



# National Committee on Uniform Traffic Control Devices

13236 North 7th Street, Suite 4-259, Phoenix, Arizona 85022  
Phone/Text: 231-4-NCUTCD (231-462-8823)  
E-mail: secretary@ncutcd.org Website: <https://ncutcd.org>

Item No.: 24B-SIG-02

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

**COMMITTEE / TASK FORCE:** Signals Technical Committee  
**ITEM NUMBER:** 24B-SIG-02  
**TOPIC:** Application of Dynamic Lane-Use Control  
**ORIGIN OF REQUEST:** Signals TC  
**AFFECTED SECTIONS OF MUTCD:** 4T.01 Application of Lane-Use Control Signals, 4T.02 Meaning of Lane-Use Control Signal Indications, 4T.03 Design of Lane-Use Control Signals, 4T.04 Operation of Lane-Use Control Signals.

### DEVELOPMENT HISTORY:

Approved by Signals TC: 06/27/2024  
Approved by NCUTCD Council:

*This is a proposal for recommended changes to the MUTCD that has been developed by a technical committee or joint task force of the NCUTCD. The NCUTCD is distributing it to its sponsoring organizations for review and comment. Sponsor comments will be considered in revising the proposal prior to NCUTCD Council consideration. This proposal does not represent a revision of the MUTCD and does not constitute official MUTCD standards, guidance, or options. If approved by the NCUTCD Council, the recommended changes 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 increasing implementation of active traffic management operations on freeways has caused heightened interest in development and testing of new lane-use control signal indications to communicate that 1) a lane should be vacated because it is blocked or closed ahead, and 2) a lane can be used but with extra caution due to a slowdown ahead or activities occurring in an adjacent lane. A research project to study the issues, NCHRP Report 1021, "Application of Dynamic Lane-Use Controls-Best Practices", has been completed. Proposed MUTCD revisions have been prepared based on a review of that report and its recommendations.

### DISCUSSION:

One of the commonly used active traffic management (ATM) strategies is dynamic lane-use control (DLUC). FHWA defines DLUC as dynamically closing or opening individual traffic lanes as warranted and providing advance warning of the closure(s), typically through

33 dynamic full-matrix lane control signs and signals, to safely merge traffic into adjoining lanes.  
34 New traffic control devices and approaches are needed to support these strategies.  
35 NCHRP Project 03-123, conducted by Susan Chrysler and Kay Fitzpatrick of Texas  
36 Transportation Institute (TTI), carried out a comprehensive human factors study of dynamic  
37 lane-use control signal applications that have been used in the U.S. (with or without FHWA-  
38 approved experimentation) and internationally to provide advance warning of lane closures and  
39 end-of-queue warnings in freeway operations. Computer-based testing using still images  
40 of lane-use control signs on a four-lane freeway was conducted in four cities with a total of  
41 320 participants. Questions focused on comprehension of symbols as indicated by lane  
42 selection for various scenarios. The second human factors study used an interactive driving  
43 simulator to test 30 participants for their lane change compliance with messages displayed on  
44 overhead and ground-mounted DLUC signals.

45  
46 NCHRP Report 1021 documents the results of the project's computer-based testing and driving  
47 simulator study as well as a state-of-the-practice review of human factors and operations. The  
48 research report's findings and recommendations are summarized as follows:

- 49 • The research recommends the addition of the DOWNWARD YELLOW ARROW to the  
50 MUTCD set of lane-use control symbols to indicate that a lane is open but traffic is moving  
51 slower than the posted speed. Further, the research recommends the use of the legend SLOW  
52 in conjunction with the DOWNWARD YELLOW ARROW. Some agencies are using variable  
53 speed limit displays per lane for this purpose, but these were not included in the current  
54 research.
- 55 • The research results recommend using a DOWNWARD DIAGONAL YELLOW ARROW  
56 (left or right, but not both together) to indicate downstream lane closure rather than the  
57 YELLOW X currently specified in the MUTCD for this purpose. Results from both the computer-  
58 based testing and the driving simulator indicate that drivers interpret a YELLOW X to mean  
59 "vacate the lane immediately" rather than downstream.
- 60 • The results also indicate that if an agency wishes to use the currently approved MUTCD  
61 YELLOW X symbol to convey impending lane closure, adding a text legend to the display  
62 indicating the distance to the lane closure point is recommended.
- 63 • The study found that including the legends OPEN with DOWNWARD GREEN ARROWS  
64 and CLOSED with RED Xs is unnecessary and did not improve comprehension or compliance.
- 65 • The results indicated that neither flashing nor scrolling of lane closure symbols changed the  
66 driver's comprehension of the symbol. These types of animation did create a sense of urgency  
67 with more people thinking that the lane closure was occurring at the sign location rather than  
68 downstream.

69  
70 The recommendations of the report have been reviewed and we believe they are well supported  
71 by the study results. We have prepared revisions to the MUTCD to implement the  
72 recommendations, with the exception that we recommend that the SLOW legend with the  
73 DOWNWARD YELLOW ARROW and the distance to the lane closure point with the YELLOW X  
74 be optional rather than required.

75  
76 It should be noted that the report includes other findings that 1) on freeways, DOWNWARD  
77 GREEN ARROWS are better understood than blank (dark) indications to indicate a "normal"  
78 condition, and 2) the maximum spacing between sets of lane-use control signal indications on  
79 freeways could be increased to as much as 1 mile. However, the report recommends additional  
80 research to further confirm these findings before considering MUTCD revisions on those topics.  
81 The study also evaluated whether ground-mounted dynamic lane-use control signal displays

82 could perform as effectively as overhead-mounted displays but concluded that further study is  
83 needed.

84 Although the study focused almost exclusively on freeways, we recommend that the new lane-  
85 use control signal indications also be allowed for use on conventional roads, as this will provide  
86 consistency and uniformity of the indications drivers encounter, regardless of roadway type.

87  
88 **RECOMMENDED MUTCD CHANGES:**  
89 The following present the proposed changes to the current MUTCD within the context of the  
90 current MUTCD language. Proposed additions to the MUTCD are shown in blue underline and  
91 proposed deletions from the MUTCD are shown in ~~red strikethrough~~. Changes previously  
92 approved by NCUTCD Council (but not yet adopted by FHWA) are shown in green double  
93 underline for additions and ~~green double strikethrough~~ for deletions. In some cases,  
94 background comments may be provided with the MUTCD text. These comments are indicated  
95 by bracketed white text in shaded green. Deletions made by a technical committee or task  
96 force after initial distribution to sponsoring organizations are shown in ~~highlighted red~~  
97 ~~strikethrough and Helvetica text~~. Additions made by a technical committee or task force after  
98 initial distribution to sponsoring organizations are shown in underline blue and Helvetica text.

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## 101 CHAPTER 4T. LANE-USE CONTROL SIGNALS

102

### 103 Section 4T.01 Application of Lane-Use Control Signals

104 Support:

105 01 Lane-use control signals are special overhead signals that permit or prohibit the use of specific lanes  
106 of a street or highway or that indicate the impending prohibition of their use. Lane-use control signals are  
107 distinguished by placement of special signal faces or comparable signal indications on full-matrix CMS  
108 (Changeable Message Signs) over a certain lane or lanes of the roadway, over a shoulder where driving is  
109 permitted at certain times, and by their distinctive shapes and symbols. Supplementary signs are  
110 sometimes used to explain their meaning and intent.

111 02 Lane-use control signals are most commonly used for reversible-lane control but are also used in  
112 certain non-reversible lane applications and for toll plaza lanes (see Section 4R.02). On freeways,  
113 bridges, and tunnels, lane-use control signals are most commonly used in active traffic management  
114 applications for incident and congestion management, lane closures for maintenance activities, and  
115 similar other purposes.

116 02a Lane-use control signal indications are illustrated in Figure 4T-1.

117 Guidance:

118 03 *An engineering study should be conducted to determine whether a reversible-lane operation can be*  
119 *controlled satisfactorily by static signs (see Section 2B.34) or whether lane-use control signals are*  
120 *necessary. Lane-use control signals should be used to control reversible-lane operations if any of the*  
121 *following conditions are present:*

- 122 A. *More than one lane is reversed in direction;*
- 123 B. *Two-way or one-way left turns are allowed during peak-period reversible operations, but those*  
124 *turns are from a different lane than used during off-peak periods;*
- 125 C. *Other unusual or complex operations are included in the reversible-lane pattern;*
- 126 D. *Demonstrated crash experience occurring with reversible-lane operation controlled by static*  
127 *signs that can be corrected by using lane-use control signals at the times of transition between peak*  
128 *and off-peak patterns; and/or*

129 E. An engineering study indicates that the safety and efficiency of the traffic operations of a  
130 reversible-lane system would be improved by lane-use control signals.

131 **Standard:**

132 04 **Pavement markings (see Section 3B.04) shall be used in conjunction with reversible-lane**  
133 **control signals.**

134 **Option:**

135 05 Lane-use control signals may also be used if there is no intent or need to reverse lanes, but there is a  
136 need to indicate the open or closed status of one or more lanes, such as:

137 A. ~~On a freeway, if it is desired~~ Tto close certain lanes on a freeway at certain hours to facilitate  
138 the merging of traffic from a ramp or other freeway;

139 B. ~~On a freeway, near its terminus,~~ Tto indicate a lane that ends;

140 C. ~~On a freeway, or long bridge,~~ Tto indicate that a lane or shoulder is open or closed to through  
141 traffic, or to indicate that a lane may be temporarily blocked by a crash, breakdown, construction or  
142 maintenance activities, or similar temporary conditions; ~~and~~

143 D. To indicate that a lane is open but extra caution is to be used due to a traffic queue or other  
144 slowdown ahead, or activities occurring in an adjacent lane or shoulder;

145 E. To allow part-time use of a shoulder as a travel lane on a recurring basis for added capacity,  
146 tolling, or transit use; and

147 ~~DF. On a conventional road or driveway, at access or egress points~~ Tto open or close the access to or  
148 egress from one or more lanes of a facility, such as a parking garage, at various times ~~where one or~~  
149 ~~more lanes of the access or egress are opened or closed at various times.~~

150 06 A USE LANE(S) WITH GREEN ARROW (R10-8) sign (see Section 2B.59) may be used in  
151 conjunction with lane-use control signals.

152

153 **Section 4T.02 Meaning of Lane-Use Control Signal Indications**

154 **Standard:**

155 01 **The meanings of lane-use control signal indications (see Figure 4T-1) shall be as follows:**

156 A. A steady DOWNWARD GREEN ARROW signal indication shall mean that the lane  
157 which the arrow signal indication is located over is open to vehicle travel in that direction.

158 B. A steady YELLOW X signal indication shall mean that the lane which the Yellow X signal  
159 indication is located over is about to be closed to vehicle traffic in that direction and shall be  
160 followed by a steady RED X signal indication (either within the same signal face or in a  
161 downstream signal face).

162 C. A steady DOWNWARD DIAGONAL YELLOW ARROW signal indication (left or right)  
163 shall mean that a road user is to prepare to vacate the lane which the signal indication is  
164 located over, in the direction indicated, because a lane control change is being made to a steady  
165 RED X signal indication.

166 D. A steady DOWNWARD YELLOW ARROW signal indication shall mean that a road user  
167 is permitted to use the lane which the signal indication is located over but should be prepared  
168 to reduce speed.

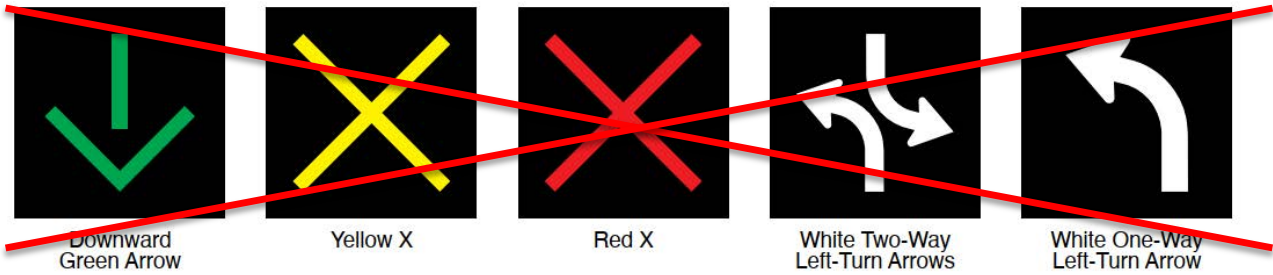
169 ~~EE.~~ A steady RED X signal indication shall mean that the lane which the Red X signal  
170 indication is located over is closed to vehicle traffic in the direction viewed by the road user.

171 ~~DF.~~ A steady WHITE TWO-WAY LEFT-TURN ARROW signal indication shall mean that  
172 the lane which the turning arrows indication is located over is open to traffic making a left turn  
173 from either direction of travel, but not for through travel.

174 ~~EG.~~ A steady WHITE ONE-WAY LEFT-TURN ARROW signal indication shall mean that the  
175 lane which the turning arrow indication is located over is open to traffic making a left turn in  
176 that direction (without opposing turns in the same lane), but not for through travel.

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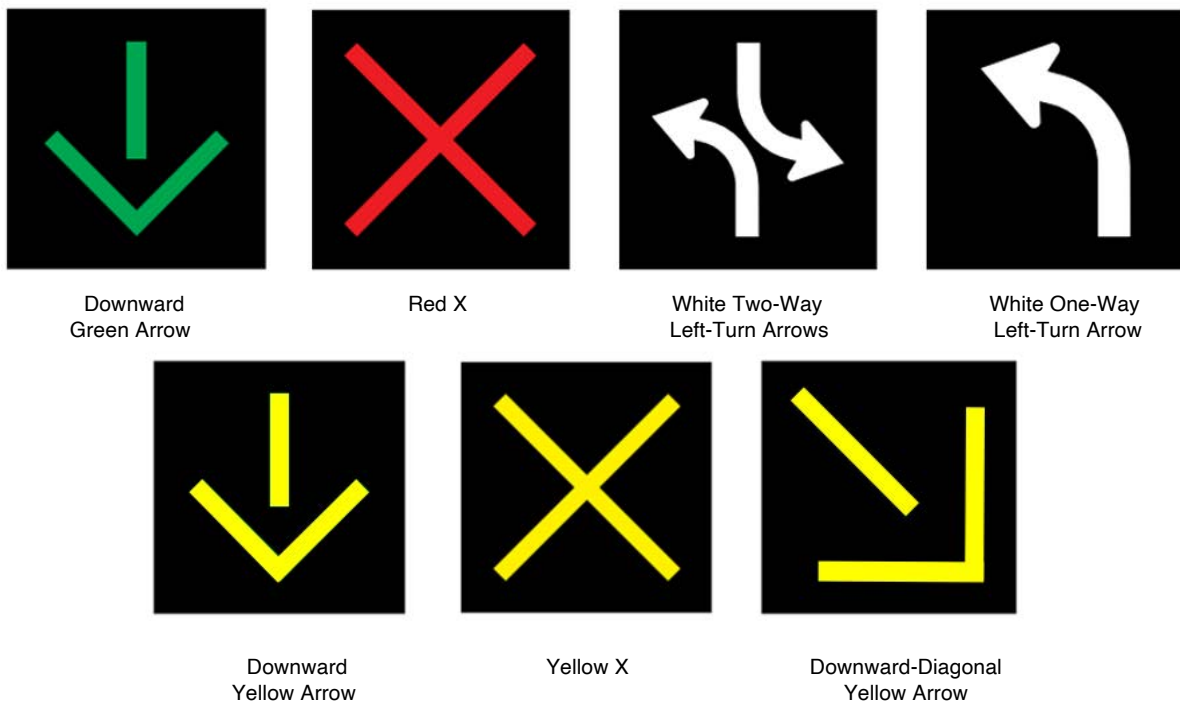
**Figure 4T-1. Lane-Use Control Signal Indications**



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**Figure 4T-1 Lane-Use Control Signal Indications**



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187 [Study evaluated only freeway use of the 2 new indications, but for purposes of consistency and  
 188 uniformity among roadway types, the new indications should be allowable to use on  
 189 conventional roads as well. Downward diagonal YELLOW arrow graphic above is conceptual  
 190 based on existing graphics.]

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192

**Section 4T.03 Design of Lane-Use Control Signals**

**Standard:**

194 01 All lane-use control signal indications shall be in units with rectangular signal **face** displays  
 195 and shall have opaque backgrounds. Except as provided in Paragraph **4301b** of this Section, the  
 196 nominal minimum height and width of each **GREEN, YELLOW, and RED** ~~DOWNWARD-GREEN~~  
 197 ~~ARROW, YELLOW X, and RED X~~ and arrow signal **face** indication shall be:

- 198 **A. 18 inches for typical applications on conventional roads and toll plazas;**
- 199 **B. 48 inches for typical applications on freeways and expressways.**

200 01a Except as provided in Paragraph ~~4301b~~ of this Section, the WHITE TWO-WAY LEFT-TURN  
201 ARROW and WHITE ONE-WAY LEFT-TURN ARROW signal ~~faces~~indications shall have a  
202 nominal minimum height and width of 30 inches.

203 Option: [Original Option Paragraphs 13 and 14 relocated for clarity.]

204 ~~4301b~~ Except for lane-use control signals at toll plazas (see Section 4R.02), lane-use control signal  
205 ~~faces~~indications with nominal height and width of 12 inches for the ~~DOWNWARD GREEN ARROW,~~  
206 ~~YELLOW X, and RED X~~ and arrow-shaped signal ~~faces~~displays, and lane-use control signal  
207 ~~faces~~indications with nominal height and width of 18 inches for the WHITE TWO-WAY LEFT-TURN  
208 ARROW and WHITE ONE-WAY LEFT-TURN ARROW signal ~~faces~~displays may be used in areas with  
209 minimal visual clutter and with speeds of 35 mph or less ~~than 40 mph~~.

210 ~~4401c~~ Other sizes of lane-use control signal ~~faces~~indications larger than 18 inches with proportional  
211 dimensions and with message recognition distances appropriate to signal spacing may be used for the  
212 ~~DOWNWARD GREEN ARROW, YELLOW X, and RED X~~ and arrow-shaped signal ~~faces~~displays.

213 01d Lane-use control signal indications may be displayed as an integral part of a full-matrix CMS (see  
214 Section 2L.03 and 2L.04) provided that such displays of lane-use control signal indications comply with  
215 the provisions of Chapter 4T and utilize LED pixels as the light source with brightness, intensity, and  
216 legibility at least equal to that of LED traffic signal displays.

217 01e Full-matrix CMS displays of lane-use control signal indications may be in conjunction with displays  
218 of other non-conflicting messages, such as speed limits, advisory speeds, and other regulatory, warning,  
219 or guide messages.

220 Support:

221 01f When displayed on a full-matrix CMS, lane-use control signal indications do not have visors or  
222 housings in the traditional sense, and thus also are not composed of signal sections or signal faces.  
223 However, it is intended that such indications are displayed in a manner that mimic that of signal sections  
224 and/or faces.

225 01g See also Chapter 2L for additional information on Changeable Message Signs.

226 Standard:

227 02 Each lane to be reversed or closed shall have signal ~~faces~~displays ~~with~~including at least a  
228 DOWNWARD GREEN ARROW and a RED X symbol.

229 03 Each reversible lane that also operates as a two-way or one-way left-turn lane during certain  
230 periods shall have signal ~~faces~~displays that also include the applicable WHITE TWO-WAY LEFT-  
231 TURN ARROW or WHITE ONE WAY LEFT-TURN ARROW symbol.

232 04 Each non-reversible lane immediately adjacent to a reversible lane shall have signal indications  
233 that display a DOWNWARD GREEN ARROW to traffic traveling in the permitted direction and a  
234 RED X to traffic traveling in the opposite direction.

235 05 If in separate signal sections, the relative positions, from left to right, of the signal indications  
236 shall be RED X, YELLOW X, DOWNWARD DIAGONAL YELLOW ARROW, DOWNWARD  
237 YELLOW ARROW, DOWNWARD GREEN ARROW, WHITE TWO-WAY LEFT-TURN  
238 ARROW, WHITE ONE WAY LEFT-TURN ARROW.

239 Option:

240 05a A yellow word legend indicating the distance to the lane closure may be used with the steady  
241 YELLOW X signal display, but without reducing the size of the X symbol to less than the minimum  
242 required, See Section 4T.01 Paragraph 1.

243 05b A yellow word legend SLOW may be used with the DOWNWARD YELLOW ARROW signal  
244 display, but without reducing the size of the arrow symbol to less than the minimum required, See Section  
245 4T.01 Paragraph 1.

246 [These 2 new Options are recommended by the NCHRP Report 1021 study results.]

247 *Guidance:*



248 06 *The color of lane-use control signal indications should be clearly visible for 2,300 feet at all times*  
249 *under normal atmospheric conditions, unless otherwise physically obstructed.*

250 07 *Lane-use control signal ~~faces~~indications should be located approximately over the center of the*  
251 *controlled lane.*

252 08 *If the area to be controlled is more than for 2,300 feet in length, or if the vertical or horizontal*  
253 *alignment is curved, intermediate lane-use control signal ~~faces~~indications should be located over each*  
254 *controlled lane at frequent intervals. This location should be such that road users will at all times be*  
255 *able to see at least one signal indication and preferably two along the roadway, and will have a definite*  
256 *indication of the lanes specifically reserved for their use.*

257 09 *All lane-use control signal ~~faces~~indications should be located in a straight line across the roadway*  
258 *approximately at right angles to the roadway alignment.*

259 10 *On roadways having intersections controlled by traffic control signals, the lane-use control signal*  
260 *~~face~~indication should be located sufficiently far in advance of or beyond such traffic control signals to*  
261 *prevent them from being misconstrued as traffic control signals. The traffic control signals should use*  
262 *12-inch vehicular signal indications.*

263 **Standard:**

264 11 **Except as provided in Paragraph 12, the bottom of the ~~signal~~ housing of any lane-use control**  
265 **signal ~~face~~indication shall be a minimum of 15 feet and a maximum of 19 feet above the pavement**  
266 **grade. A lane-use control signal displayed on a full-matrix Changeable Message Sign shall meet**  
267 **overhead sign clearance provisions in Section 2A.15.**

269 **Option:**

270 12 The bottom of a lane-use control signal housing may be lower than 15 feet above the pavement if it  
271 is mounted on a canopy or other structure over the pavement, but not lower than the vertical clearance of  
272 the structure.

273 ~~13—Except for lane use control signals at toll plazas (see Section 4K.02-4R.02), in areas with minimal~~  
274 ~~visual clutter and with speeds of less than 40 mph, lane use control signal faces with nominal height and~~  
275 ~~width of 12 inches may be used for the DOWNWARD GREEN ARROW, YELLOW X, and RED X~~  
276 ~~signal faces, and lane use control signal faces with nominal height and width of 18 inches may be used~~  
277 ~~for the WHITE TWO-WAY LEFT TURN ARROW and WHITE ONE-WAY LEFT TURN ARROW~~  
278 ~~signal faces. [Moved up to become paragraph 01b.]~~

279 ~~14—Other sizes of lane use control signal faces larger than 18 inches with message recognition distances~~  
280 ~~appropriate to signal spacing may be used for the DOWNWARD GREEN ARROW, YELLOW X, and~~  
281 ~~RED X signal faces. [Moved up to become paragraph 01c.]~~

282 <sup>+513</sup> Non-reversible lanes not immediately adjacent to a reversible lane on any street so controlled may  
283 also be provided with signal indications that display a DOWNWARD GREEN ARROW to traffic  
284 traveling in the permitted direction and a RED X to traffic traveling in the opposite direction.

285 <sup>+614</sup> The signal indications provided for each lane may be in separate signal ~~sections~~displays or may be  
286 superimposed in the same signal ~~section~~display unit.

287 **Section 4T.04 Operation of Lane-Use Control Signals**

288 **Standard:**

289 01 **All lane-use control signals shall be coordinated so that all the signal indications along the**  
290 **controlled section of roadway are operated uniformly and consistently. The lane-use control signal**  
291 **system shall be designed to reliably guard against showing any prohibited combination of signal**  
292 **indications to any traffic at any point in the controlled lanes.**

293 02 **For reversible-lane control signals, the following combination of signal indications shall not be**  
294 **simultaneously displayed over the same lane to both directions of travel:**

295 **A. DOWNWARD GREEN ARROW in both directions,**

- 296 B. YELLOW X or DIAGONAL DOWNWARD YELLOW ARROW, or DOWNWARD  
297 YELLOW ARROW in both directions,  
298 C. WHITE ONE WAY LEFT-TURN ARROW in both directions,  
299 D. DOWNWARD GREEN ARROW, or DIAGONAL DOWNWARD YELLOW ARROW, or  
300 DOWNWARD YELLOW ARROW in one direction and YELLOW X in the other direction,  
301 E. WHITE TWO-WAY LEFT-TURN ARROW or WHITE ONE WAY LEFT-TURN  
302 ARROW in one direction and DOWNWARD GREEN ARROW or DIAGONAL  
303 DOWNWARD YELLOW ARROW, or DOWNWARD YELLOW ARROW in the other  
304 direction,  
305 F. WHITE TWO-WAY LEFT-TURN ARROW in one direction and WHITE ONE WAY  
306 LEFT-TURN ARROW in the other direction, and  
307 G. WHITE ONE WAY LEFT-TURN ARROW in one direction and YELLOW X or  
308 DIAGONAL DOWNWARD YELLOW ARROW in the other direction.  
309 03 A moving condition in one direction shall be terminated either by the immediate display of a  
310 RED X signal indication or by a YELLOW X or DIAGONAL DOWNWARD YELLOW ARROW  
311 signal indication followed by a RED X signal indication.

312 Guidance:

313 04 *In either case, the duration of the RED X signal indication ~~shall~~ should be sufficient to allow*  
314 *clearance of the lane before any moving condition is allowed in the opposing direction.* [STC proposed  
315 making this paragraph a Guidance statement, 11thEd retained as a Standard.]

316 Standard:

317 05 **Whenever a DOWNWARD GREEN ARROW signal indication is changed to a WHITE TWO-**  
318 **WAY LEFT-TURN ARROW signal indication, the RED X signal indication shall continue to be**  
319 **displayed to the opposite direction of travel for an appropriate duration to allow traffic time to**  
320 **vacate the lane being converted to a two-way left-turn lane.**  
321 06 **If an automatic control system is used, a manual control to override the automatic control shall**  
322 **be provided.**

323 *Guidance:*

324 07 *The type of control provided for reversible-lane operation should be such as to permit either*  
325 *automatic or manual operation of the lane-use control signals.*

326 Standard:

327 08 **If used, lane-use control signals shall be operated continuously, except as provided in**  
328 **paragraph 08a. ~~that lane-use control signals that are used only for special events or other~~**  
329 **~~infrequent occurrences and lane-use control signals on non-reversible freeway lanes are permitted~~**  
330 **~~to be darkened when not in operation.~~** [Relocated to become new paragraph 08a.] **The change from**  
331 **normal operation to non-operation shall occur only when the lane-use control signals display signal**  
332 **indications that are appropriate for the lane-use that applies when the signals are not operated. The**  
333 **lane-use control signals shall display signal indications that are appropriate for the existing lane use**  
334 **when changed from non-operation to normal operations. Also, traffic control devices shall clearly**  
335 **indicate the proper lane use when the lane-use control signals are not in operation.** [Relocated to  
336 become new paragraph 08b.]

337 Option:

338 08a Lane-use control signals that are used only for special events or other infrequent occurrences and  
339 lane-use control signals on non-reversible freeway lanes ~~are permitted to~~ may be darkened when not in  
340 operation. [Relocated from above in paragraph 08.]  
341



342 [NOTE: Study found dark lane-use control signals to indicate “normal” conditions on freeways are  
343 confusing and not nearly as well understood as downward green arrow, but recommended further research  
344 before eliminating the dark option for freeways.]

345 **Standard:**

346 <sup>8b</sup> **The**~~A~~ change from normal operation to non-operation shall occur only when the lane-use  
347 control signals display signal indications that are appropriate for the lane use that applies when the  
348 signals are not operated. The lane-use control signals shall display signal indications that are  
349 appropriate for the existing lane use when changed from non-operation to normal operations. Also,  
350 traffic control devices shall clearly indicate the proper lane use when the lane-use control signals  
351 are not in operation. [Relocated from above in paragraph 08.]

352 Support:

353 <sup>09</sup> Section 2B.34 contains additional information concerning considerations involving left-turn  
354 prohibitions in conjunction with reversible lane operations. Section 2G.24 contains additional information  
355 concerning lane-use control signals used for part-time travel on a shoulder. Section 2G.25 contains  
356 additional information concerning lane-use control signals used for active lane management on freeways  
357 and expressways.