



1996 MERIT BRIDGE AWARD: MEDIUM SPAN THE BOB MICHEL BRIDGE



THE COMBINATION OF LINEARLY TAPERED GIRDERS WITH AESTHETIC PROPORTIONING OF THE PIERS on the new Bob Michel Bridge created an attractive and economical crossing of the Illinois River between East Peoria and Peoria. The new four-lane bridge replaces an older, troubled two-lane drawbridge that was not only inadequate to handle the existing traffic flow, but also impeded the river's navigational channel.

Due to the highly visible nature of the bridge aesthetics were extremely important. Tied arch, segmental concrete and composite plate girder bridge designs were all considered. The option selected featured three-span, continuous composite plate girder spans of 270', 360' and 270' with bulb-tee prestressed concrete beams for the approach structure. The 2,382'-long bridge has four lanes of traffic and includes wide shoulders for bicycle traffic and two 5' sidewalks. With a vertical navigational clearance of 64', the bridge approach grade is slightly steeper on the East Peoria side and has a high point of 79' over the Illinois River. The new bridge also represents a 300'-wide opening to navigation, compared to the previous bridge's 120' opening.

A major objective in the design was to minimize the approach grades to the bridge. This was accomplished by haunching the main span plate girders so that the required clearance would be achieved at the edge of the proposed navigation channel.

The approach girders required a shallower depth than the main spans, due to their shorter lengths. In addition, at the time of the design and erection of the main spans, it was unknown whether the approaches would be steel or concrete. To accommodate either material in an aesthetic fashion, a linear taper was provided to the side spans starting at the end of the parabolic haunch in the steel girders and ending at the union of the main bridge plate girders with the approach spans. This allowed

Project Data

**Steel
wt./sq. ft.
of deck:
74 lbs.**

**Cost:
\$40
million**

**Steel
Tonnage:
2,540**



the depth transition to be made without “stepping” the piers at the ends of the side spans. In order to match the depth of the approach beams, the depth of the haunched girder varied linearly from approximately 12’ in depth—just beyond the parabolic haunch over the main piers—to 6’ at the end of the pier.

Eliminating the “step” effect on the pier caps resulted in a very graceful design.

Judges Comments:

*“Solves a problem
in a clean,
permanent way”*

Project Team

Designer:

**Steinman Boynton
Gronquist & Birdsall
Chicago ***

**General Contractor &
Erector:
Midwest Foundation
Corporation
Tremont, IL**

Fabricator:

**PDM Bridge (Phoenix
Steel)
Eau Claire, WI ***

Owner:

**Illinois Department of
Transportation**

**Please note
that red text
denotes an
AISC member*