Discussion

Applying Orthotropic Deck Design to a Vertical Lift Bridge by W.J. Gaddis and P.W. Clark, Vol. 4, No. 2, Fall 1989, pp. 65-68

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The authors of the article "Applying Orthotropic Deck Design to a Vertical Lift Bridge," W.J. Gaddis and P.W. Clark, should be commended for their attempt to bring to greater attention the merits of using orthotropic deck design under special circumstances. The authors have noted, however, that orthotropic steel decks have been used in the United States in only five or six occasions. They have also provided two examples of major orthotropic bridges (the San Mateo Bridge in California and the Poplar Street Bridge in St. Louis).

It is worth noting that more than twenty orthotropic bridge decks have been constructed in the United States *and* Canada in the past three decades. Table 1 provides a listing of some of these bridges, their date of completion and length.

Orthotropic steel decks are an attractive design alternative because they last longer than concrete. They can also be used as a replacement deck for deteriorated concrete decks in congested urban areas without causing major disruption in traffic. The two most recent deck replacement projects using orthotropic decks involved the Golden Gate Bridge in San Francisco (completed in 1985) and the Benjamin

TABLE 1
Orthotropic Bridges in the United States

Bridge Name & Location	Year Completed	Length (ft.)
Humphrey's Creek Bridge, Sparrows Pt., Maryland	1965	112
Dublin Bridge, Hwy. 680, Livermore, California	1965	320
San Mateo-Hayward Bridge, Hayward, California	1967	5,542 of Orthotropic Spans
Poplar Street Bridge, St. Louis, Missouri	1968	2,165
Creyt's Rd. Bridge, I-496 near Lansing, Michigan	1968	192
San Diego/Coronado Bridge, California	1969	1,870 of Orthotropic Spans
Queensway Bridge, Long Beach, California	1969	1,200
Fremont Bridge, Portland, Oregon	1973	2,159
Yukon River Bridge, Alaska	1975	2,300
George Washington Bridge,* New York	1978	4,760
Throgs Neck Bridge,* New York	1984	13,410
Golden Gate Bridge,* San Francisco	1985	8,981
Benjamin Franklin Bridge,* Philadelphia	1987	7,412

* Deck replacement only.

Franklin Bridge in Philadelphia (completed in 1987). In both of these projects, concrete decks were replaced with steel deck modules while keeping all travel lanes open during peak hours of traffic flow.

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