

**Kansas Avenue over Sand Creek**  
**Kansas Department of Transportation**  
**Harvey County, Kansas**  
Poe & Associates, Inc.

**Construction Cost:** \$630,000

**Completion:** 2010

**Description:** Closed in late 2008 due to a failing foundation, this bridge had been out of service for five months when Poe & Associates was contacted for design services. Due to the compressed A.R.R.A. schedule, we had to take the project from concept to final plans in less than six months. Tasks in the compressed schedule included a geotechnical investigation, lead paint investigation, easement acquisition, utility coordination and permit approval for Dams, Stream Obstructions and Channel Changes with more than one foot of fill in the floodplain. Poe & Associates accomplished each task and the project bid on time. As a result of Poe's efforts, the City of Newton and Harvey County Residents will soon regain unhindered access to Newton's Centennial Park.



The bridge superstructure and substructure were designed to AASHTO Load and Resistance Factor Design, 2007 Edition Specifications. The 54.1 square mile drainage area was analyzed by several methods and a HEC-RAS model was developed for sizing the bridge. The deck slab was designed with three-bar and four-bar reinforcing steel patterns to maximize efficiency. The substructure was designed per L.R.F.D. specifications as H-piles bearing on bedrock. The bridge is skewed 45 degrees and special attention was given to the barrier wall connection to the guard rail so as to avoid conflicts with the posts.

**Project Team:** Paul Ferguson, PE (Project Manager)

**Reference:** Ed Thornton, PE, Bridge Engineer  
Kansas Department of Transportation  
Dwight D. Eisenhower State Office Building  
700 S.W. Harrison Street  
Topeka, KS 66603

