



National Committee on Uniform Traffic Control Devices

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Item No.: 25A-SIG-01

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

COMMITTEE / TASK FORCE: Signals Technical Committee
ITEM NUMBER: 25A-SIG-01
TOPIC: Removal of "Shall Be Permitted" and "Shall Not Be Permitted"
Statements
ORIGIN OF REQUEST: Signals Technical Committee
**AFFECTED SECTIONS
OF MUTCD:** 4A.06, 4E.01, 4F.01, 4F.03, 4F.04, 4F.08, 4F.11, 4F.15, 4F.19,
4F.20, 4G.03, 4H.04, 4I.02, 4Q.03

DEVELOPMENT HISTORY:

Approved by Signals TC: 01/09/2025, 06/11/2025
Approved by NCUTCD Council: 06/13/2025

This is a recommended change 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 intent of this proposal is to remove all instances of the phrases "shall be permitted" and "shall not be permitted" from existing Part 4 language.

DISCUSSION:

There are over 25 instances of the phrases "shall be permitted" and "shall not be permitted" throughout different Sections of Part 4. This type of phrasing is almost exclusive to Part 4. This phrasing appears to identify required or prohibited practices, through the use of the Standard statement, "shall". However, in effect, they are all permissive practices but without the Option statement, "may".

This proposal includes changes to fourteen (14) sections throughout Part 4. The proposal removes all the phrases and changes the effected language into Option statements. This proposal will remove all instances of the two phrases.

RECOMMENDED MUTCD CHANGES:

The following present the proposed changes to the current MUTCD within the context of the current MUTCD language. Proposed additions to the MUTCD are shown in blue underline and proposed deletions from the MUTCD are shown in ~~red strikethrough~~. Changes previously approved by NCUTCD Council (but not yet adopted by FHWA) are shown in green double underline for additions and ~~green double strikethrough~~ for deletions. In some cases, background comments may be provided with the MUTCD text. These comments are indicated by [bracketed white text in shaded green].

**PART 4
HIGHWAY TRAFFIC SIGNALS**

CHAPTER 4A. GENERAL

Section 4A.06 Meanings of Pedestrian Signal Indications

Standard:

01 Pedestrian signal indications shall have the following meanings:

- A. A flashing WALKING PERSON (symbolizing WALK) signal indication has no meaning and shall not be used.
- B. Pedestrians facing a steady WALKING PERSON (symbolizing WALK) signal indication ~~shall be~~ are permitted to start to cross the roadway in the direction of the signal indication, possibly in conflict with turning vehicles. Pedestrians shall yield the right-of-way to vehicles lawfully within the intersection at the time that the WALKING PERSON (symbolizing WALK) signal indication is first shown.
- C. Pedestrians facing a flashing UPRAISED HAND (symbolizing DONT WALK) signal indication shall not start to cross the roadway in the direction of the signal indication. Any pedestrian who has already started to cross the roadway on a steady WALKING PERSON (symbolizing WALK) signal indication shall continue to proceed to the far side of the traveled way of the street or highway, unless otherwise directed by a traffic control device to proceed only to the median of a divided highway or only to some other island or pedestrian refuge area (see Section 3C.12).
- D. Pedestrians facing a steady UPRAISED HAND (symbolizing DONT WALK) signal indication shall not enter the roadway in the direction of the signal indication.

CHAPTER 4E. TRAFFIC CONTROL SIGNAL INDICATIONS

Section 4E.03 Positions of Signal Indications Within a Signal Face – General

Support:

Standardization of the number and arrangements of signal sections in vehicular traffic control signal faces enables road users who are color vision deficient to identify the illuminated color by its position relative to other signal sections.

Standard:

Unless otherwise provided in this Manual for a particular application, each signal face at a signalized location shall have three, four, or five signal sections. Unless otherwise provided in this Manual for a particular application, if a vertical signal face includes a cluster (see Section 4E.04), the signal face shall have at least three vertical positions.

Option:

A single-section signal face ~~shall be permitted~~ may be used at a traffic control signal if it consists of a continuously-displayed GREEN ARROW signal indication that is being used to indicate a continuous movement.

Standard:

The signal sections in a signal face shall be arranged in a vertical or horizontal straight line, except as otherwise provided in Section 4E.04.

The arrangement of adjacent signal sections in a signal face shall follow the relative positions listed in Sections 4E.04 or 4E.05, as applicable.

If a signal section that displays a CIRCULAR YELLOW signal indication is used, it shall be located between the signal section that displays the red signal indication and all other signal sections.

If a U-turn arrow signal section is used in a signal face for a U-turn to the left, its position in the signal face shall be the same as stated in Sections 4E.04 and 4E.05 for a left-turn arrow signal section of the same color. If a U-turn arrow signal section is used in a signal face for a U-turn to the right, its position in the signal face shall be the same as stated in Sections 4E.04 and 4E.05 for a right-turn arrow signal section of the same color.

A U-turn arrow signal indication pointing to the left shall not be used in a signal face that also contains a left-turn arrow signal indication. A U-turn arrow signal indication pointing to the right shall not be used in a signal face that also contains a right-turn arrow signal indication.

Option:

Within a signal face, two identical CIRCULAR RED or RED ARROW signal indications may be displayed immediately horizontally adjacent or immediately vertically adjacent to each other in a vertical signal face (see Drawing A in Figure 4E-2) or immediately horizontally adjacent to each other in a horizontal signal face (see Drawing B in Figure 4E-2) for emphasis.

Horizontally-arranged and vertically-arranged signal faces may be used on the same approach provided they are separated to meet the lateral separation spacing required in Section 4D.07.

Support:

Figure 4E-2 illustrates some of the typical arrangements of signal sections in signal faces that do not control separate turning movements. Figures 4F-1 through 4F-7 illustrate the typical arrangements of signal sections in left-turn signal faces. Figures 4F-8 through 4F-14 illustrate the typical arrangements of signal sections in right-turn signal faces.

109 CHAPTER 4F. STEADY (STOP-AND-GO) OPERATION OF TRAFFIC CONTROL SIGNALS

110
111 Section 4F.01 Application of Steady and Flashing Signal Indications during Steady (Stop-
112 and-Go) Operation

113 Standard:

114 01 When a traffic control signal is being operated in a steady (stop-and-go) mode, at least one
115 indication in each signal face shall be displayed at any given time.

116 02 A signal face(s) that controls a particular vehicular movement during any interval of a cycle
117 shall control that same movement during all intervals of the cycle.

118 03 Steady and flashing signal indications shall be applied as follows:

119 A. A steady CIRCULAR RED signal indication:

- 120 1. Shall be displayed when it is intended to prohibit traffic, except pedestrians directed by
121 a pedestrian signal head, from entering the intersection or other controlled area.
122 Turning after stopping is permitted as stated in Item C.1 in Paragraph 1 of Section
123 4A.03.
- 124 2. Shall be displayed with the appropriate GREEN ARROW signal indications when it is
125 intended to permit traffic to make a specified turn or turns, and to prohibit traffic
126 from proceeding straight ahead through the intersection or other controlled area,
127 except in protected only mode operation (see Sections 4F.06 and 4F.13), or in
128 protected/permissive mode operation with separate turn signal faces (see Sections
129 4F.08 and 4F.15).

130 B. A steady CIRCULAR YELLOW signal indication:

- 131 1. Shall be displayed following a CIRCULAR GREEN or straight-through GREEN
132 ARROW signal indication in the same signal face.
- 133 2. Shall not be displayed in conjunction with the change from the CIRCULAR RED
134 signal indication to the CIRCULAR GREEN signal indication.
- 135 3. Shall be followed by a CIRCULAR RED signal indication except ~~that,~~ when entering
136 preemption operation as described in the Option in Paragraph 03a of this Section, ~~the~~
137 ~~return to the previous CIRCULAR GREEN signal indication shall be permitted~~
138 ~~following a steady CIRCULAR YELLOW signal indication (see Section 4F.19).~~
- 139 4. Shall not be displayed to an approach from which drivers are turning left permissively
140 using a shared signal face or making a U-turn to the left permissively using a shared
141 signal face unless one of the following conditions exists:
- 142 (a) A steady CIRCULAR YELLOW signal indication is also simultaneously being
143 displayed to the opposing approach;
- 144 (b) An engineering study has determined that, because of unique intersection
145 conditions, the condition described in Item (a) cannot reasonably be implemented
146 without causing significant operational or safety problems and that the volume of
147 impacted left-turning or U-turning traffic is relatively low, and those left-turning
148 or U-turning drivers are advised that a steady CIRCULAR YELLOW signal
149 indication is not simultaneously being displayed to the opposing traffic if this
150 operation occurs continuously by the installation of a W25-1 sign (see Section
151 2C.44) with the legend ONCOMING TRAFFIC HAS EXTENDED GREEN; or
- 152 (c) Drivers are advised of the operation if it occurs only occasionally, such as during a
153 preemption sequence, by the installation of a W25-2 sign (see Section 2C.44) with
154 the legend ONCOMING TRAFFIC MAY HAVE EXTENDED GREEN.

155 C. A steady CIRCULAR GREEN signal indication shall be displayed only when it is intended
156 to permit traffic to proceed in any direction that is lawful and practical.

157 D. A steady RED ARROW signal indication shall be displayed when it is intended to prohibit
158 traffic, except pedestrians directed by a pedestrian signal head, from entering the

intersection or other controlled area to make the indicated turn. Except as described in Item C.2 in Paragraph 1 of Section 4A.03, turning on a steady RED ARROW signal indication shall ~~not~~ be ~~permitted~~ prohibited.

E. A flashing RED ARROW signal indication shall be displayed as part of a steady (stop-and-go) mode of operation only when it is intended to permit traffic, after coming to a full stop, to cautiously enter the intersection to make a turn in the direction indicated by the arrow after yielding to pedestrians, if any, and/or to opposing traffic, if any.

F. A steady YELLOW ARROW signal indication:

1. Shall be displayed in the same direction as a GREEN ARROW signal indication following a GREEN ARROW signal indication in the same signal face, unless:

(a) The GREEN ARROW signal indication and a CIRCULAR GREEN (or straight-through GREEN ARROW) signal indication terminate simultaneously in the same signal face, or

(b) The green arrow is a straight-through GREEN ARROW (see Item B.1 in this Paragraph).

2. Shall be displayed in the same direction as a flashing YELLOW ARROW signal indication or flashing RED ARROW signal indication following a flashing YELLOW ARROW signal indication or flashing RED ARROW signal indication in the same signal face, when the flashing arrow indication is displayed as part of a steady mode operation, if the signal face will subsequently display a steady red signal indication.

3. Shall not be displayed in conjunction with the change from a steady RED ARROW, flashing RED ARROW, or flashing YELLOW ARROW signal indication to a GREEN ARROW signal indication, except when entering preemption operation as provided in Item F.5(a) of this Paragraph.

~~4. Shall not be displayed when any conflicting vehicular movement has a green or yellow signal indication (except for the situation regarding U-turns to the left provided in Paragraph 4 of this Section) or any conflicting pedestrian movement has a WALKING PERSON (symbolizing WALK) or flashing UPRAISED HAND (symbolizing DONT WALK) signal indication, except that a steady left turn (or U-turn to the left) YELLOW ARROW signal indication used to terminate a flashing left turn (or U-turn to the left) YELLOW ARROW or a flashing left turn (or U-turn to the left) RED ARROW signal indication in a signal face controlling a permissive left turn (or U-turn to the left) movement as described in Sections 4F.04 and 4F.08 shall be permitted to be displayed when a CIRCULAR YELLOW signal indication is displayed for the opposing through movement. Shall not be displayed when any conflicting vehicular movement has a green or yellow signal indication, except as described in the Option in Paragraph 03b of this Section. It shall not be displayed when a conflicting pedestrian movement has a WALKING PERSON or a flashing UPRAISED HAND signal indication.~~ Vehicles departing in the same direction shall not be considered in conflict if, for each turn lane with moving traffic, there is a separate departure lane, and pavement markings or raised channelization clearly indicate which departure lane to use.

5. Shall not be displayed to terminate a flashing arrow signal indication on an approach from which drivers are turning left permissively or making a U-turn to the left permissively unless one of the following conditions exists:

(a) A steady CIRCULAR YELLOW signal indication is also simultaneously being displayed to the opposing approach;

(b) An engineering study has determined that, because of unique intersection conditions, the condition described in Item (a) cannot reasonably be implemented without causing significant operational or safety problems and that the volume of impacted left-turning or U-turning traffic is relatively low, and those left-turning

- or U-turning drivers are advised that a steady CIRCULAR YELLOW signal indication is not simultaneously being displayed to the opposing traffic if this operation occurs continuously by the installation of a W25-1 sign (see Section 2C.44) with the legend ONCOMING TRAFFIC HAS EXTENDED GREEN; or
- (c) Drivers are advised of the operation if it occurs only occasionally, such as during a preemption sequence, by the installation of a W25-2 sign (see Section 2C.44) with the legend ONCOMING TRAFFIC MAY HAVE EXTENDED GREEN.
6. Shall be terminated by a RED ARROW signal indication for the same direction or a CIRCULAR RED signal indication except [as described in the Options in Paragraphs 03c or 03d of this Section.](#)
- ~~(a) When entering preemption operation, the display of a GREEN ARROW signal indication or a flashing arrow signal indication shall be permitted following a steady YELLOW ARROW signal indication.~~
- ~~(b) When the movement controlled by the arrow is to continue on a permissive mode basis during an immediately following signal phase, the display of a CIRCULAR GREEN signal indication or flashing YELLOW ARROW signal indication shall be permitted following a steady YELLOW ARROW signal indication. To provide a red clearance interval, it shall be permitted to display a steady left turn RED ARROW signal indication immediately following the steady left turn YELLOW ARROW signal indication.~~
- G. A flashing YELLOW ARROW signal indication shall be displayed as part of a steady (stop-and-go) mode of operation only when it is intended to permit traffic to cautiously enter the intersection to make a turn in the direction indicated by the arrow after yielding to pedestrians, if any, and/or to opposing traffic, if any.
- H. A steady GREEN ARROW signal indication:
1. Shall be displayed only to allow vehicular movements, in the direction indicated, that are not in conflict with other vehicles moving on a green or yellow signal indication (except for the situation regarding U-turns provided in Paragraph 4 of this Section and straight-through GREEN ARROWS provided in Paragraph 5 of this Section), even if the other vehicles are required to yield the right-of-way to the traffic moving on the GREEN ARROW signal indication, and are not in conflict with pedestrians crossing in compliance with a WALKING PERSON (symbolizing WALK) or flashing UPRAISED HAND (symbolizing DONT WALK) signal indication. Vehicles departing in the same direction shall not be considered in conflict if, for each turn lane with moving traffic, there is a separate departure lane, and pavement markings or raised channelization clearly indicate which departure lane to use.
 2. Shall be displayed on a signal face that controls a left-turn movement when said movement is not in conflict with other vehicles moving on a green or yellow signal indication (except for the situation regarding U-turns provided in Paragraph 4 of this Section) and is not in conflict with pedestrians crossing in compliance with a WALKING PERSON (symbolizing WALK) or flashing UPRAISED HAND (symbolizing DONT WALK) signal indication. Vehicles departing in the same direction shall not be considered in conflict if, for each turn lane with moving traffic, there is a separate departure lane, and pavement markings or raised channelization clearly indicate which departure lane to use.
 3. Shall not be required on the stem of a T-intersection or for turns from a one-way street.
- Option:

03a When entering preemption or priority operation, the return of the previous CIRCULAR GREEN signal indication may follow a steady CIRCULAR YELLOW signal indication (see Sections 4F.18 through 4F.20).

03b For a signal face controlling a permissive left-turn movement or a permissive U-turn to the left, a steady left-turn YELLOW ARROW used to terminate a flashing left-turn YELLOW ARROW or flashing RED ARROW, as described in Sections 4F.04 and 4F.08, may be displayed when a CIRCULAR YELLOW signal indication is displayed for the opposing through movement. ~~For a signal face controlling a permissive U-turn to the left movement, a steady YELLOW ARROW used to terminate a flashing left-turn YELLOW ARROW or flashing RED ARROW, as described in Sections 4F.04 and 4F.08, may be displayed when a CIRCULAR YELLOW signal indication is displayed for the opposing through movement.~~

03c When entering preemption operation, the display of a GREEN ARROW signal indication or a flashing arrow signal indication may follow a steady YELLOW ARROW signal indication.

03d When a movement is to continue on a permissive mode basis during the immediately following signal phase, A CIRCULAR GREEN signal indication or a flashing YELLOW ARROW signal indication may be displayed following a steady YELLOW ARROW signal indication.

04 If U-turns are permitted from the approach and a right-turn GREEN ARROW signal indication is simultaneously being displayed to road users making a right turn from the conflicting approach to the left, road users making a U-turn may be advised of the operation by the installation of a U-TURN YIELD TO RIGHT TURN (R10-16) sign (see Section 2B.59).

05 A steady straight-through green arrow signal indication may be used instead of a circular green signal indication in a signal face to discourage wrong-way turns under the following conditions, even if opposed by a simultaneous permissive left-turn movement:

- A. On an approach intersecting a one-way street;
- B. On an approach intersecting an interchange exit ramp;
- C. On an approach with unique geometric design that prohibits turns; or
- D. On an approach with pre-signals and the adjacent lanes are controlled separately (see Sections 8D.11 and 8D.12).

06 If not otherwise prohibited, steady red, yellow, and green turn arrow signal indications may be used instead of steady circular red, yellow, and green signal indications in a signal face on an approach where all traffic is required to turn or where the straight-through movement is not physically possible.

Support:

07 Section 4F.16 contains information regarding the signalization of approaches that have a combined left-turn/right-turn lane and no through movement.

08 Section 4D.07 contains information regarding limitations on left-turn arrows, right-turn arrows, and U-turn arrows in supplemental signal faces.

Standard:

09 **A straight-through RED ARROW signal indication or a straight-through YELLOW ARROW signal indication shall not be displayed on any signal face, either alone or in combination with any other signal indication.**

10 **The following combinations of signal indications shall not be simultaneously displayed on any one signal face:**

- A. CIRCULAR YELLOW with CIRCULAR RED,
- B. CIRCULAR GREEN with CIRCULAR RED, or
- C. Straight-through GREEN ARROW with CIRCULAR RED.

11 **Except as provided in Paragraph 13 of this Section, the above combinations shall not be simultaneously displayed on an approach as a result of the combination of displays from multiple signal faces unless the display is created by a signal face(s) devoted exclusively to the control of a right-turn movement and:**

- 307 A. The signal face(s) controlling the right-turn movement is visibility limited from the
308 adjacent through movement or positioned to minimize potential confusion to approaching
309 road users, or
310 B. A RIGHT TURN SIGNAL (R10-10) sign (see Sections 4F.09, 4F.11, 4F.13, and 4F.15) is
311 mounted adjacent to the signal face(s) controlling the right-turn movement.
- 312 12 Except as provided in Paragraph 13 of this Section, the following combinations of signal
313 indications shall not be simultaneously displayed on any one signal face or as a result of the
314 combination of displays from multiple signal faces on an approach:
- 315 A. CIRCULAR GREEN with CIRCULAR YELLOW,
316 B. Straight-through GREEN ARROW with CIRCULAR YELLOW,
317 C. GREEN ARROW with YELLOW ARROW pointing in the same direction,
318 D. YELLOW ARROW with RED ARROW pointing in the same direction, or
319 E. GREEN ARROW with RED ARROW pointing in the same direction.

320 Option:

- 321 13 If a separate signal face is provided at a pre-signal (see Section 8D.11) or at a queue cutter signal
322 (see Section 8D.12) for a left-turn and/or right-turn lane that extends from the downstream signalized
323 intersection back to and across a grade crossing, the following combinations of signal indications shall be
324 permitted to may be simultaneously displayed as a result of the combination of displays from multiple
325 signal faces at the pre-signal or queue cutter signal:
- 326 A. Straight-through GREEN ARROW with CIRCULAR RED,
327 B. Straight-through GREEN ARROW with CIRCULAR YELLOW, and
328 C. CIRCULAR YELLOW with CIRCULAR RED.

329 Standard:

- 330 14 Except as otherwise provided in Sections 4F.08, 4F.15, 4J.03, and 4N.03, the same signal
331 section shall not be used to display both a flashing yellow and a steady yellow indication during
332 steady mode operation. Except as otherwise provided in Sections 4F.04, 4F.08, 4F.11, and 4F.13, the
333 same signal section shall not be used to display both a flashing red and a steady red indication
334 during steady mode operation.

335 *Guidance:*

- 336 15 *No movement that creates an unexpected crossing of pathways of moving vehicles or pedestrians*
337 *should be allowed during any green or yellow interval, except when all three of the following conditions*
338 *are met:*
- 339 A. *The movement involves only slight conflict, and*
340 B. *Serious traffic delays are substantially reduced by permitting the conflicting movement, and*
341 C. *Drivers and pedestrians subjected to the unexpected conflict are effectively warned thereof by a*
342 *sign.*

343 **Section 4F.03 Signal Indications for Permissive Only Mode Left-Turn Movements in a**
344 **Shared Signal Face**

345 **Standard:**

- 346 01 If a shared signal face is provided for a permissive only mode left turn, it shall meet the
347 following requirements (see Figure 4F-1):
- 348 A. It shall be capable of displaying the following signal indications: steady CIRCULAR RED,
349 steady CIRCULAR YELLOW, and CIRCULAR GREEN. Only one of the three
350 indications shall be displayed at any given time.
351 B. During the permissive left-turn movement, a CIRCULAR GREEN signal indication shall
352 be displayed.

- 353 C. A permissive only shared signal face, regardless of where it is positioned and regardless of
354 how many adjacent through signal faces are provided, shall always simultaneously display
355 the same color of circular indication that the adjacent through signal face or faces display.
356 D. If the permissive only mode is not the only left-turn mode used for the approach, the signal
357 face shall be the same shared signal face that is used for the protected/permissive mode (see
358 Section 4F.07) except that the left-turn GREEN ARROW and left-turn YELLOW
359 ARROW signal indications shall not be displayed when operating in the permissive only
360 mode.

361 **Section 4F.04 Signal Indications for Permissive Only Mode Left-Turn Movements in a**
362 **Separate Signal Face**

363 **Standard:**

- 364 01 A separate left-turn signal face shall not be used for an approach that does not include a
365 mandatory left-turn lane.
366 02 If a separate left-turn signal face is being operated in a permissive only left-turn mode, a
367 CIRCULAR GREEN signal indication shall not be used in that face.
368 03 If a separate left-turn signal face is being operated in a permissive only left-turn mode and a
369 flashing left-turn YELLOW ARROW signal indication is provided, it shall meet the following
370 requirements (see Figure 4F-2):
371 A. It shall be capable of displaying the following signal indications: steady left-turn RED
372 ARROW, steady left-turn YELLOW ARROW, and flashing left-turn YELLOW ARROW.
373 Only one of the three indications shall be displayed at any given time.
374 B. During the permissive left-turn movement, a flashing left-turn YELLOW ARROW signal
375 indication shall be displayed.

Figure 4F-1. Typical Position and Arrangements of Shared Signal Faces for Permissive Only Mode Left Turns

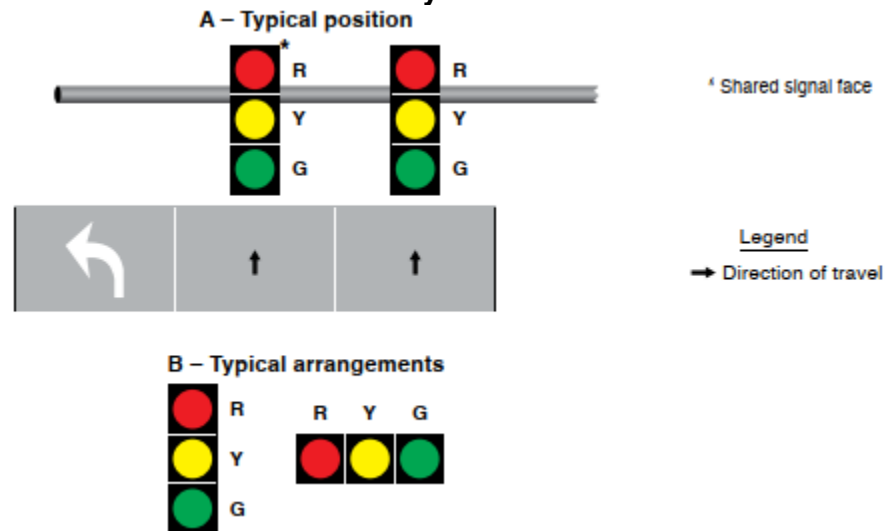
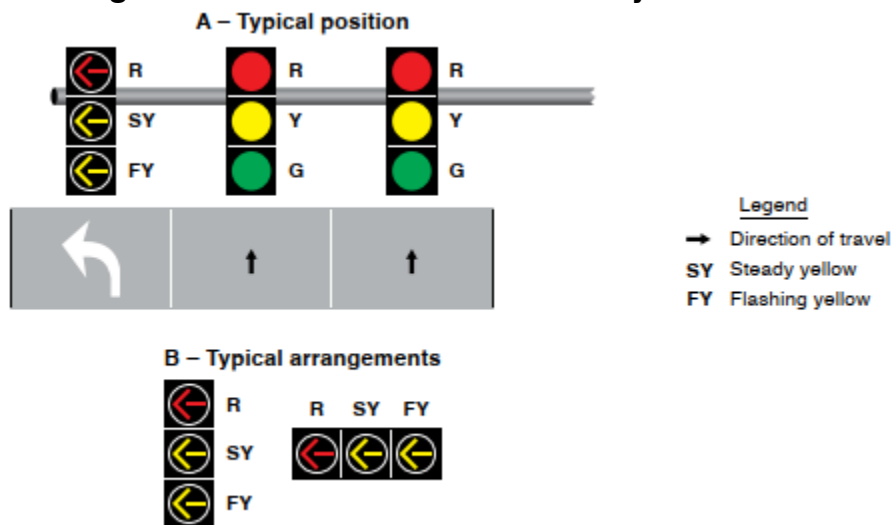


Figure 4F-2. Typical Position and Arrangements of Separate Signal Faces with Flashing Yellow Arrow for Permissive Only Mode Left Turns



C. A steady left-turn YELLOW ARROW signal indication shall be displayed following the flashing left-turn YELLOW ARROW signal indication.

~~D. It shall be permitted to display a flashing left-turn YELLOW ARROW signal indication for a permissive left-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement.~~

~~E.~~ D. During steady mode (stop-and-go) operation, the signal section that displays the steady left-turn YELLOW ARROW signal indication during change intervals shall not be used to display the flashing left-turn YELLOW ARROW signal indication for permissive left turns unless a bimodal signal section capable of alternating between the display of a steady

YELLOW ARROW and a flashing YELLOW ARROW signal indication is used to operate variable left-turn mode phasing.

F. E. During flashing mode operation (see Section 4G.01), the display of a flashing left-turn YELLOW ARROW signal indication shall be only from the signal section that displays a steady left-turn YELLOW ARROW signal indication during steady mode (stop-and-go) operation.

G. F. If the permissive only mode is not the only left-turn mode used for the approach, the signal face shall be the same separate left-turn signal face with a flashing YELLOW ARROW signal indication that is used for the protected/permissive mode (see Section 4F.08) except that the left-turn GREEN ARROW signal indication shall not be displayed when operating in the permissive only mode.

Option:

04a A flashing left-turn YELLOW ARROW signal indication may be displayed for a permissive left-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement. [Text moved from standard above to a new option statement because of the use of the phrase "shall be permitted."]

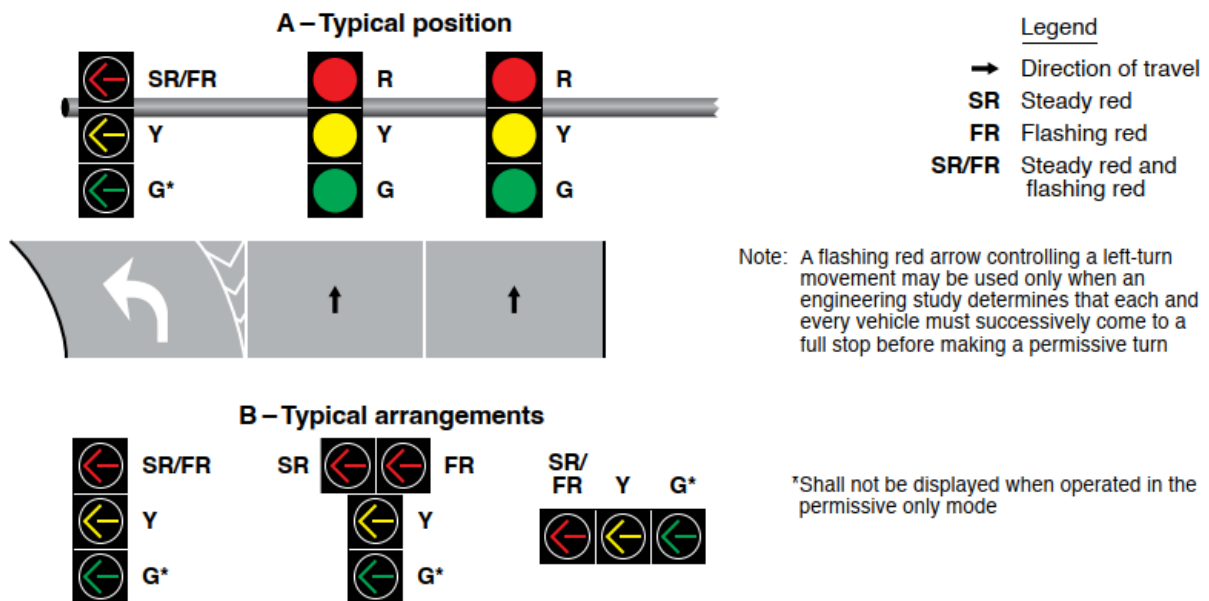
04 A separate left-turn signal face with a flashing left-turn RED ARROW signal indication during the permissive left-turn movement may be used for unusual geometric conditions, such as wide medians with offset left-turn lanes, but only when an engineering study determines that each and every vehicle must successively come to a full stop before making a permissive left turn.

Standard:

05 If a separate left-turn signal face is being operated in a permissive only left-turn mode and a flashing left-turn RED ARROW signal indication is provided, it shall meet the following requirements (see Figure 4F-3):

- A. It shall be capable of displaying the following signal indications: steady or flashing left-turn RED ARROW, steady left-turn YELLOW ARROW, and left-turn GREEN ARROW. Only one of the three indications shall be displayed at any given time. The GREEN ARROW indication is required in order to provide a three-section signal face, but shall not be displayed during the permissive only mode.

Figure 4F-3. Typical Position and Arrangements of Separate Signal Faces with Flashing Red Arrow for Permissive Only Mode and Protected Permissive Mode Left Turns



- B.** During the permissive left-turn movement, a flashing left-turn RED ARROW signal indication shall be displayed, thus indicating that each and every vehicle must successively come to a full stop before making a permissive left turn.
- C.** A steady left-turn YELLOW ARROW signal indication shall be displayed following the flashing left-turn RED ARROW signal indication.
- ~~**D.** It shall be permitted to display a flashing left-turn RED ARROW signal indication for a permissive left-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement.~~
- E.D.** A supplementary sign shall not be required. If used, it shall be a LEFT TURN YIELD ON FLASHING RED ARROW AFTER STOP (R10-27) sign (see Section 2B.59).

Option:

05a A flashing left-turn RED ARROW signal indication may be displayed for a permissive left-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement. [Text moved from standard above to a new option statement because of the use of the phrase "shall be permitted."]

06 The requirements of Item A in Paragraph 5 of this Section may be met by a vertically-arranged signal face with a horizontal cluster of two left-turn RED ARROW signal indications, the left-most of which displays a steady indication and the right-most of which displays a flashing indication (see Figure 4F-3).

Section 4F.08 Signal Indications for Protected/Permissive Mode Left-Turn Movements in a Separate Signal Face

Standard:

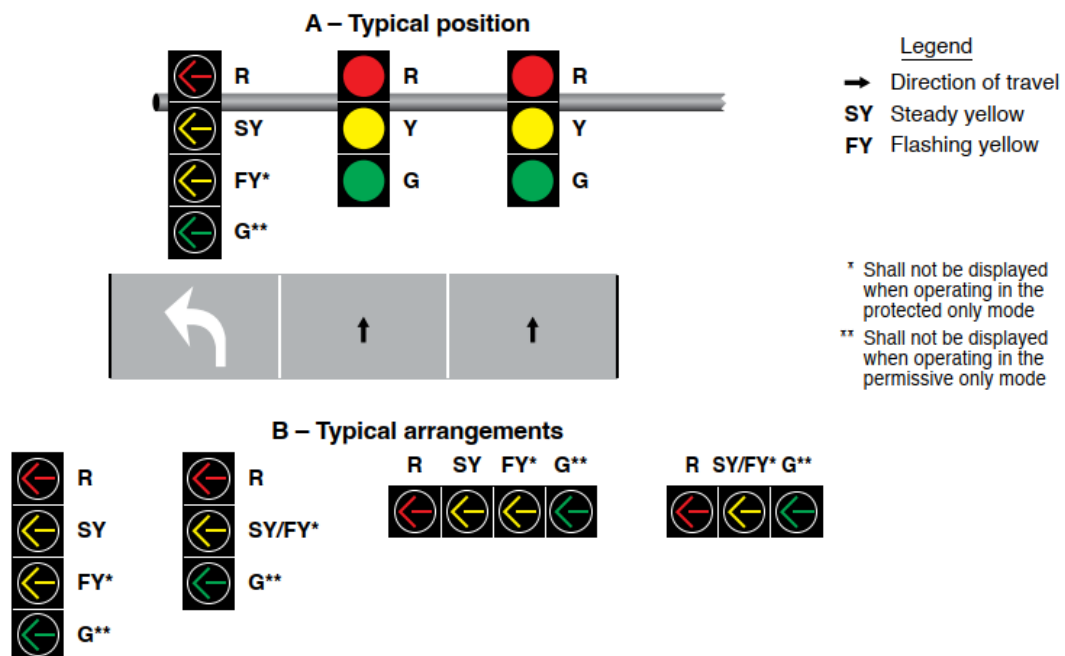
01 A separate left-turn signal face shall not be used for an approach that does not include a mandatory left-turn lane.

02 If a separate left-turn signal face is being operated in a protected/permissive left-turn mode, a CIRCULAR GREEN signal indication shall not be used in that face.

03 If a separate left-turn signal face is being operated in a protected/permissive left-turn mode and a flashing left-turn yellow arrow signal indication is provided, it shall meet the following requirements (see Figure 4F-7):

- A. It shall be capable of displaying the following signal indications: steady left-turn RED ARROW, steady left-turn YELLOW ARROW, flashing left-turn YELLOW ARROW, and left-turn GREEN ARROW. Only one of the four indications shall be displayed at any given time.
- B. During the protected left-turn movement, a left-turn GREEN ARROW signal indication shall be displayed.
- C. A steady left-turn YELLOW ARROW signal indication shall be displayed following the left-turn GREEN ARROW signal indication, except as described in the Option in Paragraph 03a of this Section. ~~It shall be permitted to display a steady left-turn RED ARROW signal indication immediately following the steady left-turn YELLOW ARROW signal indication to provide a red clearance interval.~~
- D. During the permissive left-turn movement, a flashing left-turn YELLOW ARROW signal indication shall be displayed.
- E. A steady left-turn YELLOW ARROW signal indication shall be displayed following the flashing left-turn YELLOW ARROW signal indication if the permissive left-turn movement is being terminated and the separate left-turn signal face will subsequently display a steady left-turn RED ARROW indication.
- ~~F. It shall be permitted to display a flashing left-turn YELLOW ARROW signal indication for a permissive left-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement.~~
- ~~G.~~F. When a permissive left-turn movement is changing to a protected left-turn movement, a left-turn GREEN ARROW signal indication shall be displayed immediately upon the termination of the flashing left-turn YELLOW ARROW signal indication. A steady left-turn YELLOW ARROW signal indication shall not be displayed between the display of the flashing left-turn YELLOW ARROW signal indication and the display of the steady left-turn GREEN ARROW signal indication.

Figure 4F-7. Typical Position and Arrangements of Separate Signal Faces with Flashing Yellow Arrow for Protected/Permissive Mode and variable Mode Left Turns



H. G. The display shall be either:

1. A four-section signal face with the steady left-turn YELLOW ARROW signal indication being displayed in a different section than the flashing left-turn YELLOW ARROW signal indication, or
2. A three-section signal face with the steady left-turn YELLOW ARROW signal indication and the flashing left-turn YELLOW ARROW signal indication being displayed in the same bimodal signal section.

I. H. During steady mode (stop-and-go) operation where a four-section signal face is used, the signal section that displays the steady left-turn YELLOW ARROW signal indication during change intervals shall not be used to display the flashing left-turn YELLOW ARROW signal indication for permissive left turns.

J. I. During flashing mode operation (see Chapter 4G) where a four-section signal face is used, the display of a flashing left-turn YELLOW ARROW signal indication shall be only from the signal section that displays a steady left-turn YELLOW ARROW signal indication during steady mode (stop-and-go) operation.

Option:

03a A steady left-turn RED ARROW signal indication may be displayed immediately following the steady left-turn YELLOW ARROW signal indication to provide a red clearance interval. [Text moved from standard above to a new option statement because of the use of the phrase "shall be permitted."]

03b A flashing left-turn YELLOW ARROW signal indication may be displayed for a permissive left-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement. [Text moved from standard above to a new option statement because of the use of the phrase "shall be permitted."]

04 A bimodal signal section (capable of displaying a GREEN ARROW for the protected left-turn movement and a flashing YELLOW ARROW for the permissive left-turn movement) along with a steady

left-turn YELLOW ARROW signal indication and a steady left-turn RED ARROW signal indication may be used for a separate left-turn signal face and may be considered to be a four-section signal face that is compliant with Item H.1 of Paragraph 3 of this Section.

05 A separate left-turn signal face with a flashing left-turn RED ARROW signal indication during the permissive left-turn movement may be used for unusual geometric conditions, such as wide medians with offset left-turn lanes, but only when an engineering study determines that each and every vehicle must successively come to a full stop before making a permissive left turn.

Standard

06 If a separate left-turn signal face is being operated in a protected/permissive left-turn mode and a flashing left-turn RED arrow signal indication is provided, it shall meet the following requirements (see Figure 4F-3):

- A. It shall be capable of displaying the following signal indications: steady or flashing left-turn RED ARROW, steady left-turn YELLOW ARROW, and left-turn GREEN ARROW. Only one of the three indications shall be displayed at any given time.
- B. During the protected left-turn movement, a left-turn GREEN ARROW signal indication shall be displayed.
- C. A steady left-turn YELLOW ARROW signal indication shall be displayed following the left-turn GREEN ARROW signal indication.
- D. During the permissive left-turn movement, a flashing left-turn RED ARROW signal indication shall be displayed.
- E. A steady left-turn YELLOW ARROW signal indication shall be displayed following the flashing left-turn RED ARROW signal indication if the permissive left-turn movement is being terminated and the separate left-turn signal face will subsequently display a steady left-turn RED ARROW indication.
- F. When a permissive left-turn movement is changing to a protected left-turn movement, a left-turn GREEN ARROW signal indication shall be displayed immediately upon the termination of the flashing left-turn RED ARROW signal indication. A steady left-turn YELLOW ARROW signal indication shall not be displayed between the display of the flashing left-turn RED ARROW signal indication and the display of the steady left-turn GREEN ARROW signal indication.
- ~~G. It shall be permitted to display a flashing left-turn RED ARROW signal indication for a permissive left-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement.~~
- ~~H.G.~~ A supplementary sign shall not be required. If used, it shall be a LEFT TURN YIELD ON FLASHING RED ARROW AFTER STOP (R10-27) sign (see Section 2B.59).

Option:

06a A flashing left-turn RED ARROW signal indication may be displayed for a permissive left-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement.

07 The requirements of Item A in Paragraph 6 of this Section may be met by a vertically-arranged signal face with a horizontal cluster of two left-turn RED ARROW signal indications, the left-most of which displays a steady indication and the right-most of which displays a flashing indication (see Figure 4F-3).

Section 4F.11 Signal Indications for Permissive Only Mode Right-Turn Movements in a Separate Signal Face

Standard:

- 01 A separate right-turn signal face shall not be used for an approach that does not include a mandatory right-turn lane.
- 02 If a separate right-turn signal face is being operated in a permissive only right-turn mode, a CIRCULAR GREEN signal indication shall not be used in that face.
- 03 If a separate right-turn signal face is being operated in a permissive only right-turn mode and a flashing right-turn yellow arrow signal indication is provided, it shall meet the following requirements (see Figure 4F-9):
- A. It shall be capable of displaying one of the following sets of signal indications:
1. Steady right-turn RED ARROW, steady right-turn YELLOW ARROW, and flashing right-turn YELLOW ARROW. Only one of the three indications shall be displayed at any given time.
 2. Steady CIRCULAR RED, steady right-turn YELLOW ARROW, and flashing right-turn YELLOW ARROW. Only one of the three indications shall be displayed at any given time. If the CIRCULAR RED signal indication is sometimes displayed when the signal faces for the adjacent through lane(s) are not displaying a CIRCULAR RED signal indication, a RIGHT TURN SIGNAL (R10-10R) sign (see Section 2B.59) shall be used unless the CIRCULAR RED signal indication in the separate right-turn signal face is shielded, hooded, louvered, positioned, or designed such that it is not readily visible to drivers in the through lane(s).

Figure 4F-8. Typical Positions and Arrangements of Shared Signal Faces for Permissive Only Mode Right Turns

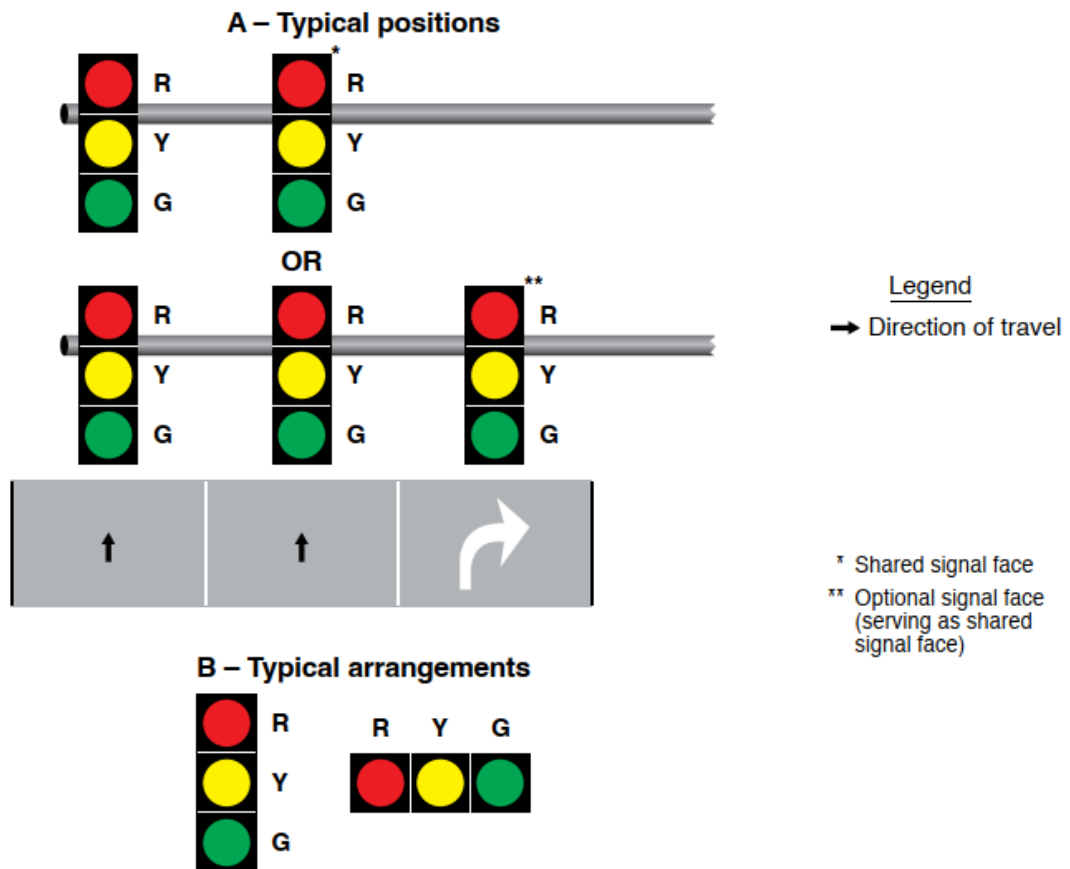
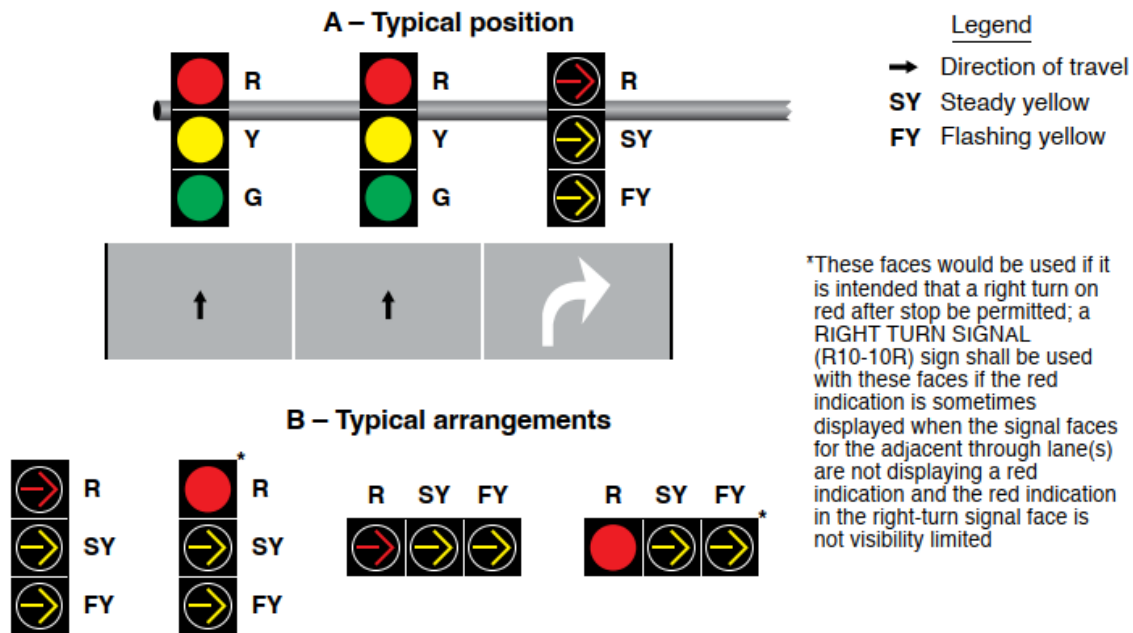


Figure 4F-9. Typical Position and Arrangements of Separate Signal Faces with Flashing Yellow Arrow for Permissive Only Mode Right Turns



- B. During the permissive right-turn movement, a flashing right-turn YELLOW ARROW signal indication shall be displayed.
- C. A steady right-turn YELLOW ARROW signal indication shall be displayed following the flashing right-turn YELLOW ARROW signal indication.
- D. When the separate right-turn signal face is providing a message to stop and remain stopped, a steady right-turn RED ARROW signal indication shall be displayed if it is intended that right turns on red not be permitted (except when a traffic control device is in place permitting a turn on a steady RED ARROW signal indication) or a steady CIRCULAR RED signal indication shall be displayed if it is intended that right turns on red be permitted.
- ~~E. It shall be permitted to display a flashing right-turn YELLOW ARROW signal indication for a permissive right-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications.~~
- ~~F.~~ E. During steady mode (stop-and-go) operation, the signal section that displays the steady right-turn YELLOW ARROW signal indication during change intervals shall not be used to display the flashing right-turn YELLOW ARROW signal indication for permissive right turns unless a bimodal signal section capable of alternating between the display of a steady YELLOW ARROW and a flashing YELLOW ARROW signal indication is used during variable right-turn mode operation.
- ~~G.~~ F. During flashing mode operation (see Chapter 4G), the display of a flashing right-turn YELLOW ARROW signal indication shall be only from the signal section that displays a steady right-turn YELLOW ARROW signal indication during steady mode (stop-and-go) operation.
- ~~H.~~ G. If the permissive only mode is not the only right-turn mode used for the approach, the signal face shall be the same separate right-turn signal face with a flashing YELLOW ARROW signal indication that is used for the protected/permissive mode (see Section 4F.15) except that the right-turn GREEN ARROW signal indication shall not be displayed when operating in the permissive only mode.

Option:

03a A flashing right-turn YELLOW ARROW signal indication may be displayed for a permissive right-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications. [Text moved from standard above to a new option statement because of the use of the phrase "shall be permitted."]

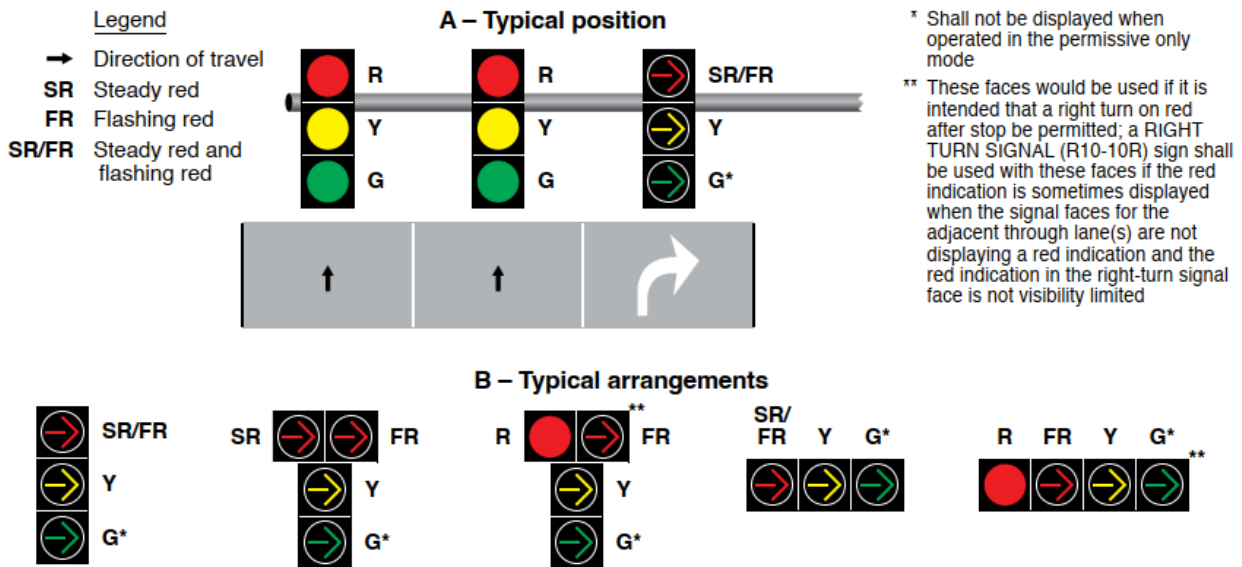
04 When an engineering study determines that each and every vehicle must successively come to a full stop before making a permissive right turn, a separate right-turn signal face with a flashing right-turn RED ARROW signal indication during the permissive right-turn movement may be used.

Standard:

05 If a separate right-turn signal face is being operated in a permissive only right-turn mode and a flashing right-turn RED arrow signal indication is provided, it shall meet the following requirements (see Figure 4F-10):

- A. It shall be capable of displaying one of the following sets of signal indications:
 - 1. Steady or flashing right-turn RED ARROW, steady right-turn YELLOW ARROW, and right-turn GREEN ARROW. Only one of the three indications shall be displayed at any given time. The GREEN ARROW indication is required in order to provide a three-section signal face, but shall not be displayed during the permissive only mode.
 - 2. Steady CIRCULAR RED on the left and steady right-turn RED ARROW on the right of the top position, steady right-turn YELLOW ARROW in the middle position, and right-turn GREEN ARROW in the bottom position. Only one of the four indications shall be displayed at any given time. The GREEN ARROW indication is required in order to provide three vertical positions, but shall not be displayed during the permissive only mode. If the CIRCULAR RED signal indication is sometimes displayed when the signal faces for the adjacent through lane(s) are not displaying a CIRCULAR RED signal indication, a RIGHT TURN SIGNAL (R10-10R) sign (see Section 2B.59) shall be used unless the CIRCULAR RED signal indication in the separate right-turn signal face is shielded, hooded, louvered, positioned, or designed such that it is not readily visible to drivers in the through lane(s).
- B. During the permissive right-turn movement, a flashing right-turn RED ARROW signal indication shall be displayed, thus indicating that each and every vehicle must successively come to a full stop before making a permissive right turn.
- C. A steady right-turn YELLOW ARROW signal indication shall be displayed following the flashing right-turn RED ARROW signal indication.
- D. When the separate right-turn signal face is providing a message to stop and remain stopped, a steady right-turn RED ARROW signal indication shall be displayed if it is intended that right turns on red not be permitted (except when a traffic control device is in place permitting a turn on a steady RED ARROW signal indication) or a steady CIRCULAR RED signal indication shall be displayed if it is intended that right turns on red be permitted.

Figure 4F-10. Typical Position and Arrangements of Separate Signal Faces with Flashing Red Arrow for Permissive Only Mode and Protected/Permissive Mode Right Turns



Note: A flashing red arrow controlling a right-turn movement may be used only when an engineering study determines that each and every vehicle must successively come to a full stop before making a permissive turn

~~E. The display of a flashing right-turn RED ARROW signal indication for a permissive right-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement shall be permitted.~~

F.E. A supplementary sign shall not be required. If used, it shall be a RIGHT TURN YIELD ON FLASHING RED ARROW AFTER STOP (R10-27) sign (see Section 2B.59).

Option:

05a A flashing right-turn RED ARROW signal indication may be displayed for a permissive right-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement. [Text moved from standard above to a new option statement because of the use of the phrase "shall be permitted."]

06 The requirements of Item A.1 in Paragraph 5 of this Section may be met by a vertically-arranged signal face with a horizontal cluster of two right-turn RED ARROW signal indications, the left-most of which displays a steady indication and the right-most of which displays a flashing indication (see Figure 4F-10).

Section 4F.15 Signal Indications for Protected/Permissive Mode Right-Turn Movements in a Separate Signal Face

Standard:

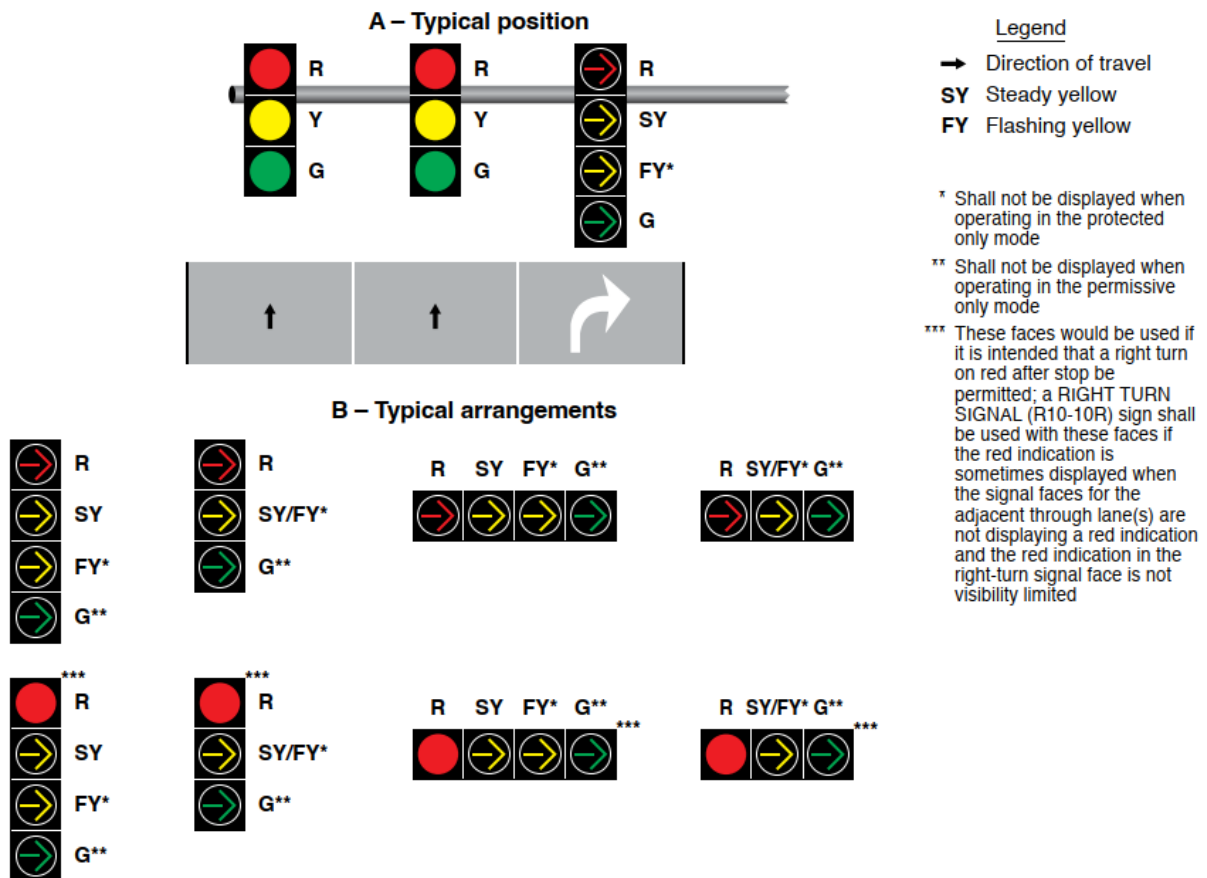
01 A separate right-turn signal face shall not be used for an approach that does not include a mandatory right-turn lane.

02 If a separate right-turn signal face is being operated in a protected/permissive right-turn mode, a CIRCULAR GREEN signal indication shall not be used in that face.

03 If a separate right-turn signal face is being operated in a protected/permissive right-turn mode and a flashing right-turn yellow arrow signal indication is provided, it shall meet the following requirements (see Figure 4F-14):

- A. It shall be capable of displaying one of the following sets of signal indications:
 - 1. Steady right-turn RED ARROW, steady right-turn YELLOW ARROW, flashing right-turn YELLOW ARROW, and right-turn GREEN ARROW. Only one of the four indications shall be displayed at any given time.
 - 2. Steady CIRCULAR RED, steady right-turn YELLOW ARROW, flashing right-turn YELLOW ARROW, and right-turn GREEN ARROW. Only one of the four indications shall be displayed at any given time. If the CIRCULAR RED signal indication is sometimes displayed when the signal faces for the adjacent through lane(s) are not displaying a CIRCULAR RED signal indication, a RIGHT TURN SIGNAL (R10-10R) sign (see Section 2B.59) shall be used unless the CIRCULAR RED signal indication in the separate right-turn signal face is shielded, hooded, louvered, positioned, or designed such that it is not readily visible to drivers in the through lane(s).
- B. During the protected right-turn movement, a right-turn GREEN ARROW signal indication shall be displayed.
- C. A steady right-turn YELLOW ARROW signal indication shall be displayed following the right-turn GREEN ARROW signal indication, except as described in the Option in Paragraph 03a of this Section. ~~It shall be permitted to display a steady right-turn RED ARROW signal indication immediately following the steady right-turn YELLOW ARROW signal indication to provide a red clearance interval.~~
- D. During the permissive right-turn movement, a flashing right-turn YELLOW ARROW signal indication shall be displayed.

Figure 4F-14. Typical Position and Arrangements of Separate Signal Faces with Flashing Yellow Arrow for Protected/Permissive Mode and Variable Mode Right Turns



- E. A steady right-turn YELLOW ARROW signal indication shall be displayed following the flashing right-turn YELLOW ARROW signal indication if the permissive right-turn movement is being terminated and the separate right-turn signal face will subsequently display a steady red indication.
- F. When a permissive right-turn movement is changing to a protected right-turn movement:
 1. If a permissive left-turn movement from the opposing approach is being terminated simultaneously with the termination of the permissive right-turn movement, a steady right-turn YELLOW ARROW signal indication shall be displayed following the flashing right-turn YELLOW ARROW signal indication, except as described in the Option in Paragraph 03b of this Section. ~~To provide a red clearance interval, it shall be permitted to display a steady right-turn RED ARROW signal indication immediately following the steady right-turn YELLOW ARROW signal indication.~~
 2. If a permissive left-turn movement from the opposing approach that is being terminated simultaneously with the termination of the permissive right-turn movement is not present, a right-turn GREEN ARROW signal indication shall be displayed immediately upon the termination of the flashing right-turn YELLOW ARROW signal indication. In this situation, a steady right-turn YELLOW ARROW signal indication shall not be displayed between the display of the flashing right-turn YELLOW ARROW signal indication and the display of the steady right-turn GREEN ARROW signal indication.

G. When the separate right-turn signal face is providing a message to stop and remain stopped, a steady right-turn RED ARROW signal indication shall be displayed if it is intended that right turns on red not be permitted (except when a traffic control device is in place permitting a turn on a steady RED ARROW signal indication) or a steady CIRCULAR RED signal indication shall be displayed if it is intended that right turns on red be permitted.

~~H. It shall be permitted to display a flashing right-turn YELLOW ARROW signal indication for a permissive right-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications.~~

~~I.~~H. The display shall be either:

1. A four-section signal face with the steady right-turn YELLOW ARROW signal indication being displayed in a different section than the flashing right-turn YELLOW ARROW signal indication, or
2. A three-section signal face with the steady right-turn YELLOW ARROW signal indication and the flashing right-turn YELLOW ARROW signal indication being displayed in the same bimodal signal section.

~~J.~~I. During steady mode (stop-and-go) operation where a four-section signal face is used, the signal section that displays the steady right-turn YELLOW ARROW signal indication during change intervals shall not be used to display the flashing right-turn YELLOW ARROW signal indication for permissive right turns.

~~K.~~J. During flashing mode operation (see Chapter 4G) where a four-section signal face is used, the display of a flashing right-turn YELLOW ARROW signal indication shall be only from the signal section that displays a steady right-turn YELLOW ARROW signal indication during steady mode (stop-and-go) operation.

Option:

03a A steady right-turn RED ARROW signal indication may be displayed immediately following the a steady right-turn YELLOW ARROW signal indication to provide a red clearance interval. [Text moved from standard above to a new option statement because of the use of the phrase "shall be permitted."]

03b To provide a red clearance interval, when a permissive right-turn movement is changing to a protected right-turn movement and a permissive left-turn movement from the opposing approach is being terminated simultaneously with the termination of the permissive right-turn movement, a steady right-turn RED ARROW or CIRCULAR RED signal indication may be displayed immediately following the steady right-turn YELLOW ARROW signal indication. [Text moved from standard above to a new option statement because of the use of the phrase "shall be permitted."]

03c A flashing right-turn YELLOW ARROW signal indication may be displayed for a permissive right-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications. [Text moved from standard above to a new option statement because of the use of the phrase "shall be permitted."]

04 A bimodal signal section (capable of displaying a GREEN ARROW for the protected right-turn movement and a flashing YELLOW ARROW for the permissive right-turn movement) along with a steady right-turn YELLOW ARROW signal indication and a steady right-turn RED ARROW signal indication may be used for a separate right-turn signal face and may be considered to be a four-section signal face that is compliant with Item I.1 of Paragraph 3 of this Section.

05 When an engineering study determines that each and every vehicle must successively come to a full stop before making a permissive right turn, a separate signal face that has a flashing right-turn RED ARROW signal indication during the permissive right-turn movement may be used.

Standard:

06 If a separate right-turn signal face is being operated in a protected/permissive right-turn mode and a flashing right-turn RED arrow signal indication is provided, it shall meet the following requirements (see Figure 4F-10):

- A. It shall be capable of displaying one of the following sets of signal indications:
 1. Steady or flashing right-turn RED ARROW, steady right-turn YELLOW ARROW, and right-turn GREEN ARROW. Only one of the three indications shall be displayed at any given time.
 2. Steady CIRCULAR RED on the left and steady or flashing right-turn RED ARROW on the right of the top position, steady right-turn YELLOW ARROW in the middle position, and right-turn GREEN ARROW in the bottom position. Only one of the four indications shall be displayed at any given time. If the CIRCULAR RED signal indication is sometimes displayed when the signal faces for the adjacent through lane(s) are not displaying a CIRCULAR RED signal indication, a RIGHT TURN SIGNAL (R10-10R) sign (see Section 2B.59) shall be used unless the CIRCULAR RED signal indication in the separate right-turn signal face is shielded, hooded, louvered, positioned, or designed such that it is not readily visible to drivers in the through lane(s).
- B. During the protected right-turn movement, a right-turn GREEN ARROW signal indication shall be displayed.
- C. A steady right-turn YELLOW ARROW signal indication shall be displayed following the right-turn GREEN ARROW signal indication.
- D. During the permissive right-turn movement, the separate right-turn signal face shall display a flashing right-turn RED ARROW signal indication.
- E. A steady right-turn YELLOW ARROW signal indication shall be displayed following the flashing right-turn RED ARROW signal indication if the permissive right-turn movement is being terminated and the separate right-turn signal face will subsequently display a steady red indication.
- F. When a permissive right-turn movement is changing to a protected right-turn movement, a right-turn GREEN ARROW signal indication shall be displayed immediately upon the termination of the flashing right-turn RED ARROW signal indication. A steady right-turn YELLOW ARROW signal indication shall not be displayed between the display of the flashing right-turn RED ARROW signal indication and the display of the steady right-turn GREEN ARROW signal indication.
- G. When the separate right-turn signal face is providing a message to stop and remain stopped, a steady right-turn RED ARROW signal indication shall be displayed if it is intended that right turns on red not be permitted (except when a traffic control device is in place permitting a turn on a steady RED ARROW signal indication) or a steady CIRCULAR RED signal indication shall be displayed if it is intended that right turns on red be permitted.
- ~~H. It shall be permitted to display a flashing right-turn RED ARROW signal indication for a permissive right-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement.~~
- ~~I.H.~~ A supplementary sign shall not be required. If used, it shall be a RIGHT TURN YIELD ON FLASHING RED ARROW AFTER STOP (R10-27) sign (see Section 2B.59).

Option:

07a A flashing right-turn RED ARROW signal indication may be displayed for a permissive right-turn movement while the signal faces for the adjacent through movement display steady CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal

indications for a protected left-turn movement. [Text moved from standard above to a new option statement because of the use of the phrase "shall be permitted."]

07 The requirements of Item A.1 in Paragraph 6 of this Section may be met by a vertically-arranged signal face with a horizontal cluster of two right-turn RED ARROW signal indications, the left-most of which displays a steady indication and the right-most of which displays a flashing indication (see Figure 4F-10).

Section 4F.19 Preemption Control of Traffic Control Signals

Support:

01 Preemption control (see definition in Section 1C.02) is typically given to trains, boats, emergency vehicles, and light rail transit.

02 Examples of preemption control include the following:

- A. The prompt displaying of green signal indications at signalized locations ahead of fire vehicles, law enforcement vehicles, ambulances, and other official emergency vehicles;
- B. A special sequence of signal phases and timing to expedite and/or provide additional clearance time for vehicles to clear the tracks prior to the arrival of rail traffic; and
- C. A special sequence of signal phases to display a steady red indication to prohibit turning movements toward the tracks during the approach or passage of rail traffic.

Standard:

03 **During the transition into preemption control, the yellow change interval, and any red clearance interval that follows, shall not be shortened or omitted.**

Option:

04 During the transition into preemption control:

- A. ~~Any pedestrian~~ The walk interval and/or pedestrian change interval may be shortened or omitted if the walk interval has begun.
- B. The walk interval together with its associated pedestrian change interval may be omitted if the walk interval has not begun.
- C. The pedestrian change interval may be shortened or omitted only for a boat approaching a moveable bridge or for rail traffic approaching a grade crossing.
- ~~B.D.~~ The red clearance interval, if any, may be omitted so that the return to the previous green signal indication follows a steady yellow signal indication in the same signal face.

Standard:

05 **During preemption control and during the transition out of preemption control:**

- A. Any yellow change interval, and any red clearance interval that follows, shall not be shortened or omitted.
- B. A steady yellow signal indication shall not be immediately followed by ~~sequence from a steady yellow signal indication to a green signal indication shall not be permitted prohibited.~~

Option:

06 A distinctive indication may be provided at the intersection to inform law enforcement personnel who are escorting traffic (such as a parade or funeral procession) that the traffic control signal has changed to a red indication not because of normal cycling, but because it has been preempted by rail traffic approaching an adjacent grade crossing or by boat traffic approaching an adjacent movable bridge.

07 A distinctive indication may be provided at the intersection to show that an emergency vehicle has been given control of the traffic control signal (see Section 11-106 of the "Uniform Vehicle Code"). In order to assist in the understanding of the control of the traffic control signal, a common distinctive indication may be used where drivers from different agencies travel through the same intersection when responding to emergencies.

Guidance:

08 Except for traffic control signals interconnected with light rail transit systems, traffic control signals with railroad preemption or coordinated with flashing-light signal systems should be provided with a back-up power supply.

09 If a traffic control signal or hybrid beacon is installed near or within a grade crossing or if a grade crossing with active traffic control devices is within or near a signalized highway intersection, Chapter 8D should be consulted.

Support:

10 Section 8D.09 contains additional information regarding preemption for grade crossings. Section 8D.10 contains information regarding prohibiting movements toward the grade crossing during preemption. Sections 8D.11 and 8D.12 contain additional information regarding pre-signals and queue cutter signals, respectively, for grade crossings.

Section 4F.20 Priority Control of Traffic Control Signals

Support:

01 Priority control (see definition in Section 1C.02) is typically given to certain non-emergency vehicles such as light-rail transit vehicles operating in a mixed-use alignment and buses.

02 Examples of priority control include the following:

- A. The displaying of early or extended green signal indications at an intersection to assist public transit vehicles improve operations, and
- B. Special phasing to assist public transit vehicles in entering the travel stream ahead of other waiting traffic.

Standard:

03 During priority control and during the transition into or out of priority control:

- A. ~~The shortening or omission of a~~Any yellow change interval, and ~~of~~any red clearance interval that follows, shall not be ~~permitted~~shortened or omitted.
- B. ~~The shortening of a~~Any pedestrian walk interval shall not be shortened below that time described in Section 4I.06 ~~shall not be permitted~~.
- C. ~~The omission of a~~ A pedestrian walk interval and its associated change interval shall not be ~~permitted~~omitted unless the associated vehicular phase is also omitted or the pedestrian phase is exclusive.
- D. ~~The shortening or omission of a~~Any pedestrian change interval shall not be ~~permitted~~shortened or omitted.
- E. ~~A signal indication sequence from a steady yellow signal indication to a green signal indication shall not be permitted.~~ A steady yellow indication shall not be immediately followed by a green indication.

911 CHAPTER 4G. STEADY (STOP-AND-GO) OPERATION OF TRAFFIC CONTROL SIGNALS

912
913 Section 4G.03 Flashing Operation – Signal Indications During Flashing Mode

914 *Guidance:*

915 01 *When a traffic control signal is operated in the flashing mode, a flashing yellow signal indication*
916 *should be used for the major street and a flashing red signal indication should be used for the other*
917 *approaches unless flashing red signal indications are used on all approaches.*

918 **Standard:**

919 02 **When a traffic control signal is operated in the flashing mode, all of the green signal**
920 **indications at the signalized location shall be dark (non-illuminated) and shall not be displayed in**
921 **either a steady or flashing manner, except for single-section GREEN ARROW signal indications as**
922 **provided in Paragraph 6 of this Section.**

923 03 **Flashing yellow signal indications shall be used on more than one approach to a signalized**
924 **location only if those approaches do not conflict with each other.**

925 04 **Except as provided in Paragraph 5 of this Section, when a traffic control signal is operated in**
926 **the flashing mode, one and only one signal indication in every signal face at the signalized location**
927 **shall be flashed.**

928 *Option:*

929 05 *If a signal face has two identical CIRCULAR RED or RED ARROW signal indications (see Section*
930 *4E.04), both of those identical signal indications may be flashed simultaneously.*

931 **Standard:**

932 06 **No steady indications, other than a single-section signal face consisting of a continuously-**
933 **displayed GREEN ARROW signal indication that is used alone to indicate a continuous movement**
934 **in the steady (stop-and-go) mode, shall be displayed at the signalized location during the flashing**
935 **mode. A single-section GREEN ARROW signal indication shall remain continuously displayed**
936 **when the traffic control signal is operated in the flashing mode.**

937 07 **If a signal face includes both circular and arrow signal indications of the color that is to be**
938 **flashed, only the circular signal indication shall be flashed.**

939 08 **Except as shown in the Option in Paragraph 08a of this Section, all**~~all~~ **signal faces that are**
940 **flashed on an approach shall flash the same color, of either yellow or red, except that separate turn**
941 ~~**signal faces (see Sections 4F.04, 4F.06, 4F.08, 4F.11, 4F.13, and 4F.15) shall be permitted to flash a**~~
942 ~~**RED ARROW signal indication when the adjacent through movement signal indications are**~~
943 ~~**flashed yellow. Shared signal faces (see Sections 4F.03, 4F.05, 4F.07, 4F.10, 4F.12, and 4F.14) for**~~
944 ~~**turn movements shall not be permitted to flash a CIRCULAR RED signal indication when the**~~
945 ~~**adjacent through movement signal indications are flashed yellow.**~~ **Shared signal faces (see Sections**
946 **4F.03, 4F.05, 4F.07, 4F.10, 4F.12, and 4F.14) for turn movements shall not flash a CIRCULAR**
947 **RED signal indication when the adjacent through movement signal indications are flashed yellow.**

948 *Option:*

949 08a Separate turn signal faces (see Sections 4F.02 and 4F.09) may flash a RED ARROW signal
950 indication when the signal indications for the adjacent through movement are flashed with a CIRCULAR
951 YELLOW signal indication.

952 **Standard:**

953 09 ~~**The appropriate RED ARROW or YELLOW ARROW signal indication shall be flashed when**~~
954 ~~**a signal face consists entirely of arrow indications. A signal face that consists entirely of arrow**~~
955 ~~**indications and that provides a protected only turn movement during the steady (stop-and-go)**~~
956 ~~**mode or that provides a flashing yellow arrow or flashing red arrow signal indication for a**~~
957 ~~**permissive turn movement during the steady (stop-and-go) mode shall be permitted to flash the**~~

~~YELLOW ARROW signal indication during the flashing mode if the adjacent through movement signal indications are flashed yellow and if it is intended that a permissive turn movement not requiring a full stop by each turning vehicle be provided during the flashing mode. During flashing operation, the signal indications controlling turn movements shall be flashed red where the adjacent through movement is flashed with a CIRCULAR RED signal indication.~~

Option:

09a During flashing operation the signal faces for protected only mode turns may be flashed red if the adjacent through movement is flashed with a CIRCULAR YELLOW signal indication.

09b During flashing operation where the through movement is flashed with a CIRCULAR YELLOW signal indication, separate signal faces for turn movements may be flashed with a yellow indication.

CHAPTER 4H. BICYCLE SIGNALS

Section 4H.04 Application of Bicycle Symbol Signal Indications during Steady (Stop-and-Go) Operation

Standard:

01 Steady bicycle symbol signal indications shall be applied as follows:

- A. A steady RED BICYCLE signal indication shall be displayed when it is intended to prohibit bicyclists in a designated bicycle lane or from a separate facility such as a shared-use path from entering the intersection or other controlled area, ~~except to make a turn after stopping and yielding to other conflicting movements~~ as described in the Option in Paragraph 1a of this Section. Turning after stopping shall be permitted as stated in Item C in Paragraph 1 of Section 4A.05.
- B. A steady YELLOW BICYCLE signal indication shall be displayed following a GREEN BICYCLE signal indication in the same bicycle signal face. A YELLOW BICYCLE signal indication shall not be displayed in conjunction with the change from the RED BICYCLE signal indication to a GREEN BICYCLE signal indication. The YELLOW BICYCLE signal indication shall be followed by a RED BICYCLE signal indication.
- C. A steady GREEN BICYCLE signal indication shall be displayed only when it is intended to permit bicyclists in a designated bicycle lane or from a separate facility such as a shared-use path to enter the intersection as discussed in Section 4A.05.

Option:

01a ~~Bicycle traffic~~ Bicyclists may turn after stopping at an intersection or other controlled area and yielding to other conflicting movements as described in Item C-4 in Paragraph 1 of Section 4A.0405.

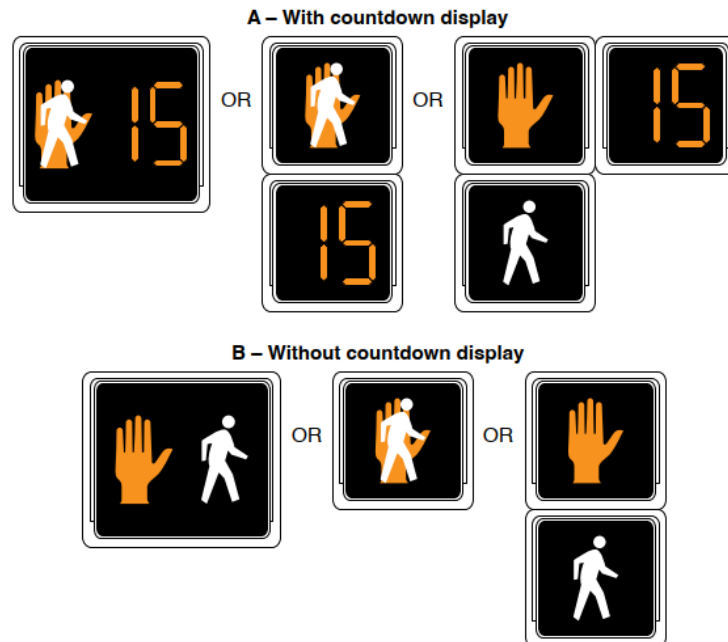
CHAPTER 4I. PEDESTRIAN CONTROL FEATURES

Section 4I.02 Design, and Illumination of Pedestrian Signal Head Indications

Standard:

01 All new pedestrian signal head indications shall be displayed within a rectangular background and shall consist of symbolized messages (see Figure 4I-1), except as described in the Option in Paragraph 04a of this Section, ~~except that existing pedestrian signal head indications with lettered or outline style symbol messages shall be permitted to be retained for the remainder of their useful service life.~~ The symbol designs that are set forth in the "Standard Highway Signs" publication (see Section 1A.05) shall be used. Each pedestrian signal head indication shall be independently displayed and emit a single color.

Figure 4I-1. Typical Pedestrian Signal Indications



02 If a two-section pedestrian signal head is used, the UPRAISED HAND (symbolizing DONT WALK) signal section shall be mounted directly above the WALKING PERSON (symbolizing WALK) signal section. If a one-section pedestrian signal head is used, the symbols shall be either overlaid upon each other or arranged side-by-side with the UPRAISED HAND symbol to the left of the WALKING PERSON symbol, and a light source that can display each symbol independently shall be used.

03 The WALKING PERSON (symbolizing WALK) signal indication shall be white, with all except the symbol obscured by an opaque material for signal optical units that use incandescent lamps within optical assemblies that include lenses. The UPRAISED HAND (symbolizing DONT WALK) signal indication shall be Portland orange, with all except the symbol obscured by an opaque material for signal optical units that use incandescent lamps within optical assemblies that include lenses.

04 Except as provided in Paragraph 5 of this Section, the requirements of Chapter 3 of the publication entitled "Equipment and Materials Standards of the Institute of Transportation Engineers," 2008, ITE, that pertain to the aspects of the pedestrian signal head design that affect the display of the signal indications shall be met for signal optical units that use incandescent lamps within optical assemblies that include lenses. Except as provided in Paragraph 5 of this Section, the requirements of the publication entitled "Pedestrian Traffic Control Signal Indicators – Light

Emitting Diode (LED) Signal Modules," 2011, ITE, that pertain to the aspects of the signal head design that affect the display of the signal indications shall be met for light-emitting diode (LED) pedestrian signal head modules.

Option:

04a Existing pedestrian signal head indications with lettered or outlined style symbol messages may be retained for the remainder of their useful service life.

Guidance:

05 *The intensity and distribution of light from each illuminated pedestrian signal lens or LED pedestrian signal head module should comply with the publications specified in Paragraph 4 of this Section, as appropriate.*

06 *When not illuminated, the WALKING PERSON (symbolizing WALK) and UPRAISED HAND (symbolizing DONT WALK) symbols should not be visible to pedestrians at the far end of the crosswalk that the pedestrian signal head indications control.*

Standard:

07 **For pedestrian signal head indications, the symbols shall be at least 6 inches high.**

08 **The light source of a flashing UPRAISED HAND (symbolizing DONT WALK) signal indication shall be flashed continuously at a rate of not less than 50 or more than 60 times per minute. The displayed period of each flash shall be a minimum of ½ and a maximum of ⅔ of the total flash cycle.**

Guidance:

09 *Pedestrian signal head indications should be conspicuous and recognizable to pedestrians at all distances from the beginning of the controlled crosswalk to a point 10 feet from the end of the controlled crosswalk during both day and night.*

10 *For crosswalks where the pedestrian enters the crosswalk more than 100 feet from the pedestrian signal head indications, the symbols should be at least 9 inches high.*

11 *If the pedestrian signal indication is so bright that it causes excessive glare in nighttime conditions, some form of automatic dimming should be used to reduce the brilliance of the signal indication.*

Option:

12 *An animated eyes symbol may be added to a pedestrian signal head in order to prompt pedestrians to look for vehicles in the intersection during the time that the WALKING PERSON (symbolizing WALK) signal indication is displayed.*

Standard:

13 **If used, the animated eyes symbol shall consist of an outline of a pair of white steadily illuminated eyes with white eyeballs that scan from side to side at a rate of approximately once per second. The animated eyes symbol shall be at least 12 inches wide with each eye having a width of at least 5 inches and a height of at least 2.5 inches. The animated eyes symbol shall be illuminated at the start of the walk interval and shall terminate at the end of the walk interval.**

CHAPTER 4Q. TRAFFIC CONTROL FOR MOVABLE BRIDGES

Section 4Q.03 Operation of Movable Bridge Signals and Gates

Standard:

01 **Traffic control devices at movable bridges shall be coordinated with the movable spans, so that the signals, gates, and movable spans are controlled by the bridge tender through an interlocked control.**

02 If the three-section type of signal face is used, the green signal indication shall be displayed at all times between bridge openings except as described in the Option in Paragraph 02a of this Section, ~~except that if the bridge is not expected to open during continuous periods in excess of 5 hours, a flashing yellow signal indication shall be permitted to be used.~~ The signal shall display a steady red signal indication when traffic is required to stop. The duration of the yellow change interval between the display of the green and steady red signal indications, or flashing yellow and steady red signal indications, shall be determined using engineering practices (see Section 4F.17).

Option:

02a A flashing YELLOW indication may be displayed if the bridge is not expected to be opened during a continuous period in excess of 5 hours.

Standard:

03 If the vertical array of red signal indications is the type of signal face selected, the red signal indications shall flash alternately only when traffic is required to stop.

Guidance:

04 Traffic control signals on adjacent streets and highways should be interconnected with the movable bridge control if indicated by engineering judgment. When such interconnection is provided, the traffic control signals at adjacent intersections should be preempted by the operation of the movable bridge in the manner described in Section 4F.19.