



National Committee on Uniform Traffic Control Devices

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National Committee on Uniform Traffic Control Devices (NCUTCD) Recommended Changes to Proposed Text for 11th Edition of the MUTCD Docket Number: FHWA-2020-0001

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Federal Register Item Number: 503, 504, 505, 506, 507, 508

NPA MUTCD Section Number: Sections 6M.01 to 6M.09

Legend: Base text shown in proposal is the NPA “clean” proposed text.

- [NCUTCD recommendation for text to be added in final rule.](#)
- ~~NCUTCD recommendation for text to be deleted in final rule.~~
- [NCUTCD recommendation for text to be moved/relocated in final rule.](#)
- NPA text that was not previously approved by NCUTCD but is now approved.
- Explanatory note: [\[Note that explains purpose of recommended change.\]](#)

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The following pages present NCUTCD recommendations for changes to the MUTCD NPA proposed text, tables, and figures for Chapter 6M. Below is a short summary of the NCUTCD position for each section of this chapter. A more detailed summary is provided at the beginning of each section.

- NPA #503, Section 6M.01: NCUTCD agrees with NPA content (no changes recommended)
- NPA #504, Section 6M.02: Changes recommended based on Council action in spring 2021
- NPA # N/A, Section 6M.03: NCUTCD agrees with NPA content (no changes recommended)
- NPA # 505, Section 6M.04: NCUTCD agrees with NPA content (no changes recommended)
- NPA #506, Section 6M.05: Changes recommended based on Council action in spring 2021
- NPA #N/A, Section 6M.06: Changes recommended based on Council action in spring 2021
- NPA #507, Section 6M.07: NCUTCD agrees with NPA content (no changes recommended)
- NPA #508, Section 6M.08: Changes recommended based on Council action in spring 2021

CHAPTER 6M. TTC ZONE DESIGN FEATURES AND DEVICES THAT ARE NOT TRAFFIC CONTROL DEVICES

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Section 6M.01 Comments: NCUTCD agrees with 6M.01 as presented in the NPA.

Section 6M.01 General

Support:

Although certain devices and design features, such as lighting, barriers, dividers, crash cushions, and screens, are sometimes used in TTC zones to supplement traffic control devices or enhance traffic operations or safety for road users, they are not considered to be traffic control devices. The following Sections describe the most commonly used of such devices and design features. See also Section 1D.04 for additional information.

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43 **Section 6M.02 Comments:** NCUTCD generally agrees with 6M.02 as presented in the NPA, but
44 recommends the following:

- 45 • Replace the first Standard statement and the following Support statement with Support and
46 Guidance from the final version of NCUTCD recommendation 19B-TTC-02, as the proposed
47 NPA text represents a draft version of 19B-TTC-02
- 48 • Add a reference to the new Section 1D.13
- 49 • Revise the last paragraph in the Section from Support to Option since the proposed text uses
50 'may' twice and is not considered Support

51
52 **Section 6M.02 Positive Protection and Temporary Traffic Barriers**

53 **Standard:**

54 ~~**The need for longitudinal traffic barrier and other positive protection devices shall be**~~
55 ~~**based on an engineering study. At a minimum, positive protection devices shall be**~~
56 ~~**considered in work zone situations that place workers at increased risk from motorized**~~
57 ~~**traffic, and where positive protection devices offer the highest potential for increased safety**~~
58 ~~**for workers and road users.**~~ [revised per 19B-TTC-02]

59 **Support:**

60 ~~**Consider positive protection under the following circumstances:**~~

61 ~~**A. Work zones that provide workers no means of escape from motorized traffic such as**~~
62 ~~**tunnels or bridges;**~~

63 ~~**B. Long-term stationary work zones of two weeks or more resulting in substantial worker**~~
64 ~~**exposure to motorized traffic;**~~

65 ~~**C. Projects with anticipated operating speeds of 45 mph or greater, especially when**~~
66 ~~**combined with high traffic volumes;**~~

67 ~~**D. Work operations that place workers close to travel lanes open to traffic; and**~~

68 ~~**E. Roadside hazards, such as drop-offs or unfinished bridge decks, that will remain in place**~~
69 ~~**overnight or longer.**~~

70 ~~**Work zone setups vary depending on the nature of the positive protection used.**~~

71 ~~**For additional guidance refer to 23 CFR Part 630.1108(a).**~~ [revised per 19B-TTC-02]

72 **Support:**

73 ~~**The function of positive protection devices is to reduce risk to workers and road users by**~~
74 ~~**reducing the risk of vehicle intrusion into the work space.**~~

75 ~~**Examples of positive protection devices include temporary traffic barriers (see Section**~~
76 ~~**6F.85), truck-mounted attenuators (see Section 6F.86), and vehicle arrestor systems.**~~

77 **Guidance:**

78 ~~**The need for positive protection devices should be based on engineering judgment and**~~
79 ~~**should consider the following factors:**~~

80 ~~**A. Work zones that provide workers no means of escape from motorized traffic (e.g., tunnels,**~~
81 ~~**bridges, etc.);**~~

82 ~~**B. Longer duration work zones (e.g., two weeks or more) resulting in substantial worker**~~
83 ~~**exposure to motorized traffic;**~~

84 ~~**C. Projects with high anticipated operating speeds (e.g., 45 mph or higher), especially when**~~
85 ~~**combined with high traffic volumes;**~~

86 ~~**D. Work operations that place workers close to travel lanes open to traffic; and**~~

87 E. Roadside hazards, such as drop-offs or unfinished bridge decks, that will remain in place
88 overnight or longer.

89 Support:

90 For additional information see the “Guidelines on the Use of Positive Protection in
91 Temporary Traffic Control Zones” (see Section 1A.11) and 23 CFR Part 630, Subpart K.
92 [revised per 19B-TTC-02]

93 Temporary traffic barriers, including shifting portable or movable barriers, are devices
94 designed to help prevent penetration by vehicles while minimizing injuries to vehicle occupants,
95 and to protect workers, bicyclists, and pedestrians.

96 Option:

97 Temporary traffic barriers may be used to separate two-way vehicular traffic.

98 **Standard:**

99 **Temporary traffic barriers shall be supplemented with standard delineation, pavement**
100 **markings, or channelizing devices for improved daytime and nighttime visibility if they are**
101 **used to channelize vehicular traffic. The delineation color shall match the applicable**
102 **pavement marking color.**

103 **Temporary traffic barriers, including their end treatments, shall be crashworthy (See**
104 **Section 1D.13).** [added reference]

105 **Short intermittent segments of temporary traffic barrier shall not be used because they**
106 **nullify the containment and redirective capabilities of the temporary traffic barrier,**
107 **increase the potential for serious injury both to vehicle occupants and pedestrians, and**
108 **encourage the presence of blunt leading ends. Adjacent temporary traffic barrier segments**
109 **shall be properly connected in order to provide the overall strength required for the**
110 **temporary traffic barrier to perform properly.**

111 Option:

112 Steady-burn warning lights (see Section 6L.07) may be mounted on temporary traffic barrier
113 installations.

114 Support:

115 Movable barriers may include movable concrete, movable steel or highly mobile barriers.
116 Movable barrier may be moved laterally and/or longitudinally when needed and/or from site to
117 site. More specific information on the use of temporary traffic barriers is contained in Chapters
118 8 and 9 of AASHTO’s “Roadside Design Guide” (see Section 1A.05). [change from Support to
119 an Option]

122 **Section 6M.03 Comments:** NCUTCD agrees with 6M.03 as presented in the NPA.

124 **Section 6M.03 Temporary Raised Islands**

125 **Standard:**

126 **Temporary raised islands shall be used only in combination with pavement striping and**
127 **other suitable channelizing devices.**

128 Option:

129 A temporary raised island may be used to separate vehicular traffic flows in two-lane, two-
130 way operations on roadways having a vehicular traffic volume range of 4,000 to 15,000 average
131 daily traffic (ADT) and on freeways having a vehicular traffic volume range of 22,000 ADT to
132 60,000 ADT.

133 Temporary raised islands also may be used in other than two-lane, two-way operations where
134 physical separation of vehicular traffic from the TTC zone is not required.

135 *Guidance:*

136 *Temporary raised islands should have the basic dimensions of 4 inches high by at least 12*
137 *inches wide and have rounded or chamfered corners.*

138 *The temporary raised islands should not be designed in such a manner that they would cause*
139 *a motorist to lose control of the vehicle if the vehicle inadvertently strikes the temporary raised*
140 *island. If struck, pieces of the island should not be dislodged to the extent that they could*
141 *penetrate the occupant compartment or involve other vehicles.*

142 **Standard:**

143 **At pedestrian crossing locations, temporary raised islands shall have an opening or be**
144 **shortened to provide at least a 60-inch wide pathway for the crossing pedestrian.**

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147 **Section 6M.04 Comments:** NCUTCD agrees with 6M.04 as presented in the NPA.

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149 **Section 6M.04 Detectable Edging for Pedestrians**

150 Support:

151 Individual channelizing devices, tape or rope used to connect individual devices, other
152 discontinuous barriers and devices, and pavement markings are not detectable by persons with
153 visual disabilities and are incapable of providing detectable path guidance on temporary or
154 realigned sidewalks or other pedestrian facilities.

155 *Guidance:*

156 *A continuously detectable edging should be provided throughout the length of the facility*
157 *such that it can be followed by pedestrians using long canes for guidance. This edging should*
158 *protrude at least 8 inches above the surface of the sidewalk or pathway, with the bottom of the*
159 *edging a maximum of 2 inches above the surface. This edging should be continuous throughout*
160 *the length of the facility except for gaps at locations where pedestrians or vehicles will be*
161 *turning or crossing. This edging should consist of a prefabricated or formed-in-place curbing or*
162 *other continuous device that is placed along the edge of the sidewalk or walkway. This edging*
163 *should be firmly attached to the ground or to other devices. Adjacent sections of this edging*
164 *should be interconnected such that the edging is not displaced by pedestrian or vehicular traffic*
165 *or work operations, and such that it does not constitute a hazard to pedestrians, workers, or*
166 *other road users.*

167 Support:

168 Examples of detectable edging for pedestrians include:

169 A. Prefabricated lightweight sections of plastic, metal, or other suitable materials that are
170 interconnected and fixed in place to form a continuous edge.

171 B. Prefabricated lightweight sections of plastic, metal, or other suitable materials that are
172 interconnected, fixed in place, and placed at ground level to provide a continuous
173 connection between channelizing devices located at intervals along the edge of the
174 sidewalk or walkway.

175 C. Sections of lumber interconnected and fixed in place to form a continuous edge.

176 D. Formed-in-place asphalt or concrete curb.

177 E. Prefabricated concrete curb sections that are interconnected and fixed in place to form a
178 continuous edge.

- F. Continuous temporary traffic barrier or longitudinal channelizing barricades placed along the edge of the sidewalk or walkway that provides a pedestrian edging at ground level.
- G. Chain link or other fencing equipped with a continuous bottom rail.

Guidance:

Detectable pedestrian edging should be orange, white, or yellow and should match the color of the adjacent channelizing devices or traffic control devices, if any are present.

Section 6M.05 Comments: NCUTCD generally agrees with 6M.05 as presented in the NPA, but recommends adding a reference to the new proposed Section 1D.13.

Section 6M.05 Crash Cushions

Support:

Crash cushions are systems that mitigate the effects of errant vehicles that strike obstacles, either by smoothly decelerating the vehicle to a stop when hit head-on, or by redirecting the errant vehicle. The two types of crash cushions that are used in TTC zones are stationary crash cushions and truck-mounted attenuators. Crash cushions in TTC zones help protect the drivers from the exposed ends of barriers, fixed objects, shadow vehicles, and other obstacles. Specific information on the use of crash cushions can be found in AASHTO’s “Roadside Design Guide” (see Section 1A.05).

Standard:

Crash cushions shall be crashworthy [\(See Section 1D.13\)](#). They shall also be designed for each application to stop or redirect errant vehicles under prescribed conditions. Crash cushions shall be periodically inspected to verify that they have not been hit or damaged. Damaged crash cushions shall be promptly repaired or replaced to maintain their crashworthiness. [\[add reference\]](#)

Support:

Stationary crash cushions are used in the same manner as permanent highway installations to protect drivers from the exposed ends of barriers, fixed objects, and other obstacles.

Standard:

Stationary crash cushions shall be designed for the specific application intended.

Truck-mounted attenuators shall be energy-absorbing devices attached to the rear of shadow trailers or trucks and shall be used in accordance with the manufacturer’s specifications. If used, the shadow vehicle with the attenuator shall be located in advance of the work area, workers, or equipment to reduce the severity of rear-end crashes from errant vehicles.

Support:

Trucks or trailers are often used as shadow vehicles to protect workers or work equipment from errant vehicles. These shadow vehicles are normally equipped with flashing arrows, changeable message signs, and/or high-intensity rotating, flashing, oscillating, or strobe lights located properly in advance of the workers and/or equipment that they are protecting. However, these shadow vehicles might themselves cause injuries to occupants of the errant vehicles if they are not equipped with truck-mounted attenuators.

Guidance:

223 *The shadow truck should be positioned a sufficient distance in advance of the workers or*
224 *equipment being protected so that there will be sufficient distance, but not so much so that errant*
225 *vehicles will travel around the shadow truck and strike the protected workers and/or equipment.*

226 Support:

227 Chapter 9 of AASHTO’s “Roadside Design Guide” (see Section 1A.05) contains additional
228 information regarding the use of shadow vehicles.

231 **Section 6M.06 Comments:** NCUTCD generally agrees with 6M.06 as presented in the NPA,
232 but recommends adding information on the use of portable transverse rumble strips in
233 accordance with NCUTCD recommendation 17B-TTC-02.

234 **Section 6M.06 Rumble Strips**

235 Support:

237 Transverse rumble strips consist of intermittent, narrow, transverse areas of rough-textured or
238 slightly raised or depressed road surface that extend across the travel lanes to alert drivers to
239 unusual vehicular traffic conditions. Through noise and vibration they attract the driver’s
240 attention to such features as unexpected changes in alignment and to conditions requiring a stop.

241 Longitudinal rumble strips consist of a series of rough-textured or slightly raised or
242 depressed road surfaces located along the shoulder to alert road users that they are leaving the
243 travel lanes.

244 **Standard:**

245 **If it is desirable to use a color other than the color of the pavement for a longitudinal**
246 **rumble strip, the color of the rumble strip shall be the same color as the longitudinal line**
247 **the rumble strip supplements.**

248 **If the color of a transverse rumble strip used within a travel lane is not the color of the**
249 **pavement, the color of the rumble strip shall be white, black, or orange.**

250 Option:

251 Intervals between transverse rumble strips may be reduced as the distance to the approached
252 conditions is diminished in order to convey an impression that a closure speed is too fast and/or
253 that an action is imminent. A sign warning drivers of the onset of rumble strips may be placed in
254 advance of any transverse rumble strip installation.

255 [Portable transverse rumble strips may be placed within the temporary traffic control zone to](#)
256 [alert road users to changing road conditions.](#) [revise per 17B-TTC-02]

257 *Guidance:*

258 *Transverse rumble strips should be placed transverse to vehicular traffic movement. They*
259 *should not adversely affect overall pavement skid resistance under wet or dry conditions.*

260 *In urban areas, even though a closer spacing might be warranted, transverse rumble strips*
261 *should be designed in a manner that does not promote unnecessary braking or erratic steering*
262 *maneuvers by road users.*

263 *Transverse rumble strips should not be placed on sharp horizontal or vertical curves.*

264 *Rumble strips should not be placed through pedestrian crossings or on bicycle routes.*

265 *Transverse rumble strips should not be placed on roadways used by bicyclists unless a*
266 *minimum clear path of 4 feet is provided at each edge of the roadway or on each paved shoulder*
267 *as described in AASHTO’s “Guide to the Development of Bicycle Facilities” (see Section*
268 *1A.05).*

269 *Longitudinal rumble strips should not be placed on the shoulder of a roadway that is used by*
270 *bicyclists unless a minimum clear path of 4 feet is also provided on the shoulder.*

273 **Section 6M.07 Comments:** NCUTCD agrees with 6M.07 as presented in the NPA.

275 **Section 6M.07 Screens**

276 Support:

277 Screens are used to block the road users' view of activities that can be distracting. Screens
278 might improve safety and motor vehicle traffic flow where volumes approach the roadway
279 capacity because they discourage gawking and reduce headlight glare from oncoming motor
280 vehicle traffic.

281 *Guidance:*

282 *Screens should not be mounted where they could adversely restrict road user visibility and*
283 *sight distance and adversely affect the operation of vehicles.*

284 *Option:*

285 Screens may be mounted on the top of temporary traffic barriers that separate two-way motor
286 vehicle traffic.

287 *Guidance:*

288 *Design of screens should be in accordance with Chapter 9 of AASHTO's "Roadside Design*
289 *Guide" (see Section 1A.05).*

292 **Section 6M.08 Comments:** NCUTCD generally agrees with 6M.08 as presented in the NPA, but
293 recommends revising the second Guidance paragraph on lighting glare to a Standard consistent
294 with the 2009 MUTCD.

296 **Section 6M.08 Lighting for Night Work**

297 Support:

298 Utility, maintenance, or construction activities on highways are frequently conducted during
299 nighttime periods when vehicular traffic volumes are lower. Large construction projects are
300 sometimes operated on a double-shift basis requiring night work (see Section 6N.18).

301 *Guidance:*

302 *When nighttime work is being performed, floodlights should be used to illuminate the work*
303 *area, equipment crossings, and other areas.*

304 **Standard:**

305 **When used, floodlighting ~~should~~ shall not produce a disabling ~~be installed in a manner~~**
306 **~~that minimizes~~ glare ~~condition to for~~ approaching road users, flaggers, or workers. [restore**
307 **2009 MUTCD language]**

308 *Guidance:*

309 *The adequacy of the floodlight placement and elimination of potential glare should be*
310 *determined by driving through and observing the floodlighted area from each direction on all*
311 *approaching roadways after the initial floodlight setup, at night, and periodically. Lighting*
312 *should be sufficient so as to clearly identify a worker as a person. Care should be taken to*
313 *minimize the potential for shadows to conceal workers within the work area.*

314 Support:

315 Desired illumination levels vary depending upon the nature of the task involved. An average
316 horizontal luminance of 5 foot candles can be adequate for general activities. Tasks requiring
317 high levels of precision and extreme care can require an average horizontal luminance of 20 foot
318 candles.

319 **Standard:**

320 **Except in emergency situations, flagger stations shall be illuminated at night.**

321