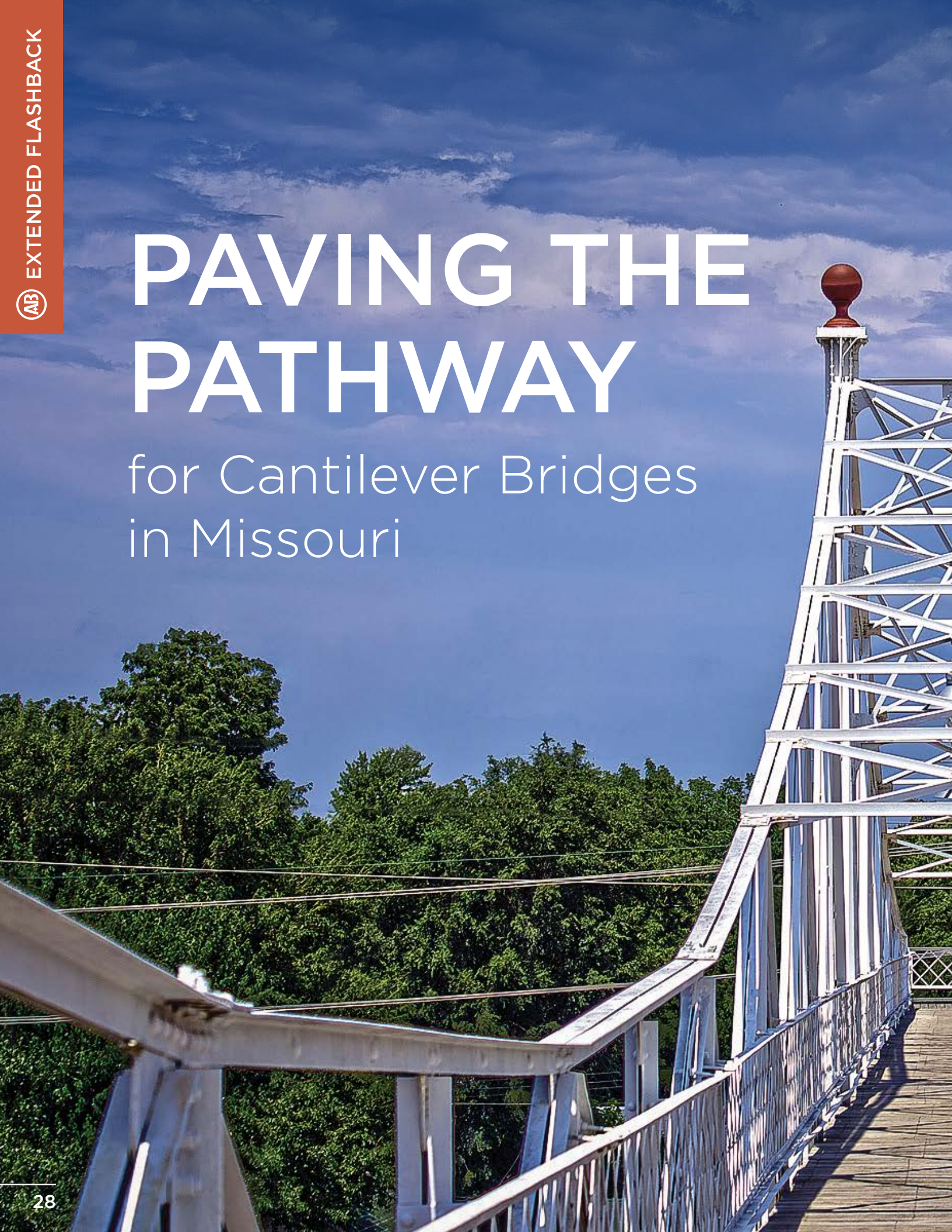
PAVING THE PATHWAY

for Cantilever Bridges in Missouri



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JEFFERSON AVENUE FOOTBRIDGE

Location: Springfield, Missouri

Completion Date: 8/29/1902

AB Order #: unknown

At the outset of the 1900's, the city of Springfield, Missouri had a major dilemma. Residents living north of East Commercial Street, the main business road in town, were separated by sixteen busy and abutting railroad tracks. The tracks created a dangerous crossing and barrier to the St. Louis and San Francisco Railroad (FRISCO), Springfield's largest and best-paying employer at the time. FRISCO threatened to pull their headquarters out of the city if a solution wasn't implemented to the long-standing problem. Soon after, a plan for a pedestrian crossing was born and in 1902 American Bridge Company (AB) completed the Jefferson Avenue Footbridge.

The Jefferson Avenue Footbridge became the first cantilevered bridge built in Missouri. This crossing is a 562-foot structure with an 80-foot-long south approach. The bridge has two towers that rise 50 feet above grade and are adorned with gold-painted decorative spheres. The steel superstructure is about 25 feet above grade, supported on concrete piers and carries a six-foot-wide wooden walking deck. The bridge was built using a through truss system with Warren webbing and is built entirely of angle-irons which were riveted together in pairs for stability. The only structural elements stronger than the angle-irons were contained in the floor's substructure - the most solid part of the design.

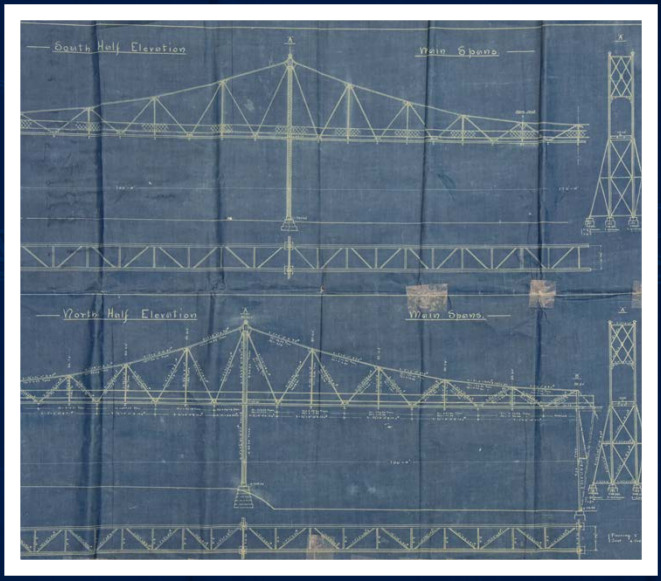
Not only was this Missouri's first cantilevered bridge, it was also the first ever cantilever footbridge–and remains the only known footbridge of this type. Cantilever bridges are typically designed to carry heavy road and rail traffic, but this footbridge only needed to support its own weight, plus pedestrians. So why was this seemingly over-design selected? The project site experiences significant sideways wind forces. To counter the wind, the piers were specially designed with the two outer legs extending downward and outward diagonally from the bridge floor to the ground.

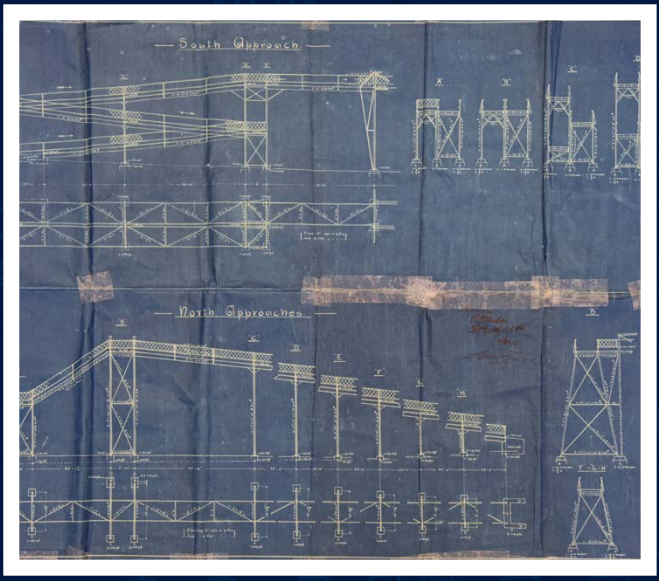
This unique crossing is also the only known cantilevered bridge in Missouri that was not built to span a major river. AB was faced with complex obstacles during design and construction as the structure's piers needed to fit in narrow, 14-foot spaces between tracks to accommodate trains. The solution was four-legged piers where each leg occupied a space that was no more than two feet wide.

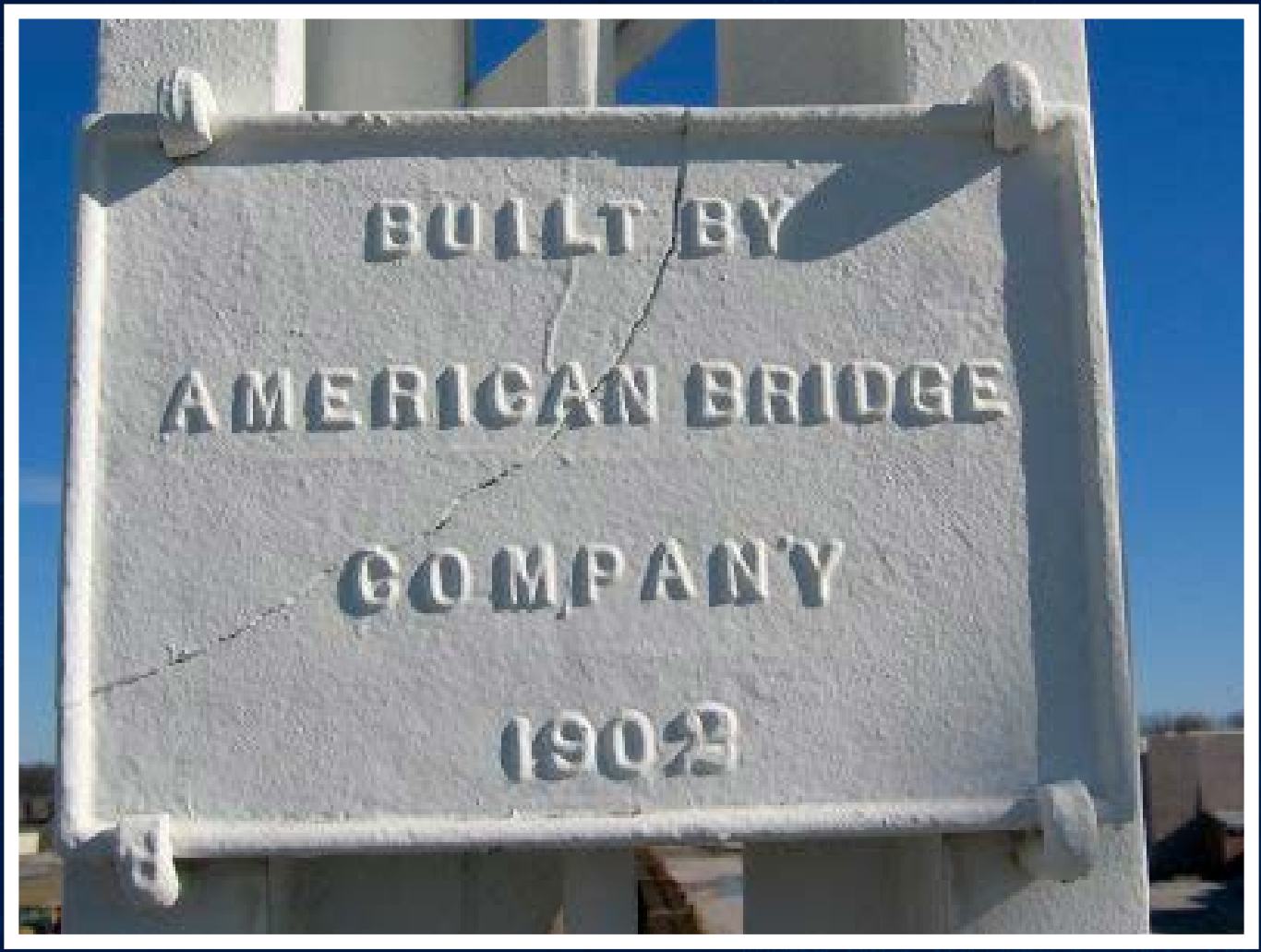
Over time, the bridge has required essential maintenance and repair due to corrosion and deterioration from coal smoke and steam from locomotives passing under the bridge. The most notable aesthetic change to the structure was in 1954 when the access ramps were removed, and the stairs were reconfigured. Then in 1998, the bridge underwent its first major rehabilitation. Angle irons were replaced, and steel angle irons were added to bring the bridge's loading capacity to modern code standards. Major updates included replacement of the bridge deck and four of the pier's concrete footers. The bridge also gained new lighting and was repainted with a white corrosion-resistant paint.

Although the bridge has been refurbished, care was taken to maintain the overall appearance and character of the early 20th century structure. In 1975, the bridge was nominated and listed in the Springfield register of historic sites. It has become such an icon that locals frequently refer to it as "the Eiffel Tower of Springfield."

While the bridge is still standing, it is currently closed to pedestrian traffic. The city hopes to raise funds for a rehabilitation project to continue serving its original purpose in granting residents easy access to East Commercial Street. Tourists and train enthusiasts who come from all over the world hope to be able to continue to visit this unique landmark.


South Half Elevation
Main Spans
North Half Elevation
Main Spans


South Approach
North Approaches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AMERICAN BRIDGE
COMPANY
1909