Wednesday, May 28, 2008 (SF Chronicle)
Bay Bridge coming together slowly but surely
Michael Cabanatuan, Chronicle Staff Writer

From their through-the-windshield vantage point on the upper deck of the Bay Bridge, morning commuters can spy a structure being built to their left as they near Yerba Buena Island. During the next few months, they'll see another structure rising on their right.

But they shouldn't get confused. Neither of these structures will be permanent, nor will either become part of the single-tower suspension segment of the Bay Bridge when it opens in late 2012 or early 2013.

Still, both will play an important role in the next four to five years of construction on the new Bay Bridge. And they're manifestations of why construction of the $1.04 billion single-tower suspension span is so costly, so complex and will take so long to complete.

"The (suspension) span is not particularly long - only four-tenths of a mile," said Caltrans Director Will Kempton. "But it is a different type of bridge. It's a unique design. This has never been attempted at this size in this kind of environment."

The span is what's known as a self-anchored suspension bridge - a single-tower bridge suspended by a single cable that wraps around and under the bridge, essentially cradling the deck. Designers have described the span as an exclamation point or flourish at the end of the 1.4-mile-long, low concrete skyway, which has already been completed. Self-anchored suspension bridges have been built elsewhere but have been much shorter and haven't traversed a navigable body of water over a shipping channel.

"It is an oddball," said Steve Heminger, executive director of the Metropolitan Transportation Commission.

The unusual design, combined with the need to connect the new bridge with the existing Yerba Buena tunnel without impeding weekday commute traffic, means an uncommonly complicated construction process. And it has turned the eastern end of Yerba Buena Island into a bustling construction site filled with equipment and a forest of concrete columns. Bypass for three years

Already taking shape on the south side of the bridge is the temporary bypass that will carry traffic in both directions for three years. In March, crews installed the first piece of the bypass atop a pair of those columns. A double-deck steel span will take traffic on a curving 1,200-foot detour just south of the existing bridge.

Drivers likely will face a reduced speed limit on the bypass, which will extend from the end of the trestle section of the existing bridge to the tunnels. It will allow crews to demolish the current link to the island and build a connection for the new span.

But construction of the temporary bypass is far from simple. Contractor C.C. Myers, the firm that rebuilt the MacArthur Maze in record time and handled the Labor Day replacement of a viaduct on Yerba Buena Island, is building the bypass on the ground, then hoisting it into the air one piece at a time. Third weekend closure

The fifth and final piece will require a third weekend bridge closure - possibly over Labor Day 2009 - as crews cut the existing span and slide it

off its supports on a set of rails erected 150 feet in the sky. Then the new piece will be lifted onto another set of rails and rolled into place atop the bridge supports.

"Each one of the bridge closures has been gotten bigger and bigger," said Bart Ney, Caltrans spokesman for the Bay Bridge. "This one is the biggest. It's got to work right."

Meanwhile, as the temporary bypass rises on the south, American Bridge-Fluor, the contractor building the suspension span, will build its temporary bridge on the north. Workers are preparing to plant seven sets of temporary steel towers in the bay and the eastern end of the island. In June, steel girders will arrive from Washington and be formed into a bridge reaching from near Yerba Buena Island to the already-completed skyway section of the new eastern span. Temporary bridge confusing

"By fall, folks should see trestles coming across the towers," Ney said. "It will look like a bridge, and it will be a bridge, but we don't want people to be confused. We haven't changed the design."

That temporary bridge won't ever carry traffic. Instead, it will be used to assemble and support the 28 winglike steel pieces - 14 for eastbound lanes and 14 for westbound - that will make up the deck of the new Bay Bridge. Those sections will begin arriving from Shanghai, where the bridge is being manufactured, late this year along with the four steel sections of the tower.

Once the 525-foot tower is assembled, a suspension cable will be hung and draped around the bridge deck. The temporary towers and girders will be removed, and the bridge will support itself. Fabrication of the new bridge is under way, overseen by a crew of Caltrans inspectors, but is still suffering the hiccups of a starting operation, Kempton said.

So far, Kempton told a recent meeting of the California Transportation Commission, it looks like the bridge can be completed within its budget of about $5.5 billion. But the complex nature of the project does cause him some tense moments, he acknowledged.

"You can look forward and see all these challenges we're facing - and they're daunting," he said. "You wake up at night and think 'Can we do this?' But we've met the challenges we've encountered in the past."

E-mail Michael Cabanatuan at mcabanatuan@sfchronicle.com. ----------
---