

I-10 Bridges over Escambia Bay

A HOCHTIEF Company

Owner

Florida Department of Transportation

Location

Pensacola, FL

Value

\$243,000,000

Market

Design-Build – Bridges

Start - Completion Dates

4/2005 – 12/2007

- 2.6-mile parallel bridges along Interstate 10 over Escambia Bay
- Two separate three-lane structures, one eastbound and one westbound
- 36-inch square prestressed piles
- Standard 78-inch Florida Bulb-T beams

Project Description

In September 2004, Hurricane Ivan struck the Gulf Coast and severely damaged the I-10 bridges over Escambia Bay. Early in 2005, the Florida Department of Transportation (FDOT) awarded the contract to replace the damaged bridges.

Each 2.6-mile bridge consists of three 12-foot travel lanes and 10-foot inside and outside shoulders. Flatiron also improved the I-10 eastbound on-ramp and the I-10 westbound off-ramp at the Scenic Highway intersection. This design-build contract was the first bridge project in FDOT history to use 36-inch square piles for the foundation.

The replacement bridges are much better equipped to withstand hurricane-force wind, rain, and tidal surges. The old bridges were only 12 feet above the water at their lowest point. This left the bridges susceptible not only to wave action but also tidal surges. In contrast, the new bridges are approximately 25 feet above the water at their lowest point. The project team worked 1.4 million man-hours, casting and erecting over 1,000 girders and placing over 20 million pounds of reinforcing steel.

The deck forming system was one of a kind. It utilized an overhead gantry system that reached over the sides and underneath between girders to form and strip the deck soffit. Movable cofferdams were used to install footings below the water line. The new bridges also employ a system known as “shear keys” in the cap-to-girder connection. This limits the bridge deck’s movement in the unlikely event that a surge is strong enough to contact it at all.

During the planning stages for bridge construction in early 2005, the team realized they needed a way to dispose of approximately 100,000 tons of concrete debris, once the new bridge crossing over Escambia Bay was complete and the old bridge demolished. Rather than find a land-side location, where the material would likely be buried in a landfill, the team decided to seek authorization to utilize the concrete debris for artificial reef habitats in the Gulf of Mexico. According to the Escambia County Marine Resources Division, all of the reefs built to-date and have been successful and populated quickly by fish in the area. This eco-friendly debris disposal was recognized by the Environmental Protection Agency with a Gulf Guardian award as a positive step to keeping the Gulf healthy, beautiful, and productive.



The joint venture met two critical deadlines throughout the course of the project. They received a \$10 million bonus when the new eastbound bridge opened 11 days early on December 19, 2006. Less than a year later the new westbound bridge opened to traffic.

Company Role

Flatiron was a partner in this joint venture team.

Awards

- Gulf of Mexico Program Partnership of the United States Environmental Protection Agency – Gulf Guardian Award, 2007
- Precast/Prestressed Concrete Institute – Bridge Design Award for the Best Bridge with Spans Greater Than 150 feet, 2007
- Roads and Bridges – Top 10 Bridges (#4), 2007
- American Road & Transportation Builders Association (ARTBA) – Globe Award for Environmental Excellence, 2008
- Southeast Construction Magazine – Merit Award (Transportation category), 2008