



PROJECT PROFILE

The 606: Milwaukee Avenue Bridge

Jacking Procedure, Erection Procedure, and Tensioning Sequence | Chicago, IL



CLIENT

Walsh Construction

BACKGROUND

The 606 (also known as The Bloomingdale Trail) is a 2.7-mile-long park that repurposes an abandoned elevated train line into a walking/running/biking pathway above the neighborhoods of the northwest side of Chicago. The trail includes several bridge structures that span over existing city streets, one of which is the Milwaukee Avenue Bridge.

The original bridge structure consisted of three built-up, riveted, longitudinal girders that were simply supported on three interior steel piers and two concrete abutments. The concrete deck was supported by regularly spaced standard I-shape steel beams.

WJE prepared a jacking procedure, erection sequence, and tightening sequence for the conversion of the 100-plus-year-old four-span steel bridge into a single-span tied-arch suspension bridge. The rehabilitated structure consists of three single-span tied-arches, with the original longitudinal girders serving as the tension ties.



SOLUTION

WJE performed calculations and provided erection details to verify that the existing bridge and new components had appropriate strength and stability throughout the entire conversion and rehabilitation. The multi-phase procedure involved the following tasks:

- Converting the original simply supported longitudinal girders into three continuous girder lines using top flange, bottom flange, and web splice plates
- Installing post-shore towers and hydraulic rams to uniformly jack the continuous three longitudinal girders from the existing piers and up to the proposed final elevation, providing for increased clearance to the roadway below
- Assembling three new steel arches in a parking lot near the existing bridge
- Tilting up the individual arches and connecting them with diagonal bracing to create a steel three-arch assembly
- Lifting the entire three-arch assembly onto the existing longitudinal girders using a crane
- Installing new suspension cables—sequentially tightened until the longitudinal girders lifted up off the post shores—between the new arch and the existing longitudinal girders
- Removing the existing interior piers