



PROJECT PROFILE

Franklin Avenue Bridge

Structural Investigation and Rehabilitation Design | Hennepin County, MN



CLIENT

Hennepin County (Minnesota)
Transportation Division and
HNTB Corporation

BACKGROUND

The Franklin Avenue Bridge is a historic five-span open spandrel concrete arch structure built in 1919–1923. The bridge carries four lanes of traffic over the Mississippi River and has a center arch span of 400 feet between pier columns. Although the bridge superstructure (concrete deck, deck framing, and spandrel columns) was completely replaced in 1970, the original concrete pier columns, abutments, and arches remain in service. The Franklin Avenue Bridge is listed on the National Register of Historic Places.

At the request of Hennepin County, WJE investigated the structural condition of the bridge and developed repair and rehabilitation alternatives and cost estimates for the work. Since the bridge is a historic structure, the rehabilitation alternatives were developed in accordance with the *Secretary of the Interior's Standards for Rehabilitation*. Minimizing disruption to traffic during construction was another key consideration in assessing alternative rehabilitation strategies, in addition to evaluation of service life, cost, and historic impact.



SOLUTION

Following review of historic documentation for the bridge, WJE engineers performed detailed inspections of the bridge, including a complete visual survey and in-depth examination and testing of representative areas. The engineers performed laboratory analysis on concrete and steel samples from the structure to determine material properties and the nature, cause, and extent of deterioration. A structural analysis was also performed to confirm the load-carrying capacity of the bridge, to assess the significance of the deterioration in the various bridge elements, and to study the rehabilitation alternatives.

Based on the findings of the inspection and testing, WJE developed rehabilitation alternatives, service life estimates, and cost estimates for each alternative. The findings and recommendations were presented to the County in a comprehensive written report.

Subsequently, WJE was retained as part of a team led by HNTB Corporation to carry out the bridge rehabilitation design. HNTB is performing the design for the replacement bridge deck, and WJE is performing the concrete rehabilitation design.

