

July 15, 2005

Mayor wrong on HOT lanes cost

— and we may be too high.

Lately, the Mayor and members of his administration have been saying that our allowance of \$100 a mile for the HOT lanes proposal is way too low. They believe that it would cost \$2 to \$3 billion or over \$200 million a mile.

Our original estimates came from highly regarded consultants and heavy construction executives who attended the Governor's Conference on Transitways on December 17, 2002. They estimated \$70 a mile, and we added a precautionary \$30 million a mile for the exits/entrances and possible cost overruns.

The Mayor's barrage of statements telling us that a simple road would cost much more than a rail line led us to investigate further. We found the following.

We spoke today with Braden "Brady" Smith, Chief Financial Officer of Tampa-Hillsborough Expressway Authority (813) 272-6740, who provided the financial data. The Authority is the public entity that administers the Lee Roy Selmon Crosstown



Expressway (see inset).

We also talked to Dave Whaley, of PCL Civil Constructors Inc, which is in the process of completing construction of the project and who was able to give us more background.

We also spoke yesterday with Jose Rodriguez, of Figg Bridge Engineers, who designed the elevated portion of the highway.

Brady Smith tells us that if they were to have followed the recommendations of Figg Engineering the total cost for the 5.5-mile "bridge" section — the elevated section of the expressway — would have been \$155 million exclusive of right of way costs. Longer lengths would reduce the per mile costs because the set up time for the pre-cast work would be amortized over more pourings.

That URS Construction Services rejected the advice of Figg Engineering to send the supports deeper at a cost only \$1.8 million was an error that is going to take close to \$100 million to fix.

URS designed the supports as though they were to sit on Georgia granite rather than the porous lime rock prevalent in the Tampa area. This error should have been caught, but sailed through with unsupervised, inexperienced engineers doing the design.

The total cost before remedial work is \$155 million divided by 5.5-miles, which equals \$28 million a mile. With the additional remedial work necessary to fix the support problems, it will cost \$255 million divided by 5.5 miles or \$46.4 million per mile.

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Bear in mind that our proposed 10-mile HOT lanes highway for Honolulu would be only two lanes whereas the Tampa expressway is three lanes.

We can only conclude from this that our estimate of \$100 million a mile is clearly overstated, even allowing for Hawaii's high costs and the more complicated exit/entrances than Tampa's.

(for more detail see the following article from the St. Petersburg Times)

Contractor balked at deeper supports

Expressway officials face a bill of \$70-million to take foundations to a depth dismissed as "over-engineering."

By JEAN HELLER, Times Staff Writer

Published August 26, 2004

TAMPA - As engineers designed the 6-mile elevated portion of the Lee Roy Selmon Crosstown Expressway, one firm suggested that the bridge's underground supports should go deeper than planned.

But the company that designed those foundation columns rejected the notion as "over-engineering" and a waste of money.

Today, as officials of the Tampa-Hillsborough Expressway Authority look at a possible bill of \$70-million to fix the foundations, they say the columns indeed should have gone deeper - and in some cases wider - to begin with.

Figg Engineering, which designed the elevated portion of the road, suggested during the design phase that the foundations weren't deep enough, PerryDawn Brown, spokeswoman for the Expressway Authority, said Wednesday. But contractor URS Construction Services, which designed the foundations, "went through the process called value engineering and decided it wasn't worth it," Brown said.

Asked if, in retrospect, that was a wrong decision, Brown replied, "Yeah."

An independent specialist in bridge foundations has concluded that at least some of the pillars under the Crosstown aren't wide enough, and others not deep enough, to support the weight of the road adequately, Pat McCue, executive director of the Expressway Authority, said in an interview.

"If we have to fix all 197 of them, it could cost as much as \$70-million," he said. "I'm really hoping they aren't all bad."

Gov. Jeb Bush said Wednesday that taxpayers would wind up paying some of the bill, whatever it is. "It's going to cost taxpayers in some fashion, in some form, a lot of money," Bush told WFLA-Ch. 8. He said even though the Expressway Authority will have to sort out the problem, the state would review options for repairing the bridge and paying for it.

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According to McCue, the foundation specialist, Ardaman & Associates of Orlando, has concluded that the below-ground pillars that support the new lanes were "underdesigned" by URS.

"We believe they made some very serious, fundamental mistakes, specifically overstating the load-bearing capability these foundations have," McCue said. "When they made the geological calculations, they overstated the strength of the rock (under the pillars) and underdesigned the foundations."

Each of the foundations is 6 feet across, diagonally, and most extend about 60 feet into the ground. While they rest on rock, at least some of the rock formations are not thick enough or are themselves surrounded by soft, unstable earth, McCue said.

The foundation sites were tested by drilling core borings, which gave engineers a cross-section of earth to look at. The borings went several feet below the lowest point the foundations were to reach. But in at least some cases, they didn't go deep enough to find problems lurking below.

Ardaman has tested a number of sites by sinking seismic equipment on both sides of the concrete columns and taking readings that provide a more complete picture of soil conditions around and below the foundations.

McCue said the 6-foot diagonal shafts are the standard in the industry, but were not sufficient for this job.

Attorneys for the Expressway Authority and the Florida Department of Transportation are drafting a letter to be sent to URS, probably on Friday, giving the company a week to produce a plan to correct the problems.

Judith Lillard, a spokeswoman at URS headquarters in New York City, declined to comment.

"I'm afraid that we're simply not in a position to respond to a matter of potential litigation," Lillard said.

The \$300-million toll road, originally set to open next year, is to feature three reversible lanes that will take commuters from the Brandon area to downtown Tampa in the morning and back again in the evening.

Asked why no one had double-checked the URS design plans for the foundations, McCue said no one thought it was necessary.

"This is the biggest engineering firm in the world," he said. "They signed and sealed this thing. They have advised my board and bond holders that they have made proper engineering decisions. There was no reason to doubt them."

This is not URS' first problem this year.

Trains run by Sound Transit in the Seattle-Tacoma area were pulled from a 1.3-mile segment of their tracks in January after the operator found that a new embankment carrying the tracks was sinking.

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"We have a kind of soil out here that basically liquifies when it's vibrated, and that's the type of soil that was under the embankment," said Lee Somerstein, a spokesman for Sound Transit. "It's like putting a heavy hand on a plate of Jell-O. Press down and the Jell-O squirts out the sides. That's what was happening here."

Sound Transit spent \$1.14-million to sink pilings that acted like a wall to hold the soil in place.

In June, Sound Transit sent letters to three contractors, including URS, its construction manager, notifying them of "design errors or omissions" and "construction engineering defects." It demanded that the companies fix the track and the embankment or Sound Transit would use other firms to do the work and bill the three of them. "We're in the dispute resolution process now," Somerstein said.

McCue said that if URS does not accept liability in the Crosstown case, "we will sue them."

"They can either agree to a fix, subject to the approval of Ardaman and FDOT, or they will disagree with the findings," McCue said. "But the clock is ticking. We've got a . . . project that's stopped, and every day it sits there it costs us money."

URS will be given "a reasonable period" to come to terms with the Expressway Authority or, McCue said, the board will be asked to approve a plan to have the work done by others.

"It won't sit there a year, I guarantee you that," he said. "We're going to get it done."

Already, McCue said, authority staff is putting together alternate sources of financing to pay for that contingency.

Times researcher Carolyn Edds contributed to this report.

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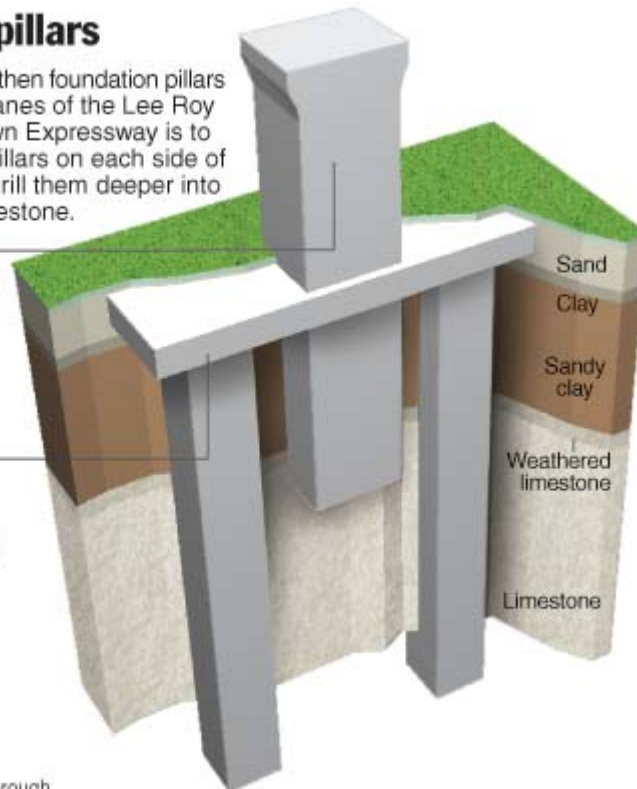
Fixing the pillars

One way to strengthen foundation pillars for the elevated lanes of the Lee Roy Selmon Crosstown Expressway is to put two smaller pillars on each side of the original and drill them deeper into solid bedrock limestone.

The original foundation pillar

is 6 feet diagonally. The two new pillars would be 4 feet each.

A cap would cover all three pillars like a tabletop on which the above-ground bridge support would stand to distribute the weight of the roadway and stabilize it.



Source: Tampa-Hillsborough Expressway Authority

Times graphic — JEFF GOERTZEN and JEAN HELLER

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