (to overcome), such as shrinking sources of funding, loss of leadership, competing interests or needs, public apathy, and lack of awareness.

The information generated by this exercise will identify numerous issues and provide an overall profile of the topics to be considered during Phase II at the workshop. Issues can be grouped into themes. Together they will provide an initial assessment of the current situation. It should be stressed that the collection of information and the needs assessment do not require an excessive expenditure of time or money for detailed studies; indeed, detailed studies may be an element of the earthquake risk reduction and

THE INFORMATION FROM
INTERVIEWS WILL PROVIDE
THE ISSUES DISCUSSED AT
THE WORKSHOP.

management plan discussed in the next chapter.

Phase II: Evaluating and Integrating

The purpose of the second phase is to assess the factual and perceived information and to agree on (and refine) a mission statement, goals and objectives, and prioritized action items.

One two- or three-day off-site workshop or two or three one-day workshops are recommended as a way to deliberate, evaluate, and integrate information using a variety of participants.

The workshop should explore basic assumptions, discuss desired outcomes, and consider potential timetables. Promising implementation strategies can be identified, along with processes for evaluating and measuring progress and making mid-course corrections. It is critical that proposed activities be realistic, given the current political climate and fiscal realities. In the end, a consensus should be reached regarding the board's overall mission and its fundamental goals and objectives.

Workshop participants must be selected carefully to include advisory board members, staff, and representative stakeholders who will influence or be responsible for the implementation of the strategic plan. If successful, the workshop will assist the board in solidifying its constituency, improving visibility, enhancing credibility and improving access to the expertise it will need to make its strategies effective. Since the number of persons attending the workshop must be kept to a manageable number, the selection process is important, and potential participants must be carefully screened.

Each attendee should receive in advance a clear statement of the workshop's purpose and expectations to encourage participants to come well prepared. Highlights of the information collection phase should be summarized and distributed in brief issue state-

ments prepared in a uniform format (see Appendix G).

The first order of business at the workshop is to review objectives and expectations. Sufficient time should be allowed for participants to review all issue statements and to become comfortable with the process and each other. After the opening plenary session, participants should break into smaller working groups to discuss the results of the data collection phase.

PHASE II SHOULD CONSIST OF EVALUATING BOTH INFORMATION AND PERCEPTIONS. IMPLEMENTING AND EVALUATING STRATEGIES CAN THEN BE IDENTIFIED.

The issue statements prepared in Phase I identify what must be addressed. Those statements also facilitate the formulation of action items by the working groups. It may be helpful if the issue statements are kept to a manageable number and if redundant statements are consolidated without losing the intent behind them. Related statements should be grouped. For example, a dozen statements concerning schools could be consolidated into three school-related topics such as strengthening school buildings, mitigating nonstructural hazards, and educating teachers and students on appropriate earthquake response.

Working groups can be assigned categories based on themes or issue statements. For example:

- Vulnerable buildings
- Societal vulnerability
- Seismic hazard identification
- Schools
- Public awareness and constituency
- Professional training
- Emergency response planning and mutual aid

Effective working groups typically have at least three to five persons. The group selects a chair, a recorder, and a spokesperson to present the group's reports to the plenary session.

Working groups should consolidate the principal issues raised by the issue statements into proposed action items. Brainstorming (without criticizing or judging ideas) should be encouraged initially, followed by critical discussions. Action items are written up to summarize terms the following points:

- *Assumptions*—The premise for proposing the action item. Assumptions set the parameters and limiting conditions, including legislative, contractual, policy mandate, or other special considerations.
- *Objectives*—The proposed outcome or result of the action item. The components of the objective are:
 1. An assignment of responsibility
 2. A statement of the results expected or the desired level of performance
 3. A schedule for performance
- *Implementation*—The resources and research required, the foundation to be laid to perform the task, obstacles to be overcome and the basic implementation strategy.
- *Rationale*—The reasons underlying the working group's recommendations.
- *Consensus*—The desired areas of agreement needed among organizations and constituents on policy issues.
- *Evaluation*—Feedback mechanisms to assure that the work is on the right track.

Typical action items may include:

- Drafting proposed legislation to address building standards
- Creating voluntary programs to retrofit existing buildings and lifelines
- Training design professionals in seismic principles
- Improving quality control of new construction
- Abating nonstructural hazards in schools

- Supporting efforts to improve emergency response capability
- Encouraging earthquake response exercises
- Preparing recommendations (not regulations or mandates) for agencies with earthquake-related functions

After the working groups have had time to complete most of their work, the workshop should reconvene in plenary session. The products of the working groups are presented and reviewed. All workshop participants should have an opportunity to evaluate and discuss the recommendations. The entire group needs to clarify assumptions, integrate the variety of activities proposed, and decide on priorities. After discussion, the entire group should have a complete list of items.

Setting priorities is a critical step. The "nominal group technique" is one way to make decisions (see Figure 8-1 for an overview of the technique). The nominal group technique is a form of brainstorming that allows all participants an equal voice in establishing the whole group's priorities and rank-ordered selection of ideas. It is well suited to collecting different types of information, converting that information into reasonably consistent measures, identifying where breakdowns occur, and designing an improved process.

After workshop attendees discuss and rank the action items, they will have an opportunity to write (or review) a mission statement. A mission statement is a succinct statement of the fundamental objectives of the organization. It should be brief enough to be easily understood and remembered, general enough to cover the scope of the organization's work, yet provide specific direction. A mission statement may include elements addressing who the board is, what it is intended to do, and how it does it. This additional information, however, should not detract from the aim of being succinct and easily

understood. A possible mission statement is as follows:

The [state] Seismic Safety Advisory Board's mission is to improve the well-being of the people of [state] through cost-effective measures that lower earthquake risks to life and property.

Participants will also discuss and agree on long-term, fundamental goals. A goal is a statement of results to be achieved by the end of a period of time. Specific objectives or implementation strategies are identified and a process for evaluation (measuring progress and making mid-course corrections) can be discussed.

A sample workshop design, including a model agenda, is included in this manual as Appendix H. The design and agenda were adapted from an existing board's strategic planning session. The workshop will not result in a finished product. Follow-up work, including an opportunity for workshop participants to review their written products, will be necessary.

PHASE III PULLS TOGETHER
THE PRIORITIES AND
STRATEGIES FOR
IMPLEMENTING THE BOARD'S
MISSION.

Phase III: Deciding on Strategic Policies

After the workshop the board can refine the priorities and establish strategies for managing actions and for developing a shorter-term earthquake risk reduction and management plan. In this phase the board's contractors, staff, or volunteers first will need to compile and edit the workshop's results. A draft should be circulated to participants for comments before the board decides on the steps to take. After the review the board should formalize its mission statement, goals, objectives, and action items. The board will be faced with

tough decisions when balancing its own resources with the "wish list" that came from the workshop.

THE BOARD MUST ESTABLISH
A MECHANISM FOR FEEDBACK
AND A WAY TO EVALUATE
PROGRESS.

The next step will be to work out the details for action items. These details include tasks, schedules, responsibilities, needed resources, and references. At this point the board can either prepare a work plan and begin work or develop a comprehensive earthquake risk reduction and management plan described in the next section.

Conclusion

A collaborative strategic planning process can prepare the conceptual framework of a risk reduction and management plan. This process gives participants an opportunity to exchange views on an interdisciplinary basis, build understanding and commitment among those who will play a key role in carrying it out, and take ownership of the issues and programs. The process can prevent one agency, discipline, or point of view from pursuing a narrow, isolated interest when other action items are given higher priority or otherwise must go first. By involving persons who can promote the needs of "users"—who often are policy makers, school administrators, building users, design professionals, etc.—the mission and action items can focus on reducing and managing earthquake risk in more informed and effective ways.

Although the results of a board's efforts will not be perfect the first time, it is a critical step toward focusing the resources of the organization. The board may find it best to follow the plan and then repeat the strategic planning process in six months or a year to refine and improve the results.

Figure 8-1—Overview of a technique for conducting a workshop

The Nominal Group Technique

The nominal group process can be conducted by using the action items as topics of discussion. The process consists of five steps.¹

1. *Problem statement*—The matter to be decided is stated, discussed, and agreed on.
2. *Quiet period*—Five minutes of silence is provided to allow participants to consider ideas and solutions.
3. *Round robin*—Each participant responds, one at a time, by identifying each action item he or she feels is critical. If an action item merely restates another in slightly different terms, the two versions can be merged. This continues until all items are on flip charts for all to see.
4. *Bull session*—Participants discuss issues to clarify, consolidate, edit, or eliminate them. Once the list is complete, participants should be encouraged to argue why they believe certain items are important.
5. *Prioritization*—The ranking process recommended recognizes the difficulty in comparing and ranking disparate items.
 - Participant should pick the most important item and assign it the number that represents the total number of items being ranked.
 - The least important is given a "1."
 - Each person then selects the most important of those remaining and assigns it a score one less than before.
 - Then the least important of the remaining items is given a "2."
 - This process is repeated until arriving at the center.
 - Then the participants' rankings are collected, and the collective ranking for each action item is computed by adding. The action item with the highest total score is the one considered most important to the workshop participants.

As an example, a group of five participants might consider the following five hypothetical action items, ranking them accordingly:

Issues	Ranking by Participants					Total
A. Seek funds to strengthen older hospitals	4	4	4	5	4	21
B. Evaluate the seismic safety of school bldgs.	2	3	2	2	2	22
C. Map all active faults	3	2	3	3	3	14
D. Enforce special standards for new schools	5	5	5	4	5	24
E. Do research on liquefaction	1	1	1	1	1	5

In this example the safety of school buildings was awarded the highest overall score from the five participants, making it the issue accorded the highest priority by the participants. On the other hand, the liquefaction research, with a total score of 5, is accorded the lowest priority.

¹ R. C. Whiteley, *The Customer-Driven Company: Moving from Talk to Action*, Addison Wesley, 1991, pp. 266-67.

Risk Reduction and Management Plan

Preparing and adopting a comprehensive, multi-year plan to guide risk reduction and management efforts is essential to long-term progress. A risk reduction and management plan will serve to keep the work needed in the public eye for the long-term and provide a means for measuring progress and maintaining focus. It should be built on the policy guidance developed through strategic planning and serve as a detailed, programmatic guide for what needs to be done and who should do it.

The strategic planning process should produce a long-term mission statement and goals, a strategy for reaching those goals, and an initial prioritized set of concrete objectives and action items. The mission and goals will presumably not be changed often after they are formulated and approved. Much of the board's subsequent effort will carry out the strategy, revise it as necessary, implementing the initial action items, and develop new action items and priorities as experience warrants. The data collection and workshop phases provide information and perceptions regarding strengths, weaknesses, opportunities and obstacles for earthquake safety. The results are summarized, reviewed by workshop attendees, and then refined and adopted by the board. These materials, and the action items will serve as the foundation for writing and adopting a detailed programmatic plan—an earthquake risk reduction and management plan.

This plan should seek to describe and implement action items to meet the goals and objectives in a way that is consistent with the strategy adopted by the board. It should be detailed and specific and may require gathering more data and involve persons and

organizations that did not participate in the data collection or workshop deliberations. This chapter will describe the plan's contents, format, creation, and monitoring.

Contents

The earthquake risk reduction and management plan should be comprehensive. It should seek progress in a number of topical and geographic areas. For example, action items can call on geologists to identify hazards, for agencies to retrofit certain vulnerable buildings, and for emergency response agencies to improve and exercise response plans. The plan should include both risk reduction and risk management activities. For example, an owner may choose to strengthen a building to lessen the expected life loss (risk reduction) and purchase insurance and write a plan for business resumption to manage the remaining risk. The plan also should provide sequencing by calling certain action items to go before others. It may emphasize public awareness in one area and geologic mapping in another. A comprehensive plan will provide the "big picture" so that numerous organizations can act both independent of and in coordination with each other when pursuing efforts with their own resources.

A comprehensive plan is necessary because earthquakes differ from other hazards in a number of significant ways. Earthquake damage may be widespread, but also extremely variable. While many dozens of jurisdictions will be affected, each jurisdiction will have pockets of severe damage intermingled with areas without notable damage. Earthquakes affect the ability of a community to

respond by damaging lifelines, infrastructure, and communications systems.

Ground shaking triggers secondary natural hazards such as landslides, liquefaction and tsunamis and can damage structures whose failure can cause flooding or the release of hazardous materials. Emergency response planning and training are especially important because of the sudden and unpredictable nature of earthquakes as well as the potentially large number of damage incidents over a wide area and the disruption to normal communication. Carrying out a comprehensive plan will benefit communities in a variety of other ways in addition to improving its ability to withstand earthquakes. Emergency responders will be better prepared for incidents that are more frequent and isolated, and facilities will be better built and resist wind and geologic hazards as well as earthquakes.

Format

Developing the details for implementing the plan is essential to making progress. The plan can be built around individual action items or tasks. An action item is a self-contained activity or set of activities that is aimed at dealing with one seismic issue. They are essentially the same as the action items developed through strategic planning, but done in more detail. Each action item should state an objective, describe the problem and the expected outcome, identify the responsible parties, the amount and source of funding, the interim products, and a schedule for completion.

Action items should recommend activities both for the government and private-sector organizations to focus on during the specified period. Experience has proven that it is most effective to include the following components:

- *Description of the issue*—Each action item should explain the seismic safety

issue that justifies use of a government's or private-sector institution's resources.

- *Statement of the objective*—The action item should include an objective that explains what is to be accomplished, sets a date it should be completed, and identifies the agency responsible.
- *Milestones*—Each action item should include a timeline for achievable steps to help measure progress. Where the problems addressed require extensive additional study, the initial estimates of time may be only best guesses.
- *Resources needed*—The action item should include cost estimates. For some tasks, the estimates may be only best guesses because the problems to be addressed by the task will require extensive study. In others, the resources needed will have been identified and in some cases be within the responsible agency's budget.
- *Responsible entities*—Each action item must identify not only the lead agency responsible for the overall objective but also the participating agencies and organizations. The lead agency generally is responsible for coordinating the activities of the other agencies and organizations. In some instances the board may be the lead agency. Each action item should also designate an accountable individual who is ultimately responsible for the organization's participation and for the successful completion of the milestones.
- *Status*—Each action item should state the status of its compliance with its implementation schedule or milestones that have been established for it.
- *References*—The action item should provide references to any statutes, reports, or other materials that may be relevant to the issue.

Figure 9-1 is an example of an action item taken from an existing board's earthquake risk reduction and management plan.

Figure 9-1—Sample action item from a programmatic plan

Action Item

Clarify Hazard Mitigation Liability Issues

Governmental actions dictating strengthening and mitigation of seismic hazards, as well as innovative methods of maintaining the structural integrity and functionality of buildings during and immediately after an earthquake, raise legitimate concerns of tort liability in both the public and private sectors.

Buildings constructed to out-of-date standards pose the greatest life-safety risk in an earthquake. Local governments have the authority and the responsibility to protect their populations from hazardous buildings. Design professionals have the capability to design and construct buildings that maintain their structural integrity during and immediately after an earthquake. Proper building practices, retrofitting existing buildings posing a high likelihood of collapse during seismic events, and innovative structural designs and components in new buildings will significantly reduce earthquake-related casualties.

The tort liability issue of whether one has met the legal standard of due care to a foreseeable plaintiff has inhibited innovation by those involved in the retrofitting of potentially hazardous buildings, as well as the development of seismically resistant new buildings. Local governments and design professionals need a clearly defined legal benchmark to use when their professional judgment calls for deviation from existing building codes in their efforts to mitigate seismic hazards.

Objective

By December 1993, the Seismic Safety Commission clarifies tort liability issues affecting the mitigation of seismic hazards, including employing innovative methods to maintain integrity and functionality of buildings during an earthquake and to what extent they may be avoided, mitigated, or imposed on either local governments or design or construction professionals.

Milestones

1. By December 1992, the Seismic Safety Commission convenes a workshop to clarify to what extent tort liability may be avoided,

mitigated, or imposed on either local governments or design professionals for strengthening and mitigating seismic hazards and the use of innovative methods of maintaining the structural integrity and functionality of buildings during and immediately after an earthquake.

2. By September 1993, the Seismic Safety Commission provides the legislature, the governor, and local governments a report on the issue, including suggestions on how local governments and design professionals may exercise their creativity and judgment without undue apprehension of incurring a large tort liability judgment.

3. By January 1994, the Seismic Safety Commission after consultation with local jurisdictions, the governor, the legislature, as well as supporting and concerned organizations and agencies, submits proposed legislation, if needed, to clarify the tort liability concerns of local governments and design professionals.

Resources Needed

State: The Seismic Safety Commission will conduct the workshops, research, and legislative advocacy with existing staff and fiscal resources.

Responsible Agencies

- Seismic Safety Commission (Tim Cronin, Staff Counsel)
- State Bar of California (Larry Walsh, Director of Real Property Section)
- California Trial Lawyers' Association (Nancy Peverini, Associate Legislative Counsel)
- Association of Bay Area Governments (Ken Moy, Attorney)
- County Supervisors Association of California (Fred Keeley, Santa Cruz County Supervisor)
- League of California Cities
- Structural Engineers Association of California
- California Council/American Institute of Architecture (Aimee Hall, Legislative Assistant)
- Earthquake Engineering Research Institute (Frank E. McClure, Structural Engineer)

Status

To be started.

Organization

Organizing action items by related topics will make the plan easier to understand and monitor. The following categories are suggested:

- *Existing vulnerable facilities*—Action items that encourage reducing vulnerability in existing facilities and lifelines might consist of establishing seismic evaluation and retrofit standards for buildings, improving the seismic safety of public schools, publicly owned buildings, essential services buildings, and hospitals, as well as improving the performance of transportation and utility systems.
- *New facilities*—Action items that encourage reducing vulnerability in new facilities and lifelines can include improving seismic standards for new construction, mapping geologic hazards, and establishing seismic design review policies.
- *Emergency management*—Action items that encourage improvements in emergency management include improvements in emergency planning, communications equipment, training, mutual aid, emergency medical care, and shelter for earthquake victims.
- *Disaster recovery*—Action items that expedite the recovery process include providing post-event housing, estimating economic and governmental effects, and implementing recovery guidelines.
- *Research, public information, education, and legal support*—Action items include implementing a research plan, providing legal analysis of issues, conducting public information campaigns, and developing an information resources center. Earthquake-related research, public information, and education can help achieve the risk reduction and management action items in all the other categories.

Administration

A plan should lay out an administrative and management framework, including:

- *Implementing actions*—Describe actions the board will take to monitor, promote, and carryout the plan.
- *Annual work plan*—Describe and summarize the milestones to be met during each calendar year.
- *Legislation*—Describe legislation needed to enact parts of the plan.
- *Funding*—Funding for some of the action items may come from the Federal Emergency Management Agency or another funding authority that uses a comprehensive coordinated agreement or similar agreement. The action item format should provide the information (task descriptions, deliverables, schedule, cost) needed to complete these agreements.

Planning Process

A seismic risk reduction and management plan will necessarily involve dozens of agencies—governmental, private sector, and volunteer. The public sector and local government ultimately have the principal responsibility for earthquake safety. Because success will depend on their support and active participation, all sectors should be considered important contributors. The process used by other boards can help.¹

An “open” planning process involving all stakeholders is strongly recommended. The process should seek the following:

- Outside views on action items. Success of the plan will depend on organizations and information not available in the workshop.
- A consensus about what needs to be done by whom and the priorities.
- A commitment from responsible entities to implement each action item for which they are responsible.

Starting with the guidance from strategic planning, the planning process should be methodical yet flexible

¹ L. T. Tobin, F. Turner, J. F. Goodfellow, and B. L. Stoner, “California at Risk: Where Do We Go from Here?,” *Earthquake Spectra*, Vol. 8, No 1, 1992, p. 19.

and open in its involvement of parties interested in the outcome. Public involvement should be both informal and formal. Ample time must be provided for interested individuals and organizations to review draft materials. Ample notice must be given before meetings and hearings. An open process will allow time to publicize actions items so that elected officials, community leaders, professional organizations, and the media will understand what is needed and the priorities.

The planning effort should aim to build a support and commitment by creating interest and understanding and a sense of ownership among the persons who will carry it out. Care should be taken to ensure that the plan does not even appear to be dictated from a higher legal or intellectual authority. It is more important to get a commitment from the persons who can make a difference in earthquake risk than it is to make the plan a state-of-the-art document.

Care should be taken to develop a mailing list of the stakeholders identified during the strategic planning process. Other professional organizations, government organizations, and private-sector agencies should be called to identify persons to represent their interests and report back. Draft plan materials should be provided these persons for review and comment.

Workshops and open meetings can be held to air differences, to facilitate interdisciplinary discussion, and to explore technical details and relationships in depth.

Setting Priorities

Even though strategic planning will have identified priorities, the board will have to revisit the issue once the detailed action items have been developed. Once a draft plan has taken shape, use the board's judgment and perspective to set priorities. Six criteria can be applied:

- *Lives saved*—The potential for saving lives and preventing injuries.
- *Damage reduction*—The potential for reducing property damage and economic losses.
- *Socioeconomic continuity*—The potential for reducing social and economic disruption.
- *Opportunity*—The ease with which the activity can be implemented and the degree to which it complements other activities (the opportunity to build and leverage resources of others through relatively small investments).
- *Cost*—The probable cost of the activity.

Take the time to review each action item to be certain it meets a "common-sense test." Decision makers and the public should see it as being sensible, practical, and feasible. Moreover, unless the board has the wherewithal to do an action item, it should not be selected as a priority.

Approval

Before the plan is adopted, a formal public hearing should be held to be certain that organizations participate in an official capacity. The hearing process also fosters the official commitment of the organizations with the resources or legal authority to carry out the plan. Even though hearings are an opportunity to hear from those who disagree or who have new ideas, it is not a substitute for a careful open, review process.

Promoting the Plan

The board should commit itself to its plan by submitting it to the governor, legislature, and other organizations. Making the plan widely available will increase support and recognition for it, as well as for the board and the individual action items.

Many people and agencies must cooperate to make earthquake safety a reality. Concerted efforts and oversight by the board can promote long-term progress toward improved seismic

safety. The board can use reports, hearings, workshops, etc., to focus attention on government and the private-sector implementation measures that are needed. The board can sponsor legislation at the national, state, and local levels. It can provide testimony to legislative committees and city councils. The board can invite leaders of various organizations to meet with it—or send representatives to meet with them. A plan that assigns responsibility for specific tasks to agencies and recommends organizations will allow the board to coordinate and orchestrate the activities of the participants.

Monitoring Progress

A seismic risk reduction and management plan should include a mechanism for monitoring, measuring, and evaluating its effectiveness in meeting its objectives. The foundation for measuring progress is in each action item and its milestones. Only detailed milestones with reasonably achievable dates can be reviewed. A multi-year plan should be reviewed and revised yearly to allow for mid-course corrections. Timetables should be set as gauges for evaluating progress and opportunities for improvement,

regardless of whether schedules or deadlines are met.

The board can use periodic public hearings to assess progress. The meeting format will serve to reward those who are on or ahead of schedule and encourage those who are behind. Anticipation of a hearing will serve to encourage progress, even if it is at the last minute. A periodic review can also ensure that items will not be forgotten and that those that have fallen behind will be revised. A hearing format can also create media interest. Since external accountability is important, the plan should include an annual report to the legislature and governor.

Even if the plan is successfully implemented, events beyond the board's control will create reasons for revision. Periodic strategic planning, described in the previous section, and the results of the monitoring will identify new action items and revisions needed to items. A comprehensive, multi-year plan, prepared openly with the full involvement of affected organizations and individuals will be a major asset in helping a state address seismic safety. The plan should be a living document that is promoted, monitored, and revised continually.

Model Executive Order

Executive Order

No. _____

Establishing _____ Seismic Safety Advisory Board

WHEREAS, many different agencies at various levels of government have substantial responsibilities in the fields of earthquake emergency response and recovery planning and seismic safety; and

WHEREAS, there is a pressing need to provide a consistent policy framework and a means for coordinating on a continuing basis the earthquake-related programs of agencies at all governmental levels and their relationships with elements of the private sector involved in practices important to seismic safety; and

WHEREAS, this need is not being addressed by any continuing state government organization; and

WHEREAS, through concerted efforts of broad scope, coordinated by a Seismic Safety Advisory Board, long-term progress should be made toward higher levels of seismic safety; and

WHEREAS, earthquakes have caused and can cause in the future enormous loss of life, injury, destruction of property, and economic and social disruption, and with respect to future earthquakes, that loss, injury, destruction, and disruption can be reduced substantially by developing and implementing earthquake hazards reduction measures; and

WHEREAS, while the major responsibility for dealing with

earthquakes before and after they happen is firmly fixed with local government, state government also has fundamental responsibilities to take all reasonable measures to reduce the seismic hazard to which the citizens of _____ are exposed; and

WHEREAS, the state should assume a leadership role by influencing the direction of existing and future national earthquake hazard reduction programs and should serve as a model for local hazard reduction measures; and

WHEREAS, earthquake hazard reduction measures often benefit many state programs and bring about improvements in buildings, dams, transportation facilities, communications, fire safety, toxic materials handling, and emergency response preparations;

NOW THEREFORE, I, [NAME], Governor of the State of _____, by virtue of the powers and authority vested in me by the statutes and Constitution of the State of _____, do hereby issue this order to become effective immediately:

- I. Establishment of a _____ Seismic Safety Advisory Board to provide policy, guidance, and direction for the implementation of a comprehensive earthquake risk reduction and management program consistent with state organization responsibilities.

- a. There is established a _____ Seismic Safety Advisory Board, herein referred to as the "board"
 - b. The purpose of the Board is to coordinate, inform, advise and make recommendations.
 - c. The advisory Board shall consist of 15 members appointed by the Governor. The Seismic Safety Advisory Board shall elect annually from its membership its own chairman and vice chairman and may replace them with other advisory board members by majority vote.
 - d. Advisory Board members shall be residents of the State of [name].
 - e. The membership of the Seismic Safety Advisory Board shall be appointed by the Governor from lists of nominees submitted by professional organizations and associations as listed below:
 - (1) Four members appointed from established organizations in the fields of architecture and planning, fire protection, public utilities, and electrical engineering and mechanical engineering;
 - (2) Four members appointed from established organizations in the fields of structural engineering, geotechnical engineering, engineering geology, and seismology;
 - (3) Four members appointed from nominees submitted by the League of Cities and the County Supervisors Association;
 - (4) Three members appointed from established organizations in the fields of insurance, social service, and emergency services;
- II. Duties and responsibilities of the _____ Seismic Safety Advisory Board.
 - a. The Board, in the discharge of its responsibilities, may do any of the following:
 - (1) Accept grants, contributions, and appropriations from public agencies, private foundations, or individuals.
 - (2) Appoint committees from its membership, appoint advisory committees from interested public and private groups, and appoint *ex officio* members who shall not be entitled to vote, to advise the Board.
 - (3) Contract for or employ any professional services and research required by the Board or required for the performance of necessary work and services which, in the Board's opinion, cannot satisfactorily be performed by its officers and employees or by other federal, state, or local governmental agencies.
 - b. The Board is responsible for all of the following in connection with earthquake risk management:
 - (1) Setting goals and priorities in the public- and private-sectors.
 - (2) Requesting appropriate state agencies to devise criteria to promote earthquake and disaster safety.
 - (3) Recommending program changes to state agencies, local agencies, and the private sector where such changes would improve earthquake hazards and reduction.
 - (4) Reviewing emergency response, recovery and reconstruction efforts after damaging earthquakes.

- (5) Gathering, analyzing, and disseminating information.
 - (6) Encouraging research.
 - (7) Helping to coordinate the earthquake safety activities of government at all levels.
 - (8) Establishing and maintaining necessary working relationships with any boards, advisory boards, departments, and agencies, or other public or private organizations.
- c. To implement the foregoing responsibilities, the Board may do any of the following:
- (1) Review state budgets and review grant proposals, other than those grant proposals submitted by institutions of post secondary education to the federal government, for earthquake related activities and to advise the Governor and Legislature thereon.
 - (2) Review legislative proposals, related to earthquake safety to advise the Governor and Legislature concerning the proposals, and to propose needed legislation.
 - (3) Recommend the addition, deletion, or changing of state agency standards when, in the Board's view, the existing situation creates undue hazards or when new developments would promote earthquake hazard mitigation, and conduct public hearings as deemed necessary on the subjects.
 - (4) Recommend and sponsor legislation creating a state-level Seismic Safety Advisory Board as a permanent and autonomous entity of state government.

IN WITNESS WHEREOF, I have hereunto set my hand and have caused the Great Seal of the State of _____ to be affixed this ____ day of _____, 19 __

Governor of the State of

Attest: _____
Secretary of State

Model Enabling Legislation

- § 1000. Legislative Declaration
- § 1002. Seismic safety advisory board; creation; report
- § 1003. Members; appointment; chairman; vice chairman; quorum; public interest
- § 1004. Appointments to advisory board
- § 1005. Term of office
- § 1006.. Per diem; expenses
- § 1007. Powers and Duties
- § 1008. Executive director; employees
- § 1009. Earthquake hazard reduction responsibilities
- § 1010. Establishment and objectives of the [Name] Earthquake Hazard Reduction Program
- § 1011. Implementation of earthquake hazard mitigation program
- § 1012. Consultation with other agencies and groups
- § 1013. Short Title

§ 1000. Legislative Declaration

The Legislature finds and declares as follows:

First, many different agencies at various levels of government have substantial responsibilities in the fields of earthquake preparedness and seismic safety.

Second, there is a pressing need to provide a consistent policy framework and a means for coordinating on a continuing basis the earthquake-related programs of agencies at all governmental levels and their relationships with elements of the private sector involved in practices important to seismic safety. This need is not being addressed by any

continuing state government organization.

Third, through concerted efforts of broad scope, coordinated by a Seismic Safety Advisory Board, long-term progress should be made toward higher levels of seismic safety.

Fourth, earthquakes have caused and can cause in the future enormous loss of life, injury, destruction of property, and economic and social disruption. With respect to future earthquakes, that loss, injury, destruction, and disruption can be reduced substantially by developing and implementing earthquake hazards reduction measures, including, but not limited to, the following:

- (1) Improving design and construction methods and practices.
- (2) Rehabilitating vulnerable buildings.
- (3) Coordinating emergency planning for response by the government and private sectors.
- (4) Implementing land use and redevelopment planning.
- (5) Developing public information and education programs.
- (6) Improving emergency response capabilities and emergency management systems.
- (7) Developing long-term social and economic recovery strategies.
- (8) Upgrading the strong motion instrumentation system.
- (9) Improving basic research of physical and social earthquake phenomena.

Fifth, while the major responsibility for dealing with earthquakes before

and after they happen is firmly fixed with local government, state government also has fundamental responsibilities to take all reasonable measures to reduce the seismic risk to which the citizens of [name of state] are exposed. The state should assume a leadership role by influencing the direction of existing and future national earthquake risk reduction programs and should serve as a model for local risk reduction measures.

Sixth, earthquake risk reduction measures often benefit many state programs and bring about improvements in buildings, dams, transportation facilities, communications, fire safety, toxic materials handling, and emergency response preparations.

Seventh, it is not the purpose of this chapter to transfer to the advisory board the authorities and responsibilities now vested by law in state and local agencies.

§ 1002. Seismic safety advisory board; creation; report

There is created in the state government a Seismic Safety Advisory Board which shall report annually to the Governor and to the Legislature on its findings, progress, and recommendations relating to earthquake risk reduction.

§ 1003. Members; appointment; chairman; vice chairman; quorum; public interest

- (a) The advisory board shall consist of 15 members appointed by the Governor and confirmed by the Senate, one member appointed by the Senate President pro tempore, and one member appointed by the Speaker of the Assembly. The Seismic Safety Advisory Board shall elect annually from its membership its own chairman and vice chairman and may replace them with other advisory

boarders by majority vote. Advisory Board members shall be residents of the State of [name].

[NOTE: As used herein, "Senate" means the upper legislative house and "Assembly," the lower.]

- (b) A quorum shall consist of nine members if there are no vacancies, or else a majority of the members of the advisory board at the time.
- (c) The Legislature declares that the individuals appointed to the advisory board are intended to represent the professions of architecture, planning, fire protection, public utilities, electrical engineering, mechanical engineering, structural engineering, geotechnical engineering, engineering geology, seismology, local government, insurance, social services, emergency services, and the State Legislature and that such representation best serves the public interest.

§ 1004. Appointments to advisory board

The membership of the Seismic Safety Advisory Board shall be appointed by the Governor and confirmed by the Senate from lists of nominees submitted by organizations as listed below:

- (a) Four members appointed from established organizations in the fields of architecture and planning, fire protection, public utilities, and electrical engineering and mechanical engineering;
- (b) Four members appointed from established organizations in the fields of structural engineering, geotechnical engineering, engineering geology, and seismology;
- (c) Four members appointed from nominees submitted by an association representing the cities of [name of state] and an

association representing the county supervisors of [name of state] (OPTION: at least one of which shall be a member of the public at large);

- (d) Three members appointed from established organizations in the fields of insurance, social service, and emergency services;
- (e) One member shall be appointed from the Senate by the Senate President *pro tempore*, and one member shall be appointed from the Assembly by the Speaker of the Assembly. Each of the members appointed pursuant to this subdivision may designate an alternate who shall be counted toward a quorum, who may vote, and who may receive the expenses specified in Section 1006.

§ 1005. Term of office

The term of office for each member of the Seismic Safety Advisory Board shall be four years and each shall hold office until the appointment and qualification of his or her successor, except that of the initial advisory boarders, the Governor shall appoint seven whose terms will expire two years after appointment and seven members plus the chairman whose terms shall expire four years after appointment. All initial appointments shall be made by [date]. Any vacancies shall be immediately filled by the appointing power for the unexpired portion of the term in which they occur.

§ 1006. Per diem; expenses

The members of the Seismic Safety Advisory Board shall serve without compensation but shall be paid per diem expenses of one hundred dollars (\$100) for each day's attendance at a meeting of the advisory board, plus actual necessary travel expenses as determined by the _____

§ 1007. Powers and Duties

The advisory board, in the discharge of its responsibilities, may do any of the following:

- (a) Accept grants, contributions, and appropriations from public agencies, private foundations, or individuals.
- (b) Appoint committees from its membership, appoint advisory committees from interested public and private groups, and appoint *ex officio* members who shall not be entitled to vote, to advise the advisory board.
- (c) Contract for or employ, any professional services and research required by the advisory board or required for the performance of necessary work and services which, in the advisory board's opinion, cannot satisfactorily be performed by its officers and employees or by other federal, state, or local governmental agencies.
- (d) Enter into agreements to act cooperatively with private nonprofit scientific, educational, or professional associations or foundations engaged in promoting seismic safety in [State's name], including activities under the [State's name] Earthquake Risk Reduction Program as provided in Section 1010 of this Act. These associations or foundations may furnish materials for sale, and the advisory board may provide personnel services and office space therefor. Subject to rules and regulations adopted by the advisory board, all moneys received from the sale of publications or other materials provided by an association or foundation shall be returned to the association or foundation for use in furthering seismic safety programs.

- (e) Do any and all other things necessary to carry out the purposes of this chapter.

§ 1008. Executive director; employees

The advisory board shall appoint an executive director who shall be responsible for managing the affairs of the advisory board, subject to the direction and policies of the advisory board.

The executive director shall appoint such employees as may be necessary to carry out the functions of the advisory board.

§ 1009. Earthquake risk reduction responsibilities

The advisory board is responsible for all of the following in connection with earthquake risk mitigation:

- (a) Setting goals and priorities in the public and private sectors.
- (b) Requesting appropriate state agencies to devise criteria to promote earthquake and disaster safety.
- (c) Recommending program changes to state agencies, local agencies, and the private sector where such changes would lessen earthquake risk and improve risk management.
- (d) Reviewing the recovery and reconstruction efforts after damaging earthquakes.
- (e) Gathering, analyzing, and disseminating information.
- (f) Encouraging research.
- (g) Sponsoring training to help improve the competence of specialized enforcement and other technical personnel.
- (h) Helping to coordinate the earthquake safety activities of government at all levels.
- (i) Establishing and maintaining necessary working relationships

with any boards, advisory boards, departments, and agencies, or other public or private organizations.

§ 1010. Establishment and objectives of the [State's name] Earthquake Risk Reduction and Management Program

- (a) There is hereby established a coordinated program pursuant to which the state shall implement new and expanded activities to significantly reduce the earthquake threat to its citizens. This program, to be known as the [State's name] Earthquake Risk Reduction and Management Program, shall be prepared and administered by the Seismic Safety Advisory Board.
- (b) The program set forth in subdivisions (a) shall specify priorities, funding sources and amounts, schedules, and other resources needed to significantly reduce earthquake risk, etc. statewide by January 1, [year]. The achievement of this goal shall be undertaken by establishing objectives within the following categories:
 - (1) Risk Reduction. The reduction of the earthquake risk to acceptable levels through significant reduction in the number of vulnerable buildings, avoiding the creation of new or greater seismic risks, and the promotion and expansion of scientific and engineering studies to help achieve these goals.
 - (2) Emergency Response. Develop plans, agreements and protocols, to deal with special issues, such as earthquake prediction, hazardous materials, critical facilities, and disaster response and mutual aid plans for all major population centers; establish public education, training, and

information; and develop plans to increase the coordination and integration of federal, state and local resources, enhance the state's capability to respond to a major earthquake disaster.

Improve the state's emergency response capability by strengthening the statewide communication system, creating a state emergency coordination center or centers, and automating emergency management data; and training respondents.

- (3) Recovery. Develop systems to manage earthquake recovery, and minimize unemployment, business failures, tax base erosion, and associated monetary and financial losses critical to the restoration of [State's name] economy and public services.

(c) The state's existing seismic safety activities are currently administered by over [insert number] separate agencies. Responsibility for administering these activities shall remain with these agencies. These existing activities shall continue and their efforts shall be incorporated into the coordinated program established under subdivision (a).

(d) The program shall consist of a series of five-year plans and each five-year plan shall be revised by the [State's name] Seismic Safety Advisory Board annually and submitted to the Governor and the Legislature. Each revision shall include a finding on the state's progress toward the goal stated in subdivision (b).

(e) The immediate steps to be undertaken by the Board shall include the performance of existing activities provided the budget prepared by the Governor for the [date] fiscal year and the Budget Act of [date] and the preparation of the first five-year program.

- (f) The first five-year plan document shall be completed by [date], and shall include specific measures and funding needed for adequate progress towards the state's earthquake safety goals by January 1, [date]. This plan and subsequent plans shall cover a five-year implementation period and shall recommend any necessary statutory changes for program implementation.

§ 1011. Implementation of earthquake risk mitigation program

To implement the foregoing responsibilities, the advisory board may do any of the following:

(a) Review state budgets and review grant proposals, other than those grant proposals submitted by institutions of postsecondary education to the federal government, for earthquake related activities and to advise the Governor and Legislature thereon.

(b) Review legislative proposals, related to earthquake safety to advise the Governor and Legislature concerning the proposals, and to propose needed legislation.

(c) Recommend the addition, deletion, or changing of state agency standards when, in the advisory board's view, the existing situation creates undue hazards or when new developments would promote earthquake risk mitigation, and conduct public hearings as deemed necessary on the subjects.

(d) In the conduct of any hearing, investigation, inquiry, or study which is ordered or undertaken in any part of the state, administer oaths and issue subpoenas for the attendance of witnesses and the production of papers, records,

reports, books, maps, accounts, documents, and testimony.

§ 1012. Consultation with other agencies and groups

The board shall prepare the [State's name] Earthquake Risk Reduction and Management Program, in consultation with the [list appropriate agencies responsible for emergency services, geology, emergency medical services, the state's universities and other appropriate institutions of higher

learning, the National Guard], other appropriate state and local agencies, the private sector, volunteer groups, and the Legislature.

The board may hold public hearings or joint hearings with other groups and conduct other activities as necessary for the development of the program.

§ 1013. Short Title

This act shall be known and cited as the Seismic Safety Advisory Board Act.

Example of Interstate Compact

Interstate Earthquake Compact of [Year]—The Legislature of the State of [Name] hereby ratifies a compact on behalf of the state of [Name] with any other state legally joining therein in the form substantially as follows:

Article I. Purpose

The purpose of this compact is to develop plans and advise on earthquake risk reduction and management programs, emergency response measures, and earthquake recovery plans of member states, and facilitate mutual aid in the member states, and establish a central repository of standardized information, including resources in the multi-state area that might be needed in a major earthquake. The full, immediate, and effective utilization of the resources of the respective states, including such resources as may be available from the United States government or any other source, is necessary to provide needed short-term earthquake disaster assistance to states requesting aid. These resources shall be incorporated into a plan or plans of mutual aid to be developed among the appropriate agencies of states that are parties to this compact. These agencies shall develop and follow procedures designed to assure the maintenance of resource inventories and the exchange of information about earthquake risk reduction disaster response and recovery. It is the policy of the party states to carry out this compact in a spirit of cooperation to provide the most effective earthquake risk reduction and management program.

Article II. Intrastate Planning

Each party state shall have the duty to formulate earthquake risk reduction and response and recovery plans and programs within such state. There shall be frequent

consultation between the representatives of such states and within the United States government and the free exchange of relief plans and information, including inventories of any material and equipment available for response to earthquake emergencies. To this end, each state will maintain standardized data which will establish a comprehensive listing of all resources within the (number)-state region that might be needed to formulate plans during an earthquake disaster. The inventory will be shared equitably among the party states in the event of an earthquake or other emergency, recognizing each state's primary responsibility to assist and protect its residents. Each party state shall also share any available information on earthquake forecasts and reports of seismic activity.

Article III. Responsibilities Of States

Whenever the governor of a party state requests aid from the governor of another party state pursuant to this compact in coping with an earthquake emergency, the requested state shall make available all possible aid to the requesting state consonant with the maintenance of protection for its residents and the policies stated in Article I.

Article IV. Reciprocity

Whenever the officers or employees of any party state are rendering aid in another state pursuant to the request of another party state under this compact, those officers or employees shall, while under the direction of the authorities of the state to which they are rendering aid, have the same powers, duties, rights, privileges, and immunities as comparable officers and employees of the state to which they are rendering aid. Any person holding a license, certificate or other permit issued by any state, demonstrating the meeting of qualifications for professional, mechanical, or other skills may render aid involving such skill in any party state to meet an earthquake emergency, and the state in

which aid is rendered shall give due recognition of such license, certificate, or other permit as if issued in the state in which aid is rendered.

Article V. Immunity

No party state or its officers, employees or other persons, certified by party states pursuant to agreed upon criteria and procedures for certification, rendering aid in another state pursuant to this compact shall be liable on account of any act or omission in good faith on their part while so engaged, or on account of maintenance or use of any equipment or supplies in connection therewith.

Article VI. Supplementary Agreements

Nothing in this agreement precludes any state from entering into supplementary agreements with another state or states for the undertaking of mutual aid and exchange of information in the event of an earthquake emergency. These supplementary agreements may comprehend, but are not limited to, provisions for evacuation and reception of injured and other persons and the exchange of medical, fire, police, public utility reconnaissance, welfare, transportation and communications personnel, equipment and supplies.

Article VII. Compensation

Each party state shall provide compensation and death benefits to its injured officers, employees or other persons certified by party states, pursuant to agreed upon criteria and procedures for certification and the representatives of deceased officers, employees and other certified persons in case officers, employees or certified persons sustain injuries or death while rendering aid in another state pursuant to this compact, in the same manner and on the same terms as if the injury or death were sustained within the state by or in which the officer, employee or certified person was regularly employed.

Article VIII. Reimbursement

Any party state rendering aid in another state pursuant to this compact shall be reimbursed by the party state receiving

such aid for any loss or damage to, or expense incurred in the operation of any equipment answering a request for aid, and for the cost of all materials, transportation, wages, salaries and maintenance of officers, employees and equipment incurred in connection with such request, including amounts paid under Article VII, provided that nothing herein contained shall prevent any assisting party state from assuming such loss, damage, expense or other cost or from loaning such equipment or from donating such services to the receiving party state without charge or cost. Any two (2) or more party states may enter into supplementary agreements establishing a different allocation of costs as among those states. The United States government may relieve the party state receiving aid from any liability and reimburse the party state rendering aid for loss, damage or expense incurred within the terms of this article.

Article IX. Evacuation Plans

Plans for the orderly evacuation and reception of the civilian population as the result of an earthquake emergency shall be worked out from time to time between representatives of the party states. Such plans shall include the manner of transporting such evacuees, the number of evacuees to be received in different areas, the manner in which food, clothing, housing, and medical care will be provided, the registration of the evacuees, the providing of facilities for the notification of relatives or friends and the forwarding of such evacuees to other areas or the bringing in of additional materials, supplies, and all other relevant factors. The plans must provide that the party state receiving evacuees shall be reimbursed generally for the out-of-pocket expenses incurred in receiving and caring for the evacuees, for the expenditures and transportation, food, clothing, medicines and medical care and like items. These expenditures shall be reimbursed by the party state of which the evacuees are residents or by the United States government under plans approved by it. The party state of which the evacuees are residents shall assume the responsibility for the ultimate support or repatriation of such evacuees.

Article X. Availability

Any state of the United States shall be eligible to become party to this compact. As to any eligible party state, this compact shall become effective when its legislature shall have enacted it into law, provided, that it shall not become initially effective until enacted into law by two (2) party states.

Article XI. Withdrawal

Any party state may withdraw from this compact by enacting a statute repealing the same, but no such withdrawal shall become effective until ninety (90) days after the governor of the withdrawing state shall have sent formal notice in writing to the governor of each other party state informing the governors of the action of the legislature in repealing the compact and declaring an intention to withdraw. A withdrawing state shall be liable for any obligations which it may have incurred on account of its party status up to the

effective date of withdrawal, except that if the withdrawing state has specifically undertaken or committed itself to any performance of an obligation extending beyond the effective date of withdrawal it shall remain liable to the extent of such obligation.

Article XII. Severability

This compact is to be construed to effectuate the purposes stated in Article. If any provision of this compact is declared unconstitutional or the applicability thereof to any person or circumstances is held invalid, the constitutionality of the remainder of this compact and the applicability thereof to other persons and circumstances is not to be affected by it.

(This interstate compact is modeled upon the one ratified by the State of Tennessee in connection with its membership in the Central United States Earthquake Consortium.)

Example of Articles of Incorporation

Articles of Incorporation of [Name of Board]

We, the undersigned natural persons of age of twenty-one years or more, acting as incorporators of a corporation, adopt the following Articles of Incorporation for such corporation pursuant to the State of [state of incorporation]:

1. The name of the Corporation is "[Name of Board]."
2. The period of duration is perpetual.
3. (a) (1) The corporation is organized and shall be operated exclusively for charitable, scientific, or education purposes including for such purposes the making of distribution to organizations, formed and operated exclusively for public charitable purposes and qualifying for exemption from taxation under Section 501 (c) (3) of the Internal Revenue Code. (Hereinafter cited as "I.R.C." Reference herein to the I.R.C. also refers to the corresponding provisions of any future United States I.R.C. Law).

(2) The corporation shall promote and support adequate earthquake risk reduction and management in the United States and the states of [enumerate]; shall formulate and improve the administration of earthquake affairs through the Departments and agencies of their respective state and federal government of the United States.

(3) The corporation shall promote earthquake risk reduction and management and shall address the risk reduction, emergency response and recovery planning, public education, and other related matters. For the

purpose of these Articles of Incorporation and this corporation, earthquake risk management is hereby defined to mean protection from physical destruction or damage whether such damage or destruction shall be man-made or the result of the elements or geologic hazards, and the rendition of aid and assistance to people, organizations and other entities required as a result of such physical destruction or damages.

In furtherance of, and not in limitation of the general powers conferred by the laws of the State of [state of incorporation], and the objects and purposes herein set forth, it is expressly provided that this corporation shall also have the following powers, viz.:

Acting through its Board of Directors, its Chairperson and other officers, subject to the powers and restrictions of the Articles of Incorporation, and its Bylaws, to do all such acts as are necessary or convenient to the attainment of the objects and purposes herein set forth, and to the same extent and as fully as any natural person might or could do.

To purchase, lease, hold, sell, mortgage, or otherwise acquire or dispose of real or personal property, to enter into, make perform or carry out contracts of every kind with any person, firm, corporation or association; to do any acts necessary or expedient for carrying on any and all of the activities and pursuing any and all of the objects and purposes set forth

in the Articles of Incorporation and not forbidden by the laws of the State of _____.

To have offices and promote and carry on its objects and purposes within or without the State of [state of incorporation] in other states of the United States.

In general, to have all powers conferred upon a corporation by the laws of the State of [state of incorporation], except as herein prohibited, or forbidden by the Bylaws of this corporation.

(b) The Corporation shall be a non-profit corporation and none of its assets shall ever be returned or inure to the benefit of the members or officers or directors thereof, or other private persons, but shall be used exclusively for the aims and purposes of the corporation. In the event of the dissolution of the corporation the Board of Directors shall, after paying or making provision for the payment of all of the liabilities of the corporation, dispose of all of the assets of the corporation exclusively for the purposes of the corporation in such manner or to such organization or organizations organized exclusively for religious charitable, scientific, literary or educational purposes as shall at the time qualify as an exempt organization under Section 501 (c) (3) I.R.C. as the Board of Directors shall determine. Any of the assets not so disposed of, shall be disposed by the court having jurisdiction over such matters, exclusively for such purposes or to such organizations as such court shall determine which are organized and operated exclusively for such purposes.

(c) (1) No part of the net earnings of the corporation shall inure to the benefit or be distributed to the benefit of the members or officers or directors thereof or other private persons except that the corporation shall be authorized and empowered to pay reasonable compensation for

services rendered and to make payment and distribution in furtherance to this purpose.

(2) No substantial part of the activities of the corporation shall be the carrying on of propaganda or otherwise attempting to influence legislation and the corporation shall not participate in or intervene in (including the publishing or distribution of statements) any political campaign on behalf of any candidate for public office. Notwithstanding any other provisions of these Articles, the corporation shall not carry on any other activities not permitted to be carried on (1) by a corporation exempt from Federal Income Tax under Section 501 (c) (3) of the I.R.C. or (2) a corporation contributions to which are deductible under Section 170 of the I.R.C

4. The corporation may have officers and authorized agents and promote and carry out its purposes and objects within and without the State of [state of incorporation].

5. The corporation shall not have any stockholders. The corporation shall be made up of the membership of the coalition. Each member of the coalition shall be a member of the Board of Directors and the right to one (1) vote.

(a) Membership shall be open and available to the state of the coalition and the Federal Emergency Management Agency as provided by a 3 A of the Bylaws.

(b) SPECIAL PROVISIONS. (1) Neither an amendment to the Articles of Incorporation or the adoption of a plan for the dissolution of the corporation may be undertaken without the two-thirds (2/3) approval of the membership. (2) The majority of the membership shall have the sole authority to adopt or amend the Bylaws provided no adopted Bylaws nor any amendment thereto shall be made which is inconsistent with these Articles of Incorporation or any

provision of the State of [state of incorporation].

6. The term of the members of the Board of Directors shall be governed and set out by the Bylaws, which shall be consistent with the requirements as declared in Article Five above.
7. The regulation of the internal affairs of the corporation shall be as set out in the Bylaws. Provision for distribution or final liquidation shall be as declared in Article Three above.
8. The address, including street and number, of the initial registered office is [address] and the name of its initial registered agent at such address is [address].
9. The number of Directors constituting the initial Board of Directors is _____ and the name and address including street and number of the persons who are to serve as the initial directors until the first annual meeting or until their successors be appointed and qualified are: [enumerate]

Example of Corporate Bylaws

Bylaws of the [name of multi-state seismic safety advisory board] Preamble

The [name of multi-state seismic safety advisory board] shall manage and coordinate multi-state and interstate earthquake risk reduction activities in those states vulnerable to a major earthquake in the [geographic area/jurisdiction]. [Name of multi-state seismic safety advisory board] shall actively work with government and the private sector to facilitate effective efforts to reduce and manage earthquake risks.

Name of Corporation

1. This private not-for-profit corporation shall be known as the [name of multi-state seismic safety advisory board].

Seal

2. The corporate seal of the [name of multi-state seismic safety advisory board] shall have inscribed thereon the name of the corporation, the year of its creation, and the words "Incorporated, State of [name of state of incorporation]."

Members

3. Membership to this corporation shall consist of Regular and Associate members, defined as follows:

a. The Regular Members of the [name of multi-state seismic safety advisory board] shall be the states of [names of member states], and Regular membership in the [name of multi-state seismic safety advisory

board] shall be available to states for which corresponding prorated funds have been added to the annual [name of multi-state seismic safety advisory board] funding. The amount of the annual prorated funds will be calculated by dividing the annual base [name of multi-state seismic safety advisory board] funding provided by FEMA by [appropriate number of states].

b. Associate membership in the [name of multi-state seismic safety advisory board] shall be open to other states and institutions manifesting an interest in the purposes and objectives of the corporation.

c. The membership of the corporation may be expanded.

d. No membership certificates of the corporation shall be required.

e. The administrative head of any prospective state entity or private institution desiring to be considered for membership shall apply in writing to the Board of Directors specifying the type of membership requested. The board shall vote on admission of any new organization to the [name of multi-state seismic safety advisory board] at the next regular meeting and provide notice of the decision to the requesting entity.

Place of Business

4. The principal administrative office of the corporation shall be at [appropriate address]. The corporation

may have other offices in such other places as the Board of Directors shall designate from time to time.

5. The purpose of [name of multi-state seismic safety advisory board] shall be as set forth in its Articles of Incorporation as filed in the State of [name of state of incorporation].

Voting

6. a. A majority of the state representatives of the Board of Directors shall constitute a quorum for the transaction of business at any meeting of the Board, provided that if less than a majority of the directors is present at said meeting a majority of the state representatives adjourn the meeting to another time without further notice.

b. Board members may vote at meetings, either in person or by proxy. Such proxy may be extended to any person designated by the board member being represented. Such proxy will extend to the proxy party full authority, rights and privileges as specified by these bylaws for board members to the extent specified by the authorizing document. All proxy votes must be in writing and filed with the secretary-treasurer, or the Executive Director.

c. Each board member shall have one vote.

d. Neither an amendment to the Articles of Incorporation, nor the adoption of a plan for the dissolution of the corporation may be undertaken without the approval of two-thirds (2/3) of the state representatives of the board of directors.

Board of Directors

7. a. The Board of Directors shall consist of states possessing regular membership in the [name of multi-state seismic safety advisory board].

b. Sovereign state governments of the corporation shall have representation on the board of directors through the director of the appropriate state emergency management agency, or the equivalent agency.

c. In furtherance of, and not in limitation of, the general powers usually vested in the board of directors by virtue of their office, the powers expressly given by the laws of the State of [name of state of incorporation], the terms of the charter of this corporation, and elsewhere in these bylaws, the following specific powers are hereby conferred upon the Board of Directors:

(i) To take action as necessary to attain the goals and objectives of the [name of multi-state seismic safety advisory board].

(ii) To exclusively develop all policies and authorize all business transactions.

(iii) To maintain all policies and procedures established by the Board of Directors as an official record of Board activity in a policy and procedure manual which will be available for review during regular office hours at the principal administrative office of the corporation.

(iv) To pay, at its discretion, for any property or rights acquired by or services rendered to this corporation, either wholly or in part, in money, stocks, bonds, debentures, or other securities.

(v) To create, make and issue mortgage, bonds, deeds of trust, trust agreements, and negotiable or transferable instruments and securities secured by mortgage or otherwise, and to do every act and thing necessary to effectuate the same.

(vi) To appoint, remove or suspend [name of multi-state seismic safety advisory board] staff or agents permanently or temporarily, determining their duties and responsibilities, to set their salaries and to require security bonds as needed.

(vii) To confer by resolution upon the Executive Director the power to make recommendations to the board concerning; the appointment, removal or suspension of subordinate officers or agents; the designation of their duties and responsibilities; and the establishment of their salaries.

(viii) To determine and approve a party who shall have the authority on behalf of the corporation to sign bills, notes, receipts, acceptances, endorsements, checks, releases, contracts and documents.

(ix) To delegate any of the powers of the board, in the course of the business of the corporation, to any standing or special committee or to any officer or agent of the corporation, and to appoint any person or persons to be agents of the corporation with such powers (including the power to sub-delegate) and upon such terms as it sees fit.

(x) To take action as necessary and reasonable to prohibit the board, any member or employee, acting in their official capacity from authorizing or permitting any business transaction which creates a conflict of interest or the appearance of impropriety by allowing any one person or business enterprise to exert improper influence over the board.

(xi) To establish the authority to accept services, gifts, grants or loans whenever the federal government or any agency or officer thereof or whenever any person, firm or corporation shall offer to this corporation services, equipment, supplies, materials, or funds by way

of gift or grant, for purposes of facilitating and fulfilling the goals and objectives of the corporation.

(xii) To take action as necessary and feasible to ensure that all gifts, grants, loans, gratuities, discounts, favors, hospitality or services authorized by the board do not create a conflict of interest or the appearance of impropriety for the board of any member thereof.

(xiii) To ensure that, not more than 50 percent of any federally provided [name of multi-state seismic safety advisory board] funds be reserved for [name of multi-state seismic safety advisory board], and that not more than 50 percent of said funds be utilized for indirect operations, the balance be reserved for funding such multi-state projects (MSP) as the Board may identify.

Officers of the Corporation

8. a. The officers of the corporation shall be the following:

(i) The chairman, the vice-chairman, the secretary-treasurer, and the executive director.

(ii) The chairman, the vice-chairman, the secretary-treasurer shall be elected by the Board of Directors.

(iii) The elected officials shall serve for one (1) year, commencing with the first day of January following the annual meeting, at which they were elected; or until their successors are elected and duly qualified. An officer is ineligible to hold more than one elected position.

(iv) The executive director shall be appointed by the Board of Directors.

b. The chairman shall preside at all [name of multi-state seismic safety advisory board] Board of Directors meetings and provide general supervision and direction to all

officers and Board of Directors of the corporation.

c. The vice-chairman shall perform the duties of the chairman in the event of disability or absence from the latter office.

d. The secretary-treasurer shall attend all sessions of the Board of Directors and all meetings of members, and act as clerk thereof, and record all votes and minutes; shall give, or cause to be given, notices of all meetings of the members and of the Board of Directors; shall perform such other duties as may be prescribed by the chairman; and, shall be sworn to the faithful discharge of their accurate accounts of receipts and disbursements in books belonging to the corporation and to the credit of the corporation; shall disburse funds of the corporation as may be ordered by the Board of Directors, taking proper vouchers thereof, and render to the chairman and Board members at the regular meetings of the board, or whenever required, an accounting of all the transactions; and at the expense of the corporation, shall be furnished such bonds as the Board of Directors may require.

e. The executive director, the senior [name of multi-state seismic safety advisory board] staff member, shall have general and active management of the business of the corporation; shall execute bonds, mortgages, all contracts requiring a seal, and affix the corporation seal thereto in accordance with the authorization from the Board of Directors.

(i) The executive director of [name of multi-state seismic safety advisory board] shall be appointed by the Board of Directors and sit in an advisory capacity only as an ex officio member to the board.

(ii) The property of the corporations shall be managed by the executive director under the express direction

and supervision of the Board of Directors.

(iii) The executive director shall have the authority to purchase or otherwise acquire for the corporation any property, rights or privileges that have been specifically authorized to be acquired by the Board of Directors.

(iv) The executive director may be granted the authority to develop and appoint advisory committees to meet and fulfill the goals and objectives of the [name of multi-state seismic safety advisory board].

(v) The executive director shall submit a report of the operations of the corporation for the preceding fiscal year, January 1 to December 31, to the board at its first regular meeting thereafter.

(vi) The executive director shall be an advisory member of all standing committees.

(vii) The executive director shall make all necessary arrangements for the holding of meetings and shall have authority to make such reasonable expenditures for this purpose that are within the limits of funds available in the treasury of the corporation.

(viii) The executive director shall maintain all vital documents, including but not limited to all work products, fiscal records, administrative documents, contractual and developmental programs at the principal office.

(ix) The executive director, under the supervision of the secretary-treasurer, shall maintain accurate accounts of receipts and disbursements in books belonging to the corporation, and to the credit of the corporation in such depositories as may be designated the Board of Directors.

(x) The executive director, under the supervision of the secretary-treasurer, shall disburse the funds of the corporation as may be authorized by the Board of Directors, taking proper

vouchers thereof, and present to the Board of Directors at the regular meetings, or whenever required, an accounting of all transactions.

(xi) The executive director shall be furnished such bonds as the Board of Directors may require.

(xii) The executive director shall make recommendations to the board, for their final action, in respect to hiring, firing, salaries of staff members, and any other personnel action as may be designated by the Board.

Standing Committees

9. a. It is the intention of the board to establish standing committees to provide oversight and direction to the corporation as may be required.

b. The chairman with the approval of the board shall make appointments to such standing committees from the total membership, as may be deemed necessary for the proper operation and supervision of the corporation.

Meetings

10. a. Regular meetings of the Board of Directors shall be held at such time and place as may be determined by the board. Notice of the time and place of such meetings must be given to the members by the secretary-treasurer, or the office of the executive director, in writing, at least thirty (30) days prior to the date thereof.

b. All proposals and/or contracts requiring action by the board of Directors to expend moneys shall require notice of such activity and copies of said proposals and/or contracts be delivered to Board members in writing at least 15 days prior to the date of a scheduled meeting.

c. An annual meeting of the board of directors shall be conducted during the fourth quarter of each year. Notice of such meetings shall be transmitted to the members in the

same manner as provided in these bylaws for notice of amending the bylaws, the annual meeting shall be considered as a regular meeting.

d. Special meetings of the board of Directors of the corporation may be called by the chairman, or by three state representatives for such purpose or purposes as they deem advisable. Notice of such a called meeting shall be transmitted to the members in the same manner as provided in these bylaws for notice of the regular meetings of the board except that the notice shall state the purpose or purposes for which the meeting is called.

e. All meetings of the board members shall be conducted in accordance with *Robert's Rules of Order*.

Tenure of Office

11. In the event a vacancy occurs in the office of Chairman, vice-chairman, or secretary-treasurer the vacancy for the unexpired term shall be filled by majority vote of the Board of Directors within thirty (30) days of the vacancy. No officer shall be subject to removal, except for cause, nor shall their term of office be reduced during their tenure.

Compensation

12. a. The board shall not receive any stated salaries. By resolution of the Board of Directors, a fixed sum and expenses, if any, may be allowed for attendance at any regular or special meetings of the board. However, nothing herein contained shall preclude any director from serving the corporation in any other capacity and receiving compensation.

b. The Board of Directors shall adopt a policy in respect to benefits and leave which will apply to the entire [name of multi-state seismic safety advisory board] staff.

Resignations

13. A board member, as defined in Article 3, may resign their office at any time, provided such resignation is made in writing to the Board of Directors. Such resignation shall be effective upon deposit in the United States mail.

Inspection and Audit of Books and Accounts

14. a. The books, accounts, and records of the corporation shall be open to inspection by any member of the Board of Directors during regular office hours of the corporation. The original or a duplicate membership registry shall at all times be kept at the office of the corporation.

b. The books, accounts, records and substantive operations of the corporation shall be audited by an independent accounting organization after the close of each fiscal year, and the report shall be provided to the Board of Directors at their first regular meeting following the conclusion of said audit.

Notice and Waiver of Notice

15. Whenever, under the provisions of these bylaws, notice is required to be

given to any directors, officers, or members, it shall not be construed to be limited to personal notice, but such notice may be given by teletype, telecopier or in writing by depositing the same in the post office or letter box in a prepaid, sealed wrapper, addressed to such Director, officer or member at their address as the same appears on the books of the corporation, and the time when the same shall be mailed or dispatched by teletype or telecopier shall be deemed to be the time of the giving of such notice. Whenever any notice is required to be given under the provisions of these bylaws, a waiver thereof in writing, signed by the party or parties entitled to said notice, whether before or after the time stated herein, shall be deemed equivalent thereto.

16. A two-thirds majority vote of the Board of Directors shall be required to adopt or amend the bylaws provided notice of such proposed amendment has been given to each member at least thirty (30) days prior to a regular meeting at which the amendment is to be considered, providing that the proposed amendment is not inconsistent with the Articles of Incorporation.

Model Staff Duty Descriptions

Because of the multidisciplinary nature of a seismic safety advisory board's work, it will require the assistance of skilled professionals in a number of areas of expertise. If the board's fiscal and organizational means are limited, it may be necessary to rely on the technical and professional resources of other public-sector or private-sector agencies. However, the board can expect at some point to require assistance for the following professional and technical functions. They can be performed by full-time staffers, who *may perform more than just one of these functions*, or by professionals employed by outside agencies or entities who serve the board as a collateral function of their primary employment.

Legal Counsel

In addition to dealing with technical disciplines like engineering, seismology, and geology, the board will occasionally need legal advice.

For example, recent Supreme Court decisions expanded the economic rights of property owners impacted by regulatory action. When mandating seismic risk reduction measures for private property, State and local governments will need to craft risk reduction strategies that do not compromise the Constitutional principle of due process or violate the prohibition against taking of property without compensation. The board should ensure that seismic risk reduction policies and procedures are based on sound judgment and due process, intended to protect both the public safety and the economic rights of property owners.

Although design professionals have the capability to design and construct buildings that resist earthquakes, the tort liability issue has inhibited

innovation in the retrofitting of vulnerable buildings and the development of seismically resistant new buildings. Proper building practices, retrofitting collapse-hazard buildings and innovative structural designs and components in new buildings, reduce earthquake-related casualties. The board may need to develop a clearly defined tort liability benchmark to give local governments and design professionals when their professional judgment calls for deviation from existing building codes.

Such concerns may require the advice of a legal counsel, to study questions of regulatory due process and state and private-sector liability and to recommend changes to promote earthquake risk management. Moreover, legal counsel can provide the board with legal advice on contracts and interagency agreements, including contracts for grant funds, program-related services, administrative service contracts, and interagency agreements. In addition to advising the board and its staff, a legal counsel familiar with seismic safety issues also may be valuable in legislative matters, e.g., bill tracking and analysis, drafting amendments, consulting with board committees and other interested parties, making presentations, reviewing position letters.

Engineering Geologist

Earth scientists have long recognized the importance of their disciplines in identifying and avoiding or reducing earthquake hazards. Ample evidence correlating surface geology with earthquake damage has demonstrated that earth science must be better reflected in government policies aimed at reducing the effects of earthquakes on buildings, bridges, roads, and

pipelines. To carry out its responsibilities relating to the earth sciences, the board may need an experienced engineering geologist with sound judgment and recognized credibility, who can independently interact with professional peers, management-level employees of state agencies, legislators and their staffs, and local government officials. In addition, an articulate engineering geologist may prove invaluable in explaining the intricacies of earthquake-related hazards to the press, the public, and policymakers.

An engineering geologist can provide the board with a focus on "real time" geological processes, their effects on buildings already built or to be built, geological concerns regarding lifelines (gas and water pipelines, electrical distribution systems), transportation systems, and similar issues involving the interaction of manmade facilities and the terrain they rest on. Good geological advice may be particularly important in energy-producing regions where oil and gas exploration, development, and extraction may be significant issues. The Engineering Geologist would also be able to advise the board on seismic safety policy in the disciplines of geophysics, seismology, geology, and engineering geology, as well on policies relating to electric, water, and gas supply systems. Moreover, an engineering geologist may prove quite valuable in making policy recommendations to mitigate earthquake-caused landslide, ground failure, liquefaction, dam failure, and tsunami hazards, and on ways of incorporating these policies into local and-use planning, subdivision control, and building regulations.

An engineering geologist, can also serve as the board's liaison with the Legislature and organizations such as the US Geological Survey and the National Science Foundation's Division of Earth Sciences on earth science issues, as well as working with local and state government geologists to

improve understanding of seismic hazards in local government planning and regulation of development. Moreover, such help may prove invaluable in evaluating earthquake predictions for governmental leaders, the news media, and the public, helping separate scientifically based forecasts from those that are not.

Structural Engineer/Architect

A structural engineer, or architect with structural knowledge, can help with design-related matters, such as earthquake-related architectural and engineering programs, and building codes and standards affecting historical buildings, common structures and buildings, as well as schools, emergency service facilities, and hospitals.

Such services may be particularly useful in preparing, analyzing and recommending legislation related to building stock vulnerability, earthquake engineering, structural design and architecture, as well as working with building codes and building officials. Design information, perspectives and judgments on staff work having earthquake design components, retrofit and damage repair would aid in report preparation and policy recommendations. A structural engineer or architect could also provide staff liaison between the board and professional organizations representing engineering, architecture and other related disciplines, and local, state, and federal agencies, as well as the Legislature.

The structural engineer or architect should be certified by the appropriate licensing board, and have adequate practical experience in earthquake-related engineering, including dynamic analysis of structures, earthquake damage assessment, seismic hazard mitigation and post-quake repair, building codes and standards, research, government review and permit procedures. He or she should also have participated in organizations such as

the Earthquake Engineering Research Institute (EERI), and the American Institute of Architects (AIA) and be knowledgeable of the Federal Emergency Management Agency (FEMA) and the National Science Foundation (NSF).

Legislative Liaison

The board will probably consider legislation related to earthquake risk reduction, building codes, the geotechnical sciences, the engineering and design professions, planning, local government, emergency response and post-earthquake recovery. It may prove worthwhile to use a specialist for legislative tasks.

These tasks typically include collecting information and securing expert testimony, as well as bill tracking and analysis, drafting amendments, testifying at legislative committee hearings, consulting with board's committees and other interested parties, and making presentations. The Legislative Liaison could draft letters for the board to send to the Governor and the Legislature supporting or opposing legislation, as well as formulating recommendations on pending legislation.

The legislative liaison should have experience in planning, program evaluation, or policy analysis, and be able to deal with complex governmental problems. He or she should be able to effectively consult with and advise administrators or other interested parties on earthquake-related issues, gain and maintain the confidence and cooperation of those contacted, and effectively advocate the board's position on pending legislation before legislative and other committees.

Emergency Response Specialist

A major catastrophic earthquake will impose heavy demands on emergency responders, probably exceeding capabilities and resources.

Consequently, the board should focus some of its attention on ways to strengthen emergency response. This may require a specialist who would be responsible for emergency response planning. A comprehensive, multi-hazard, emergency management system should coordinate the response elements of local, state, and federal governments with volunteer and private sector resources. The board can help formulate improvements in statewide emergency response capabilities and organization, and recommendations to commit time and resources on training and testing plans for future emergencies. The failure to make such investments could leave states and local communities vulnerable.

Recovery Specialist

Financial issues critical to the restoration of an earthquake-damaged area's economy and public services may have to be addressed. The board may need the advice of a recovery specialist regarding recovery programs, priorities, legal processes, financing, insurance, and disaster aid. Through advanced planning, the board can better understand the need for outside resources and aid during the recovery phase, and determine beforehand what must be done to get assistance. After a disaster, pressure mounts to rebuild immediately, without adequately thinking through the long-term implications and consequences. The services of a recovery specialist may facilitate advance recovery planning and help ensure a more thoughtful, methodical, and production recovery process.

Public Information Officer

The board may require a public information officer to write, edit, and prepare information and material for dissemination through all major media and devise a public information campaign. Typically the officer will also

prepare replies to difficult and complicated correspondence, and act as spokesperson for the agency with public groups, news media, and individuals inquiring about board activities. This may also include arranging the participation of board members or staff personnel as speakers before public groups, or on radio and television newscasts or other programs.

Research Writer/Editor

The board may need a research writer/editor to manage the publications program (if any). These responsibilities may entail publishing a variety of documents—legislatively mandated and other reports, brochures, transcripts, guidebooks, and more—that require professional expertise to write, edit, and produce. A research writer/editor can assist the board by preparing such reports and presentations, summarizing research findings and their applicability to seismic risk reduction and management. Moreover, this staff member may also prove necessary to develop and disseminate information on seismic safety to various audiences such as professional associations, as well as preparing press releases and responding to media inquiries.

Planner/Program Analyst

The board may very likely decide to establish a risk reduction and management program, that sets forth priorities, funding sources and amounts, project schedules, and risk reduction activities needed to significantly reduce earthquake risk. Implementing the specific risk reduction activities of such a program may require a planner or program analyst to promote, monitor, and integrate the ongoing earthquake risk reduction, emergency response, and disaster recovery projects comprising such a program, as well as the accomplishment of numerous specific program milestones.

The program manager would advocate an ambitious agenda

requiring the cooperative and active participation of diverse organizations and agencies. Progress on a number of activities will require action by both the governor and the legislature to establish policy assigning new responsibilities, granting new authority, and appropriating additional fiscal resources. The program manager could participate in and monitor the process of implementing of such a program. Such a person can function as a facilitator to integrate activities, coordinate individual actions, and assist the primarily responsible agencies in every possible way.

Administrative Manager

If the board's staff becomes large enough, or if it administers numerous contracts, it may benefit from an administrative manager responsible for its administrative functions. An administrative manager's duties might also include the more difficult work in the areas of personnel, budgeting, contract administration, and managing the computer network, including determining its need for new equipment, software, and staff computer training.

It bears emphasis that such a position *may most likely only be warranted for boards with large staffs and significant programmatic responsibilities*, such as those that may confront a state with recurrent, periodic seismic activity or a consortium of states requiring integration of multi-state seismic safety activities over a broad geographic area.

Staff Analyst

As its programmatic responsibilities increase, the board may benefit from employing a staff analyst to assist in preparation of its annual budget and budget change proposals, and monitor its expenditures, prepare monthly budget forecasts and payrolls, and recommend expenditure alternatives to assure that the advisory board remains within its budget.

This staff member would also be an excellent choice to oversee the rental or leasing of office space, purchase of all goods and administrative services, and development of guidelines for routine purchasing activities to ensure compliance with appropriate purchasing procedures. He or she could also assist in drawing up contracts and

interagency agreements, including contracts for program-related services, and oversee the day-to-day management of administrative service contracts and interagency agreements. Moreover, a staff analyst can advise the board on costs and applications of employee benefits, and coordinates the board's records management program.

Model Workshop Design

[Insert brief background statement explaining why the workshop is being convened]

Purpose of Workshop

[Insert a statement of workshop's purpose and expectations.]

Strategic Planning Process

To assist board members develop a consensus on its mission, goals, and priorities, and provide a frame work for a new multi-year earthquake risk reduction and management plan, strategic planning approach is adopted. The approach includes three phases.

Phase I. Information Collection

The objective of this phase is to obtain a current and comprehensive perspective on the board's mission and performance. This perspective is derived from one-on-one in-depth interviews with representatives of the constituency that are conducted by a trained professional. The result of this phase is the accumulation of issues, raised by those who are interviewed, that provide an assessment of the perceived strengths, weaknesses, opportunities, and obstacles associated with seismic safety efforts. The issues are grouped into dominant themes and presented to the workshop participants.

Phase II. Evaluation and Integration

After the issues raised during the data collection phase are presented and discussed, they will be categorized into actionable programs, i.e., actions that can be taken to address the needs identified by the issue(s). The outcome

of this exercise should be a list of actionable programs or "action items" (there should be at least 15 of these) that the board may want to pursue in the next five years. Participants will break-up into small groups of no more than 5-7 people to develop the action items. The groups will be asked to address the following aspects for each action item:

1. Assumptions: The basic premises for proposing the program;
2. Objectives: The proposed outcome of program;
3. Implementation Steps: The required research on foundations needed, a basic implementation strategy, and an evaluation mechanism.

Each group will be assigned 2-3 action items to develop. It will take each group 2-3 hours for each one.

Once all of the action items have been developed, the workshop participants will prioritize the actionable programs according to such criteria as feasibility, projected resources listed in Chapter 9.

The last exercise of this phase will be the formulation of the board's mission statement and goals. The mission statement should reflect the objectives given to the programs the project will attempt to implement in the next five years.

Phase III. Strategic Policies

The results of the workshop will be summarized and circulated for review before the board acts to adopt. It will contain a set of policies that can be used to draft of a comprehensive risk reduction and management plan.

MODEL AGENDA FOR WORKSHOP
Development of Multi-Year Risk Management Program

[Location]

[Date]

Agenda

[Day 1: Date]

- | | |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1:00 p.m. - 2:00 p.m. | Workshop Registration
[Room Name] |
| 2:00 p.m. - 2:15 p.m. | Workshop Opening
[Room Name] |
| | <ul style="list-style-type: none">• Welcome and Introductions
[Name of Presenter] |
| 2:15 p.m. - 2:30 p.m. | <ul style="list-style-type: none">• Review workshop Objectives,
Logistics and Agenda
[Name of Presenter] |
| 2:30 p.m. - 3:30 p.m. | Panel Presentation |
| | <ul style="list-style-type: none">• Ten Year Retrospective
[Name of Presenter]• Earthquake Risk
[Name of Presenter]• Goals and Objectives: Met/Unmet
[Name of Presenter] |
| 3:30 p.m. - 4:00 p.m. | BREAK |
| 4:00 p.m. - 5:00 p.m. | Panel Presentation: |
| | <ul style="list-style-type: none">• Mandated Programs and Future Funding
[Name of Presenter] |
| 5:00 p.m. - 5:30 p.m. | Review Strategic Planning Process
[Strategic Planner] |
| 6:00 p.m. - 7:00 p.m. | DINNER |
| 7:30 p.m. - 9:00 p.m. | Present and Discuss Results of Information
Collection Phase
[Room Name]
[Strategic Planner]
Categorize Results into Actionable Programs
Board and Staff |

[Day 2 Date]

7:30 a.m. - 8:30 a.m.	BREAKFAST BUFFET [Room Name]
8:45 a.m. - 9:15 a.m.	Review Process for Development of Action Programs [Room Name] [Strategic Planner]
	Formation of Break-out Groups/Room assignments For Break-out groups Board and Staff
9:15 a.m. - 11:00 a.m.	Break-out Groups Deliberations: First Session [Room Name]
11:00 a.m. - 11:10 a.m.	Transition to Meeting Room
11:10 a.m. - 12:00 p.m.	Reports From First Session Break-out groups [Room Name]
12:00 p.m. - 1:00 p.m.	LUNCH [Room Name]
1:30 p.m. - 2:30 p.m.	continuation of First Session Reports [Room Name]
2:30 p.m. - 4:00 p.m.	Break-out Groups Deliberations: Second Session [Room Name]
4:00 p.m. - 4:30 p.m.	BREAK [Room Name]
4:30 p.m. - 6:30 p.m.	Reports from Second Session Break-out groups [Room Name]
6:30 p.m. - 7:30 p.m.	Reception - Informal Discussions [Room Name]
7:30 p.m.	BARBECUE DINNER [Room Name]

[Day Three, Date]

7:30 a.m. - 8:30 a.m.	BREAKFAST BUFFET [Room Name]
9:00 a.m. - 10:00 a.m.	Prioritizing of Action Programs [Room Name] [Strategic Planner]
10:00 a.m. - 10:15 a.m.	BREAK
10:15 a.m. - 11:30 a.m.	Formulate Mission Statement
11:30 a.m. - 12:00 p.m.	Room Check-out
12:00 p.m. - 1:00 p.m.	LUNCH [Room Name]
1:30 p.m. - 2:00 p.m.	Presentation of Priorities List [Room Name]
2:00 p.m. - 2:30 p.m.	Workshop Wrap-up and Next Steps

Workshop Roster

A workshop was held January 25-26, 1993, in Salt Lake City, Utah, to assess and suggest amendments to be incorporated into the final draft of this manual. The Seismic Safety Commission gratefully acknowledges all those who assisted in this endeavor.

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Lexicon of Terms

End user—Persons and organizations who are responsible for implementing risk reduction activities; those who receive and use the results of the professional work products of practicing engineers and geotechnical scientists, researchers, etc., including school teachers, emergency response and building officials, insurance and construction companies, homeowners, and the general public.

Hazard—An act or phenomenon that has the potential to produce harm or other undesirable consequences to some person or thing.

Hazardous structure—A structure or edifice whose condition creates an imminent danger of physical injury, harm, or damage to some person or thing within or nearby it.

Nonstructural hazard—A condition or phenomenon in an edifice or structure, such as non-load-bearing architectural elements and mechanical and electrical components of the building system, that is unrelated to its construction or structure that has the potential to produce harm or other undesirable consequences to some person or thing within or nearby it.

Risk—The probability that the potential harm or undesirable consequences of a hazard will be realized; the convolution of the hazard and the vulnerability.

Risk management—The evaluation of alternative risk control actions,

selection among them (including doing nothing), and their implementation. Includes predicting damaging events and their effects, and reducing the vulnerability of facilities, improving emergency response and recovery, etc.

Seismic safety—The condition of being reasonably free or secure from earthquake-related danger, harm, injury, or economic loss.

Stakeholders—Individuals, agencies, and entities, in both the private and the public sectors, with earthquake-related responsibilities who have significant influence on seismic risk management efforts.

Structural hazard—A structural condition or phenomenon, such as parts of a building that bear vertical gravity loads or lateral seismic forces, or both, in an edifice or structure that has the potential to produce harm or other undesirable consequences to some person or thing within or nearby it.

User—Persons and organizations who are responsible for formulating risk reduction activities; those who use and communicate their knowledge in their professional work products including government policy makers, practicing engineers and geotechnical scientists, researchers, etc.

Vulnerability—Susceptibility to physical injury, harm, damage, or economic loss.

California Seismic Safety Commission

The California Seismic Safety Commission, under contract to the Federal Emergency Management Agency, developed this document. The commission's staff counsel, Timothy Cronin was project director. As stated in the acknowledgments, many others contributed to the shaping of the work.

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