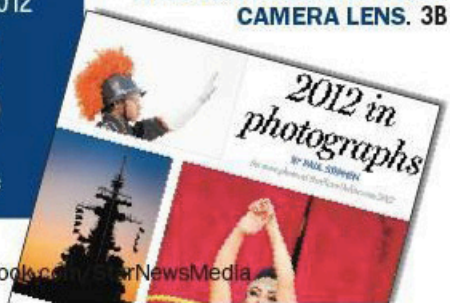
BROGDEN TOURNAMENT GOES INTO FINAL DAY. 1C

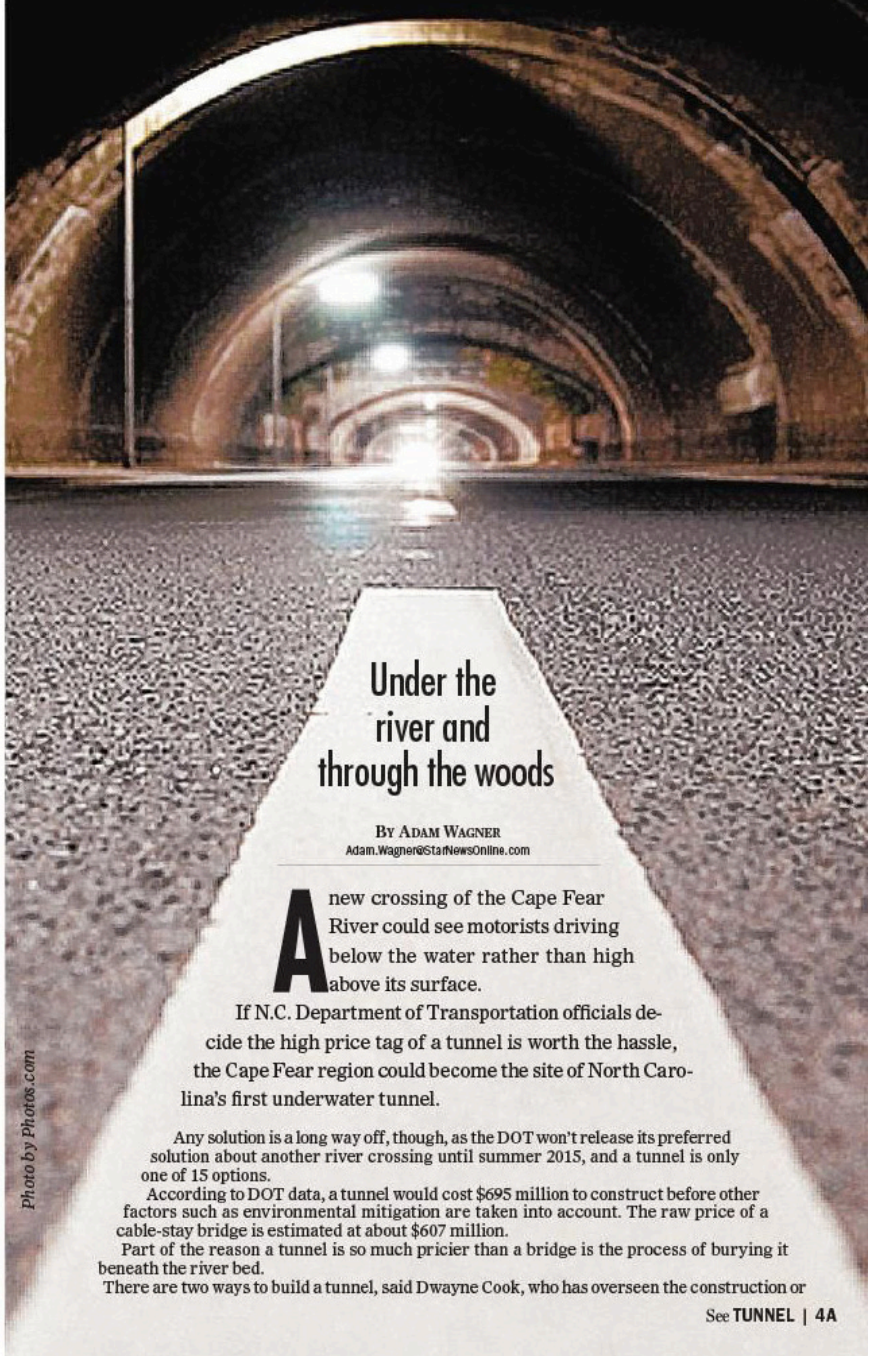
StarNews
SATURDAY, December 29, 2012
Coastal North Carolina's News Leader Since 1867 | 50¢
SN StarNewsOnline.com @StarNewsOnline Facebook.com/StarNewsMedia

LOOK BACK AT 2012 THROUGH PAUL STEPHEN'S CAMERA LENS. 3B



SOUTHEASTERN NORTH CAROLINA

DIGGING OUT OF BRIDGE TRAFFIC?



Under the river and through the woods

By Adam Wagner
Adam.Wagner@StarNewsOnline.com

A new crossing of the Cape Fear River could see motorists driving below the water rather than high above its surface.

If N.C. Department of Transportation officials decide the high price tag of a tunnel is worth the hassle, the Cape Fear region could become the site of North Carolina's first underwater tunnel.

Photo by Photos.com

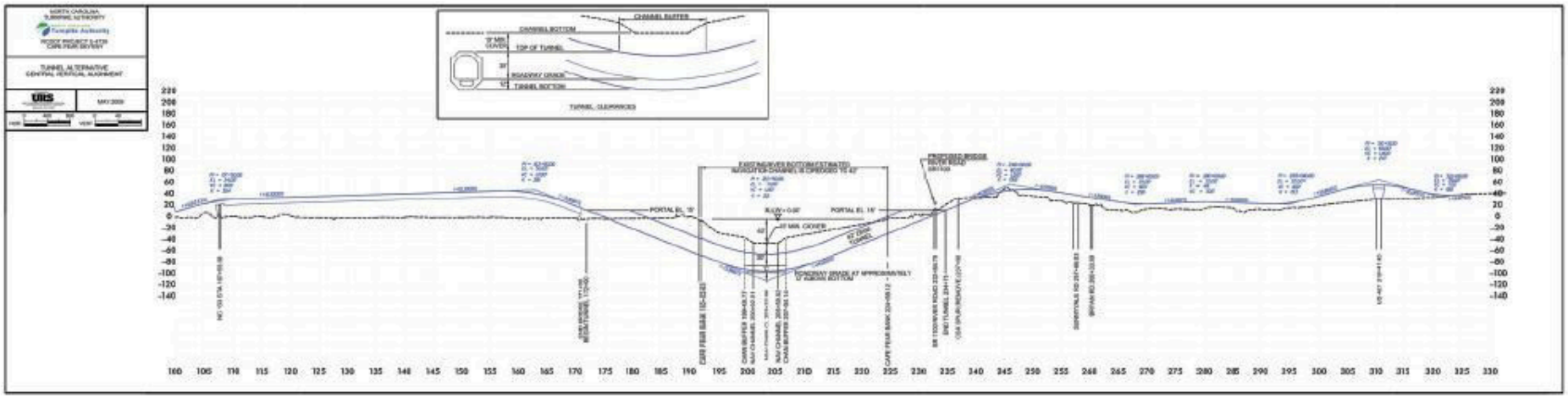
Any solution is a long way off, though, as the DOT won't release its preferred solution about another river crossing until summer 2015, and a tunnel is only one of 15 options.

According to DOT data, a tunnel would cost $695 million to construct before other factors such as environmental mitigation are taken into account. The raw price of a cable-stay bridge is estimated at about $607 million.

Part of the reason a tunnel is so much pricier than a bridge is the process of burying it beneath the river bed.

There are two ways to build a tunnel, said Dwayne Cook, who has overseen the construction or

See TUNNEL | 4A



TUNNEL

Continued from 1A

maintenance of six tunnels as operations director of Virginia DOT's Eastern Division

Boring, the method that was used to construct the Chunnel between England and France, uses a large drill to move through the river bed and is often pricier than the alternative.

In Virginia, all tunnels are built using cut-and-cover technique, also known as immersed tube.

"You just dig a ditch, sink the tube section and cover it back up," Cook said, describing cut and cover, in which 300-foot tube sections are built offsite before being barged to the tunnel's site and sunk into place. After being put into place, the tube sections are welded together.

A cursory analysis by the N.C. DOT determined that two of the drawbacks of a cut-and-cover method for a Cape Fear crossing are "substantial tidal marsh impacts" that "are likely to draw an extremely high level of scrutiny from the regulatory agencies" and "will likely impede maritime traffic for some period of time during construction."

The location under consideration near Independence Boulevard could be one of the easiest spots along the Cape Fear to build a tunnel, local experts say.

W. Burleigh Harris, a professor of geology at the University of North Carolina Wilmington, said the harder part of the Peedee formation of rock underlying the river has petered out by that point.

"It looks like, to me, they picked the best area just because of the material that'll be around there, and it'll basically be the Peedee formation and that material's pretty soft in most instances," Harris said.

The Peedee formation around where a cable bridge or tunnel could be installed may have a few small layers of hard material, but it is mostly very fine to fine muddy sand.

Costly to maintain

No matter how easy a tube is to install, though, the price tag continues to climb after a tunnel is built.

Maintenance costs associated with tunnels include keeping air quality high, drivers' sight lines clear and a fire mitigation system at the ready, among many other things.

"There's this entire industrial plant that's associated with a tunnel: electrical distribution systems, lighting systems, cameras, traffic signals, ventilation fans, pumps to get water out of the tunnel that are monitored and managed 24 hours a day, seven days a week," Cook said.

Another consideration is air and water traffic. In the Hampton Roads region, the large military presence means high-rise bridges aren't always viable solutions.

"Depending on the length of the water that you're trying to span and the arch that you need to accommodate ships to go under it, you may start to encroach on the air space for any airports or any flight activity," Cook said.

While air space doesn't seem like as much of a concern in the Cape Fear region, shipping traffic near the Port of Wilmington must be taken into account.

Where a high-rise bridge would fix the height for boats passing under it, a tunnel would permanently set the depth of the river, preventing future dredging.

"Once constructed, the maximum channel depth would be fixed by the tunnel essentially eliminating the opportunity for channel deepening projects," said the DOT analysis.