

Project Brief

Woodland Viaduct Bridge Arch Strengthening



New York, USA
September 2001



This 75-year-old concrete, open spandrel arch bridge in Westchester County, New York, was not designed to meet modern day traffic requirements. Structural analysis determined that rehabilitation of the bridge would include replacement of the superstructure and strengthening of the existing arches.

Following a seismic analysis, it was determined that the arches had inadequate confinement. Fiber reinforced polymer composites (FRP) were chosen as an innovative method for strengthening. This type of repair would add the required strength without altering the appearance of the bridge.

Three layers of the Tyfo® SEH Glass Composite System were used to provide the required confinement to the arches. The design included special details to account for the irregular cross section of arches and the presence of columns. The composite system was applied in half sections around the arches, overlapping in the center. In addition, special scaffolding was used that attached to the bridge, eliminating the need for supports on the ground. This system did not interfere with the commuter railroad below the bridge and minimized the impact of construction on surrounding areas.

Overall, the Tyfo® SEH System provided a state-of-the-art rehabilitation design for this historic bridge. This unique solution maintained the historical appearance of the bridge and had minimal impact on the community.

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