



# National Committee on Uniform Traffic Control Devices

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Item No.: 20B-RW-01

## NCUTCD Proposal for Changes to the Manual on Uniform Traffic Control Devices

**TECHNICAL COMMITTEE:** Regulatory and Warning Signs Technical Committee  
**ITEM NUMBER:** 20B-RW-01  
**TOPIC:** Vertical Clearance of Large Signs  
**ORIGIN OF REQUEST:** Tom Heydel, WisDOT  
Task Force: Robert Weber (Task Force Chair), Marc Lipschultz, Scott Kuznicki, Mike Kimlinger, James Sullivan  
**AFFECTED SECTIONS OF MUTCD:** Section 2A.18, 19

### DEVELOPMENT HISTORY: Task force approved 5-18-20

- Approved by Technical Committee: 06/17/2020
- Approved by Technical Committee following sponsor comments: 01/11/2021
- Approved by NCUTCD Council: 01/19/2021

*This is a proposal for recommended changes to the MUTCD that has been approved by the NCUTCD Council. This proposal does not represent a revision of the MUTCD and does not constitute official MUTCD standards, guidance, or options. It will be submitted to FHWA for consideration for inclusion in a future MUTCD revision. The MUTCD can be revised only through the federal rulemaking process.*

### SUMMARY:

Section 2A.18, Mounting Height, Paragraph 11, requires that large signs having an area exceeding 50 square feet have a clearance from the ground to the bottom of the sign of at least 7 feet. There is a concern that in roads with steep cut slopes this results in excessive sign heights with can be unnecessary and impractical. An additional concern that arose during Task Force discussions is that the MUTCD's lateral placement requirements in Section 2A.19 do not consider deflection distance of longitudinal barrier for signs placed behind the barrier.

### DISCUSSION

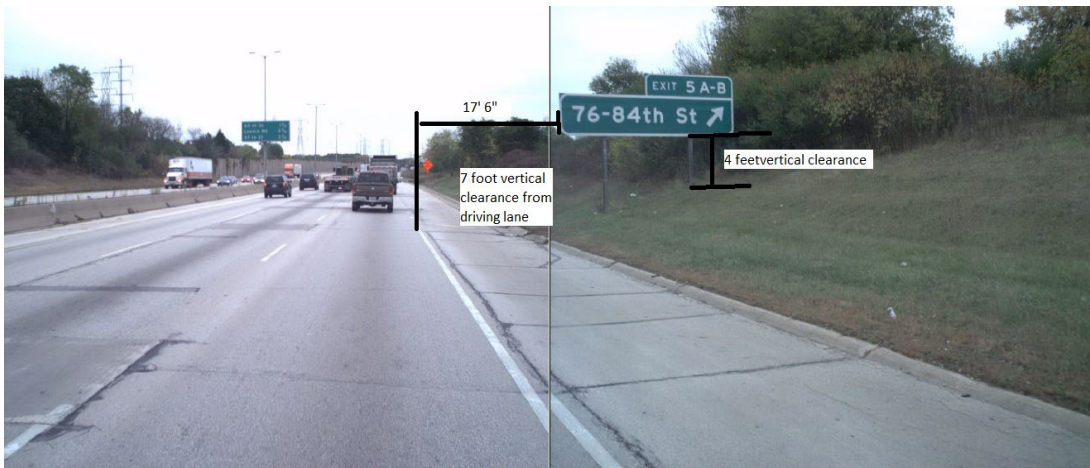
Paragraph 10 of Section 2A.18 requires directional signs on freeways and expressways to have a 7-foot vertical clearance from the near edge of pavement to the bottom of the sign. This

31 mounting height may be reduced to 5 feet if the sign is 30 feet or more from the edge of travel  
32 way (see paragraph 09). This is reasonable and prudent.

33  
34 Per paragraph 11 of Section 2A.18, for a large sign (defined as exceeding 50 square feet)  
35 mounted on multiple posts, it is required that the clearance from the ground to the bottom of the  
36 sign be 7-feet, which would include both the left and right corners of the sign. This language is  
37 similar to the 2011 AASHTO Roadside Design Guide Section 4.3.2, which states that for “large  
38 roadside sign supports” that “*The hinge should be at least 2.1 m [7 ft] above the ground so that*  
39 *no portion of the sign or upper section of the support is likely to penetrate the windshield of an*  
40 *impacting vehicle.*”

41  
42 However, there are situations in areas of deep cut (generally urban or mountainous terrain) where  
43 the lateral offset may be less than 30 feet due to right of way constraints. This then creates a  
44 dilemma in that if the sign were to be placed at 7 foot vertical clearance measured from the  
45 bottom of the far right corner (for a typical placement on the right side of the road), the resulting  
46 mounting height above road could be 11 feet or more. This would require very long posts, in  
47 turn requiring larger foundations to withstand design wind speed. An additional concern is that in  
48 certain situations this could lead to the sign being mounted much higher than 7 feet above the  
49 road, violating driver expectancy and reducing the reflected headlight retroreflectivity for  
50 modern full-cutoff headlights.

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54 Clear zone is defined by the Roadside Design Guide and depends on factors including design  
55 speed, ADT, and foreslope/backslope. Objects are also considered to be outside the clear zone if  
56 they are properly protected by longitudinal barrier, and outside the deflection distance of the  
57 longitudinal barrier. The AASHTO Roadside Design Guide and MUTCD requirements are  
58 critically important for the portion of the sign within the clear zone, to ensure that signs will  
59 properly break away and minimize risk of serious injury to vehicle occupants when struck.  
60 However for wider signs, some of the sign may be beyond the clear zone. And by definition,  
61 items located outside of the clear zone are far less likely to be struck by an errant vehicle.

62

63 Outside the clear zone, the risk of a driver hitting the far right corner of the sign is very low. The  
64 only remaining concerns are if the bottom right corner is very low to the ground, the sign face  
65 could become obscured by tall vegetation or subject to vandalism.

66  
67 A related issue that arose during the review of this mounting height issue is the relationship  
68 between signs and longitudinal barriers. Longitudinal barriers that have been tested using  
69 Manual for Assessing Safety Hardware (MASH) or older NCHRP-350 criteria were not tested  
70 with a breakaway sign support within the deflection distance. Ideally the entire portion of the  
71 sign should be outside the deflection distance, however this is not always feasible on roads with  
72 steep cross slopes, narrow right-of-way, or other site constraints.

73  
74 Based on these findings and an informal survey of state practices across the country, the Task  
75 Force recommends the followings changes to Sections 2A.18 and 2A.19 of the MUTCD:  
76

## 77 **RECOMMENDED MUTCD CHANGES**

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79 The following present the proposed changes to the current MUTCD within the context of the  
80 current MUTCD language. Proposed additions to the MUTCD are shown in blue underline and  
81 proposed deletions from the MUTCD are shown in ~~red strikethrough~~. Changes previously  
82 approved by NCUTCD Council (but not yet adopted by FHWA) are shown in green double  
83 underline for additions and ~~green double strikethrough~~ for deletions. In some cases, background  
84 comments may be provided with the MUTCD text. These comments are indicated by [black font  
85 in brackets highlighted light blue].  
86

### 87 **Section 2A.18 Mounting Height**

#### 88 **Standard:**

89 01 **The provisions of this Section shall apply unless specifically stated otherwise for a**  
90 **particular sign or object marker elsewhere in this Manual.**

91 Support:

92 02 The mounting height requirements for object markers are provided in Chapter 2C.

93 03 In addition to the provisions of this Section, information affecting the minimum mounting  
94 height of signs as a function of crash performance can be found in AASHTO's "Roadside Design  
95 Guide" (see Section 1A.11).

#### 96 **Standard:**

97 04 **The minimum height, measured vertically from the bottom of the sign to the elevation**  
98 **of the near edge of the pavement, of signs installed at the side of the road in rural areas**  
99 **shall be 5 feet (see Figure 2A-2).**

100 05 **The minimum height, measured vertically from the bottom of the sign to the top of the**  
101 **curb, or in the absence of curb, measured vertically from the bottom of the sign to the**  
102 **elevation of the near edge of the traveled way, of signs installed at the side of the road in**  
103 **business, commercial, or residential areas where parking or pedestrian movements are**  
104 **likely to occur, or where the view of the sign might be obstructed, shall be 7 feet (see Figure**  
105 **2A-2).**

106 Option:

107 06 The height to the bottom of a secondary sign mounted below another sign may be 1 foot less  
108 than the height specified in Paragraphs 4 and 5.

#### 109 **Standard:**

110 07 **The minimum height, measured vertically from the bottom of the sign to the sidewalk,**  
111 **of signs installed above sidewalks shall be 7 feet.**

112 08 If the bottom of a secondary sign that is mounted below another sign is mounted lower  
113 than 7 feet above a pedestrian sidewalk or pathway (see Section 6D.02), the secondary sign  
114 shall not project more than 4 inches into the pedestrian facility.

115 Option:

116 09 Signs that are placed 30 feet or more from the edge of the traveled way may be installed  
117 with a minimum height of 5 feet, measured vertically from the bottom of the sign to the elevation  
118 of the near edge of the pavement.

119 **Standard:**

120 10 **Directional signs on freeways and expressways shall be installed with a minimum**  
121 **height of 7 feet, measured vertically from the bottom of the sign to the elevation of the near**  
122 **edge of the pavement. All route signs, warning signs, and regulatory signs on freeways and**  
123 **expressways shall be installed with a minimum height of 7 feet, measured vertically from**  
124 **the bottom of the sign to the elevation of the near edge of the pavement. If a secondary sign**  
125 **is mounted below another sign on a freeway or expressway, the major sign shall be**  
126 **installed with a minimum height of 8 feet and the secondary sign shall be installed with a**  
127 **minimum height of 5 feet, measured vertically from the bottom of the sign to the elevation**  
128 **of the near edge of the pavement.**

129 11 Where large signs having an area exceeding 50 square feet are installed on multiple  
130 breakaway posts, the clearance from the ground to the bottom of the sign shall be at least 7  
131 feet **for the portion of the sign within the clear zone.**

132 Guidance:

133 11a A large sign having an area exceeding 50 square feet installed on multiple breakaway posts  
134 should be mounted at least 3 feet above the ground for the portion of the sign outside of the clear  
135 zone. Where the sign has the potential to be obscured by vegetation, engineering judgment  
136 should be used to determine if a higher mounting height is needed based on local conditions.

137 Support:

138 11b In a steep cut section, maintaining a 7-foot mounting height above the ground at the far side  
139 of the sign could result in an excessive mounting height above the pavement (very tall posts and  
140 reduced headlight illumination).

141 Option:

142 12 A route sign assembly consisting of a route sign and auxiliary signs (see Section 2D.31) may  
143 be treated as a single sign for the purposes of this Section.

144 13 The mounting height may be adjusted when supports are located near the edge of the right-  
145 of-way on a steep backslope in order to avoid the sometimes less desirable alternative of placing  
146 the sign closer to the roadway.

147 **Standard:**

148 14 **Overhead signs shall provide a vertical clearance of not less than 17 feet to the sign,**  
149 **light fixture, or sign bridge over the entire width of the pavement and shoulders except**  
150 **where the structure on which the overhead signs are to be mounted or other structures**  
151 **along the roadway near the sign structure have a lesser vertical clearance.**

152 Option:

153 15 If the vertical clearance of other structures along the roadway near the sign structure is less  
154 than 16 feet, the vertical clearance to an overhead sign structure or support may be as low as 1  
155 foot higher than the vertical clearance of the other structures in order to improve the visibility of  
156 the overhead signs.

157 16 In special cases it may be necessary to reduce the clearance to overhead signs because of  
158 substandard dimensions in tunnels and other major structures such as double-deck bridges.  
159 Support:  
160 17 Figure 2A-2 illustrates some examples of the mounting height requirements contained in this  
161 Section.

162  
163 **Section 2A.19 Lateral Offset**

164 **Standard:**

165 01 **For overhead sign supports, the minimum lateral offset from the edge of the shoulder**  
166 **(or if no shoulder exists, from the edge of the pavement) to the near edge of overhead sign**  
167 **supports (cantilever or sign bridges) shall be 6 feet. Overhead sign supports shall have a**  
168 **barrier or crash cushion to shield them if they are within the clear zone.**

169 02 **Post-mounted sign and object marker supports shall be crashworthy (breakaway**  
170 **yielding, or shielded with a longitudinal barrier or crash cushion) if within the clear zone.**

171 *Guidance:*

172 03 *For post-mounted signs, the minimum lateral offset should be 12 feet from the edge of the*  
173 *traveled way. If a shoulder wider than 6 feet exists, the minimum lateral offset for post-mounted*  
174 *signs should be 6 feet from the edge of the shoulder.*

175 03a *Supports for signs mounted laterally behind a longitudinal barrier should be placed so the*  
176 *near edge of support is located beyond the deflection distance of the longitudinal barrier.*

177 Support:

178 04 The minimum lateral offset requirements for object markers are provided in Chapter 2C.

179 05 The minimum lateral offset is intended to keep trucks and cars that use the shoulders from  
180 striking the signs or supports.