

NATIONAL STEEL BRIDGE ALLIANCE

2001 Prize Bridge Award

merit award: MEDIUM SPAN

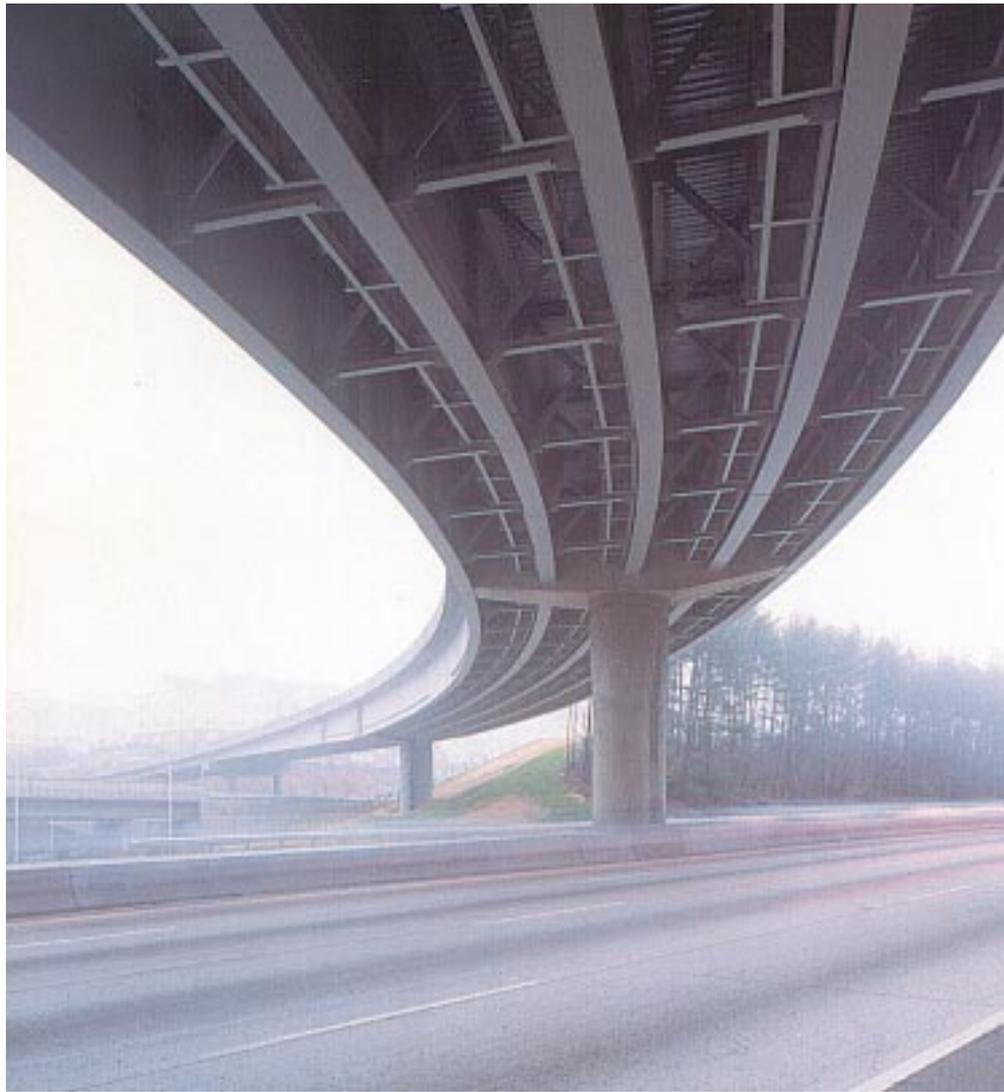
GA 400 Flyover Ramp

MARTA North Springs Station,
Atlanta, GA

Opened to traffic in late 2000, the new North Springs Station Flyover Ramp provides direct access to MARTA's North Line for Atlanta area commuters living in the northern suburbs. This direct connectivity between transit and highway modes of transportation is an essential component in the Atlanta area's long-range plan to encourage utilization of transit and increase air quality. With this in mind, the design of the dedicated station access facility focused on creating an efficient, aesthetic, convenient and safe roadway and bridge system that would draw users to the transit linkage.

Dimensionally, the first 1,648.95' (502.6m) of the access ramp is constructed on retained fill using mechanically stabilized earth wall units perched on a 2:1 embankment. The finish of the precast panels facing the residential areas was made to resemble cobblestone walls at the request of a local citizens group. In addition, extensive sound walls were constructed on the ramp to mitigate the noise of buses that frequent the MARTA facility.

Near the flyover section, the ramp transitions from a single deceleration lane to two lanes on the curved steel portion of the bridge, providing separation of bus and parking deck vehicular traffic. The bridge was designed to not only span the current GA 400 traffic and MARTA trackway but also allow for the construction of future collector-distributor (CD) lanes as well. The 6% maximum, super-elevated roadway



cross section allows a smooth ride around the 468.17' (142.7m) radius curved bridge.

The bridge superstructure is comprised of five parallel steel girders with web depths transitioning from 5' to 9' to 3.28', (1.524m, 2.743m, 0.838m) based on span requirements and econ-

omy. A single girder hinge location inconspicuously dissipates super-structure stresses of the otherwise continuous bridge. Due to roadway clearance concerns, pier caps were cast integrally within the depth of the girders and post-tensioned through the webs for support. Structural rotation at

the piers is provided for at the top of the lozenge shaped columns using a key and hinge connection. All steel was painted to match the color of the concrete to increase the transparency of the design and enhance the fluidity of the structure from end to end. The foundations consist of both pile and drilled shaft depending on the localized soil conditions.

In addition to the structural continuity and elimination of all but one deck joint, the serviceability of the bridge is enhanced by the use of a corrosion inhibiting admixture in the deck slab, galvanized reinforcing in the barrier rail and inspection platforms along each girder spanning over the highway portion of the bridge.

Owner

Metropolitan Atlanta Rapid Transit Authority (MARTA), Atlanta, GA

Structural Engineer

HNTB Corporation, Atlanta, GA

Steel Fabricator

Carolina Steel Corporation, Montgomery, AL (AISC member)

Steel Detailer

Carolina Steel Corporation, Montgomery, AL (AISC member)

General Contractor

PCL Civil Constructors, Marietta, GA

Software

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