

# P3 Delivery Drives Construction Speed on Florida's I-595 Project

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*By Debra Wood*

So far so good for ambitious improvements to a 10.5-mile stretch of Interstate 595 in Florida's Broward County. Approaching the midpoint of its construction schedule, the \$1.8-billion contract—the Florida Dept. of Transportation's first use of a design-build-finance-operate-maintain contract and its highest-dollar project ever—is on schedule and on budget for a June 2014 completion.



Photo by Smith Aerial Visions

The Florida Dept. of Transportation is using a design-build-finance-operate-maintain contract to reconstruct 10.5 miles of Broward County's I-595 corridor.

"Everything on this job is unique," says Paul Lampley, FDOT's project manager for the I-595 Express Corridor Improvements Project.

FDOT opted to use a public-private partnership to bundle what had been more than 15 projects into a single job supported by private financing. The state had about \$685 million available, but that did not include funds for the express toll lanes.

Now, FDOT will use its available funds for final acceptance payments, including incentive milestone payments, to concessionaire I-595 Express, after construction is complete. (I-595 Express is the venture formed by bidder ACS Infrastructure Development, the Coral Gables, Fla.-based U.S. subsidiary of Group ACS, Spain.)

Thanks to the novel public-private partnership, "we were able to advance construction by at least 10 years," says Joe Borello, senior technical adviser with HDR Inc., Omaha, Neb., which is serving as a design consultant.

Design and construction costs for the project total \$1.2 billion. More than \$285 million in construction has been completed to date.

The bulk of the project is the addition of nine miles of three reversible toll lanes at grade and auxiliary lanes. A 2.5-mile stretch of the Florida Turnpike's main line, where it intersects with the corridor, will be widened and reconstructed. There will be improvements to the I-595/Turnpike interchange and construction of a two-mile-long portion of frontage road S.R. 84. In addition, the contract calls for a seven-mile greenway for bikes and pedestrians and 13 ground-mounted and shoulder-mounted sound barriers for 20 communities.

Over the life of the 30-year contract, the state will pay the concessionaire a maximum of roughly \$1.3 billion in availability payments, which are monthly fees awarded if the facility meets state performance requirements. The project marks the first use of availability payments in the U.S., according to Lampley.

I-595 Express will maintain and operate the facility, but the state will own it and collect tolls. After 30 years, the state will resume responsibility for maintenance.

“[Since] the concessionaire is maintaining the corridor for a long period of time, it builds quality into the project,” Lampley says. “They are looking for lower maintenance costs.”

### **Early Innovation**

An innovative option to purchasing rights-of-way saved a significant sum early on. To control stormwater, FDOT purchased drainage rights on two golf courses and bought a third course—which was later sold—that the department redesigned and redeveloped. Now, I-595 redirects the majority of rainwater to the golf courses' lakes through 72-in. microtunnels running under the road. The shared-use solution saved more than \$60 million in right-of-way purchases for drainage facilities, according to Reynolds, Smith & Hills. The firm conducted planning and environmental studies and produced preliminary drawings.

Corridor work began in February 2010. “The delivery method allows us to need so many people [at once], because there is such an incentive on schedule,” says Phil Schwab, vice president with RS&H. Currently, there are more than 1,250 workers on site.

Corradino Group, which is providing construction and operations management to FDOT, completes audits to provide statistically valid proof that the work meets performance requirements, says Ed Perez, Corradino's senior vice president and project resident engineer.

I-595 Express brought in Dragados USA, New York City, as the design-build contractor. Dragados is self-performing minor bridge work in a joint venture with Baker Concrete Construction on a roughly \$30-million contract. Dragados hired AECOM to oversee all design. General contractor GLF Construction Corp. is building 17 bridges near the turnpike interchange on an \$85-million contract.

Corridor construction is divided among three firms. Prince Contracting has an \$85-million contract for a five-mile section of mainline I-595, S.R. 84 and Nob Hill Road; Bergeron Land Development is leading a \$95-million contract for 3.5 miles of work; and Ranger Construction holds one contract of \$40 million for the easternmost 2.5 miles of work and another for \$38 million for the 2.5 miles of turnpike reconstruction.

### **Multiple Work Zones**

Alvaro Muelas, CEO of I-595 Express, considers the sequencing of work a major challenge. As work progresses through the different areas, traffic is shifted to either the auxiliary lanes or express lanes, allowing crews to work on the braided ramps, lane widening and bridges.

To add the reversible express lanes into the median, workers had to shift the entire corridor to the north and into a canal, which is being partially filled with earth to support the roadway. This required installation of steel sheeting.

I-595 Express developed a traffic control plan that maximizes construction operations during off-peak hours, says Muelas. Throughout the corridor, crews will move 3.6 million cu yd of earth with 2 million cu yd required to fill in lakes, borrow pits and the canal.

Work also includes the addition, modification, widening or removal of 62 highway bridges, including 26 new structures. A joint venture of Dragados-USA and Baker Concrete Services will complete the work on the bridges at the crossroads throughout the corridor.

GLF Construction will perform the work on the category 2, steel bridges. Two flyovers will connect the express lanes in I-595's median to the median of the turnpike. In September, Dragados-Baker completed a 1,100-cu-yd concrete deck pour using two pumps and two screeds. Perez said the contractor had to use two screeds and manually remove the screed rail during the work. One risk is that if one screed moves faster than the other, the concrete may start setting before the pour finishes.

Another flyover requires raising an existing steel box-girder bridge by 18 in. and extending the eastern end to allow the express lanes to pass through. The contractor for this future work will use a computer-controlled hydraulic manifold system to jack the box girders at the piers and then install shoring towers to brace it until it can pour the extension and then lower the load back onto the piers. That contract has yet to be awarded and will not be completed until 2012.