



**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**ROADWAY DESIGN DIVISION**  
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**INSTRUCTIONAL BULLETIN NO. 19-11**

**REGARDING REVISED SECTION 4 – PAVEMENT MARKING**

**Effective December 13, 2019 Letting (October 2, 2019 turn-in)**, the Roadway Design Guidelines Sections 4-716.10, 4-716.12, and 4-716.15 have been revised.

**4-716.10 TEMPORARY PAVEMENT MARKINGS**

Temporary pavement markings on the intermediate layers of pavement open to traffic will be installed to permanent standards daily with reflective tape or reflectorized paint.

The temporary pavement markings will be paid for under Item Number 716-05.20 Painted Pavement Marking (6" Line) per L.M. or Item Number 716-05.02 Painted Pavement Marking (8" Barrier Line) per L.F.

If the permanent marking material is thermoplastic, the contractor may elect to mark the final layer of pavement with reflectorized paint to permanent standards daily and wait until the paving operation has been completed before the permanent markings are installed. In this case, the temporary markings for the final layer will not be measured and paid for directly, but the costs are to be included in the price bid for the permanent markings.

**4-716.12 LOCAL ROUTE PAVEMENT MARKINGS (EXCLUDING STATE ROUTE)**

On local roads where roadway departures are not a significant concern and the ADT < 2000, no permanent striping is required on the final surface if Item Number 716-05.01 Painted Pavement Marking (15 mil 4IN) is used as the temporary striping for the final layer.

On Local Roads with the ADT  $\geq$  2000, permanent pavement markings shall be Item Number 716-13.02 Spray Thermo Pavement Marking (60 mil 6IN).

**4-716.15 PERMANENT PAVEMENT MARKINGS (See 4-411.03 and 4-411.04)**

Designers should refer to Tables 4-3A and 4-3B for pavement marking guidelines for all interstate and state routes. In addition to pavement marking guidelines, Tables 4-3A and 4-3B provide guidance for the placement of rumble strips and rumble stripes. This guidance shall be used on all new, reconstruction, and resurfacing projects except in areas which require special treatment as determined on the Construction Field Review and approved by the Director of the Roadway Design Division.

Items numbers for pavement markings are available on the TDOT web site at:  
<https://www.tdot.tn.gov/APPLICATIONS/RoadwayItems>

Type	Thickness (mils)	Bead Package	Pavement Type				Comments
			Asphalt			Concrete	
			Conventional	OGFC	HFS		
Thermoplastic Spray	60	Type I	X		X	X Note 2	Spray Thermoplastic, Multipolymer
Thermoplastic Extruded	100	Type I & IV	X		X	X Note 2	Enhanced Flatline Thermoplastic, Multipolymer
Thermoplastic Ribbon	100	Type I & IV	X	X Note 1	X		Enhanced Flatline Thermoplastic with clean borders, Multipolymer
Profile Thermoplastic	125	Type IV	X	X	X	X Note 2	Audible feedback, Wet visibility Per SP 716IPA
Polyurea	20	Type I	X	X	X		Moisture resistance
Tape	85	NA	X			X Note 2	
<b>Specialty Pavement Markings</b>							
Extruded	100	Type I & IV	X Note 3		X Note 3	X Note 3	Enhanced Flatline Thermoplastic,
Pre-formed	90 - 125	N/A	X Note 3		X Note 3	X Note 3	
<b>Temporary Traffic Control</b>							
Paint	15	N/A	X	X	X	X	See section 4-716.10
<p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>For projects using an Open-Graded Friction Course (OGFC) for the surface layer, only Enhanced Flat Line Thermoplastic (Item No 716-12.02) may be used for the edge, center, skip and lane lines. Use the width of line specified in Table 4-3B. The designer shall footnote the Enhanced Flat Line Thermoplastic Quantity with the following note: <i>“Contractor shall use the extruded or ribbon method for application.”</i></li> <li>Use Hi-Contrast pavement marking which is recessed for lane lines, edge lines, dotted lines, skip lines, and HOV lines on concrete surfaces.</li> <li>Specialty Striping Items: stop lines, cross walks, arrows, words, shapes, channelization, and other specialty striping items other than lane and edge lines. The contractor may elect to use either thermoplastic or preformed thermoplastic for specialty striping items.</li> </ol>							

**Table 4-3A  
Permanent Pavement Markings Selection Guide Based on Pavement Type**



**Notes:**

1. Snowplowable Raised Pavement Markers (SRPMs) shall conform to this guidance:
  - a. SRPMs located along centerlines of 2 direction roadways (Yellow Stripe) shall be paid for under Item No. 716-01.21 "Snowplowable Raised Pavement Markers (Bi-Dir) (1-Color)" per each. Lenses shall be yellow.
  - b. SRPMs on lane lines between lanes of the same travel (Broken White Stripes) direction on undivided roadways shall be paid under Item No. 716-01.22, "Snowplowable Raised Pavement Markers (Mono-Dir) (1-Color)" per each. Lenses shall be clear or white.
  - c. SRPMs on lane lines between lanes of the same travel (Broken White Stripes) direction on divided roadways shall be paid for under Item No. 716-01.23, "Snowplowable Raised Pavement Markers (Bi-Dir) (2-Color)" per each. Lenses shall be clear or white on the upstream side (facing traffic), lenses shall be red facing downstream side (facing wrong-way traffic).
  - d. Refer to T-M-series standard drawings for details. Three lane and multilane roads with 2-way traffic will normally require both mono-directional and bi-directional snowplowable raised pavement markers. Two lane roads will normally require bi-directional snowplowable raised pavement markers.
  - e. Payment for the removal of Snowplowable Raised Pavement Markers shall be paid for under Item number 716-01.30 (Removal of Snowplowable Reflective Marker, per each). The cost shall not be included in the cost of installing the following items for Snowplowable Reflective Marker: 716-01.21, 716-01.22, and 716-01.23.
  - f. Installation of SRPMs may be optional at undivided rural state routes with speed < 45 mph if historical crash data supports lane departure concerns.
2. Rumble Strip/Stripe
  - a. All resurfacing projects shall follow the guidance in Table 4-3B for pavement marking and rumble installations. See 4-411.03 and 4-411.04 for additional guidance regarding rumble strip and rumble stripe placement. Application of rumble shall be included on all rural roadway resurfacing projects if there is no existing rumble on the shoulder. Pavement markings and rumble strips/stripes shall be applied to the roadway surface after it has been scraped clean of overgrown vegetation and swept of loose debris.
  - b. Rumble strips are not required on ramps.
  - c. If a bike lane is proposed on a shoulder, only non-continuous rumble shall be used. See Standard Drawings MM-PM-2, T-M-15A and T-M-16.
  - d. Centerline Rumble Stripes (See T-M-16A) may only be used if justified by crash history and if the road meets the following conditions:
    - i. Design Speed of 45 mph or greater
    - ii. ADT of 2000 or greater
    - iii. Lane width of 12 feet or greater
    - iv. Undivided Section
    - v. No passing or one way passing zone
  - e. For concrete shoulders, the rumble strip is to be placed in accordance with standard drawings RP-CS-1 or RP-CS-2. Item No. 501-03.10, Concrete Shoulder Rumble Strips, L.F. The length of scoring shall be measured as the actual length of pavement scored.
  - f. Freeways and divided highways, See STD DWG T-M-15  
Undivided state routes, See STD DWG T-M-15A  
Undivided state routes, See STD DWG T-M-16 and 16A
  - g. The Designer or the Field Engineer may choose to alternate rumble with profile thermoplastic pavement marking (per SP716IPA) when the following conditions exist:
    - i. On roadways with rigid pavement shoulders, when it is not practical or desirable to install ground-in rumble on the inside and outside edge line pavement markings.
    - ii. On shoulder pavement types, Micro surface and Thin lift.
    - iii. On bridge decks without an asphalt layer.

**Table 4-3B, Continued**  
**Permanent Pavement Markings, Raised Pavement Markers,**  
**Rumble Strip and Rumble Stripe Guidelines Notes**

3. Specialty Pavement Marking Materials: Polyurea, Profile Thermoplastic, and Tape. Designer may choose to use one of the specialty pavement marking material as needed.
4. Use applicable standard drawings:
  - a. Freeways, See STD DWG T-M-5, T-M-6, T-M-7 and T-M-8
  - b. State Route, See STD DWG T-M-1, T-M-2, T-M-3
  - c. HOV Lanes, See STD DWG T-M-5
  - d. Gore Areas, See T-M-6, SRPM along edge line only.
5. The 2'-4' dotted line extensions shall be used along freeway exit and entrance ramps and for double left turn lanes through intersections. The 3' – 9' dotted lines shall be used along freeway exit ramps. See Standard Drawings T-M-4, 5, 6 and 8.
6. See 4-716.12 for additional information.

**Table 4-3B, Continued**  
**Permanent Pavement Markings, Raised Pavement Markers,**  
**Rumble Strip and Rumble Stripe Guidelines Notes**

**4-716.36 SNOWPLOWABLE RAISED PAVEMENT MARKERS ON STATE ROUTES**

Snowplowable raised pavement markers should be included on state routes with the exception of undivided state routes with speed < 45 mph. Reflective pavement markers are to be placed in accordance with the T-M- series standard drawings and the current edition of the MUTCD.

On resurfacing projects, the designer shall be responsible for verifying the existence of snowplowable raised pavement markers and for computing the quantity of these markers for removal. The designer shall also compute the quantity for new snowplowable raised pavement markers to be installed for these projects.

Spacing of raised pavement markers may be reduced or additional snowplowable raised pavement markers added in areas that require special treatment as determined by the design manager or at the construction field review. When additional snowplowable raised pavement markers are used, the markers shall be placed in accordance with the current edition of the MUTCD. Raised pavement markers may be omitted on urban roadways where roadway lighting is present. Raised pavement markers should not be used on the right edge line. See Table 4-3B for guidance regarding type of markers to be used.

Revised Section 4 can be downloaded from the link below:

[https://www.tn.gov/content/dam/tn/tdot/roadway-design/documents/design\\_guidelines/DG-S4.pdf](https://www.tn.gov/content/dam/tn/tdot/roadway-design/documents/design_guidelines/DG-S4.pdf)

This Instructional Bulletin voids IB 18-01 due to incorporation into the revised Roadway Design Guidelines Section 4.

  
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