

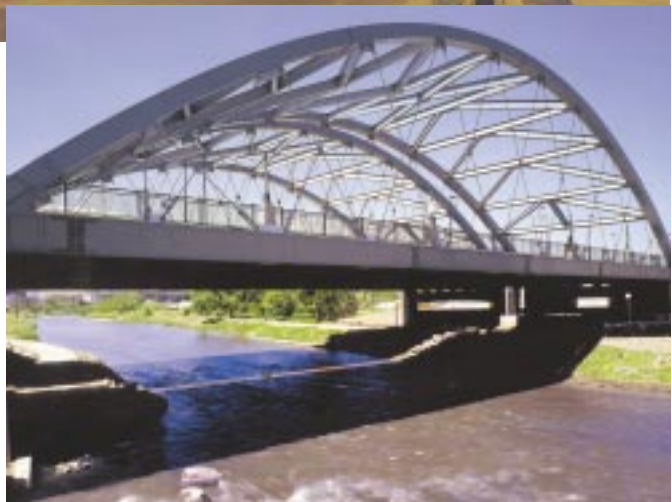
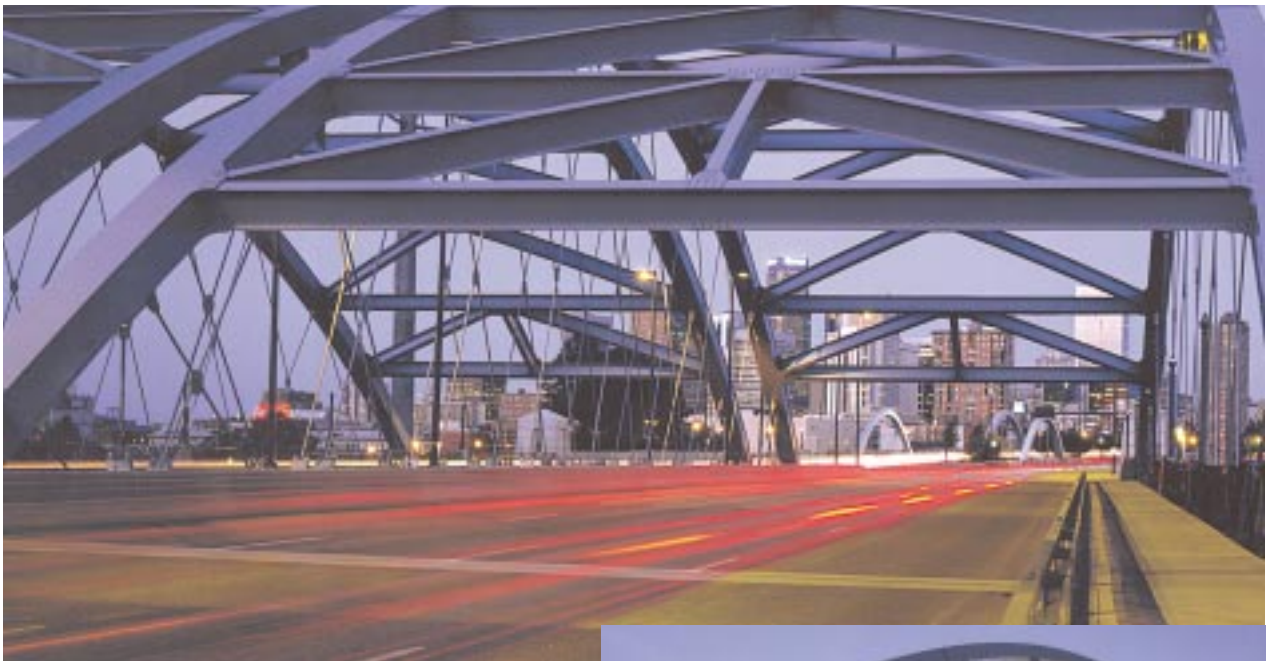
NATIONAL STEEL BRIDGE ALLIANCE

2001 Prize Bridge Award

merit award: MEDIUM LONG SPAN

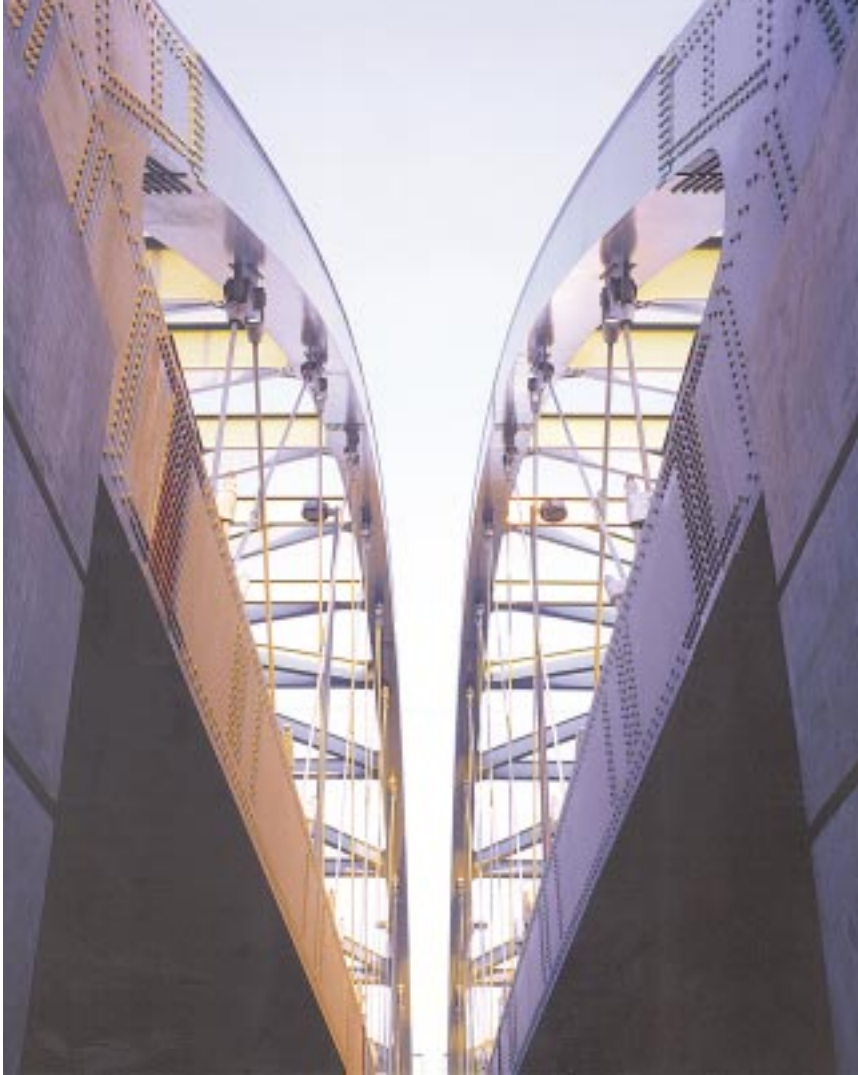
# Speer Boulevard Bridge

Over the South Platte River,  
Denver, CO



In the 1980s, the City of Denver undertook to revitalize the “Central Platte Valley,” an area of former railroad and industrial uses, which have separated the City’s downtown from the South Platte River, Interstate Highway 25, and its northwest neighborhoods. A key component of the Central Platte Valley Plan was the reconstruction of the “Valley’s” aging transportation infrastructure. Speer Boulevard is a major arterial roadway within the Central Platte Valley and the primary entrance to Denver from the Northwest.

A key element of Speer Boulevard reconstruction was the replacement of twin 400’ long multiple-span steel beam bridges over the South Platte River. The twin replacement structures include 253’- 6” steel tied-arch main spans in a unique configuration with flanking beam approach spans. The project posed challenges unique to its urban setting, which included limited working space at a site surrounded by city parks, the need to maintain highway, pedestrian, river and trolley traffic at the site during construction, the



**Owner**

City and County of Denver, Denver, CO

**Structural Engineer**

BRW, Inc., Denver, CO

**Steel Fabricator**

Central Denver Ironworks, Inc., Denver, CO  
(AISC member)

**General Contractor**

Edward Kraemer & Sons, Inc., Castle Rock, CO

**Consultant**

Zimmer Gunsul Frasca Partnership, Portland, OR

**Software**

SAP2000 Plus, STAAD

need to accommodate utilities, work with very limited structure depth, minimize the clutter of multiple substructures and create a downtown “gateway” architectural design within a limited budget.

### Concept Design and Structure Type Selection Process

The selection of the tied-arch bridge type was made following a thorough evaluation of a range of feasible alternative bridge types which included beam bridges, through and deck arches, trusses, and a cable stayed option. The tied-arch design was judged to best satisfy the adopted project goals and selection criteria, which included:

- Having a shallow structure depth, similar to that of the existing bridges, to minimize approach roadway reconstruction and to maintain required minimum vertical clearances over a street and historic trolley tracks;
  - Being constructable under heavy traffic conditions within a constricted site surrounded by parkland;



- Eliminating piers within the riverway and minimizing the overall number of substructures.
- Being constructable within the available budget;
- Providing a gateway architectural statement in harmony with the site.