

New Jersey Turnpike Authority

PO Box 5042, Woodbridge, NJ 07095



Document Change Announcement

2007 Design Manual

DCA2012-DM-03

DATE: August 15, 2012

Subject: Revision to Design Manual Section 2.2.2 Deflection Criteria

Description of Change

Deflection design criteria updated to better reflect AASHTO intent and disconnect live load model usage from recently revised and increased design live loads.

Instructions to Designers and Consultants

Effective immediately, the revisions contained in this announcement shall be applied to all projects where bridge design has not commenced. Contact your NJTA Project Manager for instructions. Attached revision is noted in italics.

Designers may access these revisions in the NJTA Design Manual, which is available on the Authority's Web Page: <http://www.state.nj.us/turnpike/professional-services.html>.

Information for In-House Staff

The revisions have been incorporated into the Design Manual, which is available on the S drive @ S:\Project Files\Design-Procedure Manual. Please distribute the information to your respective Project Managers and have them direct their consultants appropriately.

Recommended By:

A handwritten signature in black ink, appearing to read 'R. Fischer', written over a horizontal line.

Robert J. Fischer, P.E.
Assistant Chief Engineer, Design

Approved By:

A handwritten signature in black ink, appearing to read 'R. Radzynski', with the date '8/22/12' written to the right, written over a horizontal line.

Richard J. Radzynski, P.E.
Chief Engineer

cc: Senior Staff Engineering, Operations & Maintenance Departments, All Prequalified Consultant Firms, File

New Jersey Turnpike Authority

DOCUMENT UPDATE REQUEST

Forward to Assistant Chief Engineer, Design

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|-----------|------------------|----------------|--------------|
| Initiator | Rich Schaefer | Submittal Date | 08.13.12 |
| Firm | HNTB Corporation | Telephone | 973-237-1650 |

Document (check one)

- Procedures Manual
- Design Manual
- Sample Plans
- Standard Drawings
- Standard Specifications

Description of Change

Delete the first paragraph of Section 2.2.2 – 2.5.2.6.2 and replace with the following:

2.5.2.6.2 Criteria for Deflection (AASHTO)

The following principles shall apply to deflections:

- When investigating the maximum absolute deflection in tangent bridges, all design lanes should be loaded and all supporting components should be assumed to deflect equally.
- When investigating the maximum absolute deflection in bridges with horizontally curved girders, all design lanes should be loaded and supporting components will deflect unequally. The deflection limit is applied to each individual girder.
- When investigating maximum absolute deflection in transverse members such as steel box beam pier caps, all design lanes should be loaded.
- The live load factors of Load Combination Service I of Table 3.4.1-1 should be used, including the dynamic load allowance, IM.
- The live load shall be taken from Article 3.6.1.3.2 and shall not be increased to reflect modified HL-93 live loading as described in Section 2.2.2 of this design manual, modifications to AASHTO Section 3.6.
- The live load multiple presence provisions of Article 3.6.1.1.2 shall apply.

Deflections of all Turnpike and Parkway bridges shall conform to the following:

- Vehicular load, (longitudinal and transverse members)..... Span / 800
- Vehicular load on cantilever arms..... Span / 400

The following additional criteria shall also be followed:

- The gross composite section properties in both the negative and positive moment regions of the span shall be used when calculating live load deflections (i.e. uncracked deck slab in negative moment region).
- The span length shall be defined as the distance between supports.

The deflections of bridges carrying State Highways shall be checked in accordance with the current policy of the New Jersey Department of Transportation.

Reason for Change

Deflection design criteria updated to better reflect AASHTO intent and disconnect live load model usage from recently revised and increased design live loads.