

## **REQUEST FOR QUALIFICATIONS CALTRANS SEISMIC ADVISORY BOARD**

### **A. Notice to Prospective Seismic Advisory Board Members**

You are invited to review and respond to this Request for Qualifications (RFQ) for membership on the Caltrans Seismic Advisory Board. In submitting your proposal, you shall comply with the requirements found herein.

### **B. Background**

The Seismic Advisory Board was created from a recommendation of the Governor's Board of Inquiry following the 1989 Loma Prieta Earthquake. Caltrans Seismic Advisory Board (Board) was established to provide advice on seismic safety policy and practice as it applies to the design of transportation structures in California. The Director of Caltrans (Director) has determined the Board should also advise Caltrans on the seismic safety policy of the California High Speed Rail Authority (CHSRA).

### **C. Purpose**

The Board is an independent body whose role is to advise Caltrans on seismic policy and technical practices to enhance the seismic safety and functionality of California's transportation structures.

The mission of the Board is to assist Caltrans in its role and obligation to provide seismic safety of California's transportation structures through:

- Continued review of earthquake engineering and seismic design as practiced by Caltrans.
- Formulation of recommendations for improvements in Caltrans earthquake engineering and seismic design practices.
- Review of seismic policy, hazard definition, and mitigation directives.
- Technical review of seismic design guidelines and standards for transportation structures.
- Review and comment on Caltrans seismic research and priorities.
- Being available to provide the general public with explanations regarding Caltrans seismic safety policies and procedures for maintaining the safety and functionality of California's transportation structures.

The Board's role is advisory. As such the Board's findings and statements may not reflect Caltrans or CHSRA official policy.

#### **D. Description of Service**

The Board consists of a maximum of eight members, appointed by the Director to assure balanced representation among pre-eminent scientists, engineers, researchers and policy experts reflecting the full breadth of Caltrans' responsibilities for the seismic safety of transportation structures.

The Board is comprised of a Chair, Vice-Chair, and up to six members. The Board is assembled from public and private sector experts in: Structural Engineering, Structural Mechanics, Seismic and Structural Research, Seismology, Geotechnical Engineering and Bridge Engineering. This RFQ expects to add experts in the areas of Rail and Tunnel Engineering.

The Board and Board members:

- Advise the Director, Chief Engineer, and State Bridge Engineer on the items described under C. "Purpose" of this RFQ as well as other matters upon request.
- Recommend investigations or new initiatives to learn from the performance of transportation structures from major earthquakes worldwide.
- Must be available for public outreach upon request following major California earthquakes.
- Shall conduct their 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.
- Shall sign a conflict of interest disclosure form that identifies real or perceived conflicts between the member and their duties as defined by their charter.

The Board operates in a manner that seeks consensus among the members. The Board may present multiple recommendations with supportive arguments for each position.

Through this solicitation, up to two positions on the Board may be filled for either two or three year terms at the discretion of the Director.

The Board will meet a minimum of twice each year in person, additional meetings may be called as deemed desirable by the Director or designee and may include teleconferences or webinars. Meetings are held in Sacramento or one of the 12 Caltrans District Offices located throughout California.

#### **E. Submittal of Qualifications**

As stated in Section D, Caltrans strives to balance the representation of the Board among pre-eminent scientists, engineers, researchers and policy experts reflecting the full breadth of Caltrans' responsibilities for the seismic safety of transportation structures. The areas of expertise being sought to support Caltrans under this RFQ are for two separate positions in the areas of Rail Engineering and Tunnel Engineering.

Applicants must have a high level of professional or academic knowledge and experience in multiple facets of their field of expertise. The desired qualifications are listed below for each position:

### **Rail Engineering (Position 7)**

- Recognized nationally and internationally as an expert in one of more of the following areas: high speed rail infrastructure design, performance-based design of rail infrastructure, including elevated structures, long span and complex bridges, retained embankments, ground subsidence, cut slopes and slope stability, underground tunnels and stations, track-structure-interaction, and vehicle-track-structure-interaction, passenger comfort, rail system safety and reliability in seismic regions.
- Experience in design of high speed rail structures for instrumentation and early warning systems.
- Experience in engineering research, practice, and/or teaching and research with significant contributions in the engineering literature. Pioneering of new and developing fields of technology, making major advancements in traditional fields of track and rail system design for high speed rail systems or developing/implementing innovative approaches in emerging fields of engineering.
- Performance-based earthquake engineering and design of high-speed rail structures under Operating Basis Serviceability Earthquakes, as well as Maximum Considered Earthquakes.

### **Tunnel Engineering (Position 8)**

- Recognized nationally and internationally as an expert in tunnel engineering with a minimum of 25 years of progressive experience in the design, analysis, and construction of tunnels in seismic regions for either rail or highway systems. Experience may be from either the public sector at the federal or state level or the private sector.
- Experience developing techniques for evaluating ground movement patterns and stability for a variety of excavation, tunneling, micro-tunneling, and mining conditions. Some knowledge of the AASTHO Bridge Design Specifications and AREMA design specifications is expected.
- Design and construction experience in seismic zones, performance-based engineering and design of tunnels and portals, under both Operating Basis Serviceability Earthquakes, and Maximum Considered Earthquakes.

- Experience developing analytical methods and siting strategies to mitigate damage to tunnels and portals during earthquakes.
- Experience in geotechnical engineering and investigations, rock mechanics, design, analysis, construction support for tunnels in hard and/or fractured rock and soft ground conditions, experience with tunnel excavation and lining construction methods, and investigation of geotechnical conditions for tunneling and deep rock tunnels.
- Demonstrated and recognized technical leadership in the design and construction of tunnels as demonstrated by leadership positions in public works owner agencies, technical committees and/or trade associations.

Applications must include a letter of interest, and Curriculum Vitae (CV) or resume.

- The letter of interest must specify which Board position, 07. Rail Engineering or 08. Tunnel Engineering, the applicant is seeking and 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.

Interviews will be conducted from a short list of candidates. Questions regarding this RFQ may be submitted by email. Applications must be submitted in pdf format by email. Questions and applications shall be sent to:

Mark Mahan, Chief  
Earthquake Engineering, Analysis and Research  
Division of Engineering Services  
Structure Policy and Innovation  
1801 30<sup>th</sup> Street, M.S. 9-2/5i  
Sacramento, Ca. 95816

Mark.Mahan@dot.ca.gov