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PREFACE

As charged by the Governor of the State of Nevada, through the Division of Emergency Management, the Nevada Earthquake Safety Council sets forth this document to provide strategic direction and guidance in the efforts to provide earthquake safety in Nevada.

This document, in its current form, is a revision of the founding Strategic Planning document which was the result of the efforts of many individuals and entities who collectively form the Nevada Earthquake Safety Council. Specifically, grateful thanks are expressed by the Council to the following individuals assigned to the Ad Hoc Committee for coordinating the development of the Strategic Plan for Earthquake Safety in Nevada (Strategic Plan): Mr. Press Clewe of the Washoe County Department of Emergency Management; Ms. Sheila Clement of the Carson City Department of Emergency Management; Ms. Tisha Johnson of the Nevada Division of Emergency Management; Ms. Alice Baldrice of the State Office of Historic Preservation; Mr. Gene Foster of the Nevada Department of Employment, Training and Rehabilitation; Mr. Charles Watson of Advanced Geological Exploration/Seismo-Watch; Mr. Ken Olive of Sierra Pacific Power Company; Mr. Mike Blakely of Blakely Johnson & Ghush, Ltd.; and Mr. Greg Moss of AGRA Earth & Environmental, Inc.

We are grateful to the following individuals for their foresight in improving this planning document with a vision to the future contributions and efforts of the Nevada Earthquake Safety Council. These individuals include: John Anderson, Nevada Seismological Laboratory, Mike Blakely, Blakely, Johnson, and Ghush, Wayne Carlson, Nevada Public Agency Insurance Pool, Kamala Carmazzi, Nevada Division of Emergency Management, Craig dePolo, Nevada Bureau of Mines and Geology, Diane dePolo, Nevada Seismological Laboratory, Jim O'Donnell, UNLV, Terri Garside, Nevada Bureau of Mines and Geology, Mark Harris, Public Utilities Commission, Jenelle Hopkins, Centennial High School, Las Vegas, Carolyn Levering, American Red Cross, Ron Lynn, Clark County Building Department, Barbara Luke, UNLV Dept. of Civil & Environmental Engineering, Greg Moss, The Moss Group, Jon Price, Nevada Bureau of Mines and Geology, Jim Reagan, Sierra Pacific Power Company, Burt Slemmons, University of Nevada, Reno (retired), Frank Siracusa, Nevada Division of Emergency Management

Strategic Planning Ad Hoc Committee, November 15, 2001.

VISION

Our vision is an earthquake-safe Nevada for our families, communities, and visitors.

MISSION

The mission of the Nevada Earthquake Safety Council is to provide decision makers and the general public with information and actions to reduce earthquake losses and speed recovery. The Council promotes earthquake awareness and preparedness through education, research, and policy recommendations.

PHILOSOPHY

Government has a fundamental responsibility to protect the health, safety, and welfare of its citizens. Toward that end, the Council:

- Educates the public about earthquake hazards and the measures to take to save lives, to reduce loss of property, and to speed recovery;
- Assists local and state agencies in preparing for disaster response and post-earthquake recovery;
- Improves our understanding of earthquake hazards within the State of Nevada;
- Promotes geotechnical earthquake-hazard evaluations for new construction; and
- Improves earthquake resistance in new and existing structures.

INTRODUCTION

In the effort to accomplish the mission, the Nevada Earthquake Safety Council (NESC) utilizes this consensus strategic plan for earthquake safety to: minimize injuries, loss of life and property damage, and to reduce social disruption in the aftermath of strong earthquakes. This document has been revised through a review and planning process undertaken by the NESC, at the November 2001 meeting and approved in the Spring 2002 meeting. It contains a list of recommended goals, strategies and objectives to reduce losses due to earthquakes within the State of Nevada.

The critical issues identified in this document are as follows:

- There exists in portions of the State of Nevada a real and serious danger of life threatening and damaging earthquakes that will occur;
- The people of the State of Nevada, as well as various emergency management and public safety agencies, can collectively take significant actions now which can substantially reduce injuries, loss of life, property damage and long term economic impact from a severe earthquake; and
- The actual process of implementing these actions is a continuing process.

A cost for these actions exists, and therefore, the strategy has been designed to be sensitive to regulatory and financial burdens. However, many actions can be taken now without great expense that will make Nevada a safe place to live and work both today and tomorrow.

THE EARTHQUAKE THREAT IN NEVADA

Nevada has experienced damaging earthquakes in the historic past, and geologic evidence indicates that because of our increasing population and development, we may expect earthquakes with even greater damage potential to occur in the future. The highest probabilities of experiencing an earthquake are in western Nevada, although the entire State is susceptible. Two belts of historical earthquakes are the Eastern California-Western Nevada Seismic Belt along the western edge of Nevada, and the Central Nevada Seismic Belt in west-central Nevada. Both of these seismic belts have produced numerous historical earthquakes of magnitudes 6 to 7.8.

A number of interrelated geologic hazards are produced during and after a severe earthquake. These include:

- ❑ Ground shaking from the earthquake itself;
- ❑ Cracks and surface fractures associated with fault rupture;
- ❑ Regional and/or localized subsidence or uplift;
- ❑ Liquefaction and related ground failure;
- ❑ Landslides, slope failures and rock fall; and
- ❑ Flooding from various types of failures.

Major faults along the eastern side of the Carson Range pose the greatest risk to the concentrated development of the Reno/Carson City/Carson Valley urban and suburban areas coupled with the relatively high probability of strong earthquakes on other faults.

Due to the lower density of development, the risks associated with earthquakes are generally lower within the central part of the State along the Central Nevada Seismic Belt, although strong earthquakes may be expected there as well. It cannot be overemphasized, however, that on an individual scale, the impacts as a result of these events will be severe to those living or working in the affected area.

Other areas of Nevada face a somewhat lower hazard associated with strong earthquakes, but much is still unknown about the geological history of faulting and the probabilities of major earthquakes occurring within decadal time frames.

It is imperative that residents of Nevada prepare for earthquakes. It is almost certain that significant loss of life, injuries and property damage will occur during a strong earthquake. The bases for this conclusion are:

- ❑ Nevada is the third most seismically active state in the U.S., following only California and Alaska;
- ❑ A significant portion of our population, including a large portion of the State government infrastructure is located within an area of greatest hazard; and
- ❑ Many of the older buildings as well as utility facilities in the western and central portions of the State have not been designed to resist earthquake damage.

GOALS FOR EARTHQUAKE SAFETY

The goals to achieve earthquake safety in Nevada are:

Increase awareness about Nevada's earthquake hazard, the negative effects from earthquakes, how to prepare for earthquakes, and how to respond and recover from an earthquake.

Support and promote the development and exchange of knowledge relating to earthquakes in Nevada.

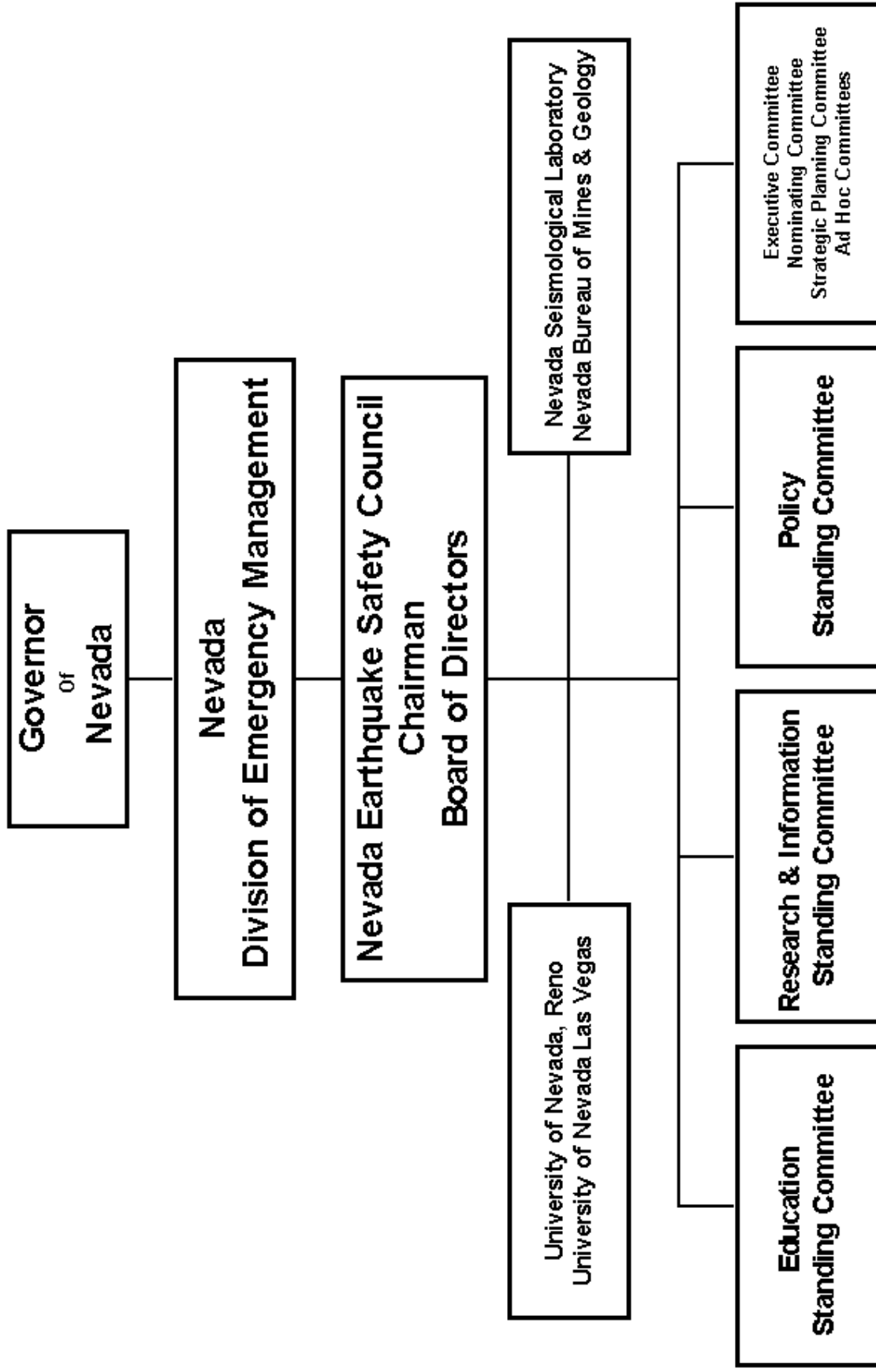
Influence policy that promotes earthquake safety.

The list is not prioritized, nor is it intended to be all inclusive. It represents a current level of understanding and consensus and may be modified as new ideas or techniques become available.

NEVADA EARTHQUAKE SAFETY COUNCIL ORGANIZATION

To achieve its mission and create a framework for the coordination of efforts, the NESC organization includes Standing Committees. A Standing Committee is assigned to each goal and is responsible for development of objectives, strategies and actions necessary to achieve the goal. The following Organization Chart illustrates the organization of the NESC:

NEVADA EARTHQUAKE SAFETY COUNCIL



PLAN DESIGN AND TERMINOLOGY

The Strategic Plan is designed to be a flexible, evolving document that reflects the Nevada Earthquake Safety Council's *Goals, Objectives and Strategies that are carried out by the Standing Committees and council members at large.*

Goals: Goals are broad, qualitative statements of purpose derived from the mission and philosophy of the NESC. These Goals form the basis for establishment of Objectives and Strategies.

Objectives: Objectives are derived from Goals and provide the major target areas necessary to achieve the Goals of the Council. Objectives have one or more Strategies, which describe the actions or action plans associated with it.

Strategies: Strategies are the detailed activities or plans, which are utilized to accomplish the Objectives, provide additional detail about each Objective, and are a guide for Standing Committees to accomplish the Objectives.

The Strategic Plan will be implemented by the activities of each of the Standing Committees. Within this framework, each Standing Committee is responsible for facilitating the accomplishment of its Goal by development of Objectives and Strategies. These Objectives and Strategies will be reviewed, revised as necessary, and presented to the council annually. Progress through actions and action plans of the Strategies, toward the achievement of the Goals of the Council and Objectives of the standing committees, will be reported to the council at each quarterly meeting of the Nevada Earthquake Safety Council.

It is the intent of the Nevada Earthquake Safety Council that the Standing Committees continue to evaluate and modify, as appropriate, the Objectives, Strategies, and perhaps even the Goals themselves. Ongoing involvement by members of each Standing Committee will ensure this Strategic Plan is a living document that will be used consistently and updated as new information becomes available. The Strategic Plan will be evaluated on a continuing basis by the NESC and updated annually or as otherwise necessary.

STRATEGIC PLAN FOR EARTHQUAKE SAFETY IN NEVADA

GOAL SUMMARY

GOAL A: EDUCATION

Increase awareness about Nevada’s earthquake hazard, the negative effects from earthquakes, how to prepare for earthquakes, and how to respond and recover from an earthquake.

OBJECTIVES:

- ❑ Preparedness in our schools, homes, and workplaces
- ❑ Earthquake education programs for schools and the citizens of Nevada
- ❑ Effective Public Information
- ❑ Involve public safety and emergency management representatives in earthquake education and seismic safety programs statewide

STRATEGIES:

- ❑ Develop lesson plans or activities for teachers that tie into the existing science curriculum and align with the science standards for the state
- ❑ Increase media involvement through partners such as Nevada Broadcasters Association
- ❑ Applied Technology Council (ATC) training and formalization
- ❑ Expand earthquake awareness in educational sites such as regional science fairs, and speakers bureaus
- ❑ Develop information programs targeting public safety, emergency managers, local government executives, and business and industry

STRATEGIC PLAN FOR EARTHQUAKE SAFETY IN NEVADA

GOAL SUMMARY

GOAL B: RESEARCH & INFORMATION

Support and promote the development and exchange of knowledge relating to earthquakes in Nevada.

OBJECTIVES:

- ❑ Technical information exchange between professionals, managers and the citizens of Nevada
- ❑ Promote post-earthquake technical clearinghouse through planning and established practices
- ❑ Identify all active faults and seismic sources, near major urban areas

STRATEGIES:

- ❑ Provide publications and workshops
- ❑ Planning and special considerations of: Fault Map of Nevada
- ❑ Lifelines and transportation workgroup
- ❑ Nonstructural mitigation drive
- ❑ Create earthquake planning scenarios (Las Vegas and rural areas)
- ❑ Determine potential fault rupture characteristics and maximum earthquakes
- ❑ Inventory unreinforced masonry buildings in Nevada

STRATEGIC PLAN FOR EARTHQUAKE SAFETY IN NEVADA

GOAL SUMMARY

GOAL C: Policy Recommendations

Influence policy that promotes earthquake safety.

OBJECTIVES:

- ❑ Cultivate legislative champions and promote legislation adopting seismic safety provisions
- ❑ Promote the adoption of earthquake-hazard guidelines by industry, agencies, and jurisdictions
- ❑ Partner with business sponsors for mitigation projects
- ❑ Expand funding sources for NESC programs

STRATEGIES:

- ❑ Identify potential funding sources such as; Building permit surcharge, Federal grants, Matching fund derived from some obscure state budget item with lower priority
- ❑ Develop a set of model laws that would be presented after a major earthquake occurs in Nevada
- ❑ Develop outreach program and bring business & industry representatives into Council activities
- ❑ Encourage retrofit of essential (economic & lifeline) structures and infrastructure
- ❑ Encourage retrofit of public safety facilities (911 communications, hospitals, fire, law enforcement and ambulance facilities, etc.)

STRATEGIC PLAN

REFERENCES

California Utilities Emergency Association, June 1995, "1995 - 1997 Strategic Management Plan"

Hazard Mitigation Survey Team Report, 1993, "Opportunities in Clackamas, Marion, and Yamhill Counties, Oregon"

Humboldt Earthquake Education Center, 1995, "Living on Shaky Ground - How to Survive Earthquakes and Tsunamis on the North Coast"

Nevada Earthquake Safety Council Ad Hoc Committee on Seismic Hazards Issues, 1995, "Progress Report"

Nevada Earthquake Safety Council Bylaws

Nevada Division of Emergency Management, 1993, "Nevada's Earthquake Risk Reduction Plan 1993 - 1997 (draft)"

Nevada Division of Emergency Management, 1995, "Earthquake Program Scope of Work CFDA 83.521 (FFY '96)"

Nevada Division of Emergency Management, 1994, "Nevada Earthquake Risk Reduction Program (FFY '95)"

Utah Seismic Safety Commission, 1995, "A Strategic Plan for Earthquake Safety in Utah"

FEMA Guide 266, August 1995, "Creating A Seismic Safety Advisory Board"