

VIRGINIA DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
MEMORANDUM

GENERAL SUBJECT: PAVEMENT MARKINGS		NUMBER: TE-261.1
		TO SUPERSEDE: TE-261
SPECIFIC SUBJECT: TYPE B, CLASS VI PAVEMENT MARKINGS		PROJECTED DATE: September 19, 2011 Clarification Issued June 25, 2014
		SUNSET DATE: None
DIRECTED TO: <u>District Administrators</u> <u>State L&D Engineer</u> <u>State Maintenance Engineer</u> <u>State Materials Engineer</u> <u>State Construction Engineer</u> <u>Regional Operations Directors</u> <u>Regional Traffic Engineers</u> <u>Regional Operations Maintenance Managers</u> <u>District Maintenance Engineers</u>		SIGNATURE:

Changes are shaded

The Department is revising its policy on the use of Type B, Class VI pavement markings to increase flexibility and reduce constructability concerns. This memorandum outlines areas where Type B, Class VI markings shall be used and areas where they may be used subject to engineering judgment. This clarification is effective for projects to be issued for advertisement on or after December 1, 2014. Projects being assembled for bid should utilize the revised Policy effective immediately. Exception is permitted if quantities and estimates are already completed and bid advertised is scheduled prior to December 2014.

Limited Access Highways

The figure at the end of this memorandum provides guidance for when to use Type B, Class VI markings on limited access roadways. The guidance in that diagram is summarized as follows:

- If the remaining pavement surface service life is 6 years or more:
 - Type B, Class VI markings shall be used for all lane division line, edge line, and gore line markings, including:
 - Skip lines between through lanes
 - Dotted lines to separate through lanes from deceleration lanes

- Solid lines separating through lanes from deceleration/acceleration lanes
 - Solid and skip lines used to separate multiple exit lanes
 - Left and right edge lines
 - Outside gore lines (excluding gore hatchings)
- Durable markings specified as being Type B in the *VDOT Road and Bridge Specifications* shall be used for all other markings (edge lines, gore areas hatchings and all ramp markings). Selection of the marking material will be based on engineering judgment. Examples of appropriate materials may include B-VI tape, thermoplastic, epoxy, or any other approved Type B material.
- If the remaining pavement surface service life is between 3 years and 5 years:
 - Durable markings specified as being Type B in the *VDOT Road and Bridge Specifications* shall be used for all markings. Selection of the marking material will be based on engineering judgment. Examples of appropriate materials may include tape, thermoplastic, epoxy, polyurea or any other approved Type B material. However, Type B, Class VI markings may not be a cost-effective choice when the pavement surface life is in this category.
- If the remaining pavement surface service life is less than 3 years:
 - Any marking material specified as Type A or Type B in the *VDOT Road and Bridge Specifications*, may be used for all markings. Selection of the marking material is based on engineering judgment.

Other High Volume Highways

The installation of Type B, Class VI pavement markings on high volume roadways other than limited access highways may be appropriate and is allowed at the discretion of the Regional Traffic Engineer, but shall be accomplished in accordance with the limitations outlined for Limited Access Highways.

Installation of Type B, Class VI markings

Regardless of the pavement type (asphalt concrete or hydraulic cement concrete), installation shall be as provided by the latest *VDOT Road and Bridge Specifications* and any relevant revisions.

Proper records (Form C-85) needed for replacement of Type B, Class VI markings shall be maintained by the Regional Operations Maintenance Manager's office. This requirement is based on life cycle cost analysis and the current warranty period.

If there is insufficient contrast between hydraulic cement concrete pavements and white pavement markings, the use of Type B, Class VI contrast pavement markings consisting of white pavement markings with black non-reflective borders should be considered for lane lines edge lines, and gore lines.

When choosing among different marking material alternatives, the life cycle cost and compatibility between different marking materials for restriping should be considered. Table 1 summarizes

typical service life values for different marking materials. Table 2 summarizes the compatibility between different marking materials when restriping.

Table 1. Typical Service Life of Different Marking Materials.

Marking Material	Typical Service Life ¹
Latex Paint	1 Year
Epoxy	3 Years
Thermoplastic	3 Years
Patterned Preformed Tape	6 Years

1: From 2001 Virginia Transportation Research Council Report, “Determining the Effectiveness of Pavement Marking Materials” by Cottrell and Hanson.

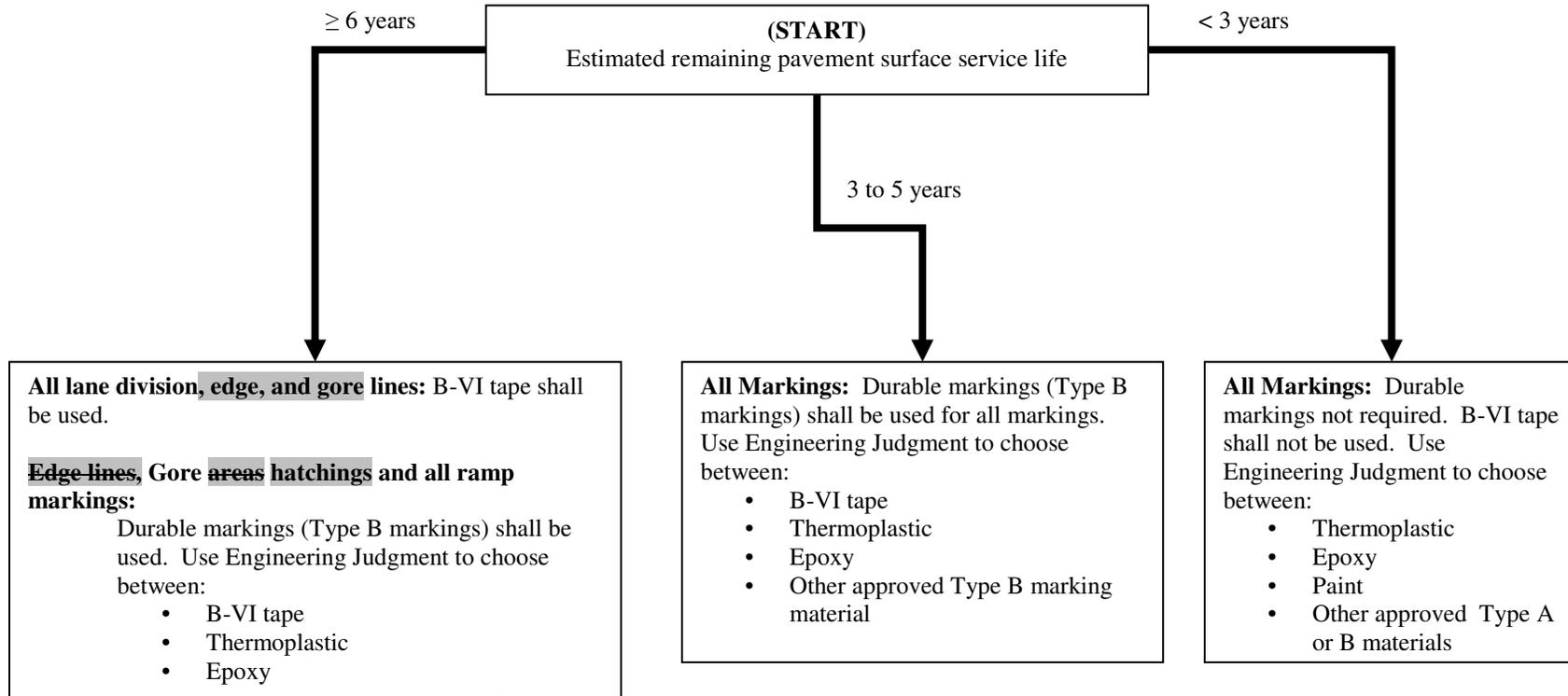
Table 2. Pavement Marking Material Compatibility Matrix.

If Existing Material is:	If Desired New Material is:			
	Latex Paint	Thermoplastic	Epoxy	B-6 Tape
Latex Paint	Compatible	If existing is 90% removed	If existing is 90% removed	Not Compatible
Thermoplastic	Compatible	Compatible	If existing is 90% removed	Not Compatible
Epoxy	Compatible	Not Compatible	If existing is 90% removed	Not Compatible
B-6 Tape	Compatible	Not Compatible	Not Compatible	Not Compatible

Note: “Not Compatible” means that the desired new pavement marking material cannot be applied unless the existing material is eradicated in accordance with sections 512 and 704 of the VDOT *Road and Bridge Specifications*. “Compatible” implies that the existing pavement marking is still well-adhered to the pavement.

CC: Mr. Quintin Elliot, Chief Deputy Commissioner
 Mr. Garrett Moore, P.E., Chief Engineer
 Mr. Mohammad Mirshahi, P.E., Deputy Chief Engineer
 Jose Gomez, Director of Research, VCTIR
 Division Administrators
 Ms. Irene Rico

**Pavement Marking Decision Tree:
Limited Access Roads (Freeways and Expressways)**



Notes:

- Note that thermoplastic should not be used on hydraulic cement concrete, unless properly primed.
- When selecting a marking material, consider the anticipated service life of the material shown in Table 1.
- When re-striping, ensure that markings can be placed on top of existing marking material or eradicate existing material completely. Consult Table 2 for guidance on compatibility between marking materials.