



Bridging the Gap

Your Connection to Engineering Services

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Engineering for Endurance: The Vincent Thomas Bridge Deck Replacement Project

What measures can engineers take to ensure the continued longevity of a bridge that serves as a critical artery within a port that is essential to the nation's economy? To appreciate the magnitude of this question, it helps to understand the crucial role the bridge plays. The Vincent Thomas Bridge connects the Port of Los Angeles to Terminal Island in Long Beach and stands as the fourth largest suspension bridge in California and the first ever welded suspension bridge in the United States of America. Approximately 32,000 vehicles travel across it daily. The Port of Los Angeles alone handles a third of the country's imports and exports, highlighting the essential role this structure plays in supporting the nation's economy.

Constructed in 1963, the 6,050 foot bridge now carries a high volume of traffic. A 2001 inspection determined that 60-70 percent of the bridge was delaminated due to a combination of concrete fatigue from traffic, the harsh marine air, and age. In 2009, a concrete overlay was installed as a temporary fix, but the bridge continues to deteriorate by five percent annually.

Engineers will use lightweight precast concrete panels to replace the current deck. The panels can be fabricated during the design phase ensuring they're ready for construction, saving time for the project. The bridge will be fully closed to achieve a 16-month turnaround timeframe.

Engineers faced a variety of challenges while developing the design and construction plan for this project. Falcons are currently nesting on the midspan of the bridge, so the construction schedule has been adjusted to delay midspan repairs, giving the birds more time to nest. Space beneath the bridge is also limited, restricting the area available for platform operations.

In addition, U.S. Coast Guard guidelines allow the bottom of the bridge to be lowered only one to four inches, further constraining the timeline. Lastly, the 24/7 work schedule puts more strain on staff, as weekends and state holidays will not be taken off to ensure Caltrans meets the deadline commitment for the public.



Given these challenges, Caltrans needed to develop an innovative approach to successfully deliver the project. Construction will be split into three phases. The first phase, Pre Full Closure Construction, started in March 2026 and will be completed by October 2026. Engineers will install protective shielding under the bridge to protect the waterway, install temporary braces to stabilize the bridge for work, and resurface the detour routes.

The second phase, Full Closure Construction, will commence from November 2026 to February 2028. Workers railing will be installed after removing the existing rail and median, cut and remove the existing deck, and install the precast panels.

Lastly, the third phase, Post Full Closure Construction, will be from March 2028 – March 2029 where crews will clean up and remove temporary structures, like the protective shielding, and prepare to reopen the bridge to the public

Updating the Vincent Thomas Bridge ensures that drivers move safely and efficiently—today and for generations to come. Are you interested in working on projects like this? Visit [Working with the Division of Engineering Services](#) for more information about current job openings to begin a career at Caltrans.

