

**WESTERN STATES SEISMIC POLICY COUNCIL  
POLICY RECOMMENDATION 10-5**

**Basin and Range Province Earthquake Working Group(s)**

**Policy Recommendation 10-5**

WSSPC recommends convening a technical Basin and Range Province Earthquake Working Group(s) (BRPEWG) to meet with experts from Basin and Range Province (BRP) states to arrive at consensus average recurrence intervals (RI) and slip rates (SR) and other seismic hazard parameters with related uncertainties for active faults. Best available RI and SR values with appropriate uncertainties are critical to U.S. Geological Survey (USGS) seismic-hazard evaluations and for determining which faults should be included on the National Seismic Hazard Maps (NSHMs). The BRPEWG(s) should be convened under the auspices of the USGS NSHM project.

**Background**

With release of the Quaternary fault and fold database of the U.S. by the USGS, based in part on completion of databases by states, the need arises to look critically at existing paleoseismic-trench data, and where the data permit, develop consensus regarding appropriate average RI and SR values and related uncertainties for faults in each state.

Only three BRP states (California, Utah, and Nevada) have completed comprehensive reviews of their paleoseismic trenching data to determine consensus RI and SR values. In most instances, currently available RI and SR values are the result of individual studies performed over a period of decades by a variety of investigators with varying levels of experience and resources. Older studies lack the advantage of recent advances in paleoseismic techniques, particularly refinements in sampling strategies and dating technologies. Consequently, available RI and SR values are not all of equal reliability, and often uncertainties associated with those data are either poorly defined or not reported.

Achieving consensus on complex technical issues requires a process of inquiry, discussion, and agreement. Technical working groups have successfully reached consensus in many instances, including the Working Groups on California Earthquake Probabilities, the Utah Quaternary Fault

Parameters Working Group, and various Utah geologic-hazards-mapping working groups. A previously convened BRPEWG successfully brought together scientists to identify issues, discuss evidence, and define strategies for resolving issues regarding fault behavior in the BRP important to the next update of the NSHMs.

### **Facilitation and Communication**

WSSPC recommends that individual BRP states identify the faults for which sufficient paleoseismic trenching data are available to develop average RI and SR values and related uncertainties. The national Quaternary fault and fold database and state Quaternary fault databases form the basis for identifying these faults. Once identified, the BRPEWG(s) can meet with appropriate state experts to arrive at consensus RI and SR values as has already been done in California, Utah, and Nevada. Where consensus can be achieved, the BRPEWG can make recommendations for the USGS to consider in future updates of the NSHMs. Where consensus is not yet possible, an interim recommendation can be made for consideration in the NSHMs, and a research program outlined to resolve the issues so that consensus can ultimately be reached. Thus, a principal product of the process will be a list of priorities for future studies needed to achieve consensus that can provide support for the USGS in setting priorities both for internal studies and for the National Earthquake Hazard Reduction Program (NEHRP) External Grants program.

Funding will be required to pay travel and some salary expenses to hold workshops and to prepare reports. The WSSPC Basin and Range Committee, BRP state geological surveys, or other organizing entity should take the lead in developing a proposal to acquire funding. The BRPEWG(s) will serve only for the time it takes to complete their work, and then will be suspended until additional information becomes available for consideration.

Given the importance of RI and SR data to the NSHMs, the completion of such reviews is critical in all WSSPC BRP states. WSSPC should work with the USGS to encourage such work by giving it a priority in the annual NEHRP Request for Proposals to help provide necessary funding. Other potential funding sources include the Federal Emergency Management Agency and internal funding from individual BRP states.

## **Assessment**

The success of this Policy Recommendation can be assessed based on: (1) the number of states that empanel a BRPEWG to develop consensus RI and SR values, (2) the use of the resulting consensus RI and SR values by the USGS in future updates of the NSHMs, and by states and local governments in regulations and ordinances, and (3) the presentation of BRPEWG results to state emergency managers to ensure that the results reach the general public in a timely manner. A periodic assessment should be made to determine the extent to which the consensus RI and SR values are being incorporated into the NSHMs; individual probabilistic seismic hazard analyses; and state and local seismic-hazard rules, regulations, and guidelines.

## **History**

Policy Recommendation 10-5 was first adopted as Policy Recommendations 04-5 by unanimous vote of the WSSPC membership at the Annual Business Meeting September 30, 2004. The Policy Recommendation statement was revised and PR 04-5 was re-adopted as PR 07-5 by unanimous vote of the WSSPC membership at the Annual Business Meeting October 3, 2007. PR 07-5 was revised and re-adopted as PR 10-5 by unanimous voice vote of the WSSPC membership at the Annual Business Meeting July 9, 2010.