

Huey Long Gets Wider

Large bridge widening project in New Orleans is a drilling challenge.

Recycling is in. Cans, bottles, newspapers, sure, but a whole bridge? And not just any bridge, but an 8,000-ft long bridge that carries 50,000 cars and two dozen trains a day over the Mississippi River? That's what the Louisiana Department of Transportation and Development (LA DOTD) is doing in Jefferson Parish. The retrofitting of this steel truss bridge promises to give residents and businesses on the southwest edge of New Orleans something they've desperately needed for a long time—a bridge that can meet its current and future obligations. And those future obligations are sizable. When it's all done, vehicular traffic is expected to double.

The Huey P. Long Bridge opened in 1935 and Louisianans have been making do with two nine-ft lanes in each direction ever since. "It was designed for Model A Fords," says Danny Johnson, owner of ATR, a Chicago Pneumatic tool dealer in nearby Harahan, LA. Meanwhile, the Greater New Orleans area has mushroomed. Cars and trucks have gone supersize, and traffic on U.S. 90 zips along until it reaches the Huey Long bottleneck. Then all that traffic is suddenly crammed into a pinched roadway literally "designed for Model As" and bogs down on the 8,076-ft bridge.

The bridge also has two railroad tracks. In fact, it's the longest and highest railroad bridge in the U.S. And in terms of "live" load, just one rail track is the same as 12 lanes of vehicular traffic.

The state of Louisiana or the New Orleans Public Belt Railroad (NOPB), the bridge's owner and operator, could build a new bridge, but that would be a mammoth undertaking at an unnecessary cost. So instead, NOPB is widening

it—"recycling" it in a sense—so it can use the bridge while the work is conducted and still wind up with a finished structure that can meet the needs of the 21st century.

The retrofit project will expand the bridge to three 11-ft lanes each way, plus add ten ft of shoulders, eight ft outside, and two ft inside. All told the new bridge will be 43 ft wide on each side—a total width of 86 ft, with shoulders, compared with the old 36-ft deck, which had no shoulders. That means the original piers have to be built up with additional concrete and anchor points for trusses to support the 50-ft wider, cantilevered deck.

Paul Scharmer calls the Huey P. Long Bridge "unique," and that is an understatement. Scharmer is the project man-

ager in charge of widening the main bridge substructure, which is being done by his company, Massman Construction Company of Kansas City, MO. Scharmer has been in the heavy civil and marine construction business, particularly bridge construction, for 25 years, mostly in the Gulf South and the New Orleans area, so he knows unique when he sees it.

Massman comes to the project loaded with credentials, too. Since its founding in 1908, Massman has completed more than 1,600 bridges and is currently involved in eight major bridge projects within 100 miles of New Orleans. The company calls itself "America's Bridge Builder," and with good reason. Massman's trophy case includes "Largest Concrete Pour" (18,970 cu yd), "Largest



To tie the new concrete into the existing concrete, Chicago Pneumatic tools were used to install epoxy-anchored reinforcing steel into the existing piers.

Drilled Shaft” (12-ft diameter), “Deepest Drilled Shaft” (190 ft), “Tallest Bridge” (468 ft above the river), “Deepest Cofferdam” (65 ft below water), and “Longest Bridge Span” (1,378 ft).

“When we build bridges, we support and enable the growth and power of America,” the Massman Web site states. It’s a fitting motto, because that’s exactly what the Huey P. Long Bridge is all about. It’s all part of Louisiana’s \$4-billion transportation program called the Transportation Infrastructure Model for Economic Development (TIMED), which is helping the state, and the Greater New Orleans area in particular, bounce back from the disaster of Hurricane Katrina in 2005.

LA DOTD points out that the project will mean safer travel and more efficient emergency evacuation when necessary. It will also help spur economic development in the area, improve drive time for motorists, and do a better job of connecting the east and west banks of Jefferson Parish, which straddles the Mississippi.

A battery of in-depth feasibility studies probed the project in terms of economics, environmental factors, and the impact on neighborhoods and businesses, as well as engineering requirements. The studies showed that the current bridge is strong enough to handle the new demands and that the local consensus was very much behind the rebuilding option, which is budgeted for \$1.2 billion.

Four-Phase Project

The Huey P. Long Bridge Widening Project is being done in four phases. Phase I, widening the main support piers, began in April 2006; Phase II, railroad modifications, began that October; Phase III, widening the main trusses, began early this year; and Phase IV, widening the bridge deck and building new, more efficient approaches, is expected to start this summer. In March 2008, LA DOTD awarded the contract for Phase IV to KMTC Constructors, a joint venture of Kiewit Louisiana, Massman, and Traylor Bros. Inc.

Massman has been on site since the beginning. In April 2006, Massman



On the Huey P. Long bridge project, work areas and space were access-limited, making every place a hole had to be drilled a huge challenge.

started enlarging the five main piers by drilling in dowels, adding epoxy, and attaching rebar to the existing piers, then pouring concrete to expand the cross-stream width of each pier by an additional 2.5 ft and the upstream-downstream dimensions by as much as ten ft.

“The substructure project is unique in the way the main piers are being encased, widened, and strengthened,” said Scharmer, “but all the additions to the main bridge are setting on the original foundations.”

To carry the load, Massman had to drill 20,000 holes—16,000 1 5/8-in., 15 in. deep to install the epoxy-anchored rebar and another 4,000 1 1/4-in. holes, also 15 in. deep, to anchor threaded rod for form ties.

“We used Chicago Pneumatic [CP, www.cp.com] drills to install epoxy-anchored reinforcing steel into the existing piers to tie the new concrete into the existing concrete, allowing the structure to act as one member,” said Scharmer. That’s a lot of drilling. And there wasn’t any wiggle room to fall back on for slowdowns or equipment failure.

The Massman crew is using CP 0032 and CP 0022 sinker drills and CP 0014 rotary drills for the pier work, and brought in CP 4181 rivet busters and

CP 4123 chipping hammers before that for the necessary demolition work. They also have CP 6060 3/4-in. drive and 6500 RSR 1/2-in. drive impact wrenches on the job.

“Most of the holes were drilled horizontally in the face of the piers,” said Scharmer. “The lighter drills, the 14’s and 22’s, were easier to handle.” To appreciate the meaning of that, imagine the situation with two or three men on a scaffold work platform two ft wide, drilling 1 5/8-in. and 1 1/4-in. holes 15 in.—20,000 of them—inside a cofferdam.

“The work areas and the space were access-limited,” said Scharmer, to put it mildly. “Everybody drills holes all the time, but getting there...that was the challenge.” Working above the river level is one thing. Below it is another. Massman had to build “limpet” cofferdams to work five feet below the water. The Limpet cofferdam, invented and patented by the British company Nuttall John Martin, Ltd., is like a limpet mine: it clings to the structure instead of resting on the bottom. That gave the drilling crew a dry place to work, despite the water level, but it was cramped.

“Every place we had to drill a hole, access was a huge challenge,” said

Scharmer. “That’s one of the reasons we used the CP tools. In addition to being reliable, they were easy to handle.”

The sinker drills have a multi-position throttle to make it easier to start holes. Additionally, the CP 0032 features a blower lever for deep-hole cleaning. There’s also an air inlet swivel on the sinker drills that improves maneuverability, a feature that was certainly appreciated by Massman employees working on a two-ft platform between a rock and wide-open space. The drills

also have an integral oiler that provides continuous lubrication, which increases uptime while keeping equipment in good working order.

With the concrete work done, Massman is now working on the structural steel to support the trusses, after which the bridge deck will be cantilevered over the substructure. Scharmer has brought in some bigger CP 6120 impact wrenches for the truss work. “We were having trouble getting some of the bolts torqued,” he said.

“Because of the tensioning requirements on the bolts, we needed the big guns.”

Scharmer says Massman’s work is moving along on schedule and will be completed next spring, in 2009. The entire project—deck roadway, approaches, railroad improvements, and all—is scheduled for completion in 2013. At that point Louisianans can ditch the Model A driving style to which they’ve become accustomed, and the Huey Long will have been successfully recycled.

