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## State prepares to build toll road

### Companies demonstrate how they can identify turnpike users, saving on tollbooths, as the state gets ready to build a toll road in the Triangle

**BRUCE SICELOFF, Staff Writer**

CARY - It was an acid test of North Carolina's plan to build fast, new-fangled toll roads unencumbered by slow, old-fashioned tollbooths.

For two weeks, teams of engineers parked on an Interstate 40 overpass, pointing video cameras at the traffic that roared beneath them. They were showing off their ability to pluck license numbers from thousands of passing cars and trucks.

Easy? Not so easy.

Darkness, glare, dirt and spray got in the way. One team withdrew, red-faced: Its infrared camera was blind to the red letters and numbers on North Carolina tags.

The N.C. Turnpike Authority staged the demonstration as part of preparations to build the 18-mile Triangle Expressway, which could open by 2011 in Research Triangle Park and western Wake County.

Most Triangle Expressway drivers are expected to set up accounts with the Turnpike Authority, and to carry electronic transponders on their dashboards. Overhead sensors will identify their cars, and they'll be billed later.

But the Turnpike Authority will not collect coins and bills from the rest of us. It will collect our license numbers instead, and use the information to collect tolls from the vehicle owners.

The state will save \$60 million in land and construction costs by eliminating tollbooths. Drivers should save time because they won't have to stop, change lanes or slow down to pay.

"This is the first toll road in North Carolina, and it has to open in a way that people see it as convenient," said Jim J. Eden, the turnpike agency's chief operating officer. Eden was an engineer with the Pennsylvania Turnpike Authority in the 1980s when several states began using the first generation of EZ-Pass transponders.

Eight technology companies took turns setting up gear on the Old Reedy Creek Road overpass. Most are expected to compete for the video contract when Eden seeks bidders in August -- and for similar contracts with turnpike agencies across the country.

While North Carolina is one of the last states to start building toll roads, it will be one of the first to go cash-free. Older turnpike agencies are spending billions of dollars to rip out tollbooths, upgrading



Mike Tourville of Inex Zamir sets up a camera to capture images of license plates. Vendors competing for a contract with the N.C. Turnpike Authority demonstrated their gear Thursday on a bridge over Interstate 40 in Cary.  
Staff Photo by Chuck Liddy

with new technology to cut labor costs and reduce traffic delays.

The Triangle demonstration attracted turnpike representatives from Maine, Colorado, Ohio and a few other states.

"Video gives people a way to pay without stopping, even if they don't have a transponder," said Philip DeBecker of New York-based Traffic Technologies Inc., a consultant for agencies in several states.

DeBecker watched as one company, Inex Zamir of Knoxville, Tenn., set up cameras to capture 60 images every second. That was fast enough to get several pictures, at different exposure and light settings, of every car and truck.

A computer perused the photos of each vehicle, picked the sharpest one and ran it through optical-character recognition software -- the technology used in office document scanners -- to read the license number.

Sunburned technicians squinted at a screenful of information distilled on the fly: a color snapshot of the whole vehicle, a black-and-white closeup of its license plate, a text readout of the license number, and a percentage indicating a level of confidence in its accuracy.

"As the car comes by, I've already read it," said Jim Kennedy, the company president. "Before I can clap my hands, it's done."

That's important, because Eden must be able to extract more than 400 license numbers an hour from each lane of traffic. During the first year or so, every image will be reviewed by a human being before a toll bill is put in the mail. When Eden is confident of its accuracy, the process will become more fully automated.

A few of the technology companies showed off image-recognition skills that have been developed in recent years with money from Defense and Homeland Security department contracts.

Sometimes a "B" was mistaken for an "8," or "4" was misread as "A." Eden said he wasn't looking for perfect performance in brief demonstrations that lasted a few hours for each participant, but he was impressed by what he saw.

"Their accuracy rates were really good," Eden said. "I think it's going to work really well."

Geoffrey Allen, who drives each day from Raleigh to an office near RTP, saw the demonstration and wondered at first whether the video cameras were being used to nab speeding commuters. He said it was good to know there won't be tollbooths to clog traffic on the Triangle Expressway.

"I lived in New York years ago when EZ-Pass was new, and it made life much more convenient," Allen said.

That's what Eden is aiming for.

"We're a business," he said. "We have to convince people that if you're going to pay a toll to use it, you'll get something out of it."

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