

Select the applicable CA MUTCD Temporary Traffic Control Area guidelines by clicking the appropriate TA designation that applies to your work scenario.

**Work on the Shoulders
(TA-3)**

**Short-Duration or Mobile
Operation on a Shoulder (TA-4)**

**Shoulder Work with Minor
Encroachment (TA-6)**

**Lane Closure on Two-Lane Road
Using Flaggers (TA-10)**

**Work in Center of Road with
Low Traffic Volumes (TA-15)**

**Detour For A Closed Street
(TA-20)**

**Closure at the Side of an
Intersection (TA-27)**

**Sidewalk Detour or Diversion
(TA-28)**

**Stationary Lane Closure on a
Divided Highway (TA-33)**

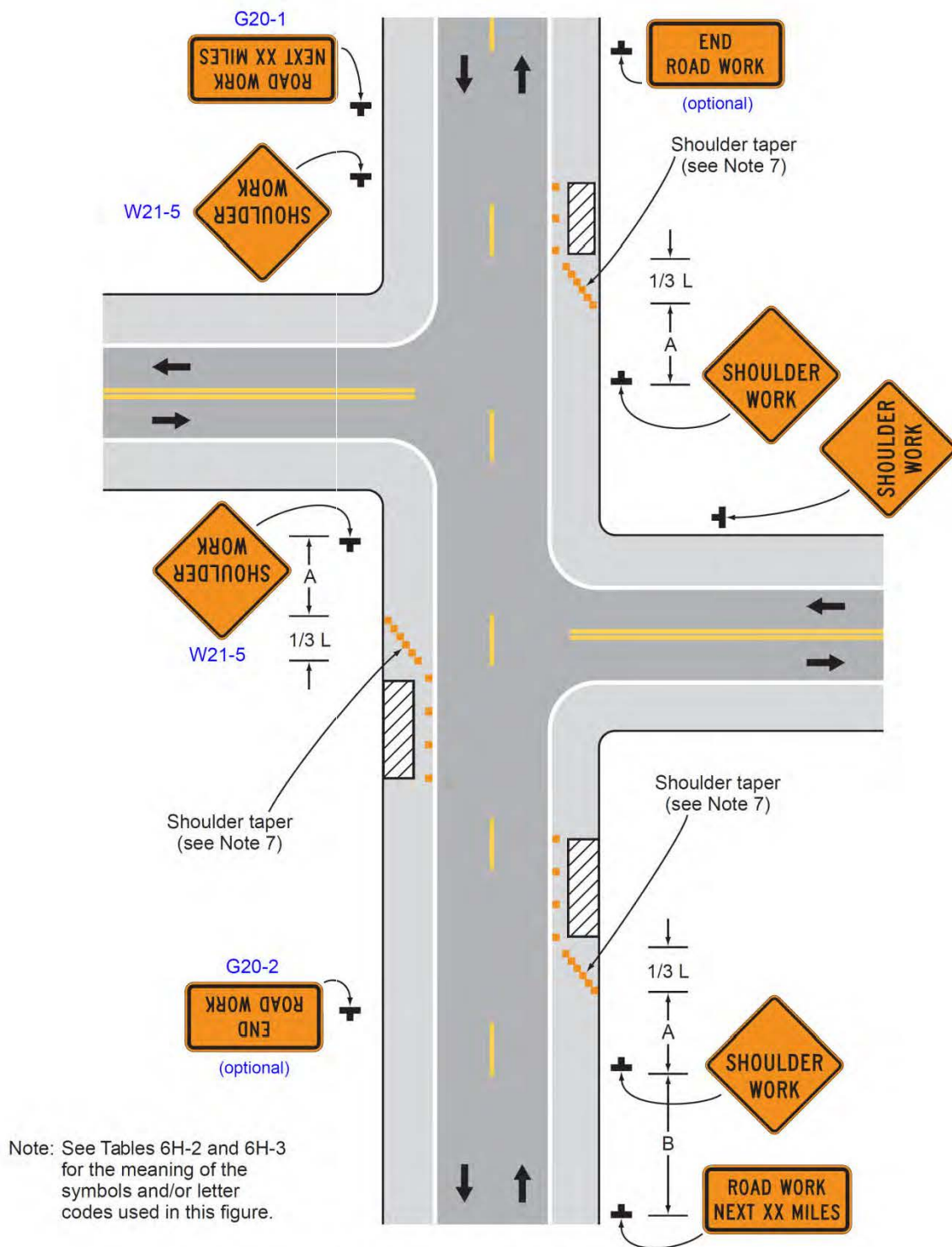
**Lane Shift on Road With Low
Traffic Volumes (TA-105)**

CA Manual on Uniform Traffic Control Devices

<https://dot.ca.gov/programs/safety-programs/camutcd>

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Figure 6H-3. Work on the Shoulders (TA-3)



Typical Application 3

Notes for Figure 6H-4 —Typical Application 4 Short Duration or Mobile Operation on a Shoulder

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Guidance:

1. In those situations where multiple work locations within a limited distance make it practical to place stationary signs, the distance between the advance warning sign and the work should not exceed 5 miles.
2. In those situations where the distance between the advance signs and the work is 2 miles to 5 miles, a Supplemental Distance plaque should be used with the ROAD WORK AHEAD sign or SHOULDER WORK AHEAD (C24(CA)) sign.

Option:

3. The ROAD WORK NEXT XX MILES sign may be used instead of the ROAD WORK AHEAD sign or SHOULDER WORK AHEAD (C24(CA)) sign if the work locations occur over a distance of more than 2 miles.
4. Stationary warning signs may be omitted for short duration or mobile operations if the work vehicle displays high-intensity rotating, flashing, oscillating, or strobe lights.
5. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:

6. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.
7. If an arrow board is used for an operation on the shoulder, the caution mode shall be used.
8. Vehicle-mounted signs shall be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs shall be covered or turned from view when work is not in progress.

Table 6H-3. Recommended Advance Warning Sign ~~Minimum~~ Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed) - 25 mph or less***	100 feet	100 feet	100 feet
Urban - more than 25 mph to 40 mph***	250 feet	250 feet	250 feet
Urban (high speed) - more than 40 mph***	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* ~~Speed category to be determined by the highway agency.~~

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

*** Posted speed limit, off-peak 85th-percentile speed prior to work starting, or other anticipated operating speed in mph.

Table 6H-4. Formulas for Determining Taper Length

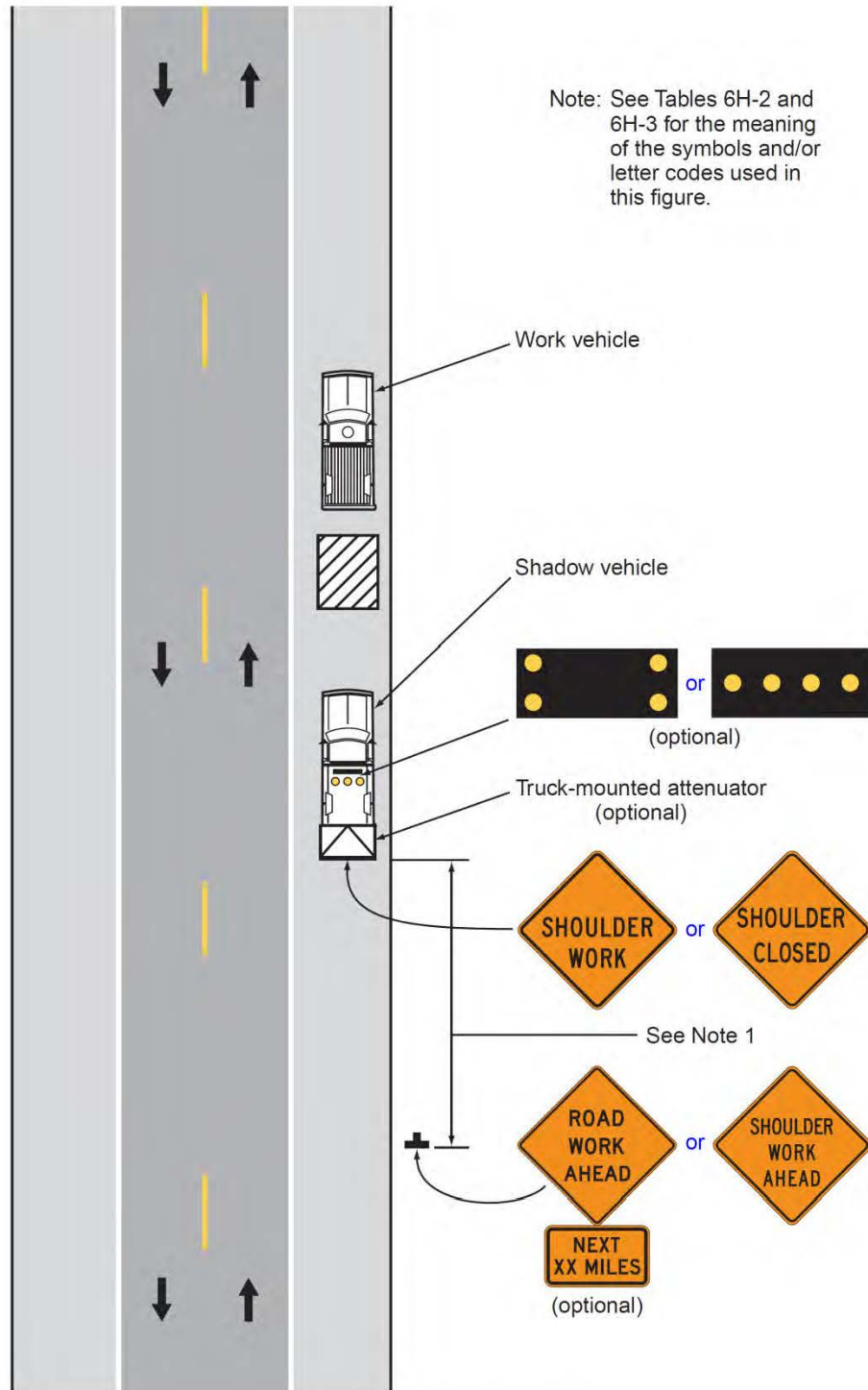
Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet

W = width of offset in feet

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

Figure 6H-4. Short-Duration or Mobile Operation on a Shoulder (TA-4)



Typical Application 4

**Notes for Figure ~~6H-5~~ 6H-5(CA) —Typical Application 5
Shoulder Closure on a Freeway**

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Guidance:

1. *SHOULDER CLOSED* signs should be used on limited-access highways where there is no opportunity for disabled vehicles to pull off the roadway.
2. If drivers cannot see a pull-off area beyond the closed shoulder, information regarding the length of the shoulder closure should be provided in feet or miles, as appropriate.
3. The use of a temporary traffic barrier should be based on engineering judgment.

Standard:

4. Temporary traffic barriers, if used, shall comply with the provisions of Section 6F.85.

Option:

5. The barrier shown in this typical application is an example of one method that may be used to close a shoulder of a long-term project.
6. The warning lights shown on the barrier may be used.

Standard:

7. Temporary traffic barriers, including their end treatments, shall be crashworthy. In order to mitigate the effect of striking the upstream end of a temporary traffic barrier, the end shall be installed in accordance with AASHTO's "Roadside Design Guide" (see Section 1A.11) by flaring until the end is outside the acceptable clear zone or by providing crashworthy end treatments. See Section 6F.85 for more details.

Table 6H-3. Recommended Advance Warning Sign ~~Minimum~~ Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed) - 25 mph or less***	100 feet	100 feet	100 feet
Urban - more than 25 mph to 40 mph***	250 feet	250 feet	250 feet
Urban (high speed) - more than 40 mph***	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* ~~Speed category to be determined by the highway agency.~~

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

*** Posted speed limit, off-peak 85th-percentile speed prior to work starting, or other anticipated operating speed in mph.

Table 6H-4. Formulas for Determining Taper Length

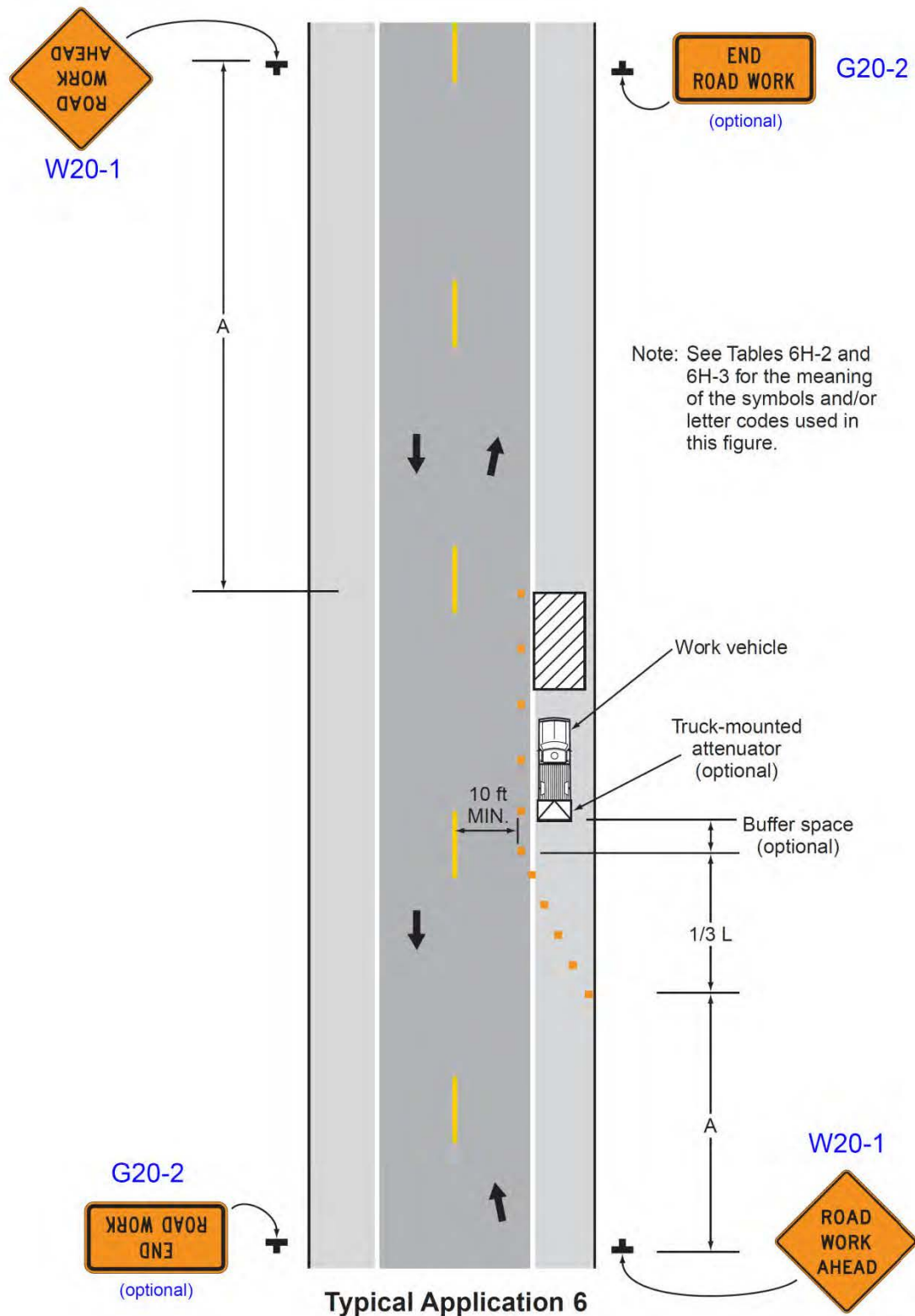
Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet

W = width of offset in feet

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

Figure 6H-6. Shoulder Work with Minor Encroachment (TA-6)



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Notes for Figure 6H-7 —Typical Application 7 Road Closure with a Diversion

Support:

1. Signs and object markers are shown for one direction of travel only.

Standard:

2. **Devices similar to those depicted shall be placed for the opposite direction of travel.**
3. **Pavement markings no longer applicable to the traffic pattern of the roadway shall be removed or obliterated before any new traffic patterns are open to traffic.**
4. **Temporary barriers and end treatments shall be crashworthy.**

Guidance:

5. *If the tangent distance along the temporary diversion is more than 600 feet, a Reverse Curve sign, left first, should be used instead of the Double Reverse Curve sign, and a second Reverse Curve sign, right first, should be placed in advance of the second reverse curve back to the original alignment.*
6. *When the tangent section of the diversion is more than 600 feet, and the diversion has sharp curves with recommended speeds of 30 mph or less, Reverse Turn signs should be used.*
7. *Where the temporary pavement and old pavement are different colors, the temporary pavement should start on the tangent of the existing pavement and end on the tangent of the existing pavement.*

Option:

8. Flashing warning lights and/or flags may be used to call attention to the warning signs.
9. On sharp curves, large arrow signs may be used in addition to other advance warning signs.
10. Delineators or channelizing devices may be used along the diversion.
11. *If the tangent distance along the temporary diversion is less than 600 feet, additional One-Direction Large Arrow (W1-6) and Chevron Alignment (W1-8) signs may be used.*
12. *When recommended speeds are the same for each curve, one Double Reverse Curve (W24-1) sign may be used, instead of two Reverse Curve (W1-4) signs, in advance of the first curve.*

Support:

13. *Use crash cushions, wherever applicable.*

Table 6H-3. Recommended Advance Warning Sign ~~Minimum~~ Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed) - 25 mph or less***	100 feet	100 feet	100 feet
Urban - more than 25 mph to 40 mph***	250 feet	250 feet	250 feet
Urban (high speed) - more than 40 mph***	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* ~~Speed category to be determined by the highway agency.~~

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

*** Posted speed limit, off-peak 85th-percentile speed prior to work starting, or other anticipated operating speed in mph.

Table 6H-4. Formulas for Determining Taper Length

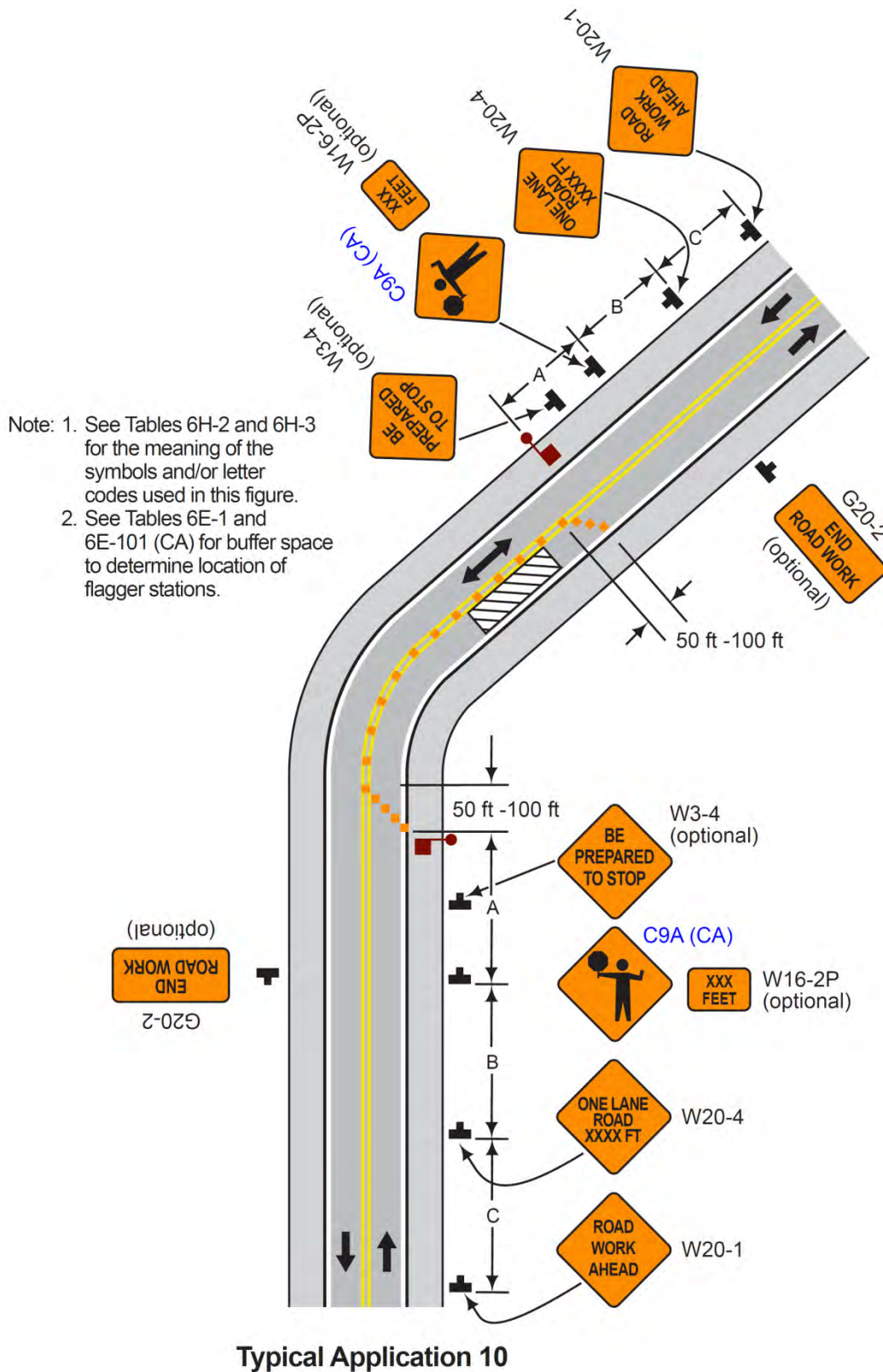
Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet

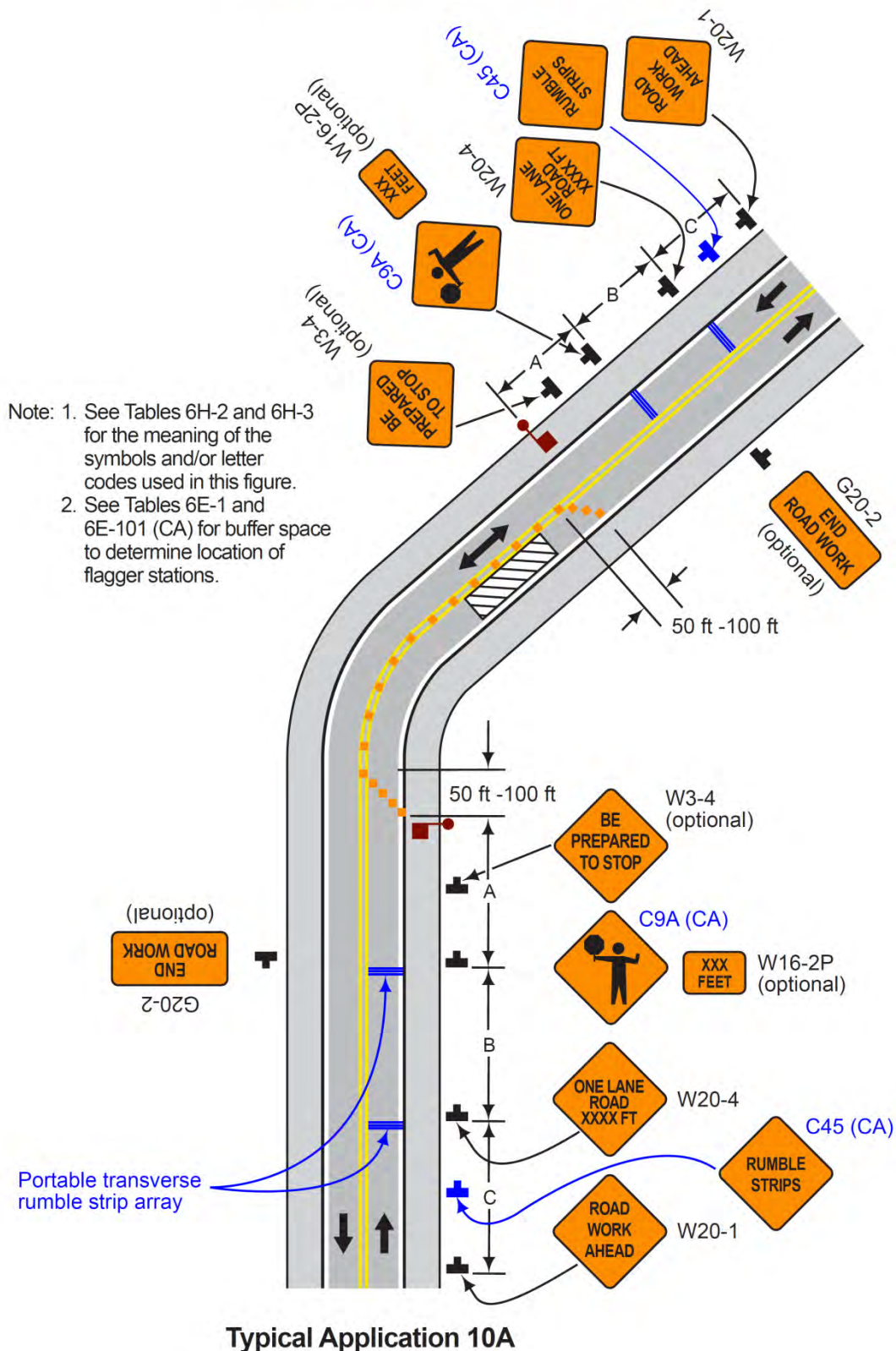
W = width of offset in feet

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

Figure 6H-10 (CA). Lane Closure on Two-Lane Road Using Flaggers (TA-10)



**Figure 6H-10A (CA). Lane Closure on Two-Lane Road Using Flaggers (TA-10A)
Using Portable Transverse Rumble Strips**



Notes for Figure 6H-11—Typical Application 11 Lane Closure on a Two-Lane Road with Low Traffic Volumes

Option:

1. This TTC zone application may be used as an alternate to the TTC application shown in Figure ~~6H-10~~ **6H-10(CA)** (using flaggers) when the following conditions exist:
 - a. Vehicular traffic volume is such that sufficient gaps exist for vehicular traffic that must yield.
 - b. Road users from both directions are able to see approaching vehicular traffic through and beyond the worksite and have sufficient visibility of approaching vehicles.
2. The Type B flashing warning lights may be placed on the ROAD WORK AHEAD and the ONE LANE ROAD AHEAD signs whenever a night lane closure is necessary.

Standard:

- 3. The approach to the side that is not closed shall be visible (for a distance equal to the safe passing sight distance for that approach) to the road user who must yield or stop.**

Support:

See Section 3B.02 and 6C.15.

Table 6H-3. Recommended Advance Warning Sign ~~Minimum~~ Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed) - 25 mph or less***	100 feet	100 feet	100 feet
Urban - more than 25 mph to 40 mph***	250 feet	250 feet	250 feet
Urban (high speed) - more than 40 mph***	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* ~~Speed category to be determined by the highway agency.~~

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

*** Posted speed limit, off-peak 85th-percentile speed prior to work starting, or other anticipated operating speed in mph.

Table 6H-4. Formulas for Determining Taper Length

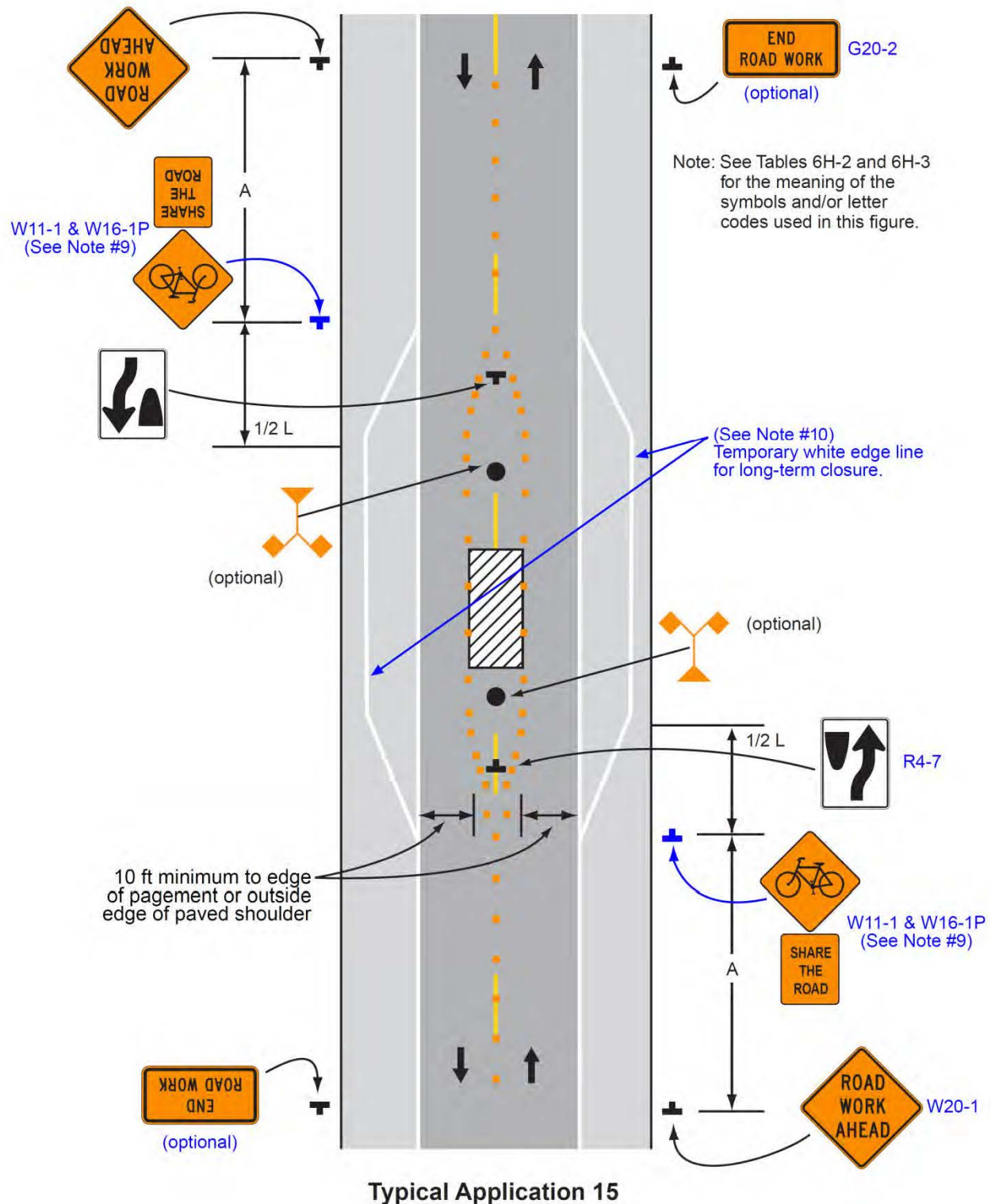
Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet

W = width of offset in feet

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

Figure 6H-15. Work in Center of Road with Low Traffic Volumes (TA-15)



Notes for Figure 6H-16—Typical Application 16
Surveying Along the Center Line of a Road with Low Traffic Volumes
(Refer to Part 5, Section 5A.01)

Guidance:

1. *The lanes on either side of the center work space should have a minimum width of 10 feet as measured from the near edge of the channelizing devices to the edge of the pavement or the outside edge of the paved shoulder.*
2. *Cones should be placed 6 to 12 inches on either side of the center line.*
3. *A flagger should be used to warn workers who cannot watch road users.*

Standard:

4. **For surveying on the center line of a high-volume road, one lane shall be closed using the information illustrated in Figure ~~6H-10~~ 6H-10(CA).**

Option:

5. A high-level warning device may be used to protect a surveying device, such as a target on a tripod.
6. Cones may be omitted for a cross-section survey.
7. ROAD WORK AHEAD signs may be used in place of the SURVEY CREW AHEAD signs.
8. Flags may be used to call attention to the advance warning signs.
9. If the work is along the shoulder, the flagger may be omitted.
10. For a survey along the edge of the road or along the shoulder, cones may be placed along the edge line.
11. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

12. *When used, the BE PREPARED TO STOP sign should be located ~~before~~ after the Flagger symbol sign.*

Table 6H-3. Recommended Advance Warning Sign ~~Minimum~~ Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed) - 25 mph or less***	100 feet	100 feet	100 feet
Urban - more than 25 mph to 40 mph***	250 feet	250 feet	250 feet
Urban (high speed) - more than 40 mph***	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* ~~Speed category to be determined by the highway agency.~~

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

*** Posted speed limit, off-peak 85th-percentile speed prior to work starting, or other anticipated operating speed in mph.

Table 6H-4. Formulas for Determining Taper Length

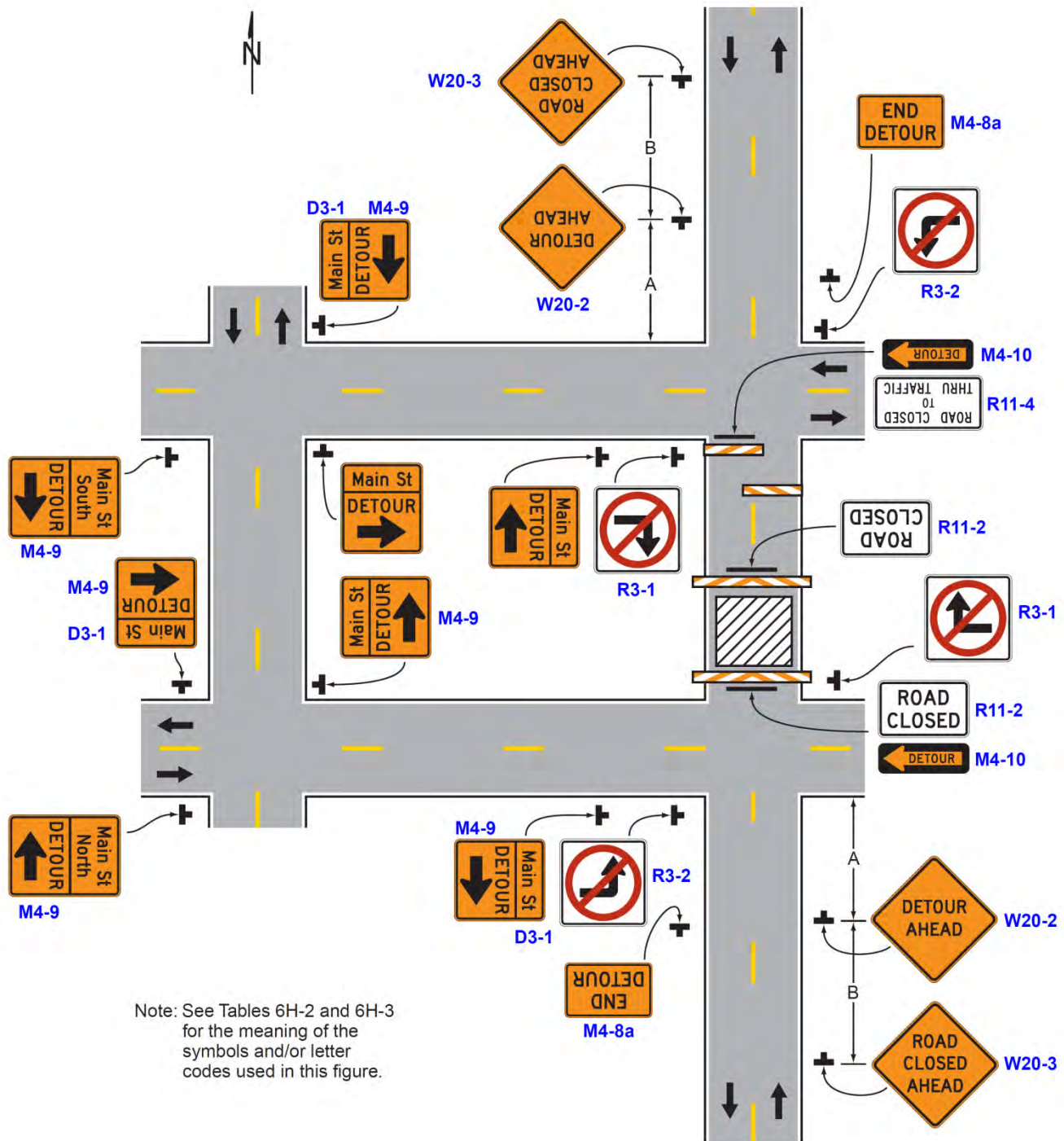
Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet

W = width of offset in feet

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

Figure 6H-20. Detour for a Closed Street (TA-20)



Typical Application 20

Notes for Figure 6H-21—Typical Application 21 Lane Closure on the Near Side of an Intersection

Standard:

- 1. The merging taper shall direct vehicular traffic into either the right-hand or left-hand lane, but not both.**

Guidance:

- 2. In this typical application, a left taper should be used so that right-turn movements will not impede through motor vehicle traffic. However, the reverse should be true for left-turn movements.*
- 3. If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H-29.*

Option:

4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. A shadow vehicle with a truck-mounted attenuator may be used.
6. A work vehicle with high-intensity rotating, flashing, oscillating, or strobe lights may be used with the ~~high-level warning device~~ [arrow board](#).
7. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:

- 8. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.**

Table 6H-3. Recommended Advance Warning Sign ~~Minimum~~ Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed) - 25 mph or less***	100 feet	100 feet	100 feet
Urban - more than 25 mph to 40 mph***	250 feet	250 feet	250 feet
Urban (high speed) - more than 40 mph***	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* ~~Speed category to be determined by the highway agency.~~

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

*** Posted speed limit, off-peak 85th-percentile speed prior to work starting, or other anticipated operating speed in mph.

Table 6H-4. Formulas for Determining Taper Length

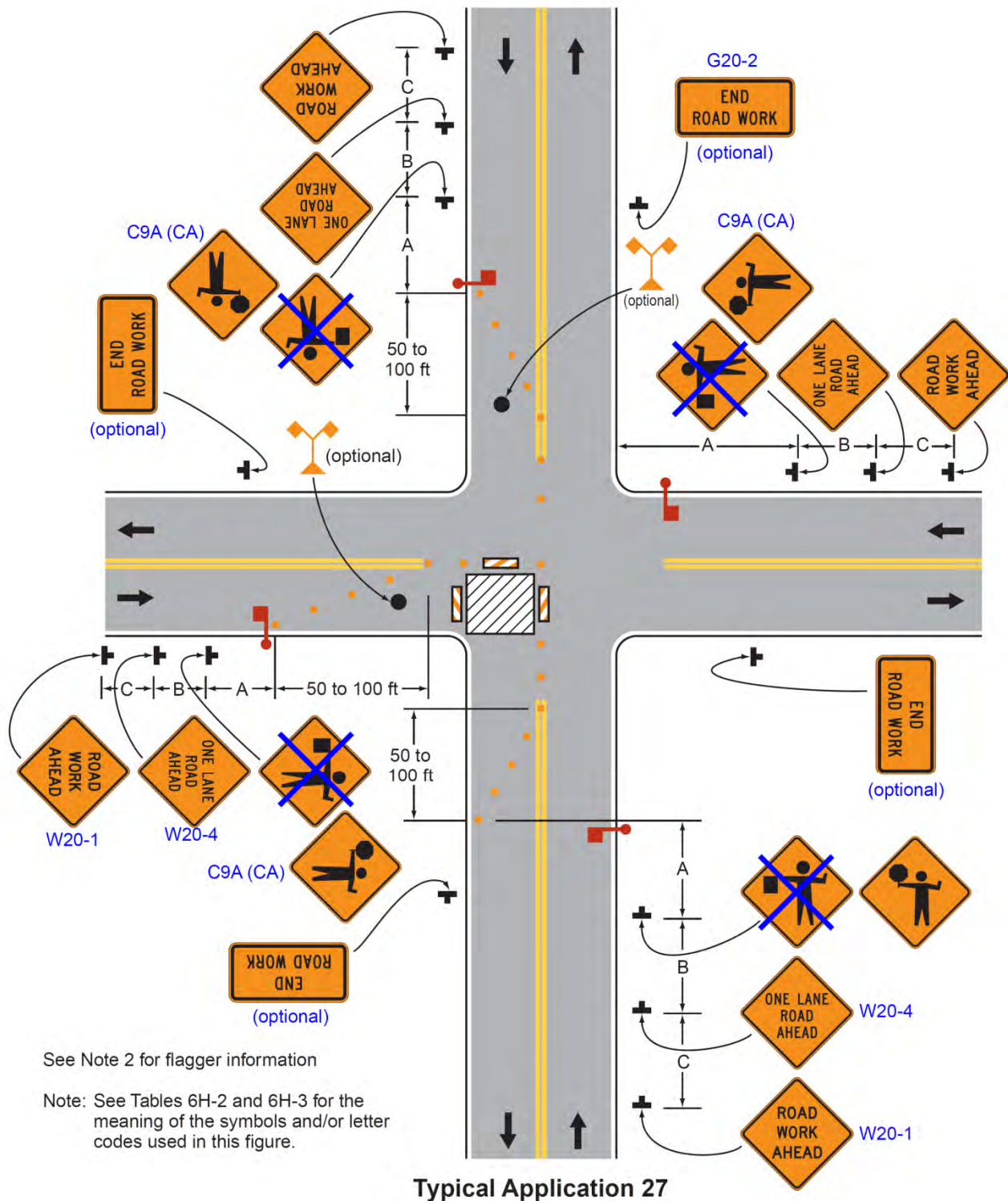
Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet

W = width of offset in feet

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

Figure 6H-27. Closure at the Side of an Intersection (TA-27)



Notes for Figure 6H-28—Typical Application 28 Sidewalk Detour or Diversion

Standard:

- 1. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.**

Guidance:

- 2. Where high speeds are anticipated, a temporary traffic barrier and, if necessary, a crash cushion should be used to separate the temporary sidewalks from vehicular traffic.*
- 3. Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*

Option:

4. Street lighting may be considered.
5. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS signs, may be used to control vehicular traffic.
6. For nighttime closures, Type A Flashing warning lights may be used on barricades that support signs and close sidewalks.
7. Type C Steady-Burn or Type D 360-degree Steady-Burn warning lights may be used on channelizing devices separating the temporary sidewalks from vehicular traffic flow.
8. Signs, such as KEEP RIGHT (LEFT), may be placed along a temporary sidewalk to guide or direct pedestrians.

Table 6H-3. Recommended Advance Warning Sign ~~Minimum~~ Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed) - 25 mph or less***	100 feet	100 feet	100 feet
Urban - more than 25 mph to 40 mph***	250 feet	250 feet	250 feet
Urban (high speed) - more than 40 mph***	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* ~~Speed category to be determined by the highway agency.~~

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

*** Posted speed limit, off-peak 85th-percentile speed prior to work starting, or other anticipated operating speed in mph.

Table 6H-4. Formulas for Determining Taper Length

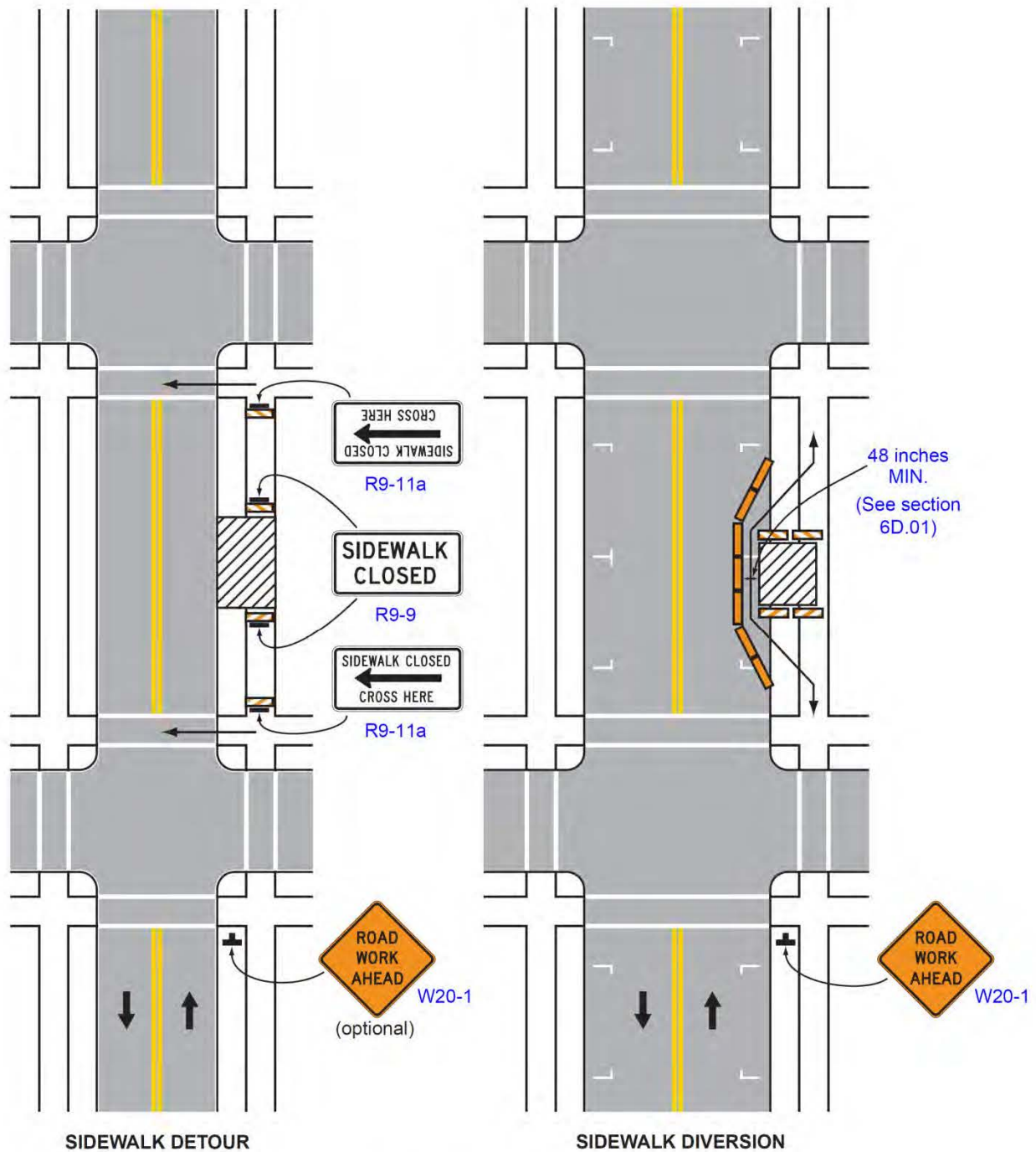
Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet

W = width of offset in feet

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

Figure 6H-28. Sidewalk Detour or Diversion (TA-28)



Typical Application 28

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Notes for Figure 6H-29—Typical Application 29 Crosswalk Closures and Pedestrian Detours

Standard:

1. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.
2. ~~Curb parking shall be prohibited for at least 50 feet in advance of the midblock crosswalk.~~

Guidance:

2. *Parking should be prohibited in advance of mid-block crosswalks. Mid-block crosswalks should be avoided, when possible. See Section 3B.18.*
3. *Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*
4. *Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated.*

Option:

5. Street lighting may be considered.
6. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS signs, may be used to control vehicular traffic.
7. For nighttime closures, Type A Flashing warning lights may be used on barricades supporting signs and closing sidewalks.
8. Type C Steady-Burn or Type D 360-degree Steady-Burn warning lights may be used on channelizing devices separating the work space from vehicular traffic.
9. In order to maintain the systematic use of the fluorescent yellow-green background for pedestrian, bicycle, and school warning signs in a jurisdiction, the fluorescent yellow-green background for pedestrian, bicycle, and school warning signs may be used in TTC zones.

Table 6H-3. Recommended Advance Warning Sign ~~Minimum~~ Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed) - 25 mph or less***	100 feet	100 feet	100 feet
Urban - more than 25 mph to 40 mph***	250 feet	250 feet	250 feet
Urban (high speed) - more than 40 mph***	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* ~~Speed category to be determined by the highway agency.~~

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

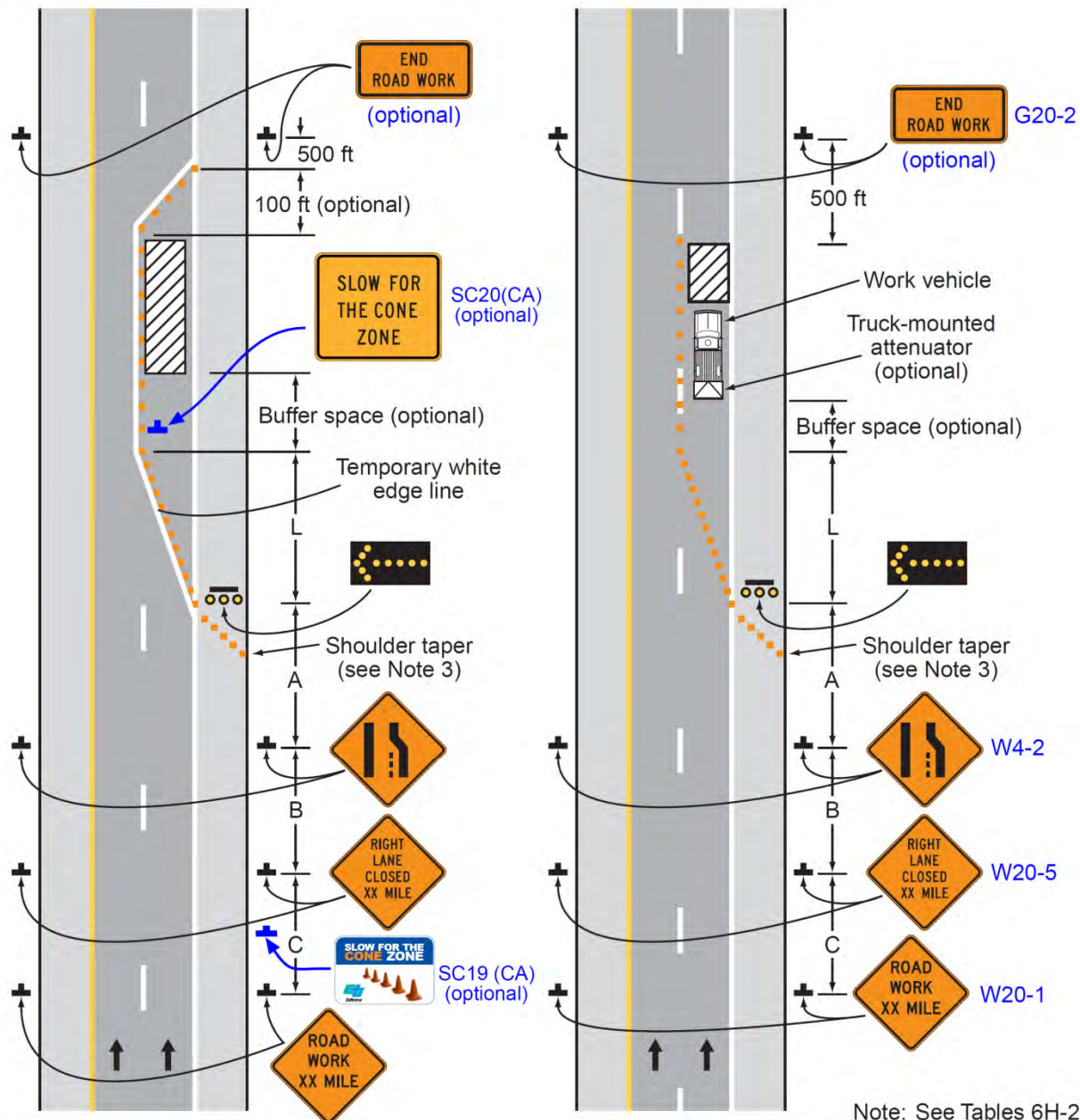
*** Posted speed limit, off-peak 85th-percentile speed prior to work starting, or other anticipated operating speed in mph.

Table 6H-4. Formulas for Determining Taper Length

Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet
W = width of offset in feet
S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

Figure 6H-33. Stationary Lane Closure on a Divided Highway (TA-33)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 33

Notes for Figure 6H-34—Typical Application 34 Lane Closure with a Temporary Traffic Barrier

Standard:

1. This information also shall be used when work is being performed in the lane adjacent to the median on a divided highway. In this case, the LEFT LANE CLOSED signs and the corresponding Lane Ends signs shall be substituted.

Guidance:

2. For long-term lane closures on facilities with permanent edge lines, a temporary edge line should be installed from the upstream end of the merging taper to the downstream end of the downstream taper, and conflicting pavement markings should be removed.
3. The use of a barrier should be based on engineering judgment.

Standard:

4. Temporary traffic barriers, if used, shall comply with the provisions of Section 6F.85.
5. The barrier shall not be placed along the merging taper. The lane shall first be closed using channelizing devices and pavement markings.

Option:

6. Type C Steady-Burn warning lights may be placed on channelizing devices and the barrier parallel to the edge of pavement for nighttime lane closures.
7. The barrier shown in this typical application is an example of one method that may be used to close a lane for a long-term project. If the work activity permits, a movable barrier may be used and relocated to the shoulder during non-work periods or peak-period vehicular traffic conditions, as appropriate.

Standard:

8. If a movable barrier is used, the temporary white edge line shown in the typical application shall not be used. During the period when the right-hand lane is opened, the sign legends and the channelization shall be changed to indicate that only the shoulder is closed, as illustrated in Figure ~~6H-5~~ 6H-5(CA). The arrow board, if used, shall be placed at the downstream end of the shoulder taper and shall display the caution mode.

Guidance:

9. If a movable barrier is used, the shift should be performed in the following manner. When closing the lane, the lane should be initially closed with channelizing devices placed along a merging taper using the same information employed for a stationary lane closure. The lane closure should then be extended with the movable-barrier transfer vehicle moving with vehicular traffic. When opening the lane, the movable barrier transfer vehicle should travel against vehicular traffic from the termination area to the transition area. The merging taper should then be removed using the same information employed for a stationary lane closure.

Table 6H-3. Recommended Advance Warning Sign ~~Minimum~~ Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed) - 25 mph or less***	100 feet	100 feet	100 feet
Urban - more than 25 mph to 40 mph***	250 feet	250 feet	250 feet
Urban (high speed) - more than 40 mph***	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* ~~Speed category to be determined by the highway agency.~~

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

*** Posted speed limit, off-peak 85th-percentile speed prior to work starting, or other anticipated operating speed in mph.

Table 6H-4. Formulas for Determining Taper Length

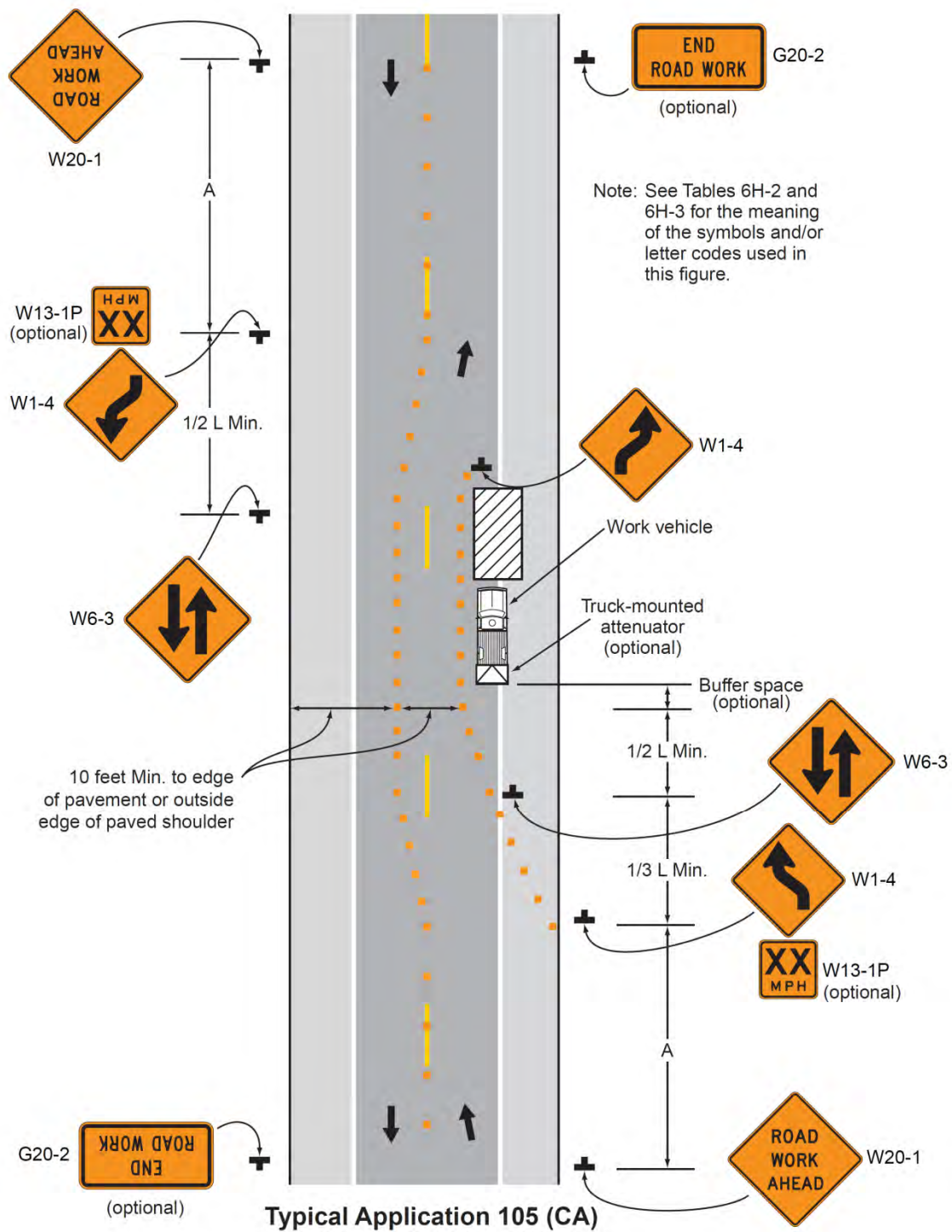
Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet

W = width of offset in feet

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

Figure 6H-105 (CA). Lane Shift on Road With Low Traffic Volumes (TA-105 (CA))



Notes for Figure 6H-105(CA)—Typical Application 105(CA)
Lane Shift on Road with Low Traffic Volumes
(Refer to Part 5, Section 5A.01)

Guidance:

- 1. The lanes on either side of the center work space should have a minimum width of 10 feet as measured from the near edge of the channelizing devices to the edge of pavement or the outside edge of paved shoulder.*
- 2. All advance warning signs should be placed so that the path of travel for bicycles is not blocked while maintaining visibility for road users.*

Standard:

- 3. Workers in the roadway shall wear high-visibility safety apparel as described in Section 6D.03.**

Option:

- 4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.*
- 5. If the closure continues overnight, warning lights may be used on the channelizing devices.*
- 6. A lane width of 9 feet may be used for short-term stationary work on low-volume, low-speed roadways when motor vehicle traffic does not include longer and wider heavy commercial vehicles.*
- 7. A work vehicle displaying high-intensity rotating, flashing, oscillating, or strobe lights may be used instead of the channelizing devices forming the tapers or the high-level warning devices.*
- 8. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.*

Standard:

- 9. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.**

Table 6H-3. Recommended Advance Warning Sign ~~Minimum~~ Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed) - 25 mph or less***	100 feet	100 feet	100 feet
Urban - more than 25 mph to 40 mph***	250 feet	250 feet	250 feet
Urban (high speed) - more than 40 mph***	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* ~~Speed category to be determined by the highway agency.~~

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

*** Posted speed limit, off-peak 85th-percentile speed prior to work starting, or other anticipated operating speed in mph.

Table 6H-4. Formulas for Determining Taper Length

Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet

W = width of offset in feet

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph