

BRIDGES

Contractor Speeds Deck Replacement Across the Ohio

Careful analysis by engineers cut a bridge deck replacement in Kentucky from 26 stages to eight instead. The contractor avoided extra shifts and potential late penalties of \$59,000 a day in replacing the deck of the 70-year-old Simon Kenton Suspension Bridge in Maysville.

National Engineering and Contracting, Strongsville, Ohio, won the \$5.8-

million job in 2002 to replace the deck of the Ohio River crossing carrying U.S. 62 between Kentucky and Ohio. The bridge has a 323.1-meter-long main span and two 141.7-m-long side spans.

After National won the bid, it exercised a contract option for an alternative construction sequence. With only the summer months allowed for the replacement of the main span deck, the contrac-

tor hired Palmer Engineering, Winchester, Ky., to help revise the sequencing. "To do it all in the [original] sequence was going to be a big problem from our perspective, with the [potential] penalties," says Clarke Wilson Jr., vice president and area manager for National.

Along with New York City-based Hardesty & Hanover, Palmer used a three-dimensional model to measure effects on bridge loads during replacement, says Khaled Mahmoud, long-span bridge director for H&H. "My assessment was that 26 stages was conservative," he says.

"We came in with a conservative approach," acknowledges Craig Closeman, designer with URS Corp., San Francisco, the Kentucky Transportation Cabinet's rehabilitation consultant. "We came up with the staging without knowing who would come in and bid." The original plan called for removing up to 101-ft sections in the 26 stages.

The owner and engineers feared that trusses might lift when deck removal unbalanced the load. But the contractor was able to remove the 20-ft-wide, 7.5-in.-thick deck in sections up to 300 ft long without incident, says Wilson. Each deck section weighed about 140,000 lb, says Schneider. "It's not about replacing the deck weight pound for pound, but to keep the stress levels of the stiffening truss acceptable," adds Brett Schneider, National project manager. The contractor used 50,000-lb excavators and other equipment as counterbalances.

Two crews worked in opposite directions from the bridge center. They replaced bearings, stringers, floorbeams, sidewalk and structural steel when necessary. The bridge is supported by 165-ft-high towers sitting on 60-ft-tall masonry plates in the river.

If not for the restaging, "it would've changed the ballgame," says Schneider. "We would've had to double-shift to get it done in a year." Now, the job is ahead of the schedule calling for completion in 2005, says Jim Rummage, KTC district engineer. "We're happy they sped the project along," he says. ■



▲ Shortened. Suspension bridge's deck is replaced using fewer stages under alternative plan.

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