This recommendation was approved by the Signals Technical Committee at the January 2007 meeting and approved by the National Committee Council on 01/19/07. Time constraints for item submission to FHWA for the next MUTCD process did not permit distribution to sponsors prior to National Committee action.

**TECHNICAL COMMITTEE RECOMMENDATION**

**TECHNICAL COMMITTEE:** Signals Technical Committee  
**DATE OF ACTION:** January 18, 2007  
**TOPIC:** Proposed new figures for various sections in Chapter 4D  
**ORIGIN OF REQUEST:** Signals Technical Committee

**DISCUSSION:**

The Chapter 4D task force worked following the June 2006 meeting to develop some tables (figures) to illustrate the meaning and use of various signal indications or heads. The tables are proposed to include 3 columns. The first column would include an illustration of the signal indications or heads, the next column would include the text describing the applicability of the indications or heads to vehicular operations, and the last column would include the text describing the applicability of the indications or heads to pedestrian operations.

Based on the task force work, graphical depictions of signal faces incorporated into a table with the related text can be readily visualized and represented on one or two pages per section. This would be a significant reduction over the multiple pages required for the text without the tables. It would also reduce the degree of concentration sometimes needed to understand the text.

In order to facilitate the transition from text to tables in these sections, the task force recommendation is to add the tables to supplement the text but not delete the existing text initially. The text could then be deleted in a later MUTCD version. However, if FHWA feels it appropriate, the tables can contain all of the needed text and the existing associated text can be deleted.

The recommendation does not included any proposed changes to the standards, guidance, or options currently included or previously approved as a recommendation by the National Committee. The recommendation is only intended to convert a pure text format into...
a table format to improve communication of the information. Where text changes are shown, it is simply to introduce or refer to the tables.

**COMMITTEE ACTIONS:**

The task force recommendations for the new tables were distributed to all committee members in advance of the January meeting to permit the opportunity for review. The 4D task force presented this item to the STC and received unanimous support for the recommendation.

The Signals Technical Committee recommends that the National Committee Council approve the addition of tables as illustrated on the following pages in the sections of Chapter 4D listed below.

**VOTE:**

For - 25  
Opposed - 0  
Abstentions - 0

**REFERENCE TO AFFECTED SECTIONS IN MUTCD:**

- **Section 4D.04** Meaning of Vehicular Signal Indications  
- **Section 4D.05** Application of Steady Signal Indications  
- **Section 4D.06** Application of Steady Signal Indications for Left Turns  
- **Section 4D.06A** Application of Flashing Signal Indications for Left Turns (not in 2003 MUTCD – has been recommended by National Committee)  
- **Section 4D.07** Application of Steady Signal Indications for Right Turns  
- **Section 4D.07A** Application of Flashing Signal Indications for Right Turns (not in 2003 MUTCD – has been recommended by National Committee)  
- **Section 4D.08** Prohibited Signal Indications  
- **Section 4D.16** Number and Arrangement of Signal Sections in Vehicular Traffic Control Signal Faces
Section 4D.04  Meaning of Vehicular Signal Indications

Support:

The "Uniform Vehicle Code" (see Section 1A.11) is the primary source for the standards for the meaning of vehicular signal indications to both vehicle operators and pedestrians as set forth below, and the standards for the meaning of separate pedestrian signal indications as set forth in Section 4E.02.

As described in the definition of intersection in Section 4A.02, in some cases vehicles are considered to be legally in the intersection although they are not physically located within the intersection.

Standard:

The following meanings shall be given to highway traffic signal indications for vehicles and pedestrians as shown in the summary table and as described below:

Summary of Meaning of Vehicular Signal Indications

<table>
<thead>
<tr>
<th>Signal Indication</th>
<th>Meaning when facing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vehicular Traffic</td>
</tr>
<tr>
<td>1.</td>
<td>● May proceed, except as such movement is modified by roadway design or other traffic control devices. ● Must yield to pedestrians lawfully within an associated crosswalk and vehicles lawfully within an intersection. ● Vehicles turning left must yield to opposing traffic.</td>
</tr>
<tr>
<td>2.</td>
<td>● May cautiously proceed to make the movement indicated. ● Must yield to pedestrians lawfully within an associated crosswalk and vehicles lawfully within an intersection.</td>
</tr>
<tr>
<td>3.</td>
<td>● Is warned that the related</td>
</tr>
</tbody>
</table>
green movement or the related flashing arrow movement is being terminated or that a circular red indication will immediately follow. as directed by a pedestrian signal indication or other traffic control device.

4. ● Is warned that the related green arrow movement or flashing yellow arrow movement is being terminated or that a red signal indication will immediately follow. (See 3. above)

5. ● Shall stop at a stop line, or a crosswalk, or if none before entering the intersection, except to make a movement permitted by another signal indication. ● Shall remain stopped, except to turn right or turn left (from a one-way street to a one-way street), unless a traffic control device is in place prohibiting such turn. (See 2. above)

6. ● Shall stop as described in 5. above, except to make a movement permitted by another signal indication. ● Shall not enter the intersection to make the movement indicated by the arrow. ● Shall remain stopped, except where a traffic control device permits the movement on a red arrow signal indication. (See 2. above)

7. Flashing ● Shall stop as described in 5. above, and then may proceed as from a Stop Sign. ● May be used to supplement and give emphasis to Stop Sign (R1-1), Do Not Enter (R5-1) Sign and Wrong Way (R5-1a) Signs. (See 1. above)
8. Flashing

- Shall stop as described in 5. above, and then proceed as from a Stop Sign to make the movement indicated by the arrow.

(See 1. above)

9. Flashing

- May cautiously proceed. Otherwise, same as 1. above.
- May be used to supplement and give emphasis to warning signs and regulatory signs not mentioned in 7. above.

(See 1. above)

10. Flashing

- May cautiously proceed to make the movement indicated by the arrow. Otherwise, same as 1. above.

(See 1. above)

A. Steady green signal indications shall have the following meanings:

1. Vehicular traffic facing a CIRCULAR GREEN signal indication is permitted to proceed straight through or turn right or left except as such movement is modified by lane-use signs, turn prohibition signs, lane markings, roadway design, separate turn signal indications, or other traffic control devices.

Such vehicular traffic, including vehicles turning right or left, shall yield the right-of-way to:
(a) Pedestrians lawfully within an associated crosswalk.
(b) Other vehicles lawfully within the intersection.

In addition, vehicles turning left shall yield the right-of-way to other vehicles approaching from the opposite direction so closely as to constitute an immediate hazard during the time when such turning vehicle is moving across or within the intersection.

2. Vehicular traffic facing a GREEN ARROW signal indication, exhibited-alone or in combination with another signal indication, is permitted to cautiously enter the intersection only to make the movement indicated by such arrow, or such other movement as is permitted by other signal indications exhibited at the same time.

Such vehicular traffic, including vehicles turning right or left, shall yield the right-of-way to:
(a) Pedestrians lawfully within an associated crosswalk.
(b) Other vehicles lawfully within the intersection.

3. Pedestrians facing a CIRCULAR GREEN signal indication, unless otherwise directed by a pedestrian signal indication or other traffic control device, are permitted to proceed across the roadway within any marked or unmarked associated crosswalk. The pedestrian shall yield the right-of-way to vehicles lawfully within the intersection.
or so close as to create an immediate hazard at the time that the green signal indication is first exhibited.

4. Pedestrians facing a GREEN ARROW signal indication, unless otherwise directed by a pedestrian signal indication or other traffic control device, shall not cross the roadway.

B. Steady yellow signal indications shall have the following meanings:

1. Vehicular traffic facing a CIRCULAR YELLOW signal indication is thereby warned that the related green movement or the related flashing arrow movement is being terminated or that a red signal indication will be exhibited immediately thereafter when vehicular traffic shall not enter the intersection. The rules set forth concerning vehicular operation under the movement(s) being terminated shall continue to apply while this signal indication is exhibited.

2. Vehicular traffic facing a YELLOW ARROW signal indication is thereby warned that the related GREEN ARROW movement or the related flashing arrow movement is being terminated. The rules set forth concerning vehicular operation under the movement(s) being terminated shall continue to apply while this signal indication is exhibited.

3. Pedestrians facing a steady CIRCULAR YELLOW or YELLOW ARROW signal indication, unless otherwise directed by a pedestrian signal indication or other traffic control device shall not start to cross the roadway.

C. Steady red signal indications shall have the following meanings:

1. Vehicular traffic facing a steady CIRCULAR RED signal indication, unless entering the intersection to make another movement permitted by another signal indication, shall stop at a clearly marked stop line, but if there is no stop line, traffic shall stop before entering the crosswalk on the near side of the intersection; or if there is no crosswalk, then before entering the intersection, and shall remain stopped until a signal indication to proceed is exhibited, or as provided below.

   Except when a traffic control device is in place prohibiting a turn on red or a RED ARROW signal indication is exhibited, vehicular traffic facing a CIRCULAR RED signal indication is permitted to enter the intersection to turn right, or to turn left from a one-way street into a one-way street, after stopping. The right to proceed with the turn shall be subject to the rules applicable after making a stop at a STOP sign.

2. Vehicular traffic facing a steady RED ARROW signal indication shall not enter the intersection to make the movement indicated by the arrow and, unless entering the intersection to make another movement permitted by another signal indication, shall stop at a clearly marked stop line; but if there is no stop line, before entering the crosswalk on the near side of the intersection, or if there is no crosswalk, then before entering the intersection, and shall remain stopped until a signal indication or other traffic control device permitting the movement indicated by such RED ARROW is exhibited.
When a traffic control device is in place permitting a turn on a RED ARROW signal indication, vehicular traffic facing a RED ARROW signal indication is permitted to enter the intersection to make the movement indicated by the arrow signal indication, after stopping. The right to proceed with the turn shall be limited to the direction indicated by the arrow and shall be subject to the rules applicable after making a stop at a STOP sign.

3. Unless otherwise directed by a pedestrian signal indication or other traffic control device, pedestrians facing a steady CIRCULAR RED or RED ARROW signal indication shall not enter the roadway.

D. Flashing red signal indications shall have the following meanings:

1. Vehicular traffic, on an approach to an intersection, facing a FLASHING CIRCULAR RED signal indication shall stop at a clearly marked stop line; but if there is no stop line, before entering the crosswalk on the near side of the intersection; or if there is no crosswalk, at the point nearest the intersecting roadway where the driver has a view of approaching traffic on the intersecting roadway before entering the intersection. The right to proceed shall be subject to the rules applicable after making a stop at a STOP sign.

2. On an approach to an intersection, vehicular traffic, which is facing a FLASHING RED ARROW signal indication and which intends to turn in the direction indicated by the arrow, shall stop at a clearly marked stop line; but if there is no stop line, before entering the crosswalk on the near side of the intersection; or if there is no crosswalk, at the point nearest the intersecting roadway where the driver has a view of approaching traffic on the intersecting roadway before entering the intersection. The right to proceed with the turn shall be limited to the direction indicated by the arrow and shall be subject to the rules applicable after making a stop at a STOP sign.

3. Pedestrians facing any flashing red signal indication at an intersection, unless otherwise directed by a pedestrian signal indication or other traffic control device, are permitted to proceed across the roadway within any marked or unmarked associated crosswalk. Pedestrians shall yield the right-of-way to vehicles lawfully within the intersection at the time that the flashing red signal indication is first exhibited.

4. When a flashing CIRCULAR RED signal indication(s) is exhibited in conjunction with another traffic control device, road users are notified that there is a need to pay extra attention to the message contained thereon or that the regulatory requirements of the other traffic control device which are not applicable at all times are currently applicable.

Use of this signal indication shall be limited to supplementing STOP (R1-1), DO NOT ENTER (R5-1), or WRONG WAY (R5-1a) signs, and to applications where compliance with the supplemented traffic control device requires a stop at a designated point.

E. Flashing yellow signal indications shall have the following meanings:

1. On an approach to an intersection, vehicular traffic which is facing a flashing CIRCULAR YELLOW signal indication is permitted to cautiously enter the
intersection to proceed straight through or turn right or left except as such movement is modified by lane-use signs, turn prohibition signs, lane markings, roadway design, separate turn signal indications, or other traffic control devices.

Such vehicular traffic, including vehicles turning right or left, shall yield the right-of-way to:
(a) Pedestrians lawfully within an associated crosswalk.
(b) Other vehicles lawfully within the intersection.

In addition, vehicles turning left shall yield the right-of-way to other vehicles approaching from the opposite direction so closely as to constitute an immediate hazard during the time when such turning vehicle is moving across or within the intersection.

2. On an approach to an intersection, vehicular traffic which is facing a flashing YELLOW ARROW signal indication, exhibited alone or in combination with another signal indication, is permitted to cautiously enter the intersection only to make the movement indicated by such arrow, or other such movement as is permitted by other signal indications exhibited at the same time.

Such vehicular traffic, including vehicles turning right or left, shall yield the right-of-way to:
(a) Pedestrians lawfully within an associated crosswalk.
(b) Other vehicles lawfully within the intersection.

In addition, vehicles turning left shall yield the right-of-way to other vehicles approaching from the opposite direction so closely as to constitute an immediate hazard during the time when such turning vehicle is moving across or within the intersection.

3. Pedestrians facing any flashing yellow signal indication at an intersection, unless otherwise directed by a pedestrian signal indication or other traffic control device, are permitted to proceed across the roadway within any marked or unmarked associated crosswalk. Pedestrians shall yield the right-of-way to vehicles lawfully within the intersection at the time that the flashing yellow signal indication is first exhibited.

4. Vehicular traffic facing a flashing yellow signal indication at the approach to or along a curve or other geometric feature is thereby notified that extra caution is required during passage by or through said curve or geometric feature.

5. When a flashing CIRCULAR YELLOW signal indication(s) is exhibited in conjunction with another traffic control device, road users are notified that there is a need to pay extra attention to the message contained thereon or that the regulatory or warning requirements of the other traffic control device which are not applicable at all times are currently applicable.

Section 4D.05 Application of Steady Signal Indications

Standard:
When a traffic control signal is being operated in a steady (stop-and-go) mode, at least one lens in each signal face shall be illuminated at any given time.

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

Steady signal indications shall be applied as follows shown in the summary table and as described below:

Summary of Application of Steady Signal Indications

<table>
<thead>
<tr>
<th>Signal Indication</th>
<th>Application</th>
</tr>
</thead>
</table>
| ![Red Circle]     | • To prohibit traffic from entering the intersection or other controlled area, except for turning after stopping as stated in Item C.1 of Section 4D.04.  
• To prohibit traffic from proceeding straight ahead through the intersection or other controlled area, when used in combination with a green arrow indication to permit a specified turn.  
• To follow a yellow indication. |
| ![Yellow Circle]  | • To terminate and follow the related green signal indication.  
• To terminate and follow all remaining green indications for the approach.  
• Shall not follow a circular red indication.  
• Shall not precede a circular green indication, except when entering preemption operation.  
• Shall be displayed to traffic turning left permissively only when: a) opposing traffic is displayed a circular yellow indication; b) a separate signal face is provided for left turns (as per Section 4D.06); c) an engineering study concludes that the continued display of green to opposing traffic would result in significant operational or safety improvement; or d) the display of a green indication to opposing traffic occurs only occasionally. The sign, “Oncoming Traffic Has Extended Green” (W25-1) shall be used with c: above and the sign, “Oncoming Traffic May Have Extended Green” (W25-2) shall be used with d) above. |
| ![Green Circle]   | • To permit traffic to proceed in any direction that is lawful and practical. |
| ![Left-Right Arrows] | • To prohibit traffic from entering the intersection or other controlled area to make the indicated turn except as permitted by the sign, “Right on Red Arrow After Stop” (R10-17a).  
• Shall be preceded by the related yellow arrow signal indication. |
● To terminate and follow the related green arrow movements, unless all remaining green indications terminate simultaneously, in which case a circular yellow indication may be used.
● To show the transition from a protected turn to a permissive turn.
● Shall not follow a related red arrow movement.
● Shall not be displayed when any conflicting vehicular movement has a green, yellow or flashing yellow signal indication, except that when it terminates a left-turn flashing yellow signal indication opposing traffic may display a circular yellow indication.
● Shall be displayed only when a conflicting pedestrian movement has steady UPRAISED HAND (symbolizing Don't Walk) signal indication.
● May precede a green arrow indication only when entering preemption operation.

● To permit traffic to proceed in the direction indicated that is not in conflict with: a) any conflicting vehicular movement moving on a green or yellow signal indication; and b) pedestrians crossing on a WALKING PERSON (symbolizing WALK) or a flashing UPRAISED HAND (symbolizing DON'T WALK) signal indication.

A. A steady CIRCULAR RED signal indication:

1. Shall be displayed when it is intended to prohibit traffic, except pedestrians directed by a pedestrian signal head, from entering the intersection or other controlled area. Turning after stopping is permitted as stated in Item C.1 of Section 4D.04.

2. Shall be displayed with the appropriate GREEN ARROW signal indications when it is intended to permit traffic to make a specified turn or turns, and to prohibit traffic from proceeding straight ahead through the intersection or other controlled area, except in protected only mode turn signal faces, or in protected/permissive mode left-turn operation with separate left-turn signal faces (see Section 4D.06 or 4D.06A).

B. A steady CIRCULAR YELLOW signal indication:

1. Shall be displayed following a CIRCULAR GREEN or straight-through GREEN ARROW signal indication in the same signal face.

2. Shall not be displayed in conjunction with the change from the CIRCULAR RED signal indication to the CIRCULAR GREEN signal indication.

3. Shall be followed by a CIRCULAR RED signal indication except that, when entering preemption operation, the return to the previous CIRCULAR GREEN signal indication shall be permitted following a CIRCULAR YELLOW signal indication (see Section 4D.13).
4. Shall not be displayed to an approach from which drivers are turning left permissively unless one of the following conditions exists:

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

(b) A separate left-turn signal face is provided and operated as described in Section 4D.06;

(c) An engineering study has determined that, because of unique intersection conditions, the conditions described in Items (a) and (b) above cannot reasonably be implemented without causing significant operational or safety problems and that the volume of impacted left-turning traffic is relatively low, and those left-turning drivers are advised that the opposing traffic is not simultaneous being shown a CIRCULAR YELLOW signal indication if this operation occurs continuously by the installation near the left-most signal head of a W25-1 sign (see Section 2C.39) with the legend ONCOMING TRAFFIC HAS EXTENDED GREEN; or

(d) Drivers are advised of the operation if it occurs only occasionally, such as during a preemption sequence, or because of the skipping of actuated phases, by the installation near the left-most signal head of a W25-2 sign (see Section 2C.39) with the legend ONCOMING TRAFFIC MAY HAVE EXTENDED GREEN.

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

D. A steady RED ARROW signal indication shall be displayed when it is intended to prohibit 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 of Section 4D.04, turning on a steady RED ARROW signal indication shall not be permitted.

E. 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.

2. Shall not be displayed in conjunction with the change from a RED ARROW signal indication to a GREEN ARROW signal indication.

3. Shall not be displayed when any conflicting vehicular movement has a green or yellow signal indication or any conflicting pedestrian movement has a WALKING PERSON (symbolizing WALK) or flashing UPRAISED HAND (symbolizing DONT WALK) signal indication (see Section 4D.09) except that a steady left-turn YELLOW
ARROW signal indication used to terminate a flashing left-turn YELLOW ARROW signal indication in a separate signal face controlling a permissive left-turn movement as described in Section 4D.06A shall be permitted to be displayed when a CIRCULAR YELLOW signal indication is displayed for the opposing through movement.

4. Shall be terminated by a RED ARROW signal indication for the same direction or a CIRCULAR RED signal indication except:

(a) When entering preemption operation, the return to the previous GREEN ARROW signal indication shall be permitted following a YELLOW ARROW signal indication.

(b) When the movement controlled by the arrow is to continue on a permissive mode basis during an immediately following CIRCULAR GREEN or flashing YELLOW ARROW signal indication.

F. 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 or with pedestrians crossing in conformance with a WALKING PERSON (symbolizing WALK) or flashing UPRAISED HAND (symbolizing DONT WALK) signal indication (see Section 4D.09).

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 or with pedestrians crossing in conformance with a WALKING PERSON (symbolizing WALK) or flashing UPRAISED HAND (symbolizing DONT WALK) signal indication (see Section 4D.09).

3. Shall not be required on the stem of T-intersections or for turns from one-way streets.

Option:

Steady RED ARROW, YELLOW ARROW, and GREEN ARROW signal indications, if not otherwise prohibited, may be used instead of the corresponding circular signal indications at the following locations:

A. On an approach intersecting a one-way street;

B. Where certain movements are prohibited; and

C. Where certain movements are physically impossible.

If U-turns are permitted from the approach and if drivers making a right turn from the conflicting approach to the left are simultaneously being shown a right-turn GREEN ARROW signal indication, drivers making a U-turn may be advised of the operation by the installation near the left-turn signal face of a U-TURN YIELD TO RIGHT TURN (R10-16) sign (see Section 2B.45).
Section 4D.06  Application of Steady Signal Indications for Left Turns

Support:

Left-turning traffic is controlled by one of four modes as follows:

A. Permissive Only Mode—turns made on the CIRCULAR GREEN signal indication after yielding to oncoming traffic and pedestrians;

B. Protected Only Mode—turns made only when the left-turn GREEN ARROW signal indication is displayed;

C. Protected/Permissive Mode—both modes occur on an approach during the same cycle; or

D. Variable Left-Turn Mode—the operating mode changes among the protected only mode and/or the protected/permissive mode and/or the permissive only mode during different periods of the day.

Option:

In areas having a high percentage of elderly drivers, special consideration may be given to the use of protected only mode left-turn phasing, when appropriate.

Standard:

The required left-turn signal faces and operation for an approach shall be determined by the selected mode of left-turn operation, as follows shown in the summary table and as described below:
### Summary of Application of Steady Signal Indications for Left Turns

<table>
<thead>
<tr>
<th>Signal Faces For Mode Indicated</th>
<th>Application</th>
</tr>
</thead>
</table>
| Permissive Only                 | - To allow left turns on a circular green signal indication after yielding to oncoming traffic and pedestrians.  
- May use a face shared with the adjacent movement where the same color of circular signal indications is simultaneously displaced to all faces on the approach.  
- May use a separate face that only controls the left turn movement and sometime displays a different color of circular signal indications than the display for the adjacent movement.  
- Separate left turn signal faces shall have circular green and circular yellow signal indications that are visibility-limited to the adjacent movement.  
- Separate left turn signal faces shall be accompanied by a “Left Turn yield on Green” (symbolic green ball) (R10-12) sign or a “Left Turn Signal – Yield on Green” (symbolic green ball) (R10-21) sign. |
| Protected Only                  | - To allow left turns only when the left green arrow signal indication is displayed.  
- To allow left-turns when there are no conflicts with other signal displays controlling vehicular traffic and pedestrians.  
- The separate signal face shall be provided in addition to those required in Section 4D.15 for the major movement.  
- If a circular red signal indication is used, it shall either be visibility-limited to the adjacent movement or the face shall be accompanied by a “Left Turn Signal” (R10-10) sign.  
- The four-section signal faces may be used, depending on the movements allowed, for protected-only operation only when the green signal indications begin and terminate together. |
### Protected/Permissive

- To allow left turns during both the permissive mode on a circular green signal indication and the protected mode on a left green arrow signal indication.
- May use a face shared with the adjacent movement where the same color of circular signal indications is simultaneously displayed to all faces on the approach.
- May use a separate face that only controls the left turn movement and sometimes displays a different color of circular signal indications than the display for the adjacent movement.
- Separate left turn faces shall have circular green and circular yellow signal indications that are visibility-limited to the adjacent movement.
- Separate left turn signal faces shall be accompanied by a “Left Turn Yield on Green” (symbolic green ball) (R10-12) sign, or a “Left Turn Signal-Yield on Green” (symbolic green ball) (R10-12) sign.
- The five section signal faces are used where the protected left turn phase always terminates before the circular green signal indication terminates.
- The four-section signal face is used where the protected phase and the circular green signal indication terminate simultaneously.

### Variable

(See signal faces for Protected/Permissive mode)

- To provide the flexibility of allowing left turns to be made during the permissive-only mode, the protected-only mode or the protected/permissive mode during different periods of the day.

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**A. Permissive Only Mode**—The signal indications for permissive only mode left turns shall be provided by the signal faces controlling the through movement, or by a permissive-only left-turn signal face that is either a shared signal face or a separate signal face. A permissive-only shared signal face, regardless of where the permissive-only left turn signal face is positioned and regardless of how many adjacent through signal faces are provided, shall always simultaneously display the same color of circular indication that the adjacent through signal face or faces display. A separate permissive-only left-turn signal face sometimes displays a different color of circular signal indication than the adjacent through signal faces display.

If a separate left-turn signal face is provided for permissive only left turns, it shall meet the following requirements:

1. During the permissive left-turn movement, the left-turn signal face shall display a CIRCULAR GREEN signal indication.
2. If the CIRCULAR GREEN and CIRCULAR YELLOW signal indications in the left-turn signal face are visibility-limited from the adjacent through movement, the left-turn signal face shall not be required to simultaneously display the same color of circular signal indication as the signal faces for the adjacent through movement.

3. If the CIRCULAR GREEN and CIRCULAR YELLOW signal indications in the left-turn signal face are visibility-limited from the adjacent through movement, the display of a CIRCULAR GREEN signal indication for a permissive left turn movement while the signal faces for the adjacent through movement display 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.

4. If the left-turn signal face does not simultaneously display the same color of circular signal indication as the signal faces for the adjacent through movement, a LEFT TURN YIELD ON GREEN (symbolic green ball) (R10-12) sign or a LEFT TURN SIGNAL—YIELD ON GREEN (symbolic green ball) (R10-21) sign (see Figure 2B-19) shall be used.

B. Protected Only Mode—The left-turn signal face shall be capable of displaying one of the following sets of signal indications:

1. Left-turn RED ARROW, YELLOW ARROW, and GREEN ARROW signal indications only. At least one left-turn signal face shall be provided in addition to the two approach signal faces required in Section 4D.15 for the major movement. Only one of the three colors shall be illuminated at any given time. A signal instruction sign shall not be required with this set of signal indications. If used, it shall be a LEFT ON GREEN ARROW ONLY sign (R10-5).

2. CIRCULAR RED, left-turn YELLOW ARROW, and left-turn GREEN ARROW signal indications. At least one left-turn signal face shall be provided in addition to the two approach signal faces required in Section 4D.15 for the major movement. Only one of the three colors shall be illuminated at any given time. Unless the CIRCULAR RED signal indication is shielded, hooded, louvered, positioned, or designed such that it is not readily visible to drivers in the through lane(s), a LEFT TURN SIGNAL sign (R10-10) shall be used.

3. CIRCULAR RED, CIRCULAR YELLOW, CIRCULAR GREEN, and left-turn GREEN ARROW signal indications. This four-section signal face shall be used only when the CIRCULAR GREEN and left-turn GREEN ARROW signal indications begin and terminate together. During each interval, the circular signal indication shall be the same color as the signal indication on the signal face(s) for the adjacent through traffic.

C. Protected/Permissive Mode—The signal indications for protected/permissive mode left turns shall be provided in either a shared signal face or a separate signal face. Any protected/permissive left-turn signal face that always simultaneously displays the same color of circular signal indication that the adjacent through signal faces display shall be considered to be a shared signal face, regardless of where the left-turn signal face is positioned and regardless of how many adjacent through signal faces are provided. Any protected/permissive left-turn signal face that sometimes displays a different color
of circular signal indication than the adjacent through signal faces display shall be considered to be a separate signal face. The requirements for each type of signal face are as follows:

1. If a shared signal face is provided, it shall be considered to be an approach signal face, and shall meet the following requirements:

   (a) During the protected left-turn movement, the signal face shall simultaneously display a left-turn GREEN ARROW signal indication and a circular signal indication that is the same color as the signal indication for the adjacent through lane on the same approach as the protected left turn.

   During the protected left-turn movement, the signal faces for through traffic on the opposing approach shall simultaneously display CIRCULAR RED signal indications.

   (b) During the permissive left-turn movement, all signal faces on the approach shall display CIRCULAR GREEN signal indications.

   (c) All signal faces on the approach shall simultaneously display the same color of circular signal indications to both through and left-turn road users.

   (d) A supplementary sign shall not be required. If used, it shall be a LEFT TURN YIELD ON GREEN (symbolic green ball) (R10-12) sign (see Figure 2B-19).

2. If a separate signal face is provided, it shall be considered a left-turn signal face, and shall meet the following requirements:

   (a) During the protected left-turn movement, the left-turn signal face shall display a left-turn GREEN ARROW signal indication.

   During the protected left-turn movement, the signal faces for through traffic on the opposing approach shall simultaneously display CIRCULAR RED signal indications.

   (b) During the permissive left-turn movement, the left-turn signal face shall display a CIRCULAR GREEN signal indication.

   (c) If the CIRCULAR GREEN and CIRCULAR YELLOW signal indications in the left-turn signal face are visibility-limited from the adjacent through movement, the left-turn signal face shall not be required to simultaneously display the same color of circular signal indication as the signal faces for the adjacent through movement.

   (d) If the CIRCULAR GREEN and CIRCULAR YELLOW signal indications in the left-turn signal face are visibility-limited from the adjacent through movement, the display of a CIRCULAR GREEN signal indication for a permissive left-turn movement while the signal faces for the adjacent through movement display CIRCULAR RED signal indications and the opposing left-turn signal face displays a left-turn GREEN ARROW for a protected left-turn movement shall be permitted.
(e) If the left-turn signal face does not simultaneously display the same color of circular signal indication as the signal faces for the adjacent through movement, a LEFT TURN SIGNAL—YIELD ON GREEN (symbolic green ball) (R10-21) sign (see Figure 2B-19) shall be used.

D. Variable Left-Turn Mode—If the protected only mode occurs during one or more periods of the day, and the permissive only mode or the combined protected/permissive mode occurs during other periods of the day, the requirements of Paragraphs A, B, and C in this Standard that are appropriate to that mode of operation shall be met, subject to the following:

1. The CIRCULAR GREEN and CIRCULAR YELLOW signal indications shall not be displayed when operating in the protected only mode.

2. The left-turn GREEN ARROW and left-turn YELLOW ARROW signal indications shall not be displayed when operating in the permissive only mode.

Option:

Additional appropriate signal indications or changeable message signs may be used to meet the requirements for the variable left-turn mode.

Section 4D.06A Application of Flashing Signal Indications for Left Turns

Support:

This Section describes the optional use of a flashing left-turn YELLOW ARROW signal indication (instead of a steady CIRCULAR GREEN signal indication) during steady mode (stop-and-go) operation to control permissive left-turning movements from an intersection approach. There are no provisions in this Section or any other Section that requires that a flashing left-turn YELLOW ARROW signal indication be used instead of a steady CIRCULAR GREEN signal indication to control permissive left-turning movements from an intersection approach. The selection of the flashing left-turn YELLOW ARROW signal indication alternative is a matter of engineering judgment.

Standard:

When this Section is applied to an intersection approach, it shall supersede all provisions contained in Section 4D.06. In no case shall the provisions of Section 4D.06 and the provisions of this Section be used in conjunction with each other for the same intersection approach. However, the use of the provisions of this Section for one or more approaches to a signalized intersection and the use of the provisions of Section 4D.06 for the other approaches to the same signalized intersection shall be permitted.

Support:

This Section sets forth Standards for the display of four types of messages to drivers intending to turn left from a signalized intersection approach:

A. A message to stop, which is accomplished by displaying either:
1. A steady left-turn RED ARROW signal indication that requires a driver to stop and await authorization to proceed; or

2. A steady CIRCULAR RED signal indication that requires a driver to stop and await authorization to proceed under the rules as set forth in the applicable Motor Vehicle Code.

B. A message to turn left in a protected manner, which is accomplished by displaying a steady left-turn GREEN ARROW signal indication.

C. A message to turn left in a permissive manner, which is accomplished by displaying a flashing left-turn YELLOW ARROW signal indication.

D. A message that the status of the left-turn operation is changing, which is accomplished by displaying a steady left-turn YELLOW ARROW signal indication when the left-turn status is changing from:

   1. Protected to permissive;
   2. Permissive to stopped; or
   3. Protected to stopped.

   It is not necessary to display a change interval when the status of the left-turn operation is changing from permissive to protected.

Left-turning traffic is controlled by one of three modes as follows:

A. Permissive Only Mode—turns made on the flashing left-turn YELLOW ARROW signal indication after yielding to oncoming traffic and pedestrians;

B. Protected Only Mode—turns made only when the steady left-turn GREEN ARROW signal indication is displayed; or

C. Protected/Permissive Mode—both modes occur on an approach during the same cycle.

It is not necessary that the left-turn mode for an approach always be the same throughout the day. Varying the left-turn mode on an approach among the permissive only and/or the protected/permissive and/or the protected only left-turn modes during different periods of the day is acceptable.

Standard:

The required left-turn signal faces and operation for an approach shall be determined by the selected mode of left-turn operation, as follows shown in the summary table and as discussed below:
### Summary of Application of Flashing Signal Indications for Left Turns

<table>
<thead>
<tr>
<th>Signal Faces For Mode Indicated</th>
<th>Application</th>
</tr>
</thead>
</table>
| Permissive Only | - To provide an alternate permissive left turn display using the flashing yellow left arrow to indicate that left turns must yield to oncoming traffic and pedestrians.  
- The steady yellow left arrow signal indication shall be used to terminate the flashing yellow left arrow signal indication.  
- A separate signal face shall be provided for the left turn movement, where there is a through movement.  
- If a circular red signal indication is used, it shall be displayed simultaneously with that for the adjacent movement, be visibility-limited to the adjacent movement or the face shall be accompanied by a “Left Turn Signal” (R10-10) sign, or a “Left Turn Signal – Yield on Flashing Yellow (symbolic yellow arrow)” (R10-XX) sign.  
- The three-section signal face shall be used. |
| Protected/Permissive | - To provide an alternate display using the flashing yellow-left arrow during the permissive phase.  
- A separate signal face shall be provided for the left-turn movement, where there is a through movement.  
- The steady yellow arrow signal indication shall be used to terminate the flashing yellow left arrow signal indication.  
- If a circular red signal indication is used, it shall be displayed simultaneously with that for the adjacent movement, be visibility-limited or the face shall be accompanied by a “Left Turn Signal” (R10-10) sign or a “Left Turn Signal – Yield on Flashing Yellow (symbolic yellow arrow)” (R10-XX) sign.  
- The three-section signal face may be used only where signal height limitations do not permit the use of a four-section signal face.  
The three-section signal face shall use a dual-arrow signal section that can separately display a steady green left arrow signal indication for the protected left turn movement and a flashing yellow left arrow signal indication for the permissive left turn movement. |
| Bimodal | |
| Variable (See signal faces for Protected/Permissive mode) | - To allow the flexibility of allowing left turns to be made during the permissive-only mode, the protected only mode or the protected/permissive mode during different periods of the day. |

**A. Permissive Only Mode**—If the permissive only mode is the only left-turn mode used for an approach, the signal indications shall be provided by a separate three-section signal face that shall be capable of displaying, from top to bottom or left to right, one of the following sets of signal indications:
Steady left-turn RED ARROW, steady left-turn YELLOW ARROW, and flashing left-turn YELLOW ARROW signal indications, or

Steady CIRCULAR RED, steady left-turn YELLOW ARROW, and flashing left-turn YELLOW ARROW signal indications.

The separate three-section signal face shall meet the following requirements:

1. During the permissive left-turn movement, the left-turn signal face shall display a flashing left-turn YELLOW ARROW signal indication.

2. If the left-turn signal face sometimes displays a steady CIRCULAR RED signal indication at a time when the signal faces for the adjacent through movement are not displaying steady CIRCULAR RED signal indications, the CIRCULAR RED signal indication in the left-turn signal face shall be shielded, hooded, louvered, positioned, or designed such that it is not readily visible to drivers in the through lane(s) or a LEFT TURN SIGNAL sign (R10-10) or a LEFT TURN SIGNAL—YIELD ON FLASHING YELLOW (symbolic yellow arrow) (R10-XX) sign (see Figure 2B-19) shall be used.

If the permissive only mode is not the only left-turn mode used for an approach, the left-turn signal face shall be the same signal face that is used for the protected/permissive mode in Paragraph B of this Standard except that the steady left-turn GREEN ARROW signal indication shall not be displayed when operating in the permissive only mode.

B. Protected/Permissive Mode—The signal indications for protected/permissive mode left turns shall be provided by a separate left-turn signal face that shall be capable of displaying, from top to bottom or left to right, one of the following sets of signal indications:

Steady left-turn RED ARROW, steady left-turn YELLOW ARROW, flashing left-turn YELLOW ARROW, and steady left-turn GREEN ARROW signal indications, or

Steady CIRCULAR RED, steady left-turn YELLOW ARROW, flashing left-turn YELLOW ARROW, and steady left-turn GREEN ARROW signal indications.

The display shall be a four-section signal face except that a three-section signal face containing a dual-arrow signal section shall be permitted where signal head height limitations will not permit the use of a four-section signal face. The dual-arrow signal section, where used, shall display a steady GREEN ARROW for the protected left-turn movement and a flashing YELLOW ARROW for the permissive left-turn movement.

The separate left-turn signal face shall meet the following requirements:

1. During the protected left-turn movement, the left-turn signal face shall display a steady left-turn GREEN ARROW signal indication.

During the protected left-turn movement, the signal faces for through traffic on the opposing approach shall simultaneously display CIRCULAR RED signal indications. If pedestrians crossing the lane or lanes used by the protected left-turn movement to depart the intersection are controlled by pedestrian signal heads, the pedestrian
signal heads shall display a steady UPRAISED HAND (symbolizing DONT WALK) signal indication during the protected left-turn movement.

2. During the permissive left-turn movement, the left-turn signal face shall display a flashing left-turn YELLOW ARROW signal indication.

During the permissive left-turn movement, the signal faces for through traffic on the opposing approach shall simultaneously display green or yellow signal indications. If pedestrians crossing the lane or lanes used by the permissive left-turn movement to depart the intersection are controlled by pedestrian signal heads, the signal indications displayed by those pedestrian signal heads shall not be limited to any particular display.

3. If the left-turn signal face sometimes displays a steady CIRCULAR RED signal indication at a time when the signal faces for the adjacent through movement are not displaying steady CIRCULAR RED signal indications, the CIRCULAR RED signal indication for the left-turn signal face shall be shielded, hooded, louvered, positioned, or designed such that it is not readily visible to drivers in the through lane(s) or a LEFT TURN SIGNAL sign (R10-10) or a LEFT TURN SIGNAL—YIELD ON FLASHING YELLOW (symbolic yellow arrow) (R10-XX) sign (see Figure 2B-19) shall be used.

C. Protected Only Mode—If the protected only mode is the only left-turn mode used for an approach, the provisions of Section 4D.06 shall be used. If the protected only left-turn mode is used during some periods of the day and the permissive only and/or the protected/permissive left-turn modes are also used on the same approach during other periods of the day, the left-turn signal face shall be the same signal face that is used for the protected/permissive mode in Paragraph B of this Standard except that the flashing left-turn YELLOW ARROW signal indication shall not be displayed when operating in the protected only mode.

The separate left-turn signal face shall meet the following requirements:

1. During the protected left-turn movement, the left-turn signal face shall display only a steady left-turn GREEN ARROW signal indication.

During the protected left-turn movement, the signal faces for through traffic on the opposing approach shall simultaneously display CIRCULAR RED signal indications. If pedestrians crossing the lane or lanes used by the protected left-turn movement to depart the intersection are controlled by pedestrian signal heads, the pedestrian signal heads shall display a steady UPRAISED HAND (symbolizing DONT WALK) signal indication during the protected left-turn movement.

2. If the left-turn signal face with a left-turn RED ARROW signal indication is used, a signal instruction sign shall not be required.

3. If the left-turn signal face with a CIRCULAR RED signal indication is used, unless the CIRCULAR RED signal indication is shielded, hooded, louvered, positioned, or designed such that it is not readily visible to drivers in the through lane(s), a LEFT TURN SIGNAL (R10-10) sign (see Figure 2B-19) shall be used.
If the left-turn operating mode varies on an approach among the protected only mode, the permissive only mode, and/or the protected/permissive mode during various periods of the day, the requirements of Paragraphs A, B, and C in this Standard that are appropriate to that mode of operation shall be met.

Option:

Additional static signs or changeable message signs may be used to inform drivers that left-turn green arrows will not be available during certain times of the day.

Standard:

The Standards in the following seven paragraphs shall apply when the left-turn signal faces are provided for an approach based on the provisions of Section 4D.06A.

A steady left-turn YELLOW ARROW signal indication shall be displayed following every steady left-turn GREEN ARROW signal indication.

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 left-turn signal face will subsequently display a steady red signal indication.

When a permissive left-turn movement is changing to a protected left-turn movement, a steady left-turn GREEN ARROW signal indication shall be displayed immediately upon 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.

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.

During flashing mode operation (see Section 4D.12), 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.

If an exclusive left-turn lane is present on the approach and if a left-turn signal face is mounted over the roadway, the left-turn signal face shall not be positioned any further to the right than the lane line (or the extension of the lane line) between the left-turn lane and the adjacent through lane nor any further to the left than the left edge of the left turn lane or lanes. Supplemental left-turn signal faces mounted over the roadway shall not be subject to these positioning requirements.
Section 4D.07 Application of Steady Signal Indications for Right Turns

Support:

Right-turning traffic is controlled by one of four modes as follows:

A. Permissive Only Mode—turns made on the CIRCULAR GREEN signal indication after yielding to pedestrians.

B. Protected Only Mode—turns made only when the right-turn GREEN ARROW signal indication is displayed.

C. Protected/Permissive Mode—both modes occur on an approach during the same cycle.

D. Variable Right-Turn Mode—the operating mode changes among the protected only mode and/or the protected/permissive mode and/or the permissive only mode during different periods of the day.

Standard:

The required right-turn signal faces and operation for an approach shall be determined by the selected mode of right-turn operation, as follows shown in the summary table and as discussed below:

Summary of Application of Steady Signal Indications for Right Turns

<table>
<thead>
<tr>
<th>Signal Face For Mode Indicated</th>
<th>Application</th>
</tr>
</thead>
</table>
| Permissive Only               | ● To allow right turns on a circular green signal indication after yielding to pedestrians.  
● May use a separate signal face for the right turn movement.  
● If a separate signal face is used, the circular signal indications shall be displayed simultaneously with those for the adjacent movement.
● A right red arrow signal indication may be used to provide an exclusive pedestrian movement.
● A right red arrow may be used to prohibit Right Turn On Red movements. |
### Chapter 4D

#### Proposed addition of tables to various sections

**January 2007**

**Attachment No. 4**

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| Protected Only | • To allow right turns only when the right green arrow signal induction is displayed, using a separate signal face.  
• To allow right turns when there are no conflicts with other signal displays controlling vehicular traffic and pedestrians.  
• The separate signal face shall be provided in addition to those required in Section 4D.15 for the major movement.  
• If a circular red signal indication is used, it shall either be visibility-limited to the adjacent movement or the face shall be accompanied by a “Right Turn Signal” (R10-5a) sign.  
• The four-section signal faces may be used, depending on the movements allowed, for the protected-only operation only when the green signal indications begin and terminate simultaneously.  
• The single-section signal face may be used where there are never conflicts with other signal displays.  
• The single-section face shall be illuminated continuously. |

<table>
<thead>
<tr>
<th>Variable</th>
</tr>
</thead>
</table>

*(See signal faces for Protected/Permissive mode)*

• To provide the flexibility of allowing right turns to be made during the permissive-only mode, the protected-only mode or the protected/permissive mode, during different periods of the day.

|  |

---

**A. Permissive Only Mode**—A separate signal indication or signal face for right turns shall not be required. The signal indication for permissive only mode right turns shall be the same color as the signal indication for adjacent through traffic, except that if the right turn is held to provide an exclusive pedestrian movement, a separate right-turn RED ARROW signal indication shall be provided.

**B. Protected Only Mode**—The right-turn signal face shall be capable of displaying one of the following sets of signal indications:

1. Right-turn RED ARROW, YELLOW ARROW, and GREEN ARROW signal indications only. At least one right-turn signal face shall be provided in addition to the two approach signal faces required in Section 4D.15 for the major movement. Only one of the three colors shall be illuminated at any given time. A signal instruction sign
shall not be required with this set of signal indications. If used, it shall be a RIGHT ON GREEN ARROW ONLY sign (R10-5a).

2. CIRCULAR RED, right-turn YELLOW ARROW, and right-turn GREEN ARROW signal indications. At least one right-turn signal face shall be provided in addition to the two approach signal faces required in Section 4D.15 for the major movement. Only one of three colors shall be illuminated at any given time. Unless the CIRCULAR RED signal indication is shielded, hooded, louvered, positioned, or designed such that it is not readily visible to drivers in the through lane(s), a RIGHT TURN SIGNAL sign (R10-10R) shall be used.

3. CIRCULAR RED, CIRCULAR YELLOW, CIRCULAR GREEN, and right-turn GREEN ARROW signal indications. This four-section signal face shall be used only when the CIRCULAR GREEN and right-turn GREEN ARROW signal indications begin and terminate together. During each interval, the circular signal indication shall be the same color as the signal indication on the signal faces for the adjacent through traffic.

4. A continuously illuminated right-turn GREEN ARROW in a separate single-section signal face.

C. Protected/Permissive Mode—A separate signal face is not required for the right turn, but, if provided, it shall be considered an approach signal face, and shall meet the following requirements:

1. During the protected right-turn movement, the signal face shall simultaneously display:

   (a) A right-turn GREEN ARROW signal indication, and

   (b) A circular signal indication that is the same color as the signal indication for the adjacent through lane on the same approach as the protected right turn.

2. During the permissive right-turn movement, all signal faces on the approach shall display a CIRCULAR GREEN signal indication.

3. All signal faces on the approach shall simultaneously display the same color of circular signal indications to both through and right-turn road users.

D. Variable Right-Turn Mode—If the protected only mode occurs during one or more periods of the day, and the permissive only mode or the combined protected/permissive mode occurs during other periods of the day, the requirements of Paragraphs A, B, and C in this Standard that are appropriate to that mode of operation shall be met subject to the following:

1. The CIRCULAR GREEN and CIRCULAR YELLOW signal indications shall not be displayed when operating in the protected only mode.

2. The right-turn GREEN ARROW and right-turn YELLOW ARROW signal indications shall not be displayed when operating in the permissive only mode.
Option:

Additional appropriate signal indications or changeable message signs may be used to meet the requirements for the variable right-turn mode.

Section 4D.07A  Application of Flashing Signal Indications for Right Turns

I. General

Support:

This Section describes the optional use of a flashing right-turn YELLOW ARROW signal indication (instead of a steady CIRCULAR GREEN signal indication) during steady mode (stop-and-go) operation to control permissive right-turning movements from an intersection approach. There are no provisions in this Section or any other Section that require that a flashing right-turn YELLOW ARROW signal indication be used instead of a steady CIRCULAR GREEN signal indication to control permissive right-turning movements from an intersection approach. The selection of the flashing right-turn YELLOW ARROW signal indication alternative is a matter of engineering judgment.

There are three types of approaches to which this Section may be applied. They include approaches that have a separate right-turn lane, approaches that have a shared through and right-turn lane and approaches that have a shared left-turn and right-turn lane (such as at the stem of a "T" intersection). This Section also addresses a signal face which controls both right-turn lane(s) and adjacent through lanes.

Standard:

When this Section is applied to an intersection approach, it shall supersede all provisions contained in Section 4D.07. In no case shall the provisions of Section 4D.07 and the provisions of this Section be used in conjunction with each other for the same intersection approach. However, the use of the provisions of this Section for one or more approaches to a signalized intersection and the use of the provisions of Section 4D.07 for the other approaches to the same signalized intersection shall be permitted.

Support:

This Section sets forth Standards for the display of four types of messages to drivers intending to turn right from a signalized intersection approach:

A. A message to stop, which is accomplished by displaying either:

1. A steady right-turn RED ARROW signal indication that requires a driver to stop and await authorization to proceed; or

2. A steady CIRCULAR RED signal indication that requires a driver to stop and await authorization to proceed under the rules as set forth in the applicable State Vehicle Code.

B. A message to turn right in a protected manner, which is accomplished by displaying a steady right-turn GREEN ARROW signal indication.
C. A message to turn right in a permissive manner, which is accomplished by displaying a flashing right-turn YELLOW ARROW signal indication.

D. A message that the status of the right-turn operation is changing, which is accomplished by displaying a steady right-turn YELLOW ARROW signal indication or a steady CIRCULAR YELLOW indication (where the right-turn movement and through movement terminate concurrently) when the right-turn status is changing from:

1. Protected to permissive; or
2. Permissive to stopped; or
3. Protected to stopped.

The display of a change interval when the status of the right-turn operation is changing from permissive to protected is prohibited.

Right-turn traffic is controlled by one of three modes as follows:

A. Protected/Permissive Mode — both modes occur on an approach during the same signal cycle; or,

B. Permissive Only Mode — turns made on the flashing right-turn YELLOW ARROW signal indication after yielding to conflicting traffic and pedestrians; or

C. Protected Only Mode — turns made only when the steady right-turn GREEN ARROW signal indication is displayed.

It is not necessary that the right-turn mode for an approach always be the same throughout the day. Varying the right-turn mode on an approach among the permissive only and/or the protected/permissive and/or the protected only right-turn modes during different periods of the day is acceptable.

Standard:

The following paragraphs and the Option provision below shall apply when right-turn signal sections are provided for an approach under the provisions of this Section.

If the right-turn operating mode varies on an approach among the protected only mode, the permissive only mode, and/or the protected/permissive mode during various periods of the day, the requirements that are appropriate to that mode of operation shall be met.

The required right-turn signal faces and operations for an approach shall be determined by the selected mode of right-turn operation, as shown in the summary table and as discussed below:

**Summary of Application of Flashing Signal Indications for Right Turns**
<table>
<thead>
<tr>
<th>Signal Faces For Mode Indicated</th>
<th>Application</th>
</tr>
</thead>
</table>
| **Permissive Only**           | • To provide an alternate permissive right turn display using the flashing yellow right arrow to indicate that right turns must yield to pedestrians or that there is no through movement.  
• May use a separate signal face that controls only the right turn movement.  
• The steady yellow right arrow signal indication shall be used to terminate the flashing yellow right arrow signal indication in a separate signal face.  
• If a separate signal face is used, it shall have three sections.  
• If a circular red signal indication is used in a separate signal face, it shall either be visibility-limited to the adjacent movement or the face shall be accompanied by a “Right Turn Signal” (R10-5a) sign.  
• Shared signal faces shall have four sections.  
• The green signal indication in a shared signal face shall control the adjacent movement.  
• The circular yellow signal indication in a shared signal face shall terminate the permissive right turn and adjacent permissive movement simultaneously. |
| **Protected/Permissive**      | • To provide an alternate display using the flashing yellow right arrow during the permissive phase.  
• The steady yellow right arrow signal indication shall be used to terminate the flashing yellow right arrow signal indication.  
• May use a separate signal face for the right turn movement.  
• If a separate signal face is used, it shall have three or four sections.  
• The three-section separate signal face may be used only where signal height limitations do not permit the use of a four-section signal face. The three-section signal face shall use a dual-arrow signal section that can separately display a steady green right-arrow for the protected right turn movement and a flashing yellow right arrow signal indication for the permissive right turn movement.  
• If a circular red signal indication is used in a separate signal face, it shall either be visibility limited to the adjacent movement or the face shall be accompanied by a “Right Turn Signal” (R10-5a) sign.  
• Shared signal faces shall have five sections.  
• The green signal indications that are in addition to the right arrow signal indications in a shared signal face shall control the adjacent movement.  
• Shared signal faces shall use a dual-arrow signal section. |
that can separately display a steady green right arrow for the protected right turn movement and a flashing yellow right arrow signal indication for the permissive right turn movement.

- In situations where there is no through move and a protected/permissive left turn operation also is provided a dual arrow signal section that can separately display a steady green left arrow for the protected left turn movement and a flashing yellow left arrow signal indication for the permissive left turn movement may be used with the dual arrow right turn signal section.
When a signal face controlling a right-turn movement does not also control a through movement, a steady right-turn YELLOW ARROW signal indication shall be displayed immediately upon the termination of:

1. Every steady right-turn GREEN ARROW signal indication.

2. A flashing right-turn YELLOW ARROW signal indication if the permissive right-turn movement is being terminated and the right-turn signal face will subsequently display a steady red signal indication.

When a signal face controlling a right-turn movement also controls a through movement, a steady right-turn YELLOW ARROW signal indication or a CIRCULAR YELLOW signal indication (where the right-turn movement and through movement terminate concurrently) shall be displayed following:

1. Every steady right-turn GREEN ARROW signal indication.

2. Every flashing right-turn YELLOW ARROW that is not immediately followed by a steady right-turn GREEN ARROW.

When a permissive right-turn movement is changing to a protected right-turn movement, a steady right-turn GREEN ARROW signal indication shall be displayed immediately upon termination of the flashing right-turn YELLOW ARROW signal indication. A steady right-turn YELLOW ARROW signal indication or a CIRCULAR YELLOW 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 unless the green indication for the through movement is being terminated at the same time.

The minimum number of signal sections in a signal face controlling a right-turn movement shall be three and the maximum shall be five. Any signal section that is not displayed in any authorized sequence shall be omitted from the signal face, except that the minimum of three shall be maintained. (See Section 4D.xx).

A dual-arrow signal section, where used, shall display a steady GREEN ARROW for the protected movement and a flashing YELLOW ARROW for the permissive movement. All other uses of a dual signal section shall be prohibited.

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.

During flashing mode operation (see Section 4D.12), the display of a flashing right-turn YELLOW ARROW signal indication shall be only from the signal section that displays the steady right-turn YELLOW ARROW change interval signal indication during steady mode (stop-and-go) operation.

During the protected right-turn movement, all other movements that would be in conflict with the right-turning traffic shall not be released into the intersection by any signal indication or other traffic control device.
Pedestrian signal heads controlling pedestrians crossing the lane or lanes used by a protected right-turn movement to depart the intersection shall display a steady UPRaised HAND (symbolizing DONT WALK) signal indication during the protected right-turn movement.

If an exclusive right-turn lane is present on the approach and if a right-turn signal face controlling only the right-turn movement is mounted over the roadway, the signal face shall not be positioned any further to the left than the lane line (or the extension of the lane line) between the right-turn lane and the adjacent through lane nor any further to the right than the right edge of the right-turn lane or lanes. Supplemental (additional) right-turn signal faces mounted over the roadway shall not be subject to these positioning requirements.

If an exclusive right-turn lane is present on the approach and if a signal face controlling both the right-turn movement and the adjacent through movement is mounted over the roadway, the signal face shall be positioned over the lane line (or the extension of the lane line) between the right-turn lane and the adjacent through lane. Supplemental (additional) signal faces, controlling both through and right-turn movements, mounted over the roadway shall not be subject to these positioning requirements.

Option:

Additional static signs or changeable message signs or other traffic control devices may be used to inform drivers that right-turn green arrows will not be available during certain times of the day.

II. Separate Right-Turn Lane with an Exclusive Signal Face Controlling Right Turns.

Standard:

For an approach with a separate right-turn lane, the required right-turn signal faces and operation shall be determined by the selected mode of right-turn operation, as follows:

A. Protected/Permissive Mode – The signal indications for protected/permissive mode right turns shall be provided by a separate right-turn signal face that shall be capable of displaying, from top to bottom or left to right, one of the following sets of signal indications:

   Steady right-turn RED ARROW, steady right-turn YELLOW ARROW, flashing right-turn YELLOW ARROW, and steady right-turn Green ARROW, or

   Steady CIRCULAR RED, steady right-turn YELLOW ARROW, flashing right-turn YELLOW ARROW, and steady right-turn Green ARROW.

The display shall be a four-section signal face except that a three-section signal face containing a dual-arrow signal section as the bottom section shall be permitted where signal head height limitations will not permit the use of a four-section signal face.

The separate right-turn signal face shall meet the following requirements:

1. During the protected right-turn movement, the right-turn signal face shall display a steady right-turn GREEN ARROW signal indication.
2. During the permissive right-turn movement, the right-turn signal face shall display a flashing right-turn YELLOW ARROW signal indication.

3. If the right-turn signal face sometimes displays a steady CIRCULAR RED signal indication at a time when the signal faces for the adjacent through movement are not displaying steady CIRCULAR RED signal indications, the CIRCULAR RED signal indication for the right-turn signal face shall be shielded, hooded, louvered, positioned, or designed such that it is not readily visible to drivers in the through lane(s) or a RIGHT TURN SIGNAL sign (R10-XX) or a RIGHT TURN SIGNAL—YIELD ON FLASHING YELLOW (symbolic yellow arrow) (R10-yy) sign (see Figure 2B-19) shall be used.

B. Permissive Only Mode — When the permissive only mode is the only right-turn mode used for an approach, the signal indications shall be provided as required by Paragraph A of this Standard except that the signal section that displays a steady GREEN ARROW indication shall be omitted.

C. Protected Only Mode — If the protected only mode is the only right-turn mode used for an approach, the signal indications shall be provided as required by Paragraph A of this Standard except that the signal section that displays a flashing YELLOW ARROW indication shall be omitted.

III. Separate Right-Turn Lane with a Signal Face that also Controls Through Traffic.

Standard:

For an approach with a separate right-turn lane, the required signal sections in the signal head which controls the right-turn lane and the adjacent through lane shall be determined by the selected mode of right-turn operation, as follows:

A. Protected/Permissive Mode—The signal indications for protected/permissive mode right turns shall be provided by a signal face that shall be capable of displaying one of the following sets of signal indications:

For a protected right turn which terminates prior to the termination of the through movement from top to bottom or left to right:

Steady CIRCULAR RED
Steady CIRCULAR YELLOW
Steady CIRCULAR GREEN
Steady right-turn YELLOW ARROW
Dual-arrow right-turn signal section

Or,

From top to bottom:

Steady CIRCULAR RED
Steady CIRCULAR YELLOW
Steady CIRCULAR GREEN
Steady right-turn YELLOW ARROW
Dual-arrow right-turn signal section
For a protected right turn which terminates concurrently with the through movement from top to bottom or left to right:

- Steady CIRCULAR RED
- Steady CIRCULAR YELLOW
- Steady CIRCULAR GREEN
- Flashing right-turn YELLOW ARROW
- Steady right-turn GREEN ARROW

Or,

From top to bottom:

- Steady CIRCULAR RED,
- Steady CIRCULAR YELLOW
- Steady CIRCULAR GREEN
- Dual-arrow right-turn signal section

The signal face displays shall meet the following requirements:

1. During any interval when the CIRCULAR GREEN is displayed, either a flashing right-turn YELLOW ARROW indicating a permissive right-turn interval or a steady right-turn GREEN ARROW indicating a protected right-turn interval shall be displayed also, except during the change interval when a steady right-turn YELLOW ARROW shall be displayed to indicate a change from a protected turn interval to a permissive turn interval.

2. The display of a protected or a permissive right-turn indication shall not be limited to intervals when the CIRCULAR GREEN is displayed.

3. During the protected right-turn movement, the signal face shall display a steady right-turn GREEN ARROW signal indication.

4. During the permissive right-turn movement, the signal face shall display a flashing right-turn YELLOW ARROW signal indication.

B. Permissive Only Mode — When the permissive only mode is the only right-turn control mode used for an approach, the signal indications shall be provided as required by Paragraph A of this Standard, except that the dual-arrow right-turn signal section shall display only a flashing right-turn YELLOW ARROW indication or shall be replaced by a signal section that displays only a flashing right-turn YELLOW ARROW indication.

C. Protected Only Mode — If the protected only mode is the only right-turn mode used for an approach, the signal indications shall be provided as required by Paragraph A of this Standard with the following applicable exceptions:

1. Protected right turn which terminates prior to the termination of the through movement – The dual-arrow right-turn signal section shall display only a steady right-turn GREEN ARROW indication or shall be replaced by a signal section that displays only a steady right-turn GREEN ARROW indication.
2. Protected right turn which terminates concurrently with the through movement –
   a. The dual-arrow right-turn signal section, if used, shall display only a steady right-turn GREEN ARROW or shall be replaced by a signal section that displays only a steady right-turn GREEN ARROW; or
   b. The flashing right-turn YELLOW ARROW signal section, if used, shall be deleted.

IV. Shared Through and Right-Turn Lane

Standard:

For an approach with a shared through and right-turn lane, the required signal sections in the signal head which controls the shared lane shall be determined by the selected mode of right-turn operation, as discussed in III. above, except that the protected only Mode is not applicable.

V. Shared Left and Right-turn Lane

Standard:

For an approach with a shared left and right-turn lane, the required signal sections in the signal head which controls the shared lane shall be determined by the selected mode of operation, as follows:

A. Protected/Permissive Mode—The signal indications for protected/permissive mode right turns shall be provided by a signal face that shall be capable of displaying one of the following sets of signal indications:

   From top to bottom or left to right:
   
   Steady CIRCULAR RED
   Steady left-turn YELLOW ARROW
   Dual-arrow left-turn signal section
   Steady right-turn YELLOW ARROW
   Dual-arrow right-turn signal section

   Or,

   From top to bottom:
   
   Steady CIRCULAR RED
   Steady left-turn YELLOW ARROW
   Steady right-turn YELLOW ARROW
   Dual-arrow left-turn signal section
   Dual-arrow right-turn signal section

1. During either protected movement, the signal face shall display a steady GREEN ARROW signal indication for the appropriate direction.

2. During either permissive movement, the signal face shall display a flashing YELLOW ARROW signal indication for the appropriate direction.
B. Permissive Only Mode — When the permissive only mode is used for either a left turn or a right turn or both on an approach, the signal indications shall be provided as required by Paragraph A of this Standard, with the following applicable exceptions:

1. Right Turn — The dual-arrow right-turn signal section shall display only a flashing right-turn YELLOW ARROW indication or shall be replaced by a signal section that displays only a flashing right-turn YELLOW ARROW indication.

2. Left Turn — The dual-arrow left-turn signal section shall display only a flashing left-turn YELLOW ARROW indication or shall be replaced by a signal section that displays only a flashing left-turn YELLOW ARROW indication.

C. Protected Only Mode — When the protected only mode is used for either a left turn or a right turn or both on an approach, the signal indications shall be provided as required by Paragraph A of this Standard with the following applicable exceptions:

1. Right Turn — The dual-arrow right-turn signal section shall display only a steady right-turn GREEN ARROW indication or shall be replaced by a signal section that displays only a steady right-turn GREEN ARROW indication.

2. Left Turn — The dual-arrow left-turn signal section shall display only a steady left-turn GREEN ARROW indication or shall be replaced by a signal section that displays only a steady left-turn GREEN ARROW indication.

Section 4D.08 Prohibited Signal Indications

Standard:

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.

During steady mode operation, the same signal section shall not be used to display both a flashing and a steady indication.

The following combinations of signal indications shall not be simultaneously displayed on any one signal face. Typical examples of prohibited displays are shown below:

A. CIRCULAR GREEN with CIRCULAR YELLOW.

B. CIRCULAR RED with CIRCULAR YELLOW.

C. CIRCULAR GREEN with CIRCULAR RED.

D. Straight-through GREEN ARROW with CIRCULAR RED.

E. Straight-through GREEN ARROW with CIRCULAR YELLOW.
Additionally, 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 turning movement and:

A. The signal face(s) controlling the turning movement is visibility-limited from the adjacent through movement or positioned to minimize potential confusion to approaching road users, or

B. A LEFT (RIGHT) TURN SIGNAL sign (R10-10) (see Sections 4D.06 and 4D.07) is mounted adjacent to the signal face(s) controlling the turning movement.

The following combinations of signal indications shall not be simultaneously displayed on any one signal face or as a result of the combination of displays from multiple signal faces on an approach:

A. GREEN ARROW with YELLOW ARROW pointing in the same direction.

B. RED ARROW with YELLOW ARROW pointing in the same direction.

C. GREEN ARROW with RED ARROW pointing in the same direction.

Section 4D.16 Number and Arrangement of Signal Sections in Vehicular Traffic Control Signal Faces

Standard:
Each signal face at a signalized location shall have three, four, or five signal sections.

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

Arrows shall be pointed:

A. Vertically upward to indicate a straight-through movement;

B. Horizontally in the direction of the turn to indicate a turn at approximately or greater than a right angle; and

C. Upward with a slope at an angle approximately equal to that of the turn if the angle of the turn is substantially less than a right angle.

D. In a manner that directs the driver through the turn if a U-turn arrow is used.

The signal lenses in a signal face shall be arranged in a vertical or horizontal straight line, except that in a vertical array, signal lenses of the same color may be arranged horizontally adjacent to each other at right angles to the basic straight line arrangement. Such clusters shall be limited to two identical signal lenses or to two or three different signal lenses of the same color.

In each signal face, all red signal lenses in vertically arranged signal faces shall be located above, and in horizontally arranged signal faces shall be located to the left, of all yellow and green signal lenses.

If a CIRCULAR YELLOW signal lens is used, it shall be located between the red signal lens or lenses and all other signal lenses.

In vertically arranged signal faces, each YELLOW ARROW signal lens shall be located immediately above the GREEN ARROW signal lens to which it applies. If a dual-arrow signal section (capable of alternating between the display of a GREEN ARROW and a YELLOW ARROW signal indication) is used, the lenses shall be in the same position relative to other lenses as are the GREEN ARROW signal lenses in a vertically arranged signal face.

In horizontally arranged signal faces, the YELLOW ARROW signal lens shall be located immediately to the left of the GREEN ARROW signal lens. If a dual-arrow signal section (capable of alternating between the display of a GREEN ARROW and a YELLOW ARROW signal indication) is used, the dual left-turn arrow signal lens shall be located immediately to the right of the CIRCULAR YELLOW signal lens, the straight-through GREEN ARROW signal lens shall be located immediately to the right of the CIRCULAR GREEN signal lens, and the dual right-turn arrow signal lens shall be located to the right of all other signal lenses.

The relative positions of signal lenses within the signal face shall be as follows:

A. In a vertically arrange signal face from top to bottom:

   CIRCULAR RED
Left-turn (or U-turn to the left) RED ARROW
Right-turn (or U-turn to the right) RED ARROW
CIRCULAR-YELLOW
CIRCULAR-GREEN
Straight-through GREEN ARROW
Left-turn (or U-turn to the left) YELLOW ARROW
Left-turn (or U-turn to the left) GREEN ARROW
Right-turn (or U-turn to the right) YELLOW ARROW
Right-turn (or U-turn to the right) GREEN ARROW
B. In a horizontally arranged signal face from left to right:

- **CIRCULAR RED**
  - Left-turn (or U-turn to the left) RED ARROW
  - Right-turn (or U-turn to the right) RED ARROW

- **CIRCULAR YELLOW**
  - Left-turn (or U-turn to the left) YELLOW ARROW
  - Left-turn (or U-turn to the left) GREEN ARROW

- **CIRCULAR GREEN**
  - Straight-through GREEN ARROW
  - Right-turn (or U-turn to the right) YELLOW ARROW
  - Right-turn (or U-turn to the right) GREEN ARROW
C. If adjacent signal indications in a signal face are not identical, their arrangement shall follow Items A or B above, as applicable.

Option:

In a vertically arranged signal face, identical signal indications may be repeated in adjacent horizontal locations within the same signal face.

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.15.

Support:

Figure 4D-3 illustrates some of the possible arrangements of signal lenses in signal faces.

---Figure 4D-3: Typical Arrangements of Signal Lenses in Signal Faces---