

# San Francisco Bay Conservation and Development Commission

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**TO:** Commissioners and Alternates

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**SUBJECT:** **Briefing on the Proposed Dismantling of Pier E3 of the Decommissioned East Span of the San Francisco-Oakland Bay Bridge Using Controlled Implosion Method**  
(For Commission consideration on April 2, 2015)

## Staff Report

On November 1, 2001, the Commission authorized BCDC Permit No. 2001.008.00 to the California Department of Transportation (Caltrans) to construct a replacement east span of the San Francisco-Oakland Bay Bridge. The permit required Caltrans to remove the existing east span to minus 1.5 feet below the mud line. At the time of authorization, Caltrans envisioned removal of the decommissioned span by dredging an access channel and deploying machinery via barge to dismantle the span and collect associated debris. Subsequently, Caltrans refined the approach and determined that dismantling the bridge solely by barge would be inefficient and pose environmental impacts. Thus, it developed a demolition and removal approach involving temporary pile-supported trestles and false-work, which the Commission authorized (Material Amendment No. Thirty-Two) on February 2, 2012.

The demolition of the decommissioned east span is occurring in three phases. Phase One, currently underway, consists of demolishing the cantilever and “S”-curve transition structure, working west towards Yerba Buena Island and east towards Oakland to Pier E4. Caltrans is also removing the remaining anchor arm sections, east of Pier E3 and west of Pier E1. Phase Two will consist of removing the 504-foot-long and 288-foot-long truss spans working east from Pier E4 towards the Oakland Touchdown. Phase Three will consist of removing the in-water piers, pilings and foundations that supported the decommissioned span. To date, the east and west cantilever arms, the suspended span between them, and the steel towers on top of Pier E2 have been removed. Prior to June 2015, the Pier E3 steel tower legs will be dismantled to facilitate removal of the Pier E3 concrete foundation.

In an effort to identify the most efficient, cost-effective, and environmentally-sensitive method to remove the large foundation piers, Caltrans evaluated several dismantling methods, one of which includes imploding the piers using a synchronized, controlled, blast lasting six seconds. This implosion technique has been used in the U.S. but, to date, not in San Francisco

Bay. Caltrans proposes to demonstrate and study the technique at the decommissioned east span's largest bridge foundation pier, Pier E3. If, through the demonstration, the technique proves preferable to others, Caltrans would consider its use for remaining foundation piers. The implosion demonstration project at Pier E3 would require a material amendment to BCDC Permit No. 2001.008.00.

The implementation of the proposed project would include the mechanical removal of the section of Pier E3 located above the water line, and the placement of controlled charges and detonators inside the pier followed by detonation. Because the interior of the pier caisson is a honey-combed structure with large voids, Caltrans anticipates that blast debris would fall into the pier interior and be contained within the pier walls below the mud line. Any construction debris from the blast, which does not fall within the pier, would be mechanically collected and disposed inside the pier. To minimize and monitor resource impacts associated with the demolition demonstration, Caltrans proposes to: install a Blast Attenuation System that injects compressed air into the water column around the pier to dampen noise and pressure levels generated during the blast; apply blast mats at the top of the pier to prevent the escape of construction debris; establish a resource exclusion zone around the pier; place monitors at the site to document effects on fish and wildlife; monitor water quality for pH, turbidity and dissolved oxygen levels; and perform eelgrass surveys in the project vicinity.

Caltrans has conducted a series of meetings to provide regulatory agencies, environmental interests, and other interested parties with project information and to solicit input, and identified November 2015 as the optimal time to conduct the implosion in part to minimize harmful impacts on Bay resources. To meet this schedule, regulatory approvals for the demonstration implosion would be needed by August 2015.

This briefing is provided to the Commission so that it can inform Caltrans of potential concerns and allow time to modify the proposed project, as needed, prior to the submittal of a request for a material amendment to BCDC Permit No. 2001.008.00.