INDIANA DEPARTMENT OF TRANSPORTATION
Driving Indiana's Economic Growth

Bridge Inspection Memorandum No. 26-03
Railroad Flat Car Superstructure NSTM requirements

February 27, 2026

TO: **All Inspection Personnel and Consultants**

FROM: ***/s/ Anthony Marino SPM***
Anthony Marino, P.E.
Bridge Inspection State Program Manager
Bridge Management Division

SUBJECT: **Railroad Flat Car Superstructure NSTM requirements**

REVISION: **INDOT Bridge Inspection Manual Part 5**

EFFECTIVE: **Immediately**

Railroad Flat Car (RRFC) bridge superstructures shall be considered to be Nonredundant Steel Tension Members (NSTMs) unless the bridge meets all of the following requirements:

1. The RRFC bridge superstructure consists of no less than two (2) individual railroad flat cars supporting a single bridge deck.

2. The bridge deck is cast-in-place reinforced concrete construction where SNBI Item B.SP.09 (Deck Material and Type) is coded C01 = Reinforced concrete – cast-in-place.

3. The interaction between the cast-in-place reinforced concrete and the RRFC superstructure has composite action, and SNBI Item B.SP.08 (Deck Interaction) is coded either CS = Composite – shored construction or CU = Composite – unshored construction.

NSTM Inspection requirements may be removed if the bridge owner, or through the bridge owner's responsible engineering consulting firm/organization, submits such a request in writing via email to the INDOT Bridge Inspection State Program Manager along with the following documentation:

1. A Refined Analysis done in accordance with AASHTO specifications, signed and sealed by a licensed Indiana Professional Engineer, demonstrating quantitatively that the RRFC superstructure has load path redundancy.

Additional references:

Development of Guidelines for the Rating, Inspection, and Acquisition of Railroad Flatcars for Use as Highway Bridges on Low-Volume Roads, Connor, Provines.

Laboratory Testing of Railroad Flatcars for Use as Highway Bridges on Low-Volume Roads to Determine Ultimate Strength and Redundancy, Connor, Lloyd, Washeleski.

Development of Load Rating Procedures for Railroad Flatcars for Use as Highway Bridges Based on Experimental and Numerical Studies - Phase III Final Report, Sener, Washeleski, Connor.