THE SAN FRANCISCO-OAKLAND
BAY BRIDGE SEISMIC SAFETY PROJECTS
CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION

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PRESS RELEASE

BAY AREA NOW HOME TO WORLD'S LARGEST SELF-ANCHORED SUSPENSION SPAN

Complex Load Transfer Process Completed, Allowing Bridge to be Self-Supporting

Oakland, Nov. 20, 2012 – The dream of building the world's largest Self-Anchored Suspension Span (SAS) is now a reality. The weight of the bridge is currently supported by the single, nearly 1-mile long main cable. Workers successfully completed the highly complex process called load transfer, which shifted the bridge's weight from the temporary supports to the main cable; the process took just under three months. The SAS, at 2,047 feet, is the world's longest SAS and the signature element of the new East Span.

Load transfer shifted the weight of the 35,200-ton decks from the temporary steel that supported them for the past few years and onto the tower, suspender ropes and main cable, which is the longest single looped suspension bridge cable in the world.

The operation began in mid-August with crews using hydraulic jacks (which exert up to 400 tons of force) to gradually tension the 200 suspender ropes that connect the main cable to the decks. Once 104 of the 200 ropes were tensioned, the bridge was self-anchored and self-supporting. As the suspender ropes were tensioned, they pulled the main cable toward the deck causing it to move down about 16 feet and out about 30 feet. This caused the decks to lift up approximately 1.6 feet from their temporary supports.

A primary focus of the workers was balancing the various forces that were at play throughout the operation. While tensioning the suspender ropes, crews engaged a jacking saddle at the western end of the bridge to maintain the superstructure's equilibrium while simultaneously releasing the tower from its 1.5-foot westward pull, allowing it to regain its vertical stance after being loaded with weight from the cable and decks. Since the SAS cable is anchored into the eastern end of the roadways, the cable will naturally pull the tower to the east, so crews pulled the tower west toward Yerba Buena Island using steel strands that anchored into the island's bedrock to hold the tower's position.

Following the initial phase of load transfer were a series of steps that involve tensioning the remaining suspender ropes, completing connections between the decks and cable, and installing a steel shroud, or cover, to protect the cable at the western end of the SAS, where it wraps around the deck. Crews have begun wrapping the cable, which involves slathering the cable with a zinc paste then encasing it with interlocking galvanized steel wires, or S-wire. Then the cable and suspender ropes will be painted with a highly elastic noxide paint to further protect the bridge from the elements. Once the cable is painted, crews will no longer need access to the cable and the catwalk that is suspended just beneath the cable will be removed.

The main cable now acts like a giant sling, supporting the weight of the deck. Unlike traditional suspension bridges where the cables are anchored into the ground, a self-anchored suspension bridge's cable is anchored in the road decks.

For more information visit BayBridgeInfo.org/projects/sas.

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