

FOX RIVER DRIVE OVER BIG ROCK CREEK KENDALL COUNTY HIGHWAY DEPARTMENT



CHALLENGE

The Kendall County Highway Department needed to improve this crossing due to frequent inundation of the roadway from flood flows. The existing structure was undersized and would back floodwater on the roadway.

The bridge was too narrow with no shoulder. This had become a safety hazard due to increased traffic over the years of development in the adjacent city of Plano. The stream also has an active migrating channel. The channel was eroding the foundation material at the bridge.

RESULTS

The project was completed and opened to traffic in Summer 2008. The bridge has already withstood high frequency flooding with no erosive soil problems.

CONSTRUCTION COST
\$2,099,000

SOLUTION

HLR designed a new two-span composite steel I-beam bridge to accommodate the entire flood flow without backwater on the roadway. The profile grade was set well above flooding levels. To accommodate channel migration, the new bridge was centered on the stream and banks were protected with stone riprap. Erosive flow velocities were diminished to normal levels that will not damage the bridge foundations and streambed. Streambed scour was mitigated by providing adequate opening to reduce erosive flow velocity.

The structural foundations consist of steel piling driven to bedrock to withstand any instability due to streambank scour.

HLR's engineering services included field survey, right-of-way survey, preliminary bridge design, preparation of a hydraulic report, bridge condition report, Project Development Report, final structure and roadway plans and specifications, and shop drawing review.

To gain approval for the project, HLR coordinated with regulatory and permitting agencies including:

- Illinois Department of Transportation
- U.S. Army Corps of Engineers
- Illinois Department of Natural Resources – Office of Water Resources
- Illinois Environmental Protection Agency

Both the general public and the Kendall County Highway Department have benefited from the elimination of a safety hazard of water on pavement during flood events and mitigation of the partial risk of a critical bridge failure due to scour. The bridge is now properly aligned to accommodate ongoing channel migration. This will reduce maintenance problems from debris collecting at the bridge.

