New Jersey Department of Transportation
1035 Parkway Avenue, PO Box 600, Trenton, New Jersey 08625-0600

Baseline Document Change Announcement

NJDOT Design Manual – Roadway (English)

BDC10MR-01

October 13, 2010

SUBJECT: **Revisions to Section 8, Guidelines for Guide Rail Design and Median Barriers**

REFERENCE: **1. BDC10S-02, 2007 *Standard Specifications*, revision to Section 608, dated October 14, 2010**

AASHTO has issued an updated policy on Roadside Design Guide. The Department has adopted this 2006 policy for the design of projects. As a result, Section 8 of the 2001 *Design Manual-Roadway* is revised accordingly. The remaining sections of the Design Manual are undergoing revisions and will be issued as they become available.

Replace the current Section 8 with the attached revised Section 8.

A summary of major revisions is as follows.

- **Section 8, Guidelines for Guide Rail Design and Median Barriers**
  Section 8 has been reformatted. Numbering of subsections has been revised and references to figure numbers revised when applicable. Reference to slotted and extruder guide rail terminals changed to flared and tangent terminals in all applicable subsections.
- **Subsection 8.2.2. How Warrants are Determined**
  The last sentence is revised.
- **Subsection 8.2.4.B.1.b, Trees**
  Revised to provide guidance for location of new plantings, Table 8-2 is added.
- **Subsection 8.2.4.B.2, Utility Poles**
  Revised to include information on utility poles in recovery area.
- **Subsection 8.3.1.A.3, Without Curb or Raised Berm in Front of Guide Rail**
  6 ft. flat area revised to 5 ft. flat area.
- **Subsection 8.3.1.B.1, Highways with a Posted Speed of More than 40 MPH**
  Information on retaining existing guide rail added. 6 ft. flat area revised to 5 ft. flat area.
- **Subsection 8.3.1.B.2, Highways with a Posted Speed of 40 MPH or Less**
  Information on retaining existing guide rail added.
- **Subsection 8.3.2.A., Flared Guide Rail Terminals**

Superseded

Title of subsection revised. References to slotted guide rail terminals and parabolic flare deleted. Discussion on clear zone for opposing traffic on horizontal curve within passing zones on two lane highways added. Need to provide a roadside recovery area added.

- **Subsection 8.3.2.B., Tangent Guide Rail Terminals**

  Title of subsection revised. References to slotted guide rail terminals, extruder terminals and parabolic flare deleted. Length of tangent terminal deleted. Need to provide a roadside recovery area added.

- **Subsection 8.3.2.C.1, Beam Guide Rail Anchorages**

  Discussion on in-line anchorage in cut sections deleted.

- **Subsection 8.3.2.D.2, Telescoping Guide Rail End Terminals**

  Leveling pad required for cross slope greater than 8 percent added.

- **Subsection 8.3.2.F, Buried Guide Rail Terminal**

  New subsection.

- **Subsection 8.3.2.G, Existing Slotted Rail Terminals (SRT), Breakaway Cable Terminals (BCT), and Eccentric Loader Terminals (ELT)**

  Slotted Rail Terminal (SRT) added to list of existing terminals.

- **Subsection 8.3.3, Roadside Recovery Area**

  New subsection.

- **Subsection 8.4, Median Barriers**

  Entire subsection has been revised.

- **Subsection 8.5, Diversion Roads**

  New subsection.

- **Figure 8-A, Clear Zone**

  Clear zone values revised for 45-50 mph (6:1 or flatter), and design ADT's revised.

- **Figure 8-B, Clear Zone Examples**

  Reference to AASHTO Design Guide deleted in 3rd example.

- **Figure 8-C, Horizontal Curve Adjustments for Clear Zone**

  No change.

- **Figure 8-D, Roadside Recovery Area at Flared and Tangent Terminals**

  New figure.

- **Figure 8-E, Approach Length of Need on Embankment (Fill) Slope**

  Reference to SRT, parabolic flare, and extruder terminal deleted, formula to determine LON revised, and minimum functional lengths in Table 2 revised.

- **Figure 8-F Grading Treatment at Flared and Tangent Terminals**

  New figure.

- **Figure 8-G, Example of Approach Length of Need on Embankment Slopes**

  Old Figure 8-F, reference to SRT and parabolic flare deleted, and formula to determine LON revised.

- **Figure 8-H, Guide Rail Treatment for Critical Embankment Slopes**

  Old Figure 8-G, dimensions for grading deleted, sections and CD numbers revised.

- **Figure 8-I, Approach Length of Need Opposing Traffic on Embankment (Fill) Slopes**

  Old Figure 8-H, CD numbers revised and reference to SRT and parabolic flare deleted.

Superseded

- **Figure 8-J, Obstruction in Median Approach End Treatment**
  Old Figure 8-I, Note D added.
- **Figure 8-K, Obstruction in Median Approach End Treatment**
  New figure.
- **Figure 8-L, Concrete Pad**
  New figure.
- **Figure 8-M, Approach Length of Need in Cut Sections**
  Old Figure 8-J, formula for L1 revised.
- **Figure 8-N, Guide Rail Treatment for Cuts Straight Flare (Approach End Buried in Slope)**
  Old Figure 8-K, figure revised. Title of figure revised to Beam Guide Rail Treatment for Approach End Buried in Slope.
- **Figure 8-O, Example of Guide Rail Treatment at Driveway Located within Length of Need**
  Old Figure 8-L, reference to SRT deleted, and figure references revised.
- **Figure 8-P, Example of Guide Rail Treatment at Driveway Located within Length of Need**
  Old Figure M, figure references, CD and section numbers revised.
- **Figure 8-Q, Example of Guide Rail Treatment at Driveway Opening Located within a Continuous Guide Rail Run**
  Old Figure 8-N, reference to SRT and parabolic flare deleted, figure references revised.
- **Figure 8-R, Guide Rail Treatment Examples for Open Gore Areas**
  Old Figure 8-O, cross hatching for recovery area added.
- **Figure 8-S, Guide Rail Treatment Examples for Limited Gore Areas**
  Old Figure 8-P, in-line anchorage deleted.
- **Figure 8-T, Warrants for Median Barrier for Freeways and Expressways**
  Old Figure 8-Q, figure revised.
- **Figure 8-U, Preferred Cross Sections for Channels with Abrupt Slope Changes**
  Old Figure 8-R, no changes.
- **Figure 8-V, Preferred Cross Sections for Channels with Gradual Slope Changes**
  Old Figure 8-S, no changes.
- **Figure 8-W, Median Guide Rail Placement**
  New figure
- **Figure 8-X, Flared Guide Rail Terminals on Horizontal Curves**
  New figure.
- **Figure 8-Y, Tangent Guide Rail Terminals on Horizontal Curves**
  New figure.

This announcement must be read in conjunction with the referenced BDC announcement.

The related BDC revising the guiderail construction details will be issued shortly.

Superseded

Implementation Code R (ROUTINE)

Instructions to Designers
Changes must be implemented in all applicable Department projects scheduled for Final Design Submission at least one month after the date of the BDC announcement. This will allow designers to make necessary plan, specifications, and estimate/proposal changes without requiring the need for an addenda or postponement of advertisement or receipt of bids.

Recommended By:

Original Signed By

Walter McGrosky
Director,
Capital Program Support

Approved By:

Original Signed By

Richard T. Hammer
Assistant Commissioner,
Capital Program Management

Attachment: Design Manual – Roadway, Section 8 (hard copies available upon request from Engineering Documents Unit—phone number (609) 530-5587)

Superseded