FIU, expressway authority link to bridge interchange gaps

By Lauren Redding

When Florida International University and the Miami-Dade Expressway Authority teamed up three years ago, they had one goal in mind: Build a bridge between the two organizations.

Little did they know at the time, building bridges was literally what they *would* do.

FIU's Lehman Center for Transportation Research approached the authority in 2009 about a possible collaboration, said authority Engineering Director Alfred Lurigados.

The timing was nothing short of perfect: the authority and the Florida Department of Transportation were about to begin a $560 million reconstruction of the Palmetto Expressway (State Road 826) and Dolphin Expressway (State Road 836) to be completed in 2015.

In addition to widening both roads and creating a direct route between the two, the expressway authority also began construction on a new segmental bridge – one that is built by putting large pieces of concrete together – on the Dolphin Expressway.

But the authority needed help figuring out exactly how much bridges of this size move over time, due to fluctuations in temperature. A study of this nature had never been conducted in South Florida, an area with such high heat levels.

But a team of six FIU students and researchers took on the task, working with the state transportation department and the expressway authority last year to install sensors in all segments of the bridge as it's constructed.

Over the next several years, the researchers will monitor the bridge's movements to get a better sense of how heat affects the concrete.

"This is the biggest task we've done with [FIU]," said Mr. Lurigados. "It will be an ongoing task for many years as the bridge is going up."

The partnership has not only produced new research, but it's also more cost-efficient for the expressway authority. Commissioning a professional engineering firm to do a similar study would cost much more in extra fees, said Mr. Lurigados. So far, the authority has paid FIU about $200,000 for various projects.

For the university, the partnership has given students the opportunity to put what they're learning in the classroom to real use.

"What better laboratory to teach our transportation engineering students than the laboratory South Florida has to offer in its highway network?" said Amir Mirmiran, dean of FIU's College of Engineering and Computing. "It's also helped the transportation faculty to think outside the box and explore solutions that could be applicable to the South Florida highway network."

Improving the amount of traffic has also been a goal of the partnership, Dr. Mirmiran said. FIU researched the possibility of running a bus rapid transit system on the Dolphin Expressway to increase public transportation. The team included several possibilities in its final report, such as designating an exclusive lane for such buses.

The Miami-Dade Transit Department is now considering moving forward with those options, Mr. Lurigados said, noting that there are no concrete plans now.

Mr. Lurigados said the expressway authority's board will have to approve another three-year contract with FIU this summer in order for the partnership to continue, but he expects it to get the green light.

Dr. Mirmiran also said he expects the partnership to roll on.

"It is a win-win," he said. "The partnership will continue in one way or the other. It will depend on the needs of [the expressway authority]. We are going to be responsible of their needs and we will be there."

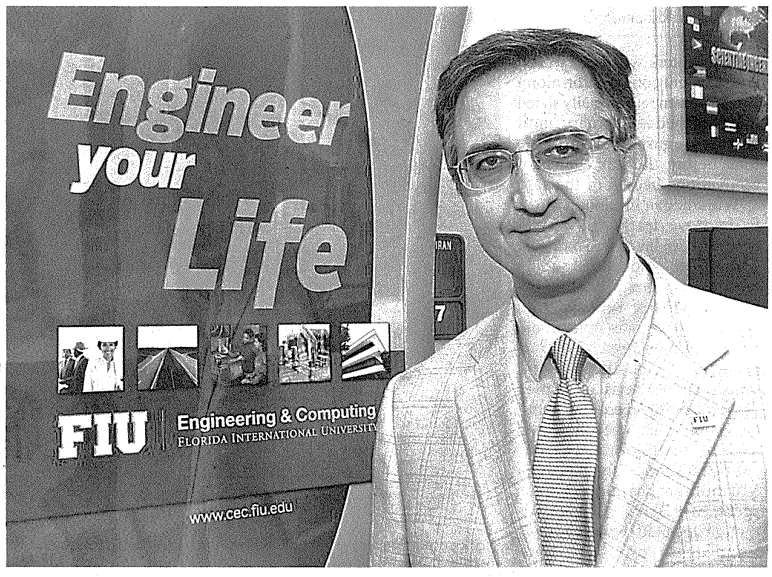

Photo by Maxine Usdan

"What better laboratory to teach our transportation engineering students...?" asks Dean Amir Mirmiran.

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