



National Committee on Uniform Traffic Control Devices

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Item No.: 24A-RW-04

NCUTCD PROPOSAL FOR CHANGES TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

COMMITTEE / TASK FORCE: RW Technical Committee
ITEM NUMBER: 24A-RW-04
TOPIC: Emergency Vehicle Weight Limit Signs
ORIGIN OF REQUEST: Marc Lipschultz, previous RWSTC Member; Tim Haagsma (Chair), Mike Kimlinger, Scott Kuznicki
AFFECTED SECTIONS OF MUTCD: Section 2B.64

DEVELOPMENT HISTORY:

Approved by RWSTC: 06/29/2023, 01/10/2024, 06/26/2024
Approved by NCUTCD Council: 06/27/2024

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:

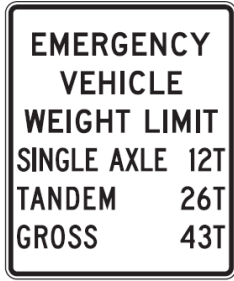
The 2015 *Fixing America's Surface Transportation Act* (FAST Act) amended 23 U.S.C. 127, *Vehicle weight limitations—Interstate System*, by revising the weight limit requirements for certain bridges on or near the Interstate System.

Many road agencies, in coordination with their bridge engineers, are therefore having to install “Emergency Vehicle Weight Limit” (EVWL) signs for certain bridges.

This ballot item was previously approved by RWTC in January 2021, but was never sent to sponsors due to NCUTCD’s decision in January 2021 given FHWA’s then-recent release of the NPA. Much of what was in this ballot item was used to inform NCUTCD’s approved Chapter 2B docket submission to the Federal Register. The 23B-RW-01 ballot item was not sent to sponsors in the fall of 2023 and accordingly, current ballot item 24A-RW-01 has been updated to be based off the 11th Edition (2023) MUTCD published on Dec 19, 2023 to incorporate the other comments NCUTCD submitted to the Federal Register and to have the 2023 MUTCD text.

DISCUSSION:

In the 2020 NPA, FHWA added several additional sentences and figures to Section 2B.66 (Section 2B.59 in the 2009 MUTCD) regarding EVWL signs. Specifically they proposed to add the below two signs:



R12-7



R12-7aP

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40 **Figure 1 – FHWA’s Recommended Sign Designs in 2020 NPA**

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42 The 2023 MUTCD in Section 2B.64 (Weight limit signs) and Figure 2B-30 retained these two
43 signs which were in the NPA.

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45 Section 2B.59 of the 2009 MUTCD was previously amended by Item 17A-RW-03 which was
46 approved by Council in June 2017. The Task Force for that item was aware of the EVWL issue
47 but chose to defer addressing that issue for a later date, noting that “*NCUTCD is still evaluating*
48 *[FHWA’s emergency vehicle load rating] memorandum and such signage may be addressed in*
49 *a future ballot item.*”

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51 FHWA’s EVWL guidance defines two design vehicles for load rating purposes, the EV2 and
52 EV3. These could be considered generally equivalent to 2-axle and 3-axle fire trucks
53 respectively.

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55 In September 2018, FDOT sent out a survey to AASHTO’s Committee on Traffic Engineering
56 regarding state DOT practices on such signs. The majority of states indicated that they had no
57 plans to erect any such signs. In some states the state laws on weight limits are such that they
58 do not need to post any such signs; at least one state indicated that they intend to rely on online
59 bridge weight limit mapping alone in lieu of physical EVWL signs.

60

61 The task force members agreed that EVWL signs should be avoided wherever possible. These
62 signs have a very limited audience – principally fire departments – and other methods of
63 outreach to this community, such as online mapping of bridge weight limits, would more
64 effectively reach the target audience. If an agency relied solely on EVWL signs, then a fire truck
65 drivers may have to evaluate whether he can drive over a particular structure while on his way
66 to an emergency, which would be neither effective nor desirable. However, the FAST Act and
67 the laws in some states are written such that some road agencies may be legally mandated to
68 erect such EVWL signs, even if online mapping resources were also provided.

69

70 Regarding the sign design: FHWA’s sign design is inconsistent with NCUTCD recommended
71 change 17A-RW-03, paragraph 04 which stated that “*Vehicle weight restrictions should be depicted*
72 *using gross vehicle weight. Vehicle weight restrictions using weight per axle or empty vehicle weight*
73 *should be avoided unless local laws require the signs to depict weight restrictions in that fashion.*” In the
74 case of EVWLs, the bridge load rating calculations need to consider axle weight limits, however
75 there is no reason why the results couldn’t be converted to gross vehicle weights depending on
76 the number of axles per emergency vehicle.

77

78 The reason why 17A-RW-03 included that guidance was because per-axle weight limits
79 essentially require drivers to do mental math to convert their gross weight into weight per axle.

80 This is particularly tricky for vehicles with both single and tandem axle combinations. This
81 would be difficult for any driver, but especially an emergency vehicle driver racing to an active
82 emergency. Moreover many fire departments may lack the portable scales necessary to
83 measure their weight per axle.
84

85 Another concern is that the phrase “emergency vehicle weight limit” on FHWA’s recommended
86 sign design could be misinterpreted by drivers as meaning “an emergency is in effect – ALL
87 drivers must abide by the following weight limits”, or that some drivers may be unfamiliar with
88 the word “tandem”.
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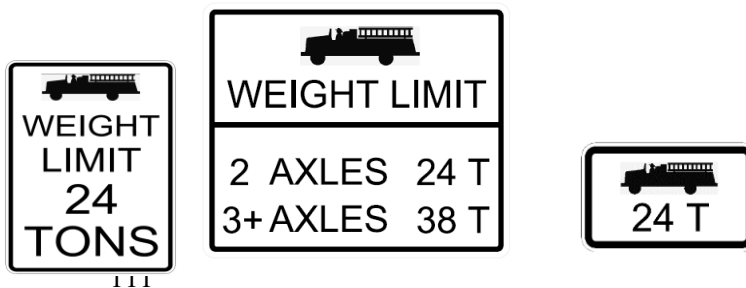
90 Lastly, it was noted that FHWA’s recommended sign design uses 3” text height, which would be
91 difficult to read on higher-speed roads.
92

93 The Task Force ultimately recommended the sign designs shown in **Figure 2**. The use of the
94 fire truck silhouette eliminates the lengthy and potentially confusing “emergency vehicle weight
95 limit” phrase.
96

97 The Task Force debated whether the fire truck could create issues because it theoretically
98 excludes emergency vehicles that are not fire trucks, however it appears that it would be quite
99 rare for non-fire-truck emergency vehicles (e.g. ambulances, or other less common vehicles
100 used for emergency responses in special situations) to have weights equal to or greater than
101 fire trucks.
102

103 The simpler sign (with just a single weight limit for all EVs) is preferable. For example if the
104 weight limit for 3+ axle fire trucks is low enough that even an empty 3+ axle fire truck would not
105 be able to legally traverse their bridge, then use of the larger sign would not provide any benefit
106 to fire department response times.
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108 A small plaque option is also proposed for use beneath existing primary weight limit signs.
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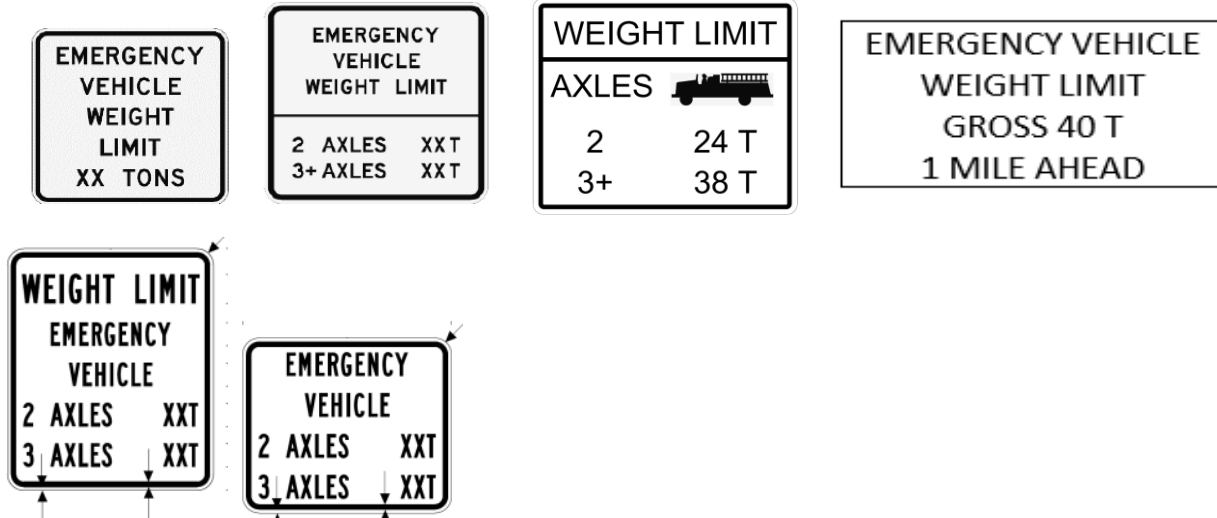


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112 **Figure 2 – Task Force Recommended Sign Designs**

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114 **Figure 3** presents other sign design options considered but rejected by the Task Force. The
115 first two signs show the sign designs adopted by VDOT. The third sign shows the INDOT sign
116 (as indicated in their response to FDOT’s 2018 AASHTO survey). The fourth sign is similar to
117 the sign design recommended by the task force, but with the word “axles” shown side by side
118 with the fire truck silhouette. The fifth and sixth signs show Oregon DOT’s sign designs.
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124 **Figure 3 – Other Sign Designs Considered by Task Force**

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127 Based on these findings, the Task Force recommends the followings changes to Sections 2B.59
128 64 of the 2023 MUTCD:

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131 **RECOMMENDED MUTCD CHANGES:**

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134 The following present the proposed changes to the current MUTCD within the context of the
135 current MUTCD language. Proposed additions to the MUTCD are shown in blue underline and
136 proposed deletions from the MUTCD are shown in ~~red strikethrough~~. Changes previously
137 approved by NCUTCD Council (but not yet adopted by FHWA) are shown in green double
138 underline for additions and ~~green double strikethrough~~ for deletions. In some cases,
139 background comments may be provided with the MUTCD text. These comments are indicated
140 by bracketed white text in shaded green. Deletions made by a technical committee or task
141 force after initial distribution to sponsoring organizations are shown in ~~highlighted red~~
142 ~~strikethrough and Helvetica text~~. Additions made by a technical committee or task force after
143 initial distribution to sponsoring organizations are shown in underline blue and Helvetica text.

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146 **Section 2B.64 Weight Limit Signs (R12-1 through R12-7)**

147 **Standard:**

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150 **01** Weight limit signs (see Figure ~~2B-29~~ 2B-30 ~~for some commonly used examples~~) shall be used to
151 indicate a section of highway or structure that has a vehicle weight restriction.

152 *Guidance:*

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155 **02** *The units shown on any weight limit sign should be consistent within a state or region with respect to
156 pounds or tons.*

157 *Option:*

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160 **03** Where the restriction applies to axle weight rather than gross load, the legend AXLE WEIGHT
161 LIMIT XX TONS or AXLE WEIGHT LIMIT XX LBS (R12-2) may be used.

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164 **04** In areas where multiple regulations are applicable, such as limiting both axle weight and gross
165 vehicle weight, a WEIGHT LIMIT XX TONS PER AXLE, XX TONS GROSS (R12-4) sign combining
166 the necessary messages on a single sign may be used.

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169 **05** Posting of specific load limits may be accomplished by use of the Weight Limit (R12-5) symbol sign
170 (~~R12-5~~). A sign containing the legend WEIGHT LIMIT on the top two lines, and showing up to three

158 different truck symbols and their respective weight limits for which restrictions apply may be used, with
159 the weight limits displayed to the right of each symbol as XX T. A bottom line of legend stating GROSS
160 WT may be included if needed for enforcement purposes.

161 Support:

162 06 A specialized hauling Vehicle is a single unit truck with multiple closely-spaced axles. Examples
163 include dump trucks, construction vehicles, solid waste trucks and other hauling trucks. Specialized
164 hauling vehicles typically have 4 to 7 axles.

165 Option:

166 07 The Weight Limit (R12-6) sign may be used to indicate vehicle weight restrictions for specialized
167 hauling vehicles. [Displaying consecutive lines of legend WEIGHT LIMIT 2-3 AXLES XX TONS, 4-5
168 AXLES XX TONS, 6+ AXLES XX TONS, and COMBINATION XX TONS may be used to indicate
169 vehicle weight restrictions for Specialized Hauling Vehicles.](#)

170 **Standard:**

171 08 The symbols shown on the R12-5 and R12-6 Weight Limit sign shall apply to all trucks of that
172 configuration (single-unit, single-trailer or multi-trailer) regardless of the shape of the vehicle or
173 number of axles. Symbolic representations of other vehicle shapes or modifications of standard
174 symbols shall not be used, except for the emergency vehicle symbol on the R12-7a, R12-7b signs, or
175 R12-7aP plaque.

176 Option:

177 09 The facility type (such as “BRIDGE”) may be added to the legend of the sign to clarify the specific
178 applicability of the weight limit, ~~or omitted if the posting applies to a different facility type.~~

179 Guidance:

180 09a Only trucks and axle configurations with weight limits should be shown.

181 **Standard:**

182 10 If the R12-5 sign depicts only one single-unit vehicle symbol, the weight limit associated with
183 that single-unit vehicle symbol shall apply to all single-unit vehicles, regardless of number of axles.

184 11 The weight limit associated with the single-trailer vehicle symbol shall apply to all single-trailer
185 vehicles, regardless of number of axles or vehicle shape.

186 12 The weight limit associated with the multi-trailer vehicle symbol shall apply to all multi-trailer
187 vehicles with two or more trailers, regardless of number of axles or vehicle shape.

188 13 The weight limit sign (See Figure 2B-30) shall be located at the applicable section of highway
189 or structure.

190 14 An additional weight limit sign, with an advisory distance or directional legend, shall be
191 located in advance of the applicable section of highway or structure so that prohibited vehicles can
192 detour or turn around prior to the limit zone.

193 Guidance:

194 14a The R12-5 and R12-6 Weight Limit sign should not show more than 3 symbols to minimize
195 comprehension time of the sign.

196 Option:

197 14b The symbols shown in the R12-5 Weight Limit sign may be modified to show additional axles.
198 [Approved June 2017, 17A-RW-03]

199 14c The BRIDGE LIMITED TO ONE TRUCK AT A TIME sign (R12-8) may be used where conditions
200 dictate. [Approved June 2017, 17A-RW-03]

201 Support:

202 15 An emergency vehicle is designed to be used under emergency conditions to transport personnel and
203 equipment to support the suppression of fires and mitigation of other hazardous situations. Emergency
204 vehicles are typically operated by fire departments and are primarily equipped for firefighting, but are
205 also used to respond to and mitigate other hazardous situations in an emergency. They can create higher
206 load effects compared to non-emergency vehicles of similar weight.

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209 **Option:**
210 ~~16 The Emergency Vehicle Weight Limit (R12-7) sign carrying the legend EMERGENCY VEHICLE~~
211 ~~WEIGHT LIMIT SINGLE AXLE XX TONS, TANDEM XX TONS, and GROSS XX TONS may be~~
212 ~~used to indicate vehicle weight restrictions for emergency vehicles.~~

213 Guidance:

214 *16a If state or federal law requires the posting of emergency vehicle weight limits at a bridge for fire*
215 *trucks or other emergency vehicles, then the bridge should be posted using an Emergency Vehicle Weight*
216 *Limit (R12-7 or R12-7a) sign, or by posting the Emergency Vehicle Weight Limit (R12-7aP) plaque*
217 *beneath the primary weight limit sign.*

218 *16b Emergency vehicle weight limits should not be posted except where required by state or federal law.*

219 *16c Road agencies should implement other methods of outreach to fire departments and other emergency*
220 *vehicle agencies in lieu of or in addition to physical signs, such as online bridge posting information, so*
221 *that emergency vehicle agencies can plan their response routes prior to incidents occurring.*

222 Support:

223 *16d Federal requirements for emergency vehicle weight limits for bridges on or near the Interstate system*
224 *are located in 23 U.S.C. 127(r) of the Federal Code. [Language generally the same as the NCUTCD*
225 *response to NPA docket for Chapter 2B, with the exception of the addition of the R12-7aP plaque]*

226 **Standard:**

227 **17 When the emergency vehicle weight limit is displayed in the same assembly as the primary**
228 **weight limit sign, the Emergency Vehicle Weight Limit plaque (R12-7ap) shall be mounted below.**

2B-30

Figure 2B-29. Road Closed and Weight Limit Signs



R11-1



R11-2



R11-3



R11-3a



R11-3b



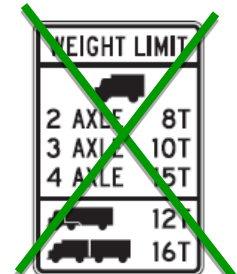
R11-4



R12-1



R12-5



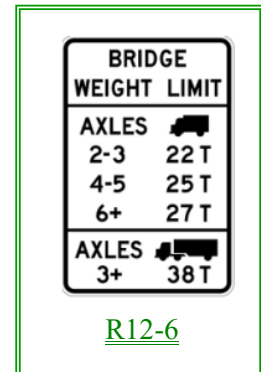
R12-6



R12-7



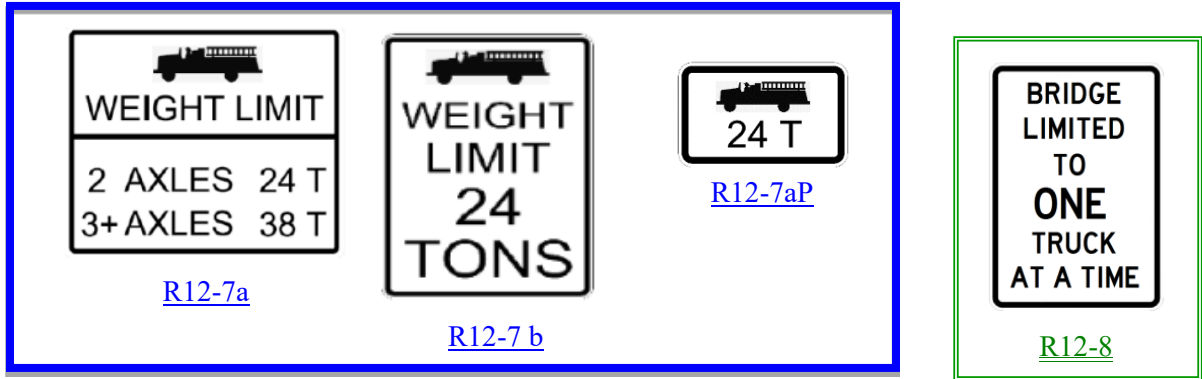
R12-7aP



R12-6

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[Revision to R12-6 sign and addition of R12-8 sign previously approved by Council (17A-RW-03).] Change the Figure to read 2B-30 per 2023 MUTCD.