

October 14, 2005



Dr. Richard Pain, Safety Coordinator
Transportation Research Board
2101 Constitution Avenue
Washington, D.C. 20418

Dear Dr. Pain,

The following is the Abstract as you have requested:

A Tandem Effort: Balancing Architectural Desires with Structural Needs

Written by Michael Mundy, Bridge Designer and Sr. Technical Artist, HNTB Corporation

Faced with the challenge of replacing an existing multiple span art-deco arch bridge, the City of Columbus, Ohio decided against a replication of the existing bridge in favor of constructing a new long-span signature arch bridge that would become a symbol for the City. Consisting of a single-ribbed arch inclined at a 10-degree angle, the Main Street Bridge Replacement will gracefully span 660 feet across the Sciota River and will provide the final link between new parks and promenades being developed on both banks. The design separates pedestrians from vehicle traffic with an intriguing split of the decks at mid-span. The pedestrian experience is further enhanced by the intriguing geometry of the bridge as well as the spectacular views of the river below as observed through the deck opening.

This paper will focus on the manner in which 3d visualization was used to help engineers comprehend the fabrication challenges of building such a unique structure and will demonstrate how both the modeler and the engineer worked in tandem to achieve a structural design that would be both constructible and economical. Dozens of conflicts that were not readily visible in section and elevation drawings became apparent when the actual connections of steel, cable and concrete were considered in fine detail. Use of 3d visualization proved invaluable throughout both the initial and final redesign of a signature bridge that would still meet the aesthetic desires of the client.

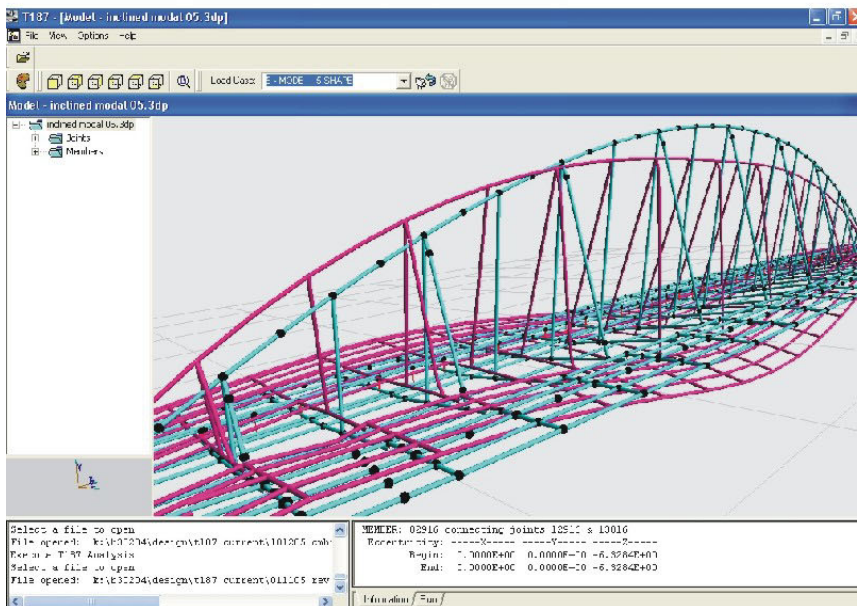
The software we used included 3d Studio Max, AutoCAD, T187, GT-Strudl and Excel.

Sincerely,
HNTB Corporation

Michael S. Mundy
Bridge Designer
Sr. Technical Illustrator

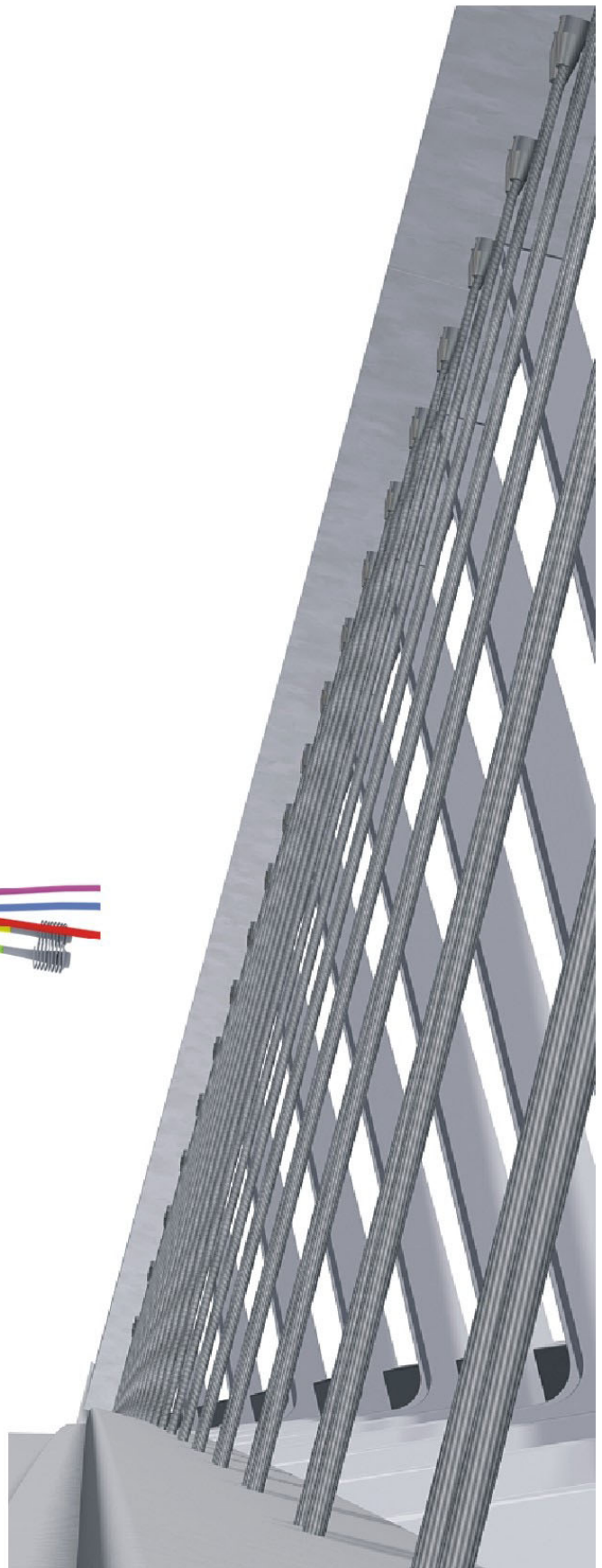
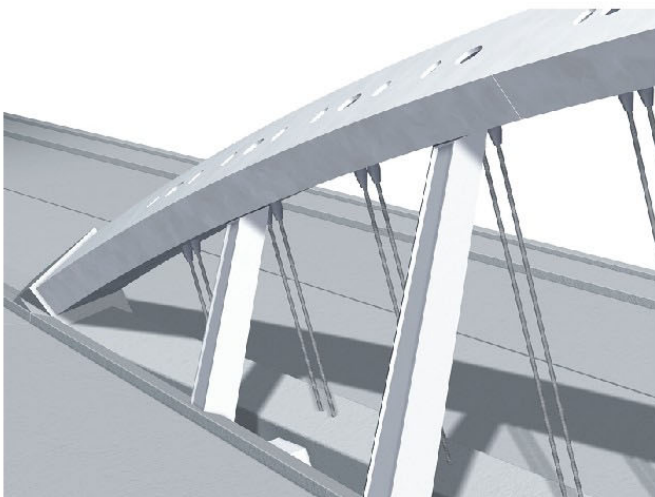
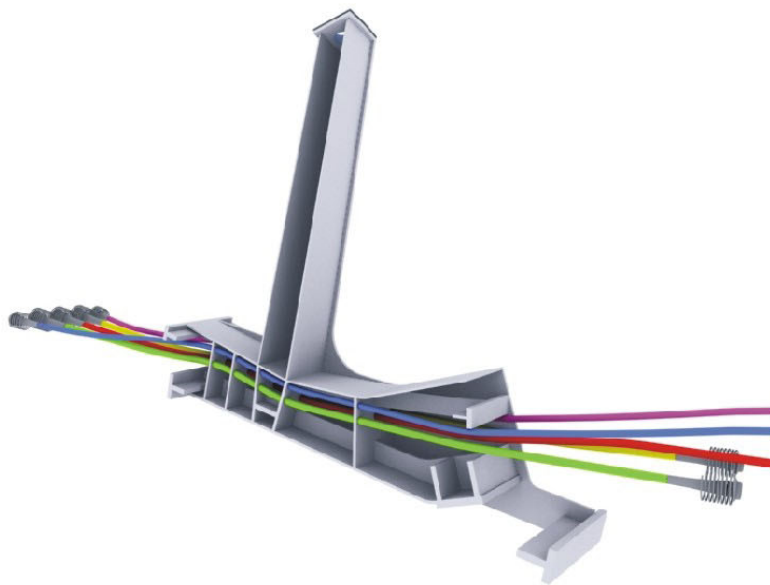
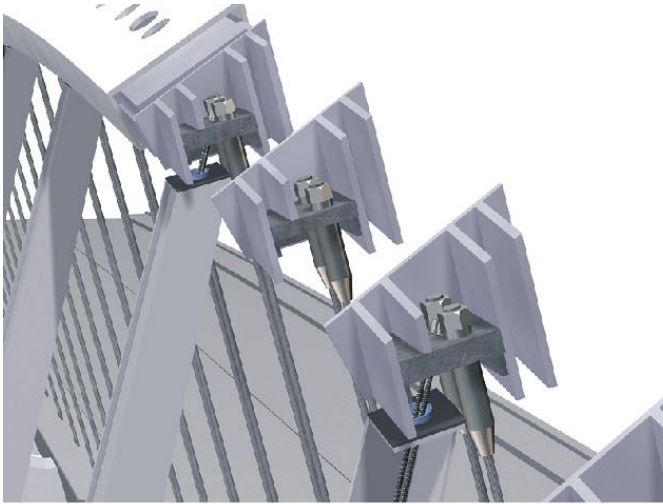
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