



National Committee on Uniform Traffic Control Devices

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Item No.: 24A-TTC-06

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

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COMMITTEE / TASK FORCE: TTC Technical Committee
ITEM NUMBER: 24A-TTC-06
TOPIC: Temporary and Portable Traffic Control Signals
ORIGIN OF REQUEST: Ken Wood (at the time FHWA MUTCD Team), Dave Krahulec
AFFECTED SECTIONS OF MUTCD: Section 4D.11 Temporary and Portable Traffic Control Signals
 Chapter 4O. Traffic Control Signals For One-Lane, Two-Way Facilities
 Section 6L.01 Temporary Traffic Control Signals
 Notes for Figure 6H-12 (TA-12) Lane Closure on a Two-Lane Road Using Traffic Control Signals

DEVELOPMENT HISTORY:

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8 Approved by Multi-Committee Task Force: 06/08/2023
 9 Approved by TTC Technical Committee: 06/28/2023
 10 Concurrence from SIG Technical Committee: 06/29/2023
 11 Approved by NCUTCD Council: MM/DD/YYYY

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13 *This is a proposed change to the MUTCD that has been developed by a technical committee or*
 14 *joint task force of the NCUTCD. The NCUTCD is distributing it to its sponsoring organizations*
 15 *for review and comment. Sponsor comments will be considered in revising the proposal prior to*
 16 *NCUTCD Council consideration. This proposal does not represent a revision of the MUTCD and*
 17 *does not constitute official MUTCD standards, guidance, or options. If approved by the*
 18 *NCUTCD Council, the recommended changes will be submitted to FHWA for consideration for*
 19 *inclusion in a future MUTCD revision. The MUTCD can be revised only through the federal*
 20 *rulemaking process.*

SUMMARY:

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23 This document details proposed changes regarding temporary and portable traffic control
 24 signals in the MUTCD. These changes, while minimal, will help to create a more comprehensive
 25 set of guidelines for the use of portable traffic signals, and more accurately reflect the
 26 technologies being used in the industry.

DISCUSSION:

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29 Portable traffic signals as a means of controlling traffic have been in existence for over 60 years.
 30 The existing MUTCD guidelines were developed many years ago and at the time appropriately
 31 addressed the existing technology. Over the past several decades many technological

32 advancements have been integrated into portable traffic control signals including wireless
33 communication, solar charging systems, LED signal indications, conflict monitoring systems,
34 pre-emption systems, traffic detection modules, pedestrian signals and remote monitoring
35 systems. Advancements in software technology have also been incorporated into the operating
36 systems of portable traffic signals. These advancements have made portable traffic signals a
37 highly reliable and versatile temporary traffic control device used by virtually every state
38 department of transportation in the country.

39
40 Recognizing a need to set minimum standards for the safe operation the portable traffic control
41 signals, the industry began an initiative in 2009 through the National Electrical Manufacturers
42 Association (NEMA) to develop such a standard. In 2017, NEMA published their TS-5 Standard
43 for Portable Traffic Signal Systems (PTSS) which sets minimum standards for the safe
44 operation of portable traffic signals.

45
46 In 2015, Ken Wood of the FHWA identified the need to update portions of the MUTCD related to
47 portable traffic control signals in order to reflect the advancements in this important temporary
48 traffic control tool. Mr. Wood requested that the Temporary Traffic Controls (TTC) Technical
49 Committee of the National Committee on Uniform Traffic Control Devices begin an initiative to
50 review and develop a recommended update to portions of the MUTCD related to portable traffic
51 control signals. The TTC Technical Committee formed a Task Force of individuals with expertise
52 in the subject matter to review and develop a recommended update the MUTCD as requested
53 by Mr. Wood.

54
55 As portable traffic control signals are included in both Part 4 and Part 6 of the MUTCD, the TTC
56 Task Force worked with a Signals Technical Committee (SIG) Task Force to ensure all portable
57 traffic control signal related standards, guidance, options, and support were consistent
58 throughout the MUTCD.

59
60 The changes to the MUTCD recommended by the Task Forces have been accepted by both
61 Temporary Traffic Controls and Signals Technical Committees and are contained herein. The
62 recommended changes reflect the current language from Part 4 and Part 6 of the 2023 MUTCD.

63

64 **RECOMMENDED MUTCD CHANGES:**

65 The following present the proposed changes to the current MUTCD within the context of the
66 current MUTCD language. Proposed additions to the MUTCD are shown in blue underline and
67 proposed deletions from the MUTCD are shown in ~~red strikethrough~~. Changes previously
68 approved by NCUTCD Council (but not yet adopted by FHWA) are shown in green double
69 underline for additions and ~~green double strikethrough~~ for deletions. In some cases,
70 background comments may be provided with the MUTCD text. These comments are indicated
71 by **[bracketed white text in shaded green]**. Deletions made by a technical committee or task
72 force after initial distribution to sponsoring organizations are shown in ~~highlighted red~~
73 ~~strikethrough and Helvetica text~~. Additions made by a technical committee or task force after
74 initial distribution to sponsoring organizations are shown in underline blue and Helvetica text.

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76 PART 4. HIGHWAY TRAFFIC SIGNALS

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78 CHAPTER 4D. DESIGN OF TRAFFIC CONTROL SIGNALS

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80 **Section 4D.11 Temporary and Portable Traffic Control Signals**

81 Support:

82 01 A temporary traffic control signal is generally installed using methods that minimize the costs of
83 installation, relocation, and/or removal. Typical temporary traffic control signals are for specific
84 purposes, such as for one-lane, two-way facilities in temporary traffic control zones (see Chapter 4O), for
85 a haul-road intersection, or for access to a site that will have a permanent access point developed at
86 another location in the near future. ~~Portable traffic control signals are temporary traffic control signals.~~

87 02 Because a portable traffic control signal is considered to be a type of temporary traffic control signal,
88 the provisions for temporary traffic control signals are also applicable to portable traffic control signals.

89 02a Portable traffic control signals can be employed in temporary intersection control, temporary ramp
90 metering, temporary driveway control, one lane two-way control work zones, and as a means to
91 supplement or temporarily replace a malfunctioning or damaged traffic control signal.

92 **Standard:**

93 03 **Advance signing shall be used when employing a temporary traffic control signal.**

94 04 **A temporary traffic control signal shall:**

95 **A. Meet the physical display and operational requirements of a conventional traffic control**
96 **signal;**

97 **B. Be removed when no longer needed; and**

98 **C. Except as provided in Paragraph 5, or when used on a one-lane, two way facility, be placed**
99 **in the flashing mode during periods when it is not desirable to operate the signal in a steady**
100 **mode, or the signal heads shall be covered, turned or taken down to indicate that the signal**
101 **is not in operation.**

102 Option:

103 05 If the temporary traffic control signal is capable of being operated in a semi-actuated mode, such that
104 green signal indications are continually shown to major-street traffic except when responding to a minor-
105 street approach vehicle call, it may be operated in a semi-actuated mode instead of being placed in a
106 flashing mode.

107 *Guidance:*

108 06 ~~A temporary traffic control signal should be used only if engineering judgment indicates that~~
109 ~~installing the signal will improve the overall safety and/or operation of the location.~~

110 07 ~~The use of temporary traffic control signals by a work crew on a regular basis in their work area~~
111 ~~should be subject to the approval of the jurisdiction having authority over the roadway.~~

112 08 *A temporary traffic control signal should not operate longer than 30 days unless associated with a*
113 *longer-term temporary traffic control zone project.*

114 09 *Section 6L.01 contains information about the use of temporary traffic control signals in temporary*
115 *traffic control zones.*

116 **Standard**

117 09a **A temporary traffic control signal used for a one-lane, two-way facility, shall not be placed in**
118 **the flashing mode.**

119 **Option:**

120 09b **A temporary portable traffic control signal used within work zones on a one-lane, two-way facility**
121 **may be placed in flash during set-up, work zone stage changes, and shutdown when traffic is actively**
122 **controlled by a law enforcement officer, or a flagger in a work zone.**

123 **Standard:**

124 09c **When used for traffic control within a work zone, a temporary traffic control signal shall be**
125 **implemented, installed and operated, or be implemented as approved, by authorized officials**
126 **having jurisdiction over the roadway.**

127 **CHAPTER 40. TRAFFIC CONTROL SIGNALS FOR ONE-LANE, TWO-WAY FACILITIES**

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129 **Section 40.01 Application of Traffic Control Signals for One-Lane, Two-Way Facilities**

130 Support:

131 01 A traffic control signal at a narrow bridge, tunnel, [temporary traffic control area, work zone \(see Part](#)
132 [6\)](#) or roadway section [that is not of sufficient width for two opposing vehicles to pass](#) is a special signal
133 that alternates which direction of [approaching travel](#) ~~vehicles~~ is permitted to proceed.

134 02 Temporary traffic control signals [using fixed or portable signal units](#) (see Sections 4D.11 and ~~6L.01~~
135 [Part 6\)](#) are the most frequent application of one-lane, two-way facilities.

136 *Guidance:*

137 03 *Sight distance across or through the one-lane, two-way facility should be considered as well as the*
138 *approach speed and sight distance approaching the facility when determining whether traffic control*
139 *signals should be installed.*

140 Option:

141 04 At a narrow bridge, tunnel, [temporary traffic control zone, work zone \(see Part 6\)](#) or roadway section
142 where a traffic control signal is not justified under the conditions of Chapter 4C, a traffic control signal
143 may be used if gaps in opposing traffic do not permit the flow of traffic through the one-lane section of
144 roadway.

145
146 **Section 40.02 Design of Traffic Control Signals for One-Lane, Two-Way Facilities**

147 **Standard:**

148 01 **The provisions of Chapters 4D through 4G shall apply to traffic control signals for one-lane,**
149 **two-way facilities, except that:**

150 **A. Durations of red clearance intervals shall be adequate to clear the one-lane section of**
151 **conflicting vehicles.**

152 **B. Adequate means, such as interconnection [and Malfunction Management Systems \(see Part](#)**
153 **[6\)](#), shall be provided to prevent conflicting signal indications, ~~such as green and green at~~**
154 **~~opposite ends of the section~~ [and internal traffic movements](#).**

155
156 **Section 40.03 Operation of Traffic Control Signals for One-Lane, Two-Way Facilities**

157 *Guidance:*

158 01 *Traffic control signals at one-lane, two-way facilities should operate in a manner consistent with*
159 *traffic requirements.*

160 02 *Adequate time should be provided to allow traffic to clear the narrow facility before opposing traffic*
161 *is allowed to move. Engineering judgment should be used to determine the proper timing for the*
162 *signal.*

163
164 **Standard:**

165 03 **When in the flashing mode, the signal indications shall flash red.**

166
167 **PART 6. TEMPORARY TRAFFIC CONTROL**

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169 **CHAPTER 6L. OTHER TTC ZONE TRAFFIC CONTROL DEVICES**

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171 **Section 6L.01 Temporary Traffic Control Signals**

172 **Standard:**

173 01 **Temporary traffic control signals (see Section 4D.10) used to control road user movements**
174 **through TTC zones and in other TTC situations shall comply with the applicable provisions of**
175 **Part 4.**

176 Support:

177 02 Temporary traffic control signals are typically used in TTC zones such as temporary haul road
178 crossings; temporary one-way operations along a one-lane, two-way highway with or without multiple
179 access points; temporary one-way operations on bridges, reversible lanes, ~~and~~ intersections, temporary
180 ramp metering, residential and commercial driveway control within a one-lane, two-way control work
181 zone, a temporary access point, and as a means to supplement or temporarily replace a malfunctioning or
182 damaged traffic control signal.

183 Option:

184 02a A temporary traffic control signal may be used in place of flaggers when supported by engineering
185 judgment.

186 **Standard:**

187 03 **A temporary traffic control signal that is used to control traffic through a one-lane, two-way**
188 **section of roadway shall comply with the provisions of Section 40.02.**

189 03a A temporary traffic control signal operated by a flagger shall be done through the use of a
190 handheld module. At no time shall the flagger have the ability to add or change the signal program
191 or override the programmed red, yellow, and minimum green times.

192 03b Temporary traffic control signals shall be preceded by an advance signal ahead warning sign
193 or signs.

194 *Guidance*

195 04 ~~When temporary traffic control signals are used, conflict monitors typical of traditional traffic~~
196 ~~control signal operations should be used. When portable traffic control signals are used, malfunction~~
197 ~~management systems providing performance standards typical of traditional traffic control signal~~
198 ~~operations shall be used, as referenced in Part 4.~~

199 **Support:**

200 05 Where pedestrians are detoured to a temporary traffic control signal, an accessible pedestrian signal
201 (see Chapter 4K) provides information in non-visual formats (such as audible tones and/or speech
202 messages, and vibrating surfaces) so that a pedestrian with vision disabilities can know when to cross the
203 street along the alternate route.

204 **Option:**

205 06 Temporary traffic control signals may be portable or temporarily mounted on fixed supports.

206 *Guidance:*

207 07 ~~Temporary traffic control signals should only be used in situations where temporary traffic control~~
208 ~~signals are preferable to other means of traffic control, such as changing the work staging or work zone~~
209 ~~size to eliminate one-way vehicular traffic movements, using flaggers to control one-way or crossing~~
210 ~~movements, using STOP or YIELD signs, and using warning devices alone. Use of temporary traffic~~
211 ~~control signals should be based on engineering judgement.~~

212 **Support:**

213 08 Factors related to the design and application of temporary traffic control signals include the
214 following:

- 215 A. Safety and road user needs;
- 216 B. Work staging and operations;
- 217 ~~C. The feasibility of using other TTC strategies (for example, flaggers, providing space for two~~
218 ~~lanes, or detouring road users, including bicyclists and pedestrians);~~
- 219 ~~D.C.~~ Sight distance restrictions;
- 220 ~~E.D.~~ Human factors considerations ~~(for example, lack of driver familiarity with temporary traffic~~
221 ~~control signals);~~
- 222 ~~F.E.~~ Road-user volumes including roadway and intersection capacity;
- 223 ~~G.F.~~ Affected side streets and driveways;
- 224 ~~H.G.~~ Vehicle speeds;
- 225 ~~I.H.~~ The placement of other TTC devices;
- 226 ~~J.I.~~ Parking;

- 228 ~~K.J.~~ Turning restrictions;
- 229 ~~L.K.~~ Pedestrians;
- 230 ~~M.L.~~ The nature of adjacent land uses (such as residential or commercial);
- 231 ~~N.M.~~ Legal authority;
- 232 ~~O.N.~~ Signal phasing and timing requirements;
- 233 ~~P.O.~~ Full-time or part-time operation;
- 234 ~~Q.P.~~ Actuated, fixed-time, or manual operation;
- 235 ~~R.Q.~~ Power failures or other emergencies;
- 236 ~~S.R.~~ Inspection and maintenance needs;
- 237 ~~T.S.~~ Need for detailed placement, timing, and operation records; and
- 238 ~~U.T.~~ Operation by contractors or by others;
- 239 U. Height restrictions / overhead clearance;
- 240 V. Adequate space to locate TTC devices.

241

242 09 ~~Although temporary traffic control signals can be mounted on trailers or lightweight portable~~

243 ~~supports, fixed supports offer superior resistance to displacement or damage by severe weather, vehicle~~

244 ~~impact, and vandalism.~~

245 *Guidance*

246 10 *Other TTC devices should be used to supplement temporary traffic control signals, including*

247 *warning and regulatory signs, pavement markings, and channelizing devices.*

248 11 *Temporary traffic control signals not in use should be covered or removed.*

249 12 *If a temporary traffic control signal is located within 1/2 mile of an adjacent traffic control signal,*

250 *consideration should be given to interconnected operation.*

251 Option:

252 12a When temporary or portable traffic control signals are used for one-lane two-way work zone

253 facilities, signs, including portable changeable message signs (see Section 6F.60) may be considered to

254 advise road users of:

255 A. Wait Time

256 B. Work zone conditions

257 Support:

258 12b Portable changeable message signs used in conjunction with work zone portable or temporary traffic

259 control signals are typically used in long TTC zones and/or zones with limited sight distance.

260 **Standard:**

261 13 **Temporary traffic control signals shall not be located within 200 feet of a grade crossing unless**

262 **the temporary traffic control signal is provided with preemption in accordance with Sections 4F.18,**

263 **4F.19, and 8D.09. ~~-or unless a uniformed officer or flagger is provided at the crossing to prevent~~**

264 **vehicles from stopping within the crossing.**

265 **CHAPTER 6P. TYPICAL APPLICATIONS**

266

267 **NOTES FOR FIGURE 6P-12—TYPICAL APPLICATION 12**

268 **LANE CLOSURE ON A TWO-LANE ROAD USING TEMPORARY TRAFFIC CONTROL**

269 **SIGNALS**

270

271 **Standards**

- 272 1. **Temporary traffic control signals shall be installed and operated in accordance with the**
- 273 **provisions of Part 4, Temporary traffic control signals shall meet the physical display and**
- 274 **operational requirements of conventional traffic control signals**
- 275 2. **Temporary traffic control signal installation and timing shall be established by authorized**
- 276 **officials. Durations of red clearance intervals shall be adequate to clear the one-lane**
- 277 **section of conflicting vehicles, as referenced in Part 4.**

- 278 3. When the temporary traffic control signal is changed to the flashing mode, either
279 manually or automatically, red signal indications shall be flashed to both approaches, [as](#)
280 [referenced in Part 4.](#)
281 4. Stop lines shall be installed with temporary traffic control signals for intermediate and
282 long-term closures. Existing conflicting pavement markings and raised pavement marker
283 reflectors between the activity area and the stop line shall be removed. After the
284 temporary traffic control signal is removed, the stop lines and other temporary pavement
285 markings shall be removed and the permanent pavement markings restored.
286 5. Safeguards shall be incorporated to avoid the possibility of conflicting signal indications
287 at each end of the TTC zone, [as referenced in Part 4.](#)

288 *Guidance:*

- 289 6. *Where no-passing lines are not already in place, they should be added.*
290 7. *Adjustments in the location of the advance warning signs should be made as needed to*
291 *accommodate the horizontal or vertical alignment of the roadway, recognizing that the*
292 *distances shown for sign spacings are minimums. Adjustments in the height of the signal heads*
293 *should be made as needed to conform to the vertical alignment.*

294 *Option:*

- 295 8. Positive protection devices may be used per Section 6M.02.
296 9. Flashing warning lights shown on the ROAD WORK AHEAD and the ONE LANE ROAD
297 AHEAD signs may be used.
298 10. Removable pavement markings may be used.
299 [10a. Temporary or portable traffic control signal faces may be located over the roadway or be](#)
300 [positioned out of the lane of traffic on both sides of the roadway.](#)

301 *Support:*

- 302 11. Temporary traffic control signals are preferable to flaggers for long-term projects and other
303 activities that would require flagging at night.
304 12. The maximum length of activity area for one-way operation under temporary traffic control
305 signal control is determined by the capacity required to handle the peak demand.