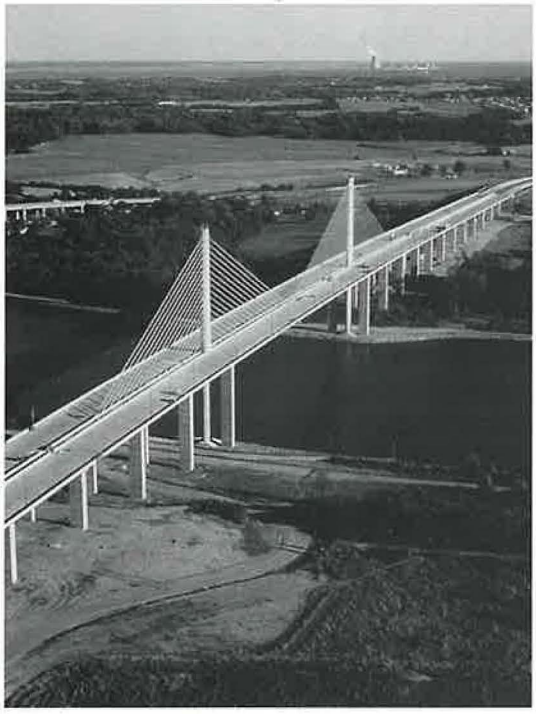

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The Chesapeake & Delaware Canal Bridge, a precast segmental superstructure with a 750-foot cable-stayed main span, is located in St. Georges, Delaware.

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The Mid-Bay Bridge, a precast segmental superstructure with a 225-foot main span, is located on Choctawhatchee Bay in Okaloosa County, Florida.

Crossing into a New Age

EUGENE C. FIGG, JR.

THERE IS TODAY A PUBLIC DEMAND for signature bridges that have a life of 100 years. Similarly, there is a public need for innovative financing to stretch available transportation dollars for bridges. Cost savings, life-cycle costs, aesthetics, and material improvements will make segmental concrete the future choice for long span cable-stayed bridges.

The completion of the Sunshine Skyway Bridge in Tampa, Florida, in 1987 demonstrated that a community can have an economical signature bridge reflecting that community's vision, and this trend will continue. The 17th Street Bridge in Ft. Lauderdale, Florida, was designed using the charette process to develop a bridge the community wanted. Likewise, the Wabasha Street Bridge in St. Paul, Minnesota, was designed by a special committee of artists, architects, and other interested citizens established by the mayor.

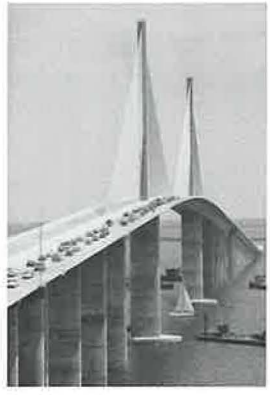
Innovative financing will be the primary means of accomplishing large bridge projects in the future. The 5.87-kilometer (19,265-foot) Mid-Bay Bridge in West Florida was completed in 1993 as a toll bridge, with $81 million in revenue bonds covering all costs. There was no federal money involved in the project, and state and county loan money was paid back from the bond issue.

Bridge owners concerned about life-cycle costs will demand manuals showing maintenance inspections and rehabilitation designed to extend the lives of bridges. The Port Authority of New York and New Jersey's analysis of life-cycle costs was one reason for its design choice of a precast concrete segmental cable-stayed 225.55-meter (740-foot) span bridge to Staten Island.

Segmental concrete, introduced in America more than 20 years ago as an economical and aesthetic solution for many bridge types, has now taken its place as the future for long span cable-stayed bridges. The precast segmental Chesapeake & Delaware Canal Bridge, for example, has innovative design features that allow long span bridges to be built economically. High-performance concrete and structural lightweight concrete will continue to improve segmental concrete cable-stayed bridges.

Bridge aesthetics and costs are and will continue to be dominant factors. The need to balance these factors will keep bridge engineering firms looking for new materials, such as fiberglass and fiber carbon, as well as improving existing materials.

The author is president, Figg Engineering Group.



FIGG ENGINEERING GROUP

The Sunshine Skyway Bridge, a precast segmental superstructure with a 1,200-foot cable-stayed main span, is located in Tampa, Florida.