Executive Summary

SR 611 Bridge Replacement
Category C

SR 611 was far from an ordinary bridge replacement project. It was constrained by a complicated knot of structures, unforgiving hydraulics powered by the Delaware River, sensitive environmental resources along the historic Delaware Canal, subtly complex roadway geometry and no easy way to divert traffic. The project area is hemmed in on all sides. Immediately upstream of the existing bridge, an abandoned concrete arch structure shared the northern abutment and demanded an intricate demolition sequence during construction. Immediately downstream, a historic timber aqueduct set on masonry abutments and carrying the historic Delaware Canal across the creek, adjoins the highway bridge and required protection and monitoring during construction. The canal and aqueduct structure are also located within the Delaware Canal State Park, a National Historic Landmark, protected 4(f) resource and location of archaeological resources. Traffic across the bridge had to be maintained during construction. The shortest viable detour route was more than 26 miles long, with route options limited by the Delaware River, the Pennsylvania-New Jersey boundary and meandering rural roads that would restrict truck traffic. Despite the challenges, HNTB Corporation and the design team delivered solutions through innovative and thoughtful design practices to successfully replace the bridge while keeping this critical arterial road open to traffic for the duration of construction. Consistent and effective coordination of project challenges and solutions between the design team and stakeholders, driven by strong leadership from the Pennsylvania Department of Transportation, led to the successful delivery of the project to the client's satisfaction.