US 181 HARBOR BRIDGE PROJECT

Monthly Status Report

Texas Department of Transportation

FLATIRON | DRAGADOS

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Cable-Stayed Bridge (CSB) and Approach Viaduct Bridge Progress in February

North Pylon: Assembly progressed with the main span (MS) derrick crane. MS and back span (BS) median slabs were poured. Poured Upper Tower (UT) Lift 7. Lift 8 will contain the first of 20 stay cable anchor boxes. Completed installing 10 of 14 drilled shafts for the footing extension.

South Pylon: Erected MS and BS segments to complete Cycle 1, Part 1. Placed MS and BS delta frames (DF) and poured cast-in-place concrete connection to the segments. Poured UT Lift 5. Jumped UT formwork and installed reinforcement for UT Lift 6. Began installing median slab formwork. Lifted and launched MS derrick crane into the initial position. Installed cofferdam and drove drilled shaft casings for the footing extension.

For more information about the CSB design, please visit:
https://www.txdot.gov/projects/projects-studies/corpus-christi/us-181-harbor-bridge-replacement.html#news

Crane Activity on the Harbor Bridge Project (HBP)

From Robstown to North Beach, approximately 50 cranes are in operation project-wide, with more deliveries on the way. When possible heavy equipment purchases and rentals are locally sourced and certainly contribute to local and state sales tax coffers. Here is a glimpse of the massive "tools" required to create a new horizon across the Corpus Christi Ship Channel, build support structures for 21 new bridges, and reconstruct six and a half miles of freeway lanes.

North and South Approach: LR1750 Crawler crane can lift over 800 tons and is utilized to place 100-ton segments on falsework. LR1160 Crawler crane can lift 200 tons and is used to fly up formwork, set rebar cages, and pour concrete for support piers. Launching Gantry horizontal crane weighs over 1,500 tons, stretches over 400 feet, and can lift spans up to 180 feet long that weigh almost 2,000 tons. A Rough Terrain (RT) crane can lift 120 tons and supports gantry operations when installing tendons and grout.

CSB North and South Pylon*: Tower crane can reach up to 600 feet (currently positioned at 420 feet high), has the capacity to lift 44,000 pounds, is used to fly rebar cages, formwork, and materials for UT lift operations, and supports an industrial elevator to transport team members wanting to bypass the 220-foot scaffold climb. LR1350 Crawler crane can lift 1,300 tons, is used to lift MS/BS segments and delta frames weighing 120 – 140 tons each, lifts derrick sleds/cranes and self-propelled modular transporters (SPMTs) onto the surface deck, and assists with installing stay stressing platforms. Two Derrick cranes (shaped like triangles) each have a 200-ton capacity and will place MS and BS segments for CSB spans at the deck level. As the bridge deck progresses, the derricks will slide outward on sleds with a hydraulic jacking system capable of launching one span per cycle. A third Derrick crane with a 183-ton capacity will be permanently mounted on the deck and utilized to lift segments from the ground onto the SPMT to transport northbound and southbound segments to the two cycling derricks. LR1000 Crawler crane lifts 110 tons and supports rebar operations on the ground. An RT crane or heavy-duty forklift can lift up to 75 tons and is used at ground level to load rebar cages for drilled shafts in the footing extensions. *A complete set of the above cranes are or will be located at each CSB tower.

PreCast Yard (PCY): Two Straddle Carrier cranes (150-ton and 200-ton) are used at the PCY to stage, store, and transport segments from the production line to the SPMTs for a ride to their final destination. In addition, an LR1160 and two LR1000 and Crawler cranes are also used at the PCY to pour concrete, install rebar cages, and assist with segment and delta frame transport.

Utilities, Roadworks, and Structures: Crews utilize several of the above crawler cranes for pile-driving, concrete pier construction, and for placing overhead spans on bridges around the South Interchange. Three RT pickers also assist with various scopes of work and in placing rebar formwork.

Up to 15 Manlifts for elevated utility work, finishes, overhangs, Etc., are used in project-wide operations along with ten conventional Forklifts to help move equipment material and heavy debris. Concrete trucks, fleet trucks, and lowboy/step deck trailers needed to haul cranes around the project add another layer to the HBP heavy equipment inventory.

It takes a unique and patient skillset to maneuver heavy machinery safely. Therefore, ongoing training and National Commission for Certification of Crane Operator (NCCCO) compliance is mandated among 50-plus HBP operators, support staff, and subcontractors. So far, over 70 crawler cranes have been mobilized and demobilized for relocation on the HBP -always under the management of a certified crane assembly director, safety coordinator, and superintendent.