STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

MEMORANDUM TO: Project Engineers
Project Design Engineers

FROM: G. R. Perfetti, P. E.
State Bridge Design Engineer

DATE: September 23, 2011

SUBJECT: Distribution Factors and Methods of Analysis

The following interpretations of the *AASHTO LRFD Design Specifications* will be revised and/or added to the Design Manual.

Section 2.3.6 -- Article 4.6.2.2 Beam Slab Bridges

Regardless of the method of analysis used, design the exterior beams and stringers to have at least as much factored resistance as interior beams.

The typical cross-section for cored slab and box beam bridges are to be considered type (g) as shown in Table 4.6.2.2.1-1. Compute moment and shear distribution factors as if the units are connected only enough to prevent relative vertical displacement at the interface, but not sufficiently to act as a unit.

Section 2.3.7 -- Article 4.6.3 Methods of Analysis

The traditional AASHTO approach to bridge structural analysis employs distribution factors to account for distribution of wheel loads to the bridge girders. When other approximate or refined methods of analysis are used, provide sufficient information on the bridge analysis to aid in future analyses for permit issuance and bridge rating. This information should include, but is not limited to a table of live load distribution factors for design force effects in each span.

If the method of structural analysis employs transformed material section properties, provide tables of girder section properties (e.g. non-composite and composite) and structural resistances (e.g. flexural and shear) for all analysis points along the length of the girder. Also note any assumptions regarding boundary conditions.

These interpretations are effective immediately.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
STRUCTURE DESIGN
1581 MAIL SERVICE CENTER
RALEIGH NC 27699-1581

TELEPHONE: 919-707-6400
FAX: 919-250-4082
WEBSITE: WWW.NCDOT.ORG

LOCATION:
CENTURY CENTER COMPLEX
BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

GRP/GM

cc: T. K. Koch, P. E.
R. A. Raynor, Jr., P. E.
D. D. Holderman, P. E.
R. D. Rochelle, P. E.
E. Dubin, P. E., FHWA