CALTRANS SEISMIC ADVISORY BOARD

September 9, 1999

Senator Dianne Feinstein
United States Senate
331 Hart Senate Office Building
Washington, D.C. 20510

Dear Senator Feinstein:

The Caltrans Seismic Advisory Board (SAB) met on September 7, 1999 in San Francisco to be briefed by Caltrans and the consultant team of T.Y Lin International and Moffatt & Nichol on the progress of the new San Francisco-Oakland Bay Bridge (SFOBB) East-Crossing design. As you know, the members of the Board are appointed by the Director of Caltrans to advise that agency on seismic policy and design practice. Currently, the Board consists of eight California specialists in seismology, geotechnical engineering, and structural engineering appointed from the practicing earthquake engineering community and academia.

Based on this briefing, the Board is very concerned that there seems to be continued discussions of retrofitting the existing East Bay spans versus the design and construction of a new East Bay bridge with continued refusal by the US Navy to allow geotechnical explorations on and near the tip of Yerba Buena Island causing unacceptable delays in this important seismic safety project.

Caltrans has been thoroughly investigating the feasibility of a seismic retrofit for the East Bay spans since the Loma Prieta earthquake, and detailed retrofit designs have been completed over a four-year time period starting in 1994. While retrofit of the existing SFOBB East Crossing was found to be possible, it would require (1) replacement of 75 to 90% of all bridge components, (2) seismic isolation concepts of a magnitude never attempted to date for the viaduct/approaches, and (3) additional piers plus foundation retrofits at or near the cantilever truss main span with highly uncertain behavior characteristics of the existing floating caisson foundations. All of the above retrofit measures, while theoretically feasible, would result in a 60-year old bridge structure having significant uncertainties in its seismic performance at a cost which would nearly equal that of a new bridge at this site. Furthermore, retrofitting the existing bridge would result in significant traffic interruptions and delays over a period of 4 to 5 years necessitated by lane closures required during retrofit construction.

Since a new bridge designed and built using current state-of-the-art seismic design concepts and details would be much more reliable in responding to higher seismic performance levels than would the retrofitted bridge, the SAB and the Seismic Safety Peer Review Panel for the Toll Bridge Retrofit Designs strongly recommended to Caltrans that it consider replacement rather than retrofit. An independent value engineering analysis concurred with this recommendation. The 37-member Engineering and Design Advisory Panel appointed by the Metropolitan Transportation Commission also endorsed replacement rather than retrofit.
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We would like to re-emphasize that the SAB still fully supports the decision to go forward with the planned replacement rather than retrofit of the existing bridge, since no retrofit solution would result in the same high level of seismic reliability and performance as the new bridge.

Delays in the project, in terms of re-evaluating retrofit options or inability to perform geotechnical explorations, cause unacceptable risks for the public in light of the high probability of a major seismic event in the Bay Area.

In the interest of public safety and the socio-economic consequences resulting from a partial failure or closure of the existing East Bay Spans in a major earthquake, the SAB urges you to support the expedient completion of the new SFOBB East-Bay Crossing.

Sincerely yours,

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