

Summary Minutes

Nevada Earthquake Safety Council

23 August 2002

The Nevada Earthquake Safety Council (NESC) met from 9:00 a.m. to 3:10 p.m. at the Clark County Building Department's Russell/Cameron Office in Las Vegas. These and previous minutes are posted on the NESC Web site (www.nbmng.unr.edu/nesc).

Ron Lynn chaired the meeting. Individuals attending the meeting are members of the Council:

John Anderson*, Nevada Seismological Laboratory
 Bob Berry, Nevada Division of Emergency Management
 Mike Blakely*, Blakely, Johnson, and Ghusn, who also held the proxy for Ian Buckle*, UNR Center for Civil Engineering Earthquake Research
 Wayne Carlson*, Nevada Public Agency Insurance Pool
 David Chairez, Public Utilities Commission, who held the proxy for Mark Harris*, Public Utilities Commission
 Craig dePolo, Nevada Bureau of Mines and Geology, who held the proxy for Michael Lynch*, Builders Association of Northern Nevada
 Diane dePolo, Nevada Seismological Laboratory
 Perry Duncan, Homebuilders Association
 Greg Flanigan*, Farmers Insurance
 Terri Garside, Nevada Bureau of Mines and Geology, who held the proxy for Greg Moss*, The Moss Group
 Marge Gunn Nutman*, Nevada Association of Counties & Lincoln County Office of Emergency Management
 Deborah Hinman, Nevada Bell, who held the proxy for Phil Herrington*, Carson City Building Department
 Jenelle Hopkins*, Centennial High School, Las Vegas
 Samaan Ladkany, UNLV Civil Engineering Department
 Steve Leedom, U.S. Department of Energy
 Ron Lynn*, Clark County Building Department
 Steve Mahnken, Nevada Division of Emergency Management
 Elton Nutman, interested citizen
 Daniel R.H. O'Connell, U.S. Bureau of Reclamation
 Jim O'Donnell*, UNLV
 Jon Price*, Nevada Bureau of Mines and Geology
 Gary Rasmussen, geological consultant
 Jim Reagan*, Sierra Pacific Power Company
 Ed Ruttan, American Red Cross, who held the proxy for Carolyn Levering*, American Red Cross
 Burt Slemmons*, University of Nevada, Reno (retired, Las Vegas consultant)
 Catherine Snelson*, UNLV Geoscience Department
 Jim Werle*, Converse Consultants

* indicates member of the Board of Directors.

A quorum of directors (the necessary 11) was present.

Board Members unable to attend or send a proxy included:

Bernie Anderson*, Nevada State Assemblyman
 Mark James*, Nevada State Senator

The minutes from the meeting on 17 May 2002 were approved.

COMMITTEE REPORTS

Education Committee

Diane dePolo provided a written report, which is available with the on-line minutes. The committee is seeking a theme for next year's Earthquake Awareness and Preparedness Week. Please send ideas to Diane. As more teachers are connected to the Internet, information will likely go out to teachers by e-mail.

The program to place seismometers in Nevada schools is proceeding well. John Anderson stated that the 19 stations to be placed in rural Nevada schools will significantly help with the scientific efforts of locating and measuring earthquakes. The Nevada Earthquake Safety Council and the Nevada Public Agency Insurance Pool, and Jim O'Donnell and Wayne Carlson for their individual efforts, will be given a Western States Seismic Policy Council Award in Excellence in the category of Outreach to Schools for the efforts to establish this Nevada educational seismic network.

The group discussed the need to get more schools to conduct earthquake exercises. John Anderson suggested engaging one school to help make a video of an earthquake exercise. The Las Vegas Academy of Performing Arts may be a good target. Marge Gunn Nutman suggested that county emergency managers be encouraged, through the Nevada Division of Emergency Management (DEM), to have schools conduct exercises.

The following motion passed unanimously: the Nevada Earthquake Safety Council recommends that DEM promote the use of earthquake drills in schools through the county and city emergency managers.

ACTION ITEM: Jon Price will communicate this recommendation to Frank Siracusa, Chief of DEM.

ACTION ITEM: Ron Lynn charged Jenelle Hopkins and the Education Committee to prepare a presentation, before the November NESC meeting, that would then be used to convince school boards to require earthquake drills along with regular fire drills.

Research Committee

Craig dePolo reported that Wanda Taylor's group at UNLV is making progress on their investigations of the Black Hills fault near Las Vegas. They plan to present results of their study at the February 2003 NESC meeting.

Craig is working on an operating manual for a Nevada Technical Clearinghouse to be activated after a significant earthquake. Craig, Burt Slemmons, Jim Werle, and others are working on a scientific paper on the implications of observations made in excavations exposing faults in Las Vegas Valley. Craig is studying the Warm Springs Valley fault, a large strike-slip fault near Reno; he will begin trenching this fault in about a week.

The U.S. Geological Survey is making it easier for studies of earthquakes hazards in the Basin and Range Province to be funded through their portion of the National Earthquake Hazard Reduction Program.

The Association of Engineering Geologists and the American Institute of Professional Geologists are holding their joint annual meeting this year at the Peppermill in Reno. The main dates for the technical program are Wednesday, September 25, through Friday, September 27, and the theme is "Gambling with Geological Hazards and Dealing with Sustainability." There will be pre- and post-meeting field trips and a Saturday-Sunday, post-meeting workshop for teachers. Special symposia that are relevant to the NESC include ones on earthquakes and faults in Nevada and elsewhere, general aspects of seismic hazard analysis, dams, and landslides. Interested individuals can register for the meeting on the Web (www.aegweb.org).

The Research Committee expects to host a Basin and Range seismic hazards summit in Reno in May 2003 and a southern Nevada seismic hazards conference in 2004.

Craig dePolo attended a recent FEMA meeting on pre-disaster mitigation grants (all hazards, not just earthquakes). FEMA's "Project Impact" from the previous administration is being replaced by this new program. FEMA wants to

make their pre-disaster mitigation grants program competitive. They want a 75 to 25 federal to non-federal match. FEMA will make the decisions on which proposed projects would be funded. FEMA apparently hopes to have this program perhaps replace even the post-disaster mitigation grant funding, but many comments from state representatives at the meeting indicated opposition to this. There was a general feeling that states needed to maintain a certain core level of federal funding for disaster mitigation. A comment period is open on this program, through the federal register. FEMA is anticipating that the competitive grant program will reach \$300 million per year.

Jim Werle discussed the scientific debate regarding a potential earthquake hazard from a possible fault system that runs through the Las Vegas Wash - Lake Las Vegas area. A scientific report by Ernie Anderson, U.S. Geological Survey (USGS), and Mike West about five years ago suggested that there may have been Holocene activity (in the last 10,000 years) on this possible fault system, but the scientific data are ambiguous as to whether there is even a fault system there and whether it is, in fact, young. The USGS work has caused significant turmoil for the local geotechnical and geological consulting community. Additional studies by the USGS or others may need to be done to settle the scientific debate.

ACTION ITEM: Ron Lynn will request that Ernie Anderson meet with the Research Committee to discuss the issue of whether an active fault system exists in the Las Vegas Wash - Lake Las Vegas area.

Policy Recommendations Committee

Wayne Carlson opened the discussion on Assemblyman Bernie Anderson's bill draft request (#206, "Nevada Earthquake Safety Act"). Prior to the meeting, the Council members received electronic copies of a "Draft Content," which the Policy Recommendation Committee developed using the legislative agenda adopted by NESC at the May 2002 meeting.

Wayne questioned whether the building industry would oppose or support the intent of the proposed bill. Mike Blakely stated that there should not be a conflict. Perry Duncan reserved comment until the Homebuilders Association has an opportunity to review the document. Greg Flanigan expressed support from the insurance industry.

Burt Slemmons suggested that the draft content should explicitly refer to the two NESC guidelines (for fault investigations and liquefaction investigations).

NESC unanimously approved forwarding the wording of the "Draft Content" to the Legislative Counsel Bureau.

The wording, using the exact titles of the two NESC guidelines, is as follows:

DRAFT CONTENT - AFTER DISCUSSION at the 23 August 2002 meeting of the Nevada Earthquake Safety Council

I. Intent of Proposed Bill: (Brief summary of intended effect)

Request that the Legislature adopt the Nevada Earthquake Safety Act of 2003 incorporating the following elements that not only will save the lives of citizens and protect their property from damage, but will also enhance emergency response and protect emergency responders.

- a) Endorse for the State and strongly encourage local governments to endorse establishment of policies that promote retrofitting of critical structures and public lifeline facilities including at least hospitals, emergency response facilities, power generation facilities, and water and sewer facilities.
- b) Endorse for the State and strongly encourage local governments to endorse establishment of policies that adopt the Nevada Earthquake Safety Council guidelines for evaluating potential surface fault rupture/land subsidence hazards in Nevada.

c) Endorse for the State and strongly encourage local governments to endorse Nevada Earthquake Safety Council guidelines for evaluating liquefaction hazards in Nevada.

d) Endorse for the State and strongly encourage local governments to adopt the seismic provisions in the International Building Code with appropriate amendments as soon as practicable.

II. Justification or Purpose: (Brief narrative of requirement. Use continuation sheet if necessary)

The Federal Emergency Management Agency, in its 2001 Report Number 366, estimated the annualized earthquake loss for the state of Nevada to be \$55 million per year, of which \$28 million is in the Las Vegas metropolitan area and \$17.8 million is in the Reno metropolitan area. These figures cover direct economic losses to the building inventory and do not include long-term, indirect economic losses for businesses, social losses, casualties, or damages to lifelines and other critical facilities.

These annualized losses take into account the buildings at risk and the frequency of earthquakes. A single, large urban earthquake in Nevada could cause billions of dollars in damage.

Nevada is the third most seismically active state in the Nation in terms of the frequency of major, magnitude 7 or greater, earthquakes. Only Alaska and California have major earthquakes more frequently than Nevada. Nevada ranks fifth in terms of annualized earthquake loss.

The seismic provisions in current building codes are meant to prevent loss of life and provide for public safety, not to assure that a building can be reoccupied after an earthquake. Designing buildings so that business can be resumed shortly after an earthquake typically requires more expensive construction than is required by the building codes.

Preparedness for earthquakes is comparable to preparedness for any major disaster, manmade or natural, particularly in terms of hardening of lifelines and strengthening of buildings to withstand damage, public safety during and after the event, pre-disaster preparedness, and post-disaster recovery.

Since Nevada has significant earthquake hazards throughout the state, citizens of Nevada should be made aware of earthquake hazards and need to be prepared for earthquakes and the aftermath of earthquake disasters. The State of Nevada Division of Emergency Management is charged with preparing for and responding to earthquake hazards, educating the public and recommending preventative measures. The proposed intent of the bill establishes public policy that focuses on mitigation of the risks before an earthquake and enhances emergency response capabilities following an earthquake due to better life safety for responders and the occupants of buildings.

The Nevada Earthquake Safety Council is charged with recommending new research, mitigation projects, and other worthwhile projects that educate and provide information that helps the public understand earthquake hazards. The Division of Emergency Management has provided funds for recommended projects when available. NESC supported research resulted in development of the guidelines and the adoption of them further adds to Nevada's earthquake preparedness.

ACTION ITEM: Wayne Carlson will convey the draft content developed by the Policy Recommendation Committee for Bill Draft Request #206, "Nevada Earthquake Safety Act," to the Legislative Counsel Bureau and Assemblyman Bernie Anderson.

ACTION ITEM: Ron Lynn will contact Senator Mark James to solicit his endorsement and continued help with this bill.

ACTION ITEM: Wayne Carlson and the Policy Recommendation Committee will develop a strategy to assist in passage of the Nevada Earthquake Safety Act, including identifying individuals who would be willing to testify in support of the bill.

Jon Price reported that because of shortfalls in State revenues, DEM will not support the NESC recommendation (from May 2002) to request \$50,000 in State General Funds for NESC activities. (See report from DEM later in these minutes.)

Strategic Planning Committee

Jim Reagan noted that the committee did not meet during the last quarter.

AHMAC Liaison Committee

Jim O'Donnell reported that the State's All Hazard Mitigation Advisory Committee (AHMAC) did not meet during the last quarter.

Ad Hoc Committee on Earthquake Studies in the Las Vegas Area Committee

Cathy Snelson and John Anderson noted that the committee did not meet, but there is an active research project regarding ground-motion hazards in the Las Vegas area. It involves UNLV, UNR, and Lawrence Livermore National Laboratory. Some results may be presented at the February 2003 NESC meeting. Cathy mentioned how pleased she has been with the reception of local residents, businesses, and governmental agencies to help with the project by locating seismic instruments in their yards.

Status of Building Code Adoption in Nevada

Ron Lynn reported that there have been initial public hearings on the new codes in southern Nevada. Clark County and cities other than the City of Las Vegas are favoring adoption of the new codes. The homebuilders association has been in support, and the structural engineers of southern Nevada have been in support, with the exception of a couple of amendments. Clark County will coordinate the comments, propose specific amendments, then try to adopt the new codes perhaps as early as October. There will be an attempt to delay adoption by some groups. Ron anticipates that northern Nevada jurisdictions will wait to see what is done in southern Nevada and may wait for the 2003 International Building and Residential Codes.

Status of the State Hazard Mitigation Plan Steering Committee

Jon Price reported that the State Hazard Mitigation Plan Steering Committee has had three of ten or so monthly meetings. He, Ron Lynn, and Jim Reagan are members of this committee, which is charged with helping a consultant hired by the Nevada Division of Emergency Management to prepare a new State Hazard Mitigation Plan. The NESC Earthquake Risk Mitigation Plan will probably be an annex to the State Hazard Mitigation Plan. The State and local jurisdictions must have FEMA-approved plans prior to allocation of federal funds for hazard mitigation.

Wayne Carlson suggested that the Steering Committee might want to use the "There Is No Alternative" (TINA) scenario approach to planning that Shell Oil Company developed and has on their Web site.

Update on Recent Earthquakes

John Anderson reported on recent earthquake activity and the June 14, 2002 Little Skull Mountain earthquake in Nye County (magnitude 4.4, depth of 12 kilometers). The coincidence of this earthquake's occurring a couple of weeks before the U.S. Senate voted on Yucca Mountain created political interest. There was a magnitude 5.6 earthquake at Little Skull Mountain in June of 1992, also at a depth of 12 kilometers, and this recent earthquake is in the aftershock zone of that tremor, but earthquakes typically are not labeled as aftershocks that long after the main shock. Both earthquakes were on normal faults. Together, these earthquakes provide a lot of data relevant to the Yucca Mountain Project. The new Advanced National Seismic System (ANSS) stations in Las Vegas easily recorded the earthquake. Steve Leedom noted that the 1992 earthquake was probably triggered by a larger earthquake in southern California. There apparently was no damage near Yucca Mountain from the 2002 earthquake, but there was damage to buildings from the 1992 larger earthquake. There are faults big enough and

long enough that the seismic hazard analysis of Yucca Mountain included the possibility of earthquakes as large as magnitude 7.

Update from the Nevada Division of Emergency Management

Bob Berry stated that worst-case scenarios are not impossible, as many people have suggested. Some effort needs to be made to address these improbable hazards.

Bob said that there is only a slight possibility that there will be funding for a safety calendar for this coming year. NESC's Education Committee should expect no DEM funding for a 2003 calendar. The basic funding for NESC in federal fiscal year 2003 has been approved, but there is no extra funding for additional projects.

Federal homeland security funding is uncertain at this time. There are jurisdictional issues regarding the agencies that may be included in a Department of Homeland Security.

Although there will be no additional State funding available for NESC activities during the upcoming legislative session, perhaps there will be additional funding in another two years. Bob stated that putting a bill forward now that provides the justification for earthquake programs will help in two more years.

Earthquakes, Faults, and Reservoirs: Seismicity Near Hoover Dam

Daniel O'Connell, Geophysicist, Seismotectonics and Geophysics Group, U.S. Bureau of Reclamation, discussed the Bureau's analysis of seismicity and earthquake hazards in the Hoover Dam area. The first felt earthquakes (1936) occurred a few weeks after Lake Mead reached its annual peak elevation of 1,025 feet above sea level. However, seismographs were first installed in the area in 1935, and there was little good instrumental monitoring until about 1937. Some early earthquakes occurred on the east end of the lake, where there was maximum sediment loading from the Colorado River into Lake Mead. Later, most earthquakes occurred farther downstream, closer to the deepest parts of the lake. Many earthquakes occurred in Arizona, east of the dam. Some of the earthquakes appear to have occurred on the Mead Slope fault, but others may be associated with other faults. There was no direct correlation with the measured maximum subsidence (more than 12 centimeters), which mostly occurred before 1945. Revised magnitudes for the earthquakes are in the range of 3.6 to 5.0, with fewer 5.0 earthquakes than had been estimated earlier on the basis of intensities (felt effects). The largest earthquake since 1965 was a magnitude 3.7 to 3.9. This is probably the result of changing reservoir management (with less significant changes in the water level behind the dam since 1965). Microearthquakes were recorded in the vicinity of the Black Hills fault during an 18-month recording period in 1972-73. Another microearthquake experiment was conducted for a couple of months in 1988. Focal mechanisms indicate both strike-slip and normal faults.

Most of the Hoover Dam area earthquakes can be explained by the load of the water on the rocks below the reservoir and by fluid flow and increased pore pressure in those rocks. There were periods of rapid filling (1957-1958, 1962) and rapid draining of the lake, which correlate with relatively large earthquakes, but since the Glen Canyon Dam was built, which allowed Lake Powell to regulate the level of Lake Mead, earthquake activity has diminished.

Some new seismic instruments (strong-motion accelerometers) have been installed at Hoover Dam in recent years. The Bureau has data from instruments that were operating during the National Science Foundation's BARGE (Basin and Range Geophysical Experiment ?) project in Lake Mead a few years ago. In addition, the NSF-funded scientists deployed 25 PASCAL portable seismic instruments during the BARGE project, but data from these instruments haven't been analyzed.

Dan O'Connell's presentation (in PDF format) will be placed on the NESC Web site.

Seismic Hazard Implications of Earthquakes in Southern Nevada

Craig dePolo and Dan O'Connell led a discussion on hazard implications in southern Nevada. Interestingly, when Lake Powell was filled, seismologists did not see a comparable series of reservoir-induced earthquakes, as was the case with Lake Mead. This suggests some tectonic control to earthquakes in the Hoover Dam area.

John Anderson pointed out that southern Nevada has also experienced earthquakes induced by atomic blasts and other earthquakes (in the case of the Landers earthquake in 1992, which triggered the Little Skull Mountain earthquake).

Burt Slemmons remarked that the Fortification Hills fault exhibits paleoscarps that indicate considerable Quaternary activity.

John Anderson noted that the basin effects of Las Vegas Valley, which are currently being analyzed, are such that the hazard in the valley may be more dominated by large regional faults with frequent earthquakes than by small faults with infrequent earthquakes inside the valley. An earthquake of magnitude 5.6 in the Hoover Dam area today could, perhaps, cause significant shaking in Las Vegas Valley.

Dan O'Connell expressed concern about the Frenchman Mountain fault as a potential seismic source. He felt that the biggest earthquakes are likely to be revealed by studies of the Quaternary geology (ages of fault scarps, displacements, lengths of faults, etc.).

Gary Rasmussen noted that a magnitude 5.5 in Italy a decade ago killed about 5,000 people, and it is therefore important to focus on building codes.

Steve Leedom noted that the Little Skull Mountain earthquake was larger than any bomb-test seismic shaking to affect Las Vegas Valley (other than some megaton shots), and any future testing on the Nevada Test Site apparently would be with devices smaller than 150 kilotons. Because there were no adverse effects of the Little Skull Mountain earthquake, it would be unlikely that future testing of bombs at the Nevada Test Site would cause problems in Las Vegas Valley.

John Anderson noted that most of the explosions have spectral shapes comparable to the magnitude 5.6 Little Skull Mountain earthquake, but that a magnitude 6.5 earthquake will produce a different spectral shape with considerably more low-frequency shaking than a magnitude 5.5 earthquake. The ongoing study by Lawrence Livermore National Laboratory, UNLV, and UNR will contribute significantly to our understanding of the seismic hazard in the area. John suggested that additional studies should be undertaken to test the connection between regional tectonics and the fault solutions for the earthquakes that have occurred around Lake Mead. He also called for studies of all potential seismic sources, distant ones for which the basin effects would be significant and nearby sources in and around Las Vegas Valley.

A symposium on earthquake hazards in southern Nevada is tentatively planned for 2004. At that time, there should be new information from current studies.

Nevada Earthquake Safety Council Award for Excellence

The Council presented to the Clark County Building Department a NESC Award for Excellence for their efforts to implement recommendations for evaluations of the relations between faults and fissures that develop as a result of groundwater withdrawal. Ron Lynn accepted the award. The Western States Seismic Policy Council, at its annual conference in September, will also be presenting an award in excellence for the combined efforts of the Nevada Bureau of Mines and Geology and the Clark County Building Department for their work in this regard.

OLD BUSINESS

Ron Lynn reviewed action items from the previous meeting.

NEW BUSINESS

Bill O'Donnell suggested that we invite Dave McCallen, Lawrence Livermore National Laboratory, to talk about his studies of structural vulnerability in the Las Vegas Valley area. John Anderson, Barbara Luke, and Cathy Snelson are involved with Dave in a broad study that will contribute to better understanding of seismic hazards in Las Vegas Valley, and preliminary results will be presented to NESC in February.

ACTION ITEM: John Anderson will invite Dave McCallen to discuss contingency plans and vulnerability of structures, in the event that the federal government resumes subsurface nuclear testing at the Nevada Test Site.

ANNOUNCEMENTS

Applied Technology Council (ATC)-58, a project to develop performance-based seismic design guidelines, is underway. See the ATC Web site for further information.

The **next meeting** of the Nevada Earthquake Safety Council will be Friday, November 15, on the UNR campus in Reno.

The following dates are set for future NESC meetings:

Friday, February 14, 2003 (Las Vegas)

Friday, May 16, 2003 (Reno)

Friday, August 15, 2003 (Las Vegas)

Friday, November 21, 2003 (Reno).

REVIEW OF ACTION ITEMS

Jon Price will communicate the recommendation to Frank Siracusa, Chief of DEM, that the Nevada Earthquake Safety Council recommends that DEM promote the use of earthquake drills in schools through the county and city emergency managers.

Jenelle Hopkins and the Education Committee will prepare a presentation, before the November NESC meeting, that would then be used to convince school boards to require earthquake drills along with regular fire drills.

Ron Lynn will request that Ernie Anderson meet with the Research Committee to discuss the issue of whether an active fault system exists in the Las Vegas Wash - Lake Las Vegas area.

Wayne Carlson will convey the draft content developed by the Policy Recommendation Committee for Bill Draft Request #206, "Nevada Earthquake Safety Act," to the Legislative Counsel Bureau and Assemblyman Bernie Anderson.

Ron Lynn will contact Senator Mark James to solicit his endorsement and continued help with the Nevada Earthquake Safety Act.

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John Anderson will invite Dave McCallen to discuss contingency plans and vulnerability of structures, in the event that the federal government resumes subsurface nuclear testing at the Nevada Test Site.

respectfully submitted by Jon Price, 30 August 2002.

Nevada Earthquake Safety Council
c/o Nevada Bureau of Mines and Geology
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NEVADA EARTHQUAKE SAFETY COUNCIL
NOMINATIONS for Year 2002 Members of the Board of Directors and Officers
(as of 17 May 2002)

Business and Industry, Southern Nevada	Tim Crowley Nevada Resort Association
Business and Industry, Northern Nevada	Michael Lynch Builders Association of Northern Nevada
Insurance Industry (statewide)	Greg Flanigan Farmers Insurance (Las Vegas)
State Government (statewide)	Mark Harris Public Utilities Commission (Carson City)
Local Government, City	Wayne Carlson Nevada Public Agency Insurance Pool (Carson City)
Local Government, County	Marge Gunn Nutman Nevada Assoc. of Counties & Lincoln Co. Office of EM
Seismology (statewide)	John Anderson Nevada Seismological Laboratory (UNR)
Geosciences, Southern Nevada	Burt Slemmons Las Vegas consultant, UNR (retired)
Geosciences, Northern Nevada	Jonathan G. Price Nevada Bureau of Mines and Geology
Engineering, Southern Nevada	Jim Werle Converse Consultants
Engineering, Northern Nevada	Mike Blakely Structural Engineers Association of NV
Education (statewide)	Jenelle Hopkins Centennial High School, Las Vegas
Community Organizations, Southern Nevada	Carolyn Levering American Red Cross
Community Organizations, Northern Nevada	Jim Reagan Sierra Pacific Power Company
University, Southern Nevada	Catherine Snelson UNLV Geoscience Department
University, Northern Nevada	Ian Buckle UNR Center for Civil Engineering Earthquake Research
Building Official, Southern Nevada	Ronald L. Lynn Clark County Building Department
Building Official, Northern Nevada	Phil Herrington Carson City Building Department
State Senate	Mark James Nevada State Senator (Las Vegas)
State Assembly	Bernie Anderson Nevada State Assemblyman (Sparks)
Member at Large, Southern Nevada	Jim O'Donnell UNLV
Member at Large, Northern Nevada	Greg Moss The Moss Group

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First Vice Chair-North	Jim Reagan
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Second Vice Chair-North	Greg Moss
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