2009 MUTCD Format Revisions

- Paragraphs are numbered
- **Guidance** is italicized
- No more metric
- Definitions relocated to Part 1

- **Standards** remain bold
- Options and support remain unformatted
Standard:

When used in this Manual, the text headings of Standard, Guidance, Option, and Support shall be defined as follows:

A. Standard—a statement of required, mandatory, or specifically prohibited practice regarding a traffic control device. All Standard statements are labeled, and the text appears in bold type. The verb “shall” is typically used. The verbs “should” and “may” are not used in Standard statements. Standard statements are sometimes modified by Options. Standard statements shall not be modified or compromised based on engineering judgment or engineering study.

B. Guidance—a statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate. All Guidance statements are labeled, and the text appears in unbold type. The verb “should” is typically used. The verbs “shall” and “may” are not used in Guidance statements. Guidance statements are sometimes modified by Options.

C. Option—a statement of practice that is a permissive condition and carries no requirement or recommendation. Option statements sometime contain allowable modifications to a Standard or Guidance statement. All Option statements are labeled, and the text appears in unbold type. The verb “may” is typically used. The verbs “shall” and “should” are not used in Option statements.

D. Support—an informational statement that does not convey any degree of mandate, recommendation, authorization, prohibition, or enforceable condition. Support statements are labeled, and the text appears in unbold type. The verbs “shall,” “should,” and “may” are not used in Support statements.

- Standards are requirements that **SHALL** be followed unless there is an Option
- *Guidance is recommended and **SHOULD** be followed*
- Options **MAY** be followed and are sometimes modifications to Standards and Guidance
• **Deleted Sections**
  - Sections 7A.05 through 7A.10
  - Section 7C.02 through 7C.06
  - Chapter 7D – Signals
  - References to Student Patrols in existing Chapter 7E
  - Chapter 7F – Grade-Separated Crossings

• **Most Delaware Revisions introduced in Part 7 of the prior DE MUTCD were retained in the new manual.**

Today’s training will focus on the new changes to the Federal MUTCD and significant DE Revisions to the new manual.
PART 7 – TRAFFIC CONTROL FOR SCHOOL AREAS

- 7A: General
- 7B: Signs
- 7C: Markings
- 7D: Crossing Supervision
Standard: **DRAFT**

10A (DE Revision) Title 21, Chapter 41, Subchapter VIII, §4169 of the Delaware Code establishes that where no special hazard exists the speed limit in school zones shall be 20 mph where 20 mph regulatory signs are posted and state the specific time periods or under what conditions during which the 20 mph speed is in effect.

Guidance:

10B (DE Revision) In general the 20 mph speed limit should be applied only in locations where there is a reasonable expectation of children walking to/from school.

Option:

10C (DE Revision) Title 21, Chapter 41, Subchapter VIII, §4169 of the Delaware Code establishes that on the basis of engineering study or investigation a maximum speed limit greater or less than 20 mph may be established by the Department of Transportation. Factors that may be considered in such an investigation and study can include: location and surrounding environment of the school, driver expectation, existing posted speed limit along the adjacent and surrounding roadways, traffic volumes and vehicle operating characteristics, the presence or absence of children walking to or from school, etc.

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Reduced speed limits for school areas

- **DE Revision (was Support, now Standard/Guidance):**
  - Per DE Code, speed limit within School zone shall be 20 mph where 20 mph signs are posted with time period
  - Reduced speed limits should only be applied where reasonable expectation of children being present
  - Option: Per DE Code, may post some other speed limit for the school zone based on engineering study
Revised section:

- **New Standard** describing the locations where minimum size school signs can be used:
  - Low traffic volumes, and
  - Speeds < 30 mph
- New Guidance and Options also added pertaining to oversized sign use, consistent with Part 2
Section 7B.07 – Sign Color for School Warning Signs

New standard:

- **Color of all school warning signs shall be FYG**
  
  - Previously an option
  
  - Includes “SCHOOL” portion of School Speed Limit signs

- Also applies to pixels of a DMS when “SCHOOL” is displayed for a school speed limit
Section 7B.07 – Sign Color for School Warning Signs

Incorrect

Correct

Fluorescent-Yellow

Fluorescent-Yellow Green
Sign color correct.  
Sign placement could be improved.
Section 7B.07 – Sign Color for School Warning Signs

Plaques should be FYG

Note: Period of Day Plaque should also be revised

S1-1 sign should not have crosswalk lines

W. B. Simpson Elementary

South Dover Elementary
Section 7B.07 – Sign Color for School Warning Signs

Plaques and signs should be FYG

S5-1-DE sign being revised: Bottom portion black on white like this one

Booker T. Washington Elementary

North Dover Elementary
DE Revision:

- FYG should be used for all warning signs pertaining to the school zone
  - Starting with the School Zone (S1-1) sign
  - Ending with the END SCHOOL ZONE (S5-2) sign
- Non-school zone signs within the school zone should remain FY
  - This includes pedestrian crossings that are not part of an established route to school
Section 7B.07 – Sign Color for School Warning Signs

Plaques and signs should be FYG

Signal Ahead Warning Sign should remain FY

W3-3

S5-1-DE

S1-1
The School (S1-1) sign (see Figure 7B-1) has the following four applications:

A. School Area – the S1-1 sign can be used to warn road users that they are approaching a school area that might include school buildings or grounds, a school crossing, or school related activity adjacent to the highway.

B. School Zone – the S1-1 sign can be used to identify the location of the beginning of a designated school zone (see Section 7B.09).

C. School Advance Crossing – if combined with an AHEAD (W16-9P) plaque or an XX FEET (W16-2P or W16-2aP) plaque to comprise the School Advance Crossing assembly, the S1-1 sign can be used to warn road users that they are approaching a crossing where schoolchildren cross the roadway (see Section 7B.11).

D. School Crossing – if combined with a diagonal downward pointing arrow (W16-7P) plaque to comprise the School Crossing assembly, the S1-1 sign can be used to warn approaching road users of the location of a crossing where schoolchildren cross the roadway (see Section 7B.12).

Revised section

- **Clarified use of School (S1-1) sign**
  - School Area – Any school related activity adjacent to highway
  - School Zone – Designated school zones
  - School Advance Crossing – Approaching a crossing where schoolchildren cross
  - School Crossing – At a crossing where schoolchildren cross
Support:

The School (S1-1) sign (see Figure 7B-1) has the following four applications:

A. School Area – the S1-1 sign can be used to warn road users that they are approaching a school area that might include school buildings or grounds, a school crossing, or school related activity adjacent to the highway.

B. School Zone – the S1-1 sign can be used to identify the location of the beginning of a designated school zone (see Section 7B.09).

C. School Advance Crossing – if combined with an AHEAD (W16-9P) plaque or an XX FEET (W16-2P or W16-2aP) plaque to comprise the School Advance Crossing assembly, the S1-1 sign can be used to warn road users that they are approaching a crossing where schoolchildren cross the roadway (see Section 7B.11).

D. School Crossing – if combined with a diagonal downward pointing arrow (W16-7P) plaque to comprise the School Crossing assembly, the S1-1 sign can be used to warn approaching road users of the location of a crossing where schoolchildren cross the roadway (see Section 7B.12).
Standard:

If a school zone has been designated under State or local statute, a School (S1-1) sign shall be installed to identify the beginning point(s) of the designated school zone.

Option:

The downstream end of a designated school zone may be identified with an END SCHOOL ZONE (S5-2) sign.

Guidance: DRAFT

A (DE Revision) On state-maintained roads, the END SCHOOL ZONE (S5-2) sign should be used to designate the end of the school zone in lieu of the regulatory speed limit sign.

New Standard:

- **A School (S1-1) sign shall be installed to identify the beginning point of a designated school zone**

Previously a Standard, now Option:

- **An END SCHOOL ZONE (S5-2) sign may be used to identify the end of a designated school zone**

Strengthened with a [DE Revision](in Part 7B.15):

- **An END SCHOOL ZONE (S5-2) sign should be used to identify the end of a designated school zone**
Section 7B.09 – School Zone Sign (S1-1) and Plaques

New Option:

- New plaques may be used to supplement the School Zone (S1-1) sign
  - SCHOOL (S4-3P) and ALL YEAR (S4-7P)
  - On cross streets in close proximity to a school zone: Turn Arrow (W16-5P) and Advance Turn Arrow (W16-6P)
“old” MUTCD shows 200’ from crosswalk or 100’ from school property line.

New MUTCD: 200’ from property line
School Crossing Assemblies

School Advance Crossing Assemblies with Advance Turn Arrow (W16-6P) plaque

School Crossing
Section 7B.09 – School Zone Sign (S1-1) and Plaques

Figure 7B-3. Example of Signing for a School Zone without a Marked School Crosswalk and with a Reduced School Speed Limit Zone

(Delaware Revision)

- 200 ft. from the school property line. This 200 ft. distance should be increased if the reduced speed limit is 30 mph or higher.

** Optional - Refer to Section 7B.15

*** “WHEN CHILDREN ARE PRESENT” legend may be replaced with legends from S4-1P, S4-4P, and/or S4-6P
Section 7B.11 – School Advance Crossing Assembly

![Diagram of School Advance Crossing Assembly](image-url)
Section 7B.11 – School Advance Crossing Assembly

Figure 7B-5. Example of Signing for a School Zone with a Reduced School Speed Limit Zone and a School Crossing (Delaware Revision)

- 200 ft. from the school property line. This 200 ft. distance should be increased if the reduced speed limit is 30 mph or higher.
- Optional - Refer to Section 7B.15
- "WHEN CHILDREN ARE PRESENT" legend may be replaced with legends from 54-1P, 54-4P, or 54-6P

Note: The use of a School Advance Crossing Assembly is optional within a signed school zone (see Section 7B.11)

DRAFT
New Section:

- **New Higher Fines Zone signs**
- **However, they are currently not used in Delaware**
  - DE does not impose increased fines for traffic violations in a school zone
New Option:

- Schoolchildren symbol may be used on In-Street Crossing signs (R1-6b or R1-6c) and Overhead Pedestrian Crossing Signs (R1-9 or R1-9a)

Option:

The In-Street Pedestrian Crossing (R1-6 or R1-6a) sign (see Section 2B.12 and Figure 7B-6) or the In-Street Schoolchildren Crossing (R1-6b or R1-6c) sign (see Figure 7B-6) may be used at unsignalized school crossings. If used at a school crossing, a 12 x 4-inch SCHOOL (S4-3P) plaque (see Figure 7B-6) may be mounted above the sign. The STATE LAW legend on the R1-6 series signs may be omitted.

The Overhead Pedestrian Crossing (R1-9 or R1-9a) sign (see Section 2B.12 and Figure 2B-2) may be modified to replace the standard pedestrian symbol with the standard schoolchildren symbol and may be used at unsignalized school crossings. The STATE LAW legend on the R1-9 series signs may be omitted.
**DE Revision**, from old DE MUTCD with slight revisions:

- In-Street Ped Crossing signs require DelDOT Traffic approval
- Reference to Section 2B.12:
  - Prior to selecting sign with STOP or YIELD message):
    - DE Code should be reviewed
    - Local laws should be reviewed
  - Current State Law (DE Code): drivers must yield to pedestrians within a crosswalk

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DE Revision: sponsoring agency must maintain them!
Section 7B.13 – School Bus Stop Ahead Sign (S3-1)

Guidance:

The School Bus Stop Ahead (S3-1) sign (see Figure 7B-1) should be installed in advance of locations where a school bus, when stopped to pick up or discharge passengers, is not visible to road users for an adequate distance and where there is no opportunity to relocate the school bus stop to provide adequate sight distance.

New sign to replace old word message sign:

• A School Bus Stop Ahead (S3-1) sign should be used when adequate distance for visibility of a stopped school bus is not available.
Section 7B.13 – School Bus Stop Ahead Sign (S3-1)

OLD

NEW

Westville Road
Option: **DRAFT**

02 (DE Revision) If the School Bus Stop Ahead (S3-1) sign has been considered but determined to be inappropriate, a SCHOOL CHILDREN WALK ALONG THIS ROAD (S3-1-DE) sign (see Figure 7B-1) may be installed.

**Guidance:**

03 Use of the SCHOOL CHILDREN WALK ALONG THIS ROAD (S3-1-DE) sign on state-maintained roads requires approval from DelDOT Traffic.

**DE Revision:**

- Carried forward from the old DE MUTCD the option to use the SCHOOL CHILDREN WALK ALONG THIS ROAD (S3-1-DE) sign
  
  - Only for use where the School Advance Crossing Assembly (or School Bus Stop Ahead (S3-1) sign) have been considered but deemed inappropriate
  
  - Requires approval from DelDOT Traffic
Option:

The SCHOOL BUS TURN AHEAD (S3-2) sign (see Figure 7B-1) may be installed in advance of locations where a school bus turns around on a roadway at a location not visible to approaching road users for a distance as determined by the “0” column under Condition B of Table 2C-4, and where there is no opportunity to relocate the school bus turn around to provide the distance provided in Table 2C-4.

- New S3-2 Sign
  - May be used in advance of locations where school buses turn around on a roadway, and may not be visible to approaching motorists
  - Visibility distance determined from “0 mph” column under Condition B from Table 2C-4
New Sign:

- New END SCHOOL SPEED LIMIT (S5-3) sign to identify end of reduced school speed limit zone

DE Revision:

- DE will use END SCHOOL ZONE (S5-2) sign instead
Section 7B.15 DRUG FREE SCHOOL ZONE Sign (S5-2-DE)

Standard:

A Drug-Free School Zone shall be marked with a DRUG FREE SCHOOL ZONE (S5-2-DE) sign as near as practicable to the point at which the roadway crosses into the zone.

Support:

In Delaware, as specified in the Delaware Code (Title 16, Chapter 47, Subchapter IV, §4767), the distribution, delivery, or possession of a controlled substance within 1,000 feet of school property is a felony.

• Old Manual included section on DRUG FREE SCHOOL ZONE sign
• Was a DE-Specific Section
• Not included in new DE MUTCD
• Existing signs may remain until the end of their useful life
Option:

01 (DE Revision) Flashing yellow beacons may be installed to supplement standard school signing and markings for the purpose of providing advanced warning during specified times of operation when justified.

02 (DE Revision) A flashing yellow beacon may be justified when ALL of the following conditions are fulfilled:

1. At least 40 school pedestrians use the crossing during each of any two hours (not necessarily consecutive) of a normal school day;
2. The crossing is at least 600 ft from the nearest alternate crossing controlled by traffic signals, stop signs or crossing guards;
3. The vehicular volume through the crossing exceeds 200 vehicles per hour in urban areas or 140 vehicles per hour in rural areas during the same hour the students are going to and from school during normal school hours; and
4. The critical approach speeds exceeds 35 mph or the approach visibility is less than the stopping sight distance.

DE Revision (from old manual)

- This DelDOT addition to the MUTCD, formerly 7D.02, was originally from Caltrans’ guidelines
- Provides qualitative “warrants” for flashing beacons at schools.
Chapter 7C – Markings
DE Revision:

- Markings should not extend beyond centerline into opposing direction
- From the DelDOT MUTCD FAQ’s (May 2009):

Image of pavement markings for one-lane roads with different widths and corresponding letter sizes and spacing.
DE Revision:

- The SCHOOL Marking should be placed adjacent to the Speed Limit Sign, if present.
- If no Speed Limit Sign is present, it should be placed adjacent to the S1-1 School Zone Sign.

Draft Text will be modified based on recent DE Register comment.
Section 7C.03 – Pavement Word, Symbol and Arrow Markings

**INCORRECT**

SCHOOL word marking is scaled to fit one lane (although not quite in scale with new guidance in Fig 7C-1)

SCHOOL word marking extends into the departure lane

**CORRECT**

SCHOOL word marking is scaled to fit one lane (although not quite in scale with new guidance in Fig 7C-1)

South Dover Elementary

North Dover Elementary
Section 7C.04 – Stop Lines (DE Revision)

Support:
01 (DE Revision) Section 3B.16 contains provisions regarding the placement, design, and appropriate use of stop lines.

Guidance:
02 (DE Revision) Stop lines should not be installed along uncontrolled approaches in school areas for the sole purpose of indicating stopping points for motorists when crossing guards are present.

Delaware Guidance:

- **A stop line should not be installed in a school area just to mark the stopping point for drivers when a crossing guard is present**
Chapter 7D – Crossing Supervision
Guidance:

02 Adult crossing guards should possess the following minimum qualifications:

A. Average intelligence;
B. Good physical condition, including sight, hearing, and ability to move and maneuver quickly in order to avoid danger from errant vehicles;
C. Ability to control a STOP paddle effectively to provide approaching road users with a clear, fully direct view of the paddle’s STOP message during the entire crossing movement;
D. Ability to communicate specific instructions clearly, firmly, and courteously;
E. Ability to recognize potentially dangerous traffic situations and warn and manage students in sufficient time to avoid injury.
F. Mental alertness;
G. Neat appearance;
H. Good character;
I. Dependability; and
J. An overall sense of responsibility for the safety of students.

New Guidance:

- Several new qualifications added:
  - Ability to move quickly
  - Ability to control a STOP paddle effectively
  - Ability to communicate specific instructions
  - Ability to recognize potentially dangerous situations
Section 7D.04 Uniform of Adult Crossing Guards

Standard:

Law enforcement officers performing school crossing supervision and adult crossing guards shall wear high-visibility retroreflective safety apparel labeled as ANSI 107-2004 standard performance for Class 2 as described in Section 6E.02.

New Standard:

- Adult crossing guards shall wear Class 2 high-visibility retroreflective safety apparel

Must Comply by December 31, 2011
New Standard:

- **Shall not direct traffic in the usual law enforcement regulatory sense**
- **Shall pick opportune times to create a sufficient gap in traffic**
- **Shall stand in roadway**
- **Shall use a STOP paddle**
Guidance: **DRAFT**

01A (DE Revision) Adult crossing guards should understand how to effectively control traffic, balancing the demands of all road users.

01B (DE Revision) Adult crossing guards should be aware of the impact their control can have on the flow of traffic on the main road.

01C (DE Revision) Adult crossing guards should not keep traffic stopped on the main road for an unreasonable length of time.

01D (DE Revision) Adult crossing guards at signalized intersections should utilize existing pedestrian pushbutton controls and should not manually control traffic movements at the traffic signal.

**DE Revisions** (Some from old DE MUTCD):

- **Should balance demands of all road users**
- **Should be aware of impacts on flow of traffic on main road**
- **Should not keep traffic stopped on main road for an unreasonable length of time**
- **At signalized intersections, should use ped pushbuttons and not manually control traffic movements at signal**
Crossing Guard is standing in the roadway

Crossing Guard is using a STOP paddle

Crossing Guard, at a signalized intersection, is using existing pedestrian control and is not manually controlling traffic

Crossing Guard is not wearing Class 2 safety apparel

Other adults helping Crossing Guard are not wearing high-visibility safety apparel

Should children crossing at this crosswalk be supervised? Note Ped indication

Booker T. Washington Elementary