

# **REQUEST FOR QUALIFICATIONS**

## **Seismic Advisory Board Member**

### **Position Description #4**

#### **GENERAL DESCRIPTION**

The Seismic Advisory Board was created as a result of a recommendation from the Governor's Board of Inquiry following the 1989 Loma Prieta Earthquake. The California Department of Transportation (Caltrans) established the Caltrans Seismic Advisory Board (Board) to provide advice on seismic safety policy as it applies to the design of transportation structures in California. The Board consists of a maximum of eight members appointed by the Director of Caltrans (Director) to assure balanced representation among pre-eminent scientists, engineers, researchers and policy experts assembled from both the private and public sector. The expertise of the Board shall reflect the full breadth of Caltrans' responsibilities for the seismic safety of transportation structures and that expertise can be adjusted to meet Caltrans needs. In 2016 Caltrans agreed to expand the expertise of the Board to review seismic design guidance for the California High Speed Rail Authority (CHSRA).

Incumbent shall serve as a subject matter expert to the Board, Caltrans and CHSRA. Area of expertise shall be engineering seismology, in particular as it relates to the seismic design of one or more of the following: bridge foundations, tunnels, slopes and retaining structures. It is also expected the individual will have experience drafting design guidance and policy at either the State or National level.

#### **MAJOR DUTIES & RESPONSIBILITIES**

Major duties and responsibilities include one or more of the following:

- Advise the Caltrans Director, Chief Engineer, State Bridge Engineer and CHSRA CEO on the items described below, as well as other matters upon request.
  - Review of engineering seismology and seismic design as practiced by Caltrans and CHSRA.
  - Formulate recommendations for improvements in Caltrans and CHSRA engineering seismology and seismic design practices.
  - Review of seismic policy, hazard definition, and mitigation directives.
  - Review of seismic design guidelines and standards for transportation structures.

- Review and comment on priorities for Caltrans and CHSRA seismic research program.
- On request, provide the general public with explanations regarding Caltrans and CHSRA seismic safety policies and procedures for maintaining safety and functionality of California's transportation structures.
- Recommend investigations or new initiatives to learn from the performance of transportation structures from major earthquakes worldwide.
- Conduct duties under the Board charter impartially, without restriction or limitation, and in a manner the Board member believes is necessary to fulfill the purpose and goals of the Board.

## **SPECIFIC DUTIES & RESPONSIBILITIES**

Specific duties and responsibilities include one or more of the following:

- Advise Caltrans and CHSRA on:
  - policy and practice regarding the seismic hazards affecting the design of one or more of the following: bridges, tunnels, slopes, highways, and rail lines. More specifically, this includes expertise in the field of engineering seismology, as related to seismic source characterization, probabilistic seismic hazard assessment, and earthquake ground motions, including near fault effects, topographic effects, hanging wall effects, basin effects, spatial incoherence effects, surface wave effects, including the potential for earthquake ground motion characteristics affecting the seismic design of one or more of the following: highways, rail lines, bridges, and tunnels.
  - assessing the suitability of ground motion characterization procedures, including empirical ground motion models and numerical simulations of ground motions, for use in evaluating the seismic performance of highways, rail lines, bridges, and tunnels.
  - fling-step effects affecting fault crossing design of bridge structures.
  - new and developing fields of technology, including major advancements in fields of engineering seismology as it pertains to the analysis of tunnels or bridges or developing / implementing innovative approaches that advance the characterization of the earthquake ground shaking hazard in the design, construction or maintenance of highways, rail lines, bridges, and tunnels.
  - implementation of performance-based earthquake engineering procedures that characterize the seismic hazards of earthquake shaking for one or more of the following: bridges, tunnels, slopes, highways and rail lines.

## QUALIFICATIONS

In addition to an advanced degree(s) in engineering seismology or civil engineering, with a focus on earthquake ground motions and seismic hazard and risk, and a substantial publication record, the candidate should have at least ten (10) years of experience in one or more of the following:

- Recognized nationally and internationally as an expert in earthquake ground motions and seismic hazard and risk, particularly as related to near fault effects, topographic effects, hanging wall effects, basin effects, spatial incoherence effects, and surface wave effects, and their potential impact on the seismic design of one or of the following: bridges, tunnels, slopes, highways and rail lines.
- At least five of those years should demonstrate progressive experience in the development of a suite of earthquake ground motion time histories for use in the analysis of one or more of the following: highways, rail lines, tunnels, slopes, and bridge foundation. Experience may be from either the private sector, academia or at the federal or state level in the public sector.
- Experience in practice, teaching or research with significant contributions in the engineering seismology literature. This may include pioneering of new or developing fields of technology, making major advancements in the traditional field of engineering seismology for critical facilities and bridges or developing / implementing innovative approaches in emerging fields of engineering seismology.
- Experience with the characterization of the earthquake ground shaking hazard in the design of engineered systems in California exposed to seismic demands.
- Knowledge of the Caltrans Seismic Design Criteria as related to earthquake ground motions.
- Demonstrated and recognized technical leadership in the performance of probabilistic and deterministic seismic hazard assessments, development of design earthquake ground motions, and seismic risk as demonstrated by leadership positions on technical committees, trade associations or membership in the National Academies

## OTHER

- The Board operates in a manner that seeks consensus among the members. In cases where consensus cannot be reached, the Board may present multiple recommendations with supportive arguments for each position.

## BOARD MEMBER REQUIREMENTS

- Eligibility to work in the US
- Sign the Board Charter provided at the first Board Meeting. A review copy will be provided prior to finalizing appointment.
- Submit a conflict-of-interest disclosure form that identifies real or perceived conflicts between the candidate and their duties as defined by their position description. The form (Form 700) will be provided as part of the hiring process ([www.fppc.ca.gov](http://www.fppc.ca.gov)).

## TO APPLY

Qualified individuals should submit a Statement of Qualifications (SOQ) that includes a letter of interest and Curriculum Vitae (CV) or resume. The letter of interest should highlight career accomplishments and honors that qualify the applicant for a Board position. The letter must disclose any current or past affiliations with Caltrans or the California High Speed Rail Authority that may be perceived as potential conflicts of interest. The CV or resume must include all academic and professional experience, list of publications, and areas of technical expertise. The SOQ must be submitted in pdf format.

Questions about this RFQ and SOQ submissions should be addressed to:

Charles Sikorsky, Ph.D., P.E.  
Institute of Transportation Studies  
[sikorsky@berkeley.edu](mailto:sikorsky@berkeley.edu)

First review date will be May 28, 2021. Interviews will be conducted for a shortlist of highly qualified applicants at that time. This position will remain open until filled.