

**National Committee on
Uniform Traffic Control Devices**

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**RESCINDED
JANUARY 2024**
This Recommended
Change to the MUTCD
was rescinded by the
NCUTCD Council on
January 12, 2024.



1 **RWSTC June 2012 RW # 3**
2
3 **TOPIC:** Advance Traffic Control Signs
4 **TECHNICAL COMMITTEE:** Regulatory & Warning Signs Technical
5 Committee
6
7 **STATUS/DATE OF ACTION:**
8 **TC Drafts:** 11/24/2011, 11/30/11, 12/01/11,5/14/12,
9 5/15/12
10 **TC Approval:** 01/18/2012
11 **Transmitted to Sponsors:** Spring 20120
12 **RWSTC approval following sponsors:** 6/20/12
13 **Council Approval:** 6-22-12
14
15 **ORIGIN OF REQUEST:** Pline/Heydel & Ranck
16
17 **AFFECTED SECTIONS OF MUTCD:** Section 2C.36 Advance Traffic Control Signs
18 Table 2C-4 . Guidelines for Advance Placement of Warning Signs
19
20 **SUMMARY:**
21 The existing MUTCD provisions for Advance Traffic Control Signs refers to Table 2C-4
22 Guidelines for Advance Placement of Warning Signs as a reference to determine
23 sufficient distance to permit a road user to respond to the control device at the
24 intersection. The road user needs to see the STOP or YIELD sign in sufficient time to
25 bring their vehicle to a stop at the intersection. This reference can lead to an improper
26 determination of adequate visibility distance for a road user to decelerate to a stop
27 condition. This road user requirement is reflected in the AASHTO Guidelines for
28 Stopping Sight Distance..
29
30 **RESEARCH:**
31 The AASHTO Stopping Sight Distance is based on 2.5 seconds perception/reaction
32 time exceeding the 90th percentile of all drivers. The vehicle stopping distance is
33 documented in NCHRP 400 as providing a comfortable deceleration rate and adequate
34 for wet pavements.
35
36 **DISCUSSION**
37 It is necessary that a road user observe the STOP or YIELD at the intersection, react,
38 and decelerate to a stop condition. The AASHTO Stopping Sight Distance criteria is
39 based on a 2.5 sec PRT and a deceleration rate of 11.2 ft/sec² for the various design

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s representing the recommended minimum design guidelines for a comfortable of the STOP or YIELD at the intersection is not visible at this distance in advance intersection then the road user would not have adequate time to react to the intersection traffic control and bring the vehicle to a stop. It would also be appropriate to

44 install the Advance Traffic Control Sign (Stop Ahead or Yield Ahead) at this point of
 45 stopping sight distance to provide the road user notice of the stop condition so they can
 46 begin the deceleration to a stop. It is recognized that the Stop Ahead or Yield Ahead
 47 symbol sign has several hundred feet of legibility distance which when added to the
 48 AASHTO Stopping Sight Distance provides an additional warning distance for the road
 49 user and an opportunity to either react or decelerate at a slower rate than the minimum
 50 criteria. It is recommended that Table 2C-4 **Guidelines for the Advance Placement of**
 51 **Warning Signs** be revised to place the AASHTO Stopping Sight Distance minimum
 52 design guidelines in the “0” column or STOP condition for the various speeds. The basis
 53 for posting the Advance Traffic Control signs further in advance of the intersection are
 54 as follows;

- 55 1. It provides more advance notice of the critical intersection stop condition and
 56 a factor of safety for the driver to use more PRT or decelerate slower.
- 57 2. At 35 mph or less, Table 2C-4 assumes a sign legibility distance of 180 feet
 58 placing the Advance Traffic Control sign at 100 feet from the intersection. If
 59 that legibility distance does not exist then the motorist does not have
 60 adequate warning for stopping at the intersection.
- 61 3. Moving the Advance Traffic Control signs out away from the intersection is
 62 representative of Figure 2A-4 and 2A-5 (Note, Figure 2A-5 is currently being
 63 considered by the Council) providing more space on the intersection
 64 approach for lane control and guide signing.

65 The existing visibility criteria for a traffic control signal is based on continuous
 66 view of at least two signal faces for the distance specified in Table 4D-2 below
 67 assuming a queue of 2 vehicles (50 feet), PRT = 3.0 seconds, deceleration @ 11.2
 68 ft/sec² and design speed vs. assumed speed based on “Mokkapati, Naveen and H. G.
 69 Hawkins. Jr. Guidelines for Minimum Signal Sight Distance, Transportation Research
 70 Record 2020, TRB, Washington D.C., pages 40-46, 2007”;

MUTCD Table 4D-2. Minimum Sight Distances for Signal Visibility		AASHTO Table 3-1 Stopping Sight Distance	
85 th Mile Speed	Minimum Sight Distance	Design Speed	Design Distance
20 mph	175 feet	20 mph	115 feet
25 mph	215 feet	25 mph	155 feet
30 mph	270 feet	30 mph	200 feet
35 mph	325 feet	35 mph	250 feet
40 mph	390 feet	40 mph	305 feet
45 mph	460 feet	45 mph	360 feet
50 mph	540 feet	50 mph	425 feet
55 mph	625 feet	55 mph	495 feet
60 mph	715 feet	60 mph	570 feet

84 Section 4D.12(04) *Guidance: provides, “The two primary signal faces as a minimum on*
 85 *each approach should be continuously visible to traffic approaching the traffic control*

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from a point at least the minimum sight distance provided in Table 4D-2 in
ce of and measured to the stop line.” It should be noted that this is a “Guidance”
on while Section 2C.36 makes the visibility criteria for a traffic signal specified in
4D-2 a **Standard** provision. It is appropriate to modify the existing **Standard** ,
90 **Section 2C.36(01)**, Lines 118 & 119, to a *Guidance* provision to make Section 2C.36
91 and 4D.12 consistent. However, Section 4D.12 places the Traffic Signal Ahead
92 Warning sign in conformance with Section 2C.36 that references Table 2C-4. Making
93 the change in Table 2C-4 would also locate the Signal Ahead Warning sign the same
94 distance as recommended for the Stop Ahead or Yield Ahead signs.

95 Other Sections of the MUTCD that refer to the application of Stop Ahead and
96 Yield Ahead Warning signs are as follows;

97
98 Figure 2A-4B Relative Location of Regulatory, Warning and Guide Signs on
99 Intersection Approaches.

100 Section 2B.10(01). STOP Sign or YIELD Sign Placement

101 Section 4D.12(07) Visibility, Aiming and Shielding of Signal Faces

102 Section 5C.04(01)(02) Stop Ahead and Yield Ahead Signs

103 Section 5F.04(02) STOP and YIELD Signs

104 Section 8B.05(01) Use of STOP or YIELD Signs without Crossbuck Signs at
105 Highway-LRT Grade Crossings.

106 Section 8B.06(03) Grade Crossing Advance Warning Signs
107

108 In each Section, the cross reference is to Section 2C.36 for the need and placement of
109 the Stop Ahead and Yield Ahead sign. Therefore, revision of these Sections is not
110 necessary.

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112
113
114 **RECOMMENDED MUTCD PROVISIONS/ REVISIONS:**

115 **Note: Proposed changes to the MUTCD are shown in Underlined Red and**
116 **removed text are shown in ~~strike-through-red~~.**

117
118 **Section 2C.36 Advance Traffic Control Signs (W3-1, W3-2, W3-3, W3-4)**

119 **Standard:**

120 ⁰¹ **The Advance Traffic Control symbol signs (see Figure 2C-6) include the Stop Ahead (W3-1),**
121 **Yield Ahead (W3-2), and Signal Ahead (W3-3) signs. These signs shall be installed on an approach**
122 **to a primary traffic control device that is not visible for a sufficient distance to permit the road user**
123 **to respond to the device (see Table 2C-4).**

124
125 **Support:**

126 ⁰² Figure 2A-4 and 2A-5 shows the typical placement of an Advance Traffic Control sign.

127 ⁰³ Permanent obstructions causing the limited visibility might include roadway alignment or structures.

128 Intermittent obstructions might include foliage or parked vehicles.

129 **Guidance:**

130 The visibility criteria for a traffic control signal should be based on having a continuous view of at least
131 two signal faces for the distance specified in Table 4D-2.

132 ⁰⁴ *Where intermittent obstructions occur, engineering judgment should determine the treatment to*
133 *be implemented.*

134 **Option:**

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135 Advance Traffic Control sign may be used for additional emphasis of the primary traffic control
136 even when the visibility distance to the device is satisfactory.
137
138 Advance street name plaque (see Section 2C.58) may be installed above or below an Advance
139 Traffic Control sign.
140
141 Warning beacon may be used with an Advance Traffic Control sign.

142 08 A BE PREPARED TO STOP (W3-4) sign (see Figure 2C-6) may be used to warn of stopped traffic
143 caused by a traffic control signal or in advance of a section of roadway that regularly experiences traffic
144 congestion.

145 **Standard:**

146 09 **When a BE PREPARED TO STOP sign is used in advance of a traffic control signal, it shall be**
147 **used in addition to a Signal Ahead sign and shall be placed downstream from the Signal Ahead**
148 **(W3-3) sign.**

149 **Option:**

150 10 The BE PREPARED TO STOP sign may be supplemented with a warning beacon (see Section 4L.03).

151 *Guidance:*

152 11 *When the warning beacon is interconnected with a traffic control signal or queue detection system,*
153 *the BE PREPARED TO STOP sign should be supplemented with a WHEN FLASHING (W16-13P)*
154 *plaque (see Figure 2C-12).*

155 **Support:**

156 12 Section 2C.40 contains information regarding the use of a NO MERGE AREA (W4-5P) supplemental
157 plaque in conjunction with a Yield Ahead sign.

158 **Table 2C-4. Guidelines for Advance Placement of Warning Signs**

159 **Make the following revisions to the Table;**

Posted or 85th- Percentile Speed	Advance Placement Distance ¹	
	Condition B: Deceleration to the listed advisory speed (mph) for the condition	
	Current 0 _s	Recommended 0 _s
20 mph	100 ft _s	115 ft
25 mph	100 ft _s	155 ft
30 mph	100 ft _s	200 ft
35 mph	100 ft _s	250 ft
40 mph	125 ft	305 ft
45 mph	175 ft	360 ft
50 mph	250 ft	425 ft
55 mph	325 ft	495 ft
60 mph	400 ft	570 ft
65 mph	475 ft	645 ft
70 mph	550 ft	730 ft
75 mph	650 ft	820 ft

178 ¹ The distances are adjusted for a sign legibility distance of 180 feet for Condition A. The distances for Condition B have been adjusted for a
179 sign legibility distance of 250 feet, which is appropriate for an alignment warning symbol sign. For Conditions A and B, warning signs with
180 less than 6-inch legend or more than four words, a minimum of 100 feet should be added to the advance placement distance to provide
181 adequate legibility of the warning sign.

182 ² Typical conditions are locations where the road user must use extra time to adjust speed and change lanes in heavy traffic because of a
183 complex driving situation. Typical signs are Merge and Right Lane Ends. The distances are determined by providing the driver a PRT of 14.0
184 to 14.5 seconds for vehicle maneuvers (2005 AASHTO Policy, Exhibit 3-3, Decision Sight Distance, Avoidance Maneuver E) minus the
185 legibility distance of 180 feet for the appropriate sign.

186 ³ Typical condition is the warning of a potential stop situation. Typical signs are Stop Ahead, Yield Ahead, Signal Ahead, and Intersection
187 Warning signs. The distances are based on the 2011 AASHTO Policy, Table 3-1, Stopping Sight Distance, providing a PRT of 2.5 seconds, a
188 deceleration rate of 11.2 feet/second², ~~minus the sign legibility distance of 180 feet.~~

189 ⁴ Typical conditions are locations where the road user must decrease speed to maneuver through the warned condition. Typical signs are
190 Turn, Curve, Reverse Turn, or Reverse Curve. The distance is determined by providing a 2.5 second PRT, a vehicle deceleration rate of 10
191 feet/second², minus the sign legibility distance of 250 feet.

192 ⁵ No suggested distances are provided for these speeds, as the placement location is dependent on site conditions and other signing. An
193 alignment warning sign may be placed anywhere from the point of curvature up to 100 feet in advance of the curve. However, the alignment
194 warning sign should be installed in advance of the curve and at least 100 feet from any other signs.

195 ⁶ The minimum advance placement distance is listed as 100 feet to provide adequate spacing between signs.

197 **RWSTC 6-20-12 Vote:**

198 **For: 18**

ATTACHMENT NO. 6
RW Signs No. 3

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Against: 1
Abstentions: 1

Vote: For: Unanimous

203
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205
206
207

Against:
Abstentions:

C:\NCUTCD\June 2012\RW # 3 Stop ahead signs Table 2C-4 Placement of advance signs 6-22-12 APPROVED BY COUNCIL