

# **National Committee on Uniform Traffic Control Devices**

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# National Committee on Uniform Traffic Control Devices (NCUTCD) Recommended Changes to Proposed Text for 11th Edition of the MUTCD Docket Number: FHWA-2020-0001

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Federal Register Item Number: 484, 485, 486, 487, 488, 489, 490, 491, 492

NPA MUTCD Section Number: Sections 6H.01 to 6H.38

**Legend:** Base text shown in proposal is the NPA "clean" proposed text.

- NCUTCD recommendation for text to be added in final rule.
- NCUTCD recommendation for text to be deleted in final rule.
- NCUTCD recommendation for text to be moved/relocated in final rule.
- NPA text that was not previously approved by NCUTCD but is now approved.
- Explanatory note: [Note that explains purpose of recommended change.]

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The following pages present NCUTCD recommendations for changes to the MUTCD NPA proposed text, tables, and figures for Chapter 6H. Below is a short summary of the NCUTCD position for each section of this chapter. A more detailed summary is provided at the beginning of each section.

- 19 NPA #484, Section 6H.01: Changes recommended based on Council action in spring 2021
- 20 NPA #N/A, Section 6H.02: NCUTCD agrees with NPA content (no changes recommended)
- 21 NPA #485, Section 6H.03: NCUTCD agrees with NPA content (no changes recommended)
- 22 NPA #486, Section 6H.04: NCUTCD agrees with NPA content (no changes recommended)
- 23 NPA #487, Section 6H.05: NCUTCD agrees with NPA content (no changes recommended)
- 24 NPA #488, Section 6H.06: NCUTCD agrees with NPA content (no changes recommended)
- 25 NPA #489, Section 6H.07: Changes recommended based on Council action in spring 2021
- 26 NPA #490, Section 6H.08: Changes recommended based on Council action in spring 2021
- 27 NPA #N/A, Section 6H.09: NCUTCD agrees with NPA content (no changes recommended)
- 28 NPA #N/A, Section 6H.10: NCUTCD agrees with NPA content (no changes recommended)
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- NPA #N/A, Section 6H.11: NCUTCD agrees with NPA content (no changes recommended)
- 30 NPA #N/A, Section 6H.12: NCUTCD agrees with NPA content (no changes recommended)
- 31 NPA #N/A, Section 6H.13: NCUTCD agrees with NPA content (no changes recommended)
- 32 NPA #N/A, Section 6H.14: NCUTCD agrees with NPA content (no changes recommended)
- 33 NPA # N/A, Section 6H.15: NCUTCD agrees with NPA content (no changes recommended)
- 34 NPA # N/A, Section 6H.16: NCUTCD agrees with NPA content (no changes recommended)
- 35 NPA #N/A, Section 6H.17 (Relocated to 6H.12): Changes recommended based on Council action in 36 spring 2021
- 37 NPA #N/A, Section 6H.18 (now 6H.17): Changes recommended based on Council action in spring 38
- 39 NPA #N/A, Section 6H.19 (now 6H.18): Changes recommended based on Council action in spring 40 2021
- 41 NPA #N/A, Section 6H.20 (now 6H.19): Changes recommended based on Council action in spring 42 2021

- NPA #N/A, Section 6H.21 (now 6H.20): Changes recommended based on Council action in spring 2021
- NPA #N/A, Section 6H.22 (now 6H.21): Changes recommended based on Council action in spring 2021
- NPA #N/A, Section 6H.23 (now 6H.22): Changes recommended based on Council action in spring 2021
- NPA #491, Section 6H.24 (now 6H.23): Changes recommended based on Council action in spring 2021
- NPA #492, Section 6H.25 (now 6H.24): Changes recommended based on Council action in spring 2021
- NPA #N/A, Section 6H.26 (now 6H.25): Changes recommended based on Council action in spring 2021
- NPA # N/A, Section 6H.27 (now 6H.26): Changes recommended based on Council action in spring 2021
- NPA # N/A, Section 6H.28 (now 6H.27): Changes recommended based on Council action in spring 2021
- NPA #N/A, Section 6H.29 (now 6H.28): Changes recommended based on Council action in spring 2021
- NPA #N/A, Section 6H.30 (now 6H.29): Changes recommended based on Council action in spring 2021
- NPA #N/A, Section 6H.31 (now 6H.30): Changes recommended based on Council action in spring 2021
- NPA #N/A, Section 6H.32 (now 6H.21): Changes recommended based on Council action in spring 2021
  - NPA #N/A, Section 6H.33 (now 6H.32): Changes recommended based on Council action in spring 2021
  - NPA #N/A, Section 6H.34: (now 6H.33): Changes recommended based on Council action in spring 2021
    - NPA #N/A, Section 6H.35 (now 6H.34): Changes recommended based on Council action in spring 2021
  - NPA #N/A, Section 6H.36 (now 6H.35): Changes recommended based on Council action in spring 2021
  - NPA #N/A, Section 6H.37 (now 6H.36): Changes recommended based on Council action in spring 2021
  - NPA # N/A, Section 6H.38 (now 6H.37): Changes recommended based on Council action in spring 2021

#### CHAPTER 6H. TTC ZONE WARNING SIGNS

**Section 6H.01 Comments:** NCUTCD generally agrees with 6H.01 as presented in the NPA, but recommends revising the title of the SHS in the first Standard to "Standard Highway Signs" publication'.

# **Section 6H.01 Warning Sign Function, Design, and Application** Support:

TTC zone warning signs (see Figure 6H-1) notify road users of specific situations or conditions on or adjacent to a roadway that might not otherwise be apparent.

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<b>Table 6H-1 Comments: NCUTCI</b>	generally agrees with Table 6H-1 as presented in the NPA
but recommends revising as follows	:

- Edit the title to 'Warning Signs Used in TTC Zones'
- Delete the CENTER LANE CLOSED Ahead (W9-3) sign (see 6H.07)
- Revise the table to include signs referenced in the individual sections in Chapter 6H (see table below)

Section	Signs which are referenced in the individual Chapter 6H sections to Table 6H-1 that are not shown in the table
6H.12	E5-2, E5-2a
6H.13	E5-3
6H.18	W21-1a
6H.31	W24-1c
6H.33	W16-4P

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<u>Warning Signs used in TTC Zones</u>

Table 6H-1. Temporary Traffic Control Zone-Sign and Plaque-Sizes

	Sign		Conventional	Freeway or	
Sign or Plaque	Designation	Section	Road	Expressway	Minimum
Turn and Curve Signs	W1-1,2,3,4	6H.01	36 x 36	48 x 48	30 x 30
Reverse Curve (2 or more lanes)	W1-4b,4c	6H.30	36 x 36	48 x 48	30 x 30
One-Direction Large Arrow	W1-6	6H.01	48 x 24	60 x 30	1
Chevron Alignment	W1-8	6H.01	18 x 24	30 x 36	1
Stop Ahead	W3-1	6H.01	36 x 36	48 x 48	30 x 30
Yield Ahead	W3-2	6H.01	36 x 36	48 x 48	30 x 30
Signal Ahead	W3-3	6H.01	36 x 36	48 x 48	30 x 30
Be Prepared to Stop	W3-4	6H.01	36 x 36	48 x 48	30 x 30
Reduced Speed Limit Ahead	W3-5	6H.01	36 x 36	48 x 48	30 x 30
XX MPH Speed Zone Ahead	W3-5a	6H.01	36 x 36	48 x 48	30 x 30
Merging Traffic	W4-1,5	6H.01	36 x 36	48 x 48	36 x 36
Lane Ends	W4-2	6H.08	36 x 36	48 x 48	30 x 30
Added Lane	W4-3,6	6H.01	36 x 36	48 x 48	30 x 30
No Merge Area (plaque)	W4-5P	6H.01	18 x 24	24 x 30	-
Road Narrows	W5-1	6H.01	36 x 36	48 x 48	30 x 30
Narrow Bridge	W5-2	6H.01	36 x 36	48 x 48	30 x 30
One Lane Bridge	W5-3	6H.01	36 x 36	48 x 48	30 x 30
Ramp Narrows	W5-4	6H.10	36 x 36	48 x 48	30 x 30
Divided Highway	W6-1	6H.01	36 x 36	48 x 48	30 x 30
Divided Highway Ends	W6-2	6H.01	36 x 36	48 x 48	30 x 30
Two-Way Traffic	W6-3	6H.16	36 x 36	48 x 48	30 x 30
Two-Way Traffic	W6-4	6H.17	12 x 18	12 x 18	-
Hill	W7-1	6H.01	36 x 36	48 x 48	30 x 30
Next XX Miles (plaque)	W7-3aP	6H.33	24 x 18	36 x 30	-
Bump	W8-1	6H.01	36 x 36	48 x 48	30 x 30
Dip	W8-2	6H.01	36 x 36	48 x 48	30 x 30
Pavement Ends	W8-3	6H.01	36 x 36	48 x 48	30 x 30
Soft Shoulder	W8-4	6H.26	36 x 36	48 x 48	30 x 30
Slippery When Wet	W8-5	6H.01	36 x 36	48 x 48	30 x 30
Truck Crossing	W8-6	6H.21	36 x 36	48 x 48	30 x 30
Loose Gravel	W8-7	6H.01	36 x 36	48 x 48	30 x 30
Rough Road	W8-8	6H.01	36 x 36	48 x 48	30 x 30
Low Shoulder	W8-9	6H.26	36 x 36	48 x 48	30 x 30
Uneven Lanes	W8-11	6H.27	36 x 36	48 x 48	30 x 30
No Center Line	W8-12	6H.29	36 x 36	48 x 48	30 x 30
Fallen Rocks	W8-14	6H.01	36 x 36	48 x 48	30 x 30
Grooved Pavement	W8-15	6H.01	36 x 36	48 x 48	30 x 30
Motorcycle (plaque)	W8-15P	6H.34	24 x 18	30 x 24	-
Shoulder Drop Off (symbol)	W8-17	6H.26	36 x 36	48 x 48	30 x 30
Shoulder Drop-Off (plaque)	W8-17P	6H.26	24 x 18	30 x 24	_
Road May Flood	W8-18	6H.01	36 x 36	48 x 48	24 x 24
No Shoulder	W8-23	6H.01	36 x 36	48 x 48	30 x 30
Steel Plate Ahead	W8-24	6H.28	36 x 36	48 x 48	30 x 30
Shoulder Ends	W8-25	6H.01	36 x 36	48 x 48	30 x 30
Lane Ends	W9-1,2	6H.01	36 x 36	48 x 48	30 x 30
Merge Here Take Turns	W9-2a	6N.19	36 x 48	36 x 48	
Center Lane Closed Ahead	W9-3	6H.07	36 x 36	48 x 48	30 × 30
Interior Lane Shift Ahead	W9-4	6N.11	36 x 36	48 x 48	36 x 36
Grade Crossing Advance Warning	W10-1	6H.01	36 dia.	-	_
Truck	W11-10	6H.21	36 x 36	48 x 48	30 x 30
Double Arrow	W12-1	6H.01	30 x 30	-	_
Low Clearance	W12-2	6H.01	36 x 36	48 x 48	30 x 30
Advisory Speed (plaque)	W13-1P	6H.32	24 x 24	30 x 30	18 x 18
On Ramp (plaque)	W13-4P	6H.09	36 x 36	36 x 36	-
No Passing Zone (pennant)	W14-3	6H.01	48 x 48 x 36	64 x 64 x 48	40 x 40 x 30
XX Feet (plaque)	W16-2P	6H.01	24 x 18	30 x 24	40 A 70 A 50

Notes: 1. Larger signs may be used wherever necessary for greater legibility or emphasis

2. Dimensions are shown in inches and are shown as width x height

Figure 6H-1 Comments: NCUTCD generally agrees with Figure 6H-1 as presented in the NPA, but recommends revising as follows:

- Revise W3-3 sign to show a center signal indication of yellow, not orange
- Resolve the conflict between W9-4 signs in Part 2 and Part 6 in the NPA with the same sign designation - W9-4 in Part 2 is the LANES MERGE word legend sign and W9-4 in Part 6 is the Interior Lane Shift Ahead symbol sign
- Revise the figure to include signs referenced in the individual sections in Chapter 6H (see table below)

Section	Signs which are referenced in the individual Chapter 6H sections to Figure 6H-1 that are not shown in the figure
6H.03	W20-1
6H.04	W20-2
6H.05	W20-3
6H.06	W20-4
6H.07	W20-5, W20.5a, W9-3, W9-4
6H.08	W4-2
6H.09	W13-4p
6H.10	W5-4
6H.11	W23-1

6H.12	E5-2, E5-2a
6H.13	E5-3
6H.14	W23-1
6H.15	W20-7, W20-7a
6H.16	W6-3
6H.17	W6-4
6H.18	W21-1, W21-1a
6H.19	W21-2
6H.20	W21-3
6H.21	W8-6, W11-10
6H.22	W21-5, W21-5a, W21-5b
6H.23	W21-6
6H.24	W21-7
6H.25	W22-1, W22-2
6H.26	W8-4, W8-9, W8-17, W8-17p
6H.27	W8-11
6H.28	W8-24
6H.29	W8-12
6H.30	W1-4, W1-4b, W1-4c, W24-1cP
6H.31	W24-1, W24-1a, W24-1c, W24-1cP
6H.32	W13-1P
6H.33	W7-3aP, W16-4P
6H.34	W8-15P
6H.35	G20-1
6H.36	G20-2
6H.37	G20-4
6H.03	W20-1

W1-6 W1-8 W3-1 BE PREPARED 45 MPH SPEED ZONE TO STOP AHEAD W3-2 W3-4 W3-5a NO MERGE AREA W4-5aP ROAD ONE LANE NARROW **NARROWS BRIDGE BRIDGE** W5-1 W5-2 W5-3 DIP PAVEMENT **ENDS** W8-1 W8-2 W8-3 W8-5

Figure 6H-1. Examples of Other Warning Signs Used in TTC Zones (Sheet 1 of 2)

Note: See Chapter 2H for information on the application of these signs



Figure 6H-1. Examples of Other Warning Signs Used in TTC Zones (Sheet 2 of 2)

Note: See Chapter 2H for information on the application of these signs

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#### **Standard:**

TTC warning signs shall comply with the Standards for warning signs presented in Part 2 and in FHWA's "Standard Highway Signs and Markings" book publication (see Section 1A.05). [edit title]

Except as provided in <u>the Option below</u>, TTC warning signs shall be diamond-shaped with a black legend and border on an orange background, except for the <u>Grade Crossing Advance Warning</u> (W10-1 sign), which shall have a black legend and border on a yellow background.

Option:

Warning signs that are required or recommended in Parts 2 or 7 to have a fluorescent yellow-green background may have that color background in TTC zones. Existing warning signs with a yellow background that are still applicable may remain in place. Warning signs used for TTC incident management situations may have a black legend and border on a fluorescent pink background.

Mounting or space considerations may justify a change from the standard diamond shape <u>to a rectangular shape</u>.

In emergencies, available warning signs having yellow backgrounds may be used if signs with orange or fluorescent pink backgrounds are not at hand.

134 Guidance:

Where roadway or road user conditions require greater emphasis, larger than standard size warning signs should be used, with the symbol or legend enlarged approximately in proportion to the outside dimensions.

Where any part of the roadway is obstructed or closed by work activities or incidents, advance warning signs should be installed to alert road users well in advance of these obstructions or restrictions.

Where road users include pedestrians, the provision of supplemental audible information or detectable barriers or barricades should be <u>provided</u> for people with visual disabilities. Support:

Detectable barriers or barricades communicate very clearly to pedestrians who have visual disabilities that they can no longer proceed in the direction that they are traveling. Option:

Advance warning signs may be used singly or in combination.

Where distances are not displayed on warning signs as part of the message, a supplemental plaque with the distance legend may be mounted immediately below the sign on the same support.

# **Section 6H.02 Comments:** NCUTCD agrees with 6H.02 as presented in the NPA.

#### Section 6H.02 Position of Advance Warning Signs

Guidance:

Where highway conditions permit, warning signs should be placed in advance of the transition and activity areas at varying distances depending on roadway type, condition, and posted speed. Table 6B-1 contains information regarding the spacing of advance warning signs. Where a series of two or more advance warning signs is used, the closest sign to the transition and activity areas should be placed approximately 100 feet for low-speed urban streets to 1,000 feet or more for freeways and expressways.

Where multiple advance warning signs are needed on the approach to a <u>transition and activity area</u>, the ROAD WORK AHEAD (W20-1) sign should be the first advance warning sign encountered by road users.

Support:

Various conditions, such as limited sight distance or obstructions that might require a driver to reduce speed or stop, might require additional advance warning signs.

Option:

As an alternative to a specific distance on advance warning signs, the word AHEAD may be used.

172 Support:

At TTC zones on lightly-traveled roads, all of the advance warning signs prescribed for major construction might not be needed.

175 Option:

Utility work, maintenance, or minor construction can occur within the TTC zone limits of a major construction project, and additional warning signs may be needed.

178 Guidance:

Section	<b>6H.03 Comments:</b> NCUTCD agrees with 6H.03 as presented in the NPA.
	6H.03 ROAD (STREET) WORK Sign (W20-1)
Guidano The	ce: ROAD (STREET) WORK (W20-1) sign (see Figure <u>6H-1</u> ), which serves as a gener
warning	of obstructions or restrictions, should be located in advance of the work space or
	on the road where the work is taking place.
	re traffic can enter a TTC zone from a crossroad or a major (high-volume) drivew warning sign should be used on the crossroad or major driveway.
Option:	
	legend STREET may be substituted for ROAD and the distance legend may be eit
XX FEE	ET, XX MILES, or AHEAD.
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Section Guidand The	DETOUR (W20-2) sign (see Figure $6H-1$ ) should be used in advance of a road use
Section Guidand The detour o	6H.04 DETOUR Sign (W20-2)
Section Guidanc The detour of The	6H.04 DETOUR Sign (W20-2) see: DETOUR (W20-2) sign (see Figure <u>6H-1</u> ) should be used in advance of a road use over a different roadway or route.
Section Guidanc The detour of The Section	6H.04 DETOUR Sign (W20-2)  see:  DETOUR (W20-2) sign (see Figure 6H-1) should be used in advance of a road use over a different roadway or route.  distance legend may be either XX FEET, XX MILES, or AHEAD.  6H.05 Comments: NCUTCD agrees with 6H.05 as presented in the NPA.  6H.05 ROAD (STREET) CLOSED Sign (W20-3)
Section Guidance The detour of The Section Section Guidance	6H.04 DETOUR Sign (W20-2)  see:  DETOUR (W20-2) sign (see Figure 6H-1) should be used in advance of a road use over a different roadway or route.  distance legend may be either XX FEET, XX MILES, or AHEAD.  6H.05 Comments: NCUTCD agrees with 6H.05 as presented in the NPA.  6H.05 ROAD (STREET) CLOSED Sign (W20-3)  see:
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Section Guidance The detour of The Section Guidance The of the po Option: The XX FEE	6H.04 DETOUR Sign (W20-2)  See:  DETOUR (W20-2) sign (see Figure 6H-1) should be used in advance of a road use over a different roadway or route.  distance legend may be either XX FEET, XX MILES, or AHEAD.  6H.05 Comments: NCUTCD agrees with 6H.05 as presented in the NPA.  6H.05 ROAD (STREET) CLOSED Sign (W20-3)  See:  ROAD (STREET) CLOSED (W20-3) sign (see Figure 6H-1) should be used in advance where a highway is closed to all road users, or to all but local road users.  legend STREET may be substituted for ROAD and the distance legend may be either the strength of t

(see Section 6E.01).

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225 Option:

The distance legend may be either XX FEET, XX MILES, or AHEAD.

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**Section 6H.07** NCUTCD generally agrees with 6H.07 as presented in the NPA, but recommends revising as follows:

- Replace the W9-3 sign with the W9-4 sign in accordance with NCUTCD recommendation 17B-TTC-01
- Add 'or more' in the second Standard paragraph for clarity
- Revise the Guidance statement to change the sign reference from W9-3 to W9-4 and add content on a shifting taper to route traffic around a closed interior lane

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Section 6H.07 Lane(s) Closed Signs (W20-5, W20-5a, and W9-3-W9-4) [revise per 17B-TTC-01]

239 Standard:

The Lane(s) Closed sign (see Figure <u>6H-1</u>) shall be used in advance of that point where one or more through lanes of a multi-lane roadway are closed.

For a single lane closure, the Lane Closed (W20-5) sign (see Figure <u>6H-1</u>) shall <u>use</u> the legend RIGHT (LEFT) LANE CLOSED. Where two <u>or more</u> adjacent lanes are closed, the W20-5a sign (see Figure <u>6H-1</u>) shall use the legend XX RIGHT (LEFT) LANES CLOSED. <u>[edit for clarity]</u>

Option:

The distance legend may be either XX FEET, XX MILES, or AHEAD. *Guidance:* 

The <u>Interior Lane Shift Ahead (W9-4) symbol-CENTER LANE CLOSED AHEAD (W9-3)</u> sign (see Figure 6H-1) should be used in advance of that point where work occupies the center an <u>interior</u> lane(s) and approaching motor vehicle traffic is directed to the right or left of the work zone in the <u>lane by using a shifting taper to route traffic around the closed interior lane-center lane.</u>
[revise per 17B-TTC-01]

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**Section 6H.08 Comments:** NCUTCD generally agrees with 6H.08 as presented in the NPA, but recommends revising the Guidance paragraph to add 'at which vehicles from alternate lanes' for clarity.

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Section 6H.08 Lane Ends Signs (W4-2, W9-2a)

Option:

The Lane Ends (W4-2) symbol sign (see Figure <u>6H-1</u>) may be used to warn drivers of the reduction in the number of lanes for moving motor vehicle traffic in the direction of travel on a multi-lane roadway.

Guidance:

The MERGE HERE TAKE TURNS (W9-2a) sign (see Figure 6H-1) should be used to identify the merge point at which vehicles from alternate lanes and to take turns merging during Late Merge applications (see Figure 6N-1). edit for clarity

#### **Section 6H.09 Comments:** NCUTCD agrees with 6H.09 as presented in the NPA.

# Section 6H.09 ON RAMP Plaque (W13-4P)

274 Guidance:

When work is being done on a ramp, but the ramp remains open, the ON RAMP (W13-4P) plaque (see Figure <u>6H-1</u>) should be used to supplement the advance ROAD WORK sign.

# **Section 6H.10 Comments:** NCUTCD agrees with 6H.10 as presented in the NPA.

## Section 6H.10 RAMP NARROWS Sign (W5-4)

Guidance:

The RAMP NARROWS (W5-4) sign (see Figure 6H-1) should be used in advance of the point where work on a ramp reduces the normal width of the ramp along a part or all of the ramp.

## **Section 6H.11 Comments:** NCUTCD agrees with 6H.11 as presented in the NPA.

# Section 6H.11 SLOW TRAFFIC AHEAD Sign (W23-1)

Option:

The SLOW TRAFFIC AHEAD (W23-1) sign (see Figure 6H-1) may be used on a shadow vehicle, usually mounted on the rear of the most upstream shadow vehicle, along with other appropriate signs for mobile operations to warn of slow moving work vehicles. A ROAD WORK (W20-1) sign may also be used with the SLOW TRAFFIC AHEAD sign.

# Section 6H.12 Comments: NCUTCD agrees with 6H.12 as presented in the NPA.

# Section 6H.12 EXIT OPEN and EXIT CLOSED Signs (E5-2, E5-2a)

Option:

An EXIT OPEN (E5-2) or EXIT CLOSED (E5-2a) sign (see Figure <u>6H-1</u>) may be used to supplement other warning signs where work is being conducted in the vicinity of an exit ramp and where the exit maneuver for vehicular traffic using the ramp is different from the normal condition.

# Section 6H.13 Comments: NCUTCD agrees with 6H.13 as presented in the NPA.

# Section 6H.13 EXIT ONLY Sign (E5-3)

310 Option: 311 An 3

An EXIT ONLY (E5-3) sign (see Figure 6H-1) may be used to supplement other warning signs where work is being conducted in the vicinity of an exit ramp and where the exit maneuver for vehicular traffic using the ramp is different from the normal condition.

#### **Section 6H.14 Comments:** NCUTCD agrees with 6H.14 as presented in the NPA.

# 319 Section 6H.14 NEW TRAFFIC PATTERN AHEAD Sign (W23-2)

320 Option:

A NEW TRAFFIC PATTERN AHEAD (W23-2) sign (see Figure 6H-1) may be used on the approach to an intersection or along a section of roadway to provide advance warning of a change in traffic patterns, such as revised lane usage, roadway geometry, or signal phasing. *Guidance:* 

To retain its effectiveness, the W23-2 sign should be displayed for up to 2 weeks, and then it should be covered or removed until it is needed again.

# **Section 6H.15 Comments:** NCUTCD agrees with 6H.15 as presented in the NPA.

# Section 6H.15 Flagger Signs (W20-7, W20-7a)

**Section 6H** 332 *Guidance:* 

The Flagger (W20-7) symbol sign (see Figure  $\underline{6H-1}$ ) should be used in advance of any point where a flagger is stationed to control road users.

Option:

A distance legend may be displayed on a supplemental plaque below the Flagger sign. The sign may be used with appropriate legends or in conjunction with other warning signs, such as the BE PREPARED TO STOP (W3-4) sign (see Figure 6H-1).

The FLAGGER (W20-7a) word message sign with distance legends may be substituted for the Flagger (W20-7) symbol sign.

# **Section 6H.16 Comments:** NCUTCD agrees with 6H.16 as presented in the NPA.

#### Section 6H.16 Two-Way Traffic Sign (W6-3)

**Section 6H** 346 *Guidance:* 

When one roadway of a normally divided highway is closed, with two-way vehicular traffic maintained on the other roadway, the Two-Way Traffic (W6-3) sign (see Figure 6H-1) should be used at the beginning of the two-way vehicular traffic section and at intervals to remind road users of opposing vehicular traffic.

**Section 6H.17 Comments:** NCUTCD recommends relocating this section to a new Section 6K.12. Although the NPA reclassified this device from a channelizing device to a warning sign and relocated this Section from 6F.76 in the 2009 MUTCD, NCUTCD does not agree with the relocation and reclassification of this device, as it is not a sign, but is a channelizer, as it is attached to a flexible support.

Section 6H.17 Opposing Lane Traffic Divider and Sign (W6-4)

**Standard:** 

	*	<del>V6-4) sign (see Figure 6H</del>	
	0 0 1	on a flexible support and	d sized at least 12 inches
wide by 18 inches l	<del>aigh.</del>		
<del>Support:</del>			
The Opposing L	<u>ane Traffic D</u> ivider <u>(W6</u>	4) sign is intended for mo	ounting only on a flexible
<del>support in a series a</del>	long the center lane to so	eparate opposing vehicular	traffic on a two-lane, two-
way operation.			
Standard:			
Opposing Lance	<u>Traffic D</u> ivider <u>signs s</u>	hall not be placed within	pedestrian crossings.
		es with 6H.18 as presented	l in the NPA, but
recommends revisin	ng the Section number to	6H.17.	
Section 6U 196U 1	7 Warkers Signs (W21	-1, W21-1a) [edit Section	numborl
	vvoi kers Signs (W21	-1, w/21-1a) [edit Section]	number
Option:	1 1) arreals at all are (as a El	oveno (II 1) mare la vera 14.	alant mand warms of
,	, <b>,</b>	gure <u>6H-1</u> ) may be used to	aleri road users of
workers in or near the	ne roadway.		
Guidance:	0.1		
•		a Workers symbol sign sh	ould be used when
workers are in the r	oadway.		
Option:			
The WORKERS	S (W21-1a) word messag	ge sign may be used as an a	alternate to the Workers
(W21-1) symbol sig	ŗn.		
Section 6H.19 Con	nments: NCUTCD agre	es with 6H.19 as presented	l in the NPA, but
recommends revisir	ng the Section number to	6H.18.	
Section <mark>6H.19</mark> 6H.1	8 FRESH OIL (TAR)	Sign (W21-2) [edit Section	n number]
Guidance:			
The FRESH OII	L (TAR) (W21-2) sign (se	e Figure <u>6H-1</u> ) should be	used to warn road users of
the surface treatmer	, , , , , , , , , , , , , , , , , , , ,	S <del></del> -	
<i>J</i>			
	NGUECE	11 (11 00	
		es with 6H.20 as presented	I in the NPA, but
	ng the Section number to		
	9 ROAD MACHINER	Y AHEAD Sign (W21-3)	[edit Section number]
Option:			
The ROAD MA	CHINERY AHEAD (W	21-3) sign (see Figure <u>6H-</u>	(1) may be used to warn of
machinery operating	g in or adjacent to the roa	adway.	
Section 6H.21 Con	nments: NCUTCD agre	es with 6H.21 as presented	l in the NPA, but
	ng the Section number to		

Section 6H.216H.20 Motorized Traffic Signs (W8-6, W11-10) [edit Section number]

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407 Option:

Motorized Traffic (W8-6, W11-10) signs may be used to alert road users to locations where unexpected travel on the roadway or entries into or departures from the roadway by construction vehicles might occur. The TRUCK CROSSING (W8-6) word message sign may be used as an alternate to the Truck Crossing (W11-10) symbol sign (see Figure 6H-1) where there is an established construction vehicle crossing of the roadway. Support:

These locations might be relatively confined or might occur randomly over a segment of roadway.

**Section 6H.22 Comments:** NCUTCD agrees with 6H.22 as presented in the NPA, but recommends revising the Section number to 6H.21.

Section 6H.226H.21 Shoulder Work Signs (W21-5, W21-5a, W21-5b) [edit Section number] Support:

Shoulder Work signs (see Figure 6H-1) warn of maintenance, reconstruction, or utility operations on the highway shoulder where the roadway is unobstructed.

Standard:

The Shoulder Work sign shall have the legend SHOULDER WORK (W21-5), RIGHT (LEFT) SHOULDER CLOSED (W21-5a), or RIGHT (LEFT) SHOULDER CLOSED XX FT or AHEAD (W21-5b).

Option:

The Shoulder Work sign may be used in advance of the point on a non-limited access highway where there is shoulder work. It may be used singly or in combination with a ROAD WORK NEXT XX MILES or ROAD WORK AHEAD sign. *Guidance:* 

On freeways and expressways, the RIGHT (LEFT) SHOULDER CLOSED XX FT or AHEAD (W21-5b) sign followed by RIGHT (LEFT) SHOULDER CLOSED (W21-5a) sign should be used in advance of the point where the shoulder work occurs and should be preceded by a ROAD WORK AHEAD sign.

**Section 6H.23 Comment:** NCUTCD agrees with 6H.23 as presented in the NPA, but recommends revising the Section number to 6H.22.

Section 6H.236H.22 SURVEY CREW Sign (W21-6) [edit Section number] *Guidance:* 

Guidance:
 The SURVEY CREW (W21-6) sign (see Figure 6H-1) should be used to warn of surveying
 crews working in or adjacent to the roadway.

**Section 6H.24 Comment:** NCUTCD agrees with 6H.24 as presented in the NPA, but recommends revising the Section number to 6H.23.

Section 6H.246H.23 UTILITY WORK Sign (W21-7) [edit Section number]

456 Option:

The UTILITY WORK (W21-7) sign (see Figure 6H-1) may be used as an alternate to the ROAD (STREET) WORK (W20-1) sign for utility operations on or adjacent to a highway. Support:

Typical examples of where the UTILITY WORK sign is used appear in Figures  $\underline{6P}$ -4,  $\underline{6P}$ -6,  $\underline{6P}$ -10,  $\underline{6P}$ -15,  $\underline{6P}$ -18,  $\underline{6P}$ -21,  $\underline{6P}$ -22,  $\underline{6P}$ -26, and  $\underline{6P}$ -33.

Option:

The distance legend may be either XX FEET, XX MILES, or AHEAD.

# **Section 6H.25 Comment:** NCUTCD generally agrees with NPA 6H.25 as presented in the NPA, but recommends revising as follows:

- Revise the Section number to 6H.24
- Delete 'a' from first Standard
- Revise sign code from RXX-X to R22-2

# Section 6H.256H.24 Signs for Blasting Areas [edit Section number]

Support:

Radio-Frequency (RF) energy can cause the premature firing of electric detonators (blasting caps) used in TTC zones.

**Standard:** 

Road users shall be warned where blasting operations occur. A sequence of signs shall be prominently displayed to <u>warn all road users of a blasting operations and to direct</u> operators of mobile radio equipment, including cellular telephones, to turn off transmitters in a blasting area. These signs shall be covered or removed when there are no explosives in the area or the area is otherwise secured. [delete 'a']

The BLASTING ZONE AHEAD (W22-1) sign (see Figure 6H-1) shall be used in advance of any TTC zone where explosives are being used. The TURN OFF 2-WAY RADIO AND CELL PHONE (<u>RXX-X22-2</u>) and END BLASTING ZONE (<u>W22-3</u>) signs shall be used in sequence with this sign.

The TURN OFF 2-WAY RADIO AND CELL PHONE (<u>R-XX-X22-2</u>)) sign (see Section 6G.11 and Figure 6G-1) shall follow the BLASTING ZONE AHEAD (W22-1) sign and shall be placed at least 1,000 feet before the beginning of the blasting zone. edit sign identification

The END BLASTING ZONE (W22-3) sign (see Figure <u>6H-1</u>) shall be placed a minimum of 1,000 feet past the blasting zone.

The END BLASTING ZONE sign may be placed either with or preceding the END ROAD WORK sign.

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	H.266H.25 Shoulder Signs and Plaque (W8-4, W8-9, W8-17, and W8-17P)
	on number]
Option:	OFT CHOLL DED (W/O 4) sign (see Figure (U.1) more he would be ween of a sef-
	OFT SHOULDER (W8-4) sign (see Figure 6H-1) may be used to warn of a soft
	condition. .OW SHOULDER (W8-9) sign (see Figure <u>6H-1</u> ) may be used to warn of a shou
	where there is an elevation difference of 3 inches or less between the shoulder as
travel lan	
Guidance	
	houlder Drop Off (W8-17) sign (see Figure <u>6H-1</u> ) should be used when an unpro
	drop-off, adjacent to the travel lane, exceeds 3 inches in depth for a continuous l
	roadway, based on engineering judgment.
Option:	rounnas, ousea on engineering juagment.
-	OULDER DROP-OFF (W8-17P) supplemental plaque (see Figure 6H-1) may be
	below the W8-17 sign.
Section 6	H.27 Comment: NCUTCD agrees with 6H.27 as presented in the NPA, but
	nds revising the Section number to 6H.26.
	nds revising the section number to orrive.
Section 6	H.276H.26 UNEVEN LANES Sign (W8-11) [edit Section number]
Guidance	
	NEVEN LANES (W8-11) sign (see Figure 6H-1) should be used during operation
	lifference in elevation between adjacent lanes that are open to travel.
	ngger ende in ever and in ever delir angueen in innes vinan and open ve is arrest
Section 6	H.28 Comment: NCUTCD agrees with 6H.28 as presented in the NPA, but
	nds revising the Section number to 6H.27.
	H.286H.27 STEEL PLATE AHEAD Sign (W8-24) [edit Section number]
Option:	EEL PLATE AHEAD (W8-24) sign (see Figure 6H-1) may be used to warn road
Option: A ST	· / č · · · · · · · · · · · · · · · · ·
Option: A ST that the p	EEL PLATE AHEAD (W8-24) sign (see Figure 6H-1) may be used to warn road resence of a temporary steel plate(s) might make the road surface uneven and mignery conditions during wet weather.
Option: A ST that the p	· / č · · · · ·
Option: A ST that the p	resence of a temporary steel plate(s) might make the road surface uneven and mig
Option: A ST that the p create sli	resence of a temporary steel plate(s) might make the road surface uneven and migopery conditions during wet weather.
Option: A ST that the p create slip	resence of a temporary steel plate(s) might make the road surface uneven and migopery conditions during wet weather.  6H.29 Comment: NCUTCD agrees with 6H.29 as presented in the NPA, but
Option: A ST that the p create slip	resence of a temporary steel plate(s) might make the road surface uneven and migopery conditions during wet weather.
Option: A ST that the p create slip  Section 6 recomme	resence of a temporary steel plate(s) might make the road surface uneven and migopery conditions during wet weather.  6H.29 Comment: NCUTCD agrees with 6H.29 as presented in the NPA, but nds revising the Section number to 6H.28.
Option: A ST that the p create slip  Section 6 recomme	resence of a temporary steel plate(s) might make the road surface uneven and migopery conditions during wet weather.  6H.29 Comment: NCUTCD agrees with 6H.29 as presented in the NPA, but nds revising the Section number to 6H.28.  6H.29 6H.28 NO CENTER LINE Sign (W8-12) [edit Section number]
Option: A ST that the p create slip  Section 6 recomme  Section 6 Guidance	resence of a temporary steel plate(s) might make the road surface uneven and mopery conditions during wet weather.  6H.29 Comment: NCUTCD agrees with 6H.29 as presented in the NPA, but nds revising the Section number to 6H.28.  6H.29 6H.28 NO CENTER LINE Sign (W8-12) [edit Section number]

TTC zone and repeated at 2-mile intervals in long TTC zones.

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obliterates the center line pavement markings. This sign should be placed at the beginning of the

Support:

Section 6J.02 contains information regarding temporary markings.

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Section 6H.30 Comment: NCUTCD agrees with 6H.30 as presented in the NPA, but recommends revising the Section number to 6H.29.

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> Section 6H.306H.29 Reverse Curve Signs (W1-4 Series) [edit Section number] Guidance:

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In order to give road users advance notice of a lane shift, a Reverse Curve (W1-4, W1-4b, or W1-4c) sign (see Figure 6H-1) should be used when a lane (or lanes) is being shifted to the left or right. If the design speed of the curves is 30 mph or less, a Reverse Turn (W1-3) sign should be used.

Standard:

If a Reverse Curve (or Turn) sign is used, the direction of the reverse curve (or turn) shall be appropriately illustrated. Except as provided in Paragraph 3, the number of lanes illustrated on the sign shall be the same as the number of through lanes available to road users.

Option:

Where two or more lanes are being shifted, a W1-4 (or W1-3) sign with an ALL LANES (W24-1cP) plaque (see Figure 6H-1) may be used instead of a sign that illustrates the number of lanes.

Where more than three lanes are being shifted, the Reverse Curve (or Turn) sign may be rectangular.

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Section 6H.31 Comment: NCUTCD agrees with 6H.31 as presented in the NPA, but recommends revising the Section number to 6H.30.

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588 589 Section 6H.316H.30 Double Reverse Curve Signs (W24-1 Series) [edit Section number] Option:

The Double Reverse Curve (W24-1, W24-1a, or W24-1b) sign (see Figure 6H-1) may be used where the tangent distance between two reverse curves is less than 600 feet, thus making it difficult for a second Reverse Curve (W1-4 series) sign to be placed between the curves. If the design speed of the curves is 30 mph or less, Double Reverse Turn signs should be used. **Standard:** 

580 If a Double Reverse Curve (or Turn) sign is used, the direction of the double reverse 581 curve (or turn) shall be appropriately illustrated. Except as provided in Paragraph 3, the 582 number of lanes illustrated on the sign shall be the same as the number of through lanes available to road users. 583

Option:

Where two or more lanes are being shifted, a W24-1 (or Double Reverse Turn sign showing one lane) sign with an ALL LANES (W24-1cP) plaque (see Figure 6H-1) may be used instead of a sign that illustrates the number of lanes.

Where more than three lanes are being shifted, the Double Reverse Curve (or Turn) sign may be rectangular.

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Section 6H.32 Comment: NCUTCD agrees with 6H.32 as presented in the NPA, but recommends revising the Section number to 6H.31.

Section 6H.326H.31 Advisory Speed Plaque (W13-1P) [edit Section number]

In combination with a warning sign, an Advisory Speed (W13-1P) plaque (see Figure 6H-1) may be used to indicate a recommended speed through the TTC zone.

#### Standard:

The Advisory Speed plaque shall not be used in conjunction with any sign other than a warning sign, nor shall it be used alone. When used with orange TTC zone signs, this plaque shall have a black legend and border on an orange background. The plaque shall be at least 24 x 24 inches in size when used with a sign that is 36 x 36 inches or larger. Except in emergencies, an Advisory Speed plaque shall not be mounted until the recommended speed is determined by the highway agency. Support:

Warning signs with advisory speed plaques inform drivers of the recommended operating speed based on temporary conditions within a TTC zone (see Section 2C.58). Examples include narrow lanes, temporary diversion (reverse curves), lane shifts, sight distance restrictions, rough road surface, bumps, low/no shoulder, workers on foot, work vehicles or equipment close to the open travel lane, or other conditions that indicate the need for reduced speed.

AASHTO and ITE design documents contain established engineering practices for the determination of the recommended advisory speeds for horizontal curves or locations with limited sight distance.

Section 6H.33 Comment: NCUTCD generally agrees with NPA 6H.33 as presented in the NPA, but recommends revising as follows:

- Revise the Section number to 6H.32
- Add references to the NEXT XX FEET W16-4P plaque, since in urban areas it is reasonable to use a 'feet' designation, and is consistent with Section 2C.61

Section 6H.336H.32 Supplementary Distance Plaque (W7-3aP, W16-4P) [edit Section number and add sign identification

Option:

In combination with a warning sign, a Supplementary Distance (W7-3aP or W16-4P) plaque (see Figure 6H-1) with the legend NEXT XX MILES or NEXT XX FEET may be used to indicate the length of highway over which a work activity is being conducted, or over which a condition exists in the TTC zone. [add optional 'FEET' sign]

In long TTC zones, Supplementary Distance plaques with the legend NEXT XX MILES or NEXT XX FEET may be placed in combination with warning signs at regular intervals within the zone to indicate the remaining length of highway over which the TTC work activity or condition exists. [add optional 'FEET sign]

Standard:

The Supplementary Distance plaque with the legend NEXT XX MILES or NEXT XX FEET shall not be used in conjunction with any sign other than a warning sign, nor shall it be used alone. When used with orange TTC zone signs, this plaque shall have a black legend and border on an orange background. The plaque shall be at least 30 x 24 inches in size when used with a sign that is 36 x 36 inches or larger. [add optional 'FEET' sign] Guidance:

When used in TTC zones, the Supplementary Distance plaque with the legend NEXT XX MILES or NEXT XX FEET should be placed below the initial warning sign designating that, within the approaching zone, a temporary work activity or condition exists. [add optional 'FEET' sign]

**Section 6H.34 Comment:** NCUTCD agrees with 6H.34 as presented in the NPA, but recommends revising the Section number to 6H.33.

Section 6H.346H.33 Motorcycle Plaque (W8-15P) [edit Section number] Option:

A Motorcycle (W8-15P) plaque (see Figure 6H-1) may be mounted below a LOOSE GRAVEL (W8-7) sign, a GROOVED PAVEMENT (W8-15) sign, a METAL BRIDGE DECK (W8-16) sign, or a STEEL PLATE AHEAD (W8-24) sign if the warning is intended to be directed primarily to motorcyclists.

**Section 6H.35 Comment:** NCUTCD agrees with 6H.35 as presented in the NPA, but recommends revising the Section number to 6H.34.

Section 6H.356H.34 ROAD WORK NEXT XX MILES Sign (G20-1) [edit Section number] *Guidance:* 

The ROAD WORK NEXT XX MILES (G20-1) sign (see Figure <u>6H-1</u>) should be installed in advance of TTC zones that are more than 2 miles in length.

Option:

The ROAD WORK NEXT XX MILES sign may be mounted on a Type 3 Barricade. The sign may also be used for TTC zones of shorter length.

**Standard: The dis** 

The distance displayed on the ROAD WORK NEXT XX MILES sign shall be stated to the nearest whole mile.

**Section 6H.36 Comment:** NCUTCD generally agrees with NPA 6H.36 as presented in the NPA, but recommends revising as follows:

- Revise the Section number to 6H.35
- Edit the Option for clarity
- Add Support material describing when an END ROAD WORK sign is not appropriate in accordance with NCUTCD recommendation 16B-TTC-04

Section 6H.366H.35 END ROAD WORK Sign (G20-2) [edit Section number]

681 Guidance:

When used, the END ROAD WORK (G20-2) sign (see Figure 6H-1) should be placed near the downstream end of the termination area, as determined by engineering judgment. Option:

The END ROAD WORK sign may be installed on the back of a warning sign facing the opposite direction of road users or on the back of a Type 3 Barricade.

The END ROAD WORK sign may be omitted if the end of the work zone is apparent to motorists or falls within a larger project's limits. The END ROAD WORK sign may be used for For normal daytime maintenance operations, the END ROAD WORK sign is optional. [edit for clarity]

Support:

Conditions could be such that posting of an END ROAD WORK sign is not appropriate. For example, it can be omitted if another TTC zone begins within 1 mile of the end of the workspace in rural areas, or about 0.25 miles within urban areas. revise per 16B-TTC-04

**Section 6H.37 Comment:** NCUTCD agrees with 6H.37 as presented in the NPA, but recommends revising the Section number to 6H.36.

Section 6H.376H.36 PILOT CAR FOLLOW ME Sign (G20-4) [edit Section number] Standard:

The PILOT CAR FOLLOW ME (G20-4) sign (see Figure 6H-1) shall be mounted in a conspicuous position on the top or on the rear of a vehicle used for guiding one-way vehicular traffic through or around a TTC zone (see Section 6E.04).

**Section 6H.38 Comments:** NCUTCD generally agrees with NPA 6H.38 as presented in the NPA, but recommends revising as follows:

- Edit the Section number to 6H.37
- Edit the title of the SHS to "Standard Highway Signs" publication
- Edit Guidance for consistency with other portions of this Chapter

Section 6H.386H.37 Other Warning Signs [edit Section number] Option:

Advance warning signs may be used by themselves or with other advance warning signs. Besides the warning signs specifically related to TTC zones, several other warning signs in Part 2 may apply in TTC zones.

Word message warning signs other than those classified and specified in this Manual and the "Standard Highways Signs and Markings" book publication (see Section 1A.05) may be developed and used based on engineering judgment to warn of special conditions in TTC zones.

**Standard:** 

Except as provided in Sections 6F.<u>01 and 6H.01</u>, other warning signs that are used in TTC zones shall have black legends and borders on an orange background.

725 Guidance:

<u>Special</u> Word message warning s	signs should comp	oly with the gener	al requirements of	color,
shape, and alphabet size and series.	The sign messag	e should be brief,	legible, and clear.	[edit
for consistency]				

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