By Michael Bernos
Contributing Author

Catching wind

Listening to public results in right choice for Topsail

Pender County, N.C., like all of that state's coastal regions, enjoys its waterways and barrier islands.

The county is home to the southern portion of Topsail Barrier Island, which sits south of Bogue Banks and Outer Banks. Over the years, as the laid-back island has grown more popular, only two bridges serving its 26-mile stretch of mostly forest and beach have had to accommodate the growing Intracoastal Waterway boat traffic as well as motorists that traverse its bridges. One of the bridges is at the north end of the island, and the other, an aging steel-truss swing span bridge built in 1955, known locally as the Sears Landing Bridge, serves three increasingly popular summer beach communities in the middle and south end, Topsail Beach, Surf City and North Topsail Beach.

No. 1 of the many

In 2004, federal, state and county officials explored possible new bridge locations to replace the swing span bridge, taking into account traffic patterns as well as environmental considerations. After studying nearly 20 options that included various locations north and south of the existing bridge and alternative bridge designs, officials decided upon what was known as "Alternative 17," a fixed bridge that will begin at the intersection of Roland Avenue, Little Kinston Road and Atkinson Point on the mainland. When completed, the Topsail Island Bridge will cross the Intracoastal Waterway about 1,000 ft south of the swing bridge. As the new bridge crosses the Intracoastal Waterway, it will arch to the south and then back north, connecting to N.C. 210 on the island between Roland Avenue, New River Drive and Topsail Drive.

NCDOT was committed to taking the time to let the process run its course and putting all the presentations on the table.

According to North Carolina Department of Transportation (NCDOT) officials, the reviewing agencies and project team selected "Alternative 17" because it seemed to make the most sense when considering the economic, environmental and social impacts together.

"We learned early on that no alternative was perfect," said Charles Cox, P.E., Project Development Group supervisor for NCDOT. "We had several public surveys of over 10,000 residents and businesses that rated the various options. The surveys helped to validate that Alternative 17 was the best option."

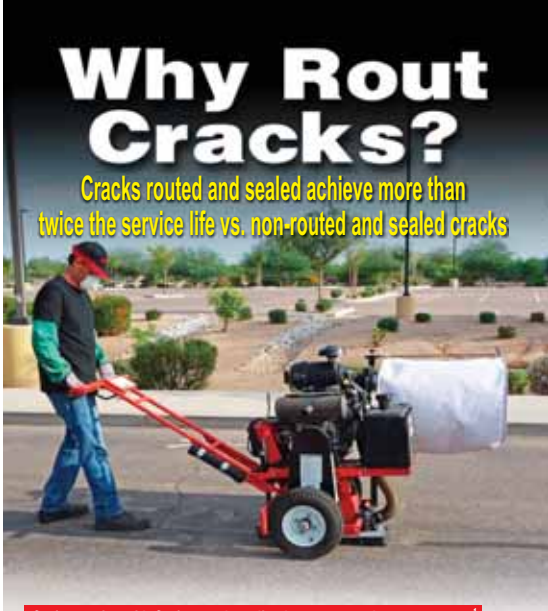
Cox said that the National Environmental Policy Act (NEPA) is a great facilitator, adding that the process is all about doing due diligence to compare and document the impacts for all of the alternatives, which should lead to a "LEDPA"—the least environmentally damaging, practicable alternative.

"LEDPA is not only a NCDOT decision but also one that includes environmental agencies who have participated in the process from the beginning," Cox said.

Cox cited studies indicating that the location of the new bridge also resulted in the least number of residential and business relocations, eliminated vehicular and vessel delays from bridge openings and closings and cost less ($57 million) than several of the other alternatives.

At its highest point, the new bridge is proposed to be 65 ft above the Intracoastal Waterway, fulfilling minimum Coast Guard requirements, and will provide constant access for all boats and other vehicles. It is scheduled to begin construction in 2017. Only when the new bridge is open to traffic will the existing swing span bridge be removed.

According to Chad Critcher, P.E., project manager for the bridge designer, RS&H, the



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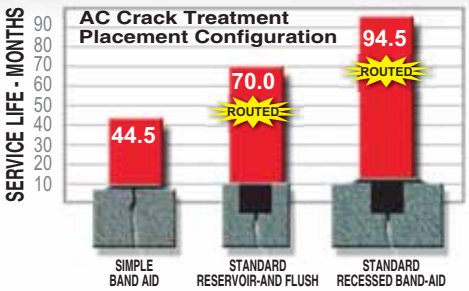

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[1] *FHWA-RD-99-143 Crack Treatment Experiment and subsequent FHWA Long-Term Monitoring project*
[2] *Maricopa County Air Pollution Control Regulations Appendix C Section 3.3.2*

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public-input process was the most extensive in which he had ever been involved.

"It's really uncommon to explore that many alternatives," said Critcher. "NCDOT was committed to taking the time to let the process run its course and putting all the presentations on the table. The first public outreach was in the summer of 2009 with the last public meeting in December 2011."

Critcher said officials looked at alternatives both north and south of the original bridge as well as any movable bridges, such as swing, bascule and vertical lift. Consideration, he said, was given to a "no-build alternative," "repair and rehabilitate existing bridge alternative" and "alternative modes of transportation."

He said the key was NCDOT allowing his team to present all options to let the public become informed and weigh in on the decision-making process. With the help of RS&H, NCDOT provided 3-D visualization presentations, handouts and newsletters as well as the public meetings and ongoing updates on NCDOT's You Tube channel to engage and inform the public.

"Each workshop narrowed the field," said Critcher. "NCDOT gets credit for listening to the community."

Above: Officials looked at alternatives both north and south of the original bridge as well as any movable bridges, such as a swing, bascule and vertical lift.

Below: With the help of RS&H, NCDOT provided 3-D visualization presentations, handouts and newsletters as well as the public meetings and ongoing updates on NCDOT's YouTube channel.

Michelle James, NCDOT project manager, said that although there was a great deal of public sentiment to keep the new bridge in line with the historical character of the previous steel-truss swing span bridge, there was strong sentiment that the old bridge represented the unhurried and quaint coastal lifestyle of Topsail Island. In the end, she said, the fixed bridge was chosen to facilitate the undeniable growth in summer beach traffic.

"The problem is the traffic associated with the three beach communities that tie into the bridge," said James. "The summertime traffic could back up throughout the beach communities and all the way back to U.S. 17 on the mainland."

Just to the south

Cox said the decision to build a new bridge became a priority when a 2005 structural inspection indicated a very poor sufficiency rating, adding that it was functionally obsolete because of its narrow road shoulders. A subsequent 2010 report indicated a further diminishment of the bridge, revealing a sufficiency rating of six out of 100 and restricted loads of 14 tons for single vehicles and 18 tons for a truck tractor with semitrailer.

"It is one of the few Warren Truss Swing Bridges and very few movable bridges remaining," he said, but it needs replacing.

Cox said one of the biggest constraints bridge planners dealt with was the limited access points to the island.

"We wanted to put the bridge in a place that best serves everyone, considering the island and mainland's growing population, which is why it is so close to the old one," he said. "We evaluated several options of putting the new bridge in the same location, but there were too many constraints."

Cox said that transmission lines, expensive residential developments, businesses and a local park prevented that alternative, which led to the new bridge's being built just south of the old one. He added, "We went the extra mile to see if the new bridge could go in place of the old one."

He said that the close proximity of the new bridge to the old island access point created challenges and benefits dealing with the primary constraint of Soundside Park, a popular recreation area among tourists and locals located on the island just north of the bridge. The park, he added, was designated as a Section 4(f) Resource by the U.S. DOT, which meant the bridge-replacement project

had to avoid it if those options were available. Thus, the bridge is designed to swing south of the park in order to minimally impact it.

"In evaluating several alternatives on the same alignment as the existing swing span bridge, we saw that as the bridge approaches elevated, the footprint widened, which meant there would be more impact to the park if we had gone directly north with the bridge from the mainland," he said. "The impacts to the park were deemed too extensive, so these alternatives were dropped from consideration."

Cox said one of the advantages of locating the bridge to the south of the old one is that the right-of-way to the old bridge will be abandoned and possibly granted to the park.

"This is not definite," he said. "But we might actually be able to enlarge the park with the abandoned right-of-way. That would be a nice enhancement to the community."

Planners and town officials also wanted to find a use for the old bridge. To that end, Critcher said that NCDOT is exploring the potential mitigation of the historic bridge by trying to find a home for it.

"There are some suggestions to use it at the park as a pedestrian bridge over the wetlands," he said.

Cox said that another advantage of the new bridge will be creating greater ease in and out of the business communities just south of the bridge on the island to the mainland.

"Because the beach communities are almost built out, expansion has moved to the mainland, which has created more traffic," he said. "We are planning to use roundabouts at each end of the new bridge not only to get people from the bridge into Southside Park and the business district on the island side, but also into the business district near Roland Avenue on the mainland. The roundabouts are much more efficient than a signalized intersection and create a nice "gateway" to direct people to their island and mainland destinations." R&B

Bernos is director of public relations with RS&H, Jacksonville, Fla.

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