Port Mann Bridge Main Span Demolition
Vancouver, BC Canada

Project Description

After 3 years of construction, the new 10 lane Port Mann Bridge opened to traffic in December 2012. With traffic removed from the original 1964 structure, demolition can commence. The existing bridge is a steel tied arch with a main span of 1200' and side spans of 360'. Demolition requires temporary support of the structure prior to removing the tie girder or the main arch members. The deep and fast flowing Fraser River with heavy commercial shipping traffic makes temporary support bents in the water difficult to construct. Temporary stay towers assembled on the deck over the main piers were instead used to de-construct the arch in a cantilever manner working from mid-span back towards the piers.

Owner
Ministry of Transportation, British Columbia, Canada

Contractor
Kiewit / Flatiron JV

Designer
TY Lin

Our Role
McNary Bergeron worked closely with the Contractor to develop the demolition scheme for the Port Mann Bridge. McB then designed the cable stay system, the temporary steel tower, the connections to the existing steel arch, and the erection manuals for the demolition system.

Total Contract Value
$1.93 billion (USD)

Timeline
2012 - 2014

Construction Method and Specifications

The demolition of the Port Mann Bridge Main Span closely follows the original construction method used in 1964, except in reverse. This system uses a 200' tall temporary stay tower on the bridge deck above each of the main piers and temporary stay cables to support the center arch as it is cut and removed piece by piece from the middle working back towards each pier. A series of temporary stay cables are installed, stressed, and eventually removed as the demolition work progresses. The stay system is composed of PT strand and heavy lift strand jacks that allow for precise adjustment of the stay forces during demolition. Extensive engineering work is required to confirm stability of the structure at every stage of de-construction.