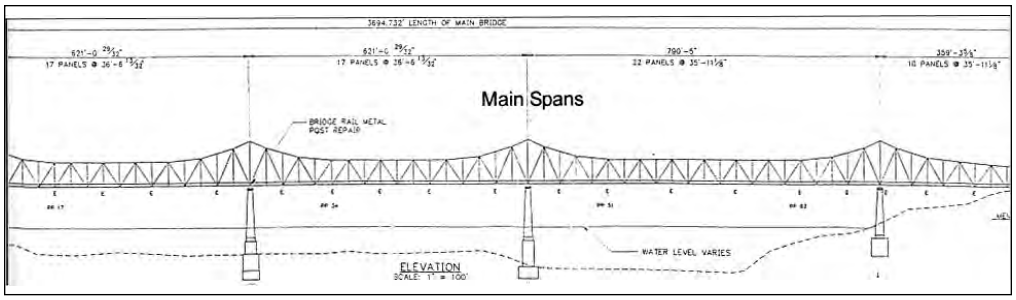
(#155) 79-I055-12.00: The Memphis and Arkansas Bridge spanning the Mississippi River in downtown Memphis on the Tennessee-Arkansas state line, Shelby County (Northwest Memphis Quad, 404 NE).



Significant under Criterion C for its engineering merits.

By the 1930s, the Harahan Bridge (#77, 79-NonHighway-4), the only bridge carrying vehicular traffic across the Mississippi River for abut 170 miles, contained at least five major U.S. routes and served as a significant corridor for vehicular traffic in the southeast. By the 1930s, the bridge carried 11,000 vehicles per day on the two vehicular lanes. Since each lane was cantilevered out from the trusses, the arrangement did not allow passing, such as when vehicles stalled, and the bridge was unable to adequately carry traffic during peak hours. In 1939 prominent Arkansans and Tennesseans formed the Memphis and Arkansas Commission to investigate building a vehicular bridge across the Mississippi River. In 1944, the Arkansas State Highway Commission and the Tennessee Department of Highways and Public Works hired the firm of Modjeski and Masters to supervise construction. Delayed because of World War II and the shortage of building materials, contracts were let between 1945 and 1948 to the Merritt-Chapman and Scott Corporation of New York City, the Harris Structural Steel

Company of New York, and the Virginia Bridge Company of Roanoke. Construction began in August 1945 and the bridge opened to traffic on 17 December 1949 (Mills 2000; Modjeski and Masters 1950). For navigation reasons, the pier placement for this bridge aligns with the Harahan Bridge and the Frisco Bridge (#14, 79-NonHighway-3), which are located immediately to the north (to the right in the photo).

The bridge rests on a substructure of concrete and rock-faced piers with dressed stone blocks. The main channel span is on the Memphis side of the river, on a bluff, and going from Memphis (east) to Arkansas (west), the main bridge span is a five-span continuous Warren through truss with polygonal top chords that is 2,824.7 feet long (spans are 359.2, 790.4, 621, 621, and 433.1 feet long). The next spans are two through Warren with vertical trusses each 435.1 feet long and two deck Warren with vertical trusses 175.8 and 173.6 feet long. The viaduct on the Arkansas end contains nineteen girder spans ranging in length from 35 feet to 87 feet and totaling 1,177.4 feet. The total bridge length is 5,222 feet, and all trusses feature riveted or bolted connections. The curb-to-curb width is 52 feet (four 12-foot traffic lanes plus the concrete barrier median), and the deck out-to-out width is 65 feet. Most members are either channels or beams with oval perforations although some floor lateral bracing is composed of I-beams with lacing. The steel railing reflects a modern design of vertical posts ("picket" design) topped with a 4.5-inch horizontal bar. The bridge contains sidewalks cantilevered outside the trusses. Originally, the bridge contained a low concrete median barrier between opposing lanes of traffic, much like a sidewalk, but this has been replaced with a raised modern concrete barrier. Also, concrete barriers have been placed inside the trusses, adjacent to the traffic lanes.