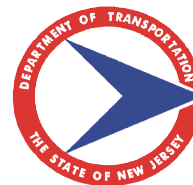


New Jersey Department of Transportation

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



Baseline Document Change Announcement

ANNOUNCEMENT: BDC16MR-04

DATE: September 13, 2016

SUBJECT: Traffic Stripes and Markings
- Revision to Subsections 13.5 and 14.6 of the *2015 Roadway Design Manual*.

REFERENCE: Traffic Stripes and Markings
- Revision to Subparts/Subsections 159.03.06, 159.04, 610.03.02, and 610.04 of the *2007 Standard Specifications for Road and Bridge Construction*.
- **BDC16S-02**

Sections 13.5 and 14.6 of the 2015 Roadway Design Manual have been revised to reflect the new item names and measurements, and Latex Traffic Stripes and Latex Traffic Markings when they are required for 14 days or less.

The revisions are as follows:

Subsection 13.5 (Item 3)

Traffic Markings Lines' measurement has been revised to linear feet and pay item for Traffic Markings Route Symbols has been added.

Subsection 14.6

The title of Subsection 14.6 changed to "Latex Traffic Stripes and Traffic Markings".
Item 1 and 2 under the Subsection 14.6 has been revised.

The following pages of the 2015 Roadway Design Manual have been revised and replaced:

Table of Contents Page

Section 13 Page 13-17 (No change)

Section 13 Page 13-18

Section 14 Page 14-5

Section 14 Page 14-6 (No change)

These changes must be read in conjunction with the referenced BDC announcements regarding the corresponding changes to the 2007 Standard Specifications for Road and Bridge Construction.

Implementation Code R (ROUTINE)

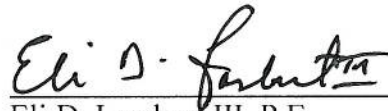
Changes must be implemented in all applicable Department projects scheduled for Final Design Submission at least one month after the date of the BDC announcement. This will allow designers to make necessary plan, specifications, and estimate/proposal changes without requiring the need for an addenda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

Recommended By:



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Acting Director
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Approved By:



Eli D. Lambert III, P.E.
Assistant Commissioner
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Attachment: 2015 Roadway Design Manual – TOC pages, Section 13 page 13-17 & 13-18 and Section 14 page 14-5 & 14-6.

PS: KS: YK
BDC16MR-04.doc

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- Step 10 Determine C1, D1, E1 and M1 for each sign post, where:
- C1, D1, and E1 = Distance from 0.271 ft. (3 ¼ inches) below the bottom of the sign to bottom of bracket (see CD-612-7 and CD-612-8).
 C1, D1, and E1 = Step 4 – (0.224 ft. + 0.271 ft.)
NOTE: 0.224 ft. (2 11/16 inches) corresponds to the distance from top of footing to the bottom of the bracket (see Figure 13-E).
 M1 = Distance from the top of sign to 0.271 ft. (3 ¼ inches) below the bottom of the sign (B1+0.271).
- Step 11 Determine F1, G1, and H1 for each post, see *Standard Roadway Construction Details* CD-612-7. Values above reference line are positive, values below reference line are negative.
- Step 12 The footings should extend a maximum of 4" above the ground. Determine the maximum projection of the footings as per the Footing/Stub Projection Detail in *Standard Roadway Construction Detail* CD-612-7. If the projection is greater than 4 inches, then the footing will have to be beveled. Determine footing bevel as per Footing Bevel Detail and Footing Bevel Table in *Standard Roadway Construction Details* CD-612-7 and CD-612-10 respectively. If possible, lower the elevation of the top of footing to reduce projection to 4 inches or less, then footing bevel is not required. Detail Breakaway Grading Detail, Footing/Stub Projection Detail and Footing Bevel Detail do not apply to signs behind a traffic barrier or beyond the clear zone, as per *Standard Roadway Construction Details* CD-612-7.
- Step 13 Enter all the data onto the Breakaway Support Data Table and Footing Bevel Table in the *Standard Roadway Construction Details* CD-612-10.
- Note:** The Break-Safe Sign Post Selection program on the compact disk is for DOT engineers, consultants and sign contractors. Using input from the designer, this program will automatically select the appropriate sign post section and the corresponding Break-Safe breakaway sign support assembly. To receive a personal copy of the Break-Safe Sign Post Selection CD, go to <http://www.transpo.com/customer-service/contact-us>, fill in the form and request the Sign Post Selection CD. The designer will need to enter the design criteria for wind speed, yield stress of steel I-beam and structure design life into the program, see note in Step 6 above.

13.3.2 Non - Vegetative Surface under Overhead Signs and Large Ground Mounted Signs

In order to reduce soil erosion and highway maintenance costs associated with spraying or trimming vegetation underneath signs, non-vegetative surfaces should be applied around the foundation of overhead signs and underneath large ground mounted signs as follows:

- A. Sign types – Conditions warranting use of non-vegetative surfaces
 1. Overhead Signs
 2. Sign Bridge- All cases
 3. Sign Cantilever – All cases
 4. Large Ground Mounted Signs
 5. Breakaway Sign Supports – Mowable areas

6. Nonbreakaway Sign Support – Mowable areas

This surface treatment is not to be used at breakaway steel "U" post sign support locations. The non-vegetative surfaces shall be constructed as shown in Standard Roadway Construction Detail CD-608-1.

13.4 Raised Pavement Markers

Regardless of the lighting conditions, designers shall include Raised Pavement Markers (RPM) on all HMA surfaces to supplement traffic stripes. Develop the placement of RPMs as per the Standard Roadway Construction Details.

13.5 Traffic Stripes and Traffic Markings

The following provides the Department Policy on Traffic Stripes, Traffic Markings and Raised Pavement Markers.

1. On interstate highways, all permanent lane lines, longitudinal edge lines and edge lines on (curbed and uncurbed) ramps shall be 6 inch wide epoxy resin traffic stripes. The traffic stripes shall be calculated in linear feet for each 6 inch width of actual stripe (gaps are not counted) under the item TRAFFIC STRIPES, 6".
2. On non-interstate highways, all permanent longitudinal center, edge and lane lines, edge lines on ramps, curbed and uncurbed ramps on Freeways and left turn slots shall be 4 inch wide epoxy resin traffic stripes. Permanent lane lines separating exclusive right or left turning lanes from through lanes shall be 8" wide epoxy resin traffic stripes. The traffic stripes shall be calculated in linear feet for each 4 inch width of actual stripe (gaps are not counted) under the item TRAFFIC STRIPES, 4".
3. All permanent gore lines, crosswalks, stop lines, words, arrows and other pavement symbols shall be thermoplastic. The gore lines, crosswalks and stop lines shall be calculated in linear feet for each specific width (4", 8", 12", 16", 20", 24", etc.) of marking line under the item TRAFFIC MARKINGS LINES, __". The words, arrows and other pavement symbols shall be calculated in square feet under the item TRAFFIC MARKINGS SYMBOLS. The route symbols shall be calculated in square feet under the item TRAFFIC MARKINGS ROUTE SYMBOLS.

Refer to Section 14 - Traffic Control Plans and Details for the design criteria of Latex Traffic Stripes and Traffic Markings.

14.6 Latex Traffic Stripes and Traffic Markings

Department Policy on Traffic Stripes and Traffic Markings are as follows:

1. Placement of TRAFFIC STRIPES and TRAFFIC MARKINGS may be delayed for up to 14 days after paving. Temporary pavement markers shall be used to delineate center and lane lines on newly paved sections of roadways that need to be opened to traffic prior to the placement of TRAFFIC STRIPES.
2. TRAFFIC STRIPES LATEX and TRAFFIC MARKINGS LATEX shall be used when traffic stripes or traffic markings are required on intermediate pavement layers that need to be opened to traffic due to stage construction and shall not be in place for more than 14 days. The traffic stripes shall be calculated in linear feet for each 4 inch width of actual stripe (gaps are not counted) under the item TRAFFIC STRIPES, LATEX. Chevrons, crosswalks, and stop lines shall be calculated in linear feet for each 4 inch width of actual stripe under the item TRAFFIC STRIPES SYMBOLS, LATEX. Words, arrows and other pavement symbols shall be calculated in square feet under the item TRAFFIC MARKINGS SYMBOLS, LATEX.

Temporary pavement marking tape and temporary pavement markers shall be specified when lane shifts are necessary on existing pavements not being repaved. The placement of temporary pavement markers shall be in accordance with the Construction Details. However, the designer shall specify TRAFFIC STRIPES and TRAFFIC MARKINGS rather than temporary pavement marking tape and temporary pavement markers when the usage of the placed material would extend beyond December 21st.

When traffic stripes/markings are removed to accommodate stage construction, the removal process invariably mars the final surface. Marring is allowable on intermediate layers, however, the final surface course must not be marred.

Designers are to design the project in such a way as to ensure the final surface course does not require temporary traffic stripes or markings to be removed, or develop additional quantities for milling and paving of the final surface course marred by the removal of traffic stripes or markings.

3. TRAFFIC STRIPES or TRAFFIC MARKINGS may be considered for stage construction, detours, and diversionary roads on those occasions when it can be justified based on cost considerations, site conditions, or length of time when the stripes or markings will be in place. It is important to estimate the length of striping based on all of the above factors of a project.

14.7 Lane and Roadway Closures

14.7.1 Lane Closures

Designers should modify standard sheet TCD-1 to provide a table showing specific restrictions placed on travel lanes, durations of closures and hours when work may be performed, including holidays and weekends. The closures and lane restrictions shall be evaluated in the Traffic Impact Report (see Section 14.4) and approved by the Regional Traffic Operations and Local Authorities. The following table is provided as an example of the form of presentation of this information:

Roadway Route Designation and Direction	Type of Closure	Monday thru Thursday	Friday	Saturday	Sunday
	No Closure				
	One Lane Closure				
	Two Lane Closures				
	Full Closures (indicate duration and type of operation)				

14.7.2 Total Roadway Closures

Total roadway closures (i.e. all lanes, single direction or two directions) required for the erection of overhead sign structures, cantilevered sign structures or bridge steel shall be performed in accordance with the following:

- The use of total roadway closures shall be specifically addressed in the Traffic Impact Report (see Section 14.4) and shall be considered only after detours have been determined to be unavailable or infeasible.
- Closures shall be approved by the Regional Traffic Operations and Local Authorities.
- Closures shall be performed during non-peak hours and with prior approval of the Engineer concerning the timing and method of operation.
- The application of nighttime operation of the closure shall be considered (see Section 14.10).
- The erection of overhead and cantilever sign support structures shall be done when the overhead electric lines have been de-energized.
- Closures shall be initiated with a slowdown of traffic 1/2 mile in advance of the work area. The slowdown shall be accomplished with the assistance of Traffic Direction, Police.
- Closures, whether single direction or two directions, shall be limited to 15 minute intervals. At the end of each 15 minute interval the work must stop, the span must be secured and traffic allowed to pass. After traffic has cleared, the roadway may again be closed for another maximum 15 minute interval (following the procedures in this section) and work may resume. Continue this procedure until all work over the roadway is complete.