



**National Committee on
Uniform Traffic Control Devices**

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Agenda Item III.2 June 2013

**National Committee on Uniform Traffic Control Devices
RWSTC RECOMMENDATION**

**TECHNICAL COMMITTEE: NCUTCD Regulatory/Warning Signs Technical
Committee**

DATE OF ACTION: (TASK FORCE): December 4, 2013

TASK FORCE: Dan Paddick (chair), Tom Heydel, Jim Pline, Fred Ranck,

RWSTC APPROVAL DATE: 1-8-14

TRANSMITTAL TO SPONSORS DATE: April 2014

RWSTC APPROVAL FOLLOWING SPONSOR COMMENTS: June 25, 2014

COUNCIL APPROVAL DATE: June 26, 2014

TOPIC: Section 2C.65 Object Markers for Obstructions Adjacent to the Roadway

AFFECTED PORTIONS OF MUTCD: Section 2C.65

BACKGROUND:

Richard Moeur of the Arizona DOT and the NCUTCD contacted the Regulatory and Warning Sign Technical Committee (RWSTC) about the use of object markers on the end of crash cushions and guiderail.

He had two concerns. The first was the requirement in Section 2C.65(03) that “Where Type 3 Object Markers are applied to the approach ends of the guiderail and other roadside appurtances, sheeting without a substrate shall be directly affixed to the approach end of the guiderail in a rectangular shape conforming to the size of the guiderail.” He questioned whether we should allow the sign sheeting be affixed to a back panel then affixed to the crash cushion or guiderail. He also seemed to question the requirement that the size of the Object Marker match the size of the end of the guiderail or crash cushion.

His second question was whether the Standard in Section 2C.65(02) needs to be a Standard. This Section states “If a Type 2 or Type 3 object marker is used to mark an obstruction adjacent to the roadway, the edge of the object marker that is closest to the road user shall be installed in line with the closest edge of the obstruction.”

DISCUSSION:

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The treatment of Object Markers was relocated from Chapter 3C Object Markers in the 2003 MUTCD to Sections 2C.63 through 2C.65 in the 2009 MUTCD.

The Task Force’s discussion of Richard Moeur’s questions raised seven issues concerning Section 2C.65.

The first issue was the question asked by Richard Moeur about the requirement that the sign sheeting be used without a substrate or a back panel when placed on the end of a guiderail terminal or crash cushion. This requirement is based on the specifications for the crash testing of guide rail and crash cushion terminals. While allowing a back panel or substrate may significantly alter the operating characteristics of these devices, many devices are presently being fabricated with a slot that allows sheeting with a back panel to be placed in the slot. For this reason the RWSTC believes that this requirement should be amended.

The second issue was implied in Richard Moeur’s request. Does the Object Marker have to match the size of the end of the guiderail or crash cushion? Again, allowing a larger sign, which would require the use of a back panel or substrate which may significantly alter the operating characteristics of these devices. However, some existing terminal end sections are slightly curved and others do not match the dimensions of the approved Type 3 Object Markers. For these reasons the RWSTC believes that this requirement should be amended.

The third issue was how to treat “other roadside appurtenances”. Inherent in the question is the meaning of the term. The term is not defined in Section 1A.13. Are the authors referring to other types of guiderail terminals, primarily crash cushions or are they referring to other roadside objects. A number of obstructions are discussed in the Support statement in Section 2C.65(01). They include objects like “...underpass piers, bridge abutments, handrails, ends of traffic barriers, utility poles and culvert headwalls.” The Support statement also discusses roadside conditions where an Object Marker might be appropriate “...such as narrow shoulders, drop offs, gores, small islands, and abrupt changes in the roadway alignment...”. If an Object Marker is attached to a fixed object in this list, does it make sense to require that it be used without a back panel or substrate? In most cases it doesn’t. If an Object Marker is attached to the approach end of a crash cushion it would make sense it match the size of end section lest it change the operating characteristics. The sentence structure also implies that the authors meant the ends of crash cushions. The Section states “Where Type 3 Object Markers are applied to the approach ends of the guiderail and other roadside appurtenances, sheeting without a substrate shall be directly affixed to the approach end of the guiderail in a rectangular shape conforming to the size of the guiderail.” If the second clause of the sentence pertains to the entire first clause, the phrase “...other roadside appurtenances...” is referring to some sort of guiderailing rather than all roadside objects. The task force proposes changing the phrase “...the approach ends of the guiderail and other roadside appurtenances...” to the phrase “...the approach ends of the guiderail and crash cushion...”

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87 The use of Object Markers to delineate other obstructions adjacent to the roadway will be
88 addressed through normal signing guidelines and paragraph 03.
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90 The fourth issue was the need for an Option statement stating when an Object Marker
91 may be used. This is missing from the existing Section. Paragraph 01 is a Support
92 statement that starts with a sentence explaining why an Object Marker may be needed. It
93 says “Obstructions not actually within the roadway are sometimes so close to the edge of
94 the road that they need a marker.” It doesn’t say that they may be used. Paragraph 02
95 and Paragraph 03 addresses if they are used, how Type 2 or Type 3 Object Markers are to
96 be used. Paragraph 04 addresses where Type 1 and Type 4 Object Markers are not to be
97 used. Paragraph 05 is a Guidance statement addressing the use of other warning signs.
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99 The fifth issue was whether an Object Marker could or should be use on a breakaway
100 post in front of a guiderail or crash cushion terminal. In the past the AASHTO Roadside
101 Design Committee has had a concern about the use of separate Object Markers in
102 advance of crashworthy end terminals. For this reason the RWSTC recommends leaving
103 the requirement to use the Object Marker on the end of the guiderail or Crash cushion
104 terminal.
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106 The sixth issue was whether the last phrase in Section 2C.65(03) was needed. It
107 states “...with alternating black and retroreflective yellow stripes sloping downward at
108 a(n) angle of 45 degrees toward the side of the obstruction on which the traffic is to
109 pass.” While this statement is true, it is redundant with Section 2C.63(02) and should be
110 eliminated.
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112 The seventh issue was the second question brought up by Richard Moeur. It is
113 whether the Standard in Section 2C.65(02) needs to be a Standard. This Section states
114 “If a Type 2 or Type 3 object marker is used to mark an obstruction adjacent to the
115 roadway, the edge of the object marker that is closest to the road user shall be installed in
116 line with the closest edge of the obstruction.” Being a Standard, this statement appears to
117 be needlessly restrictive. No one questions whether the edge of the Object Marker should
118 be in line with the edge of the obstruction, just whether it is essential that it be installed
119 exactly in line. It is the consensus of the Task Force that this Standard can be reduced to
120 a Guidance statement without any effect on highway safety.
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122 **RECOMMENDATION:**
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124 It is recommended that:

- 125 1. In Section 2C.65(03) the requirement that the Object Markers be used without a
126 back panel or substrate should be amended.
- 127 2. In Section 2C.65(03) the requirement that the Object Markers be rectangular and
128 of a size that matches the end of the guiderail or crash cushion should be
129 amended.
- 130 3. In Section 2C.65(03) the phrase “...the approach ends of the guiderail and other
131 roadside appurtances,...” should be changed to the phrase “...the approach ends
132 of the guiderail and crash cushion terminals,...”

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- 133 4. An Option statement should be added to Section 2C.65 stating when an Object
134 Marker may be used.
- 135 5. The requirement to use the Object Marker on the end of the guiderail or crash
136 cushion terminal is being retained. It should not be placed on a breakaway post in
137 front of a guiderail or crash cushion terminal.
- 138 6. Eliminate the phrase in Section 2C65(03) that states "...with alternating black and
139 retroreflective yellow stripes sloping downward at a(n) angle of 45 degrees
140 toward the side of the obstruction on which the traffic is to pass." This phrase is
141 redundant with Section 2C.63(02).
- 142 7. Change Section 2C.65(02) from a Standard statement to a Guidance statement.
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144 **Note: Proposed changes to the MUTCD are shown in underline red and removed**
145 **text are shown in ~~strikethrough red~~.**

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147 **RECOMMENDED WORDING:**

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149 **Section 2C.65 Object Markers for Obstructions Adjacent to the Roadway**

150 Support:

151 01 Obstructions not actually within the roadway are sometimes so close to the edge of the
152 road that they need a marker. These include underpass piers, bridge abutments, handrails,
153 ends of traffic barriers, utility poles, and culvert headwalls. In other cases there might not
154 be a physical object involved, but other roadside conditions exist, such as narrow
155 shoulders, drop-offs, gores, small islands, and abrupt changes in the roadway alignment,
156 that might make it undesirable for a road user to leave the roadway, and therefore would
157 create a need for a marker.

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159 *Option:*

160 (XX) Type 2 or Type 3 object markers may be used to mark an obstruction adjacent to
161 the roadway

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163 **Standard:**

164 ~~02 If a Type 2 or Type 3 object marker is used to mark an obstruction adjacent to~~
165 ~~the roadway, the edge of the object marker that is closest to the road user shall be~~
166 ~~installed in line with the closest edge of the obstruction.~~

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168 *Guidance:*

169 02 If a Type 2 or Type 3 object marker is used to mark an obstruction adjacent to the
170 roadway, the edge of the object marker that is closest to the road user should be installed
171 in line with the closest edge of the obstruction.

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173 **Standard** (change the standard statement below to guidance)

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175 ~~Where-When Type 3 object markers are a marker is~~ applied to the approach ends of guardrail
176 ~~or crash cushion terminals it should have the appearance of a type 3 object marker and should~~
177 ~~be and other roadside appurtenances, sheeting without a substrate shall be~~ directly affixed to the
178 ~~approach end of the guardrail~~ or crash cushion and generally conform in a rectangular shape

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179 ~~*conforming to the size and shape of the approach end of the guardrail or crash cushion. with*~~
180 ~~*alternating black and retroreflective yellow stripes sloping downward at a angle of 45 degrees*~~
181 ~~*toward the side of the obstruction on which traffic is to pass.*~~
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183 **Standard**

184 **04 Type 1 and Type 4 object markers shall not be used to mark obstructions**
185 **adjacent to the roadway.**

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187 *Guidance:*

188 *05 Standard warning signs in this Chapter should also be used where applicable.*

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190 RWSTC VOTE 1-8-14: For: Unanimous

191 Opposed:

192 Abstentions:

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194 RWSTC VOTE following sponsor comments: 6-25-14 For: Unanimous

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196 COUNCIL VOTE: For: Unanimous 6-26-14

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198 C:NCUTCD/January 2014 meeting/Paddick/RW # 2 Section 2C-65 ObjectMarkers, 12-4-
199 13, revised 1-8-14, updated 1-13-14, revised 5-27-2014, approved by RWSTC following
200 sponsor comments 6-25-14, approved by Council 6-26-14