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Developments in Concrete Cable-Stayed Bridges in the United States

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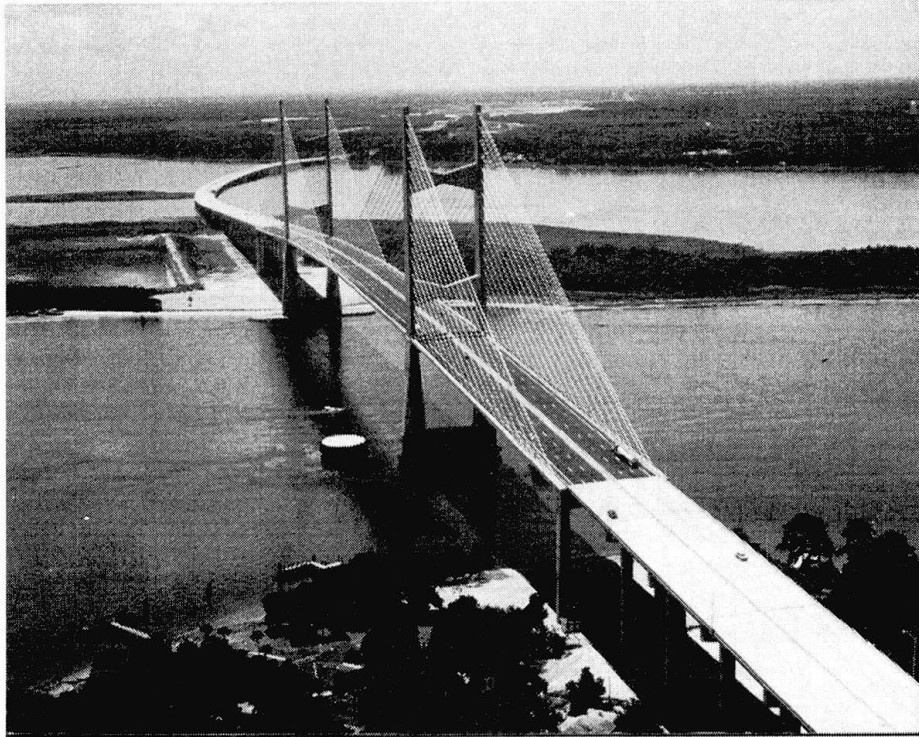
New York, NY, USA

Abstract

The competitive bidding process between steel and concrete alternatives, previously required by the Federal Highway Administration for bridges costing over \$10 million, stimulated creative developments in the design and construction of concrete cable-stayed bridges in the United States.

While many characteristics of the concrete cable-stayed bridges in the United States are similar to those in other parts of the world, several developments originated and were further refined in the United States. For cast-in-place construction, they include the use of flexible girder and open cross-section constructed by a cable-supported formtraveller. For precast construction, they include the use of delta frames to support separate box girders and provide for a single plane of suspension.

This paper reviews the developments in cast-in-place and precast concrete cable-stayed bridges in the United States. It describes characteristic structural details, aerodynamic considerations and presents the methods of construction of these bridges. Some significant bridges are discussed in detail along with their cost competitiveness with steel alternatives.



The Dame Point Bridge, Florida



The Sunshine Skyway Bridge, Florida