

The FHWA also revises the three size columns of Table 7B-1 to correspond with the text changes, so that the first column is labeled "Conventional Road", the second column is labeled "Minimum" and the third is labeled "Oversized". The FHWA proposed several changes to this table in the NPA to reflect additional new signs, changes in sign sizes, and deletion of signs. Based on comments from the NCUTCD, the Virginia and Oregon DOTs, Pierce County, Washington, and a traffic engineering consultant, the FHWA incorporates additional changes to these signs in this final rule. These changes in the table reflect changes throughout Part 7 and make the sizes of supplemental plaques correspond more closely with the sizes of the signs they supplement. The sign sizes in this table are also consistent with the sign sizes in Part 2.

302. In Section 7B.07 Sign Color for School Warning Signs, the FHWA changes item A in the OPTION statement to "School Advance Warning Sign" to be consistent with other changes in the MUTCD. The FHWA also changes item D in the OPTION statement to clarify that only the SCHOOL portion on the School Speed Limit (S5-1) sign may have a fluorescent yellow-green background. The SCHOOL portion of the sign is the warning message. The FHWA also adds item H in the OPTION statement to include the Reduced Speed School Zone Ahead (S4-5, S4-5a) sign in the list of signs that may have a fluorescent yellow-green background with a black legend and border.

303. In Section 7B.08 School Advance Warning Assembly (S1-1 with Supplemental Plaque), to respond to a comment from a traffic engineering consultant suggesting clarification, the FHWA adds to the GUIDANCE statement an exception that the School Advance Warning (S1-1) assembly does not need to be installed along a highway when a physical barrier, such as fencing, separates school children from the highway.

The FHWA also adds an OPTION statement at the end of the section to describe the use of the in-street reduced size School Advance Warning (S1-1) sign and reduced size AHEAD (W16-9p) plaque in advance of a school crossing. The Washington State DOT performed a before and after study to determine the effectiveness of this sign. Although a final report on the evaluation is not complete, a preliminary analysis of the data<sup>58</sup> shows that these signs can be

effective in reducing speeds in school zones. Based on this experience, the FHWA determines that this is an acceptable variation of the In-Street Pedestrian Crossing sign discussed in Section 7B.09 School Crosswalk Warning Assembly (S1-1 with Diagonal Arrow). This sign will provide an additional tool to increase the safety of school crossings by enhancing the conspicuity of advance warnings.

For easier reference, the FHWA assigns the page of sign images a number and title, "Figure 7B-1 School Area Signs".

Also, the FHWA adds a new figure numbered and titled, "Figure 7B-2 Examples of Signing for School Crosswalk Warning Assembly" to illustrate the placement of these assemblies as described in Section 7B.09.

Additionally, the FHWA rennumbers and retitles Figure 7B-1 (as numbered in the 2000 MUTCD) to "Figure 7B-3 Examples of Signing for School Area Traffic Control with School Speed Limits." The FHWA received a comment in agreement from NCUTCD and a comment in opposition from a traffic engineering consultant regarding this figure. The traffic engineering consultant questioned the need to have an "End SCHOOL ZONE" sign. This sign is discussed in Section 7B.13 END SCHOOL ZONE Sign (S5-2) and its use is appropriately shown in Figure 7B-3.

The FHWA adds a new figure numbered and titled, "Figure 7B-4 In-Street Signs in School Areas" to illustrate the placement of these signs as described in Sections 7B.08 and 7B.09. The FHWA adds this figure in this final rule to provide clarity and to assist users in understanding the sign placement.

304. In Section 7B.09 School Crosswalk Warning Assembly (S1-1 with Diagonal Arrow), the FHWA received several comments from the NCUTCD, State DOTs, a traffic control device manufacturer, and a private citizen regarding the proposal to insert an OPTION statement allowing the use of the In-Street Pedestrian Crossing (R1-6 or R1-6a) signs at unsignalized midblock crossings. The NCUTCD and the Minnesota DOT were opposed to allowing the use of the sign, suggesting that there was not sufficient research to support of the effectiveness of the sign. The Oregon DOT, a traffic control device manufacturer, and the private citizen suggested that use of the sign be permitted at all unsignalized school

crossings, not just midblock crossings. As discussed above in Section 7A.04, the FHWA believes that portable school signs, when designed and placed appropriately, can be helpful in reducing speed, enhancing road user awareness of the crossing, and enhancing school pedestrian safety. The use of these signs is a subset of overall "in-street" pedestrian devices that FHWA adopts in Section 2B.12 In-Street Pedestrian Crossing Signs (R1-6, R1-6a), and for consistency, the FHWA adopts their use in Section 7B.09. The FHWA deletes "midblock" from the OPTION in this section and adds language to the STANDARD statement regarding sign placement and breakaway requirements.

The FHWA adds to the OPTION statement to describe the use of the reduced size School Advance Warning (S1-1) sign at an unsignalized school crossing instead of the In-Street Pedestrian Crossing (R1-6 or R1-6a) sign and to describe the use of the reduced size Diagonal Arrow (W16-7p) plaque with the reduced size School Advance Warning (S1-1) sign. Based on successful experience with this in-street version of the School Crosswalk Warning Assembly in Washington State, as discussed above under Section 7B.08, the FHWA believes that this is an acceptable alternative to the In-Street Pedestrian Crossing (R1-6 or R1-6a) sign for use at a school crosswalk.

Additionally, the FHWA clarifies the STANDARD statement at the end of the section to describe the use of the In-street Pedestrian Crossing sign and the reduced-size in-street School Advance Warning (S1-1) assembly.

305. In Section 7B.11 School Speed Limit Assembly (S4-1, S4-2, S4-3, S4-4, S4-6, S5-1) (referred to as Section 7B.11 School Speed Limit Assembly (S4-1, S4-2, S4-3, S4-4, S5-1) in the NPA), the FHWA received three comments from the Ohio DOT and traffic engineering consultants regarding the location of the reduced speed zone in the vicinity of a school. While there were no proposed changes to this statement in the NPA, the FHWA changes the location of the speed zone in relation to the school property line from "90 m (300 ft)" to "30 m (100 ft)" to correct an error in the 2000 MUTCD and address the concerns of the commenters. The FHWA also changes the corresponding dimension shown in Figure 7B-3.

In the NPA, the FHWA proposed to add to the OPTION statement that changeable message signs should subscribe to the principles established in Section 2A.07 Changeable Message Signs and other sections of the MUTCD,

<sup>58</sup> "School Zone 'Delineator' Project: Summary of Preliminary Analysis Data" was prepared in August 2003 by the Washington Traffic Safety Commission

for the Washington State Department of Transportation, as a part of FHWA-approved experimentation number 7-16. This document is available on the docket.