REQUEST FOR QUALIFICATIONS

Seismic Advisory Board Member

Position Description #3: Geotechnical

GENERAL DESCRIPTION

The Seismic Advisory Board was created as a recommendation of 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. In 2016 Caltrans agreed to expand the expertise of the Board to review seismic design guidance for the California High Speed Rail Authority (CHSRA). The expertise of the Board shall reflect the full breadth of Caltrans' and CHSRA's responsibilities for the seismic safety of transportation structures and that expertise can be adjusted to meet their needs.

Incumbent shall serve as a subject matter expert to the Board, Caltrans and CHSRA. Area of expertise shall be geotechnical earthquake engineering, in particular the seismic design of one or more of the following: bridge foundations, tunnels, slopes and earth 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, CHSRA CEO, and Director of Engineering on the items described below, as well as other matters upon request.
    - Review of earthquake engineering and seismic design as practiced by Caltrans and CHSRA.
    - Formulate recommendations for improvements in Caltrans and CHSRA earthquake engineering 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 the Caltrans and CHSRA seismic research programs.
    - 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 design and construction of one or more of the following: bridge foundations, tunnels, slopes and earth retaining structures. More specifically, this includes expertise in the field of geotechnical earthquake engineering, as related to ground liquefaction, ground improvement, site response, soil-foundation-structure-interaction (SFSI) for bridges and/or marine structures, and the seismic design of one or more of the following: tunnels, slopes and earth retaining structures
    - designing and evaluating the nonlinear dynamic behavior of bridge foundations under earthquakes, in particular soil liquefaction and lateral spread, fault crossing as well as other extreme events
    - fault crossing design and post-fault rupture mitigation strategies for bridge structures
    - new and developing fields of technology, including major advancements in traditional fields of design and construction of tunnels and/or bridge foundations (i.e. SFSI) or developing / implementing innovative approaches in the design, construction and/or maintenance of bridges and tunnels
    - implementation of performance-based earthquake engineering for one or more of the following: bridge foundations, tunnels, slopes and earth retaining structures.
    - developing analytical methods and strategies to improve the structural resiliency of one or more of the following: bridge foundations, tunnels, slopes and earth retaining structures subjected to extreme events

QUALIFICATIONS

In addition to an advanced degree(s) in engineering 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 geotechnical earthquake engineering, particularly as related to ground liquefaction, lateral spread, settlements, subsidence, ground improvement, site response, SFSI and the seismic design of one or more of the following: tunnels, slopes, earth retaining structures and foundations for bridges and/or marine structures.

- At least five of those years should demonstrate progressive experience in the design, analysis or construction in one or more of the following: tunnels, slopes, earth retaining structures, bridge foundations and/or marine structures. Experience may be from either the private sector or at the federal or state level in the public sector.
- Experience in engineering research, practice, and/or teaching and research with significant contributions in the engineering literature. This may include pioneering of new or developing fields of technology, making major advancements in the traditional field of geotechnical engineering for critical facilities and bridges or developing / implementing innovative approaches in emerging fields of engineering.
- Experience with the design and construction of both bored and cut and cover tunnels in California exposed to service loads and seismic demands.
- Extensive knowledge of the AASHTO Bridge Design Specifications and/or Caltrans Seismic Design Criteria as related to bridge foundations and/or tunnel design.
- Experience in designing and evaluating the nonlinear dynamic behavior of bridges and / or tunnels under earthquakes, particularly liquefaction / lateral spread and other extreme events.
- Demonstrated and recognized technical leadership in the design and construction of bridge foundations and / or tunnels as demonstrated by leadership positions on technical committees, trade associations or membership in the National Academies

BOARD MEMBERS MUST:

- Be eligible for employment 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. That form (Form 700) will be provided as part of the hiring process (www.fppc.ca.gov).

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.

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

Applicants are encouraged to submit their SOQ by June 15, 2020. Positions will remain open until filled.

This Request for Qualifications was posted on May 11, 2020
at www.techtransfer.berkeley.edu/join-our-team