

PEER REVIEW FACT SHEET
Highway 1 Albion River, Br. No. 10-0136
August 15, 2007

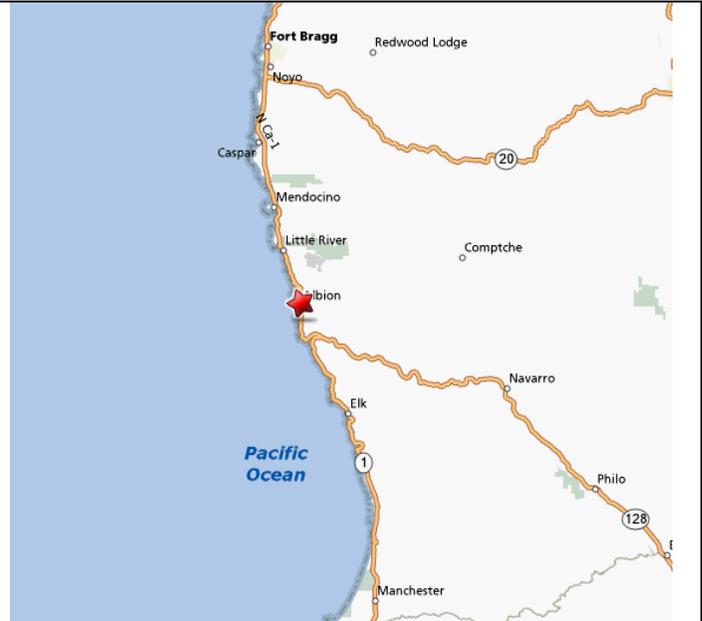
Project Location

01-MEN -1-PM- 43.74

The 969-foot-long Albion River Bridge is located in Mendocino County, approximately 7 miles south of the community of Mendocino. The bridge, which was built in 1944, features 34 spans. There are 33 spans with timber stringers supported by a timber A-frame deck truss. The main span is a riveted steel deck truss that was recycled from an old bridge that had been located on the South Fork of the Feather River approximately 1.5 miles downstream of Bidwell Bar.

The bridge is designated Functionally Obsolete due to the deck geometry. The structure is Fracture Critical due to low redundancy (riveted steel deck truss with floor beams).

The bridge carries 3,200 vehicles a day of which nearly 7% are heavy trucks.



Event Description

A Structure Maintenance & Investigations (SM&I) Peer Review was convened on August 15, 2007 to discuss the recommended replacement of the Highway 1 Albion River Bridge at an estimated cost of \$13.2 million. Attendees included Investigations North Chief Pete Whitfield, Senior Bridge Engineers Michael J. Lee, Michael W. Johnson, Takako Fujioka, and Vassil Simeonov, and Area Bridge Maintenance Engineer (ABME) Tim Sandoval.

This 63-year-old structure is designated Functionally Obsolete due to a Deck Geometry Appraisal Rating of 3. The structure has an Inventory Rating of 30.8 metric tons, an Operating Rating of 71.3 metric tons and a Sufficiency Rating of 69.3.

The bridge has a deficient rail that is recommended for replacement at an estimated cost of \$1,009,000. Upgrading the rail to current standards is not feasible without replacing the deck and modifying the superstructure.

The Paint Health Index is 35.5. A recommendation has been made for full preparation and full paint work at an estimated cost of \$332,500 (9,430 square-feet). The stated cost has been updated from the estimated cost included in the last bridge inspection report (BIR). The bridge would need to be repainted about every 5 years because of the effects of the corrosive environment to which the structure is exposed.



The 63-year-old bridge is functionally obsolete.



Rehabilitation would require a bridge rail upgrade.

PEER REVIEW FACT SHEET
Highway 1 Albion River, Br. No. 10-0136
August 15, 2007

In addition, a March 2007 work recommendation was made to address potential seismic vulnerability (Priority 4. Final Score 2.8125 as calculated by the Office of Earthquake Engineering) by strengthening the steel truss members at an estimated cost of \$1,270,000.

The bridge is not Scour Critical with the foundations determined to be stable for calculated scour conditions and the scour to be within the limits of the piles. There has been some local scouring noted around the piers supporting the main span deck truss.

There is a work recommendation to remove and replace the bolted connections and hardware throughout the entire timber sub-structure. Additionally, the replacement of the top left horizontal timber element between Bent 15 and Bent 16 is recommended. The cost has been estimated at \$1,500,000.

The replacement of the Albion River Bridge has been identified as a candidate for funding through the State Highway Operation and Protection Program (SHOPP).



Bridge will require repainting every five years.

Alternatives Considered

- 1) Do nothing - This alternative was not considered due to the need to repaint the bridge, complete recommended seismic strengthening and upgrade the bridge rail to ensure the safety and reliability of this bridge.
- 2) Rehabilitate the bridge. This alternative involves upgrading the bridge rail, rehabilitating the timber substructure, painting the steel deck truss and completing the recommend seismic strengthening.
Total Estimated Cost = \$4,111,500 X 1.2 = \$4,934,000
- 3) Replace the bridge at an estimated cost of \$13,200,000 (\$400/sq. ft. X 33,000 sq. ft.).

Repair Strategy

Due to the cost of upgrading this 63 year old structure and the need for future costly annual preventive maintenance (including repainting the structure every five years), the Peer Review unanimously affirmed replacement as the preferred alternative to ensure the safety and reliability of this link of the state highway system.