

37 **RECOMMENDED MUTCD CHANGES:**

38 The following present the proposed changes to the current MUTCD within the context of the
39 current MUTCD language. Proposed additions to the MUTCD are shown in blue underline and
40 proposed deletions from the MUTCD are shown in ~~red strikethrough~~. Changes previously
41 approved by NCUTCD Council (but not yet adopted by FHWA) are shown in green double
42 underline for additions and ~~green double strikethrough~~ for deletions. In some cases,
43 background comments may be provided with the MUTCD text. These comments are indicated
44 by bracketed white text in shaded green. Deletions made by a technical committee or task
45 force after initial distribution to sponsoring organizations are shown in ~~highlighted red~~
46 ~~strikethrough and Helvetica text~~. Additions made by a technical committee or task force after
47 initial distribution to sponsoring organizations are shown in underline blue and Helvetica text.

48
49
50 **PART 6. TEMPORARY TRAFFIC CONTROL**

51
52 **CHAPTER 6A. GENERAL**

53
54 [The following indicates modifications to Section 6A.02 to provide a brief summary of the seven
55 fundamental principles of Temporary Traffic Control.]

56 **Section 6A.02 Fundamental Principles of Temporary Traffic Control**

57 *Guidance:*

58 ⁰¹ *Road user and worker safety and accessibility in TTC zones should be an integral and high-priority*
59 *element of every project from planning through design and construction. Similarly, maintenance and*
60 *utility work should be planned and conducted with the safety and accessibility of all motorists, bicyclists,*
61 *pedestrians (including those with disabilities), and workers being considered at all times. If the TTC zone*
62 *includes a grade crossing, early coordination with the railroad company or light rail transit agency*
63 *should take place.*

64 Support:

65 ~~0201a~~ The following are the seven fundamental principles of TTC:

- 66 1. Develop a TTC plan
- 67 2. Minimize negative impacts
- 68 3. Utilize positive guidance
- 69 4. Conduct inspections
- 70 5. Maintain roadside safety
- 71 6. Provide training
- 72 7. Communicate with the public

73 Guidance:

74 02 The following is a detailed explanation of the seven fundamental principles of TTC:

- 75 A. Develop a TTC plan: *General plans or guidelines should be developed to provide safety for*
76 *motorists, bicyclists, pedestrians, workers, enforcement/emergency officials, and equipment,*
77 *with the following factors being considered:*
 - 78 1. *The basic safety principles governing the design of permanent roadways and roadsides*
79 *should also govern the design of TTC zones. The goal should be to route road users through*
80 *such zones using roadway geometrics, roadside features, and TTC devices as nearly as*
81 *possible comparable to those for normal highway situations.*
 - 82 2. *A TTC plan, in detail appropriate to the complexity of the work project or incident, should*
83 *be prepared and understood by all responsible parties before the site is occupied. Any*
84 *changes in the TTC plan should be approved by an official who is knowledgeable (for*
85 *example, trained and/or certified) in proper TTC practices.*

86 B. Minimize negative impacts: Road user movement should be inhibited as little as practical, based
87 on the following considerations:

- 88 1. TTC at work and incident sites should be designed on the assumption that drivers will only
89 reduce their speeds if they clearly perceive a need to do so (see Section 6B.01).
- 90 2. Frequent and abrupt changes in geometrics such as lane narrowing, dropped lanes, or main
91 roadway transitions that require rapid maneuvers, should be avoided.
- 92 3. Work should be scheduled in a manner that minimizes the need for lane closures or
93 alternate routes, while still getting the work completed quickly and the lanes or roadway
94 open to traffic as soon as possible.
- 95 4. Attempts should be made to reduce the volume of traffic using the roadway or freeway to
96 match the restricted capacity conditions. Road users should be encouraged to use
97 alternative routes. ~~When the roadway capacity is reduced because of lane closures, the~~
98 ~~demand could exceed the available capacity, which might result in either a lengthy stopped~~
99 ~~or slow moving queue of vehicles that might extend past the normal location of the signs~~
100 ~~shown in the typical advance warning area. An assessment of the expected queue length,~~
101 ~~which should be a part of the TTC plan design process, might result in adjustments to the~~
102 ~~sign spacing and number of signs as well as the use of more conspicuous devices to increase~~
103 ~~the distance and conspicuity of the advance warning area. [The current language is more~~
104 ~~reflective of a support statement rather than guidance, so it's recommended to revise to~~
105 ~~better fit as a guidance statement.] Lane closures reduce roadway capacity which could~~
106 ~~result in a queue of vehicles extending beyond the typical array of signing, therefore, an~~
107 ~~assessment of the expected queue length should be part of the TTC plan design process.~~
108 ~~Adjustments to the sign spacing and number of signs as well as the possibility of using more~~
109 ~~conspicuous devices should be considered to increase the distance and conspicuity of the~~
110 ~~advance warning area. For high-volume roadways and freeways, the closure of selected~~
111 ~~entrance ramps or other access points and the use of signed diversion routes should be~~
112 ~~evaluated.~~
- 113 5. Bicyclists and pedestrians, including those with disabilities, should be provided with access
114 and passage through the TTC zone.
- 115 6. If work operations permit, lane closures on high-volume streets and highways should be
116 scheduled during off-peak hours. Night work should be considered if the work can be
117 accomplished with a series of short-term stationary operations.
- 118 7. Early coordination with officials having jurisdiction over the affected cross streets and
119 providing emergency services should occur if significant impacts to roadway operations are
120 anticipated.

121 C. Utilize positive guidance: Motorists, bicyclists, and pedestrians should be guided in a clear and
122 positive manner while approaching and traversing TTC zones and incident sites. The following
123 principles should be applied:

- 124 1. Adequate warning, delineation, and channelization should be provided to assist in guiding
125 road users in advance of and through the TTC zone or incident site by using proper
126 pavement marking, signing, or other devices that are effective under varying conditions.
127 Information should be provided in usable formats for pedestrians with vision disabilities.
- 128 2. TTC devices inconsistent with intended travel paths through TTC zones should be removed
129 or covered. However, in intermediate-term stationary, short-term stationary, and mobile
130 operations, where visible permanent devices are inconsistent with intended travel paths,
131 devices that highlight or emphasize the appropriate path should be used. Traffic control
132 devices should provide information in usable formats for pedestrians with vision disabilities.
- 133 3. Flagging procedures, when used, should provide positive guidance to road users traversing
134 the TTC zone.

135 D. Conduct inspections: To provide acceptable levels of operations, routine day and night
136 inspections of TTC elements should be performed as follows:

- 137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
1. *Individuals who are knowledgeable (for example, trained and/or certified) in the principles of proper TTC should be assigned responsibility for safety in TTC zones. The most important duty of these individuals is to check that TTC devices on the project are consistent with the TTC plan and are effective for motorists, bicyclists, pedestrians, and workers.*
 2. *As the work progresses, temporary traffic controls and/or working conditions should be modified, as needed, to facilitate road user movement and provide worker safety. The individual responsible for TTC should have the authority to halt work until applicable or remedial safety measures are taken.*
 3. *TTC zones should be carefully monitored under varying conditions of road user volumes, light, and weather to check that applicable TTC devices are effective, clearly visible, clean, and in compliance with the TTC plan.*
 4. *When warranted, an engineering study should be made (in cooperation with law enforcement officials) of reported crashes occurring within the TTC zone. Crash records in TTC zones should be monitored to identify the need for changes in the TTC zone.*
- E. Maintain roadside safety: *Attention should be given to the maintenance of roadside safety during the life of the TTC zone by applying the following principles:*
1. *To accommodate run-off-the-road incidents, disabled vehicles, or emergency situations, unencumbered roadside recovery areas or clear zones should be provided where practical.*
 2. *Channelization of road users should be accomplished by the use of pavement markings, signing, and crashworthy, detectable channelizing devices.*
 3. *Work equipment, workers' private vehicles, materials, and debris should be stored in such a manner to reduce the probability of being impacted by run-off-the-road vehicles.*
- F. Provide training: *Each person whose actions affect TTC zone safety, from the upper-level management through the field workers, should receive training appropriate to the job decisions each individual is required to make. Only those individuals who are trained in proper TTC practices and have a basic understanding of the principles (established by applicable standards and guidelines, including those of this Manual) should supervise the selection, placement, and maintenance of TTC devices used for TTC zones and for incident management.*
- G. Communicate with the public: *Good public relations should be maintained by applying the following principles:*
1. *The needs of all road users should be assessed such that appropriate advance notice is given and clearly defined alternative paths are provided.*
 2. *The cooperation of the various news media should be sought in publicizing the existence of and reasons for TTC zones because news releases can assist in keeping the road users well informed.*
 3. *The needs of abutting property owners, residents, and businesses should be assessed and appropriate accommodations made.*
 4. *The needs of emergency service providers (law enforcement, fire, and medical) should be assessed and appropriate coordination and accommodations made.*
 5. *The needs of railroads and transit should be assessed and appropriate coordination and accommodations made.*
 6. *The needs of operators of commercial vehicles such as buses and large trucks should be assessed and appropriate accommodations made.*
 7. *Early coordination should occur with school officials to discuss potential impacts on picking up and dropping off schoolchildren, on school bus routing, and on safe routes to school patterns.*