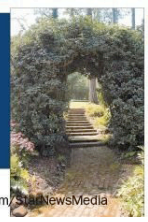




FINAL FOUR FAMILY: The ACC should capitalize on future members Louisville and Syracuse in the Final Four. 1C

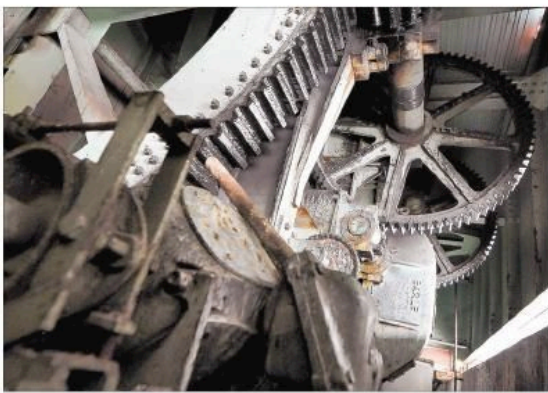


ANNUAL GARDEN TOUR OFFERS WOWS AND WHOAS 1D

SN StarNewsOnline.com @StarNewsOnline Facebook.com/StarNewsMedia

WRIGHTSVILLE BEACH | Drawbridge rehabilitation

# geared UP



The Wrightsville Beach drawbridge is lifted with a mechanism called the Hopkins drive system, which is among the last of its kind in the state of North Carolina. Photos by Paul Stephen

## Upgrade should keep rare Hopkins frame structure intact for decades

BY ADAM WAGNER  
 Adam.Wagner@StarNewsOnline.com

The Wrightsville Beach drawbridge doesn't show its age until you're standing underneath it, listening to the noisy conversation of tires jolting over the span and the punctuating silences that indicate a red light at either end of the bridge.

There, after climbing down two ladders and slinking past a thick steel chain, you can see the motor - spotted with dirt and grime - and the well-oiled series of gears that has powered each of the bridge's roughly 350,000 lifts since the structure was built in 1956.

When a \$5.65 million rehabilitation of the structure is completed in 2014, there will be a new motor, grid deck and brake system. The bridge, though, will remain one of only two of its kind in North Carolina.

The Wrightsville Beach drawbridge and the

Grayden Paul Bridge in Beaufort, which was completed in 1957, are the only two Hopkins frame structures left in the state.

Popular during the post-World War II building boom, the Hopkins frame simplified the construction and lowered the cost of building drawbridges in flat coastal areas such as North Carolina and Florida.

"Every movable bridge requires a complicated electro-mechanical drive system to move the bridge span. These driving mechanisms are costly and require frequent maintenance," said Paul Zia, a distinguished university professor emeritus of civil engi-

See BRIDGE | 5A

BY THE NUMBERS

<b>350,000</b>	<b>\$5.65 million</b>	<b>\$40-50 million</b>	<b>30-50 years</b>
Approximate times the Wrightsville Beach drawbridge has lifted since it was built in 1956.	Money being spent to rehabilitate the bridge and its lift mechanism, which is due to be completed next year.	Estimated price tag of replacing the 57-year-old bridge.	Projected additional lifespan of the bridge after the rehabilitation is completed.



# BRIDGE

*Continued from 1A*

neering at N.C. State University. "Hopkins developed a special truss frame attached to the bridge spans and provided some simplifications of the driving system."

Zia added that engineers used trusses instead of girders because of structural limitations and because high-strength steel and high-strength concrete had not been developed yet.

Now, though, technology has passed the Hopkins frame by, and there are many different methods to construct drawbridges.

"They didn't have a lot of options in 1956, when this was built. Now, there's just so many more options," said Eric Britt, an N.C. Department of Transportation bridge supervisor.

Britt has spent 13 and a half years working on the Wrightsville Beach structure, starting as a laborer and working his way up to its supervisor.

Despite being in operation since 1956, though, the Wrightsville structure rarely fails. "It's very reliable," said Trevor Carroll, a division bridge engineer. "Con-

sidering the number of openings we have, we rarely have a malfunction there, knock on wood."

Carroll added that replacing the bridge would likely

cost between \$40 million and \$50 million.

Britt thinks rehabilitation was the proper approach to the structure's preservation.

"If we preserve this, it'll

have a life expectancy of 30 to 50 years as opposed to tearing this out and building a new bridge. ... Why go in, spend the money to take this bridge out and upgrade it

when you can get so many more years out of it?" he said.

Adam Wagner: 343-2096

On Twitter: @adamwagner1990



Traffic delays have been frequent for the past several months as the Wrightsville Beach drawbridge was narrowed to one lane of traffic each way for the rehabilitation project. Photo by Paul Stephen

When you can get so many more years out of it?" he said.

Adam Wagner: 343-2096

On Twitter: @adamwagner1990