

	2008 Bi-annual Report	2010 Bi-annual Report	2012 Bi-annual Report	2013 Supplemental Report
<b>Overarching Themes</b>				
	<ul style="list-style-type: none"> <li>Rather than strengthening NEHRP with investments to authorized levels, the reverse has occurred</li> <li>Despite reduced funding, NEHRP has achieved significant improvements, notably its restructuring and broader collaboration since 2004 reauthorization</li> </ul>	<ul style="list-style-type: none"> <li>Progress on implementation of NEHRP strategic plan is too slow. Funding must be increased.</li> <li>Resilience as a 21<sup>st</sup> century goal for NEHRP. Resilient cities form resilient regions, which in turn build a resilient Nation. Nation cannot achieve resilience without motivating and supporting local measures that achieve resilience. (ACEHRP white paper on "Achieving National Disaster Resilience through Local, Regional, and National Activities" attached as an appendix)</li> </ul>	<ul style="list-style-type: none"> <li>Increase funding to NRC National Earthquake Resilience recommendations of \$300 million/year for next 5 years</li> <li>5 of 18 NRC recommended tasks prioritized for NEHRP focus (10-Socioeconomic research; 11-Resilience observatory network; 15-Guidelines for earthquake-resilient lifelines; 17-Knowledge, tools, and tech transfer for private sector; 18-earthquake resilient community/regional demo projects)</li> </ul>	<ul style="list-style-type: none"> <li>Continue frustration with declining funding resources available to NEHRP</li> </ul>
<b>Program Effectiveness and Needs</b>				
<b>FEMA</b>	<ol style="list-style-type: none"> <li>Revitalize state earthquake programs and support pilot risk assessment/mitigation studies in communities</li> <li>Fund FEMA at authorized level and assure funding is dedicated to earthquake risk reduction</li> <li>Continue to develop/maintain seismic protection/mitigation guideline documents (lifelines, existing/new buildings, applied socioeconomic policies). Promote adoption/implementation.</li> </ol>	<ol style="list-style-type: none"> <li>Revitalize state earthquake programs and support state commissions to characterize and mitigate unacceptable community risks. Focus on developing public policies, institutionalizing mitigation programs, and implementing pilot studies/scenarios. Leverage DHS expertise/ programs to further NEHRP strategic plan.</li> <li>Develop/promote improved guidance to enhance state/local emergency management capabilities (preparedness, response, and recovery) including private sector preparedness standards and post-disaster shelter/housing guidance.</li> <li>Develop/maintain seismic protection/ mitigation guideline documents (lifelines, existing/new buildings, applied socioeconomic policies). Promote adoption/implementation and measure the impact.</li> </ol>	<ol style="list-style-type: none"> <li>Expand private sector, NGOs and community stakeholder involvement in earthquake and 'all hazards' disaster preparedness, mitigation, response, and recovery programs</li> <li>Support state/local seismic preparedness assessments of education and other essential facilities, and make mitigation a priority</li> <li>Revitalize state earthquake programs and support state commissions to characterize and mitigate unacceptable community risks (high-occupancy, essential, public facilities)</li> <li>Build on lessons learned from recent global earthquakes</li> </ol>	<ul style="list-style-type: none"> <li>Reinvigorate the <u>implementation component of NEHRP (1)</u></li> <li>Support implementation of a building performance rating system</li> </ul>
<b>NIST</b>	<ol style="list-style-type: none"> <li>Secure funding to effectively carry out its role as lead agency and its roles in applied research and assistance in implementation of cost-effective mitigation through codes and standards.</li> <li>Plan for multidisciplinary expertise within its staff and foster relationships with other public agencies/private sector to accomplish coordinated research</li> </ol>	<ol style="list-style-type: none"> <li>Expand programs to carry out roles in applied research and facilitate implementation of cost-effective mitigation through codes and standards (new and existing lifelines, buildings, and industrial structures) and tech transfer for actual mitigation, and in transferring technology for use in actual mitigation</li> <li>Build multidisciplinary expertise within NIST and foster relationships with other public agencies/private sector/consultants to accomplish/manage applied research</li> </ol>	<ol style="list-style-type: none"> <li>Continue to expand programs to carry out roles in applied research and assistance in implementation of cost-effective mitigation through codes and standards, and tech transfer for actual mitigation</li> <li>Continue to building multidisciplinary expertise within its staff and foster relationships with other public agencies/private sector/consultants to accomplish coordinated applied research</li> </ol>	<ul style="list-style-type: none"> <li>Develop a <u>building performance rating system that can stimulate mitigation activities (2)</u></li> </ul>
<b>NSF</b>	<ol style="list-style-type: none"> <li>Enhance support for NEHRP multidisciplinary research which can be a model for other hazard risk reduction (i.e. multiple directorates partner to understand socioeconomic factors that promote mitigation)</li> <li>Enhance support for curiosity-driven basic research (technical discoveries, next generation engineers/scientists in earthquake risk reduction)</li> <li>Solicit support from other federal agencies to leverage investments in NEES to address critical research in civil infrastructure</li> </ol>	<ol style="list-style-type: none"> <li>Commit to support future earthquake recon, coordination, and outreach and needed additional studies for significant global earthquakes. Provide support in close coordination with NEHRP Office</li> <li>Assess large-scale experimental facilities and equipment sites (incl. NEES), to determine how to ensure state-of-the-art experimental capabilities for earthquake engineering</li> </ol>	<ol style="list-style-type: none"> <li>Commit to support coordinated earthquake recon, tech transfer, and dedicated research programs to learn from global earthquakes (immediate recon and follow-up research in many disciplines). Coordinate closely with NEHRP office.</li> <li>Complete assessment of large-scale experimental facilities (incl. NEES); ensure sufficient state-of-the-art capabilities for earthquake science/ engineering. Continue support of effective NEES labs, data repository and others as well as users' research</li> <li>Reassess effectiveness of current approaches to soliciting/coordinating research and develop future approach to achieve NEHRP strategic plan. Efficiently support programs to achieve resilience objectives, including NRC 11-Resilience observatory network</li> </ol>	<ul style="list-style-type: none"> <li>Continued support of the <u>NEES infrastructure and collaborative and of the associated research that uses these facilities (4)</u></li> <li>Begin sponsoring conversion of EarthScope Transportable Array stations to permanent stations (maintained and operated by USGS) ASAP</li> </ul>

	<i>2008 Bi-annual Report</i>	<i>2010 Bi-annual Report</i>	<i>2012 Bi-annual Report</i>	<i>2013 Supplemental Report</i>
<b>USGS</b>	<ol style="list-style-type: none"> <li>1. Work with DOI and OMB to fully fund ANSS to authorized level</li> <li>2. Continue/expand multi-hazard demonstration projects in southern California and other high hazard areas</li> <li>3. Enhance interaction with other NEHRP partners as has been done in some geographic/ project areas (i.e. California, NSHM project)</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure full implementation of ANSS</li> <li>2. Ensure USGS products meet needs of the engineering community (e.g. USGS National Seismic Hazard Mapping Project (NSHMP) satisfy needs related to performance-based design.</li> <li>3. Strive to convey important earthquake information to the public in an understandable manner, by working with social scientists and other earthquake professionals to enhance information content/delivery (e.g. time-sensitive probabilities of large earthquakes/foreshocks, aftershock advisories, and authoritative hazard interpretations in controversial areas like New Madrid</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop earth science models/ products to support evaluation of changes needed to IBC design ground motion to account for medium-term (1-10 years) changes in seismic hazards due to post-earthquake aftershocks. Lead building industry collaboration. Full implementation of ANSS.</li> <li>2. Work with lifeline operators to use EQ early warning systems (EWS)</li> </ol>	<ul style="list-style-type: none"> <li>• Provide increased <u>monitoring to assess the impact of induced seismicity (3)</u></li> <li>• Evaluate the impact of induced seismicity on seismicity rate models</li> <li>• Partner with private industry to fund/install temporary seismic instruments in dense arrays near injection sites</li> </ul>
<b>Management, Coordination and Implementation</b>				
<b>NEHRP Office</b>	<ul style="list-style-type: none"> <li>• USGS delegate post-earthquake investigation leadership to NIST consistent with change in NEHRP leadership (dispatch interdisciplinary and discipline-oriented teams; archive/publish investigations and research data in post-earthquake information management systems (PIMS) and discipline-oriented interactive media</li> </ul>	<ol style="list-style-type: none"> <li>2. Carry out external affairs role of representing NEHRP agencies (e.g. facilitate enhanced coordination and collaboration between NEHRP, relevant non-NEHRP federal agencies, and earthquake organizations to facilitate improved state-level and private sector earthquake mitigation</li> <li>3. Develop a national lifeline earthquake resilience road map, understand response/restoration needs for community resilience and national security, and establishing performance standards.</li> <li>4. A national earthquake resource electronic library is needed. This includes a PIMS and information for public/private sectors on earthquake mitigation/preparedness.</li> </ol>	<ol style="list-style-type: none"> <li>2. Prepare a national lifeline earthquake resilience road map</li> </ol>	
<b>Interagency Coordinating Committee</b>		<ol style="list-style-type: none"> <li>1. Work to ensure sufficient funding in President’s Budget each year for full/timely implementation of NEHRP Strategic Plan</li> </ol>	<ol style="list-style-type: none"> <li>1. Work to ensure sufficient funding for full/timely implementation of NEHRP Strategic Plan. NRC report is a road map</li> </ol>	<ul style="list-style-type: none"> <li>• Assist USGS in engaging DOE to create a partnership to assure access to CO2 sequestration sites to monitor induced seismicity</li> </ul>
<b>New Trends and Developments</b>				
<b>Topical Areas (Key points, achievements, issues, challenges)</b>	<ul style="list-style-type: none"> <li>• Social Sciences</li> <li>• Earth Sciences</li> <li>• Geotechnical Earthquake Engineering</li> <li>• Structural Earthquake Engineering</li> <li>• Lifelines Earthquake Engineering</li> <li>• Disaster Response</li> </ul>	<ul style="list-style-type: none"> <li>• Social Science</li> <li>• Earth Science</li> <li>• Geotechnical Earthquake Engineering</li> <li>• Structural Earthquake Engineering</li> <li>• Building Codes and Quality Assurance</li> <li>• Lifelines Earthquake Engineering</li> <li>• Disaster Preparedness, Response, and Recovery</li> </ul>	<ul style="list-style-type: none"> <li>• Social Science</li> <li>• Earth Science</li> <li>• Geotechnical Earthquake Engineering</li> <li>• Structural Earthquake Engineering</li> <li>• Building Codes and Quality Assurance</li> <li>• Lifelines Earthquake Engineering</li> <li>• Disaster Preparedness, Response, and Recovery</li> </ul>	<i>(The committee has not prepared these assessments in ‘supplemental’ year reports.)</i>