
Willis Avenue Bridge Replacement over the Harlem River



The Willis Avenue Bridge pre-construction



The new 300-plus-foot swing drawbridge arrived atop two barges

Client: New York City Department of Transportation

Project Location: New York, NY

This project involves replacement of the Willis Avenue Bridge over the Harlem River between Manhattan and the Bronx. The purpose of the project is to improve lane width and geometry of the bridge and its approach ramps, address all structural and seismic deficiencies, reduce the rate of accidents, increase the bridge's load carrying capacity, and improve the bridge's bicycle and pedestrian facilities.

The project involves the complete replacement of this East River crossing with a new swing span and flanking girder spans on each side, on a new alignment immediately south of and slightly skewed to the existing bridge alignment. Like the existing bridge, the new swing span will open to allow tall ships to pass. Assembly of the new swing span was completed off-site allowing for significant schedule compression. The new 350 foot, 2400-ton structure was recently barged into position and lowered onto the newly construct pivoting center pier.

The new bridge will continue to provide four traffic lanes on the bridge mainline. All new steel approaches and ramps transition back to the existing connections with the street and arterial highway networks. The First Avenue approach and FDR Drive ramps are being replaced on new alignments with standard radius curves. The Willis Avenue approach is being replaced on an alignment similar to its existing alignment, which will provide a standard radius curve, and eliminate all columns in Willis Avenue and Bruckner Boulevard below the approach. The Bruckner Boulevard ramp would be replaced on a new alignment and brought up to standard. The bridge also passes over the Harlem River Yard (HRY) in the Bronx. New construction is being coordinated with ongoing operations in the rail yard including the waste transfer station.

Traffic has been maintained on the bridge using staged off-line construction where most of the new bridge is built before demolishing the exiting one. Tie-ins at each end will be made using conventional staging where half of the bridge will be built at a time and traffic will be maintained on the remaining half. A temporary loop ramp will be built at East 127th Street to maintain traffic from the Northbound FDR Drive to the bridge while a new ramp is built at the present alignment.