FDOT

Florida Department of Transportation

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ROADWAY DESIGN BULLETIN 14-03
STRUCTURES DESIGN BULLETIN 14-04

(FHWA Approved: February 13, 2014)

DATE: February 13, 2014

TO: District Directors of Transportation Operations, District Directors of Transportation Development, District Design Engineers, District Construction Engineers, District Geotechnical Engineers, District Structures Design Engineers

FROM: Michael Shepard, P. E., State Roadway Design Engineer
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SUBJECT: Pedestrian Railing Revisions

REQUIREMENTS

Replace ***Plans Preparation Manual, Volume 1, Section 25.4.24.3*** with the following:

25.4.24.3 Bridge Railing

Bridge mounted traffic and pedestrian railings must meet or exceed the requirements specified in the ***Structures Design Guidelines***, Sections 6.7 and 6.8, respectively, except for the cases herein noted. In addition, FDOT is moving towards full implementation of ***MASH*** crash test criteria for bridge traffic railing. FDOT policy is to bring all bridge traffic and pedestrian railings to current standards on bridges that are being widened or rehabilitated and to evaluate them for possible replacement or retrofitting on RRR projects. Bridge traffic and pedestrian railings are required to be evaluated for conformance to current criteria and standards whenever any improvements are made to any bridge or its approach roadway.

An existing structurally continuous narrow or recessed curb post-and-beam bridge traffic railing within a RRR project may be left in place when the following three criteria are met: (1) there is no structural work being performed on the bridge, (2) there are no changes in the existing approach

roadway alignment or cross section, and (3) there is no crash record or evidence of impact into the bridge traffic railing. Evaluate the need to retrofit these railings for compliance with pedestrian railing criteria on a case by case basis and retrofit as necessary. See ***Instructions for Design Standards, Index 404*** for details of structurally continuous narrow and recessed curb post-and-beam bridge traffic railings.

An existing structurally continuous wide curb post-and-beam bridge traffic railing within a RRR project may be left in place if the above three criteria are met and the Design Speed is less than or equal to 45 MPH. See ***Instructions for Design Standards, Index 405*** for details of structurally continuous wide curb post-and-beam bridge traffic railings.

Design Standards, Index 477, or ***Design Standards, Index 470*** and ***480 Series***, (used in conjunction with ***Design Standards, Index 402***), may be used to retrofit existing obsolete structurally continuous post-and-beam bridge traffic railings and approach guardrail transitions when the bridge traffic railing does not meet the criteria listed in the preceding paragraphs. See ***Instructions for Design Standards, Index 477*** for details of obsolete structurally continuous post and beam traffic railings. See also ***Instructions for Design Standards, Indexes 470*** and ***480 Series*** for additional information.

All other existing obsolete bridge traffic railings within a RRR project must be brought up to current standards, or a Design Variation must be obtained for the project, providing that railing replacement or retrofit, or entire bridge replacement, is scheduled within a reasonable time.

For guardrail to bridge rail transition requirements, whether bridge traffic railing is retrofitted or not, see ***Section 25.4.25.2.***

The Thrie Beam Guardrail Retrofit and Vertical Face Retrofit ***Design Standards, Index 470*** and ***480*** Series respectively, are suitable for retrofitting specific types of obsolete bridge traffic railings. These retrofits provide a more economical solution for upgrading obsolete traffic railings when compared with replacing the obsolete traffic railings and portions of the bridge decks that support them. As these retrofits do not provide for any increase in clear width of bridge deck, and in a few cases actually decrease clear width slightly, they should only be considered for use on existing bridges where adequate lane and shoulder widths are present. Detailed guidance and instructions on the use of these retrofits is included in the ***Instructions for Design Standards, Index 470*** and ***480 Series***.

All superseded FDOT Standard Traffic Railings conforming to the designs shown in ***Instructions for Design Standards, Index 402***, "A Historical Compilation of Superseded Florida Department of Transportation "Structures Standard Drawings" for "F" and "New Jersey" Shape Structure Mounted Traffic Railings", are both structurally and functionally adequate.

Existing bridge traffic railing retrofits constructed in accordance with ***1987*** through ***2000 Roadway and Traffic Design Standards, Index 401, Scheme 16, "Guardrail Continuous Across Bridge"*** may be left in place provided the following four criteria are met:

1. The retrofit railing is in good condition.
2. There is not a history of severe crashes at the site.
3. The bridge is not on an Interstate or a high-speed-limited-access facility.
4. The dimension from the center of the W-beam guardrail to the roadway surface is at least 1'-9" (1" tolerance acceptable).

Existing bridge traffic railing retrofits constructed in accordance with ***1987*** through ***2000 Roadway and Traffic Design Standards, Index 401, Schemes 1 and 19 "Concrete Safety Barrier"*** may be left in place provided the height of the railing is at least 2'-5" measured from the roadway surface.

All other former FDOT bridge traffic railings not listed above and any other traffic railings that are not based on crash tested designs are inadequate and shall be replaced, retrofitted or receive a Design Variation, as appropriate, using the criteria included in the ***Structures Design Guidelines***.

Remove existing fences other than those in compliance with ***Design Standards, Indexes 810*** or ***812***, and existing pedestrian railings, that are mounted on existing traffic railings located between the shoulder and the sidewalk, a.k.a. "inboard" traffic railings. If there is a documented issue of traffic incidents involving pedestrians at the site before installation of the existing pedestrian railing or fence on the inboard traffic railing that would likely reoccur if the pedestrian railing or fence were to be removed, replace or retrofit the existing installation rather than completely removing it. Use ***Design Standards, Indexes 810*** or ***812***, or another crashworthy pedestrian railing or fence that is compatible with the traffic railing, as appropriate. Retrofit existing bullet-type railings that are to remain on inboard traffic railings and that do not have the bullet railing member(s) oriented towards the traffic side of the railing so as to match ***Design Standards, Index 821***.

Retrofit existing installations of ***Design Standards, Index 821***, and other similar bullet-type railings, to include rail splice assemblies and tapered end transitions as shown on ***Design Standards, Index 822*** if they are not present. Retrofit the ends of other existing crashworthy traffic railing mounted pedestrian railings to include a similar tapered end transition, or other appropriate approach end transition, if one is not present.

Remove existing non-crashworthy pedestrian railings and fences that are not mounted on existing traffic railings if they are located within the horizontal clearance as defined in the Horizontal Clearance to Other Roadside Obstacles, ***Section 2.11***, ***Table 2.11.9***, unless there is a documented issue of traffic incidents involving pedestrians at the site before installation of the existing pedestrian railing or fence that would likely reoccur if it were to be removed.

Guardrail to bridge rail transition details must be considered. For requirements, see ***Section 25.4.25.2.***

BACKGROUND

This bulletin is necessary to address pedestrian railings on existing bridges for the following conditions:

- Bridges with existing continuous post and beam traffic railings that met the three criteria currently in the second paragraph of ***Section 25.4.24.3*** and are not being retrofitted as traffic railings.
- Bullet-type railings, pedestrian railings and fences that have been installed incorrectly on traffic railings located between the shoulder and the sidewalk.
- Old bullet railings that do not have crashworthy end treatments and/or rail splices.
- Other non-crashworthy and non-traffic railing mounted pedestrian railings not in compliance with the horizontal clearance requirements in ***Table 2.11.9, Horizontal Clearance to Other Roadside Obstacles***.

IMPLEMENTATION

These changes are effective on all applicable projects still in the design phase where implementation will not adversely impact production schedules.

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