

Everybody's in on it

Once confidential info. to benefit Florida commuters

The Florida Department of Transportation (FDOT) wanted this secret to be out—out in the open for everyone to see, and enjoy.

in a relatively new way to do business in order to find the proper suitor for one of its most important corridors in the city of Jacksonville. The alternative technical concept (ATC) involves bidders meeting with FDOT and FHWA and discussing ideas for a fix. When the session is over, the candidate only knows if the strategy is an acceptable one or if it needs work. A formal request is

By **Bill Wilson**
Editorial Director

With the I-95 Overland Bridge on the structurally deficient list, the agency engaged



then submitted to the DOT asking for ATC approval, and if granted plans are modified and a formal bid is processed.

"We were able to present ideas, and we were able to present these ideas with the confidence that FDOT and FHWA were not going to be sharing our ideas with the other teams," Kim Holland, vice president and Jacksonville Office Leader for RS&H, told *ROADS & BRIDGES*. "That is how Florida is handling it. I don't think other states are up to speed doing that yet.

"A lot of contractors worry that if they show their ideas, other teams are going to learn about it and then they are going to lose their edge," said Holland of the year-long process.

"Florida does a pretty good job maintaining the confidence. They get some great ideas."

The Overland Bridge had lost all public trust not long after FDOT announced the \$159 million contract award. On Aug. 20, a 2- by 3-ft hole opened up on the southbound bridge deck, dragging down traffic, which averages about 123,000 vehicles a day, during rush hour.

"[The backup] was miles long. It was not good," Holland said.

FDOT, however, was fearful of schedule snarl like the one produced on I-4 interchange work not far from the Overland Bridge site. That project took more than six years to complete, so the team of RS&H knew time management was critical with Overland—Jacksonville's largest arterial and the region's main evacuation route—and produced a design that will take 1,165 days to complete, or about three years. Innovation was prevalent, especially in the areas of right-of-way, utility relocation and ramp alignment.

Change for the better

Initially FDOT developed concept plans for the Overland Bridge site, and RS&H discovered several areas where design could be sharpened.

The first involved an AT&T utility duct bank located in the Atlantic Boulevard (U.S. 90/U.S. 1) interchange area. The majority of Jacksonville businesses were linked to the bank, and originally FDOT wanted to build a bridge on top of it, requiring 400 construction days and \$800,000 in utility costs to relocate the conduits. RS&H decided to restack the interchange and, in the process, reconfigured the I-95 bridge over Ramp N (U.S. 90/U.S. 1 to the northbound collector distributor) and Ramp P (U.S. 90/U.S. 1 to I-95 northbound) to a single span. A braided bridge also was eliminated.

The Atlantic Boulevard interchange posed other obstacles, particularly on the northbound collector distributor ramp and the I-95 southbound to U.S. 90 eastbound ramp, which handles the highest volume of traffic. The first solution involved shifting traffic on the I-95/U.S. 90 ramp five times and called for the construction of a 66-ft-high sound wall on the northbound collector distributor. The I-95/U.S. 90 ramp dips down to level one,



Florida Bridges

Total number: 11,982
Structurally deficient: 262
Functionally obsolete: 1,764

Source: FHWA

and RS&H was able to maintain the movement while constructing a new ramp on level three. The northbound collector distributor rubbed up against a neighborhood where there was a homeowner determined to stay. Original drawings had the collector distributor ramp high in the air, demanding the 66-ft wall. Modifications were made where the profile was adjusted and the same restacking of the interchange that eliminated traffic shifts on the I-95/U.S. 90 ramp helped reduce the retaining wall to 25 ft.

Just north of the Atlantic Boulevard interchange lies a ramp that brings together traffic from the Acosta Bridge, Main Street Bridge and Fuller Warren Bridge. Officials wanted to construct an 800-ft-long bridge over the FEC railroad that called for traffic weaving for those wanting to travel on U.S. 90 east. The move also was going to take valuable parking away from the Baptist Medical Center. It would cost FDOT \$30 million in right-of-way acquisition, and construction would create disruption for emergency vehicles serving the hospital and clinic. RS&H revised the approach by widening the I-95 southbound ramp by one lane.

The Overland Bridge itself almost was completely wiped out. Engineers wanted to fill in the area, calling for 127,000 cu yd of fill and 16,000 dump-truck trips through residential areas, and lay down pavement. RS&H's plans included keeping the Overland Bridge, and FDOT went along with the move.

Simple and fast

Promoting a healthier environment was another positive extension of the ATC. FDOT required a public meeting covering any issues of the Overland Bridge project, and after the session two members of the Jacksonville City Council, Don Redmond and Laurie Boyer, concerned the new route would further disconnect the neighborhoods of San Marco and Saint Nicholas, proposed the addition





For this primary section of I-95, the main objective is to add capacity, mobility and safety to the corridor. This rendering shows what the Overland Bridge project will look like when complete.

of bike lanes on Atlantic Boulevard, so RS&H drew up a half-mile of pedal pavement, which also helped with bike and pedestrian access to Bishop Kenny High School.

"It happened to be a pretty simple change, and it made a lot of people happy," said Holland.

RS&H also had to work with the U.S. Coast Guard, the Army Corps of Engineers and the St. John's River Water Management District to protect manatee and Atlantic sturgeon. The use of a bubble curtain is protecting the species from vibrations and other construction-related effects.

Because so many changes were made to the original design a NEPA re-evaluation, an update to the environmental impact statement, had to be submitted. RS&H had to go back and do a new noise assessment and provide traffic modeling to prove the redesign would not make congestion any worse.

"I have never done a design-build where you had to do this extensive of a re-evaluation," said Holland.

However, because the FHWA was involved in the ATC process, and the fact that the project was labeled a priority, the re-evaluation went fairly quickly.

Utility hold

In late December the Overland Bridge project was more than 500 days old, and a

portion of the operations were stuck in delay due to none other than the utility relocation required for the job. According to Heath Bunn, project manager at Archer Western Contractors, crews were two months behind at press time.

"The water and sewer is under our contract, but there's 12 other utility owners out here that have relocations necessary for us to build what we need to build," said Bunn.

At the Overland Bridge site, Bunn said there were two major utility relocations at each one of the end bents that were holding up construction, and the hope was there would be action before the start of 2014 so the bridge—which was 75% complete in mid-December—and mechanically stabilized earth walls at the abutments could be finished.

In the meantime, crews were working around the utility holdup and making progress any way possible. The Overland Bridge is a Florida I-beam concrete girder structure, and the majority of substructure work, including pile foundations, footings, caps and 20 piers were done. Come January, Bunn believed they would be lifting the I-beams into place. One-third of the structurally deficient bridge has been demolished—the northbound outside sections.

Over on the Atlantic Boulevard interchange, where the ramp restacking is taking place, foundation work has begun on the

Ramp K flyover carrying southbound I-95 to U.S. 90. Piles have been driven on three of the five pier footings, and crews also finished a footing and pier.

Work on the E, F and G ramps, where RS&H eliminated an 800-ft-long bridge, is the focus of the next phase of construction scheduled to begin in 2014.

One phase that was not on the radar when the first shovel dug in was the FEC replacement bridge. Due to the lack of funds, FDOT did not think replacing the structure was possible, but because the RS&H/Archer Western team's bid contained millions in savings it was written back into the plans.

The existing bridge is threaded through a network of arterials, including ramps linking the Main Street and Acosta bridges and I-95.

"It creates some pretty big maintenance-of-traffic challenges to replace that bridge, and they could not figure out a way to get it through there," said Bunn.

Concept plans called for the southbound collector distributor of the new span to be separated off of the mainline and built farther north closer to the Fuller Warren Bridge. The RS&H/Archer Western team proposed to reconfigure the downtown ramps and bring the southbound collector distributor inside and adjacent to the mainline.

Maintenance of traffic (MOT) dealing with the FEC bridge replacement was a bit unexpected, but Archer Western was well ahead of the game with the MOT for the rest of the project. During the first couple of months the contractor worked on establishing temporary lanes to move traffic along. Throughout the jobsite, northbound and southbound ramps were separate structures, and Archer Western had to get in, demo the barrier walls and overhangs and essentially tie the bridges together. After demolition there was usually a 6-in. to 1-ft gap that had to be filled with a closure pour.

Working deep inside a major metropolitan area also can be daunting, particularly when it comes time to maneuver equipment around. Three crawler cranes—two Kobelco 1600 160-ton machines and a Kobelco CK 2500 250-ton piece—are working right now. Fortunately piles for the new Overland Bridge only had to be driven down about 20 ft, which allowed Archer Western to go with the smaller 1600 model. **R&B**

For more information about this topic, check out the Bridges Channel at www.roadbridges.com.