

lines from Section 3A.05 Widths and Patterns of Longitudinal Pavement Markings. As a result of this and other comments received to the proposed change in Section 3A.05, the FHWA moves the descriptions of line types to Section 3A.01 Functions and Limitations in this final rule. Accordingly, the FHWA believes that the meaning of solid centerlines will be clear. Adding additional information regarding single yellow centerlines requires additional research in the future and goes beyond the scope of this rulemaking.

145. In Section 3B.02 No Passing Zone Pavement Markings and Warrants, the FHWA revises the second STANDARD statement to clarify that no-passing zone markings on approaches to highway-rail grade crossings shall conform with Section 8B.20 Pavement Markings, and eliminates the requirement that no passing zone markings be used at other appropriate locations, to be consistent with Part 8 Traffic Controls for Highway-Rail Grade Crossings, and eliminate overlap with more specific requirements for no passing zone markings elsewhere in Section 3B.02. One commenter from Pierce County, Washington, suggested clarification in this section, as well as in Part 8, that No Passing Zone striping is not required on roadways that otherwise have no centerline striping. The FHWA agrees with this comment and incorporates this clarification into this final rule.

Additionally, the FHWA revises the third STANDARD statement to clarify the dimensions of a no-passing buffer zone, and to eliminate the buffer zone dimensions specific to areas where no passing zones are required because of limited passing sight distance. There was one comment from the City of Tucson, Arizona, supporting this change.

146. In Section 3B.03 Other Yellow Longitudinal Pavement Markings, the FHWA revises the text in the first paragraph of the first STANDARD statement to substitute the phrase "normal double" for "two double" in the description of the pavement marking requirements for reversible lanes. In the third paragraph of the first STANDARD statement, the FHWA clarifies that the pavement marking requirements for a two-way left turn lane applies to such lanes that are never operated as a reversible lane. These changes improve the clarity of the requirements and provide consistency with requirements elsewhere in Chapters 3A and 3B. There was one comment from the City of Tucson, Arizona, in support of these changes.

The FHWA received comments from two traffic engineering consultants regarding Figure 3B-7, Example of Two-Way Left-Turn Marking Applications. One commenter suggested that the left turn arrow at the nose of the left turn bay at the major street be required, rather than optional. The FHWA believes that a possible upgrade from OPTION or SUPPORT to GUIDANCE is a significant change and would require discussion and comment in a future rulemaking. The commenter did not present sufficient justification for this requirement therefore the FHWA declines incorporating this comment. A traffic engineering consultant suggested that the FHWA establish a phase-in target compliance date for the spacing of two-way left turn lane pavement markings, which was changed in the 2000 MUTCD. The FHWA agrees and establishes a five-year phase-in target compliance date from the effective date of this final rule for markings in good condition.

147. The FHWA received one comment from the City of Tucson, Arizona, in support of the proposal to change the title of Section 3B.04 from "Edge Line Pavement Markings and Warrants" to "White Lane Line Pavement Markings and Warrants," and to move the fourth STANDARD statement of Section 3B.04 to Section 3B.06 Edge Line Pavement Markings, because edge lines are appropriately covered in Section 3B.06. The FHWA adopts these changes.

148. In Section 3B.05 Other White Longitudinal Pavement Markings, the FHWA changes the gap length for lane drop markings from 3.6 m (12 ft) gaps to 2.7 m (9 ft) gaps in the third OPTION statement to be consistent with the ratio of other marking gaps. While the City of Tucson, Arizona, supported this change, the Wisconsin DOT opposed this revision because they are using a higher gap ratio. The FHWA changed the gap spacing in the final rule for the 2000 MUTCD, however there were inconsistencies between the text in Section 3B.05 and Figure 3B-10 of the 2000 MUTCD. The intent of the proposed change was merely to correct this inconsistency, and therefore the FHWA adopts the wording as proposed in the NPA.

149. In Section 3B.06 Edge Line Pavement Markings, the FHWA adds to the STANDARD statement text pertaining to left and right edge lines that is being moved from Sections 3B.01 Yellow Centerline Pavement Markings and Warrants and 3B.04 White Lane Line Pavement Markings and Warrants. These changes result in all edge line pavement marking information being

contained within one section. ATSSA opposed the reference to "normal" lines in these two paragraphs, because "normal" lines are defined in Section 3A.05 Widths and Patterns of Longitudinal Pavement Markings as 4 inches to 6 inches in width. ATSSA suggests that FHWA require 6-inch lines on all Federal-aid projects, based on a recent study by the Texas Transportation Institute<sup>27</sup> that 29 States are using 6-inch or wider longitudinal lines on the roadway in at least some applications. However, this study did not indicate that 6-inch lines would improve safety or have better visibility than 4-inch lines. Four-inch lines are adequate. This is a topic for further study and possibly a future rulemaking. Accordingly, the FHWA adopts the changes to this section as proposed in the NPA.

To respond to a suggestion from a traffic engineering consultant, the FHWA changes the STANDARD statement to include major driveways in the locations where edge line markings shall not be continued and to include major driveways as locations where dotted edge lines extensions may be used. The addition of "major driveways" will clarify the intent of this section.

The FHWA also adds an OPTION statement, which states that wide solid edge line markings may be used for greater emphasis. Wide edge lines can sometimes be useful in reducing run-off-the-road crashes at curves and this option will provide additional flexibility for jurisdictions to use these markings where needed.

Additionally, in the GUIDANCE statement, the FHWA clarifies that edge line markings should not be broken for minor driveways, to be consistent with other areas of the MUTCD.

The FHWA received a comment from the City of Tucson, Arizona, supporting the changes to this section.

150. In Section 3B.08 Extensions Through Intersections or Interchanges, the FHWA received two comments from the Wisconsin DOT and a traffic engineering consultant regarding the proposed addition to the GUIDANCE statement on the placement and dimensions of pavement markings that are continued through intersections and interchanges. The traffic engineering consultant opposed the proposal that edge lines not be extended into or continued through intersections or

<sup>27</sup> "The Use of Wider Longitudinal Pavement Markings," Texas Transportation Institute (TTI) Research Report 0024-1, Timothy J. Gates and H. Gene Hawkins, 2002. This report is available at the following URL: <http://ted.tamu.edu/Documents/02-0024-1.pdf>.